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Community Capitals and Community Resilience in Rural Oromia, Ethiopia: The Case of East Hararghe

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Abstract: Community resilience, i.e., the ability of a community to utilize available resources to respond to, withstand, and recover from adverse situations, highly depends on the condition of community capitals. This paper examines the state of community capitals, considering the case of the rural community in East Hararghe. Data were gathered through in-depth interviews, key informant interviews, focus group discussions, and observations. The findings show that the stocks of the various capitals of the community are too low to contribute to moderate resilience. The negative interplay of the capitals of the community has led to a spiralling-down effect on each capital and exposed the community to severe vulnerability in the face of frequent shocks and disturbances. To reverse this condition and improve the resilience of the community, the results indicate the importance of first dealing with the long-established experiences of the community which are locking up community capitals and hence blocking community resilience; before attempting any other intervention. "Training for Transformation" is, therefore, suggested to be given to the community to enable it to reflect critically on its current situation and the cognitive and cultural impediments to change. This is expected to assist the community to integrate outside interventions productively and to increase its capabilities in using its own resources in its local environment.

Keywords: Community Capitals; Farmers; Resilience; Rural; Smallholders; Vulnerability

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1. Introduction

This study is about the relationship between community capitals and community resilience in Rural Oromia, Ethiopia, considering the case of the rural community in East Hararghe. Ethiopia is located in the Horn of Africa and is the second-most populous country in Sub-Saharan Africa with a population of 97 million (World Bank, 2014). Its economy is highly dependent on agriculture, which accounts for 46.6% of its gross domestic product (GDP) and 90% of exports. However, smallholder crop yields are below regional averages, market linkages are weak and the use of improved seeds, fertilizers and pesticides remains limited. Only 6% of cultivated land was under irrigation in 2014 (Feed the Future, 2014).

Around 83% of the Ethiopian population lives in rural areas and agriculture makes up 85% of employment (Oxfam Canada, 2012). However, as farmers do not produce enough food to meet consumption requirements, the country is with the highest dependency on food aid and around 30% of the farmers live in extreme poverty (World Bank, 2014).

Smallholder farmers form the largest group of poor people in Ethiopia. More than half of these smallholder farmers cultivate plots of up to one hectare and struggle to produce food to sustain their households. A large number of poor households face a prolonged hunger season during the pre-harvest period (IFAD, 2015).

East Hararghe, the site of this study, is characterized by heavy population density, erratic rainfall, and high vulnerability to food insecurity (UNDP-EUE, 1999; Tesfaye and Seifu, 2016). It was selected for this study as it is among the parts of the country seriously affected by food insecurity.

In this work, community capitals are assessed in relation to the study community's vulnerability in the face of adverse situations particularly drastic food shortage and poverty. The empirical study was undertaken to assess the community capitals as the state of community capitals definitely influence a community's vulnerability or resilience status. Thus, the vulnerability or weak resilience of the community under study is analysed indirectly employing the community capitals framework. Consequently, the work suggests how to start improving the community capitals and through it community resilience in the face of chronic food insecurity and abject poverty.

The notions of resilience and vulnerability provide an important conceptual framework to understand how communities react and adapt to environmental and societal changes in space and time (Adger, 2006). Resilience has been generally defined as ''the capacity of a system to absorb disturbance and reorganize while undergoing change to still retain essentially the same function, structure, identity, and feedbacks'' (Forbes *et al*., 2009, p. 22041).

During the late 1960s and early 1970s, ecosystems resilience attracted the attention of scholars (Folke, 2006), whereas in the next two decades, resilience research began to consider whether ecological resilience could also be applied to human systems within the frame of social-ecological resilience (Wilson, 2012b).

Recently a new approach to resilience that focuses on the resilience of human systems and communities, referred to as social resilience, emerged (Brand and Jax,

2007; Davidson, 2010). Social resilience is defined ‘‘as the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change’’ (Adger, 2000, p. 347). Research on social resilience is often deemed to follow a ‘bottom-up’ approach to discover human drivers and indicators of resilience at community level where human–environment interactions are not the only but form one of the many components. It is more concerned with the effects of ‘anthropogenic’ (human induced) processes on community resilience (Wilson, 2012b).

Social resilience is not only a process to recover after disturbances but also about pre-emptive change to prevent disturbances. Here, resilience is seen both as an outcome when considered in relation to improved adaptive capacity and as a process when evaluated in terms of the dynamic changes over time due to learning and willingness to take responsibility and control development pathways (Chaskin, 2008). While the ecological resilience is more about the ability of systems to return to function after a disturbance, social resilience is about how disturbances create an opportunity for change and development (Hopkins, 2010).

A community is said to have a positive quality when, as a human system, it has the ability to absorb impacts/disturbance and to re-organize into a fully functioning (but qualitatively different) system whereas a community is said to have a negative quality when, as a human system, it is unable to cope with disturbances and hence badly vulnerable to shocks (Adger, 2000).

The notions of resilience and vulnerability need to be safeguarded from ‘unilinear’ assumptions and should be expressed as a spectrum (Magis, 2010; Wilson, 2012a) where the extreme ends, good resilience and bad vulnerability, can be easily conceptualized (Oudenhoven *et al*., 2010) while the conditions between the two extremes are subject to normative judgment measured in terms of human survival (Van Rheenen and Mengistu, 2009).

Figure 1: Resilience and vulnerability as opposite ends of a spectrum
Source: Wilson (2012a, p. 20).

This study follows the social resilience approach to assess how the manifestations of community capitals affect community resilience, employing the community capitals framework (Flora *et al.*, 2004, see figure 2 below). Communities that are successful in having better social wellbeing, healthy ecosystem, and vital economy are those that pay due attention to seven types of capital: natural, financial, built, cultural, human, social, and political. Beyond identifying the capitals and their role in community economic development, this approach focuses on the interaction among these seven capitals and how they build upon one another to lead to either community vulnerability or resilience.

According to Flora and Thiboumery (2005, p. 239), all communities have resources which can be "consumed, hoarded, or invested". When resources are invested to create new resources over the long term, they are referred to as capital. Communities are poor when their stocks of various capitals are low. Obviously, these communities are also weakly resilient.

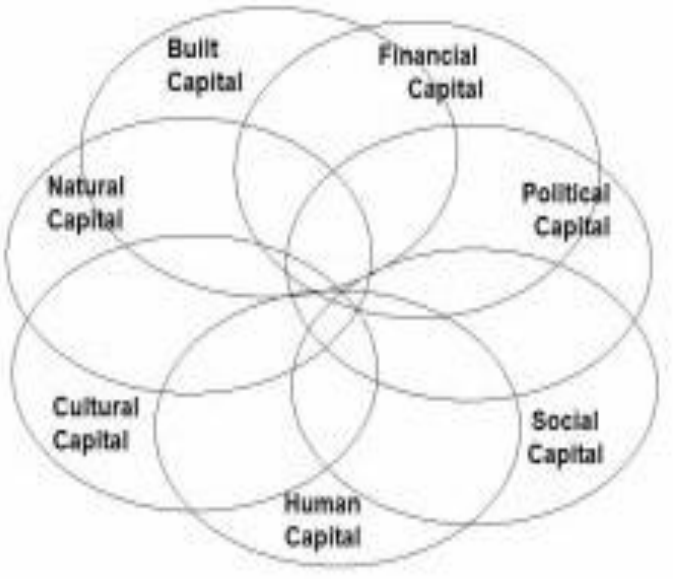

Figure 2: Community capitals framework
Source: Flora *et al*. (2004); Flora and Thiboumery (2005)

Vibrant and viable communities exhibit an upward spiral of strong capitals interacting with each other, as they have balanced investments in all capitals. This creates public goods which increase individuals' well-being and quality of life (Flora and Thiboumery, 2005; Emery and Flora, 2006).

To bring about community wellbeing, all community capitals should be considered holistically, as favouring any single capital can lead to the degradation of other capitals and negatively affect the general wellbeing of a community (Flora and Thiboumery, 2005).

As can be seen from figure 2 above, community capitals overlap and every capital has its own associated risks that can be alleviated by other capitals (Flora and Thiboumery, 2005).

As Emery and Flora (2006, pp. 20-23) indicated, the Community Capitals Framework (CCF) helps to analyse community and its economic development processes from a system's perspective by considering "the assets in each capital (stock), the types of capital invested (flow), the interaction among the capitals, and the resulting impacts across capitals." They used the concepts "spiralling-down" and "spiralling-up" to describe situations where a community declined and fared in all capitals respectively. "Spiralling-up" represents a process by which assets gained in

one capital propel assets increase in other capitals and hence reverses declines in assets throughout all capitals.

As the aim of this work is neither to examine the interrelationship among community capitals nor to identify the best entry point to "spiralling-up", the community capitals framework is used here to evaluate the status of community capitals in the study area in relation to the community's long-established experiences and weak adaptation to change, and to suggest a way forward to alleviate the problem in order to improve community capitals and hence community resilience.

The work entertains the view that rural communities in Ethiopia and other developing countries are not at ease with any change due to the unproductive long-established experiences and that such communities need to be disengaged from such experiences before any interventions are made to treat the community capitals for better resilience.

2. Research Methods

2.1. Description of the Study Area

The study area, East Hararghe, is located in the eastern part of Oromia National Regional State, Ethiopia. Its altitude ranges from 500 to 3,400 metres above sea level. It contains three agro-ecological zones, highlands (elevations above 2,300m), midlands (elevations between 1,500 and 2,300m), and lowlands (elevations below 1,500m). The lowlands occupy the largest area (62.2%), followed by midlands (26.4%) and highlands (11.4%) (Tolossa and Tafesse, 2008).

East Hararghe has 18 districts with a total population of 2,723,850, of whom 1,383,198 are men and 1,340,652 women. With an area of 17,935.40 square kilometres, East Hararghe has a population density of 151.87 per square kilometre. While the majority of the population, about 90%, depends on agriculture in the rural areas, 8.27% are urban inhabitants, and a further 1.11% are pastoralists (CSA, 2007).

2.2. Research Design

The logical structure of inquiry used in this research was explanatory case study. Within this research design, the community capitals of the community understudy was assessed in relation to the community's state of resilience in the face of difficulties, mainly socio-economic ones, using a qualitative research method.

2.3. Data Sources

Data were collected from both primary and secondary sources. Primary data were obtained through in-depth interviews, focus group discussions (FGDs), key informant interviews, and non-participatory observations. Secondary data were obtained through exhaustive review of relevant written sources. Above all, however, the research benefitted from the fieldworks that were undertaken in the study area where respondents actively participated in the interviews and FGD sessions by unreservedly sharing their life experiences as well as knowledge.

2.4. Sampling Techniques

Both in-depth interviews and FGDs were conducted in six rural peasant associations *(gandas)* of East Hararghe. These *gandas* are situated in the districts of Kersa, Fedis, and Babile. In each *ganda,* ten in-depth interviews and two FGDs were conducted. In addition, in each district, key informant interviews were undertaken with five experts working in government offices.

The three districts were purposively selected from different parts of East Hararghe in order to guarantee diversity in terms of agro-ecological setting, geographical location, food security condition, and farming system. The six *gandas*, two from each district, were randomly selected. In each of them, two FGDs, one with the community elders and one with other villagers were conducted. The number of participants in each FGD varied from six to ten. For in-depth interviews, interviewees were selected through snowball sampling technique. Respondents to key informant interviews were selected purposively from relevant government offices in the study area.

2.5. Data Analysis

FGD and interviews were recorded and transcribed verbatim and were analysed thematically after coding where similar and dissimilar concepts/variables were sorted out. Narrative and discourse analyses were used to gain deeper insights on community capitals

3. Results and Discussion

Based on the themes that emerged from the analysis of the collected data, the state of the community capitals of the community under study vis-à-vis its resilience and vulnerability is presented in the following sections.

3.1. The State of the Community's Capitals

The empirical results revealed that the state of the community capitals of the rural community under study is highly correlated with the community's resilience and vulnerability status.

3.1.1. Natural capital

Natural capital includes the environment – water, soil, altitude, latitude, climate, slope and other geographical configurations of a given community (Flora and Thiboumery, 2005).

The great majority of the community members covered in this study are smallholder farmers with limited land resources for both crop and livestock production. The increasing population limits further the availability of land and contributes to an increasing overutilization of natural resources and a degradation of the natural environment. Both in-depth interview respondents and focus group discussants unanimously rated the absence of perennial rivers and the erratic nature of rains as the most serious problems of the community in the study area. Besides, they stated that the ground water level is very deep and difficult to access. They also

vividly indicated that there has been a gradual loss of soil fertility over years due to intensive and continuous farming activities. As one of the key informants wisely stated, "The traditional shifting cultivation and fallow systems could not be continued as fast population growth has led to land fragmentation and scarcity. The rugged and undulating topography of the area further contributes to the lack of sufficient cultivable land, severe land degradation, exposure to erosion, and formation of gullies".

Though some in-depth interview respondents from Babile district exclusively raised the problem of wild animals in destroying their crops at field due to the presence of a protected area for animals in the district, almost all other in-depth interview respondents indicated that many wild animals are becoming extinct and many species are no more present. They attributed this gradual extinction of wild animals to deforestation and the steady expansion of farming. One old and knowledgeable informant, for instance, stated that "in the old days, there were many bird and animal species around. We destroyed their homes and their foods and today we do not see many of these species around."

Almost all in-depth interview respondents and focus group discussants were concerned about erratic rains and recurrent droughts that characterize their region. They argued that though they may take the blame for deforestation and failure to protect the environment, the occurrence of erratic rain and droughts cannot be their fault. According to them, erratic rain and dry land environment are just the natural conditions of the region.

However, as key informants indicated, though the community has had considerable experience in the traditional ways of protecting cultivated lands from erosion using terracing techniques, there has never been a comprehensive effort to conserve the environment, to recover the flora and fauna and to restore lost resources such as perennial rivers and ground water levels. Maybe it is this observation that has recently pushed the government in a nationwide effort to organize the community to conserve some barren and degraded hills and plateaus through terracing and planting of trees.

In short, the stock of the natural capital of the community of this study area is found to be very low and not on a level to make the community resilient to environmental hazards such as drought and to sustain a sufficient livelihood.

3.1.2. Financial capital

Financial capital refers to the available financial resources of a community that the community can invest in its capacity building, in financing the development of businesses, in supporting civic and social entrepreneurship, and in accumulating wealth for future community development (Lorenz, 1999; Emery and Flora, 2006).

The overall picture of the study area, however, is that there is no significant financial capital to invest in any of the aforementioned investment areas. As one of the key informants asserted, "the government allocates a lump sum budget for community issues every year, but this budget is insufficient, given the daunting problems of the community and the poor management of the money".

Within the community, financial resources are found to be scarce and rarely used for investment. In-depth interview respondents and focus group discussion participants unanimously indicated that the community is practicing subsistence economy which leaves no room for capital accumulation. As one of the in-depth interview respondents clearly put it, "the usual prayer of the community is give us today our daily bread." It is, therefore, not difficult to imagine that in the community's precarious economic situation where the chance for pre-emptive action to avoid risk is almost absent, life is more a matter of chance than planned efforts.

According to in-depth interview respondents and focus group discussants, there are very few cases of credit services in the rural villages of the study area. In addition, credit services administrated by the government are not well organized and their coverage is negligible. This fact was also supported by key informants in the area of credit services. All respondents in fact appreciated the importance of a productive safety net program by the government, which has helped many farmers to get initial financial inputs in the form of credits and others. Due to this program, some managed to start and benefit from small entrepreneurship such as fattening animals for sale. However, accessing credits is not simple as it is scarce and designed only for the very poor.

As focus group discussants confirmed, on an individual level, some farmers, particularly those in khat (a mild stimulant plant whose leaves are chewed) producing areas, have relatively more money. However, these economically better off farmers rarely calculate in terms of investment to expand their economic engagements. They prefer mainly to keep their money at home and less often in banks and rarely use it for investment in any economic area that benefits the community.

Nonetheless, according to in-depth interview respondents, there has been a practice in the area whereby the relatively better families lend money and other resources to their relatives and neighbours particularly during times of economic hardships. However, many of the in-depth interview respondents argued that this practice is not a common means of survival for the community during periods of disasters.

It is the common view of all focus group discussion participants and in-depth interview respondents that for the great majority of the community members, it is difficult to rear large number of livestock even during normal weather conditions, due to the scarcity of land resources already mentioned. However, according to all respondents, the community under study rely on selling livestock to cope with food shortages during droughts and other disasters and rarely engage in other coping strategies. Goats and other small ruminants are said to have been sold mostly during drought years to access cash and/or grain, but in severe conditions, the large ruminants can also be sold. As small holders do not have a considerable surplus of livestock due to lack of grazing areas, they may sell out all their livestock during extended droughts. Also, both crop production and raising livestock have never gone beyond subsistence level for the majority of the farmers even during relatively good weather conditions.

On the other hand, according to key informants, for those who have agricultural products to sell, lack of adequate market access is a serious problem. As they stated,

a considerable number of small farmers of the area, who are known for fattening cattle for sale, are highly exploited by merchants who buy from them to sell in other places, mostly in the urban centres. The same is true for producers of khat, who again do not have a direct access to markets. Khat is transported by merchants to the different parts of the country and the neighbouring countries such as Djibouti and Somaliland where they get a lot of profit. Prices are mostly influenced by these merchants who benefit at the expense of the local producers.

An individual coping strategy for some poor farmers is to migrate to the nearby towns and cities during times of economic anomalies to sell their labour and get money. According to the results of in-depth interviews and focus group discussions, two different patterns of migration have been taking place in the area under study. In the first one, male family heads migrate to the nearby urban centres for daily employment to earn income and subsidize their families. This type of migration is relatively common for the rural families to alleviate their food problems during normal as well as moderate drought years. The second type of migration is that some families abandon their homes and move to the urban centres due to their complete economic failure to survive in their rural villages. This type of migration happens particularly during extreme economic crises due to serious drought or other calamities. While the first type of migration is undertaken to access resources outside the rural setting to cope with rural problems, the latter one is undertaken to abandon the rural life, failing to cope with the problems there.

Selling firewood is another common practice to augment income. According to in-depth interview respondents, selling firewood is practiced during normal as well as bad harvest years though its intensity increases with food shortage crises. During normal years, it is an economic option left to the very poor while during widespread food crises, all household categories engage in it. According to key informants from public sector offices in the study area, the increasing number of firewood sellers over years indicates that food shortages have been occurring more often since recent years. Certainly, this practice contributes to the decrease in natural capital as it affects the natural environment.

In-depth interview respondents also indicated that petty trading is practiced during normal and problem years though its intensity increases with the intensity of economic problems. However, as these respondents further indicated, only a very small fraction of the total population engages in petty trading activities and it may not be considered as the basic means of income and coping strategy in the area.

As all respondents reported, khat and groundnut are the main cash crops traded in local markets and in the urban centres, though these items are not found equally distributed in the study area. Apart from these, respondents also indicated that fruits, sugarcane, onion, potato, tomato, and small ruminants are items of trade. However, it was the view of key informants and focus group discussion participants that the very poor rarely engage in petty trading activities during normal as well as drought years due to lack of initial capital. Petty trading or small business is largely performed by women, as they do not engage in the search for employment elsewhere unlike men.

As key informants and focus group discussion participants further indicated, there are few tourist attractions in the study area such as the elephant sanctuary in Babile district and Laga Oda ancient cave paintings near Dire Dawa city. However, according to key informants from relevant public offices in the area, the income from tourism is very small and its economic value is insignificant in the development of the community of the study area.

In short, the community is in a serious dearth of financial capital to bring about any reasonable economic development and become at least moderately resilient.

3.1.3. Built capital

Built capital is human-constructed physical infrastructure used as a tool for production of other capitals. It includes roads, water systems, schools, health institutions, etc. Built capital enhances other community capitals by linking local people, institutions and businesses to the outside (Flora and Thiboumery, 2005; Flora *et al*., 2004).

The rural areas of the study area lack basic infrastructure. A minute fraction of rural inhabitants has access to electricity and potable water. All in-depth interview respondents and focus group discussants mentioned lack of elementary as well as high schools as one of their serious problems. They also indicated that almost all the existing schools, particularly high schools, are located in towns or in rural areas that are close to main roads and far away from remote areas, which creates serious inconveniences for the majority of the rural families to keep their children in schools.

As it is well known, the only main asphalted road passes through the study area to connect eastern Ethiopia with the interior and the capital. Apart from this, there are only very few poor gravel roads in the area and almost all the districts are not only interconnected by roads but also lack roads within their respective territory. Probably due to land shortage, farmers also encroach on roads to increase the size of their farmlands that has made almost all the few available rural roads of the area very narrow to accommodate even human traffic let alone vehicles.

As all respondents of the study clearly reported, only rural households close to all weather roads have access to transportation services, but the majority is living in remote areas and has to travel long distances on foot and to use pack animals to bring farm products to markets, which has negative consequences on their economic performance and progress. As one in-depth interview respondent rightly argued, “when people think of Hararghe what comes to their mind is probably that it is a better part of the country. This thinking is influenced maybe by the existence of the two relatively modern cities, Dire Dawa and Harar, in the region. Nonetheless, Hararghe in general and its rural areas in particular is among the backward and poverty stricken parts of the country”.

A further element limiting the increase of agricultural production, according to key informants, is that the rural extension services are very weak and their coverage is limited. Again, as key informants indicated, the beneficiaries of extension services are villages or households that are accessible and not remotely located. The chance of

the majority of rural households that are far away from one of the existing few roads to get access to extension services has been very limited.

As key informants further reported, the government provides chemical fertilizers for sale but farmers are reluctant to use them as they do not afford to buy them and as they mistrust new technologies and practices.

As almost all respondents of the study indicated, the community is also in a serious lack of health institutions. Hospitals are very few in number and health centres are also scant. The existing hospitals are again located in the urban centres that are very far from the majority of the rural population. The limited access to health services is said to be the major reason for high infant and maternal mortalities and for early and premature deaths. In-depth interview respondents also indicated that access to health services is not only restricted by remoteness but also by the unaffordable costs of treatment and medicine.

A considerable number of in-depth interview respondents also vividly reported that the zone has little or no veterinary establishments to get veterinary services and as a result, livestock is prone to various livestock diseases which affect the economic position of farmers.

All the aforementioned conditions of the study area indicate that infrastructure and services are at their lowest ebb and the community is in critical dearth of these services and facilities to be at least fairly resilient to shocks or calamities.

3.1.4. Cultural capital

Cultural capital is created over generations and includes the way a certain community or group sees the world, acts in it, defines a problem, and values life (Flora and Thiboumery, 2005). It influences the way people understand themselves and the way they interpret circumstances. It also determines how creativity, innovation, and influence emerge and are nurtured (Emery and Flora, 2006). It is a human construction that in part arises from responses to natural capital (Netting, 1968).

Religion is understood in the context of Ethiopia as the basis for cultural capital of the rural community. Christianity, Islam, and different varieties of indigenous beliefs are practiced in the country. The great majority of the population of the study area follows Islam. Religion is decisive for the philosophical, psychological, and moral standpoints of the people of the country including those of this study area. According to Imana (2011), the local interpretations of the three aforementioned religions do not provide constructive outlooks about the world in general and about work ethic in particular.

Consequently, the community of the study area conditions its members to be passive about the future. Each day is entertained as it comes with little or no interest about what is to come next. This frustrates the enthusiasm for work and the way to handle work itself. In other words, the outlook of the community, limiting its people's anxiety about the future, aborts the culture of rigor and relentless hard work to conquer the future. The dynamic quest for producing institutions which are geared towards change and the minimization of risk is absent. Rather than thinking in terms

of changing their fates by sheer hard work, individuals are governed by a religious fatalistic ethos and attribute everything to either the domain of nature or its creator.

In line with this, during focus group discussions, participants argued on the question why the countries of the world have different success stories, and while some pointed out that even fingers are not equal and for that God has his own reasons, others asserted that it is natural for opposites to be together; where there is the rich there must be also the poor. Still others argued that it is a matter of fate or destiny and no one can question it. There were also others who argued that their country has never got good leaders or governments and consequently the country has remained in abject poverty.

Focus group discussants equivocally asserted that their future is in the hands of God and the government. They claimed that it is the responsibility of the government to bring development, to solve their social and economic problems once and for all and until then to support them by drawing food aid to their localities during periods of food shortage. They also added that above all what they need is to pray to God to give them rain and spare them from livestock and plant diseases. Although they claimed not to appreciate their life situation, they saw no other option than to live in the countryside as farmers just because they have to do it to survive. Regarding the community's efforts to improve its situation, focus group discussion participants pointed out that the community can do nothing beyond the existing practices given the fragile and complicated ecosystems.

Creativity and innovation seem to be almost lacking in the community. The material and non-material culture of the community are those that have been there since time immemorial. The community's culture seems to be more or less static and it seems that there is no frugality to bring dynamic changes and to adapt to changes ingeniously.

The traditional gendered division of labour leaves during the dry season men almost idle while women are overloaded with different routine activities almost throughout the year, even though for them as well agricultural activities are seasonal. During the rainy season, farmers engage in usual agricultural activities such as preparing the land, sowing, weeding, and harvesting but due to small land size, even then men are not occupied fully. However, men do not share women's activities at home though women engage in many agricultural activities with their men counterparts.

Focus group discussion participants stated almost uniformly that men do not engage in women's work because women are women and they are created for it and it is their share. There is no doubt that this outlook towards labour and women, which is embedded in the community's religious and philosophical views, negatively influences the social and economic progress of the community.

All the preceding points suggest that the stock of the cultural capital of the community under study is very low for the community to be at least moderately resilient.

