RURAL OUT MIGRATION IN UTTARAKHAND IN THE CHANGING AGRARIAN SCENARIO

BY

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B.Sc. (Ag.)

**THESIS SUBMITTED TO PROFESSOR JAYASHANKAR TELANGANA STATE AGRICULTURAL UNIVERSITY
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2015

DECLARATION

I, Ms. NEHA ARYA, hereby declare that the thesis entitled **"RURAL OUT MIGRATION IN UTTARAKHAND IN THE CHANGING AGRARIAN SCENARIO"** submitted to the **Professor Jayashankar Telangana State Agricultural University** for the Degree of **Master of Science in Agriculture** is the result of original research work done by me. I also declare that no material contained in the thesis has been published earlier in any manner.

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Ms. NEHA ARYA has satisfactorily prosecuted the course of research and that the thesis entitled **"RURAL OUT MIGRATION IN UTTARAKHAND IN THE CHANGING AGRARIAN SCENARIO "** submitted is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that neither the thesis nor part thereof has been previously submitted by her for a degree of any University.

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This is to certify that the thesis entitled **"RURAL OUT MIGRATION IN UTTARAKHAND IN THE CHANGING AGRARIAN SCENARIO"** submitted in partial fulfillment of the requirement for the degree of **'Master of Science in Agriculture'** of the **Professor Jayashankar Telangana State Agricultural University Hyderabad**, is a record of the bonafide original research work carried out by **Ms. NEHA ARYA** under our guidance and supervision.

No part of the thesis has been submitted by the student for any other degree or diploma. The published part and all assistance received during the course of the investigation have been duly acknowledged by the author of the thesis.

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LIST OF SYMBOLS AND ABBREVIATIONS

ac	Acre
AP	Andhra Pradesh
AMGS	Astha Mahila Gramodyog Samiti
cm	Centi metre
DOA	Department of Agriculture
Fig	Figure
FAO	Food and Agriculture Organization
F	Frequency
GBPUAT	Govind Ballabh Pant University of Agriculture and Technology
ha	Hectare
HESCO	Himalayan Environmental Studies and Conservation Organization
HOPE	Himalayan orginasation For Progress And Empowerment
ICTs	Information and Communication Technologies
km	Kilo meters
KVKs	Krishi Vigyan Kendras
MP	Madhya Pradesh
MGNREGA	Mahatma Gandhi National Rural Employment Generation Act
NGOs	Non Government Organizations
OECD	Organization for Economic Co-operation and Development
%	Per cent
PURA	Providing Urban Facilities in Rural Areas
qt	Quintal
ROSE	Rural Organization for Social Elevation
SAS	Situation Assessment Survey
SAU	State Agricultural University
i e	That is
UP	Uttar Pradesh

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ABSTRACT

The present study entitled 'Rural out migration in Uttarakhand in the changing agrarian scenario' had been initiated to unearth the causal factors of migration and for suggesting suitable strategies to reduce the problem of out migration.

Ex-post facto research design was adopted for carrying out the study. Selection of Uttarakhand state, Almora district and two blocks of Almora district namely Chaukhutiya and Dwarahat and four villages of these blocks namely Barati, Kaney, Gangolihat and Seemapali was purposive based on the intensity of migration. Thirty migrated respondents from each village were selected at random to make a total sample of 120 migrants. Interview schedule was developed for data collection and the statistical measure like frequency, percentages, correlation and multiple linear regression were used.

Salient findings of the study are given below.

Majority (64.17%) of the respondents were below 25 years of age, had education upto intermediate (30.84%). Majority of the respondents used cooperative societies (44.16%) as source of credit, had medium family size (55%), low annual income (56.66%), medium family debts (57.50%), one migrant in the family (73.33%), two occupations (57.50%), medium level of farm resources (64.16%). Majority of the respondents were migrated for non agricultural purposes (85.84%), migrated for medium term (69.16%) from rural areas to urban areas (77.50%). Majority (76.67%) of respondents had adopted medium level of survival strategies before migration, had medium level of economic motivation (61.67%) and medium level of risk orientation (61.67%).

Majority (56.67%) of the migrants earned low remittances from migration and 94.16 per cent of them used remittances for their children education followed by purchase of food (90.83%).

Majority of the migrants had high perception on push determinants of migration (64.17%) and medium perception on pull determinants of migration (59.16%).

Majority of the migrants had low opinion about consequences of migration on agriculture (71.67%), medium opinion about consequences of migration on women empowerment (61.67%), low opinion about consequences of migration on biodiversity (80.00%), often had food security (75.83%) and medium opinion about consequences of migration on nutritional security (65.84%).

Relationship of profile characteristics of the migrants with push and pull determinants of migration indicated that the independent variables like education, family size, annual family income, family debts, number of migrants in the family, amount of remittances, economic motivation and risk orientation were positively and significantly related with both push and pull determinants of migration. The independent variables like age, credit availability, number of occupations and survival strategies adopted before migrating were negatively and significantly related with migration. The independent variable purpose of migration was negatively and significantly related with push determinants of migration and positively and significantly related with pull determinants of migration. The independent variables like farm resources, duration of migration and pattern of migration had shown positive and non significant relationship with migration.

Keeping in view the findings of the study a suitable strategy was developed for reduction of rural out migration. The strategy included the interventions to be taken up by the Government, State Agricultural University, NGOs and KVKs.

Chapter I

INTRODUCTION

Migration is a universal phenomenon. It is the movement of individuals from places where opportunities are limited to the other areas of higher prosperity. It is movement of people from one place to another temporarily, seasonally or permanently, for a plethora of push or pull factors of voluntary or involuntary reasons. It has a significant impact on livelihood and causes changes in socioeconomic and political situations at national level. Generally labourers from rural areas move to urban areas with a hope of getting better wages and to have better standard of living.

Generally, there are two types of migration. First is International Migration and second is Internal Migration. International migration implies that the national boundary of a country is involved in migration. When migration takes place within the national boundary of a country it is called internal migration. While migration clearly has consequences for migrants and their families, migration can also affect the development of economies. Migration is not purely a personal matter, however, it can also affect economic development. Policymakers are increasingly aware that the migration of individuals has a cumulative effect, nationally, and that it can have an impact on the economic health of both the country of origin and the country of destination. Migration can result in a chain of development from individuals, through households, communities and ultimately, countries. Globalization has led to a significant increase in human mobility, with social, economic and environmental implications for all concerned.

Not all migration effects are positive, however, migration may, for instance, drive inflation if remittances boost spending power without increasing productivity, or it could harm important economic sectors such as education and health care through ‘brain drain’. Whether migration leads to positive developmental effects depends on a complex interplay of factors, such as: the circumstances in the countries of origin and destination; the reason for leaving and, critically, whether the move was voluntary; and the pattern of migration (Global Migration Group, 2010).

The issue of migration and human development is intimately related both within the national boundaries and across the national borders. According to the Human Development Report 2009, the number of migrants who moved across the major zonal demarcations within their countries was nearly four times larger (740 million) than those who moved

internationally (214 million). In India, internal migration has been accorded very low priority by the government, which is partly due to a serious knowledge gap on its extent, nature and magnitude.

At global level, 232 million international migrants are living today. Since 1990, the number of international migrants in the global North increased by around 53 million (65%), while the migrant population in the global South grew by around 24 million (34%). During the 1990s, the global migrant stock grew at an average of about 2 million migrants per year. During the decade 2000-10, the growth in the migrant stock accelerated to about 4.6 million migrants annually and it was twice higher than previous decade. However, since 2010, the increase in the migrant stock has slowed down. In the aftermath of the global economic crisis, the annual increase in the global migrant stock fell to about 3.6 million since 2010 (World migration in figures, 2013).

Migration in India is both a historical and present phenomenon. "People have always moved in search of work, in response to environmental shocks and stresses, to escape religious persecution and political conflict. However, improved communications, transport networks, conflicts over natural resources and new economic opportunities have created unprecedented levels of mobility" (Deshingkar and Akter, 2009).

India's population has generally been characterized as non-mobile. However, recently internal migration has recorded phenomenal increase. The cities of Mumbai, Delhi, and Kolkata are among the world's top ten most populous urban areas and India has 25 of the 100 fastest-growing cities worldwide. A significant source of this growth is rural-to-urban migration, as an increasing number of people do not find sufficient economic opportunities in rural areas and move instead to towns and cities. Provisional census 2011 data show that for the first time, India's urban population has grown faster than its rural population since the last census. Thirty-one percent of India's population is now classified as urban, up from almost 28 percent in 2001. In 2007-08, the National Sample Survey measured the migration rate (the proportion of migrants in the population) in urban areas at 35 percent.

Migration in India is predominantly short distance with around 60 per cent of migrants changing their residences within their district of birth and 20 per cent within their state (province), while the rest move across the state boundaries. The total migrants as per

the census of 1971 are 167 million persons, 213 millions (1981 census), 232 million (1991 census) and 314 millions (2001 census). Out of these 314 million migrants, 268 million (85.35%) have been intra-state migrants, those who migrated from one area of the state to another. 41 million (13.05%) were interstate migrants and 5 million (1.6%) migrated from outside of the country (Census of India, 2001).

Migration in India is mostly influenced by social structures and pattern of development. The development policies by all the governments since independence have accelerated the process of migration. Uneven development is the main cause of migration. Indian agriculture became non remunerative and peasants are committing suicide in few states of India. Hence, the rural people from the downtrodden and backward communities and backward regions such as Bihar, Orissa and Uttar Pradesh travel to far distances especially to towns or metro-cities, seeking employment at the lowest rungs in construction of roads, irrigation projects, commercial and residential complexes, in short, building the "Shining" India. The pull factors of higher wages caused external migration to the middle-east countries by skilled and semiskilled workers (Roy, 2011).

Effect of Migration on Agriculture

FAO (2008) reported that rural-out migration tends to exert a downward pressure on agricultural labour per capita. Many literatures reported that movement of migrants away from rural areas decreased labour available for farm work (Adebayo and Ajayi, 2001, Angba, 2003, Katz, 2003, McCarthy *et al.*, 2006, Parganiha *et al.*, 2009). It ultimately negatively impacted agricultural production (Afsar, 2003, Abigail, 2013, Ohajianya, 2005, Prabakar *et al.*, 2011). Hecht (2010) indicated that out migration and remittances undermine traditional agriculture. Ofuoku and Chiukwuji (2012) revealed that migration impacts negatively on plantation agriculture.

Migration in the Himalayan mountainous area of the world is common phenomenon and in recent years, global changes have led to a considerable increase in migration in the region. Migration has long been an important livelihood strategy for the people of the Himalayan region. Mountain agriculture is predominantly subsistence in nature and people from mountain region have been migrating from centuries for cash to supplement household income. A large section of the population of mountainous region depends upon

agricultural activities for their livelihood, consisting of agriculture, animal husbandry and forest interlinked production system. With increasing climatic stresses, particularly erratic rainfall and global food price volatility affecting even remote mountain communities, mountain agriculture is increasingly becoming less reliable livelihood strategy, increasing the need to migrate.