3.1.5. Human capital

Human capital refers to the skills and abilities of people to tap internal and external resources and bodies of knowledge in order to increase understanding and identify promising practices to boost community development (Flora *et al*., 2004; Emery and Flora, 2006). Human capital can also be seen as the native intelligence, skills, abilities, education, self-esteem and health of individuals within a community (Flora and Thiboumery, 2005). Hence, human capital maybe measured through assessment of indigenous knowledge, educational status, access to health, and demographic characteristics of a community.

It was observed during the fieldwork for this study that educational facilities are not only scarce but also unevenly distributed in the study area. According to in-depth interview respondents, education is at its lowest ebb and many farmers, particularly the relatively aged ones, are illiterate. Those who are literate also could not go beyond reading and writing with difficulties and their education is simple alphanumeric, which could not equip them for better economic engagements. The young generation is relatively better as many of them were in a position to attend education up to elementary and some even to high school level. However, schools simply provide only general education with little or no basic technical skills and knowledge that can be applied to agriculture. During one of the focus group discussions, one participant strongly asserted that the relatively educated young people in his village are not better than him, who is uneducated, as far as agricultural practices are concerned and many of them are learning from his experiences to try to succeed in agriculture. Thus, this type of education is not contributing to local economic progress.

In-depth interview respondents and focus group discussants did not hide the fact that in the past education was associated with the ruling class that dominated and oppressed the people of the area. The difference in ethnicity and religion between the people and the ruling class of the time is said to have aggravated the hatred for both the ruling group and education that was associated with it. This seems to have had long lasting negative effect on the community, as many parents are reluctant to send their children to school even when having the capacity to do so. Students' dropout rate is also reported as very high probably due to this long established contempt for education.

On the other hand, many in-depth interview respondents raised the issue of lack of educated people in rural areas, as the relatively better-educated people from the community would remain in urban centres after completing their higher education and above. They also added that even the less educated and uneducated young people prefer to abandon the countryside and live in urban centres engaging in all types of activities including menial jobs. They are no more interested in agriculture and rural life and always ready to leave using whatever opportunities.

There seems to be a low cultural awareness about health and factors contributing to health, which maybe culturally rooted to some extent. People are of the opinion that a person is healthy until he or she is seriously sick finding himself/herself on bed. This limits preventive efforts to remain healthy. The community is not in a position to

recognize that physical and mental deterioration due to malnutrition and lack of balanced diet is also a health problem.

It was observed that the quantity and quality of food consumed by a household, is extremely below standard. The community does not know or care about the amount and type of food it consumes and the calorie intake is obviously less than the scientifically acceptable standard. There is no fixed time as such for a meal particularly for a lunch regardless of the economic capacity to afford it. Even the relatively well to do, despite their economic status, suffer from poor food culture. The impact of malnutrition is very recognizable among not only children but also adults as can be easily observed from the physical makeup of the people.

Furthermore, according to information obtained from in-depth interview respondents and focus group discussants, the community of the study area practices a marriage that gives chance to inbreeding. Though the consequences of inbreeding is not yet studied as far as the community of the study area is concerned, there are studies which establish that inbreeding has grave side effects on health (for instance, Nabulsi *et al.*, 2003; Jiménez *et al*., 1994). In addition to its contribution to physical defects, inbreeding may challenge a community's biological dynamism to develop progressively a natural state of fitness in the changing environment to remain healthy.

Human capital refers also to the quantitative aspect of available labour force. In the case of the study area, however, it was observed that the growing population number is becoming more of a curse than blessing. Even though there is a relatively huge working age population, it is not engaged productively as the existing resources and agricultural practices do not support the increasingly growing population. Consequently, population number has become a burden as the scarcity of resources and stiff competition for them has created a room for protracted conflict among farmers and endangered community level social and economic capitals.

Therefore, when seen from human capital perspective, the community of the study area is in a serious lack of human capital to be effectively resilient.

3.1.6 Social capital

According to Flora and Thiboumery (2005, p. 246), social capital includes "mutual trust, reciprocity, collective identity, working together and a sense of a shared future." It also represents the connections among people and organizations, which make things, happen either positively or negatively (Emery and Flora, 2006).

Basically, there are two types of social capital: bonding and bridging. Bonding social capital refers to close ties among members of a community that build its solidarity, while bridging social capital refers to loose ties that connect a community with other external organizations (Emery and Flora, 2006).

For a community to function properly and positively, both bonding and bridging social capital should be moderately high. In such a community people share a collective vision of the future and mobilize resources both internally and externally to move toward that future. On the contrary, when both bonding and bridging social capital are low, a community faces serious disorganization and lacks mechanisms of

social support. The possibility for collective decision making to bring cumulative outcomes is lacking (Flora and Thiboumery, 2005).

According to interview and observation results of this study, there are no strong institutions to forge unity among members of the community of the study area. There are cases of cooperation among members of the community during agricultural activities, particularly during labour demand peaks at cropping and harvesting seasons. House construction is also an activity which frequently demands the cooperation of villagers. During marriages and other festivities, villagers help each other in organizing and facilitating them. According to in-depth interview respondents and focus group discussants, *afosha* (a traditional institution of the community to support one another mainly during times of member's death) is common in the area, but this institution supports family of the deceased only for a few days upon the death of its member. It is not within the domain of *afosha* to cover problems other than loss of life through natural death and accidents. The existing *afoshas* are also said to have been financially too weak to go beyond the limits of assisting burial expenses.

As key informants reported, orphan children who lost either father or mother or both due to death do not have any institutional support from the community. Their fate is to suffer poverty under single parenthood or under the patronage of close relatives or to be forced to join other rural families to serve and live with them. This would also force parentless children to leave the countryside and move to the towns to live as street children or as beggars.

As already mentioned, during times of extreme hardship, there are practices where villagers lend money and other resources to one another. Nonetheless, according to focus group discussants, these practices of cooperation are neither mandatory nor uniform. They are not common across villages and households, and households do not have equal connections and networks. Some households have many connections and networks with other households through marriage relationships. Particularly, those with many children, both males and females, have a high chance to access many connections here and there, as their children could form these connections through marriages. However, these connections are family or household-based and it cannot be considered as community level ties as they do not encompass the great majority of the rural community.

The social capital of the rural community under study is found to be illusive in the sense that the existence of customary institutions of support gives the impression of an organized system of cooperation though in reality these institutions are very weak and powerless. They were not even designed in a way to create bonds in the entire rural community. The most important unit in the rural community is, therefore, the family unit, which, for good or bad, attempts to stand on its own with little or no support from neighbours and even close relatives.

All these indicate that the community members' interdependence is indeed very weak indicating the fact that the community's bonding social capital is extremely low.

The situation is not better with the bridging social capital. The community's connections to outside organizations, both governmental and non-governmental, are disappointingly weak. The community has never worked out a strategy of forging relations with external bodies in order to alleviate its internal problems. Both government and non-government organizations are approaching the community on their own with little or no pull factors from the community side. This has prevented developing equal level relations of mutual trust and reciprocal exchange between the community and external institutions or organizations.

However, the community has always been in dire need of external support, particularly in the form of food aid. Yet, food aid seems to have further negatively affected the extremely weak but still existing bonding social capital within the community. This seems to be one major contributing factor for the steady decline of collective efforts to alleviate food problems through self-reliant efforts. The common saying "let it rain in Canada", which means that it is more important to receive food aid than to produce one's own food, is very illustrative in this respect. In-depth interview respondents and focus group discussion participants indicated that many people of the study area are just surviving on food aid which has already become a common way of livelihood for many.

Some focus group discussants further raised the issue that government should give them the chance to be resettled in the western part of Oromia, as the land there is fertile and rain is sufficient. They said that the government is always promising them to take them away to the west, but no step has been taken so far. This idea of moving to western Oromia emerged before some years ago when the regional government, through its resettlement policy, transferred many farmers from East Hararghe there. These settlers are considered successful in their new environment and many more, who could afford the cost of transportation and other logistic expenses, are said to have moved to this fertile area on their own. This undoubtedly signifies that the feelings of land of origin, local identity, and concern for fellow neighbours and relatives have been fading away as the community has been challenged by frequent shocks and unable to develop feasible coping and adaptation strategies.

Moreover, according to in-depth interview respondents, serious resource conflicts among rural households, including relatives, are growing over time in connection with the gradually diminishing land holdings due to fast population increase. As respondents further reported, it is not uncommon for brothers and neighbours to fight one another on resource issues, particularly due to farmland boundary dispute, which results in physical damage and human loss as well as damage to properties.

To sum up, it suffices here to state that the community in the study area seems to have low stocks of both, bonding and bridging social capital, which is apparently one further reason for its weak resilience and high vulnerability.

3.1.7. Political capital

Political capital refers to a community's circumstance regarding the ability to influence the distribution of local resources (Flora and Thiboumery, 2005). Political capital is also about a community's position in accessing power, organizations, and

having connection to resources and power brokers (Flora *et al*., 2004). It is also about the ability of a community to determine its own fate and engage in actions that contribute to its wellbeing (Aigner *et al*., 2001).

As it is very well known, in the history of Ethiopia, political decisions and policies have followed top down approaches and the subjects, particularly rural communities, have never had the chance to say anything on short as well as long-term policies and decisions of the subsequent governments. The different governments of the country have claimed that all policies they made had obtained the blessings of the mass though the actual fact on the ground has been refuting their claims. The condition of the study area also affirms the fact that policies and decisions have been following a top down approach with little or no influence from below.

The focus group discussants of all sessions discussed on this issue with great enthusiasm recalling the past and considering the present and the outcomes of the discussions vividly indicated that the relationship between the community and the subsequent governments have always been highly hierarchical or top down.

This situation has not allowed rights based approach to development, as the relationship between rights holders and the duty bearers does not follow a participatory approach where each stakeholder has its specified rights and responsibilities not to encroach on the rights and responsibilities of the other stakeholder. Maybe this is one reason for the community's passiveness and indifference to many of the attempts to implement the transfer of technologies/skills and provide extension services. Focus group discussants and in-depth interview respondents revealed that the rural community has already developed a profound lack of interest for the different packages coming down to them at different times, less because of their nature than because of the way they are planned and implemented with the assumption that the local community is no more than a helpless recipient.

Moreover, the community's power to influence the ownership and distribution of local resources is also minimal. Land, the basic resource in the rural area, is under the custody of government and the general public and farmers have only user rights. Land cannot be sold and exchanged but farmers can distribute their holdings among their children for use purpose only. This means that farmers do not have full autonomy to decide on what to do with local resources.

In short, the results indicate that the stock of political capital of the community under study is seriously low and cannot guarantee community resilience. Nonetheless, the community's passive resistance to some decisions imposed on it from outside (for instance, ill-considered technology and skills transfer) somehow indicates the existence of rudimentary and unsophisticated political capital by which the community has survived long years of unnecessary and unrewarding pressures from outside. However, this political capital has never been adequate to contribute significantly to the community's resilience. Hence, the community has been exposed to many shocks and calamities and in many of the cases it was through external intervention, particularly in the form of food aid, that extreme crises have been averted.

4. Conclusion

The objectives of this study were to examine the situation of community capitals in relation to rural community resilience/vulnerability and to suggest the way forward to improve community resilience. The results revealed that a process of spiralling-down of community capitals is responsible for the community's failure to become at least fairly resilient. Taken together, the results show that the downward spiral of decreasing assets within the community has an accumulative effect. Increasing overutilization and misuse of natural resources have led to environmental degradation and poor soil fertility. Erratic rains, and recurrent droughts, propelled by the on-going climate change, have further reduced productivity and employment, which in turn have resulted in decreased income, and food insecurity. In addition to contributing to the lack of basic infrastructure and services, this condition has led to increased poverty and the likelihood of health problems, ultimately destroying human and social capitals within the community and leading to a feeling of hopelessness.

In short, as community capitals are interlocked, the degradation or limitation of one capital influenced the other and brought about a spiralling down effect on all capitals leading to the community's low stocks of all capitals and consequently to an extremely weak resilience. This has left the community in a state of inability to mobilize internal collective efforts for common good and to respond actively to any external interventions. Community members were, therefore, forced to resort individually as livelihood strategies to reliance on food aid, remittances from migrant family members, and ultimately own migration.

5. Recommendations

Development interventions commonly start by support measures for improving infrastructure, market access, and agricultural productivity to increase the financial capital. Thus, they focus on tangible forms of capital (Svensden and Soerensen, 2007). In contrast to this, Emery and Flora (2006) suggest that the starting point for spiralling up should be found in increasing social and human capital.

However, in cases like the one presented here it seems futile to build on existing social and human capitals to bring about improvements throughout the capitals. Where a community has an extremely low collective and individual resilience and in a context of growing vulnerability, it seems that interventions to alleviate poverty and to foster community resilience need to be geared first towards stopping the spiralling-down process and prepare the ground for a spiralling-up process. Only then technical interventions can be put in place successfully.

Of all the identified problems of the community under study, the most fundamental seems to be an unconstructive and fatalistic disposition. This makes the community resistant to change and intervention which in turn prevents it from stopping the downward spiral of its capitals. The first step to bring about community resilience is thus to overcome the community's resistance to change. Darnhofer (2014) distinguishes three capacities of resilience: the buffer capacity, the adaptive capacity, and the transformative capacity. As already indicated above, the buffer capacity of the rural community under study, which is a function of the status of community

capitals, is very low while the adaptive and transformative capacities are virtually absent. This indicates that the community's long-established experience has not left any room for manoeuvre to bring change and transformation in the course of time.

Adaptive and transformative capacities of a community are built on learning cycles. However, the community in the study area has not experienced so far that individual or collective efforts can result in social change and social mobility for the better due to the rigid hierarchical structure of the society in which the community is found. This has created in the community feelings of helplessness, apathy, and total dependence on nature and external support. It has also created the tragedy of externalizing all problems as if all were stemming from outside and could only be alleviated from outside. Hence, liberating the community from the view "let it rain in Canada" or "let the government do it" and bring it to the view "let us do it ourselves" or "we can decide our fate by ourselves" indeed demands a radical intervention that is different from the customary ones. Similarly, erasing the community's belief that the domain of nature cannot be interfered and the creator is always responsible for everything and substitute it by the belief that nature could be tamed somehow and the creator helps those who help themselves demand an exceptional intervention. The downward spiral of community capitals would not be reversed with whatever intervention until the community's negative outlook towards itself and the world around it changes for the better.

Thus, in contrast to Emery and Flora (2006), who in their analysis of communities in the USA conclude that a spiralling-up process may build on mobilizing existing assets, under the conditions of our case in Ethiopia a more fundamental approach seems to be needed. Before mobilizing human and social capital as motors for further economic development, the potential endogenous assets need to be unlocked first. This builds on the capacity for critical reflection of the present situation and maybe gradually extended by introducing experiences of self-reliant improvements.

As one promising tool to introduce such development, reference is made here to training for transformation (Hope and Timmel, 1995). The training integrates the pedagogical ideas of Paulo Freire with a basic needs concept and a structural analysis of different roles in society. Moreover, it offers a practical application of these theoretical foundations. It has been successfully applied since the 1980s in various African countries. This training for transformation is reflective and action oriented. The community needs to develop confidence in its capacity to bring change on its own through exposure to practical exercises that prove this. The training is expected to enable the community to understand that it has the means to meet its needs based on its own local resources and capacities. It is also expected to bring change of outlook through tangible lessons to be taken in the course of linking theoretical knowledge and practice. It is only when the collective outlook of such a community is transformed through such training that the spiralling down of community capitals maybe reversed and external interventions integrated into the system of the community successfully.

People need to be enabled to "read their reality and write their own history" (Hope and Timmel, 1995) and to develop more in-depth analysis and skills for greater self-

sufficiency. This is expected to lead to a transformation of organizational capacity to build and/or use more effective interventions locally to meet local needs. The training programmes focus on mainstreaming gender equality and community development in the fields of mitigating conflicts, sustainable food security, livelihoods, environmental issues or participation in government structures, including practical positive impact with simple tools for building unity, planning and implementing local initiatives to tackle poverty in the community.

In short, such training is expected to possibly pave the ground for the creation of a dynamic community that is receptive of new ideas and change. This is seen as a necessary precondition for a spiralling-up process to start and to make use of any interventions to boost community capitals.

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7. References

Adger, W. N. 2000. Social and ecological resilience: are they related? *Progress in Human Geography*, 24 (3): 347-364.

Adger, W. N. 2006. Vulnerability. *Global Environmental Change,* 16 (3): 268-281.

Aigner, S. M., Flora, C. B. and Hernandez, J. M. 2001. The premise and promise of citizenship and civil society for renewing democracies and empowering sustainable communities. *Sociological Inquiry*, 71 (4): 493-507.

Brand, F. S. and Jax, K. 2007. Focusing the meaning(s) of resilience: resilience as a descriptive concept and a boundary object. *Ecology and Society*, 12 (1), article no. 23. (http://www.ecologyandsociety.org/vol12/iss1/art2). (Accessed March 30, 2015).

Chaskin, R. J. 2008. Resilience, community, and resilient communities: conditioning contexts and collective action. *Child Care in Practice*, 14 (1): 65-74.

CSA. 2007. Population and Housing Census of Ethiopia. Addis Ababa.

Darnhofer, Ika. 2014. Resilience and why it matters for farm management. *European Review of Agricultural Economics*, 41 (3): 46-484.

Davidson, D. J. 2010. The applicability of the concept of resilience to social systems: some sources of optimism and nagging doubts. *Society and Natural Resources*, 23: 1135-1149.

Emery, Mary and Flora, Cornelia B. 2006. Spiralling-Up: mapping community transformation with community capitals framework. *Community development: Journal of the Community Development Society*, 37 (1): 19-35.

Feed The Future. 2014. Ethiopia: Country Profile. (http://www.feedthefuture.gov/country/ethiopia). (Accessed June 23, 2016).

Flora, Cornelia B., Flora, Jan L. and Fey, S. 2004. *Rural Communities: Legacy and Change.* Second edition. Boulder, Colorado: Westview Press.

Flora, Cornelia B. and Thiboumery, A. 2005. Community capitals: Poverty reduction and rural development in dry areas. *Annals of Arid Zone,* 45 (3, 4): 239-253.

Folke, C. 2006. Resilience: the emergence of a perspective for social–ecological system analyses. *Global Environmental Change,* 16 (3): 253-267.

Forbes, B. B., Stammler, F., Kumpula T., Meschtyb, N., Pajunen, A., and Kaarlejärvi, E. 2009. High resilience in the Yamal-Nenets social–ecological system, West Siberian Arctic, Russia In: B. L. Turner, and Tempe, AZ (eds.), *Proceedings of the National Academy of Sciences of the USA*, 106 (52), PP. 22041-22048.

Hope, A. and Timmerl, S. 1995. Training for transformation: A handbook for community workers, revised edition, Mambo Press, Zimbabwe.

Hopkins, R. 2010. Localisation and resilience at the local level: The case of transition town totnes (Devon, UK). PhD Dissertation, School of Geography, Earth and Environmental Sciences, University of Plymouth, UK.

IFAD (International Fund for Agricultural Development). 2015. Investing in rural people in Ethiopia. (www.ifad.org/documents/10180/d030748c-44d6-455e-a35b-5f35ac8893e0). (Accessed June 23, 2016).

Imana, Gutema. 2011. *The Dynamics of rural-urban migration in Ethiopia: the migration of ruralites to Adama city.* Saarbrucken: LAP LAMBERT Academic Publishing GmbH and Co.KG.

Jiménez, JA, Hughes, KA, Alaks, G., Graham, L., and Lacy, RC. 1994. An experimental study of inbreeding depression in a natural habitat, *Science,* 266 (5183): 271-273.

Lorenz, E. 1999. Trust, contract and economic cooperation. *Cambridge Journal of Economics*, 23: 301-15.

Magis, K. 2010. Community resilience: an indicator of social sustainability. *Society and Natural Resources*, 23: 401-416.

Nabulsi, MM, Tamim, H., Sabbagh, M., Obeid, MY, Yunis, KA, and Bitar, FF. 2003. "Parental consanguinity and congenital heart malformations in a developing country". *American Journal of Medical Genetics,* Part A, 116A (4): 342-347.

Netting, Robert McC. 1968. *Hill farmers of Nigeria: cultural ecology of the Kofyar of the Jos Plateau.* Seattle: University of Washington Press.

Oudenhoven, F. J., Mijatovic, D., and Eyzaguirre, P. B. 2010. Social-ecological indicators of resilience in agrarian and natural landscapes. *Management of Environmental Quality*, 22 (2): 154-173.

Oxfam Canada. 2012. Country Profile: Ethiopia. (http://www.oxfam.ca/sites/default/files/Country%20Profile_Ethiopia.pdf). (Accessed June 23, 2016).

Svensden, G. and Soerensen, J. 2007. There's more to the picture than meets the eye: Measuring tangible and intangible capital in two marginal communities in rural Denmark. *Journal of Rural Studies*, 23 (4): 453-471.

Tesfaye, Wondimagegn and Seifu, Lemma. 2016. Climate change perception and choice of adaptation strategies: Empirical evidence from smallholder farmers in

east Ethiopia. *International Journal of Climate Change Strategies and Management*, 8 (2): 253-270.

Tolossa, D. and Tafesse, T. 2008. Linkages between water supply and sanitation and food security: A case study in four villages of East Hararghe Zone, Oromia region. Research-inspired Policy and Practice Learning in Ethiopia and the Nile region (RiPPLE) Working Paper 6, College of Development Studies, Addis Ababa University. (https://www.academia.edu/3088506/East_Hararghe_zone_Oromia_region?). (Accessed October 30, 2014).

UNDP-EUE. 1999. Localized areas of extreme vulnerability and targeting problems persist in East Hararghe (Mission: 25-29 July 1999) (http://www.africa.upenn.edu/eue_web/hara0999.htm). (Accessed March 17, 2015).

Van Rheenen, T., and Mengistu, T. 2009. Rural areas in transition: a developing world perspective. In: F. Brouwer, and C. M. Van der Heide (Eds.), *Multifunctional Rural Land Management: Economics and Policies*. London: Earthscan, PP. 319-334.

Wilson, G. A. 2012a. *Community Resilience and Environmental Transitions*. London: Earthscan.

Wilson, G. A. 2012b. Community Resilience, Globalization, and Transitional Pathways of Decision-making. *Geoforum*, 43: 1218-1231.

World Bank. 2014. Ethiopia Overview. (http://www.worldbank.org/en/country/ethiopia/overview). (Accessed June 23, 2016).

Inequality of Opportunities for Children in Ethiopia and Contributors for Inequality

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Abstract: The purpose of this paper was to measure inequality of opportunities for children in Ethiopia. The study used secondary data from Living Standard Measurement Survey of Ethiopia, 2015. A total of 7207 sample children were considered. Human opportunity index was used to measure inequalities of opportunities for children. Dissimilarity index was used to measure inequality of opportunities. Opportunities were peroxied by access to basic services such as primary education, safe drinking water, health and nutrition. The dissimilarity index showed high inequality with value of 20.8, 12.9 and 8.4% for access to safe drinking water, health service and minimum nutrition opportunities, respectively. The coverage rates of access to opportunities were also less than other regions with respective values of 64.1, 29.8 and 22.9% for primary education, safe drinking water and health services. The human opportunity indices were also 61.5, 23.6 and 20.0% for these opportunities, respectively. Access to safe drinking water and health services were the lowest available opportunities as well as the highest inequitably distributed among children in Somali and Afar regional sates than other regions. This indicates that these regions allocate low resources to increase average access rate of these opportunities. Moreover, the existing services are distributed unfairly. These urge the government to create fair level playing field for children across the country. Increasing allocation of resources to improve the coverage rate of safe drinking water, health and education services in pastoral areas reduces in equality of opportunities among the regions.

Keywords: Dissimilarity Index; Human Opportunity Index; Inequality; Opportunity

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1. Introduction

Inequality is the central agenda in Sustainable Development Goals (SDGs) (FAO, 2014a, b; IFPRI, 2014; Wild *et al*., 2015). The SDGs aspire to address inequality in all its forms and give equal opportunity for all humanity (Norton *et al*., 2014; Shepherd *et al*., 2014). Its success should be measured and judged on how it benefits the marginalized and excluded people who live in different countries around the globe including Ethiopia (Arauco *et al.*, 2014).

The idea of inequality of opportunity is the view of contemporary societies which is also consistent with modern theories of justice (Sen, 2006). Currently the growing literature on economic inequality focuses on inequality of "opportunities" which has long been associated with very different views on social justice (Bourguignon *et al.*, 2007). It gained attention after equality of opportunity theory was developed by Roemer (1998). He defined equality of opportunity as a situation in which important outcomes are distributed independently of circumstances. Inequalities of opportunities according to him are caused by different factors. These are factors for which individual can be held morally accountable, like effort, or factors that lie beyond individual's responsibility like circumstances. In this regard, inequality caused by differences in effort is acceptable. But inequality caused due to circumstances is considered unjust and unacceptable. The circumstances may include individual, household, community characteristics for which individuals have no responsibility (Roemer, 1998, 2013). More importantly; it explicitly recognizes that efforts could be shaped by circumstances (Jones *et al.*, 2014).

The concept of equality of opportunity is related to universal access to key goods and services such as basic education, health services, clean water, minimum nutrition, and citizenship rights which are crucial steps toward justice and fairness (Sen, 2006; Barros *et al*., 2009; Nussbaum, 2011; Vega *et al*., 2012). Expanding access to these goods and services has long been a central issue in the analysis of economic development. Various researchers have been employing this framework to assess inequalities of opportunities for children among different nations and even within a nation. However, the issue of children remains hidden despite the wide acknowledgement that they deserve a special focus within development debate (Roelen *et al.*, 2012).

Accesses to these opportunities expand each individual's abilities and options via human capital and they have a major impact on what a person can be or do (Vega *et al*., 2012). Early childhood opportunities are pre-conditions for the later life. The impact of inequality during childhood can have detrimental effects on their future life which are irreversible since inequality of opportunity wastes talent; it is a loss of potential for national growth and development (UNICEF, 2011; Woodhead *et al*., 2012). Most of the time children in developing countries have less access to basic services. Thus, understanding the level and the causes of this inequality is crucial steps for any developmental actions. Addressing this problem has versatile effect: it contributes to social improvement, growth and greater equality in a later life (Hassine, 2011). Moreover, understanding the situation of children at the beginning stage is good for proper intervention (Yaqub, 2010).

In Ethiopia, the recent policy reform has brought positive growth for the last 10 years despite its controversial figure and its contested distribution that has created division among the practitioners. The country is characterized by polarized society, where inequality is pervasive. A positive economic growth does not guarantee that all citizens will benefit from it. Growth must be accompanied with proper redistribution policy to benefit all members of a society including the young children that would carry the future economy.

The government of Ethiopia in its report claims that inequalities were lower at both national and regional levels including pastoral areas. It further asserts that inequality declines as measured by income at household level (MoFED, 2013). However, such inequality indexes do not measure the kind of inequalities that are viewed from social, economic or moral perspectives (Lefranc *et al*., 2008). Inequality means much more than income and viewed from broader perspectives, one form is intersecting with the other (Melamed, 2014). Most of the time children from rural areas have no access to basic services. It is important to ask whether the recent growth has created equal opportunity in accessing the basic services for children in Somali and Afar pastoral and agro-pastoral areas compared to other regions of Ethiopia. Unequal access to basic services such as education, health, nutrition and safe drinking water means that growth benefits do not flow equally across different groups and regions (Jemmali and Amhara, 2014).

Here we can argue that children in the Somali and Afar pastoral and agro-pastoral areas have been in an unfair situation in relation to accessing basic services. In these areas, inequality can be both hidden within and perpetuated by different circumstances which are beyond the control of children. It is difficult to understand the causes of inequality using the conventional approach only. There is a new development in inequality literature. Recent studies employ equality of opportunity framework to analyze inequalities of opportunities faced by individuals and their causes. In light of this, the inequalities hidden in these two areas are certainly worthy of investigation. There is no rigorous study on the Somali and Afar pastoral and agro-pastoral areas using this new approach. Through wider survey of literature, it is learnt that there is no single study conducted on inequality of opportunity in these areas. Hence, the purpose of this paper is to measure inequality of opportunities in pastoral and agro-pastoral Somali and Afar areas of Ethiopia, and identify factors that affect inequalities of opportunities in the regions.

2. Research Methods

2.1. Data Type and Sources

This paper used secondary data from Living Standard Measurement Survey (LSMS) jointly collected by CSA and World Bank (2015). It used the second wave released in 2015. In the analysis of inequality of basic opportunities, a total of 7207 children from Tigray, Amhara, Oromia, SNNP, Somali and Afar were used. The LSMS survey has the required information at an individual level (for children) on both opportunity and circumstance variables. Basic access was proxied by primary education, health services, safe drinking water and nutrition. Education is considered

as one of basic services and that every citizen has the right to access it. Access to primary education was measured by whether the children between 7-15 years of age currently attend school or not. Access to minimum nutrition was proxied by anthropometric measures which are computed for children less than 5 years old. There are various measures of anthropometric measurements like wasting, stunting and underweight. These measures were constructed from weight, height and age of children's data from LSMS. All measures have their own advantage. Wasting is mostly used to measure short run nutritional status of children. Stunting indicates past history of nutritional status of the household in general and individual in particular. Underweight combines the two measures, namely wasting and stunting. As far as nutritional status is concerned, underweight is considered as the best measure, and thus is considered in this study too. Access to nutrition is measured by underweight, and if a child is underweight, he/she is considered as not having access to minimum nutrition required for physical and mental development. However, if a child is not underweight, he/she is considered to have access to the minimum nutrition required. Similarly, access to safe drinking water and health services are measured as binary variables. The circumstance variables include sex of a child, parental education level, household economic status and household size.

2.2. Method of Data Analysis

Human opportunity index (HOI), developed by Barros *et al.* (2009), has been widely used to estimate inequalities of opportunities. It is widely applied in recent empirical analysis of inequality of opportunity for children. The HOI is used to analyze how personal circumstances impact an individual's probability of accessing basic services. The HOI measures coverage rate and then adjusts it according to how fairly goods and services have been allocated among circumstance groups. Following Barros *et al.* (2009) the formula for the HOI is calculated as:

HOI = $\overline{P}$ (1-D)

Where $\overline{P}$ coverage rate measures in average probability; and D average is dissimilarity index.

It measures a country's/region's progress towards opportunity for all children (Barros *et al.,* 2009). The index value ranges between 0 and 100. The country/region approaches 100 shows good progress to universal coverage. The HOI synthesizes two measures into a single indicator. First, the level of basic opportunities in a society measured through average coverage ($\overline{P}$) rate for a given opportunity. Second, how equitably those opportunities distributed is measured through the index of dissimilarity (D) (Vega *et al*., 2012; Hoyos and Narayan, 2012; Goli *et al*., 2014; Jones *et al*., 2014). To obtain the measure of HOI, first both these two components should be estimated.

For the binary outcomes such as having access to basic services, the probability of access is estimated either by parametric models such as logit or probit but also non-parametrically. Most of the time, non-parametric method limits the number of circumstance variables used. This is because it requires large data set to have enough samples in each group based on circumstance parametric methods are regression-

based and can easily incorporate more circumstances into the analysis (Hassine, 2011; Isfahani *et al.,* 2014). Here, parametric approach is considered to estimate the HOI index. The regression model must be estimated to determine the empirical relationship between each circumstance and access to basic services. This can be done by estimating the logit model parametrically. Then predict a probability of access to basic services for each individual with a given set of circumstances. In addition, the overall coverage rate is obtained. To predict a probability of access to a given opportunity, let us define an outcome variable y_i which takes a value of 1 if the i^{th} child has access to an opportunity (education, health, safe drinking water and nutrition) and takes a value of 0 if the i^{th} child lacks access to the opportunity under consideration. The conditional probability of access is given by $E(y_i|C) = p_i$, where $p_i$is the probability that an i^{th} child has access to an opportunity conditional on circumstances. p_i *is* estimated by means of a logit model using a set of *k* circumstance variables $c_{i1}, c_{i2}. . . c_{ik}$.

$$Ln\left(\frac{P(y=1\mid c_1,....c_k)}{1-P(y=1)\mid c_1,..c_k}\right)=\sum_{j=1}^{k} f_k(C_k)=C_k\beta_k$$

Where $C_k = (c_1,\ldots,c_k)$ denotes a vector of circumstance variables which includes family background, demographic characteristics and community characteristics.

Estimates of the parameters, β_k obtained from the above logit regression are denoted by $\hat{\beta}_k$ and used to obtain a predicted probability of access to opportunity for each child. The regression output is interpreted in the usual way to understand the determinants of access to opportunity under consideration. Moreover, an estimate for predicted probability of access to a given opportunity explained by the circumstance variables was obtained as:

$$\hat{P}_i=\frac{\exp\left(\hat{\beta}_0+\sum_{j=1}^{k} C_{ki}\hat{\beta}_k\right)}{1+\exp(\hat{\beta}_k+\sum_{j=1}^{k} C_{ki}\hat{\beta}_k)}$$

Using a predicted probability, average coverage rate of an opportunity in the population and D-index of opportunity are computed as follows.

$$\overline{P}=\sum_{i=1}^{n}\alpha_i\hat{p}_i \qquad \text{and} \qquad \hat{D}=\frac{1}{2\overline{P}}\sum_{i=1}^{n}\alpha_i\left|\hat{P}_i-\overline{P}\right|$$

Where *n* is the number of sample individuals, α_i is population weight attached to an i^{th} sample individual, and $\overline{P}$ is a proportion of population with access to a given opportunity. $\overline{P}$ is coverage rate. *D* measures the degree of inequality of opportunity that is explained by the individual's circumstances. As such, (1-*D*) is interpreted as equity of opportunity. *D* takes values between 0 and 1. *D* = 0 implies that every child in a society enjoys the same opportunities, while *D* = 1 implies perfect inequality in a society. Then the estimate for HOI is calculated, using the formula HOI= $\overline{P}$ (1-*D*) for each opportunity.

3. Result and Discussion

3.1. Nutritional Status Measurement Based on Anthropometric Measurements

Children anthropometric indicators are indicated in Table 1 for the study areas. Overall, in these measures children less than five years in Ethiopia are poorly-nourished). The result indicated that 42% of children are stunted, 10% are wasted and 21% are underweight in 2014. The figures are far below Growth and Transformation Plan (GTP I) target levels except for underweight which are 30% and 3% for stunting and wasting, respectively. However, underweight result is equal to GTP target plan level. It has dropped from 25% (in 2011) to 21%. This is a remarkable achievement when considered at national level though there are variations at regional levels. Stunting and wasting have grown by 2% and 1%, respectively, i.e., from 40% and 9% in 2011.

At regional level, there are variations in all these indicators. Stunting has ranged between 50% in Amhara to 32% in Oromia. It is 38% and 37% for Somali and Afar Regional states, respectively. Wasting is more serious in both Somali and Afar and has stood at 23% and 17%, respectively. Similarly, proportions of children who are underweight are high in these regions. About 35% of children who are under five in Somali region have had less weight as compared to the healthy reference categories with the same age and sex. Similarly, this figure is found to be 24% for Afar. This region is also found to be among regions in which the highest proportions of underweight children are found next to Somali and Tigray regions. The result confirms that still significant proportions of children have faced nutritional problems in the nation in general and Somali and Afar Regions in particular. Wasting and underweight are found to be more serious in Somali and Afar compared to other major regions. Stunting is found to be relatively less in these areas in comparison to the others. All the major three anthropometric parameters showed the country/regions grouped under high prevalence of malnutrition categories. The degree of malnutrition is also high at both national and regional levels. According to the WHO (1995) (Note 1) set of criteria for determining malnutrition, stunting is very high in all regions including the Somali and Afar Regions. Although wasting is serious in all regions, it is much worse in Somali and Afar regions during the study period. Similarly, underweight is high in all regions and it is severe in Somali and Tigray. So, population with high proportion of people stunted or underweight is evidence of nutritional deprivation. These problems will have greater implication for the country's long run population health, productivity, economic growth and development.

Table 1. Child anthropometric indicators in Ethiopia by region

Regions	Stunted	Degree	Wasted	Degree	Underweight	Degree
Tigray	48.43	Very high	11.32	Serious	30.19	Very high
Amhara	50.68	Very high	9.18	Serious	18.37	High
Oromia	32.02	Very high	8.99	Serious	16.57	High
SSNP	44.08	Very high	6.41	Serious	18.45	High
Somali	38.42	Very high	22.97	Critical	35.14	Very high
Afar	37.16	Very high	16.88	Critical	24.68	High
National	41.83	Very high	10.14	Serious	21.11	High
GTP1	30		3		21	

Source: Own computation based on LSMS (2015) data

3.2. Measurement of Inequalities of Opportunities

The inequality of opportunities was approximated by access to primary education, access to safe drinking water, access to health services and access to minimum nutrition. The result from the estimation is presented and discussed in this order. The coverage rate, dissimilarity index, and HOI estimates are computed. The HOI is expressed on the scale of 1 to 100, where the higher figure reflects good level of equality and lower value reflects poor/inequitable accesses. Access to each of opportunities at regional and National levels is discussed below.

Access to primary education service across the main regions including Somali and Afar rural areas is presented in Table 2. The average probability of accessing primary education varied among different regions. The highest score corresponds to Tigray with 85% opportunity. This indicates that majority of the children have had access to primary education in this region. The figures of access to primary education services for Amhara and Oromia are 76% and 73%, respectively. In rural areas of Somali and Afar regions, the probability of accessing primary education is 64%. Even though the government claimed increase in the coverage of education service in rural areas of the country, access to this service was far below its universal coverage rate in the study period.

The D-index shows how the existing access to primary education service is distributed among children in different regions. This measure also varies among the regions considered in the study. It ranges from 2.5% in rural areas of Tigray to 5.6% in Oromia. This indicates that existing available opportunity i.e., access in primary education need to be reallocated so as to reduce inequality of this service. In Oromia, 5.6% has to be reallocated to ensure equality among the children in the region. In Somali and Afar regions, 4% of the available educational opportunity needs to be reallocated. The human opportunity index combines both the average probability of accessing primary education and how this service is equitably distributed to give a better picture. Using this index, distribution of primary education service was highly variable across the rural areas as observed from Table 2. The human opportunity index is high in rural Tigray. This indicates that about 84% of primary education service is available and relatively equitably allocated among the children in this

region. In Amhara region, 73% of the available educational opportunity is relatively equitably distributed as compared to other regions other than Tigray and SNNPR. Only 61.5% of primary education service is available and relatively less equitably allocated among the children living in Somali and Afar regions. The results of all the regions considered are found to be far below assuring universal access in primary education services of 90% points for all regions as indicated by human opportunity index.

Table 2. Inequality of opportunity in primary education, 7-15 years

Region	Average opportunity	D-index	Human opportunity index
Tigray	85.7	2.5	83.5
Amhara	76.4	4.3	73.1
Oromia	73.3	5.6	70.0
SNNP	72.6	2.7	70.6
Somali and Afar	64.1	4.0	61.5
National	74.5	3.5	71.9

Source: Own computation based on LSMS (2015) data

Like primary education service, accessing safe drinking water seems highly uneven for the citizens during the study period. The average probability of accessing safe drinking water (Table 3) shows low. It is relatively better in Oromia region with 61% of children in this region living in households which have access to safe drinking water. Similarly, 59%, 55% and 54% of children live in households which have access to safe drinking water in Tigray, SNNP and Amhara, respectively. Comparatively, only 30% of the children are living in households which had access to safe drinking water in rural areas of Somali and Afar regions. At national level, only 54% of children are living in households which have access to safe drinking water in rural areas of Ethiopia during the study period. These figures indicate that the provision of safe drinking water is at low level in all regions, but it was the worst in Somali and Afar regions of the country at the study period. The D-index shows it is the highest in Somali and Afar regions. This indicates that 21% of the available safe drinking water must be reallocated to reduce inequality of safe drinking water access. On the other hand, the figures for access to safe drinking water in SNNP, Amhara, and Tigray regions are 7.4%, 6.4%, and 6%, respectively, and which are less than that of Afar and Somali regions. This clearly shows the presence of inequality in safe drinking water distribution in the pastoral and agro-pastoral areas as compared to the other regions of the country.

The human opportunity index for access to safe drinking water also shows greater variation among these regions. It is found to be highest in Oromia region. It indicates that 58% access to safe drinking water is available and relatively equitably distributed among children in Oromia region as compared to other regions. In Tigray region, about 56% of this opportunity is available and also relatively equitably

distributed among the children next to Oromia region. However, for the Somali and Afar regions the human opportunity index shows the lowest level with 23% of total opportunity needed to ensure the universal access to safe drinking water as compared to other regions. The worst of it is that it is inequitably distributed among the children living in these regions. At national level, only 50% of safe drinking water opportunity is available to ensure universal access. The results indicate that Ethiopia has scored far below in assuring the universal access in safe drinking water for the citizens of the country in general and worse for Somali and Afar regions in particular.

Table 3. Inequality of opportunity in access to safe drinking water

Region	Average opportunity	D-index	Human opportunity index
Tigray	59.1	5.6	55.7
Amhara	54.1	6.4	50.6
Oromia	60.6	3.6	58.4
SNNP	54.9	7.4	50.8
Somali and Afar	29.8	20.8	23.6
National	53.5	7.0	50.0

Source: Own computation based on LSMS (2015) data

Access to health service result depicts low measure in both coverage and HOI. The average opportunity of accessing health service shows 55% in Tigray, 28% in Oromia 25% in SNNP, and 24% in Amhara (Table 4). The average probability of accessing health service is only 23% in Somali and Afar regions. At national level, the average probability for the access to health service is 28.4%. In general, the average probability of accessing health service shows below universal access despite government's effort in accessing health services in rural areas. Inequality in accessing health services also varies among the regions. The highest inequality is observed in the Somali and Afar with the D-Index of 13%. It is 10% in Oromia and about 6.6% in Tigray and Amhara regions. The human opportunity index for accessing health service is highest in Tigray region which is 52% and relatively equitably distributed among children in Oromia, Somali and Afar Regions. The human opportunity index is 25%, 24% and 22% for Oromia, SNNP and Amhara regions, respectively, but 20% for Somali and Afar regions which is the lowest. This may be attributed to inaccessibility of this service to rural households due to geographical locations.

Table 4. Inequality of opportunity in access to health services

Region	Average opportunity	D-index	Human opportunity index
Tigray	55.2	6.6	51.5
Amhara	23.5	6.5	22.0
Oromia	27.8	10.1	25.0
SNNP	25.4	5.3	24.1
Somali and Afar	22.9	12.9	20.0
National	28.4	5.4	26.8

Source: Own computation based on LSMS (2015) data

The measurement of minimum nutrition measure is approximated by underweight. The result for this estimate is reported in Table 5. The average probability of accessing the minimum nutrition is varying among children under 5 years old. The rate is the highest in Oromia indicating that 79% of children who live in this region have access to minimum nutrition. The corresponding figures are 77% and 74% in Amhara and SNNP regions, respectively. The lowest coverage rate is observed in Tigeray followed by Somali and Afar regions with the second smallest coverage. The average probability of accessing basic minimum nutrition is 65% and 68% in Tigray, and Somali and Afar Regions, respectively. The highest inequality of opportunity in access to nutrition is observed in the Somali and Afar regions with the D-index of 8% followed by 7.4% in Tigray and 5% in Amhara and 3.2% in SNNP regions. The human opportunity index is the highest in Oromia region with 76%. It is 73% and 71% in Amhara and SNNP regions, respectively. However, in Somali and Afar regions, 61% of children in these regions have access to minimum nutrition but it is far from universal access rate. Moreover, it is relatively inequitably distributed among rural children in these regions. At national level, 72% of the total opportunity needed to ensure the universal access to minimum nutrition is available.

The human opportunity index in access to minimum nutrition is higher than corresponding figures for average access of other opportunities in Somali and Afar regions. Access to minimum nutrition and primary education service are exceeding 50%. The inequality measure indicates higher for all opportunity in Somali and Afar regions than other regions. Among the basic opportunities considered, access to safe drinking water and health services are the lowest available opportunities in Somali and Afar regions and also the highest inequitably distributed opportunities in these regions. In all of the cases, the human opportunity index is adjusted for the inequality existed which resulted in less value than the average probability of access. This indicates that the existing opportunity has to be reallocated to ensure equal distribution.

The results discussed using average access rate, dissimilarity index, and human opportunity index have shown three interesting patterns for all regions in general and the Somali and Afar Regions in particular. First, regions with high average access rate for any given opportunity have high rate of human opportunity index and have

shown low level of inequality index. This can be easily understood if access to minimum nutrition and primary education services are considered. Second, regions with high human opportunity index also have shown high dissimilarity index for a particular opportunity. This pattern is evident in Oromia especially with the access to primary education services. Third, regions with the lower human opportunity index also have very high inequality for the same opportunity. All the opportunities considered here, the pattern is very evident in Somali and Afar regions. This has greater implication for the resource allocation of the country in general and the Somali and Afar regions in particular. Moreover, the existing services are distributed inequitably in these regions. This indicates the need for the regions to reallocate the available resources to increase the average access rate of these opportunities.

Table 5. Inequality of opportunity in access to nutrition < 5 years

Region	Average opportunity	D-index	Human opportunity index
Tigray	64.7	7.4	59.8
Amhara	77.3	5.2	73.2
Oromia	79.2	3.7	76.2
SNNP	74.3	3.2	71.8
Somali and Afar	67.6	8.4	61.8
National	75.0	3.8	72.1

Source: Own computation based on LSMS (2015) data

3.3. Contribution of Circumstance Variables for Inequality of Opportunity

This part shows the specific D-index by decomposing the inequality of opportunities according to the contributions of individual circumstance variables. The Shape decomposition technique is used. For access to primary education services, the most important circumstance variable that influences a child's access to primary education is parents' education level (Table 6). The contribution of father's education ranges from 29% in SNNP to 64% in Oromia. The result implies mother's education level has contributed 19% and 35% in Amhara and Oromia regions, respectively. In Somali and Afar regions the D-index for the father's and mother's education level are 63% and 22%, respectively. The contribution of father's education level to the inequality of access in primary education is found to be high in all regions. There is positive relationship between father's education level and the child's education. The parental advantage/disadvantage is more likely to affect their children in the same manner. The likelihood of educated parents' sending their kids to school is higher compared to the less educated parents.

The household size is found to be the second most important inequality contributor with 24.1% in SNNP to the highest 44.1% in Tigray. Household with sizable family members may be less likely to send their children to school than household with small family member. However, this variable is not a significant factor in other regions. The child's sex is found to be significant contributor to inequality only in Tigray with 34%. This may imply the presence of systematic gender discrimination

in Tigray in accessing primary education service. However, this variable is not a significant contributor to inequality in other regions including Somali and Afar regions. The other surprising result is that household economic status has little contribution to inequality of access to primary education in all regions. This may be because of free primary education access provided by the government. In many cases, parents' education level, i.e., father's and mother's, has explained the inequality that has existed in primary education. The positive correlation between parents' and children's education level has an implication for intergenerational social mobility. Parental educational disadvantage may be transmitted to their children as educational disadvantage and vice versa. However, as far as this result is concerned, it is inconclusive. In addition to educational level, further research may be needed by accounting all possible intergenerational social mobility indicators and their relationship.

Table 6. Contribution of circumstance variables to inequality of opportunity for primary education, 7-15 years (%)

Region	Sex	Household size	Father's education	Mother's education	Household economic status
Tigray	34.2*	44.1*	5.0	7.2	7.1
Amhara	22.1	1.3	52.1*	18.9*	4.5
Oromia	0.2	0.8	64.4*	34.5*	0.2
SNNP	11.3	24.1*	27.8*	34.3*	2.2
Somali and Afar	5.6	2.2	63.8*	22.2*	1.3
National	0.05	8.85*	56.2*	34.4*	0.19

Source: Own computation based on LSMS (2015) data

In the case of access to safe drinking water (Table 7), father's education has been a contributory factor to inequality. The contribution ranges from 24% in SNNP to 80% in Somali and Afar regions. Mother's education level is also a very important factor that determines access to safe drinking water for the children in three out of six cases considered. Educated parents are found to make better decision for providing safe drinking water to their kids as compared to uneducated parents. They may have better information on the consequence of unsafe water to human health and use boiled water at home despite its sources of origins. The second most important contributor to inequality circumstance variable is household economic status. The contribution of this variable is 52.1% in SNNP region and around 8% in Somali and Afar regions. A better off household may have capacity to provide safe drinking water to household members including children; while poor households might be unable to do this. Sex of a child did not contribute in all regions to the inequality in accessing safe drinking water. Except for SNNP, household economic status does not contribute to inequality of access to safe drinking water in Tigray, Amhara and Oromia.

Table 7. Contribution of circumstance variables to inequality of opportunity for access to safe drinking water

Region	Sex	Household size	Father's education	Mother's education	Household economic status
Tigray	0.2	19.3*	6.1	73.1*	1.3
Amhara	17.8	6.0	48.7*	26.8*	0.4
Oromia	0.02	59.7*	27.9*	10.2	1.7
SNNP	0.1	4.1*	23.6*	20.4*	52.1*
Somali and Afar	0.1	4.4	80.4*	8.3	7.5*
National	0.4	3.8*	60.0*	34.6*	1.0

Source: Own computation based on LSMS (2015) data

Results of inequality contributors to access to health service are presented in Table 8. Mother's education level, household size and father's education level have been significant factors. The contribution of mother's education level to the inequality of opportunity in health service has ranged from 13% in SNNP to 62% in Amhara. Among the circumstances variable considered, mother's education level contributed 17% to the inequality among children in access to health service in Somali and Afar Regions. Similarly, fathers' education level has contributed 40.2% and 49% to the inequality among children in access to health services in Tigray and Oromia, respectively. The educated parents may have better information about the importance of health services for their family than uneducated parents. The other important contributor to inequality is household size. It contributes 35% in Tigray and 73% in SNNP. It is the dominant contributor to inequality with 52% in Somali and Afar Regions. This is followed by mother's education level and household economic status with their respective values of 17.1% and 16.2% in Somali and Afar Regions. The household economic status is also found to be a significant contributor to inequality of health services in Somali and Afar Regions with value of 16.2%. This indicates, the poor are having less access to health services compared to the better-off household. As far as this research is concerned, this variable has had insignificant contribution to inequality in all other regions. Similarly, child's sex is found to be significant contributor to inequality in Tigray region with 18.7%, but not in other regions.