In Uttarakhand, migration is one of the major contributors to urban growth, because of limited opportunities of economic development within the region, frustrated youth are migrating in large numbers to the urban and industrial areas in the plains in search of employment. The livelihood strategies of rural peoples in Uttarakhand are in transition. Migration generates financial and human capital (skills and knowledge) which, if leveraged for development, can reduce poverty. Socio-economic and development changes are taking place across the hilly areas, including increase in the extent and severity of natural disasters, declining crop yields and availability of mountain products, a reduction in diversity of mountain agriculture, a decline in water flow from local springs and growing food insecurity and poverty. The specific characteristics of hilly areas such as poor accessibility, fragility and marginality have contributed to the impact of the changes. Rapid economic development in the urban areas has increased the demand for cheap and flexible labour. Increased awareness of opportunities elsewhere, better communication technologies and falling transportation costs have enabled previously immobile mountain people to migrate at record high rates.

Terraced slopes covering 85 per cent of total agricultural land are largely rainfed, while the valleys (15%) are irrigated. Agriculture in this region has been characterized by small and fragmented landholdings, lack of irrigation, shallow soil and lack of mechanization and technology; all of which contribute to limiting yield. Agricultural development is poor in the region because of lack of proper policies, inaccessibility, varied topography and extreme ecological conditions. Sluggish agricultural growth and limited development of the rural non-farm sector raises the incidence of rural poverty, unemployment and underemployment. The region also suffers from low incomes, lack of infrastructure and lack of access to basic amenities which are necessary for the survival of the local people. The rapid increase in population has been accompanied by increased family size and the subdivision of landholdings. Many claims that they do not have sufficient food to support their family and agriculture fulfills their food grain requirements

for 6 to 8 months a year and in some areas agriculture produce is sufficient for only 1 to 2 months of the year, whereas earlier, they could fulfill the complete annual household demand. Decreasing productivity is a cause of higher food insecurity. The inaccessibility of mountain areas hampers the spread of extension services, access to agricultural inputs, and access to markets (Rekha and Negi, 2014).

Hill rural migration into plain rural area show the easy access of social services, developed infrastructure including better livelihood reinforced to leave their native places which were famous for natural beauty, fresh air and water depart them from the area. The migrants also look to access the maximum high-tech facilities and daily needs assets in the plain area. Retired persons especially ex-army person seek re-appointment through out sourcing agencies for better livelihood. The Government has to develop maximum infrastructure and jobs to keep people residing in hill villages and make cogitative plan with immigrants to resources consolidation in their native villages for forestry and agro forestry and other resources generating (Joshi, 2013).

The National Rural Employment Guarantee Act 2005 (Renamed as Mahatma Gandhi National Rural Employment Guarantee Act) has been able to generate additional rural employment lead to reduced seasonal migration and to some extent to rural-urban migration of unskilled and less-educated youths. An NGO (Non Govt. Organization) namely Himalayan Environmental Studies and Conservation Organization (HESCO) is working in Uttarakhand in its essence is truly rural as it derives inspiration from the villages and devises solutions for their problems. It helps them to focus on their economic and development needs and encourages them to tap local resources that open up new avenues to self- reliance. Some other NGOs namely Astha Mahila Gramodyog Samiti (AMGS), Himalayan orginasation For Progress And empowerment (HOPE), Rural Organisation for Social Elevation (ROSE) and Uttaranchal Daivi Apda Peedit Sahayata Sam *etc.* are also working for community education, health care, agriculture and projects on women's empowerment, social awareness *etc.* in the state. To stem migration from hills recently state government unveiled a plan to throw open some of its hill villages to domestic and foreign visitors to create a niche tourism circuit in the scenic state. Horticulture and small scale food production units are to be supported in a big way by the government.

Changing Agrarian Scenario in Uttarakhand

In Uttarakhand, traditional communities evolved subsistence-oriented but stable agriculture and a diversified, livelihood strategy combining crop, livestock, and forestry along with resource recycling and collective sharing. In recent years, this equilibrium has been seriously disrupted and the virtually self-sufficient system has broken down due to cultivation of marginal and forest lands, making food crop-based farming system unsustainable. Improved communications have also led to aspirations for vastly different lifestyles. The net result of this process has been a weakening of the sustainability of past survival systems and an accentuation of poverty.

1.1 NEED FOR THE PRESENT STUDY

For a large country like India, the study of movement of population in different parts of the country helps in understanding the dynamics of the society better. At this junction in the economic development, in the country, especially when many states are undergoing faster economic development, particularly in areas, such as, manufacturing, information technology or service sectors, data on migrant profile has become more important.

In Uttarakhand state more than 90 per cent of the area lies in the mountains, only a small part lies in the plains. The state is largely rural in character and partly urban. Due to the harsh topography it is a migration prone state. The villages in the State, where 70 per cent (1.01 crore) of the population resides, are devoid of basic necessities like healthcare and education. This is causing large-scale migration (Census of India, 2011). The State's 12th Five Year Plan document says: 'Migration reflects the absence of livelihood opportunities in the hills and yearning for a better quality of life. Dissatisfaction with jobs/lack of opportunities are creating demographic substitution in the hill region.'

The Table 1.1 shows how the decadal rate of population growth has been exceptionally high in four districts: over 30 per cent in Dehradun, Hardwar and Udham Singh Nagar and over 25 per cent in Nainital, and moderately high in Champawat (14.5 %) and Uttarkashi (about 12 %). In the remaining seven districts, population growth has been rather low, being about 5 per cent or less. In two of these districts, Almora and Pauri districts showing a negative population growth of -1.73 per cent and -1.51 per cent respectively against a national average of 17 per cent (Census of India, 2011). Except

Nainital and Uttarakashi, the high population growth districts are fully situated in the plains (Udham Singh Nagar and Hardwar).

Table 1.1. Uttarakhand Population Growth from 2001 to 2011

District	**Population Growth Rate**		**Overall Sex Ratio**		**Child (0 – 6) Sex Ratio**	
	2001	2011	2001	2011	2001	2011
Uttarkashi	23.07	11.75	941	959	942	915
Chamoli	13.87	5.60	1016	1021	953	889
Rudraprayag	13.43	4.14	1115	1120	953	899
Tehri Garhwal	16.24	1.93	1049	1078	927	888
Dehradun	25.00	32.48	887	902	894	890
Pauri Garhwal	**3.91**	**-1.51**	**1106**	**1103**	**930**	**899**
Pithoragarh	10.95	5.13	1031	1021	902	812
Bageshwar	9.28	5.13	1106	1093	930	901
Almora	**3.67**	**-1.73**	**1145**	**1142**	**933**	**921**
Champawat	17.60	15.49	1021	981	934	870
Nainital	32.72	25.20	906	933	910	891
U. Singh Nagar	33.60	33.40	902	919	913	896
Hardwar	28.70	33.16	865	879	862	869
Uttarakhand	20.41	**19.17**	**962**	**963**	**908**	**886**

Source: Census of India, 2011.

In simpler terms, even though the mountain districts of Uttarakhand were already well known for male-out migration in search of employment, the rate of out migration has accelerated to such an extent that while all mountain districts exhibit substantial decline in population growth, two erstwhile 'capital ' districts of Pauri Garhwal and Almora have shown a negative growth rate. The only mitigating factor seems to be that the migration has taken place to the plains regions of the state itself. The other indicators suggest that not only there is considerable migration from the mountain districts, in contrast to the earlier pattern of only men going out, now whole families are migrating. The other disturbing area of concern, which emerges from these early results, relates to a rather sharp decline in the

child sex ratio, in the mountain districts. To what extent it mirrors the phenomenon of 'women drudgery', feminization of agriculture and increased poverty levels of mountain regions, deserves to be investigated through micro-investigations (Pankaj and Belwal, 2013).

There is a need to conduct many more micro and macro level studies, specifically designed to record and document the trends of migration and the motivating and forcing reasons for migration in India. This will provide the opportunities to observe the real gap in the rural-urban development and help in policy formation to fulfill this gap. The villages of the state of Uttarakhand was quoted as 'Ghost Villages' by the reputed news paper Hindustan Times (7 May, 2015), as the state is facing the increasing problem of migration from the villages to the cities and leaving behind only elders to guard these villages. A study conducted by Directorate of Economics and Statistics in 2011-12 revealed that nearly 1100 villages do not have a single person left over.

The present study is a small effort to find out the realities of the situation in hilly areas of Uttarakhand regarding the increasing trend of migration. Through this study the investigator has presented the real mirror image of the people residing in the rural hilly areas of the state. This study has been taken up keeping in mind the serious problem of rural out migration from the rural areas to other places and tries to catch up the attention of the government to understand the seriousness of the problem and formulate the required strategy and suggest some initiatives to be taken by the government to reduce the problem of increasing rural out migration in the state.

1.2 SCOPE OF THE STUDY

The present investigation made an attempt to study various aspects of rural out migration and the important problems faced by India. The present study focused on perception of migrants on determinants of migration in terms of push and pull factors, different consequences of migration in study area, the relationship between the profile characteristics of migrants and determinants of migration and extent of utilization of remittances made due to migration. The findings of the study shall help the State Department of Agriculture, Agricultural Universities, NGOs and other research organizations in knowing:

- The factors (push-internal and pull-external) that influence migration to other places.
- The effect of migration on various rural aspects like agriculture, women empowerment, biodiversity, food and nutritional security.
- The extent of utilization of remittances earned through migration by the family members.
- The changed roles of women after migration of their male counterparts.
- Influence of personal characteristics on migration.
- Strategies for prevention of migration.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General objective

To study the Rural Out Migration in Uttarakhand in the Changing Agrarian Scenario.

1.3.2 Specific objectives

1. To study the profile characteristics of the migrant respondents
2. To find out the respondents perception on the determinants (push and pull determinants) compelling them for out migration in the context of changing agrarian scenario.
3. To find out the consequences of migration on agriculture, food and nutritional security, biodiversity and women empowerment as opined by respondents.
4. To determine the amount of remittances made by the respondents and their purpose of utilization.
5. To find out the relationship between profile characteristics and determinants of migration.
6. To evolve a suitable strategy for reducing out migration based on the suggestions of stakeholders.

1.4 LIMITATIONS OF THE STUDY

Since all the social science researchers were subjected to certain limitations, the present study was no exception. As such, the study had certain limitations as indicated below:

- The study had the limitation of time and resources available for a single investigator.
- The items included in the study for detailed investigation were also limited because it was not possible to study all the areas in a short span of time.
- The area of investigation was restricted to two blocks in one district. As such generalization of the study could be extended to the areas where similar conditions exist, but may not have wider applicability.
- The study is based on the individual expression of migrants which may not be free from personal bias.