Table 8. Contribution of circumstance variables to inequality of opportunity for health services

Region	Sex	Household size	Father's education	Mother's education	Household economic status
Tigray	18.7*	34.7*	40.2*	5.3	1.3
Amhara	2.0	2.4	13.8	61.6*	20.4
Oromia	0.09	0.76	49.0*	50*	0.2
SNNP	0.0	73.3*	5.7	12.6	5.9
Somali and Afar	0.9	52.4*	11.3	17.1*	16.2*
National	0.09	32.7*	41.8*	20.1*	4.7

Source: Own computation based on LSMS (2015) data

In relation to access to minimum nutritional status, parental education level, household economic status, and sex are expected to be the main contributors to inequality. The fathers' education level has contributed 61% in Amhara, 81% in Oromia, and 68% in SNNP regions (Table 9), but not in other regions. The educated parents may have better knowledge in provision and use of food and including nutritious food for their kids compared to less educated parents. The household economic status is also one of contributors to the inequality of opportunity for minimum nutrition. This ranges from 1.6% in the Somali and Afar regional states to the highest 11% in Tigray. The corresponding figure for SNNP is 2.3%. The poor have less access to minimum nutrition compared to the better off household. Sex of a child is found to be significant contributor to inequality in Tigray only with 21.4% and not in other regions. In general, among the circumstance variables considered, parents' educational level is the dominant contributor to inequality in all regions. Household economic status and household size are also found to be significant contributors to inequality in some cases. However, in almost all cases except Amhara region, sex of the child has little contribution to inequality of opportunity.

Table 9. Contribution of circumstance variables to inequality of opportunity for minimum nutrition

Region	Sex	Household size	Father's education	Mother's education	Household economic status
Tigray	0.2	3.1	9.5	7.7	10.8*
Amhara	21.4*	1.0	60.6*	0.7	0.02
Oromia	1.2	0.2	81.2*	17.7	-
SNNP	0.11	15.2	67.7*	16.1	2.3*
Somali and Afar	0.8	11.0	1.0	11.0	1.6*
National	2.3	0.08	69.7*	19.1*	8.9*

Source: Own computation based on LSMS (2015) data

4. Conclusion

In Ethiopia, to achieve the intended SDGs, knowing the causes and the types of inequality specifically for the children is crucial. Inequality is measured either as inequality of outcome and inequality of opportunity. In this article the inequality of basic opportunities among regions are measured. Opportunities are approximated by access to primary education service utilization, access to safe drinking water, access to health service utilization, and access to minimum nutrition. These are the important ones in building the future human capital of every nation. Accessing these opportunities depends on a number of factors. If the inequality of these opportunities arises due to circumstances which are beyond the control of the child, then it needs to be addressed. The average access rates, human opportunity index, and dissimilarity index are the indexes used to measure the opportunities. Access to health service and safe drinking water are the lowest accessible opportunities indicated by their coverage rate. They are also the most inequitably distributed opportunities among children who live in Somali and Afar regions. In addition, children in the Somali and Afar regions have less access to the basic opportunities compared to children living in other regions as observed from the values of the lowest human opportunity index. This indicates children who live in Somali and Afar Regions are more disadvantaged in almost all opportunities than children in other regions. Among circumstances included in the study, fathers' and mothers' education, followed by household economic status and household size are found to be the major contributors to inequality in most of the regions including Somali and Afar Regions. Thus, the following policy implications are drawn from the results:

There is a need to increase access to these basic opportunities for the children to meet the universal coverage rates. Part of the inequalities observed in the basic opportunity can be addressed partly by strengthening access to education of parents', strengthening family planning interventions, improving economic status of parents' through development of different income generating activities.

5. References

Arauco, P. V., Gazdar, H., HeviaPacheco, P., Kabeer, N., Lenhardt, A., Masood, S.Q., Naqvi, H., Nayak, N., Norton, A., Sabharwal, A. S., Scalise, E., Shepherd, A., Thorat, S., Tran, D., Vergara-Camus, L., Tassew, Woldehanna and Mariotti, C. 2014. Strengthening social justice to address intersecting inequalities, Post-2015. Oversea Developmental Institute (ODI) Policy Briefing.

Barros, P. D., Ferreira, F. H. G., Vega, J. R. M. and Chanduvi, J. S. 2009. *Measuring inequality of opportunities in Latin America and the Caribbean.* A co-publication of Palgrave Macmillan and The World Bank.

Bourguignon, F., Ferreira, H, G. and Menéndez, M. 2007. "Inequality of outcomes and inequality of opportunities in Brazil. *Review of Income and Wealth,* series 53.

Boyden, J. and Cooper, E. 2009. Questioning the power of resilience: Are children up to the task of disrupting the transmition of poverty. Pp. 289-306. *In*: Addison, T., Hulme, D., and Kanbur, R (eds.), *Poverty dynamics: Measurement and*

understanding from an interdisciplinary perspective. Oxford University Press Inc., New York.

CSA and WB (Central Statistical Agency and the World Bank). 2015. Living standards measurement study-integrated surveys on agriculture (LSMS-ISA): Ethiopia rural socioeconomic survey (ERSS) basic information document.

FAO (Food and Agriculture Organization). 2014, a. Poverty eradication: Post-2015 and SDGs nourishing people and nourishing the planet. FAO and The post-2015 developmental agenda issue papers. (http://www.fao.org/fileadmin/user_upload/post2015/14_themes_Issue_Papers/EN/14_themes__december_2014_/poverty-3.pdf). (Accessed February 12, 2015).

FAO (Food and Agriculture Organization). 2014, b. Nutrition: Post-2015 and SDGs nourishing people and nourishing the planet. FAO and The post-2015 developmental agenda issue papers. (http://www.fao.org/fileadmin/user_upload/post2015/14_themes_Issue_Papers/EN/14_themes__december_2014_/Nutrition-2.pdf). (Accessed February 12, 2015).

Goli, S., Maurya, K., Sharma, K. M. 2014. Counting rural cast inequalities in rural Uttar Pradesh. Giri Institute of Development Studies.

Hassine, N. B. 2011. Inequality of opportunity in Egypt. *The World Bank economic review*, 26 (2): 265-295 doi:10.1093/wber/lhr046. (http://wber.oxfordjournals.org/content/26/2/265.short). (Accessed April 5, 2015).

Headey, D. 2014. An analysis of trends and determinants of child under nutrition in Ethiopia, 2000-2011. Working papers 70. Ethiopian Strategic Support Programme. (http://www. ssrn.com/abstract=2523574). (Accessed January 23, 2015).

Hussein, A. 2009. "The use of triangulation in social sciences research: Can qualitative and quantitative methods be combined?". *Journal of Comparative Social Work*, 1.

Hoyos, A and Narayan, A. 2012. Inequality of opportunities among children: how much does gender matter? A background paper for the World Development Report 2012: Gender equality and development.

IFPRI (International Food Policy Research Institute). 2014. *Global nutrition report, 2014: Actions and accountability to accelerate the world's progress on nutrition*. Washington, DC.

Isfahani, S. D, Hassine. B. and Assaad, R. 2014. "Equality of opportunity in educational achievement in the Middle East and North Africa". *Journal of Economic Inequality*, 12: 489-515. DOI: 10.1007/s10888-013-9263-6. (http://link.springer.com/article/10.1007/s10888-013-9263-6#page-1). (Accessed April 7, 2015).

Jemmali, H and Amhara, M. 2014. "Assessing inequality of human opportunities: A new approach for public policy in Tunisia". *Applied Research Quality Life*. DOI: 10.1007/s11482-014-9315-5. (http://link.springer.com/article/10.1007/s11482-014-9315-5#page-1). (Accessed April 7, 2015).

Jones, M. A.; Roemer, J. E. and Dias, P. R. 2014. "Equalizing opportunities in health through educational policy". *Social Choice Welfare*, 43: 521-545.

Lefranc, A., Pistolesi, N. and Trannoy, A. 2008. "Inequality of opportunities vs. inequality of outcomes: Are western societies all alike?". *Review of Income and Wealth*, 54 (4).

Melamed, C. 2014. Inequalities in the post-2015: Focus on the targets, not on the goals? Oversea Developmental Institute. (http://www.odi.org/programmes/growth-poverty-inequality/inequality). (Accessed February 9, 2015).

MoFED (Ministry of Finance and Economic Development). 2013. Development and poverty in Ethiopia, 1995\96-2010\11 Annual Report.

Norton, A. Mariotti, C., Sheferd, A. and Kabeer, N. 2014. What can be done to address intersecting inequalities? Oversea Developmental Institute (ODI) Policy Briefing.

Nussbaum. C. 2011. "Capabilities, entitlements, rights: supplementation and critique". *Journal of Human Development and Capabilities", a Multi-Disciplinary Journal for People-Centered Development, 1*2 (1): 23-37. doi: 10.1080/19452829.2011.541731.

Quisumbing, R. A. 2009. Investment, bequest and public policy: Intergenerational transfer and the escape from poverty. Pp 267-288. *In:* Addison, T., Hulme, D., and Kanbur, R (eds.), *Poverty dynamics: Measurement and understanding from an interdisciplinary perspective.* Oxford University Press Inc., New York.

Roelen, K., Gassmann, F. and de Neubourg, C. 2012. "False positives or hidden dimensions: What can monetary and multidimensional measurement tell us about child poverty in Vietnam?" *International Journal of Social Welfare,* 21: 393-407.

Roemer, E. J. 1998. Equality of opportunity. Cambridge, MA: Harvard University Press.

Roemer, E. J. 2013. "Economic development as opportunity equalization". *The World Bank Economic Review*, 28 (2): 189-209.

Sen, A. K. 2006. Conceptualizing and measuring poverty. *In*: David B. Grusky and Ravi Kanbur (eds.), *Poverty and inequality.* Stanford University Press.

Shepherd, A., Scott, L., Mariotti, C., Kessy, F., Gaiha, R., Corta, L., Hanifnia, K., Kaicker, N., Lenhardt, A., Lwanga-Ntale, C., Sen, B., Sijapati, B., Strawson, T., Thapa, G., Underhill, H. and Wild, L. 2014. The chronic poverty report 2014-2015: The road to zero extreme poverty. Chronic poverty advisory network. Overseas Development Institute (http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8834.pdf). (Accessed February 11, 2015).

Son, H. H. 2013. "Inequality of human opportunities in developing Asia". *Asian Development Review*, 30 (2): 110-130.

UNICEF (United Nation Children Education Fund). 2011. Policy and practice: A multidimensional approach to measuring child poverty. Social and economic policy working briefs.

Vega, J, R, M., Barros, R, P., Chanduvi, S, J., Giugale, M., Louise, J., Cord, J, M., Pessino, C and Hasan, A. 2012. *Do our children have a chance? A human opportunity report for Latin America and the Caribbean.* The World Bank, Washington DC.

Wild, L., Booth, D., Cummings, C. Foresti, M. and Wale, J. 2015. Adapting development improving services to the poor. Oversea developmental institute (ODI) Report, February 2015. (http//:www. odi. Org.). (Accessed February 8, 2015).

Wong, S. E. 2013. "Gender preference and transfers from parents to children: An inter-regional comparison", *International Review of Applied Economics,* 27 (1): 61-80. doi: 10.1080/02692171.2012.700702.

Woodhead, M., Dornan, P. and Murray, H. 2012. What inequality means for children: Evidence from young lives. (http://www.oro.open ac.uk.). (Accessed January 24, 2015).

Yacob, Aklilu and Catley, A. 2010. "Mind the gap commercialization, livelihoods and wealth disparity in pastoralist areas of Ethiopia. *Feinstein International Center*, Tufts University.

Farmers' Perceptions of Land Productivity and Degradation, and Major Practices of Land Management in Habru Woreda, North Wollo Zone, Amhara National Regional State, Ethiopia

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Abstract: This study assesses farmers' perceptions of farmland productivity and land degradation, and land management practices in Habru *woreda*, north Wollo zone, Amhara national regional state, northern Ethiopia. The study employed survey research design. Data were gathered from 215 randomly selected sample respondents, 12 key informant interviewees, and 8 focus group discussion participants from 4 purposively selected representative kebeles based on agroecology and land degradation. Descriptive analysis was employed for the quantitative data using SPSS software version 17. Accordingly, about 36% and 34% of sample respondents perceived their farmlands' productivity as very good and good, respectively. Land degradation was perceived by about 62.3% of sample respondents as severe and by 32.1% of them as moderate. Farmers used traditional and introduced management practices namely check dams, stone/soil bunds, application of manure, tree planting, contour ploughing and fallowing either per se or in combinations. Recently, Participatory Safety Net Program was implemented being derived by self-motivation and by incentives of the program as reported by 65.1% of 32.1% of sample respondents in the study area, respectively. Despite these endeavours, rainfall variability, land degradation, weeds and pests, delay in agricultural inputs, and traditional farming practices are reported as among major challenges of agricultural production. Therefore, it calls for demand driven interventions not only to avert short term challenges encountered by the farming community but also towards sustainable land management, poverty reduction, food security and livelihood development.

Keywords: Farmers' Perceptions; Habru *Woreda*; Land Degradation; Land Management Practices; Land Productivity

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1. Introduction

Land degradation is a global phenomenon that endangers the livelihoods of rural farmers indeed, of the population at large, and a country's potential to produce crops, livestock, and products from other natural resources. It remains an important global agenda in the 21st century due to its adverse impact on agronomic productivity, environment, food security, and the quality of life (Eswaran *et al.*, 2001). On a global scale, land resources are becoming increasingly scarce and the quality of land resources is usually decreasing because of land degradation and poor land management practices. Land degradation affects all three elements of the critical triangle of development goals, namely agricultural growth, poverty reduction, and sustainable resource management (Vosti and Reardon, 1997). Only few countries have land resources available for agricultural expansion, and in most cases, the cultivated land today is the same land that must be protected for the future (Barrett *et al*., 2002). Land degradation is likely to lead to further impoverishment, and conservation efforts may be critical to prevent this. Degradation plagues almost all areas of the world but more severe in arid, semi-arid and sub-humid areas and presents a global challenge that requires urgent attention (UNCCD, 2008).

The major factors of land degradation in developing countries are improper and unsustainable land management due to population pressure, small farm land, land tenure insecurity, land redistribution, limited access to credit and limited education that enforced dramatic decline in agricultural productivity that reached the level beyond the subsistence requirement of a household (IFPRI and ILRI 2007). On the other hand, degradation of soils and other natural resources proceed at a high rate in much of Africa, reflecting low rates of adoption of sustainable natural resource management strategies, especially among the poorer sub-population of smallholder producers (Barrett *et al*., 2002).

Sub-Saharan Africa (SSA) is particularly vulnerable to threats of natural resource degradation and poverty. This is due to various factors including a high population growth rate and increasing population pressure, reliance on agriculture that is vulnerable to environmental change, fragile natural resources and ecosystems, high rates of erosion and land degradation, and low yields and high post-harvest yield losses. In SSA concerted efforts to deal with land degradation through sustainable land management (SLM) must address issues related to water scarcity, soil infertility, organic matter and biodiversity. Sustainable land management seeks to increase production through both traditional and innovative systems, and to improve resilience to the various environmental threats (Liniger *et al*., 2011). Through centuries of farming practices, the farmers and pastoralists in Ethiopia were managing their land resources pertaining to the needs of prevalent populations. With an increasing population and growing demands, more land was put under cultivation. Subsequently forest areas were cleared, encroaching agriculture into steep slopes and areas that were not suitable for agricultural activities. Land degradation and particularly soil erosion by water not only reduced the productivity of the land but also aggravated the effects of drought, such as famine and migration. Obvious signs of degradation in the highlands of Ethiopia are wide gullies swallowing fertile lands and rock-out crops

making farming a risky business. But also less visible sheet erosion processes result in a tremendous loss of fertile topsoil, particularly on cropland (Mitiku *et al.,* 2006).

The Ethiopian highlands are known for their inherent fertility and sufficient rainfall. They are also among those with highest agricultural potential in Africa, and yet they are threatened by accelerating land degradation (Shiferaw and Holden, 1998). According to Assefa (2009), land degradation is a major problem in the highlands of Ethiopian, as roughly estimated, nearly 1.0 to 1.9 billion tons of soil is lost each year due to unsustainable and poor land management practices. The problem is serious in the northern highlands of Ethiopia, particularly in Amhara region, Habru *woreda* where land degradation is severe. Farming has expanded to marginal lands, communal grazing land and the natural forests on the verge of total disappearance due to inappropriate land management practices. The concerned government agencies and NGOs have been making efforts to reverse the situation; however, the perception held by the farmers about land degradation and land management practices at local level have not been studied systematically in the study area.

In Ethiopia, significant soil and water conservation (SWC) activities were implemented during the 1970 and 1980s by mobilizing farmers through their peasant associations, mainly in food for work programs (Bewket, 2007). This approach was criticized for its top down approach, lack of participation of local community and consideration of local scenario based implementation instead of black-sheet recommendations. In many parts of the country, the recumbent government has also been undertaking SWC through integrated and participatory watershed development approaches to improve rural livelihoods with sustainable natural resource management. One of the goals, in the government's Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) of 2006-2011, was to enhance food security through improved natural resources management (MoFED, 2006). But land management practices are complex issues requiring further investigations as they are influenced by different factors operating at different scales (Gashaw, 2006; Pender *et al.,* 2006). In a nutshell, this paper reports on perception of land degradation and practices of land management by smallholding farmers in the study area.

2. Research Methods

2.1. Description of the Study Area

Astronomically, Habru *woreda* is located between 11°24'00"N-11°45'00"N, Latitude and 39°30'00"E-39°57'00"E, Longitude. Habru *woreda* is located in North Wollo administrative zone, Amhara regional state, Ethiopia. Mersa town is the center of the Woreda, which is 490km northeast of Addis Ababa and 30km south of Woldiya, capital of north Wollo zone of the region. Habru *woreda* is bordered on the south by Mille river, on the west by Gubalafto *woreda*, on the north by the Alawuha river, and on the east by the Afar region. The topography was characterized by plain lands (40%), plateaus (35%), escarpment (22%), and other landscapes (3%).

2.2. Research Design and Procedure

To achieve the objective of this study, a descriptive survey research design was employed. The data obtained from primary and secondary sources were analysed through qualitative and quantitative techniques. A multi-stage sampling procedure was employed to select the sample '*kebeles'* and determine the sample size. There are 34 kebeles in *Habru woreda and* multistage random sampling was employed to select four of them. In the first stage, 34 '*kebeles'* of the study area are classified into two agro-ecological zones: temperate highland (*Dega*) and sub-tropical mid-highland (*Woina Dega*). In the next stage, two '*kebeles'* from the highland agro-ecology, and two from mid-highland agro-ecology were purposively selected on severity of land degradation. Out of 1925 household heads, 215 household heads (106 from the highland, and 109 from the mid-highland agro-ecologies) were selected for survey through random sampling technique. In addition to this, 12 key informants were selected, namely development agents, agricultural experts, model farmers, community leaders and local government representatives and key informants interview (KIIs) was employed. The data was triangulated with 8 respondents of participants of focus group discussions (FGDs). The data were analysed through statistical techniques such as frequency and percentage.

3. Results and Discussions

3.1. Farmers' Perception of Farmland Productivity

Table 1. Distribution of respondents on farmers' perception of farmland productivity

Productivity level	Frequency	%
Very good	77	35.82
Good	73	33.95
Moderate	26	12.09
Poor	39	18.14
Total	215	100

Source: Field survey, 2014

Land productivity is essential to raise agricultural production on a given plot of land. Farmers' perception is associated with land productivity and crop production. According to the survey results, 69.8% of sample respondents perceived their farmlands as good and very good in the study area (Table 1). Despite this fact, most stated the challenges that they faced in the due time including rainfall variability, land degradation, weeds and pests, delay in agricultural inputs, among others. The qualitative results also revealed that insufficient and inappropriate timing and supply of chemical fertilizers have effect on the decline of land productivity. During the KIIs, model farmers underlined there were serious delays on fertilizers. Moreover, farmers use repeated ploughing of farmlands as a traditional practice. They also make use of traditional farming practices that is labeled as highly erosive cropping practices by Constable (1984). According to him, such kinds of practices are

responsible for about 80% of the erosion in the highlands and these practices are namely the growing of crops on steep slopes without applying soil conservation practices; the growing of food crops that requires fine seedbeds (e.g. Teff) that remain loose and erodible for a long period during the rainy season; planting practices that leave the soil bare at times of erosive rain, and the use of crop residues and animal dung for fodder and fuel wood. Tefera (2010) underlined that such traditional farming system knocks down sustainability of production and productivity by changing soil structure and exposing farmlands for aggravated soil erosion and degradation.

3.2. Farmers' Perception of Land Degradation

Farmers' knowledge and perception of land degradation are reflected in the use of certain land management practices. Farmers who have already perceived the problem of land degradation are more likely to invest on land management practices to minimize the problem (Gashaw, 2006). According to survey results (Table 2), about 62.3% of the respondents have perceived the problem of land degradation as severe, and this has also been reflected during the KIIs and FGDs that severity of land degradation have denude some parts of their farmlands. Whereas, about 32.1% perceived moderate status of land degradation on their farmlands. Regarding the perception of major causes of land degradation, 22.8% and 20.9% of sample respondents have perceived deforestation and overgrazing as major causes, respectively (Table 2).

Table 2. Farmers' perception of levels and causes of land degradation

Farmers' perceptions of status of farmland degradation	Frequency	%
Low	12	5.6
Moderate	69	32.1
Sever	134	62.3
Total	215	100.0
Farmers' perceptions of causes of farmland degradation		
Deforestation	49	22.8
Over grazing	45	20.9
Over cultivation	37	17.2
Poor farming practices	28	13.0
Excess rainfall	17	7.9
Cultivation of steep slopes	26	12.1
Poor government policies	13	6.1
Total	215	100.0

Source: Field survey, 2014

3.3. Major Types of Land Management Practices

The classification of land management practices into traditional and introduced may be controversial. Among the reasons, spatial and temporal variation in the functionality and effectiveness of a particular land management practices; socio-cultural and technological differences; and lack of universality as a traditional management system at a given locality may not be so in other localities (Dejenie, 2011). Despite this fact, most of these practices are relatively well adopted either in a form of traditional practices since long period of time or in a form of introduced from other communities in Habru *woreda*, like in other parts of the region. These major practices implemented in the study area are presented in the following sections.

3.3.1. Traditional land management practices

The traditional land management practices are those that are being implemented since long periods of time and some of which are identified by local nomenclature. According to Habru *woreda* Agriculture and Rural Development Office, there are about 11 types of traditional land management practices that have been identified and registered by Ministry of Agriculture (Table 3).

Table 3. Locally identified major traditional land management practices in Habru *woreda*

English version	Local version
Stone bunds	*Yedingay Kab*
Drainage ditches	*Boyi (tress boyi, December boyi, and fesses boyi)*
Drainage ditches	*Mele*
Mulching by crop residues	*Sircho*
Weeding by oxen	*Shilshallo*
Furrows	*Dirdaro*
Livestock trampling/compacting	*Tiktako*
Fencing/traditional boundary	*Dib/dinber/*weber/*mashem*
Agro-forestry practices	*"shiferaw" zaf /morryinga/*

Source: Field survey, 2014

3.3.2. Introduced land management practices

Primarily, conservation practices are introduced with the objective of conserving, developing, and rehabilitating degraded agricultural lands as well as increasing food security through increased food crop production (Dejenie, 2011). In the study area, the list of major land management practices reported by sample respondents include check dams, stone/soil bunds, application of manure, tree planting, contour ploughing and fallowing either *per se* and/or in combinations. As revealed in Table 4, about 21.9%, 18.1% and 14.9% of sample respondents practised check dams, stone/soil bunds, and manure applications *per se*, respectively. Likewise, combinations of the aforementioned methods are reported by about 27.9% of sample respondents. The

major introduced land management practices in the study area are presented in Table 4 below.

Table 4. Major introduced land management practices by sample respondents

Introduced land management practices	Frequency	%
Fallowing	6	2.79
Contour farming	9	4.19
Manure application	32	14.88
Soil (stone) bunds	39	18.14
Check dam	47	21.86
Tree planting	22	10.23
Others*	60	27.91
Total	215	100.00

*Combination of all practices

Source: Field survey, 2014

Fallowing: According to the survey results, about 2.8% of the respondents practised fallowing as farmland management practice. It is practiced by relatively resource-rich farmers who own relatively plenty farmland. However, according to KII results its application is becoming lesser because farmers need the land to grow crops every year for their increasing population as they have shortage of land.

Contour farming: Contour farming is a common traditional practice of tilling the land along the contours of the slope to reduce the runoff on a steep sloping land. It is used separately or in combination with other conservation structures such as plantation trees and cut-off drains (Damena, 2012). The findings of this study have indicated that about 4% of sample respondents applied the structures in combination with other structural conservation practices.

Crop residues: Leaving crop residues on the field after harvest is another traditional practice used by the farmers in the study area. During field observations, there were only small amounts of crop residues visible in farm plots. Even though farmers' perceived the importance of crop residue for improvement of soil fertility and also for soil and water conservation, |most of the farm households in the area, especially women, were collecting crop residues from the field for animal feed and fuel wood. According to KII results, some of the residues from cereals (wheat, barley and *teff*) and legumes (haricot beans and pea beans) were stored in the home compound and sold to feed livestock during the dry season.

Soil (stone) bund: Soil (stone) bund is an embankment or ridge built across a slope along the contour. Soil bunds are made of soil or mud (Fig. 1). In the study area, about 18% of the respondents constructed soil (stone) bunds (Table 4), particularly around the mountainous area; farmers were constructing bunds by the cash they earned from Participatory Safety Net Program (PSNP). Through FGDs, it was identified that farmers mostly used soil/stone bunds to maintain rain water. Unless they are well designed and when overtopped at one location, they will cause gullies.

Such structures are better suited for semi-arid and arid parts of the country than in the high rainfall areas. In line with this, farmers are willing to conserve their soil and water, but they demand more appropriate technologies, and that poorly designed practices can be the major cause of erosion in areas treated with SWC (Ayele, 2010).