1.5 PRESENTATION OF THE STUDY

This study was presented in six chapters as follows

Chapter I: Deals with 'INTRODUCTION' which gave a brief account of the need and importance of the study, objectives, the scope as well as limitations of the study.

Chapter II: Deals with 'REVIEW OF LITERATURE' with extensive literature survey of the past related to the present study.

Chapter III: Devoted for describing the 'MATERIAL AND METHODS' of the study including statistical tools.

Chapter IV: Dealt with 'RESULTS AND DISCUSSION' of the study.

Chapter V: Dealt with 'SUMMARY AND CONCLUSION' consisting implications of the findings and suggestions for future research.

The literature cited and appendices were given at the end.

Chapter II

REVIEW OF LITERATURE

This chapter is designed to review relevant literature for this study on rural out migration. A thorough review of literature is necessary to acquaint with the research area and was felt essential in developing sound research methodology and operationalsing the needed concept. Both theoretical and other relevant and pertinent literature have been reviewed to achieve designed aims in a scientific way.

Accordingly, a brief review of the available literature has been presented in the light of the objectives of study under the following heads:

2.1 Profile characteristics of the migrants.

2.2 Determinants (push and pull determinants) of out migration.

2.3 Consequences of migration on Agriculture, food and nutritional security, biodiversity and women empowerment.

2.4 Amount of remittances and their purpose of utilization.

2.5 Relationship between profile characteristics and determinants of migration.

2.6 Strategy for reducing out migration.

2.1 PROFILE CHARACTERISTICS OF THE MIGRANTS

2.1.1 Age

Chandan (2006) revealed in his study that 60 per cent of the migrants were in the 25-35 years age group followed by 17 per cent between 35-45 years age group, 14 per cent in 45-55 age group and 9 per cent in 55-65 age group.

Singh *et al.* (2011) found that on an average, 62 per cent of the migrants were up to 30 years of age. The percentage of younger migrants was more in Bihar than in Uttar Pradesh. Around 31 per cent of the migrants were in the age group of 31-45 years.

Mishra and Parul (2012) revealed in their study that maximum number of the migrants fell in the age group of 20-30 years. However, 23 per cent of the respondents in

each of the two cities, Delhi and Bhubaneswar, lie in the age groups of less than 20 years and more than 40 years respectively.

Kyaing (2013) observed that 27.7 per cent of the migrants were aged between 50 and 59 years. The second highest percentage can be seen in the age-group of 40-49 years (22.5%) followed by age group of 60-69 (20.2%), followed by age group of 70-79 years (16.2%), followed by age group of 30-39 (10.4%) then least were of age group of 80-89 years (2.9 %).

Pankaj and Belwal (2013) observed that migrants were predominantly young adults from low income families.

Madhu and Uma (2014) found in their study that most of the respondents fell into the young age group between 15 to 30 years, and they represented 53.3 per cent of the total number of migrants. Whereas 37.8 per cent of respondents belonged to age between 31 to 45 years. The age group of above 45 years constituted third highest and represented 8.9 per cent of the total.

Mahendra (2014) observed that the share of male migrants from the study villages working in urban areas in total workers in the 16-63 age groups has increased from 17.28 per cent in 2002 to 19.24 per cent in 2007 and 55.13 per cent in 2012. Considering all workers as a whole, the share of agriculture has declined drastically from 73.94 per cent in 2002 to 63.33 per cent in 2007 and 23.84 per cent in 2012.

Santosh (2014) found that majority (61%) of the respondents fell under age group of 21 - 31 years, while 39 percent of the respondents fell under age group of 31-40 years.

2.1.2 Education

Huang and Pieke (2003) found that rural migrants are more educated and younger than non migrants. Majority of them had junior high school or primary school education.

Singh *et al.* (2011) revealed that most of the migrants (75%) from both Uttar Pradesh and Bihar were literates and only 25 per cent of the total migrants from these states were illiterates.

Kyaing (2013) in his study observed that among migrants, 41.0 percent had primary level education, 23.7 percent had secondary level education, 16.8 percent had tertiary level education, 15.0 percent had above tertiary level education and 3.5 percent were Illiterate.

Meenakshisundaram and Panchanatham (2013) revealed that majority of the migrants (96.7%) had education. This may be a strong reason for these respondents to migrate in search of gainful employment.

Madhu and Uma (2014) found that 58.7 per cent of total migrants were illiterates, 24.4 per cent of migrants studied only upto primary level and they constituted the second highest. The percentage of the migrants who got into the high school and college level is 12 per cent and 4.9 per cent respectively.

Santosh (2014) found that 53 per cent of the respondents completed primary education, while 37 per cent of the respondents completed secondary and higher secondary education, remaining 10 per cent of the respondents completed under graduate level education.

2.1.3 Credit availability

Situation Assessment Survey (SAS) of Farmers (2003) data revealed that the commercial banks were dominant formal source of credit in Haryana as well as in India, while agriculture professional moneylenders were the dominant informal source of credit in both places. The contribution of commercial banks in total formal debt is 63.01 and 61.69 per cent in Haryana and India, respectively; while in case of informal debt the contribution of agriculture professional moneylenders is 74.38 per cent in Haryana and 60.75 per cent in aggregate India.

Anyanwu (2004) stated that one of the principal characteristics of informal credit is the higher interest rates imposed on loans relative to those by the formal banking sector. This applies more to the informal credit sources such as money lenders.

Chandan (2006) found that institutional credit facilities to supplement remittances in order to initiate enterprises were inadequate and the lack of information about credit sources, complicated bank procedures and the prevalence of corruption make credit inaccessible to households. In the absence of formal institutional credit to cater to the varied needs of migrants, private moneylenders have been used, but were the last resort due to the steep price in terms of high interest rates.

Food and Agriculture Organization (2008) reported that missing or imperfect rural markets, such as credit and insurance markets in rural areas had an important impact on

household agricultural production, investment and labour allocation decisions and migration related decision.

Egyir (2010) in his study at Ghana found that farmers relied mainly on informal and semi formal financial services prior to the establishment of the formal banking system. The main sources of credit included thrift groups, moneylenders and acquaintances among others

Idris (2010) observed that small-scale farmers have relatively more access to informal and semiformal credit institutions than to formal credit institutions. In addition, the high repayment rate of loans recorded by informal and semiformal institutions could indicate that the loans were granted at affordable rates to the small-scale farmers and that subsidization might not be necessary.

Todd and Sharma (2010) found that smallholder farmer's lack of access to production credit is mainly as a result of financial institution's disinterest in lending to peasant agriculture. Agriculture financing is unattractive because it is perceived to be risky or weather dependent and unprofitable.

Mann *et al. (*2010) observed that formal finance sector is dominated by commercial and rural banks. Whereas commercial banks are normally located within district capitals, rural banks are usually located in rural areas. The semi-formal financial sector includes microfinance institutions and non-governmental organizations, NGO. The informal financial sector consists of moneylender, traders, family, friends, neighbours, and among others.

Okojie *et al.* (2010) reported that the poor have limited access to financial services, and that the main source of finance for the majority of rural women in Edo state of Nigeria, is their contribution to the savings/market associations. Lack of bank accounts, collateral, and information regarding the procedure for accessing credits from banks limit rural women's access to credit from formal institutions.

Etwire *et al.* (2013) revealed that the subsistence nature of farming tends to make farmers unattractive as borrowers whereas farmers or farmer groups who are operating in a value chain were more likely to receive credit.

Kuldip and Anand (2013) revealed that the contribution of formal source of credit in farmers' indebtedness was 67.60 per cent in Haryana and 57.70 per cent in India in 2003.

Swati *et al.* (2013) found that highest proportion (62%) of member respondents had obtained credit twice in the last three years. 23 per cent of respondents had obtained credit thrice during the last three years, while lowest proportions (15%) of respondents had accessed credit only once during the same reference period. Higher proportion (29%) of poor farmers had obtained credit three times during the last three years than their rich counterparts (15%). Regarding amount of credit obtained by the respondents, 62 and 52 per cent of respondents belonged to the categories of high volume (40,000- 65,000) and medium volume (30,000-40,000) credit takers, respectively. Only 27 per cent of respondents had taken low volume (15,000-30,000) of credit.

Prathyusha (2014) revealed that majority of the respondents 74.17 per cent borrowed credit from rural banks followed by private money lenders (63.33%), neighbours/relatives (11.67%) and input dealers (7.5%).

2.1.4 Family size

Awais (2007) reported that most of the respondents had joint families however, non-tribals mostly had nuclear families.

Swati (2007) reported that in case of beneficiaries majority (82.50%) of the respondents belonged to nuclear family followed by joint family (17.50%) category. In case of non-beneficiaries majority (76.25%) of the respondents belonged to nuclear family followed by joint family (23.75%) category.

Antara *et al.* (2009) observed that 63.8 per cent of the Toto tribes belonged to nuclear family and 36.2 per cent of the Toto tribes belonged to joint family. He also observed that 78 per cent of the Santal tribes belonged to nuclear family and 22 per cent of the Santal tribes belonged to joint family and 30.0 per cent of the Sabar tribes belonged to nuclear family and 70 per cent of the Sabar tribes belonged to joint family and 20 per cent of the Lodha tribes belonged to nuclear family and 80 per cent of the Lodha tribes belonged to joint family.

Rao *et al.* (2010) reported that 90.40 per cent of their respondents had nuclear families while 9.60 per cent of them had joint families.

Osondu and Ibezim (2013) found in their study that about 62.0 per cent of farmers in the study area had household sizes of between 1 to 4 persons. Only 6.7 per cent had household size exceeding 10 persons. It can be deduced that majority of the respondents had small household sizes. This will have a negative implication on farm labour supply in the area which could also affect agricultural production.

Swati *et al.* (2013) revealed that the average family size across all wealth status categories was 3.5 adult equivalents.

2.1.5 Annual family income

Kapse *et al.* (2009) reported that majority (58.00%) of banana growers had medium income level, followed by high (22.66%) and low (19.34%) income levels.

Thoke and Gunjal (2009) reported in their study that majority (67.86%) of farmers had medium income level, followed by low (19.64%) and high (12.50%) income levels.

McKenzie *et al.* (2010) found that migration dramatically increased the income of the migrants themselves but in the short run appeared to have led to reduced incomes and higher poverty for the remaining household.

Pankaj and Belwal (2013) found that the main source of income for migrants in the study area was government service (30.83%) followed by agriculture (28.75%), private service (23.75%), business (15%) and social services (1.67%).