Figure 1. Fields with stone/soil bunds and terraces are common in Merto area
Source: Photograph taken during field survey, 2014

Tree planting: Trees and other non–crop plants such as sisal, euphorbia and recently introduced the so-called "*shiferaw*" tree (also called *Morryinga*) is planted along the contour sometimes together with other conservation practices. One tenth of the sample respondents are in favour of it (Table 4). According to the FGDs, it is applied to reduce runoff and conserve the soil and water. Indigenous and newly introduced trees and shrubs are planted upon overused and eroded lands to enable land rehabilitation. In certain areas, the community use area enclosure so that both human and livestock interventions are restricted to enable land rehabilitation. Key informants' interview results indicated that these plants are drought resistant, not edible and therefore not destroyed by animals in the area. Another advantage is that farmers use these on along their farmland to demark their farm and/or homestead boundaries.

Check dams: Check dams are built in the gully systems to harvest water and sediment and thereby control gully erosion (Fig. 2). Survey results have showed that about 22% of the respondents participated in the construction of check dams. In the field observation, it was observed that rill and gullies were very common and the community used stone, soil, and cement to construct the check dams.

According to KIIs, check dams are also used to collecting water that is usually used for small scale irrigation as well as planting permanent trees in the side of the check dams. Check dam is the most effective practice of adoption of SWC measures that help to plug the gully and rills and to increase soil wetness.

Figure 2: Check dam constructed in Goshwuha area to harvest water and sediments
Source: Photograph taken during field survey, 2014

Drainage ditches: Drainage ditches are the most widely used conservation practices in the study area. They are micro-channels constructed on cultivated farms to drain off excess water and control soil erosion. Construction is part of the normal ploughing activity in these low cost measures. However, unlike the plough furrows, the ditches are made relatively wider and deeper in dimension and usually run diagonally across the field. Local farmers in study area call these drainage ditches as *boyi* and there are different types of *boyis namely tress boyis, December boyi and fessess boyi* (Table 3).

Cut off drains: This structure is a graded channel constructed mainly in moist area to intercept and divert the surface runoff from higher slopes and protect downstream cultivated land or village (Assefa, 2009). It is one of the physical structures constructed by digging the soil deep to divert the runoff before reaching the farmland. According to FGDs, cut off drains are constructed during dry season in order to avoid impediment of land preparation during main cropping season. On the contrary, cut-off drains in dry area are used to divert runoff and additional water into cultivated fields to increase soil moisture. The farmers constructed such structures not only to prevent loss of seeds, fertilizer and soil due to excessive runoff coming from uplands but also to dispose excess water from the farmlands. Despite this fact, most of the farmers perceive that these structures accelerate soil erosion through time.

***Fanyajuu*:** It is constructed during dry season to reduce and/or stop erosion and increase water holding capacity of the soil so that soil productivity improved and crop yield enhanced. *Fanyajuu* is usually applied in cultivation land with slopes with gradient ranging from 3% to 16%. It can also be constructed in uniform terrains with deep soils. Most farmers are in favour of this structure and it is also substantiated by other authors too. According to Desta *et al.* (2005), the main benefit of *fanyajuu* is its capacity to become bench terrace within few years than soil bunds, yet it has overtopping and breakages. The construction of *fanyajuu* takes less space than soil bunds and accelerates bench development; thus, space can be greatly reduced with *fanyajuu* terraces (WFP, 2005).

Recently, increasing demands for food crop production, associated shortage of farmlands, and the likes forced farmers to cease long-stayed traditional ways of land

management practices such as fallowing, manuring, terracing, and leaving crop residues on the fields (Damtew, 2006).

3.4. Drivers of Participation in Land Management Practices

The contemporary status of land management practices in the study area is of two major parts: land management programs with and without government or NGO subsidies in the form of Food for Work (FFW). In the first case, land management practices on crop lands are thoroughly implemented by the farmers' themselves without any financial or material support from either the government or NGOs. Land management practices in this case are indigenous, inherited and they have been transferred from generation to generation and their costs of investment are completely covered by farm households.

For the second case, land management activities outside cultivable plots such as gully stabilization, check dam construction, and hillside terraces are supported by FFW programs subsidized by the government and/or NGOs. These are undertaken over community lands and sample respondents were asked to identify driving factors for their participation in land management practices in the study area. Accordingly, about 65.1% of them participated by self-motivation while 32.1% by incentives in the form of FFW using PSNP (Table 5). The interview results have showed that public work components of PSNP in the study area mostly focus on protecting communal lands such as hillside terracing and participating in construction of roads, school and health centres. Hence, there might be time scarcity to construct soil bund on farm plots. From this data, it is possible to infer that the majority of them have participated on land management practices through self-motivation. As per the results obtained from the FGDs, most respondents have stated that participation in PSNP have encouraged cooperation among sample households. Yet, landless respondents have been dissatisfied and (have) complained as they have not been beneficiaries of the program.

Table 5. Drivers of participation in land management practices by respondents

Participation in land management practices	Frequency	%
By incentive	69	32
Enforced by local leaders	6	3
By self-motivation	140	65
Total	215	100

Source: Field survey, 2014

4. Conclusions and Recommendations

Land degradation is a global phenomenon that endangers the livelihoods of rural farmers. The challenges are very severe in the developing countries where the livelihoods of the community are dependent on land and land resources. To understand perception of land degradation and practices of land management methods in Habru *woreda*, north Wollo zone of Amhara national regional state, three

'kebeles' were purposively selected and a total of 235 respondents and participants were sources of data. The data were gathered using questionnaire, KIIs and FGDs and were analysed through statistical techniques such as frequency and percentage.

According to the major findings of the study, about 69.8% of sample respondents have perceived their farmlands as good and very good in the study area. Despite this fact, most have stated the challenges due to insufficient and inappropriate timing and supply of chemical fertilizers. About 62.3% and 32.1% of them have perceived land degradation on their farmlands to be 'severe' and 'moderate', respectively. Farmers manage their farmlands both in traditional and introduced methods including check dams, stone/soil bunds, application of manure, tree planting, contour ploughing and fallowing either *per se* and/or in combinations. Their participation in public land management practices are derived by self-motivation and by incentives as reported by 65.1% and 32.1%, respectively.

In a nutshell, proper land management should be devised to avert the severe land degradation prevalent in the study area. Likewise, contextualized interventions by concerned stakeholders should be devised not only to avert the shortfalls behind access to agricultural inputs, PSNP and FFW projects, and resources but also to improve the status of land management practices implemented by smallholding farmers both at their farmlands and community lands.

5. References

Assefa, Fikru. 2009. Assessment of adoption behavior of soil and water conservation practices in the Koga watershed, highlands of Ethiopia: MSc thesis, faculty of the graduate school of Cornell university.

Ayele, Belay. 2010. The effect of rural land certification in securing land rights: The case of Amhara region, Ethiopia; Unpublished masters thesis, the Netherlands.

Barrett, C. B., F. Place, and A. A. Aboud. 2002. Natural resources management in African agriculture. Nairobi, Kenya: International center for research in agroforestry and commonwealth agricultural bureau international.

Bewket, W. 2007. Soil and water conservation intervention with conventional technologies in northwestern highlands of Ethiopia: Acceptance and adoption by farmers. *Land Use Policy*, 24: 404-416.

Constable, M. 1984. Ethiopian highlands reclamation study: The degradation of resources and an evaluation of actions to combat it (draft of part II of the EHRS rural development strategy), Addis Ababa.

Damena, Desta. 2012. Determinants of farmers' land management practices: The case of Tole district, south west shewa zone, Oromia national regional state, Ethiopia. *Journal of Sustainable Development in Africa*, 14 (1): 76-96.

Damtew, Endris. 2006. Comparative financial evaluation of soil conservation measures in Nnorth Wollo: The case of Golo river catchment, Habru woreda, M.Sc.thesis, Haramaya University.

Dejenie, Tadesse. 2011. Assessment of the practices and aspects of farmland management in Gozamenwereda, east Gojjam zone, Amhara region, Ethiopia: M.Sc. thesis, Addis Ababa University.

Desta, Lakew, V. Carucci, Asrat Kebede and Yitayew, A. 2005. Community based participatory watershed development: A guideline; ministry of agriculture and rural development, Addis Ababa, Ethiopia.

Dejenie, Tadesse. 2011. Assessment of the practices and aspects of farmland management in Gozamen district, east Gojjam zone, Ethiopia. MSc thesis, school of graduate studies, college of social sciences and humanities, faculty of social sciences, Addis Ababa University, Addis Ababa, Ethiopia.

Eswaran, H., Lal, R. and Reich, P. F. 2001. "Land degradation: An overview", in Bridges, E. M., Hannam, I. D., Oldeman, L. R., Pening de Vries, F. W. T., Scherr, S. J. and Sompatpanit, S., (eds.), Responses to land degradation, proceedings 2nd international conference on land degradation and desertification, Khon Kaen, Thailand, New.

Gashaw, Wegayehu. 2006. Determinants of farmers' decision on soil and water conservation practices in Dire Dawa administration, M.Sc. thesis, Haramaya University.

IFPRI (International Food Policy Research Institute) and ILRI (International Livestock Research Institute). 2007. "Policies for sustainable land management in east African highlands" in Benin, Samuel; J. Pender and S. Ehui (eds) summary of paper and proceeding of a conference held at the UN Economic Commission for Africa /UNECA/, Addis Ababa, Ethiopia.

Liniger, H. P., R. Mekdaschi, Studer, C. Hauert and M. Gurtner. 2011. Sustainable land management in practice – guidelines and best practices for Sub-Saharan Africa. TerrAfrica, world overview of conservation approaches and technologies (WOCAT) and food and agriculture organization of the United Nations (FAO).

Ministry of Finance and Economic Development (MoFED). 2006. Ethiopia: Building on progress: A plan for accelerated and sustained development to end poverty (PASDEP), 2005/06-2009/10, volume II: Policy matrix. MoFED, Addis Ababa, Ethiopia.

Mitiku, H., Herweg, K., Stillhardt, B. 2006. Sustainable land management – a new approach to soil and water conservation in Ethiopia. Mekelle, Ethiopia: Land resources management and environmental protection department, Mekelle University; Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern, and Swiss National Centre of Competence in Research (NCCR) north-south, Pp. 269.

Pender, J., F. Place, and Simeon Ehui. 2006. Strategies for sustainable land management, lesson from the east African highlands: International food policy research institute and World Bank, Washington, DC, USA.

Shiferaw, B. and S. Holden. 1998. Resource degradation and adoption of land conservation technologies in the Ethiopian highlands: A case study in Andit Tid north Shewa. *Agricultural Economics*, 18 (3): 233-247.

Tefera, Shibru. 2010. Land degradation and farmers' perception: The case of Limo woreda, Hadiya zone of SNNPR, Ethiopia: unpublished M.Sc. thesis, Addis Ababa University.

UNCCD (United Nations Convention to Combat Desertification). 2008. Desertification: coping with today's global challenges in the context of the strategy of the UNCCD. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH; Eschborn /Germany.

Vosti, S. and Reardon, T. 1997. Sustainability, growth, and poverty alleviation: A policy and agro-ecological perspective. Baltimore: Johns Hopkins University Press.

WFP (World Food Program). 2014. Report on the cost-benefit analysis and impact evaluation of SWC and forestry measures; managing environmental resources to enable transitions to more sustainable livelihoods, Addis Ababa, Ethiopia.

A Constructivist Approach to Teaching and Learning: Rhetoric versus Reality in the Context of Ethiopian Secondary Schools

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Abstract: In this study, an attempt was made to examine the alignment of the teaching context in secondary schools in Ethiopia with a constructivist approach as emphasized in the education policy of the country. Constructivism underlies innovative approaches such as active learning, problem solving, and cooperative learning, and is often associated with quality learning outcomes. Nevertheless, it is believed that such an approach is less likely to lead to intended outcomes unless the teaching context is conducive. In light of this, by engaging teachers in a critical reflection, the alignment of their views and teaching context with a constructivist approach was examined. Data were collected from a class of 25 secondary school teachers. The results revealed that teachers have positive views about a constructivist approach to teaching and its introduction to the education system in Ethiopia. However, it is found that its realization in practice is more rhetoric than reality as the existing teaching practices are far behind the principles of constructivism. The traditional approach to teaching in which the teacher lectures and students passively listen is an established culture of teaching in schools and is unlikely to change as intended due to the overwhelmingly complex impediments to change in the education system. The students' poor background, top-down policies and curricula, poor administrative and physical infrastructure are among the impediments that are holding back its implementation. Therefore, a supportive environment that encourages teachers to adopt the intended approach is needed as mere policy changes do not guarantee improvements at grassroots level.

Keywords: A constructivist Approach; Critical Reflection; Reality; Rhetoric; Teaching Context

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1. Introduction

The education system in Ethiopia has undergone substantial reforms over the past two decades. The basis for the reformation laid in 1994 with the formulation of new Education and Training Policy (ETP) that claimed to ensure quality, relevance, equity and accessibility of education in Ethiopia (MoE, 1994). ETP emphasized innovative approaches to teaching such as active learning, cooperative learning, student-centeredness and continuous assessment among the most important strategies for enhancing the quality of education at all levels in Ethiopia (Derebssa, 2006). The reform marked a paradigm shift from the traditional approach (Knowledge transmission) which has inflicted the Ethiopian education system for centuries to the employment of innovative approaches to teaching which are in line with a constructivist view of teaching and learning. A constructivist perspective views teaching as facilitating learning whereby students develop knowledge individually and with others rather than just waiting for teachers to provide them with knowledge (Aypay, 2011). In accordance with this view and the goals of ETP, programs and curricula were reformed at different levels of the education system. In addition, as the agents of these changes, teachers were required at different levels to improve the quality of their teaching and eventually to become more innovative in their approach to teaching.

In light of the aforementioned calls for change, this study attempted to examine the alignment of the teaching environment in the secondary schools in Ethiopia with a constructivist approach to teaching and learning which is emphasized in the education policy of the country. Studies reveal that though a constructivist approach is often associated with quality learning outcomes, it is less likely to lead to intended outcomes unless the teaching environment is supportive (Gow and Kember, 1993; Varnava-Marouchou, 2011). In other words, teachers need to have a supportive environment to try out the changes in their teaching as intended by the policy and thereby for the policy to lead to the intended outcomes.

The study produced empirical evidence on teachers' views of a constructivist approach to teaching and the alignment of their teaching environment with this approach. Such evidence was felt to be useful to uncover strategies to align teachers' views and the teaching environment with the reform efforts towards innovative approaches to teaching. The following research questions were designed to seek empirical answer to the issues stated above. These are: (a) what are the views of teachers towards a constructivist approach to teaching and learning?; (b) what kinds of support exist in secondary schools to help teachers adopt a constructivist approach to teaching and learning?; (c) what practical challenges do teachers face in adopting a constructivist approach in their teaching?.

A constructivist approach to teaching and learning asserts that knowledge is not transferred passively from a teacher to a learner; rather, it is constructed and reconstructed by the active involvement of the learner in the learning process (Aypay, 2011). According to Piaget (1952) whose theory is believed to lay the foundation of constructivism, an individual adapts to constantly changing situations or experiences through the processes of accommodation and assimilation. That is, if the experience

is familiar, the individual assimilates or incorporates it into an already existing framework without losing the cognitive equilibrium. However, if the experience is a new one, cognitive disequilibrium results, and, thus, the individual adjusts the existing knowledge structure to accommodate the new experience, which leads to re-equilibrium. Learning, thus, occurs as the learner attempts to build new experiences or knowledge or concepts upon the existing knowledge structure. For this reason, in the process of learning, the learner does not passively receive isolated facts from the teacher or from the text; rather, he/she actively constructs or reconstructs the existing cognitive structure to acquire new knowledge and understanding (Aypay, 2011; MacLellan and Soden, 2004; Mascolo, 2009).

The second instance of constructivism as forwarded by Vygotsky takes into account the role of social interaction in learning. Vygotsky (1978) suggests that knowledge is socially constructed through interaction and discourse with others in the environment and is considered as a social process in which meaning is made dialogically. Learning is, thus, considered as a social process, which happens due to the learners' interactions with fellow students and teachers. Vygotsky (1978: 86) also theorizes that learning takes place in the 'Zone of Proximal Development' (ZPD), which refers to "*the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers".* According to Vygotsky, the actual development level defines all the activities the learner can perform on his/her own independently without the help of others whereas the level of potential development defines all the things that the leaner cannot do alone as the functions for such things have not matured in the learner. These levels are determined through a problem that the learner can or cannot perform. So, if the learner can perform the problem independently, it shows the learner's actual development level whereas if he/she cannot perform it independently but only with the assistance of someone else, it shows the learner's potential development.

The zone of proximal development thus helps to define those functions which are not matured in the learner but in the process of maturation with the support of 'More Knowledgeable Others' (MKO) such as learners and peers through a process called 'scaffolding' (McMorrow, 2006). This means, in order for the student to acquire new experience and knowledge, teachers or peers that are more knowledgeable should provide scaffolds for the learning experience. During the scaffolding process, the MKO acts as a facilitator who stimulates knowledge construction, not as an expert, so that students freely collaborate with others to construct new knowledge and understandings. The scaffolding or the assistance can be withdrawn gradually when the students develop the required competence.

In general, based on Torenbeek *et al*. (2009), constructivism is established on the following predominant principles. First, constructivism maintains that learners construct new knowledge drawing upon their pervious knowledge structures. This view is in contrast to the traditional assumption that learners have very little knowledge to contribute to their own learning. The implication of this is that teachers

should take into account learners' previous knowledge when making learning decisions (Mascolo, 2009). Secondly, constructivism asserts that learners should be encouraged to construct knowledge both individually as well as with other students. This means learning is dialogical and involves learners in interaction with others so that they learn how to give and take information from others. Thirdly, constructivism establishes that learners should share responsibility for their learning in terms of goal setting, self-monitoring, self-assessment and feedback. In other words, they should not entirely be dependent on their teachers for their own educational processes; rather, they should be encouraged to plan, manage and monitor their learning. Finally, constructivism suggests that learning should be authentic or resemble real-life situations so that it stimulates learners' motivation for learning. This means learning is more motivating when it is purposeful and enables learners to deal with real-life problems.

Therefore, teaching based on a constructivist approach is student-focused and gives more attention to what students do in order to learn than what teachers do in order to teach. As a result, teachers should be encouraged to adopt a constructivist approach to teaching, which will in turn encourage students to adopt a deeper approach to learning (Trigwell *et al*., 1999). According to Trigwell and Prosser (1991), a deep approach to learning is highly associated with quality learning outcomes as it encourages understanding and applications of knowledge in contrast to a surface approach or a superficial approach which leads to poorer learning outcomes such as memorization and rote learning.

Despite all these benefits, many scholars argue that constructivism is the espoused theory (ideal) more than the theory-in-use (practical) (Biggs, 1996). It is asserted that although constructivism is a popular theory in education, its implementation into classroom realities may not be as such simple. It could also be more challenging in contexts like Ethiopia where teachers lack the basic resources for teaching. However, it is impossible to boldly conclude like this as it requires an empirical study that examines teaching practices in light of the principles of constructivism. Therefore, this study was initiated with this assumption and understanding to provide some empirical evidence on the realities of a constructivist approach in an impoverished context like Ethiopia.

2. Research Methods

This study is entirely qualitative in its nature and design. Accordingly, the research approach employed is critical reflection which refers to a process through which teachers examine their beliefs, practices, experiences and contexts to improve their own professional practice (Fook and Gardner, 2007). The approach has been adopted based on Day's (1999:31) suggestion that "*It is important … to place learning through reflection at the center of teachers' critical thinking and development."* Taking this into account, a class of in-service program teachers was engaged in critical reflection on their teaching practices and school contexts during English Language Teaching (ELT) Methodology course taught by the author. The course focused on various educational theories and approaches to teaching whose

understanding is believed to shape teachers' thinking of learning and teaching and thereby improves teachers' understanding of how best students learn for better learning outcomes (Jordan *et al*., 2008). Group reflection in class and individual reflection after class were conducted to involve the teachers in critical reflection on their teaching. Data sources for the study were the notes taken by the researcher during the discussion in class and the written reflection notes produced by the teachers after class.

2.1. Participants of the Study

The participants of the study were 25 government sponsored in-service teachers attending a postgraduate summer program at Haramaya University in 2015/16 academic year. Data were collected for the study during ELT Methodology course taught by the author. The course dealt with various theories, approaches and methods underlying English language teaching and learning. As part of this course and as an effective approach to teaching, the teachers were engaged in reflective practice both in class and after class to examine their teaching practices in light of the knowledge they have gained from the course. All of the teachers have bachelor degrees and teach English in different public secondary schools (Grades 9-12). Their teaching experiences ranged from 3-20 years. Their class size ranged from 50-80.

2.2. Data Collection Procedures

To create a common understanding about reflection and the purpose of the study, the following procedures were applied before engaging the teachers in the activity. First, the purpose of the study was explained. Second, the teachers were given some orientations on the concept, purpose and procedures of reflection. After this, they were given some guiding questions that served as a basis for examining beliefs and practices. Next, groups were formed for the reflection in class and for the individual reflection after class, instructions were given. The teachers were encouraged to express their viewpoints freely based on the knowledge and experiences they have gained from the ELT Methodology course taught by the researcher. The guiding questions comprised the following: (a) does a constructivist approach to teaching and learning fit with your current attitude towards teaching? Why?; (b) are you able to apply a constructivist approach to teaching in your classroom? Why?; (c) what kinds of support or resources exist in your school to help you apply a constructivist approach to teaching and learning?; and (d) what practical challenges or obstacles do you face in adopting a constructivist approach to teaching in your classroom?.

2.3. Method of Data Analysis

Data gathered for the study were analyzed qualitatively using content analysis. This involved reading in an iterative manner all the field notes taken during the group reflection in class and the reflection notes written by the teachers after class to carefully extract the teachers' views of a constructivist approach to teaching and their evaluation of their teaching context in light of the approach. Following this, relevant concepts were identified and categorized based on the research questions. To

illustrate the concepts/themes developed, reflections of the teachers were extracted verbatim from their written reports. In such cases, codes (e.g., T_1, T_2....T_{25}) were used to keep the anonymity of the teachers.

3. Results and Discussion

In this section, the results of the study were presented based on the research questions and subsequently discussed in light of the related literature. In this way, first, teachers' views of a constructivist approach to teaching are presented. This is followed by teachers' evaluations of their current teaching practices in light of a constructivist approach to teaching. Next, teachers' reflections related to the support and resources available to help them implement a constructivist approach to teaching are presented. Finally, the challenges impeding teachers in applying a constructivist approach in their teaching are presented and discussed.

3.1. Teachers' Views of a Constructivist Approach to Teaching

A constructivist approach to teaching requires teachers to move away from, as Weimer (2002) notes, from the "sage on the stage" to the "guide on the side" or "fellow traveler" who helps students in their intellectual development and change. In other words, teachers are expected to play a facilitative role and to create opportunities for students to learn independently drawing on their prior experiences and through interaction with one another. Nevertheless, this has not been the case in an Ethiopian context in the past as the conventional teacher-centered approach to teaching has been the dominant mode of instruction. Therefore, engaging teachers in critical reflection on their views of teaching is assumed to be a paramount importance to enable them to interrogate their views and adopt new ideas in their teaching. Based on this assumption, teachers under consideration were encouraged to reflect on a constructivist approach to teaching through group discussion in class and individual reflection after class. From this, two categories of teachers were identified. The first categories are those who are positive towards a constructivist approach and feel that it is applicable in their teaching. Here are some of the excerpts that illustrate the teachers in this category. "A constructivist approach to teaching as we learned in the course is... useful and innovative and can be applied in practice" (T_{21}).

In a similar way, another teacher stated: "In the past, I used more of a teacher-centered approach in my teaching. But after learning about constructivism, I would like to change it to a constructivist approach that increases my students' creativity or discovery of knowledge by themselves" (T_5).

Like the teachers in the first category, the second category of teachers are also positive about a constructivist approach; however, they do not think that such an approach is practically applicable in their teaching context due to various practical challenges they are currently facing in their schools. Here are some of the excerpts that illustrate the views of teachers in this category. "The approach enables us to make our teaching active learning, but we are unable to practice it due to our poor teaching context, such as large class and lack of resources" (T_3).

In a similar way, another teacher noted:

> Constructivism is interesting in that it encourages students to discover knowledge by themselves while the teacher acts as a facilitator, an advisor, organizer, etc. but the reality in my school is different because students expect everything from their teachers. Their goal is to pass the national examination. Thus, I do not think I can implement it in my classes (T_{11}).

The reflections of the teachers in the second category is supported by Biggs (1996) who stated that despite all its benefits, constructivism remains the espoused theory (ideal) more than the theory-in-use (practical). In other words, though constructivism has become a popular theory in education, its practical applications are still far from a reality in some teaching contexts. This is particularly true in contexts where teachers suffer from large classes, poor administrative support for teaching, centralized curricula, etc. as in an Ethiopian context. Nevertheless, if quality-learning outcomes are sought, constructivism seems to be the way forward as students' learning is of a high quality when they actively construct knowledge on their own rather than when knowledge is lectured to them by others (Trigwell and Prosser, 1991).

3.2. Teaching Practices in Light of a Constructivist Approach to Teaching and Learning

One of the objectives of this study was to engage the teachers to recall and interrogate their teaching practices in light of a constructive approach to teaching. As the policy towards a constructivist pedagogy has been in place for more than two decades, the teachers were asked to reflect on the implementation of this policy in their classroom context based on the knowledge they have obtained during the course of this study. Accordingly, a few teachers claimed that they are making efforts to teach in the way the policy demands, i.e., a constructivist approach to teaching. For instance, one of the teachers acknowledged: "I use the principles of constructivism in my teaching to some extent. For instance, I organize students in groups and motivate them to discuss and share ideas related to the topics taught" (T_{20}).