Swati *et al.* (2013) revealed that annual income of overall category of member households was Rs 1,31,598. Rich households had significantly higher income (Rs 1,86,069) as compared to poor households (Rs 94, 086).

Santosh (2014) found that majority (64%) of the respondents annual family income was between Rs.30.000 -40.000 while 30 per cent of the respondents annual income between Rs.40.000-50.000, remaining 6 per cent respondents annual income more than Rs.50.000.

Osondu and Ibezim (2013) found in their study that 55.0 per cent the respondents earned monthly income of between Rs 5,000 and Rs 30,000, a total of 45.0 per cent of them earned Rs 31,000 and above in spite of the fact that they were small scale farmers. The farm income they earned may have been augmented by remittances from their children and relations abroad.

2.1.6 Family debts

Situation Assessment Survey (SAS) of Farmers (2003) data revealed that the incidence of indebtedness ranged from about 18 per cent in Assam to 82 per cent in Andhra Pradesh. In total 19.00 and 21.10 per cent loan was used for marriages and other ceremonies by SC and BC farmers, respectively of the State, while in case of aggregate India, 17.30 and 12.10 per cent, respectively loan was used for the same head by the same social groups of farmers. Further 26.40 and 62.0 per cent loan was used by SC and BC farmers in productive activities [either farm business or non-farm business] in Haryana, while in case of aggregate India, the same ratio of SC and BC farm households was 50.0 and 62.20 per cent, respectively.

Chandan (2006) found that indebtness was the primary reason for migration and around 45 per cent of households used the remittances to clear debts. There were four main causes of debt prevalence in the villages. These included borrowing for agricultural purposes, health, boring of wells, marriages and festivals.

Lerman (2008) found that for farmers with a single source of financing, investors are the leading source contributing 71 per cent of production costs, with commercial banks trailing far behind with a 15 per cent share. Among farmers with two sources of financing, investors retain their dominant role (59% of production costs), but it is self-financing that emerges as the second most important source (30% of costs). Banks are in third place with an 8 per cent share for this of farmers with diversified financing.

Kuldip and Anand (2013) revealed that the ratio of indebted farm households as per cent to total farm households in Haryana was 53.00 per cent, while in case of India it was only 48.60 per cent. The main cause for high indebtedness of farm households in Haryana was easy access of banking services as compared to other States.

Madhu and Uma (2014) found that seasonal migration helped labourers in repayment of debts. Therefore 73.3 per cent migrants felt decrease in their volume of debt.

2.1.7 Number of migrants in family

Deshingkar and Daniel (2003) found that more than half the households in four out of six study villages in Madhya Pradesh included migrant family members. The figure was as high as 75 per cent in the most remote and hilly tribal villages with infertile soils.

Srivastava and Sasikumar (2003) reviewed that in some regions of India, three out of four households include a migrant. The effects of migration on individuals, households and regions add up to a significant impact on the national economy and society.

Deshingkar and Edward (2004) found that on average, nearly 47 per cent of the households had at least one member migrating, with over 64 per cent in the remote villages in Madhya Pradesh, against an average of 25 per cent overall in Andhra Pradesh. But, even here, one drought-prone Andhra Pradesh village recorded 78 per cent migration.

Chandan (2006) revealed that most inter-state contractual migrations were either entire family migrations or husband and wife as a unit migrating for livelihood, while short-term migrations consist mostly of a single male migrant going in search of work with the family staying at home.

Singh *et al.* (2011) revealed that the percentage of households having more than one migrant was higher in Uttar Pradesh (308 migrants) than Bihar (245 migrants).

2.1.8 Number of occupations

Dev (2002) revealed that large numbers of seasonal migrants work in urban informal manufacturing, construction, services or transport sectors, employed as casual labourers, head-loaders, rickshaw pullers and hawkers.

Murali and Jhamtani (2003) reported that agriculture was the sole occupation of 25 percent farmers whereas others had subsidiary occupations like labour, shop keeping, driving etc.

Chandan (2006) found that the migrants from the villages had three types of employment i.e. wage labour, self-employment and contract employment. Around 80 per cent of the migrants were involved mainly in the building/construction sector, canal and dam work, road-laying, cable-laying work and as wage labourers. The self-employment category mostly consists of skilled workers and artisans who constituted around 10 per cent of migrants. Most self-employed skilled workers were found in building construction activities as masons, statue makers, stone grinders, mechanics, drivers, rickshaw pullers and other activities, mostly in urban centres and big cities. In contract employment, most migrants were found working as watchmen in apartments in towns and cities, bell-boys in hotels and lodges, women maid-servants in houses and petty-jobs in business

establishments and offices. This category of employment is semi-skilled and perceived to be slightly better than unskilled contractual and casual wage labour employment both in terms of earning potential and quality of work, this in turn increases the potential amount of remittances.

Deshingkar (2006) observed that migrants tend to had occupations in factories, agro-processing plants or working as porters, domestic servants, bus conductors, rickshaw pullers, street hawkers, petty traders, and construction workers. Migrants are often willing to take on jobs that others cannot or do not want to do (those that are dirty, degrading and dangerous).

Katiyar (2006) found that there were extremely high rates of migration among tribals from southern Rajasthan who migrate to Gujarat to work in the occupations of seed cotton farms and textile markets.

Singh *et al.* (2011) revealed that about half of migrants (49%) worked as regular labourers. It was followed by around 30 per cent of the migrants from Bihar going for construction work and from Uttar Pradesh, adopting self-employment (such as vegetable vendors, milk vendors, auto-driving, etc.).

Joshi (2013) observed that the higher number of migrants belonged to government jobs i.e. defense personal or civil sectors, an adequate numbers belong to retired persons. There was very little number of industrial/private workers or personal occupations in the village.

Swati *et al.* (2013) revealed that about 68 per cent of all member households had at least one non-farm income source. Significantly higher proportion (77 per cent) of richer households had at least one non-farm income source than poor households (57 per cent).

Kyaing (2013) found that among migrants, 55.5 per cent worked as own account worker, 27.2 per cent were dependent persons, 13.3 per cent worked as private employee plus wage earner and 4.0 per cent were government employee.

Osondu and Ibezim (2013) found in their study that farming was the major occupation of 63.3 per cent of the respondents.

Mahendra (2014) observed that some diversification of work patterns had also taken place within the rural areas with workers taking up MNREGA and other construction works, petty trade activities, teaching and health worker jobs etc, and male out migration to

urban areas. This is because the workers consider manual farm work as non-prestigious and degrading but nonfarm work as less demanding and more prestigious.

2.1.9 Farm resources

Satyagopal (2009) reported that 80.00 per cent of respondents had 0.1to 2.0 acres, followed by 15.00 per cent had 2.10 to 4.0 acres and 5.00 per cent had no own rainfed land in telangana region.

Anup *et al.* (2010) revealed that 42.60 per cent of respondents had medium land holdings, followed by 33.33 per cent had small land holdings and 24.00 per cent of them were large farmers.

Praveena (2010) found that type of soil in selected villages of Ananathapur district was red soil while the soils of Kadapa district were black soils with low organic matter. The type of soil in Srikakalulam, East Godavari was alluvial and contained a small percentage of sand. Type of soil in Warangal and Karimnagar district was red soils. She also reported that majority of the respondents (61.66 per cent) were rainfed farmers while 23.33 per cent could irrigate the fields to an extent of 25 per cent and rest 15 per cent irrigated the fields to an extent of 25 to 50 per cent. The respondents who had irrigation facility to some extent irrigated their fields through bore wells and some of the farmers (13.33 per cent) from kadapa used sprinklers to irrigate the vegetable fields.

Keshav (2011) observed that majority of the tea cultivated farmers fell under semi-medium farm size (33.00%), followed by small (30.00%), medium (21.00%), marginal (9.00%) and large (7.00%) farm size.

Mukundarao (2011) reported that greater percentage (81.12%) of the respondents were not having any irrigation facilities for growing Bt cotton.

Prashanth (2011) observed that majority (36.66%) of the organic cotton farmers had small farm size followed by marginal (35.00%) and large (28.33%). Whereas, majority (41.66%) of the conventional cotton farmers had large farm size followed by small (38.33%) and marginal (20.00%).

Pynbianglang (2011) indicated that the majority of the potato growers were marginal farmers (44.17%), followed by small farmers (25.83%), semi-medium farmers (21.66%), medium farmers (6.67%) and large farmers (1.67%).

Abigail (2013) found that the effect of the size of land owned by the household on agricultural production was positive and statistically significant and household wealth in terms of agricultural equipments and machinery showed a significant reduction of agricultural production of the household. The use of agricultural machinery for land preparation and herbicides to control weeds was an option to avoid the cost of hiring labour. The associated per capita income increased with increased agricultural production was a disincentive for further temporary migration which had a significant and negative effect on agricultural production.

Kuldip and Anand (2013) revealed that majority of farm households had land size between 0.01 to 0.40 ha in Haryana. In addition, 86.88 and 91.23 per cent farm households possessed land size below 4 ha. in Haryana and India, respectively.

2.1.10 Purpose of migration

Gupta and Mitra (2002) in a study of migrant labour in Delhi slums found that, with experience, migrants were likely to move into higher income generating regular jobs.

Deshingkar and Daniel (2003) documented accumulative migration streams in both farm and non-farm work which have allowed numerous lower caste people in Madhya Pradesh (MP) and Andhra Pradesh (AP) to break out of caste constraints (which are especially strong in rural areas), find new opportunities, and escape poverty.

Gerard (2003) found that seasonal migration from the mountains to India is reported as being both entirely traditional and entirely non-agricultural.

Rogaly and Coppard (2003) observed that wage workers in West Bengal now view migration as a way of accumulating a useful lump sum, rather than, as in the past, simply surviving.

Deshingkar (2006) felt that more migrants were opting for non-farm employment in both rural and urban areas because of greater returns.

Anamica (2010) stated that, most of the respondents (95.56%) had taken nonagricultural work in the migrated destination.

Miluka *et al*. (2010) indicated that rural households used migration as a strategy to move out of agriculture with remaining family members working significantly fewer hours in farm production activities, both in total and on a per capita basis found out that the majority 82 per cent of the respondents opined that migration helped to enhance the economic conditions of the family.

Jabir *et al.* (2011) revealed that migration for work/employment constituted nearly one third of the total rural-urban migration in six UTs and four states, in which the union territory of Dadar and Nagar Haveli had the highest proportion (52.2%), followed by Delhi (41%), Andman and Nicobar Island (38.2%), Chandigarh (37.6%), Daman and Diu (36.1%), Lakshadweep (33.8%) and among the states it was highest in Sikkim (48.1%), followed by Himanchal Pradesh (40.9%), Punjab (37.1%) and Goa (32.4%), while among all the states and UTs , it was lowest in Bihar (14.2%). Rural-urban migration for business was another economic factor, among all the states and UTs it was highest contributed for migration in case of Daman and Diu (12.9%) and lowest in Lakshadweep (0.1%).