Another teacher expressed: "I believe my teaching is more or less student-centered as I encourage students to ask questions and discuss on the topics taught in pairs and groups" (T_{24}).

However, the majority of the teachers expressed that their actual teaching is still predominately lecture-based or the conventional way as this has been the way they were taught and trained. In this regard, T_7 stated: "I was taught and have been teaching through the traditional approach." Likewise, other teachers expressed that they were forced to revert to the old method due to circumstances such as content coverage. Supporting this, T_{14} stated: "We are obliged to carry on the familiar method {teacher-centred} even if the current teaching method demands us to teach through a student-centred approach because of the students' poor background and fear of loss of content coverage" (T_{11}).

Another teacher also admitted: "I rarely used a constructivist viewpoint in my teaching. I teach mainly to cover the textbook as this is what is required by the school administration" (T_{13}).

From these reflections of the teachers, it can be deduced that teaching practices in schools are more or less under the repression of the conventional method regardless of the policy demands towards the employment of an approach, which is built on constructivism. This reveals that the policy reforms have remained more ideal than practical though they have been introduced to the education system for over two decades. Teachers were unable to translate the changes for the reasons beyond their control as meaningful attempts have not been made to align the teaching environment in line with the principles of constructivism on which the policy reforms were founded. This finding is supported by Derebssa's (2006) study, which revealed the dominance of the traditional lecture methods in which teachers talk and students listen in most Ethiopian elementary classrooms although the education policy emphasizes the employment of innovative approaches to teaching.

3.3. Availability of Support and Resources in Schools to Implement a Constructivist Approach to Teaching

A supportive environment is vital for teachers to adopt a constructivist approach to teaching. As Kahl and Venette (2010) argue, teachers normally teach the way they were taught; therefore, it is unfair and unrealistic to expect them to implement a new approach in their classes without providing them with the necessary support such as training on the approach. Johnson *et al*. (2009) also suggest training as an important element of supporting teachers who wish to teach in a non-traditional style. They state that teachers should first internalize their new roles and expectations as a prerequisite for the successful implementation of the new approach in their context.

In this regard, from the reflections of the teachers, it is understood that the government has introduced some professional development activities to enable teachers to adopt innovative approaches in their teaching. One of the strategies introduced is Continuous Professional Development (CPD), which has been in place since 2005 with the aim of helping teachers develop their professional knowledge and skills continuously and thereby bringing about improvements in student learning and achievement (MoE, 2009). It was also intended to promote innovative approaches to teaching such as active learning, problem solving, and student centered teaching methods that were lacking in the education system for decades.

Teachers explained that they are positive about the introduction of CPD activities for their own professional development as well as for improving student learning. For instance, one of the teachers expressed: "There is CPD in my school. Its objective is to discuss on the major problems that we each faced in the teaching-learning process and to give immediate solution to the problems as much as possible. We performed this activity two hours a week and it is led by a coordinator and the school director" (T_1).

Likewise, Teacher $_{19}$ noted: "I have participated in CPD program in our school. We were required to take part in it for at least 60 hours per year. We prepare portfolios and discuss our roles and responsibilities in improving teaching and learning in our school."

From these reflections, it is evident that professional development activities have been in place to improve teachers' professional growth and practice. Although this is the way forward, the majority of the teachers were critical of its implementation in their schools due to various constraints related to budget and other human and material resources. The teachers explained that CPD activities are planned every year in their schools, but they were unable to materialize any of these activities due to lack of budget and resources. In connection to this, one of the teachers reflected "CPD is a pseudo program as there is little support available in schools to practice it as intended" (T_5).

In a similar way, another teacher stated:

> Even though CPD is important for teachers to share their experiences and challenges in the teaching-learning process, the main problem is that inadequate budget is allocated for the implementation of CPD activities. As a result, the CPD program does not often go beyond a planning stage. We cannot implement our plans in our teaching due to lack of resources and close follow up (T_9).

From the above discussions and reflections, it is possible to conclude that though attempts are there to introduce professional improvement activities such as CPD in the education system, there are no relevant and significant engagements at school level due to lack of resources and attention for such activities. As a result, CPD program does not seem to bring changes on teacher effectiveness and student learning. Supporting this, Dereje (2015), in his study on CPD practices in general secondary and preparatory schools in Bahir Dar town found that the program is not achieving its objectives of improving the classroom practices of teachers and student performance. Thus, as CPD is a key for teacher development and overall school improvement initiatives (Girmaw, 2016), it has to be a regular and continuous activity with adequate support and monitoring from the school administration.

3.4. Challenges of Teachers in Implementing a Constructivist Approach in their Teaching

Though a constructivist approach to teaching is associated with high quality learning outcomes characterized by better learning and in-depth understanding of the subject of the study, its practical realities are not without challenges which many writers characterize as natural and inevitable (Felder and Brent, 1996; Mascolo, 2009; Weimer, 2002).

Supporting this, as Johnson *et al*. (2009) explain challenges are anticipated from multiple sources when change is introduced in an established routine. This is true in the context where teacher-centred approach to teaching is a tradition as in an Ethiopian context. However, as Felder and Brent (1996: 43) illustrate, this does not mean that the new approach "does not work... but the problem is that although the promised benefits are real, they are neither immediate nor automatic". In view of this, the challenges that the teachers face in implementing a constructivist approach to teaching were identified in this study. From the reflections of the teachers, numerous challenges that hamper the implementation of a constructivist approach emerged. The predominant ones include resistance from students and poor administrative and physical infrastructures.

3.4.1. Resistance from students

The teachers explained that though they are positive about a constructivist approach to teaching, they do not think that their students will positively welcome the approach as they may perceive it demanding and against their previous learning experiences. The following excerpts illustrate these viewpoints: "I don't think I can apply this approach in my teaching because my students want me to tell/lecture them everything rather than trying to learn by their own efforts" (T_{13}).

"Our students' prior experience does not correlate with the constructivist principles such as taking responsibility for one's own learning. They are accustomed to the established way of receiving information from the teacher in the form of lecture notes. As a result, they will complain if we change this tradition" (T_8).

Teachers also explained that their students are exam-oriented and want their teachers to focus on exam-related issues more than engaging them in quality learning. To support this, one of the teachers stated: "Our students want us to give special attention to those aspects of learning which enable them to succeed on examination more than quality learning. As a result, they resist to anything that goes beyond these immediate needs" (T_{18}).

From these excerpts, it is understood that teachers felt that they may face resistance from their students if they change their teaching approach as students prefer the conventional approach to teaching, which is lecture based and surface learning merely for passing examinations. As a result of this, students may consider the new experience such as actively participating in class discussions, assessing one's own learning and doing various forms of reading frustrating, demanding, threatening and unfamiliar. In connection to this, Felder and Brent (1996) state that students may get frustrated when the tradition of getting everything effortlessly from the teacher is broken. Similarly, as Fox (1983) further reveals students may consider active learning as "a waste of time because they know that the information transferred in such procedures can be transferred much more rapidly in lectures and duplicated notes". This phenomenon thus leads them to resist openly or passively showing their preference to the way things used to be (Weimer, 2002).

Therefore, in such cases, as Fox (1983) suggests, teachers should carefully handle student resistance rather than being frustrated and reverting to teach in the way students prefer to learn. It should be noted that student resistance is temporary and is likely to change after they understand the rewards attached with taking responsibility for their own learning. The best approach for doing this, as Weimer (2002) notes, is through the teacher involving students in open and free discussion. The teacher should convince and tell students regularly about the benefits they get from a constructivist approach to teaching. In other words, the teacher should inform students how the method works and what merits they gain if they learn in this way. In addition, he/ she should reward students for their attempts to take responsibility for their own learning and should not ridicule them for making mistakes.

3.4.2. Poor administrative and physical infrastructure

As described by Johnson *et al*. (2009: 148), administration refers to *"those personnel, policies and procedures that are currently in place in a school that establish and govern the process and direction of education".* The administration is expected to be supportive for teachers to adopt new ideas and changes in their classes. In addition, the physical infrastructure should also be conducive. For instance, the classroom conditions should be reconfigured to suit to the change (Johnson *et al*., 2009). A good instance of this is replacing desks by seats, which are movable and conducive for cooperative learning. Another way of doing this is minimizing the number of students in class so that it becomes optimal for active learning.

Based on this, teachers were asked to reflect on whether the administration and the physical infrastructure in their schools are conducive to implement a constructivist approach to teaching. Unfortunately, the majority of the teachers stated that their implementation of the constructivist approach has been hampered by lack of support from the administration and poor classroom conditions. In this regard, Teacher $_{17}$ stated: "There is no support from the school administration or other concerned body for effective teaching and learning. The administration in the school gives priority to routine school activities more than quality education that prepares students for quality life."

In a similar way, Teacher $_{23}$ expressed:

> As the textbooks are prepared centrally by the Ministry of Education, we do not have control over the contents. These textbooks are often too bulky and difficult to cover within the time given. We are forced to rush to cover contents more than quality learning as we are evaluated based on content coverage. That is, there is no adequate time for engaging students in active learning.

From these excerpts, it is clear that teachers rush to cover the contents of textbooks, which is given a priority at schools to engaging students in quality learning. As stated, the curricula, syllabi, textbooks and examinations (Grades 10 and 12) in Ethiopia are centrally designed by the Ministry of Education. Teachers do not have a voice in all of these processes rather than implementing them in their schools. What is more, the textbooks are often designed to contain a lot of topics to be covered. As a result, teachers do not have time to engage students in cooperative learning exercises rather than just rushing to cover them. In relation to this, Johnson *et al*. (2009) state that if the curriculum is traditionally designed, teachers struggle to cover the content and have very limited time to involve students in active learning. As a result, their teaching becomes content-oriented than student-focused.

Teachers also reported that the infrastructures in their schools are not aligned with the principles of constructivism. They stated that the classes are large and contain immovable desks. For instance, one of the teachers reported: "Constructivism is problematic in my classes, which contain 70 students. The desks are also immovable so that it is difficult for students to move around and interact with others."

In general, teaching large classes is the common problem for all teachers as the number of the students they teach in their classes ranged from 50-80. Thus, they are likely to find it challenging to implement the demanded approach in such conditions. A study by Prosser and Trigwell (1997) also reveals that teachers are more likely to

adopt a traditional approach if they perceive that their class sizes are too large and departmental support for teaching is lacking.

4. Conclusions and Implications

Constructivism is believed to be a popular theory in education and is often associated with quality learning outcomes. Many of the principles of constructivism such as student-centeredness, active learning, continuous assessment and cooperative learning have been in place in the education system of Ethiopia for more than two decades. Despite the policy reforms, teaching and learning in Ethiopia has been under the influence of the traditional approach to teaching and, as a result, a significant progress has not been made to improve the quality of education in Ethiopia. In this study, an attempt was made to introduce in-service teachers to the principles of constructivism as part of a Subject Area Methodology course and thereby to engage them in a critical reflection through which they examine their views and contexts to improve their professional practice.

The outcome of the study revealed that teachers are positive about constructivism and its introduction in the education system in Ethiopia. However, it was found that its classroom realities in Ethiopian context are more rhetoric than reality as the existing teaching practices and contexts are far behind the principles of constructivism. The traditional approach to teaching in which the teacher lectures and the students passively listen has become an established culture of teaching in Ethiopia and is unlikely to change easily due to the overwhelmingly complex impediments to change in the education system.

Poor background of the students, top-down policies and curricula, poor administration and physical infrastructure are among the hurdles holding back its implementation as intended.

To reverse these conditions, it requires the participation and the concerted effort of all stakeholders who have the stake in the education system. Implementing change should not be left for teachers alone, who are often the scapegoats for the deterioration of the quality of education in the country. The teaching context (classroom conditions, class size, etc.) should be aligned with the principles of constructivism for the policy reforms to lead to intended outcomes. The administration (policies, personnel, and procedures) in schools should be a supportive enough for teachers to safely experiment with new ideas in their teaching and ensure quality learning for students.

5. References

Aypay, A. 2011. The adaptation of the teaching-learning conceptions questionnaire and its relationships with epistemological beliefs. *Educational Sciences: theory and practice*, 11 (1): 21-29.

Biggs, J. 1996. Enhancing teaching through constructive alignment. *Higher Education*, 32: 347-364.

Day, C. 1999. *Developing teachers: the challenges of lifelong learning*. London: Falmer Press.

Derebssa, D. S. 2006. Tension between traditional and modern teaching-learning approaches in Ethiopian primary schools. *Journal of International Cooperation in Education,* 9 (1): 123-140.

Dereje, T. W. 2015. School based continuous professional development practices at a selected general secondary and preparatory school in Bahir Dar town. *Bahir Dar Journal of Education,* 15 (2): 38-57.

Felder, R. M. and Brent, R. 1996. Navigating the bumpy road to student-centred instruction. *College Teaching,* 44 (2): 43-47.

Fox, D. 1983. Personal theories of teaching. *Studies in Higher Education,* 8 (2): 151-163.

Fook, J. and Gardner, F. 2007. Practising critical reflection: a resource handbook: McGraw Hill: Open University Press

Girmaw, A. A. 2016. Interrogating the continuing professional development policy framework in Ethiopia: a critical discourse analysis. *Professional Development in Education,* 42 (2): 179-200

Gow, L., and Kember, D. 1993. Conceptions of teaching and their relationship to student learning. *British Journal of Educational Psychology, 63:* 20-33.

Johnson, A., Kimball, R., Melendez, B., Myers, L., Rhea, K. and Travis, B. 2009. Breaking with tradition: preparing faculty to teach in a student-centred or problem-solving environment, *PRIMUS*, 19 (2): 146-160.

Jordan A, Carlile, O. and Stack, A. 2008. *Approaches to learning: a guide for teachers*. McGraw-Hill: Open University Press.

Kahl D. H. and Venette S. 2010. To lecture or let go: a comparative analysis of student speech outlines from teacher-centred and learner-centred classrooms. *Communication Teacher*, 24 (3): 178-186.

Maclellan, E. and Soden, R. 2004. The importance of epistemic cognition in student-centred learning. *Instructional Science*, 32 (3): 253-268.

Mascolo, M. 2009. Beyond student-centred and teacher-centred pedagogy: teaching and learning as guided participation. Pedagogy and the Human Sciences, 1 (1): 3-27.

McMorrow U. 2006. Changing practices for a global society: voices of students, teachers, principals and university teacher educators on active learning health services, West Galway, Ireland. *Irish Educational Studies*, 25 (3): 321-335.

Ministry of Education (MoE) .1994. Ethiopian education and training policy. unpublished policy document. Addis Ababa: Ethiopia.

Ministry of Education (MoE). 2009. *Continuous professional development for primary and secondary school teachers, leaders and supervisors in Ethiopia: The Framework*. Ministry of Education.

Piaget, J. 1952. *The origins of intelligence in children*. (M. Cook, Trans.) New York: International Universities Press Inc.

Prosser M. and Trigwell K. 1997. Relations between perceptions of the teaching environment and approaches to teaching. *British Journal of Educational Psychology,* 67: 25-35.

Semple, A. 2000. Learning theories and their influence on the development and use of educational technologies. *Australian Science Teachers Journal*, 46 (3): 21-28.

Torenbeek, M., Jansen, E. and Hofman, A. 2009. How first year students perceive the fit between secondary and university education: the effect of teaching approaches. *Effective Education*, 1 (2): 135-150.

Trigwell, K., and Prosser, M. 1991. Improving the quality of student learning: The influence of learning context and student approaches to learning on learning outcomes (special edition on student learning). *Higher Education*, 22: 251-266.

Trigwell, K., Prosser, M., and Waterhouse, F. 1999. Relations between teachers' approaches to teaching and students' approaches to learning. *Higher Education*, 37: 57-70.

Varnava-Marouchou, D. 2011. Faculty conceptions of teaching: implications for teacher professional development. *McGill Journal of Education*, 46 (1): 123-132.

Vygotsky, L. S. 1978. *Mind in society*. Cambridge, Mass.: MIT Press.

Weimer, M. 2002. *Learner-centred teaching: five key changes to practice*, San Francisco.

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Family Structure and Academic Achievement Motivation of Adolescent Students in Haramaya Senior Secondary and Preparatory School, East Hararghe, Ethiopia

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Abstract: This study examined academic achievement motivation (AAM) and associated personal (age, grade, sex) and familial structural factors (intact, single, and step family background) among a sample 201 (94 males and 107 females) adolescent students in one of the peri-urban schools of east Hararghe zone (Haramaya). Data were collected through an inventory containing twenty four items being adapted from previous versions. Data were analyzed using a blend of descriptive and inferential statistical methods that were successively conducted to examining the status of AAM (one-sample t-test), ANOVA, regression analysis), and the pair-wise comparison (Scheffe test) of the three categories of family structures. Findings indicated that adolescent students had a reasonably acceptable level of AAM that was remarkably influenced by family structure compared to other personal factors. Although sex couldn't make significant main effects, its interaction with family structure yielded significant effect on AAM in such a way that boys from intact family were found to stand in sharp contrast mainly to girls from step family background. Attempts were made to explain findings within the existing ecological and socio-cultural profile of the study area. Recommendations were also suggested to help properly addressing the gaps noted in this research.

Keywords: Academic Achievement Motivation; Adolescent Students; Family Structure; Haramaya; Hararghe

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1. Introduction

Adolescence is one of the most remarkable developmental stages characterized by such fundamental and rapid physical, cognitive and social changes that fuel psychosocial development including emergence of academic achievement as a major adolescent concern (Steinberg, 2004). Academic achievement is a particularly important issue in the study of adolescence in contemporary societies that underscore independence, competition, excellence, and success; to which achievement motivation or n-achievement is a precursor (McClelland, 1985). Not until the period of adolescence are individuals cognitively capable of seeing the long term consequences of educational and career decisions (Steinberg, 2004). Adolescents' desire for meaning and pursuit of future life goals appear to generate a renewed strength and interest in academic achievement as an instrument for materializing their envisaged long term goals. In line with this, Steinberg (2004) argues that amongst all stages of development, adolescence is the period in which achievement motive gets higher because adolescents are preparing themselves for adult roles and status which enable them to make decisions on their future career and aspirations. According to McClelland (1985), this motive to achieve is manifested through one's interest and activity to master and manipulate the physical and social environment. Hence, two individuals having low or high achievement motivation are different in their choice of level of aspiration, in risk taking behavior, in their level of persistence in the task, in time perception and future goal orientation (Ducke 2004; cited in Ayoda, 2006). People high in their achievement motivation prefer to choose a task of intermediate difficulty. In contrast, people with low achievement motivation are motivated to avoid failure. As a result, they seek out very difficult tasks for which failure has no negative implication (Ducke 2004; cited in Ayoda, 2006).

The extent to which adolescents successfully navigate through this period and eventually develop a clear sense of identity and positive future orientation is structured, mediated, and directed by a host of contexts (e.g. peers, school and teachers, media, and internet…); of which family environment obviously assumes a critically important and foundational role (Kamla, 2008). Many family researchers (e.g Kamla, 2008; Olantude and Abisola, 2010) indicate that the home environment is the most significant one amongst other factors in influencing adolescents' academic motivation in several ways and can take various forms such as presence at school, communicating with teachers, or assisting at home with home-work, among others (Eliston 2012; cited in Girma, 2014). Important mechanisms mediating the effects of home environment on adolescent students' academic achievement motivation include economic resources, socialization resources (parental involvement) and parental warmth and affection (Ping and Meng, 2000). The most basic involvement of parents in their child's schooling is provision for material needs (Gilford, 2007), supervision of children's activities, and ensuring child-friendly home environment (Yale, 2006; cited in Semaw, 2009). The other type of parental school involvement also includes helping children with school work, listening and discussing the child's school problems (Yee, 2010), attending parent-teacher conferences, children's extracurricular activities and serving on school boards; taking part in activities to

support, encourage, assist, recognize, and contribute towards the child's cognitive development (Melang, 2005; cited in Kamla, 2008). Extensive literature has shown that parental involvement in schooling is associated with children's academic success (e.g., Epstein, 2000; cited in Gilford, 2007).

Recognizing these indispensible familial roles, the Convention on the Rights of the Child has also indicated that children have the best chance of developing their full potential in a family environment as it avails interaction with the immediate and other agents of development in the environment (Carry, 2001; cited in Swick, 2004). The family is the child's early microsystem for initial learning about the world and for learning how to live (Swick, 2004). It offers the child a reference point of the world (Rogoff, 2003), and is a nurturing centerpiece as well as a haunting set of positive as well as negative memories of one's earliest encounters that could differently structure present life conditions. The essence in this early relationship with family is children's experience of building trust and affection with their significant people (Brazelton and Greenspan, 2000).

The family which plays these and many other important roles in the development of adolescents has increasingly undergone through a number of structural transformations (Hangal and Vigayalaxmi, 2007). Structurally then, families are diverse in their nature; some are intact, others are broken, and the rest are reconstituted through remarriage. While intact family is the traditional type of family in which mother, father and children live together, non- intact families are those that are with either one or both parent/s missing in which case the family is incomplete (Konive, 2002; cited in Eweniyi, 2005); typical of the later is a single parent family which consists of one parent raising one or more children on his or her own. Often single parent family is a mother with her children, although there are single fathers as well. Usually individuals who end their previous marriage in divorce choose to get remarried and this creates stepfamily, which involves two separate families merging into one new unit (Wise, 2003).

Tefera and Gena's (2016) review of empirical investigations on intact and non-intact families have shown that children from the former group were found to fare much better than the latter in so many psychological, social, and academic profiles. A lot of evidences suggest that compared to children from intact families, those from non-intact (mainly from reconstructed or stepparent) families experience an increased risk of behavioral problems and adjustment difficulties (Wolchik *et al*., 2002), develop externalizing and internalizing behavior problems (Emery *et al*., 1999), get lower grades on achievement tests (Ferugsson *et al*., 2011; cited in Tefera and Gena , 2016), drop out of school (Bogenscheider, 2007), and are likely to get significantly lower support and psychological wellbeing from step parents (Tefera and Gena, 2016).

Many other research investigations were also in support of such negative outcome. According to Han and Huang (Han and Huang, 2000; cited in Wise, 2003), adolescents from intact families have an advantage over adolescents from single and stepparent families in terms of parental economic resources, and socialization enabling them score high in academic motivation scale than adolescents from single

and stepparent families. Olatunde and Abisola (2010) have still reported that life in a single-parent and stepparent family can be traumatic and children brought up in such family structure often suffer from some emotional problems such as stress and depression which may hinder their academic performance. Hence, in contrast to families with two biological parents, single parents are usually pressed by the burden of life and thus cannot afford much time and support for the children. Children in stepfamilies are also at a disadvantage because they cannot access the resource that parents hold because the parent-child relationship is usually more distant than in the former two types of families (Astone and McLanahan, 1997).

Concerning the relationship between adolescents' family structure and their academic achievement motivation, it was found that adolescents who are living with their both biological parents (intact family) score higher in academic achievement motivation than adolescents from single and stepparent families among college (Kamla, 2008; Ping and Meng, 2000) and high school (Donna and Robert, 2004) students. Perhaps the most influential study on the relationship between family structure and students' educational achievement (McLanahan and Sand fur, 1994) found that children who grow up in single-parent families and with stepparents have lower educational achievement motivation and attainment than those who grow up with both biological parents. In line with this finding, Aemero and Lakshim (2013) have indicated that adolescents from intact families are better in their academic motivation and performance than adolescents from single and stepparent families. A study conducted in Nigeria (Kamla, 2008) also indicated that there was a significant difference in academic achievement motivation between female adolescents from intact and single parent families. Female adolescents who were living with their biological parents scored higher than female adolescents who were living with single and stepparent families. Similarly, male adolescents who were living with their biological parents scored higher on academic achievement motivation than male adolescents who were living with single and stepparent families (Kamla, 2008).

In fact, some studies revealed sex differences in achievement motivation. For example, a study conducted on selected high school students in Ethiopia (Gebrekiros, 2004) indicated that male adolescents scored higher on academic achievement motivation than their female counterparts. However, Tafa (1998) and Mustafa (2006) did not find significant sex differences in academic achievement motivation. Similarly, some studies in high schools (Gidey, 2002), junior secondary schools (Seleshi and Sentayehu, 1998; cited in Abesha, 2012), and primary and secondary schools (Habtamu, 2005) found no significant sex difference in academic achievement motivation. In his study on Ethiopian university students' achievement motivation, Abesha (2012) reported that male adolescents in Ethiopia scored higher in academic achievement motivation than their female counter parts.

In the face of such contradicting findings, it wouldn't be possible to draw conclusive remarks regarding the effect of sex difference on academic achievement motivation of high school students. Hence, there is a need for further research in the area.

There are additional reasons justifying the need to revisit research in this area. First, there are research findings suggesting that children in single parent family structures academically perform better than children from intact family structure (Olutola 2006; cited in Kamla, 2008). This is attributed to factors either inherent to the personality of the child or the single parent. Second, reviews of Tefera and Gena (2016) have also mentioned instances that would cast doubts on the apparently established fact that children from intact families are better. For example, differences between stepchildren and children in intact families are small (McLanahan, 1999). Most stepchildren do well in school and do not suffer from emotional or behavioral problems (Amato, 1999). There is a great deal of similarity than differences between children in stepfamilies and children in intact families (Amato, 1999). There are also times that substantial number of stepchildren score higher on adjustment measures than the average child in an intact biological family (Brennan and Shaver, 2012; cited in Tefera and Gena, 2016).

Third, although there is enough conclusive evidence as regards to the benefits of parental involvement on academic achievement at the primary level of education, there are some inconsistencies in about to the impacts of parental involvement in adolescents' school achievement at secondary school level (Epstein 2003; cited in Girma, 2014).

Fourth, parents in intact families as a group are diverse and, hence, treating them alike and draw similar conclusion could be tenuous. Some parents are uneducated, illiterate and unable to grasp the meaning of situations involving their children while others are intelligent and competent people; some are rigid but others are open minded to adjust themselves to the changing needs of the children; and some are better connected, accepting, warm and supporting while others are negligent, rejecting; just to mention examples (Grolnick and Ryan, 1998). There are also differences in educational values, expectations, and standards. Some parents value education, put high regard for it, and become demanding from their children but others consider the education of their children as meant merely for meeting the societal and legal expectations. These and many other differences in intact family profiles would obviously bear differential impacts on children's behaviors and developmental outcomes. For example, research evidences suggest that children from intact families, who evidence problems in their relations with parents, are more likely to exhibit emotional problems and underachievement (Gilford, 2007). Finally, although the home environment has been recognized to bear lots of influences on students' academic achievement motivation, previous studies have concentrated mainly on the issue of parental involvement and parental educational status on adolescents' educational motivation and performance. Other aspects of family environment such as the structure of the family have been grossly neglected.

In an attempt to address the gaps of research raised above, the following research questions were posed: What is the level of students' academic achievement motivation among adolescent high school students in Haramaya area? Is there a statistically significant difference among students from intact, single and stepparent family structures in achievement motivation? And, is there a significant difference

between male and female adolescent students from different family structures in their academic achievement motivation?

2. Research Methods

As mentioned earlier, the purpose of this study was to examine the level of academic achievement motivation among adolescents from different family structure at Haramaya senior secondary school. In order to obtain the required information, quantitative research design was employed. This section describes, the study site, sampling techniques, instrument of data collection, and procedure followed in data collection.

2.1. Study Site

This study was conducted in a school located in Haramaya Town. Haramaya is an East-Central Ethiopian town located 510 KMs East of Addis Ababa. Located within the Hararghe zone of the Oromia regional state, it has a latitude and longitude of 9°24′N 42°01′E coordinates: 9°24′N 42°01′E with an elevation of 2047 meters above sea level. As per the census conducted by the Central Statistical Agency of Ethiopia (CSA, 2012), Haramaya has an estimated total population of 15,317; of whom 7,796 are men and 7,521 are women. The largest ethnic group reported to live in the area is the Oromo (96.43%); all other ethnic groups making up the remaining 3.57% of the population. Afan Oromo is spoken as the first language by 97.6%.While the overwhelming majority of the inhabitants (98.51%) are Muslims, the remaining few are (orthodox and protestant) Christians. Concerning education, 53% of all eligible children are enrolled in primary school, and 10% in secondary schools. The dominant activity serving the inhabitants as a means of income in this town is cash crop products like khat which in turn may affect students' academic engagement and motivation.

2.2. Participants

The study involved students selected from Haramaya Senior Secondary and Preparatory School. During data collection there were a total of 1,275 (713 male and 562 female) students regularly attending their classes from grade nine to twelve of whom 56.7% were from intact family (n = 723) and the remaining 43.3% (n = 534) were from non-intact family. Out of the total of adolescent students from intact family (N = 723), 112 (56 males and 56 females) were selected randomly. Regarding those from non-intact family, 72 were from single parent family and 54 were from stepparent family. Therefore, the sample consisted of a total of 238 adolescent students. In fact, data analysis was based on 201 participants who provided complete data (see Table 1). Sample size was determined using Drapper and Smith's formula for non-single population (cited in Tefera and Ahmed, 2015). According to Drapper and Smith, sample size (n) is a function of the factors (Xi) and categories (Ck) involved in a research such that a minimum of 10 observations is required for each category of a factor: $\mathrm{n} = 10[C_{f1} \times C_{f2} \times C_{f3\ldots} \times C_{fn}]$

Where:

n = sample
Cf1 = number of categories of factor 1

Cf2 = number of categories of factor 2

Cf3 = number of categories of factor 3

Cfn = number of categories of factor n

There are three variables in the present research (i.e., sex, family structure and grade) such that there are two categories in the first factor (male and female), three categories in the second factor (intact, single, and step families), and four categories in the third factor (grade 9, 10, 11 and 12. Hence, a minimum sample size this researcher has to draw is 2 x 3 x 4 x 10 = 240 students.

After fixing on the total sample size (n) to be drawn from the population (N) using the above formula, then proportional allocation method was used to determine on the amount to be drawn from each of the three family types. For example, the proportion of those from intact family was calculated by multiplying the sample size by p where $P = \frac{n}{N}$. This means (723/1275) X 240=136; which was adjusted to 112 in the sampling process for mere practical convenience during stratification. The same procedures were applied for non-intact family.

The procedure of sampling was such that at the beginning preliminary screening questionnaire was administered to 18 sections of grade nine, ten, eleven and twelve students in order to screen out participants' family profile (if they are from intact, single and stepparent families). Then, two sections were randomly selected from each grade level through lottery method. Then, participants in each class were stratified based on their sex in order to give equal chances for both male and female adolescents, and then simple random sampling technique was employed to select adolescents from each family type.

2.3. Instruments of Data Collection

Self-report instruments were used to measure variables of interest. The instruments had two parts. Part one comprised of items about participants' demographic information like sex, age, grade and family structure. The second part of the instrument was about Academic Achievement Motivation Self- Report Inventory (AAM SRI). The inventory has three sub-scales: Task performance, delay of gratification of needs and time orientation. Sample items include "*When I am working, the demand I put on myself are very high; I usually spend a great effort to get my assignments a*nd paper work right ", "the future is too uncertain for a person to make serious plan, usually I feel that time is going fast while in school", and "if I have not attained my goal and haven't done a task well, I usually give up".

The scale consisted of 24 items with 4-point response format ranging from strongly agree to strongly disagree such that the expected mean is 60. The scale was adopted from previous research conducted on high school and college students' academic

achievement motivation (Beena, 1986) with a reliability coefficient of .74. In the Ethiopian context, the instrument was used by Tadese (1992) with a reliability coefficient of .67, and Tafese (1998) and Gebrekiros (2005) with an α level of .71. The adaptation began with backward and forward translation of the scale into the native language of participants (i.e. Afan Oromo). Once equivalence was established in the translations through successive adjustments of phrasing, pilot test was conducted on a randomly selected sample of forty students (20 males and 20 females) from different family structures to check for item clarity as well as internal consistency of the items. Five items were found to have poor inter- item correlation and, therefore, were dropped from the scale; thus improving the reliability coefficient from previous ones to 0.76.

3. Findings

We shall present findings beginning with some background data about participants. Then, the status of academic achievement motivation is statistically described using measures of central tendency and dispersion and then tested through inferential statistics employing one-sample t-test. Given that the level of academic achievement motivation is meaningful, we shall proceed with successive analysis that attempts to explore how sex, age and family structure contribute to the variance in academic achievement motivation employing inter-correlation analysis, regression analysis, and ANOVA. This is followed with Scheffe's pair wise comparison as required. Test of normality and homoscedasticity were checked before conducting ANOVA and regression and were found to tenable in both cases.

3.1. Background of Participants

As indicated in the previous section, the independent variables of interest in the study were sex, age, grade and family structure. The dependent variable of interest is adolescents' academic achievement motivation. The family structure, sex, and age of these participants are summarized in Table 1.

Table 1. Family structure of participants by sex and age

Family type	Mean Age	Male	Female	Total	Percent
Intact family	18.3	44	41	85	42.28%
Single	18.1	27	38	65	32.33
Step family	18.2	23	28	51	25.37%
Total	18.2	94	107	201	100%

As depicted in Table1, while 42.28% of adolescents were from intact family, the greater majority about 57.7% (i.e. 32.33% from single parent and 25.37% from step-parent families) participating in the study were from non-intact family. As regards to sex, 53% were females. The proportion of the two sexes is comparable for intact family group but a bit more girls were represented for the non-intact family group. The age range of adolescents participating in the study ranges from a minimum of 14

to a maximum of 24 years; with a mean age of 18.2 years and limited score variance (SD=.96).

3.2. Status of Students' Academic Achievement Motivation

The major interest in this research is to learn the level of academic achievement motivation of participants before anything else. For this purpose, one–sample t-test was run and the results are summarized in Table 2.

Table 2. Status of students' academic achievement motivation scores (N=201)

	Academic achievement motivation scores
Observed mean	63.96
SD	10.3
Expected/ hypothesized mean	60.00
t-value	4.31
Sig.	.00

One-sample mean test yields that the observed mean (63.96) is much higher than the expected mean and this difference is statistically significant (t_{200} = 4.31, P <.01). This suggests that the adolescents included in our present research have a level of perceived achievement motivation.

Correlation among variables: Before we proceed with the prediction of academic achievement motivation, we need to determine the separate bivariate correlations of predictors with this dependent variable. Table 3 presents the correlation of some of these selected factors/ predictors with academic achievements motivation. Note that the correlation between a dummy variable (i.e. sex (1 = male and 0 = female or family structure (intact = 0 and non-intact = 1) and a continuous variable (e.g. academic achievement motivation) is like conducting t-test of mean differences in achievement motivation between the two groups of the dummy variable. If this correlation yields negative value, it means that the group that is represented by the lesser value (i.e. female is represented by zero) is performing higher than the one represented by the bigger number (i.e. males = 1).

Table 3. Inter-correlations among variables (N = 201)

Variables	1	2	3	4	5
Family structure	1.00				
Sex	.010	1			
Age	-.031	.006	1		
Grade	-.02	.030	.24	1	
Academic achievement motivation	.61*	.022	.01	.03	1
**p<.05*					

Table 3 indicates that it is only family structure that has a significant relationship with academic achievement motivation (r_{200}= .61, P < 0.05); sex and age being without significant correlation with academic achievement motivation.

Interaction effects on academic achievement motivation*:* Although academic achievement motivation may not have a strong correlation with achievement motivation in our present case, it has better correlation value compared to sex and age. Hence, we need to go further and check if sex could play some role by interacting with family structure. Descriptive statistics for gender by family structure is given in Table 4 followed by two way ANOVA analysis in Table 5 respectively.

Table 4. Males' and females' academic achievement motivation scores by family structures

Sex	Single family			Step family			Intact family		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Male	27	67.3	12.2	23	53.3	9.7	44	81.31	10.3
Female	38	62.1	11.3	28	50.2	8.53	41	74.2	11.7
Total	65	63.5	10.3	51	53.2	9.2	85	75.2	11.4

As shown in Table 4, the academic achievement motivation mean score of females from intact families is higher than females from single parent families. Those from stepparent families have the lowest mean score on academic achievement motivation. Regarding male adolescents' academic achievement motivation, mean scores of males from intact family were the highest, followed by the mean scores of males from single parent family. Those from stepparent family scored the lowest. To determine the significance of these differences and show the interaction effect of family structure by sex on academic achievement motivation, two–way ANOVA was employed (Table 5).

Table 5. ANOVA summary of the effects of family structures and sex on adolescents' academic achievement motivation

Source	Sum of squares	Df	Mean squares	F	Sig.
Corrected model	17562.32	5	4324.1	34.32	.000
Sex	133.12	1	133.12	.87	.347
Family structure	15815.3	2	8654.2	75.42	.000
Sex X family structure	912.32	2	435.66	7.32	.000
Total	38763.23	200	138.54		.000

The ANOVA result indicated a significant effect of family structure on adolescents' academic achievement motivation (F (2,198) = 75.42, p < .000).There is also a significant interaction effect of sex and family structure on adolescents' academic achievement motivation (F (2,198) =7.32, p <.000).

3.3. Family Structure Differences in Academic Achievement Motivation

As depicted in Tables 4 and 5, adolescents from intact family have scored the highest on academic achievement motivation (Mean = 75.2) followed by adolescents from single parent family (Mean = 63.5) and stepparent family (Mean = 53.2). Pair- wise comparisons produced results presented in Table 6.

Table 6. Scheffe's pair wise comparison test results in academic achievement motivation among adolescents from different family structures

Family structures (I)	Family structures (J)	Mean difference (I-J)	Standard error	Sig.
Single-parent family	Step- parent	10.3	1.98	.001
	Intact family	-11.7	2.32	.000
Step-parent family	Single parent	-10.3	1.98	.001
	Intact family	-22	2.73	.000
Intact family	Single parent	11.7	2.32	.000
	Step-parent	22	2.73	.000

The results of the pair wise comparisons in Table 6 have shown showed significant differences between all pairs of comparisons. Thus, there is a significant mean difference on academic achievement motivation between adolescents from single and stepparent families. Likewise, there is a statistically significant mean difference in academic achievement motivation between adolescents from single parent family and adolescents from intact family; favoring those who have come came from intact family. Furthermore, academic achievement motivation is found to significantly differ between adolescents from intact family and stepparent family; those from intact family scoring higher. In general, as has been observed in the above pair wise comparison tests, the directions of group mean difference favors adolescents from intact families.

Prediction of academic achievement motivation*:* Multiple regression analysis was conducted to determine the combined effects of predictor variables on students' academic achievement motivation. It is found that about 9.1% (R^2 = 0.091) of the variance in students' academic achievement motivation is explained by all the predictors together. In fact, it is only family structure again that has brought a significant contribution to the variance in academic achievement motivation score (t_{200} = 7.23, $P < 0.003$) as it can be referred from Table 7.

Table 7: Multiple regression analysis of predictors' on dependent variables

Predictors	Regression coefficient	Standard error	Beta coefficient	t-value	Sig.
Family structure	7.53	2.13	.24	7.23	.003
Age	-.26	1.21	-.02	.92	.78
Sex	.132	1.34	-.041	.54	.91
Grade level	.021	.92	.031	.63	.71

As shown earlier in the ANOVA summary table, the effect of adolescents' sex on their academic achievement motivation is of course not significant ($F(1,199) = .87$, $p = .347$). This indicates that sex by itself has no significant effect on the academic achievement motivation of adolescents from different family structures. Moreover, alike the correlation and ANOVA tables, the regression result has indicated a significant effect of family structure on adolescents' academic achievement motivation ($t(2,198) = 7.23$, $p < .003$).

4. Discussion

Unlike our expectation that the academic achievement motivation of adolescent students around Haramaya could be lower because of rural orientation that would possibly lessen the value for education, being a cash crop area suggesting an alternative way of making life for young people from early age, and perceived prevalence of 'khat' consumption that would put many young people off purpose, the findings of this research tend to suggest that academic achievement motivation in the area is encouragingly within the range of reasonable acceptance (Table 2). In fact, contrary to our expectations, this could be because less educated people may feel a sense of incompleteness educationally and urge their children engage in an activity that would help materialize unfulfilled dreams through encouraging their children develop an appetite for educational advancement. Explanations such as these ones, that underscore the role of social-familial factors in promoting academic achievement motivation, seem more meaningful than such personal factors as age, sex, or grade. This is mainly because alike many previous research elsewhere (e.g. Kamla, 2008; Magnuson and Berger, 2006; cited in Aemero and Lakshim, 2013; Thomson and McLanahan, 1994; cited in Donna and Robert, 2004; Lamb, 1999; cited in Wise, 2003) as well as those in Ethiopia (Aemero and Lakshim, 2013; Tefera and Gena, 2016) suggesting the exceedingly supportive role intact family plays in the health and development of children, the present finding indicates that adolescents from intact family exhibit significantly higher achievement motivation than the non-intact group.

Kamla (2008) reported that compared to adolescents from intact family, those from non-intact family score low in their academic achievement motivation and performance which could be related to parental deprivation of economic resources, less parental involvement and encouragement and less emotional support from their families. Magnuson and Berger (2009; cited in Aemero and Lakshim, 2013) also stated that adolescents from intact families have an advantage over others probably because the latter have less access to all these advantages which in turn negatively affect adolescents' academic achievement motivation. Thomson and McLanahan (1994; cited in Donna and Robert, 2004) have reported that single parent and stepparent families are most likely associated with incomplete parenting or reduced supervision and control, and these characteristics of parenting styles may adversely affect child development and academic achievement. Consistent with the above results, Lamb (cited in Wise, 2003) states that life in single and stepparent family is full of challenges not only because of economic strain but also because of lack of concrete and emotional support in the face of socio-emotional stress which in one

way or another negatively influences adolescents' academic achievement motivation. In contrast to the present results, Apia and Olutola (2007; cited in Kamla, 2008) argued that if families of adolescents from single and stepparent rendered what is all valuable for their children's education, adolescents from single and stepparent family might perform equally or higher than adolescents from intact family. Consistent with this idea, Oslon and Defrain (cited in Aemero and Lakshim, 2013) have argued that life in step parenting is characterized by lack of constructing successful emotional relationship with step children and such type of family most of the time gives special advantages to their own children over their step-children which negatively affects step children's academic achievement motivation.

As it can be noted from the analysis, post hoc comparison is found to show not only that academic achievement motivation score of adolescents from intact family is the highest, but still important is the fact that from the non-intact family groups the mean score of single parent adolescent students is significantly higher than adolescents from stepparent family background. Our present finding appears to disprove the previous findings that differences between stepchildren and children in intact families are small (McLanahan, 1999), most children fare adequately well in stepfamilies (Ganong and Coleman, 2004; Hetherington, 2005), there is a great deal of similarity than difference between children in stepfamilies and children in intact families (Amato, 1999), substantial number of stepchildren actually score higher on adjustment measures than the average child in an intact biological family (Brennan and Shaver; cited in Tefera and Gena, 2016), and even if stepchildren exhibit problems mainly during a transition period or immediately after their parent's remarriage, most show considerable resilience, and three-quarters have no long-term problems (Hetherington and Kelley, 2002). Most of the adjustment difficulties occur within the first three years and if stepfamilies stay together, difficulties are usually resolved after five to seven years (Adler- Baeder and Higginbotham, 2004; Ganong and Coleman, 2004; Papernow, 2008).

A number of explanations can be given for adverse effects of growing up in a stepfamily. The most common explanations involve the ecological theory, socio-cultural theory, and evolutionary-biological theory. The ecological perspective, for example, stresses that a range of factors impact on the academic achievement motivation of adolescent students including the background and characteristics of the individual (ontogenetic level), family relations (micro system level), family interactions with elements outside the family (community or mesosystem and exosystem level), and socio-cultural variables at the macro system level.

Upholding genetic benefits that arise from parenting and investing in one's own natural children rather than on stepchildren (ontogenetic level), the evolutionary theory suggests that step children are more likely to be disadvantaged compared to children from biological parent because stepparents are genetically less inclined to investing time and resources on their non-biological or stepchildren's education, or more disengaged, less emotionally available, less affectionate, and provide less supervision than biological parent (Amato, 1999; Ganong and Coleman, 2004). For attachment theorists, this reluctance of stepparent to invest on a non- biological child

would result in the adolescent children's feeling of resentment, confusion, insecurity, indifference and sense of despair (Amato, 1999; Ganong and Coleman, 2004) that would still mean lesser academic achievement motivation under performance and school dropout.

The co-parenting relationship and the stepparent-stepchild relationship, which are microsystems and ecosystems; the lack of support from in-laws, which is an element of the exosystem; and community bias in favor of first families, which is an element of the macro system (cited in Tefera and Gena, 2016) are other factors nested one after the other eventually influencing adolescent students' academic achievement motivation. To consider the macro-level explanation as an example, the socio-cultural view holds that stepfamilies have been the most maligned groups throughout history and across cultures; thus biological parents benefiting from a positive bias regarding parenting their children (Stewart and Brentano, 2006). Stepparents are more likely to be perceived negatively to such an extent that when some biological parents fail to be affectionate or show some signs of stringent rules, people tend to comment, "is s/he a stepparent to do so?" Stories are abundant in the Ethiopian cultures narrating in fairy tales of "wicked stepmothers" and "cruel stepfathers." The view that stepfamilies are deviant and potentially harmful for children is not only common in popular tales. According to cognitive *behavioral theory*, negative stereotypes of stepparents would still translate and reproduce themselves through practice by influencing parental attitudes and behaviors towards step children and vice- versa (Crohn, 2010); negative social beliefs and expectations preempting dysfunctional step parent-step child relationships (Cummings *et al*., 2006).

Unlike family structure, age/ gender and sex appear less important factors. In fact, alike many psychological characteristics that consolidate during childhood and remain stable in later years (as psychologists commonly hold that childhood is a foundation period in life), achievement motivation would possibly be shaped in the early ages and grades; thus predicting latter experiences. The effect of sex in fact takes a different texture in our present finding hopefully resolving inconsistencies in previous research. That is, although the main effect (adolescents' sex on their academic achievement motivation) is less significant, gender really matters when interacting with family structure; boys from intact families showing a considerably bigger motivation score particularly compared to girls from stepparent family. From this vantage point, it can be said that the inconsistencies in the findings of previous research would basically be attributed to this distinct role of gender in achievement motivation. For instance, consistent with the main effects of gender in our present finding, Torki (1985; cited in Tafese, 1998) found no significant difference in need for achievement score between male and female students. Similarly, Tafa (1998) and Mustafa (2006) did not find significant sex differences in the achievement motivation of high school students. In contrast to these findings, Worthman and Lotus (1985; cited in Gebrekiros, 2004), Adsul and Kamble, (2008), and Fortes, Rodriguez and Tchantchane, (2010) concluded that male adolescents are better in academic achievement motivation than their female adolescent counterparts. In fact, the third group of researchers (Khan 1991; cited in Tafese, 1998) and (Baker, 1997; Brouse,

1993; Vallerand and Bissonnette, 2007; Wintre and Yaffe, 2004; cited in Abesha, 2012) have even reported that female adolescents are better in academic achievement motivation than their male adolescent counterparts. We believe that inconsistencies in research findings would also be attributed to differences in the socio-cultural setting of participants on top of some possible inconsistencies observed because of the type of effect (main effect, interaction effect or no effect), on top of possible differences in the type of effect (main effect, interactive effect) gender was used to bear on academic achievement motivation.

5. Conclusion

The findings of this research generally suggest the following major conclusions regarding the academic achievement motivation of adolescent students in Haramaya area of the Oromia regional state.

1. Adolescent students have a reasonably acceptable level of academic achievement motivation score.

2. Family structure significantly affects academic achievement motivation in the sense that those from intact family retain the highest AAM followed by those from single parents. Adolescents from stepfamily background are with the lowest mean score in academic achievement motivation.

3. Age and grade did not seem to impact on academic achievement motivation possibly suggesting that they could be the making of early experiences and becoming relatively stable in adolescence.

4. The interaction of sex with family structure is significant such that boys from intact family stood in sharp contrast mainly to girls from step family background; i.e., girls from the step family background were the lowest of all the groups.

The following suggestions would address the gaps noted:

5. Educational psychologists/ school counselors, teachers, and school directors need to provide life skill training particularly to female adolescent students from non-intact families to build their academic achievement motivation. The national life skill training framework (MoYCS, 2011a; Tefera, 2015) and manual of this framework (MoYCS, 20011b) would be of much relevance for this purpose. The life skill category that focuses on personal socio-emotional domain is more specifically related to academic achievement motivation and, hence, more attention be paid to this aspect in the event that training is envisaged to be offered to this group.

6. Orientation and training be given to parents of adolescent students particularly from single and stepparent families on how to treat their children with warmth and affection to facilitate the conditions which are essential to foster their children's achievement motivation.

7. Laws about remarriage need to be redrafted to ensure that stepparents consenting for remarriage need to get into a legal agreement that they will consider the stepchildren as their own children. In fact, legal authorities need to ensure that there is an informed consent of stepchildren before legal commitments are entered between the remarrying partners. In fact, it is still suggested that the responsible legislative

bodies include psychological orientation program as part of the package before remarriage.

8. Further research need to be conducted on the role of sex in academic achievement motivation to clear possible inconsistencies noted in this and many other research.

6. References

Abesha, G. 2013. Effects of parenting styles, academic self-efficacy, and achievement motivation on the academic achievement of university students in Ethiopia. Unpublished PhD dissertation. Edith Cowan University. doi10.1.1.414.7354.

Adler-Baeder, F., and Higginbotham, B. 2004. Implications of remarriage and stepfamily formation. *Family Relations*, 53: 448-458.

Aemero, A., and Lakshim, H. 2013. Assessing children academic achievement as correlates with parents' marital status: The case of junior high school students in Addis Ababa. *International Journal of Social Sciences*, 2 (2): 125-138

Amato, P. R. 1999. Children of divorced parents as young adults. In E. M. Hetherington (ed.), *coping with divorce, single parenting, and remarriage: A risk and resiliency perspective* (pp. 147-163). Mahwah, N. J.: Erlbaum.

Astone, N. M., and McLanahan, S. S. 1997. Family structure, parental practices and high school completion. *American Sociological Review*, 56 (3): 309-321.

Ayoda, Desta. 2006. The effects of birth order on academic achievement motivation. Unpublished MA Thesis, AAU, Addis Ababa.

Bogenscheider, K. 2007. Parental involvement in adolescent schooling: A proximal process with trans-contextual validity. *Journal of Marriage and Family*, 59: 718-733.

Brazelton, T. and Greenspan, S. 2000. The irreducible needs of children. Cambridge, MA: Perseus Publishing.

Central Statistical Agency. 2012. Ethiopian demographic and health statistics. Volume II Analytical Report. Addis Ababa: Ethiopia.

Crohn, H. M. 2010. Communication about sexuality with mothers and stepmothers from the perspective of young adult daughters. *Journal of Divorce and Remarriage*, 51 (6): 348-365.