Jayaraj (2013) revealed that there were two types of purpose of migration namely labour market and non labour related purposes of migration. Labour market related migration included movement in search of employment, in search of better employment, and to take up employment. Non labour market-related purposes of migration included movements for reasons such as transfer of service/contract, housing problems, proximity to place of work, social and political problems, acquisition of a house/flat, marriage, displacement by development projects, etc.

2.1.11 Duration of migration

Tiwary *et al.* (2002) found that because of the opportunities offered by short term seasonal migration, at least some agricultural labourers were financially better-off than they were a generation ago.

Gerard (2003) argued that local labour was more expensive than that of migrants which indicated that seasonal migration for a short term played a role in increasing the efficiency of rural labour market.

Rafique and Rogaly (2003) explained that migrants from Murshidabad district of West Bengal were very vulnerable when they travel to other areas of the state. Seasonal

migration has been a response to increasing vulnerability associated with lack of access to land, irrigation water, finance supportive networks, contacts, and qualifications. There are slightly better-off households that are also migrating, but they are less vulnerable, and may undertake migration in order to save for or invest in a particular purpose.

Deshingkar and Edward (2004) found that Seasonal migration as a livelihood strategy appeared to be far more important, in terms of returns, in Madhya Pradesh (MP) than Andhra Pradesh. In Andhra Pradesh, earnings from work outside the village accounted for nearly a sixth of household income, against more than half in MP.

Chandan (2006) found that the duration of migration was determined by the availability of work and the financial necessities at home. The author also found that seasonal and contractual labourers make regular and substantially greater remittances than short-term migrants.

Deshingkar (2006) observed that short-term, non-permanent, migration from poor and underdeveloped regions to more prosperous regions and countries can (but does not always) offer people an important opportunity to diversify and exit from poverty.

Anamica (2010) reported in her studies that, 44.00 percent of the respondents had an idea to remigrate to home place within 5 to 10 years followed by 33.00 percent after 10 years and 23.00 percent within 5 years.

Abigail (2013) found that most (69%) of the households which had migrant members were in the category of permanent migration and the remaining 31 per cent of households with migrant members were in the category of temporary migration.

Meenakshisundaram and Panchanatham (2013) found that, majority (89.6%) of respondents reported positively for remigration to their villages from urban areas and only 10.4 per cent reported negative. Majority (54.1%) reported that they will remigrate to rural area within a period of 5 years. Almost equal percent of respondents reported that will remigrate between 5-10 years and more than 10 years. Very less percentage reported that they will remigrate within a year. It was reported that 28 respondents were not willing for remigration.

Pankaj and Belwal (2013) found that 24.58 per cent of the respondents were migrated temporarily followed by 22.08 per cent permanently, 31.67 per cent both temporarily and permanently and 21.67 per cent did not migrate.

Madhu and Uma (2014) revealed that 94.7 per cent of the people were migrating within the state boundary and 73.3 per cent of the labourers are migrating for a period between 3 and 6 months. Whereas 26.7 per cent labourers were migrating for a period of less than 3 months.

2.1.12 Pattern of migration

Deshinkar (2003) observed that circular migration rates were high in remote rural areas, particularly amongst chronically poor people. Particularly high rates were found in drought prone areas with low agro-ecological potential, poor access to credit or other pre-requisites for diversification and high population densities

Gerard (2003) found that in the Terai, 59 per cent of all migratory flows to India are recent, while the corresponding figure for intra-Nepal flows is just 31 per cent.

Karan (2003) felt that migration was mainly to urban areas as work availability had declined in traditional destinations in irrigated Punjab.

Deshingkar and Edward (2004) found that 12 per cent of the households on average sending one person to work in a nearby urban location in Andhra Pradesh. There are plenty of non-farm opportunities near villages in Andhra Pradesh as it was a much more developed state with good roads, communication networks and urbanizing pockets (larger villages, urban peripheries, small towns).

Deshingkar (2006) found that internal migration and remittances were much more important for poverty reduction compared to international migration, since internal migration between regions, districts and municipalities, and between rural and urban areas, were more likely to involve poorer people. The author also observed that many rural migrant households cultivated one rain-fed subsistence crop and few chose to settle permanently at their migration destination, recognizing that keeping a foot in both the rural and the urban economies provides them with greater security.

Anmol (2010) revealed that rural-urban migration appeared to be the predominant form of migration in Uttarakhand with only a small proportion of the total number of migrants migrating to other countries.

Mishra and Parul (2012) revealed in their study that migration was primarily a region specific phenomenon. Delhi (located in North India) witnesses migrants primarily

from the northern states. Similarly, in Bhubaneswar (located in Eastern part of the country), migrants are mostly from the eastern states. Most of the migration to the city of Delhi was from the states of Bihar and Uttar Pradesh contributing to nearly 84 per cent. In case of Bhubaneswar city, the migrants were mostly from the rural hinterlands of Orissa (primarily from the districts of Nayagarh, Puri and Cuttak).

Jayaraj (2013) suggested that there were four types of movements – rural-rural, urban-urban, rural-urban and urban-rural occur in India. While the first two were within sector mobility, the second two were between sector mobility. Of between sector mobility, urban-rural movement indicated flow from the advanced (urban) sector to the traditional (rural) sector. Such movement from the advanced to traditional sectors was significant in India.

Joshi (2013) observed that about 96 per cent families migrated from remote rural area of hill districts of Kumuan to urban areas. The migrants of Almora and Bageswar districts families were higher in number and were followed by Nainital and Pithoragar.

2.1.13 Survival strategies adopted before migration

Gerard (2003) indicated that, at least in the hills and mountains, seasonal migration was much more of a coping mechanism than an attractive or viable escape route from poverty.

Chandan (2006) argued that migration was also undertaken as a survival strategy in which the temporary or long-term migration of people from a household was seen as a way for the household to maximize its chances for survival in an uncertain environment by diversifying its sources of income. Remittances had provided a strategy for poor households to escape poverty, and also had potentially adequate scope to become viable rural investment tools provided the required policy, institutional and social security support systems are in place.

Gebrehiwot and Fekadu (2012) revealed that the respondents, who had medium economic status, had to borrow food from friends and kin, borrow money without interest, sale their livestock like sheep, goat, and cattle at low price and the poor respondents were more restricted to borrow, sale their assets e.g. beds, chickens, oxen. The respondents also adopted strategies like income sharing /mutual support, wage labor to buy food,

withdrawing children from school, and high participation on safety net projects to secure their life. During hunger season these families reduced frequency, quantity and quality of meals, substitution of sorghum, maize and " Fafa" for preferred Teff, wheat and barley and commonly consumed cactus both at normal and bad seasons. Some of them had to beg for food before taking the decision to migrate from their place of origin.

Kenneth (2013) revealed that about a third (35%) of respondents indicated that their households had indeed undertaken some kind of action to prevent the recurrent impacts of floods. Most commonly, they had constructed sand or stonewalls, gabions, bamboo fences or they had planted trees along the river. One in four (25.3%) of those who took preventive measures had made changes to their houses like relocating to safer locations and using alternative building materials. Likewise, more than half (56.3%) had built physical barriers around their homes and fields in order to reduce damage. The other measures were less commonly adopted. Though labour migration is common, and many households have non-farm income, only 15.4 per cent and 20.1 per cent respectively indicated that they engage in these activities to reduce vulnerability to flooding.

2.1.14 Economic motivation

Seema and Manoharan (2002) identified that, 48.33 per cent of coconut farmers had medium economic motivation followed by high (36.67%) and low economic orientation (15.00%).

Sajith (2004) inferred that 62.00 per cent of coconut farmers had medium economic motivation followed by low (23.33%) and high (14.67%) categories.

Sangeetha (2004) revealed that 39.17 per cent of the cotton farmers had high economic orientation followed by medium (32.50%) and low economic orientation (28.33%).

Veeraiah *et al.* (2005) concluded that 61 per cent of cotton farmers had medium economic motivation, while 25.00 per cent had low and remaining 14.00 per cent had high economic orientation.

Mukundarao (2011) found that 59.45 per cent of the Bt cotton farmers had medium level of economic motivation, 23.88 per cent had high level of economic motivation and 16.67 per cent of the respondents had low level of economic motivation.

Prathyusha (2014) found that majority (39.17%) of the respondents had medium level of economic motivation, followed by high (35%) and low (25.83%) level of economic motivation.

Anamica (2010) has concluded that on the economic front, the migrant get better job opportunity was the most perceived benefit followed by increased family.

Jabir *et al.* (2011) revealed that economically motivated male migrants were 52.3 per cent and rest 47.7 per cent of male migrants migrated for educational and social reasons. Out of 52.3 per cent economically motivated migrants, 49.00 per cent were doing jobs in different sectors while 3.3 per cent doing their own business.

Kyaing (2013) indicated that migration is primarily motivated by economic factors. In developing countries, low agricultural income, agricultural unemployment and underemployment are the main reasons for migration.

Santosh (2014) found that 82 per cent of the respondents opined that migration helps to enhance the economic conditions of the family.

2.1.15 Risk orientation

Sivasubrahmaniyan (2003) concluded that little less than half of the coconut farmers (60.83%) had medium level risk orientation while 24.17 per cent had low and 15.00 per cent had high levels of risk orientation.

Rameshbabu and Venkataramaiah (2004) inferred that 70.59 per cent of the respondents had medium risk orientation followed by high (15.29%) and low (14.12%) risk orientation.

Suresh (2004) from his study conducted in Chittor district of Andhra Pradesh indicated that majority of the respondents (24.58%) had medium level of risk taking ability followed by low (13.34%) and high (62.02%) risk taking ability respectively.

Deshingkar (2006) observed that the costs and risks of migration might be cut by more flexible schools, pro-poor programmes and insurance for mobile populations.

Reddy *et al.* (2007) found that 47 per cent of the tribal coffee growers had medium risk orientation followed by 35.00 per cent and 16 per cent of low and high risk orientation respectively.

Chidananda (2008) revealed that majority (65.83%) of dryland farmers had medium risk taking ability followed by high (20.00%) and low (14.17%) risk taking abilities respectively.

Kiran and Shenoy (2010) stated that majority (86.00%) of the SRI paddy farmers had medium risk followed by low (10.00%) and high (4.00%) risk orientations.

Mishra and Parul (2012) revealed in their study that migrants in both the cities were majorly risk averse in nature their percentage being approximately 76 and 71 in Delhi and Bhubaneswar respectively. There were no cases of extremely risk lovers or risk-averse people.

Meenakshisundaram and Panchanatham (2013) found that migrated agricultural labourers agreed to make decision quickly and rapidly, never upset people, never analyse deeply, were not angry always, but only occasionally, agreed to take chances, emotional involvement and commitment, more stable and coping with stress but sometimes depressed, taking more risk to achieve the desired goals. They also strongly agreed to take financial risk and job risk depending on health condition.

2.2 Perception of migrants on the determinants (push and pull determinants) compelling them for out migration.

2.2.1Push Determinants

Angba (2003) revealed that 41 per cent of the respondents indicated employment as the reason for migrating, 36 per cent indicated further education as the reason, 15 per cent indicated marriage while only 8 per cent indicated leisure.

Deshingkar (2003) expressed that migrants may be pushed to migrate by debt, poor access to credit, declining access to common property resources or commodity price crashes, agricultural pressures and rural unemployment, which is driven by the scarcity of cultivable land, inequitable land distribution, low agricultural productivity, land degradation (particularly in arid and semi-arid areas), reduced access to common property

resources, high population density and few opportunities for diversification away from agriculture.

Gerard (2003) found that the highly disadvantaged status of mountains in terms of low crop production capacity, mountain districts having a long growing period and a short growing season and low potential for multiple cropping. These factors in combination with their poor transport infrastructure were making people chronically food-deficit. Further, high population growth combined with absence of local livelihood opportunities will tend to push people to migrate.

Deshingkar and Edward (2004) revealed that small and marginal farmers migrated more than those with smaller landholdings because a minimum level of assets is required to make the initial investment that is needed for migration. Many of these households cultivated one rainfed subsistence crop. Further they also found that the reasons for migration in Madhya Pradesh were limited non-farm options within and around villages, rainfed agriculture and forested areas offering limited employment opportunities. In Andhra Pradesh livelihood options had become severely limited locally due to persistent drought and near total absence of non-farm activities.

Sundari (2005) traced the causes of migration to economic, socio-cultural and environmental determinants. Economic explanations centred on the search for better opportunities of income and employment, socio cultural explanations centred on the desire of migrants to break away from traditional constraints and inequalities. Environmental explanations centred on the lure of the cities and migration induced by disaster, displacement and demographic pressures or imbalances.

Woodruff and Zenteno (2007) has found that distance to railroad lines, historical migration rates, changes in rainfall patterns and employment creation rates in labor-receiving countries are important in migration and the receipt of remittances.

Mobile Creches Publication (2008) revealed that most of the labourers had small land holdings, no irrigation facilities and agriculture is totally dependent on rainfall. They could not depend on the income from agriculture. Droughts brought debts. Hence, they moved to the cities for food security. The main reasons for migration were unemployment (31%), indebtedness (23%), low rural wages or low and irregular income in villages (81%) (Since many of the families gave more than one reason as their reason for migration, for example, some mentioned unemployment and indebtedness together, the data presented here reflects multiple answers and, hence, the total exceeded 100.).

Singh *et al.* (2011) found in their study that seasonal nature of farming and lack of job opportunities were perceived as the major reasons for migration. Unemployment at the native place was cited as the most important reason of migration by 63 per cent of the migrants, followed by underemployment (19%) and low wage rates (12%). Oppressive conditions of work at the source of migration was also one of the reasons for migration for rest of the migrants.

Debasis and Pravat (2013) argued that the sub-division and fragmentation of the rural agricultural land induces the process of rural-urban migration in India. The higher the extent of sub-division and fragmentation of agricultural land (i.e. lower man-land ratio) lower will be the agricultural productivity and thus higher will be the extent of rural-urban migration. They also found that because of the non-availability of job in the rural sector, people are compelled to migrate from rural to urban sector.

Kyaing (2013) observed that common push factors are low productivity, unemployment and underdevelopment, poor economic conditions, lack of opportunities for advancement, exhaustion of natural resources and natural calamities. Introduction of capital intensive methods of production into agricultural sector, and mechanization of certain processes reduce labour requirement in rural areas. The non-availability of alternative sources of income in rural area is also important factor for migration. Family conflicts, the quest for independence, also cause migration especially, of those in the younger generation.

Meenakshisundaram and Panchanatham (2013) revealed that 95.6 percentage were found to have forced migration and balance of 4.4 percentage of respondents found to be seasonal migrants. They also found that migration is only made in search of gainful employment and the respondents have migrated only due to economic reasons.

Prashant (2013) revealed that difficult terrain, lack of transport, the lack of employment along with small farm sizes and low farm incomes has fuelled large migration from rural areas of the Uttarakhand state to the cities across the country.

Madhu and Uma (2014) found in their study that 95 per cent of the labourers migrated because of seasonal unemployment, 98.2 per cent migrated due to poverty, 53.3 per cent labourers migrated due to high wages in urban areas, where as only 7.1 per cent labourers migrated because of small holdings and 53.8 per cent labourers migrated due to lack of irrigation facility.

Santosh (2014) revealed that the major reasons for rural-urban migration among youths are the search for employment opportunities, to seek good education, to carry business activities, low agriculture production and crop failure in study area and inadequate social amenities in rural area.

2.2.2 Pull Determinants:

Sivakumar (2002) found that migrants migrated to urban areas due to their close contacts with employment agencies in order to get employment in urban areas.

Tiwary *et al.* (2002) revealed that the better communications between the Terai and India, would seem to be creating pull forces that lie behind the high level of migration from the Terai to India.

Gerard (2003) reported that wage rates in India average almost 50 per cent higher than those in Nepal, Second, the difference between Nepalese and Indian wage rates is much greater in agriculture than that in nonagricultural occupations (by 80 per cent compared to 21 per cent) providing a powerful stimulus to cross-border migration.

Deshingkar (2003) observed that demand for labour in both rural and urban areas and anticipated better wages and working conditions are also major incentives to migrate The desire to acquire new skills, access better services and leave oppressive patron-client relationships or avoid caste-based (or other) discrimination are also motivating factors.

Deshingkar and Edward (2004) felt that improved access to roads and communication infrastructure, and social networks in urban locations, also drive, and facilitate, circular migration in India.

Deshingkar (2008) found that people were attracted by wages in Bangalore which, at Rs.100 to 150 per day, were nearly three times the local wage.

Joshi (2013) found that the pull determinants of migration were chief cost of house construction, better educational option for children, job opportunities for young generation and better health. The easy access of daily needs for old personal was main 'Pull' factor.

Debasis and Pravat (2013) obsereved that better employment opportunities in the urban centers attracted a sizeable proportion of workers from the rural to the urban areas and thus induced rural-urban migration. The greater scope for informal activities at the urban centers induce people to migrate from rural to urban areas.

Kyaing (2013) observed that opportunities for better employment, higher wages, facilities, better working conditions and attractive amenities are the pull factors. Improved

communication facilities, such as, transportation, impact of television, good network communication, the cinema, the urban oriented education and resultant change in attitudes and values also promote migration.

Mahendra (2014) observed that agricultural wages do differ from non-agricultural wages but the two were interdependent. High non-farm wages and opportunities were physically less arduous jobs in urban areas tend to induced workers go away from physically more demanding agricultural work. As a result, workers were withdrawing from agriculture, migrating to urban areas and those who remain were forcing agriculturists to pay higher wages.

2.3 Consequences of migration on Agriculture, food and nutritional security, biodiversity and women empowerment.

2.3.1 Agriculture

Ellis (2000) revealed in his study that many rural households allocated their labor to other economic activities beyond agriculture and that remittances could be invested in labor-saving agricultural inputs.

Adebayo and Ajayi (2001) reported that over 80 per cent of the respondent agreed or strongly agreed that the movement of a member of the family to an urban location free more land space for farming in the rural areas and most of the respondents (71.1%) agreed or strongly agree that migrants bring more investments into the rural economy. Most of the respondents (75.6%) agreed or strongly agreed that the movement of migrants away from the rural area decreases the labour available for farm work.

Afsar (2003) found that for rural families primarily engaged in farming, male migration resulted in labour shortages and this lead to change in the traditional division of labour in the farm and it increased women's farm workload. Migration, therefore, has an inverse relationship with agricultural productivity in the sense that as migration increases, agricultural productivity decreases.

Angba (2003) revealed that farm operations have been highly affected by absence of household members at different levels such as clearing and bush burning activities (58%), ridging (71%), planting activities (45%) and weeding (57%). Other areas were staking (36%), harvesting (44%), transporting (48%) and marketing (35%).

Katz (2003) found that the departure of a household member reduces household labor supply, which will reduce labor inputs to agriculture and other activities unless there is a compensating increase in effort by the remaining household members.

Winkles (2004) found in his study in Vietnam that migration from upland to lowland areas has expanded to service the growing export-oriented agroeconomy.

Ohajianya (2005) suggested that labour migration out of agriculture and the consequential labour shortage on the farms have negatively impacted on agricultural production.

Mc Carthy *et al.* (2006) found evidence of a net increase in agricultural income despite significant reduction in the allocation of labour to crop production.

deBrauw (2007) explored that, although there were no effects of migration on aggregate production, there was weak evidence that migrant households decrease rice production, and strong evidence that they shift into more-land-intensive crops, other things being equal.

Food and Agriculture Organization (FAO) (2008) reported that rural out-migration tends to exert a downward pressure on agricultural labour per capita. However, this does not automatically lead to reduced agricultural incomes because the loss in household labour may be, and often is, compensated by improvements in other areas, such as increased access to capital. The outcomes of migration therefore depend on the broader agro-ecological, economic, and institutional context.

Parganiha *et al.* (2009) observed that seasonal migration is the cause of labour shortage in agriculture and since agriculture in the state is less mechanized and based primarily on manpower, agricultural activities and production are adversely affected.

Damon (2010) showed that area in cash crops in El Salvador declined following international migration, but the area in staple crops unexpectedly increased.

deBrauw (2010) found that migrant households reduced their labour involvement in agriculture more than the non-migrant ones and chosen to change the crop mix from a relatively more labour intensive rice crop to comparatively more land-intensive non-rice crops.

Hecht (2010) argued that out-migration and remittances undermine traditional agricultural activities.

Prabakar *et al.* (2011) indicated that due to migration acute shortage of labor for agricultural works occured affecting the productivity levels of all crops.

Vasco (2011) showed that fertilizer use and cattle ownership unexpectedly increased with migrant departure while remittances had no effect.

Ofuoku and Chukwuji (2012) revealed that migration leads to labour shortage, incomplete harvesting, loss of farm revenue and hence impacts negatively on plantation agriculture.

VanWey *et al.* (2012) found in Amazonian Brazil that cash crops increased with remittances and that migrant departure had no effect, though this study did not account for endogeneity.

Abigail (2013) revealed that the different types of migration from the rural to the urban areas have different effects on agricultural production of the households at the origin of migration. A household member engaging in temporary migration significantly reduces household production by 55.4 per cent while permanent migration of a household member shows an insignificant increase in household production by 8.8 per cent all other things being equal. This supports the hypothesis of this study that loss of labour has a negative effect on agricultural productivity.