Cummings, E. M., Schermerhorn, A. C., Davies, P. T., Goeke-Morey, M. C. and Cummings, J. S. 2006. Interparental discord and child adjustment: Prospective investigations of emotional security as an explanatory mechanism. *Child Development*, 77: 1-3.

Donna, K. and Robert, A. 2004. Family structure and children's educational outcomes; blended families, stylized facts and descriptive regressions. (http/;//apps. olin.wustl.edu/faculty/ pollak/fs0604). (Accessed January 12, 2015).

Emery, R. E., Waldron, M., Kitzmann, K. M. and Aaron, J. 1999. Delinquent behavior, future divorce or non-marital childbearing, and externalizing behavior among offspring: A 14-year prospective study. *Journal of Family Psychology*, 13: 568-579.

Eweniyi, G. 2005. The impacts of family structure on students 'academic performance. (http/www.Unilorin.edu.ng.). (Accessed March 19, 2015).

Ganong, L. and Coleman, M. 2004. Stepfamily relationships: Development, dynamics, and interventions. New York, NY: Kluwer Academic/Plenum Publishers.

Gebrekiros, Kifle. 2004. Self-efficacy, academic achievement motivation and study habits as related to general secondary school students' academic performance: The case of general secondary school students in Tigray. Unpublished MA Thesis, AAU, Addis Ababa.

Gidey, Tilahun. 2002. The interrelationship of parenting style, psychosocial adjustment and academic achievement among Addis Ababa high school students. Unpublished MA Thesis, AAU. Addis Ababa.

Gilford, M. 2007. Home environment and students' academic achievement. *Journal of Social and Cultural Psychology*, 48 (2): 45-867.

Girma, Mariamawit. 2014. Father's educational involvement and children's educational aspiration, educational self-concept and academic achievement of primary school students in some selected schools of Addis Ababa. MA Thesis, Addis Ababa University.

Grolnick, W. S. and Ryan, R. M. 1998. Parent styles associated with children's self-regulation and competence in school. *Journal of Educational Psychology*, 81: 143-154.

Habtamu, Kasahun. 2005. The relationship of parenting styles and academic performance among primary and secondary school students in Debre-Markos town. Unpublished MA Thesis, AAU, Addis Ababa.

Hangal, S. and Vijayaxmi, A. 2007. Self-concept, emotional maturity and achievement motivation of the adolescents' children of employed mothers and house makers. *Journal of the Indian Academy of Applied Psychology*, 33 (1): 103-110.

Hetherington, E. (Ed.). 2005. The adjustment of children in divorced and remarried families. Thousand Oaks, California: SAGE.

Kamla, R. 2008. The effects of family structure and parenthood on academic performance of Nigerian university students. Available at: 121-124. id; hcs-02-2-121-08-056-uwaifo. (Accessed May 4, 2014).

McClelland, D. 1985. Human motivation. Glenview: Scott, Forseman and Company.

McLanaha, S. and Sandefur, G. 1994. Growing up with the single parent. Cambridge, Harvard University Press**.**

McLanahan, S. S. 1999. Father absence and the welfare of children. In E. M. Hetherington (ed.), Coping with divorce, single parenting, and remarriage: A risk and resiliency perspective (pp. 117-145). Mahwah, N. J.: Erlbaum.

MoYCS (Federal Ministry of Youth, Culture, and Sports). 2011a. National life skills training program for young persons in Ethiopia. Addis Ababa, Ethiopia.

MoYCS (Federal Ministry of Youth, Culture, and Sports). 2011b. National life skills training manual for young persons in Ethiopia. Addis Ababa, Ethiopia.

Mustafa, A. 2006. Self-efficacy, achievement motivation, attitude and gender difference of students' science performance in Debre-Brhan general secondary school. Unpublished MA Thesis, AAU. Addis Ababa.

Olatunde, P. and Abisola, T. 2010. Broken homes and academic performance of adolescents in secondary schools in Ibadan Nigeria. *Journal of International Social Research*, 3 (12): 470-487. (http;//www.Sosyalastirmalar.com cilt3/sayi12pdf/yara-hundeyara2). (Accessed September 7, 2014).

Papernow, P. L. 2008. A clinician's view of "stepfamily architecture". In J. Pryor (Ed.), The international handbook of stepfamilies: Policy and practice in legal, research, and clinical environments (pp. 423-454). Hoboken, NJ: John Wiley and Sons Inc: US.

Ping, Y. and Meng, L. 2000. Educational achievement and family structure: Evidence from two cohorts of adolescent in Taiwan. (http://www.ssc.wisc./edu/cde/demsem/). (Accessed June 2, 2015).

Rogoff, B. 2003. The cultural nature of human development. New York: Oxford University.

Semaw, Getnet. 2009. Factors affecting EGSECE achievement of students in government and non-government school of Addis Ababa. MA thesis. AAU.

Steinberg, L. 2004. Adolescence. New York, Temple University.

Stewart, A. C. and Brentano, C. 2006. Divorce: Causes and consequences. New Haven and London, Yale University Press.

Swick, K. 2004. Empowering parents, families, schools and communities during the early childhood years. Champaign, IL: Stipes.

Tadese, Daniel. 1992. Personality types and academic achievement motivation as correlates of college academic performance. Unpublished MA Thesis, AAU.

Tafa, Asafa. 1998. The influence of some psychological variables on academic achievement of students in high schools: The case of Arsi zone. MA Thesis, AAU, Addis Ababa

Tafese, Mulugeta. 1998. Locus of control, self-efficacy and academic achievement motivation a predictors of academic performance of college freshman: The case of AAU. Unpublished MA thesis, AAU: Addis Ababa.

Tefera, Belay and Ahemed, Abdinasir. 2015. Research methods. Addis Ababa: Mega Printing Press.

Tefera, Belay and Gena, Matewos. 2016. Perceived parental support and psychological wellbeing of children living with stepparents. In Alula Pankhurst, Yeraswork Admassie, and Yitayew Alemayehu, "The Rights of Children in Ethiopia: Empirical Investigations from Multidisciplinary Perspectives", pp.99-121. Center for Human Rights, Addis Ababa University, Addis Ababa.

Tefera, Belay and Mengistu, Shewaye. 2016. Family dynamics in households with adera children: Implications for family-based OVC care. *International Journal of Psychology and Counselling*, 8 (5): 59-71, DOI: 10.5897/IJPC2015.0381.

Tefera, Belay. 2016. Life skills training (LST) program for young people: Justifications, foundations and contents. *International Journal of School and*

Cognitive Psychology, 3 (1). (http://dx.doi.org/10.4172/2469-9837.1000163). (Accesed October 3, 2015).

Wise, S. 2003. Family structure, child outcomes and environmental mediators: An over view of the development in diverse families study. Australian Institute of Family Studies. p.42, ISBN064239004ISSN1496~9871. (http://www.Aif.gov.av/institut e/pubs/Rp30.html). (Accesed December 5, 2015).

Wolchik, S. A., Tein, J. Y., Sandler, I. N., and Doyle, K. W. 2002. Fear of abandonment as a mediator of the relations between divorce stressors and mother-child relationship quality and children's adjustment problems. *Journal of Abnormal Child Psychology*, 30 (4).

Yee, H. 2010. Educational goals, parenting practices and adolescents academic achievement. *Journal of Educational Research*, 6 (2).

Academic Motivation, Attitude and Achievement in Science Education in Southern Oromia, Ethiopia

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Abstract: Non-cognitive factors play significant roles in academic achievement of science education. The purpose of the study entitled as academic motivation, attitude and science education achievement was to examine relationship between students' academic motivation, attitude and achievement on science education and investigate predictive power of motivation on science achievement. The study used correlational research design. The motivated strategy for learning questionnaire (MSLQ) and attitude scales were used to gather data from participants (78 males, 22 females). Achievement data collected on biology, physics, and chemistry. Analysis of the data has indicated that academic motivation and attitude correlate significantly with each other but not with science achievement except with task value (TVA) ($r = 0.24$, $r^2 = 5.76\%$, $p < .05$, $df = n1 + n2 - 2 = 98$). Regression analysis illustrates that 9% of science achievement accounted for by task value (TVA). Overall, there are low to moderate relationship between motivation and science achievement. It recommends giving high task value to science education, developing science self-efficacy, and not to develop amotivation. The study has offered the implication that science education policy and strategy designers, teachers and parents should encourage natural science students.

Keywords: Academic Motivation; Achievement; Attitude; Science Education

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1. Introduction

Science education is essential for comprehensive development of any nation. Education with science as its major component determines the level of prosperity, welfare, and security of the nation. Poverty reduction and sustainable development programs of developing countries depend by and large on availability and mobilization of scientifically and technically literate working forces. Many of the developed countries were able to achieve so much in science and technology because of science education (Kola, 2013). According to IBE (2001), science education in Ethiopia is concentrated on teaching of science concepts and applications in order to ensure problem solving capacity through the understanding of one's environment.

Generating citizens who have academic motivation and positive attitude toward the development and dissemination of science and technology in society and enabling the generation to participate in economic, politics as well as social life of their country is among national aims of Ethiopian education (MoE, 2009). Without creating scientifically and technologically literate society, these aims are hardly possible. In order to achieve these goals, students need to have academic motivation and positive attitude toward science education.

Motivation and attitude play a large part in determining students' success or failure (Bong, 2004; Sahile, 2004). Motivation is a process whereby goal-directed activity instigates and sustains and it includes self-efficacy, task value, interest, and achievement goal (Pintrich and Schunk, 2002; Bonney *et al*., 2005). A motivated student will take care of his/her education, has a positive thinking and always curious to his/her learning activities. The perception that science education is challenging and burden to students will be not acceptable for those students who have motivation and positive outlook toward science education. Rather, it may be enjoyable for them.

Academic intrinsic motivation is concerned with active engagement of students in learning tasks that they find interesting and promote them to achieve high score whereas academic extrinsic motivation is concerned with behaviors that students do to get pleasure such as reward or avoid punishment. The absence of contingency between one's actions and outcomes refers to amotivation or apathy. According to Sahile (2004), intrinsic motivation is associated with better learning and better performance. When a person is intrinsically motivated, he/she acts naturally, spontaneously, and feeling freedom to follow interest (Ryan and Deci, 2000).

Usually, science education is considered as challenging and burden to students. According to George (2000), students' perceptions of science ability have effect on their attitudes toward science in which their self-concepts and academic motivation were related to attitude toward science. Guido (2013) describes that attitude can distort the perception of information and affect the degree of their retention. On the other hand, students' attitude is affected by their level of interest in science, their ability in science, learning climate, access to extra-curricular science experience, family, their own self-concepts, and their peer groups (Zain *et al*., 2010).

Research finding by Buck *et al*. (2009) reveals that attitudes of African American students toward science are often positive despite low achievement. Bong (2004) also writes that self-efficacy, task value, diverse indexes of motivation, and performance

outcomes are significantly correlated. Köseoğlu (2015) further notes that students with high self-efficacy will favor mastery goals relative to students with low self-efficacy who would probably prefer performance goals. Task value and self-efficacy are moderately and positively correlated to academic achievement and both have been confirmed as effective predictors for varieties of academic outcome (Bong, 2004).

The teaching of science education at secondary schools in Ethiopia is greatly focused on cognitive abilities of learning objectives while little attention has been given to affective domain of educational objectives. Roles of affective abilities in secondary school science education have not received due attention as cognitive abilities in science education. According to IBE (2001), secondary school science education curriculum gives emphasis to pure science.

Academic achievement has relationship not only with cognitive abilities but also with non-cognitive factors such as motivation and attitudinal factors. Regarding this, Bonney *et al*. (2005) state that non-cognitive factors such as students' motivational beliefs should get consideration when examining students' cognitive engagement in classroom. Task value which is among important components of the affective domain has not received more attention by science education curriculum designers, secondary school science education teachers, and students. Task value is defined as initiative to engage in academic activities which comprises perceived importance, usefulness, and interest (Bong, 2004). It is the subjective belief about reason for doing the tasks in science education. High task value leads students to involve more in learning and achieve higher score and this is effective predictor for varieties of academic outcome (Pintrich and Schunk, 2002; Bong, 2004).

Educational objectives should not be concerned only with cognitive but also with affective factors. These factors in science education have received little research attention in Ethiopia. Even though about half of the academic achievement in science education is accounted for by cognitive abilities and the remaining are accounted for by affective factors, roles of motivation and attitude have not been duly emphasized in our secondary school science education curriculum.

The purposes of this study were to examine relationship between academic motivation, attitude and achievement in science education, and investigate attitudinal tendency of natural science students of preparatory school toward science education. To deal with this study, the following research questions are addressed. These are: (a) what are the relationship between students' academic motivation, attitude, and academic achievement in science education?, (b) what percent of achievement in science education explained by academic motivation?, and (c) what is the tendency of students' attitude toward science education?.

2. Research Methods

2.1. Research Design

A descriptive technique correlational research design measures variables to determine whether there are relationship between academic motivation, attitude and academic achievement in science education. Regression analysis was computed to determine

the percentage of academic achievement accounted for by academic motivation. The percentage of students' attitude toward science education was also computed.

Scores on academic motivation, scores on attitude toward science education and achievement in science education are the variables considered in this study. Academic motivation is divided in to six components: intrinsic motivation (IMO), extrinsic motivation (EMO), amotivation (AMO), science self-efficacy (SSE), expectancy for success (EFS) and task value (TVA).

2.2. Participants

The participants of this study were grade 11 and 12 natural science students at Bule Hora preparatory school. This school is located in South Eastern part of Ethiopia. The total population of this study is 293 (Male = 233, Female = 60) students. Simple random sampling via lottery method was used to select 100 (Male = 78, Female = 22) students. The age of participants was between 17 and 21.

2.3. Instruments

Academic motivation and attitude scales were used to collect data. The scale for academic motivation was adapted from motivated strategies for learning questionnaire (MSLQ) by Pintrich *et al*. (1991) and scale for attitude towards science education was adapted from the works of Simpson *et al*. (1994). The reliability of the instruments was piloted and Cronbach alpha (α) $r_{=} 0.81$ and $r = 0.9$ were obtained for MSLQ and attitude towards science education respectively. These scales are chosen because items in both scales are not ambiguous, MSLQ has well established psychometric reports and the scale for attitude towards science education is culture fair. Hence, the scales are appropriate for Ethiopian preparatory school science students.

2.4. Research Procedure

Academic achievement in science education (ACH) was comprised the average grade points of biology, physics and chemistry final examinations were prepared by subject teachers, and the quality of examination was evaluated by examination committee of the school. The scores on these subjects were collected from mark record and the average was computed and matched with responses on the questionnaires parallel to individual name of sample students.

2.5. Data Analysis

Students' responses to instruments were coded based on the 5-point Likert scale that worth strongly disagree (1), disagree (2), undecided (3), agree (4) and strongly agree (5) in which 5 being the highest and 1 being the smallest rate. Using SPSS program, Pearson's product moment correlation analysis was computed to determine relationships between academic motivation, attitude toward science education and academic achievement in science education and regression analysis was computed to infer the proportions of academic achievement that accounted for by academic motivation.

3. Results

The following results were obtained from correlation, regression and frequency analyses regarding academic motivation, attitude toward science education and academic achievement in science education.

3.1. Correlation

Table 1. Relationship between components of academic motivation, attitude toward science education, and achievement in science education (n = 100)

Variables	Correlation coefficients							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. IMO	1.00							
2. EMO	.05	1.00						
3. AMO	-.10	.10	1.00					
4. SSE	.41**	.41**	.05	1.00				
5. EFS	.24*	.17	-.14	.37**	1.00			
6. TVA	.22*	.07	-.07	.12	1.50	1.00		
7. ATT	.32**	.17	-.31**	.24*	.23*	.11	1.00	
8. ACH	.20	.08	-.11	.16	.18	.24*	-.11	1.00

**p <.01, *p < .05

Intrinsic Motivation (IMO), Extrinsic Motivation (EMO), Amotivation (AMO), Science Self Efficacy (SSE), Expectation for Success (EFS), Task Value (TVA), Attitude (ATT), Academic Achievement (ACH).

Table 1 reveals the person's product moment correlation among components of academic motivation, attitude and academic achievement. As can be observed, there is positive and significant correlation between intrinsic motivation (IMO) and science self-efficacy (SSE) ($r = 0\ .41$, $r^2 = 16.81\%$, $p < .01$, $df = n1 + n2 - 2 = 98$). This finding is in line with the research finding by Bedel (2016) that states academic motivation scores were significantly relate to academic self-efficacy scores ($r = .53$, $p < .01$). This implies that increase in academic intrinsic motivation leads to increase in students' self-efficacy. There is also positive and significant correlation between intrinsic motivation (IMO) and expectancy for success in science (EFS) ($r = 0.24$, $r^2 = 5.76\%$, $p < .05$, $df = n1 + n2 - 2 = 98$).

The correlation between intrinsic motivation (IMO) and task value (TVA) is positive and significant ($r = 0.22$, $r^2 = 4.84\%$, $p < .05$, $df = n1+n2-2 = 98$).The correlation between intrinsic motivation (IMO) and attitude toward science education (ATT) is positive and significant ($r = 0.32$, $r^2 = 10.24\%$, $p < .01$, $df = n1 +n2 -2 = 98$). There is negative and significant correlation between amotivation (AMO) and

attitude toward science education (ATT) (r = -0.31, r^2 = 9.61%, p < .05, df = n1 + n2 -2 = 98). This implies that as one's apathy to his/her action decreases, his/her attitude toward his/her action increases or vice versa. Result shows that there is positive and significant correlation between science self-efficacy (SSE) and attitude toward science education (ATT) *(r = 0.24,* r^2 = 5.76%, *p<.05,* df = n1 +n2 -2= 98). This study also reveals that there is positive and significant correlation between task value (TVA) and academic achievement (ACH) (r = 0.24, r^2 = 5.76%, p<.05, df = n1 +n2 -2 = 98).

3.2. Regression

The results of regression analysis show that the proportion of academic achievement accounted for by task value (TVA) is 9 % and the proportion of academic achievement explained for by task value and amotivation (AMO) together is 13%.

Table 2. Stepwise regression analysis for models (n = 100)

Model	Variables interred	Multiple correlation		R^2 changed	Adjusted R^2	F
		R	R^2			
1	Task value	.318	.101	.101	.09	8.56*
2	Task value amotivation	.386	.149	.047	.13	6.55*

*P < .05

Table 2 reveals the predictive power of components of motivation on academic achievement. This shows that Task value and amotivation are models that significantly predict academic achievement in science education. This model explained 13% of variations in academic achievement (R = .386, F (2, 97) = 6.55, P < .05). Task value (TVA) is a single predictor variable among discerned academic motivational orientation that significantly predicts academic achievement in science education. This model accounted 9 % of the proportion of the variations in academic achievement (R =.318, F (1, 98) = 8.56, p < .05). This implies that 9 % of academic achievement in science education is accounted for by task value.

3.3. Attitude

Table 3. Frequency distribution of students' attitude toward science education (n = 100)

Responses	Frequency	Percent (%)
Strongly disagree (most dislike)	0	0
Disagree (dislike)	0	0
Undecided	16	16
Agree (like)	38	38
Strongly agree (most like)	46	46
Total	100	100

Table 3 reveals the frequency of students' responses to attitude scale. As can be seen, students have positive attitude toward science education in which 46% of them like it the most and 38% of them like science education. The result of frequency distribution of students' attitude toward science education indicates that 84% of the participants rated as they have positive attitude towards science subjects by responding "agree" and "strongly agree".

4. Discussion

The results of this study have indicated indicated that components of academic motivation (motivational orientations) and attitude toward science education are more significantly inter-correlated with each other than with achievement in science education. This is in line with the findings by Bedel (2016) that states academic motivation sub-scales are significantly related to academic self-efficacy.

The correlation between attitude toward science education and achievement in science education is not significant. Task value is the important variable that positively and significantly correlated with achievement in science education. This is in line with the finding by Köseoğlu (2015) that states task value produced positive correlation with GPA. Similarly, Bircan and Sungur (2016) state that task value significantly predicted students' science achievement. As the task value students attach to their learning activities increase, their academic achievement also increases. Since these empirical findings agree with the results of this study, the outcome is encouraging.

The correlation and regression studies have displayed that task value is the most predictive variable of achievement in science education. This implies that students, teachers, and curriculum experts had better give due emphasis to task value in science education. The proportion of achievement in science education accounted for by task value and amotivation is 13%. Task value and motivation are the two variables that significantly predict students' achievement in science education.

Preparatory school Students have positive attitude toward science education in which they rated "agree" and "strongly agree" for scale of science attitude was 84%. This is in line with result indicated in Table 1 which reveals attitude toward science education is significantly correlated with intrinsic motivation. The more students motivated intrinsically, the more positive outlook they develop toward science education.

5. Conclusion and Recommendation

5.1. Conclusion

Non-cognitive factors play significant roles in academic achievement of science education. The findings of the study suggest that there is low to moderate relationship among components of academic motivation and between achievement in science education as well as attitude toward science education. 13% of variance in achievement of science education is explained by task value and amotivation. Students' attitudinal inclination toward science education is positive.

5.2. Recommendation

This study reveals that there is positive and significant correlation between task value and academic achievement. Hence, secondary school natural science curriculum should include affective domain. Encouraging students to develop task value of science education in terms of attainment value or the advantages that students will gain as the result of attaching high task value to science education is important. In order to give high task value to science education, develop science self-efficacy and not to develop amotivation, science education policy and strategy designers, teachers and parents should encourage natural science students. Secondary school science teachers should encourage their students by designing learning tasks that are appropriate to students' level and relate those tasks to real world problem, to their future career and life goals.

Natural science students should develop academic motive to participate in science learning by attaching high task value to science education and engage academic works with deep interest. They should also proceed their positive outlook toward science education in order to meet their goal-directed academic activities which in turn meet national goals. Parents should encourage natural science students to develop utility value and worth tasks in science education and not to develop amotivation.

6. Acknowledgement

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7. References

Bedel, E. 2016. Exploring academic motivation, academic self-efficacy and attitudes toward teaching in pre-service early childhood education teachers. *Journal of Education and Training Studies,* 4 (1): 142-149.

Bircan, H. and Sungur, S. 2016. The role of motivation and cognitive engagement in science achievement. *Science Education International,* 27 (4): 509-529.

Bonney, C., Klemper, T., Zusho, A., Coppola, B., and Pintrich, P. 2005. Student learning in science classrooms. What role does motivation play? In: Alsop, S. (ed.) Beyond cartesian dualism: encountering affect in teaching and learning of science. Netherlands: Springer, pp.83-97.

Bong, M. 2004. Academic motivation in self-efficacy, task value, achievement goal orientations and attributional beliefs. *Journal of Educational Research,* 97 (6): 287-297.

Buck, G., Cook, K., Quigly, C., Eastwood, J., and Lucas, Y. 2009. Profiles of urban low SES African American girls' attitude toward science. *Journal of Mixed Method Research,* 3 (4): 386-401.

Gaffney, J. 2005. The importance of science literacy in modern culture. (http://www4.ncsu.edu/~jdgaffne/scilit.pdf). (Accesed June 16, 2016).

George, R. 2000. Measuring change in students' attitude on latent variable growth modeling. *Journal of Science Education and Technology,* 9 (3): 213-225.

Guido, R. 2013. Attitude and motivation towards learning physics. *International Journal of Engineering Research and Technology (IJERT)*, 2 (11): 2087-2094.

IBE (International Bureau of Education). 2001. The development of education. National report of Ethiopia. Final version. Ethiopian national agency for UNESCO. Addis Ababa: Ethiopia.

Kola, A. 2013. Importance of science education to national development and problems militating against its development. *American Journal of Educational Research*, 1 (7): 225-229.

Köseoğlu, Y. 2015. Self-efficacy and academic achievement-a case from Turkey. *Journal of Education and Practice*, 6 (29): 131-141.

Ministry of Education (MoE). 2009. *Strategies for improving science and mathematics education in Ethiopia.* Addis Ababa: Ethiopia.

Pintrich, P., Smith, D., Garcia T., and McKeachie, W. J. 1991. A manual for the use of the motivated strategies for learning questionnaire. (http://files.eric.ed.gov/fulltext/ED338122.pdf). (Accesed Marcth 12, 2016).

Pintrich, P., and Schunk, D. 2002. Motivation in education, theory, research, and applications, 2nd edition. New Jersey: Merrill Prentice Hall.

Ryan, R. and Deci, E. 2000. Self-determination theory. (http://en.wikipedia.org/wiki/Self-determination_theory). (Accesed April 20, 2016).

Sahile, Amare. 2004. Perceived academic competence, motivational orientations and academic achievement of junior and high school students in Bahir Dar administrative zone. MA thesis, Addis Ababa University.

Simpson, R., Koballa T., Oliver, S., and Crawley, F. 1994. Research on the affective dimension of science learning. In Gabel, D. (ed.) Handbook of research on science teaching and learning. New York: Macmillan, PP. 211-234.

Zain, A., Rohandi, and Jusoh, A. 2010. Instructional congruence to improve Malaysian students' attitudes and interests toward science in low performing secondary schools. *European Journal of Social Science, 13* (1): 89-100.

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E) Publications of Organizations

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Ministry of Education (MoE).1994. *Ethiopian Education and Training Policy*. Unpublished Policy Document. Addis Ababa: Ethiopia.

F) Publications from Website

Otsuka, K. 2001. Natural Resource Management in Selected Areas of Africa and Asia. Foundation for Advanced Studies on International Development. *(*https://www.adb.org/sites/default/files/publication/157197/adbi-rp16.pdf). (Accessed November 28, 2012).

G) Legislations

Federal Courts Proclamation 1996 Art.8 (1) and 2 Proc No 25/1996 Fed. Neg. Gaz year 2 no 1.

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