Meenakshisundaram and Panchanatham (2013) found that most of the respondents (75.6%) agreed or strongly agreed that the movement of migrants away from the rural area decreased the labour available for farm work.

Clark and Richard (2014) found in their study that the departure of one migrant would increase cropped area slightly to 1.12 ha and departure of a single migrant accompanied by $1000 in remittances (the average sent by an international migrant) would have a net negative effect, decreasing the area in annuals to 0.75 ha.

Mahendra (2014) expressed absolute number of male workers in agriculture has declined from 371 in 2002 to 364 in 2007 and 330 in 2012. The number of prime age male workers (16-35 age group) is declining faster. While the share of male workers in total agricultural workers has fallen from 96.87 per cent in 2002 to 95.79 per cent in 2007 and to 91.67 per cent in 2012, that in the prime age group has come down from 13.84 per cent to 6.05 per cent and again to 1.39 per cent in these years respectively. Migration out of agriculture has been reported to be the most important reason for labour shortage in agriculture and more than 54 per cent of the households covered under the study have cited migration out of agriculture as their first response cause

Santosh (2014) revealed that majority (51%) of the respondents opined that migration cause shortage of manpower for agricultural activities in rural area.

2.3.2 Women empowerment

Gerard (2003) found that the men migration leaves the women to try to cope with greatly increased workloads.

Rawat (2004) revealed that while men predominate in urban areas, the interior rural districts were amongst the few in India that contain significant female majorities When men migrate to cities, apart from the domestic chores of cooking, fetching fuel, fodder and water, looking after children, the tasks of caring for livestock and agricultural work also fell on women shoulders.

Paris *et al.* (2005) found that, when men migrate, not only do women's workloads increase, but also their participation in decisions related to farming, compared with women from households without migrants also increased.

Sekhar (2007) found that women's participation in the rural economy is significant. In Uttarakhand, young men generally migrate to the plains in search of employment, whereas women are left behind to cultivate the land and take care of the children and the older generation.

Uttarakhand Seva Nidhi Payavaran Shiksha Sansthan (USNPSS) (2005) observed that the agricultural work in Uttarakhand comprised diverse activities including making compost for fields, providing water for cultivation, beside plowing the fields, sowing, harvesting, winnowing, picking and cleaning vegetables. Traditionally, all agricultural work, except ploughing was done by women. However, increasingly women were taking up ploughing also, especially in female-headed households, single women homes and among nuclear families.

Food and Agriculture Organization (FAO) (2008) reported that migration can have a strong influence on gender relations. In areas experiencing outmigration of men, women are increasingly becoming farm managers. This can expose them to risks, such as gender-based discrimination when they find themselves in competition with male farmers as well as opportunities, such as greater control over household resources, and improved socio-economic status

Anmol (2010) revealed that 63 per cent of the women categorically stated that they were quite happy with the migration of their husbands. They gave several reasons for this, which included the dream of a better future for their children (92%), increased household income (88%), improvement in social status in the village (79%), increased decision-

making power (46%), and more freedom (21%). On the other hand, the wives who were unhappy with the migration of their husbands (37%) cited reasons such as increased workloads (93%), problems with their in-laws (71%), separation from their husbands (57%), and the low income of husbands (36%) and a few had fears that their husbands were having extra-marital affairs in the cities (7%).

deBrauw (2010) found that migrant households reduced their labour involvement in agriculture more than the non-migrant ones and chosen to change the crop mix from a relatively more labour intensive rice crop to comparatively more land-intensive non-rice crops.

Sathiabama (2010) observed that the contribution of women and their role in the family as well as in the economic development and social transformation were pivotal. Women constituted 90 per cent of total marginal workers of the country. Rural women who were engaged in agriculture form 78 per cent of all women in regular work. Economic empowerment of women by micro entrepreneurship led to the empowerment of women in many things such as socio-economic opportunity, property rights, political representation, social equality, personal right, family development, market development, community development and at last the nation development. Women comprised half of human resources they have been identified as key agents of sustainable development and women equality was as central to a more hoslistic approach towards estabilizing new patterns and process of development that are sustainable.

Singh *et al.* (2011) revealed that migration has empowered the female members in terms of enhancing their decision-making role in various activities. It is evident from the women empowerment indices of 0.84 in Bihar and 0.73 in Uttar Pradesh. However, as expected, the maximum scores for women empowerment were for general household expenditure, followed by decisions regarding sale of farm produce, storage of seed, hiring of labour, children's education, sale-purchase of livestock, farm input-use and crops/variety selection.

Mahendra (2014) observed that both the number and share of female agricultural workers has increased over the years. Agriculturists also prefer female workers because male workers are not available and females work at lower wages. This situation reflected a kind of senilitisation of male workforce and feminization in agriculture.

2.3.3 Biodiversity

Deshingkar (2003) observed that migration can also have a negative effect on collective action and natural resource management, where significant labour inputs are required

Gerard (2003) found that seasonal migrants also bring back new knowledge and new technologies (especially crop varieties) from India, and acquire new skills.

Rudel *et al.* (2005) supported "forest transition theory", in which rural out-migration is viewed as a key mechanism leading to land abandonment and the subsequent regrowth of native vegetation .

Hecht and Saatchi (2007) found a positive correlation between the receipt of remittances and forest cover at the provincial scale in El Salvador.

Anamica (2010) found in her study on the agricultural front, 'Introduction of improved varieties due to seeds brought by the migrants' was the most perceived benefit followed by 'it helps to locate better market in town for farm products'. The most perceived problem on the agricultural front was decreased labour force for farm work.

2.3.4 Food and nutritional security

Dobhal and Raghuvanshi (2003) reported higher percentage of women consuming adequate calcium in their diet. It was found that the coarse grains i.e. ragi and barnyard millet which are rich in calcium content being the part of the diet contributes towards higher intake of calcium, ß-carotene and ascorbic acid.

Gerard (2003) found that the main benefit of seasonal migration is that it relieves pressure on domestic food supply.

Bhasin (2004) reported that diet of bhils of Rajasthan is highly nutritionally deficient due to insufficient intake of pulses, vegetables, fruit, milk etc., which results into bleeding and spongy gums, mottled enamel and angular stomatitis.

Deshingkar (2006) revealed that without the opportunity to migrate many poor people would have fallen into deeper poverty and experienced severe food insecurity and remittances sent by migrants helped in improving food security. .

Giri (2006) analyzed cereal consumption over time in the country and across the states using the data on consumption pattern and availability of food grains as available in various rounds of NSSO reports. Between 50th round (1993-94) and 60th round (2004-05)

the decline in consumption of coarse cereals (jowar, bajra, etc.) was more pronounced than that of rice and wheat in urban areas. The cereal consumption of 11.2 kg during 43rd round (1987- 88) declined to 9.8 kg during 58th round (2002) and then again increased to 9.9 kg and 10.0 kg respectively during 59th round (2003) and 60th round (2004). Similar trend was observed for rural areas.

Food and Agriculture Organization (FAO) (2008) reported that food insecurity and lack of economic opportunities in agriculture and related rural sectors, such as forestry and fisheries can lead to migration to other areas in search of employment, income, or food.

Ramachandran (2008) in his study on changing food consumption patterns in India reported that there has been a decline in the proportion of expenditure on food items in the last three decades in both urban and rural areas. The decline is mainly due to low cost of cereals which are the major source of energy in Indian dietaries, and it was seen in all income groups. The share of cereals in household expenditure has fallen from 41 per cent to 18 per cent in rural India and from 23 per cent to 10 per cent in urban India over the same period. Over this period, the expenditure on pulses has remained more or less the same in all the income groups. However, because of the soaring cost of pulses, there has been a decline in pulses consumption in all the income groups.

Rao *et al.* (2010) reported that the average consumption of food stuffs by tribal women are cereals and millets 402 g/day, pulses and legumes 20 g/day, green leafy vegetables 24 g/day, other vegetables 54 g/day, roots and tubers 55 g/day, fruits 22 g/day, flesh foods 26 g/day, milk and milk products 29 g/day, oil and fats 7 g/day ans sugar and jaggery 17 g/day.

Nnadi *et al.* (2012) observed that the impact of rural-urban migration was a rapid deterioration of the rural economy leading to chronic poverty and food insecurity. This arises mainly due to excessive drain of youth from the rural populace thus leaving only the older and aged members to constitute the labour force of the rural area.

Renu and Nirmal (2013) suggested that intake of cereals and pulses was less than Recommended Dietary Intake (RDI) in both types of the villages (adopted and non-adopted) during both seasons (winter and summer). Consumption of all the food groups except fats and oils was found to be higher among the women of adopted village than non-adopted village in both the seasons. Milk consumption was more than RDI in adopted

village. Consumption of green leafy vegetables and other vegetables was more during winter season due to seasonal availability but it was still lower than the RDI in both types of villages. It was also found that consumption of other vegetables, fruits and fats & oils was lower than suggested levels in both the category of villages during both the seasons.

2.4 Amount of remittances made by the respondents and their purpose of utilization.

Brad (2002) observed that remittances have been used for education, health, to pay off debts, perpetuate emigration, and for conspicuous consumption, including large homes.

Afsar (2003) found that internal remittances do have a positive impact on receiving households in terms of repayment of debts, better nutrition, better education and investment in enterprise.

Chami *et al.* (2003) reported in their study that a significant proportion, and often the majority of remittances are spent on "status-oriented" consumption goods by the migrants.

Docquier and Rapoport (2003) pointed out that at the micro level remittances were well recognized as part of an informal familiar arrangement that goes well beyond altruism, with benefits in the realms of mutual insurance, consumption smoothing, and alleviation of liquidity constraints. Different types of migrant may remit with different motives.

Katz (2003) argued that if the migrant sends remittances, these could be used directly for household consumption, substituting for agricultural production, and/or for hiring labor to compensate for the absent household member. Remittances could also be invested in the intensification of land use and the purchase of agricultural inputs such as fertilizer or pesticides.

Sander (2003) inferred that remittances contribute to the welfare and improved livelihood of the receiving household – be it in terms of basic necessities such as food, clothing, or better health and education; thereby building human and social capital or to a smaller extent in terms of savings or business investments

Amuedo-Dorantes *et al.* (2004) observed that remittances will increase as a result of an increase in migrants' earnings as well as by income shortfalls in their home-base families. Some individuals migrate with the predetermined motive of making a specific

investment or purchase and migration will be temporary, and migrants will tend to remit and carry large sums home. Remittances can have long-run beneficial effects if they promote productive projects

Deshingkar (2006) felt that remittances can play an important role in reducing vulnerability, stimulating land markets in sending areas, increasing local wages and the demand for local goods and services and generally improving the economy.

Anmol (2010) revealed that 69 per cent of migrants were sending remittances to their families in the villages. The remittances sent by migrants comprise roughly 19 to 31 per cent of their income. The migrants earning the lowest salary (up to Rs. 3,000 per month) remit a comparatively higher proportion of their salary to their households (30%), while those earning over Rs.10,000 remit the lowest proportion of their salary (19%). On average, migrants remit about 39 per cent of their total savings to their households, although this proportion is significantly higher among the low salary earning group (daily wage labourers, drivers, and waiters), which indicated that low-income earners were unable to accumulate any savings after sending remittances to their households. The highest income earners (i.e., armed forces' personnel) were remitting only about 29 per cent of their savings, and were thus able to accumulate considerable savings themselves. The majority of remittances were spent on food for the household (48%). 19 per cent of the cash remittances were spent on hiring agricultural labour for cultivation.

Richard and Alfredo (2010) found that households receiving internal or international remittances spend more at the margin on education and housing than what they would have spent on these investment goods without the receipt of remittances. The marginal propensity to invest out of transitory income (like remittances) was higher than that for permanent income (like wages).

Thelma *et al.* (2010) revealed the remittances from migrants comprised a significant share of total household income in the Philippines (59 per cent), mainly due to international migration. In Thailand and Viet Nam, remittances represented 38 and 36 per cent, respectively, and rural-to-urban migration was more prevalent (brought about by rapid industrialization and transportation facilities). Remittances were mainly spent on food and daily expenditures, children's education, farm inputs (hired labour, material inputs) and debt repayment.

Singh *et al.* (2011) revealed that around 98 per cent of the migrants in Bihar and 78 per cent in Uttar Pradesh reported an increase in the overall happiness of the family due to remittances being received from the migrant members. Around 80 per cent of the migrants from Bihar and 68 per cent from Uttar Pradesh reported that their children had started going to school as a consequence of out-migration of a family member. Besides, 46 per cent of the migrants from Bihar and 70 per cent from Uttar Pradesh reported increase in emphasis on the education of a girl child after migration. Migration also had a positive impact on the healthcare facilities of the family members of migrants as more than 50 per cent of the respondents expressed agreement with the statements related to increased medical expenditure, proper treatment of pregnant women as well as patients suffering from seasonal ailments.

Adriana *et al.* (2012) revealed in their study that Ghana and India show a similar pattern with regard to remittances that, a large proportion of the remitters are internal migrants, and that, while the individual sums of money sent by international remitters are usually larger, the sum total of internal remittances is higher than international remittances in both countries.

Abigail (2013) found in his study that more than half (66%) of the households which had migrant members did not receive any remittance. Almost all household which received remittances were those in the category of permanent migration. Only 3.2 per cent of the households whose members engaged in temporary migration received remittances while 47.8 per cent of households whose members engaged in permanent migration received remittances.

Kenneth (2013) revealed that more than one third of respondents (35%) reported receiving remittances from members working outside the village; most of the remittance funds flowing into these communities come from individuals labouring abroad (83%).

Madhu and Uma (2014) felt that migration helped to increase the income of 99.6 per cent respondents. Migration also increased the savings of the 92.0 per cent seasonal migrant labourers. Seasonal migration also helped labourers in repayment of debts. Therefore 73.3 per cent migrants said that their volume of debt has decreased.

Santosh (2014) found in his study that 83 per cent of respondents opined rural-urban migration helped to get employment opportunities for livelihood. The majority (82%) of

the respondents opined that migration helped to enhance the economic conditions of the family.

2.5 Relationship between profile characteristics and determinants of migration.

deBrauw *et al.* (2002) revealed in their study that age has negative effect and education and number of labor force in the household have positive effect on migration to urban areas or employment in local area.

Zhu (2002) found that education played a positive role for males, but not for females. He also found that per capita household land had negative effect on migration decision. An additional mu (a unit of land measurement in China) of land reduced the probability of migration by 4.4 percent if the decision model is individual based.

Deshingkar and Daniel (2003) revealed that having one extra member in the household increased the relative likelihood of that household migrating by 17 per cent in Andhra Pradesh and 19 per cent in Madhya Pradesh. They also revealed that an increase in the ratio of working to non-working members in the household also increased the relative likelihood of migration by nearly 75 per cent in Andhra Pradesh and 221 per cent in Madhya Pradesh. There was a significant negative relationship between land owned and migration, i.e. the more the land owned the less the household is likely to migrate. Further those with more animals and with more assets are less likely to migrate.

Edward *et al.* (2003) indicated that migration positively affected incomes for rural households and at least does not negatively affect income growth in self-employed activities.

Deshingkar (2006) found that young adult populations had a greater propensity to migrate and there was a link between larger families and migration, especially where single family members migrate. He also revealed that permanent migration rates are higher among the more educated but illiterate and unskilled people appear to dominate seasonal labour migration.

Singh *et al.* (2011) indicated that young men in their productive age were more prone to migration. They also found that literacy and size of the family had a positive influence whereas income other than remittances and land/capita had a negative impact on

male out-migration. They also found that larger the size of the family, more were the chances of men migrating out for jobs. As expected, larger families had higher dependency ratio and hence the probability of migration was high as more members had to be looked after at home.

Mishra and Parul (2012) revealed in their study that rural to urban migration is a popular phenomenon amongst young male adults as compared to other age groups and the female counterparts.

Shrimant and Khan (2012) revealed that rural-to-urban migrants were generally better educated, of higher socio-economic status, younger and less traditional in cultural values than non-migrants.

Debasis and Pravat (2013) argued that the higher the extent of rural indebtedness the greater is the degree of rural-urban migration.

Osondu and Ibezim (2013) found that there was a strong and significant relationship at 1.0 per cent level of significance between rural-urban migration and rural farm labour availability. The coefficient of multiple determination (R^2) value obtained was 0.623. This implied that 62.3 per cent of the variation in farm labour supply in the study area was explained by the variable used in the model. They also revealed that a 1.0 per cent increase in rate of rural-urban migration caused a corresponding 3.1 per cent decrease in farm labour supply.

Pankaj and Belwal (2013) revealed in their multiple regression model that there was high association between income after migration (45.1%), age at migration time (11.2%) and number of migrants. They got 0.480 R^2 value, indicated that all the independent variables explained about 48 per cent variation in number of migrants and they also got 0.466 adjusted R^2 value, by which 46.6 per cent variations can be specified.

Suman (2013) revealed that wages pattern, religious status of migrants, monthly household income, agricultural activities, employment opportunities and household size influenced the labour out-migration positively in the study area. On the other hand, age of migrants, marital status and surprisingly availability of cultivable land influenced the labour out-migration negatively. Educational status of respondents did not have any significant impact upon migration process.

Madhu and Uma (2014) found that migration helped to increase the income of 99.6 per cent of the respondents. They also found that there was significant association between

seasonal unemployment and seasonal migration as 95 per cent of the migrants were migrated due to seasonal unemployment in the study area.

Mahendra (2014) observed that preferences for non-farm work in the rural areas and a negative attitude towards agriculture have been reported by the respondents (15% and 6% respectively) as the other causes of migration.

2.6 Strategy for reducing out migration based on the suggestions of stakeholders

Edward and Ureta (2003) recommended that if the government wishes to slow the flow of migrants out of rural areas, it may need to intervene in credit markets by reforming the formal rural credit system or encouraging development of informal credit institutions. Such measures would increase households' self-employed production efficiency and lessen the imperative to send migrants out into the labor force primarily to finance these activities.

Gerard (2003) suggested that to reduce the push factors by encouraging the emergence of alternative local livelihood opportunities in food insecure areas and the key informant base should go beyond the public sector and bring in representatives of NGOs and the commercial private sector.

Deshingkar and Edward (2004) suggested that policy needed to become more flexible to provide services to people who were on the move. New arrangements that can provide migrant workers with access to critical information on labour markets and rights as well as basic services in health, education, shelter and food are needed. The existing laws that have been designed to protect poor workers need to be better enforced through the involvement of civil society organizations.

Deshingkar and Grimm (2004) found that internal migration can play an important role in poverty reduction and economic development. It should therefore not be controlled or actively discouraged. Policy should instead attempt to maximize the potential benefits of migration to individual migrants and to society at large.

Deshingkar (2006) suggested that policy needs to recognize that rural livelihoods in marginal areas were strongly linked to urban development and manufacturing and reallocate resources accordingly. New policies must be implemented to secure the status of the migrant workers and ensure benefits were distributed evenly.

Chandan (2006) recommended that multiple options such as vocational training, increasing information flows regarding rural investment opportunities, the provision of loans from financial institutions, developing market linkages for at least some selected non-farm products and services need to be explored by Government and non-governmental agencies. The development of entrepreneurial competence would definitely enhance investment in productive activities that can generate a return. Proactive thinking and action on the part of different agencies would go a long way to not only making migration a livelihood option but also to creating viable and sustainable investment opportunities.

Wiggins and Deshingkar (2007) suggested that priorities should include reducing the costs and risks faced by migrants; ensuring that entitlements to state services were portable; facilitating migration through transport and information policies; facilitating remittances; improving accountability and transparency in labour markets; and raising awareness of and enforcing labour rights.

FAO (2008) found that there was an urgent need for sound macro-economic policies, political stability and improvements in the investment climate in many parts of the developing world, in order to foster remittance flows, and innovative measures to improve migrants' access to the formal financial sector through mechanisms such as strengthening of financial infrastructures, promoting cost efficiency and transparency of transfer services, and increasing outreach to underserved communities.

Development Research Centre on Migration, Globalisation & Poverty (2009) recommended implementation of programmes and teacher training and ensuring funding for children from poor families. These measures will ensure that rural youth have a wider array of opportunities. Polices to promote social protection and rights for both internal and international migrants are also necessary to ensure migrants a better return from their migration. This includes better regulation of migrant recruitment agencies, ensuring 'decent work' for migrants as defined by the ILO (International Labour Organization) and ensuring that migrant workers have access to basic rights and services, policies to improve schooling in rural areas, including improving facilities, providing

Anmol (2010) recommended that the focus and orientation in education should be changed in order to instill the importance of agriculture as a viable and respectable occupation, even for the literate, into the young. To make rural youths competitive in urban job markets, there is an urgent need to introduce specific vocational training in schools such as training in computers, television repairs, motor mechanics, air-conditioner and

refrigerator repairs, plumbing, carpentry, masonry, and so forth. Policy changes are recommended to extend the outreach and institutional credit mechanisms of nationalised banks in the hill state of Uttarakhand. The need for banks to increase their outreach through more rural branches, the introduction of soft loans for migration purposes, and introduction of alternatives to collateral are suggested to support migrants. The Uttarakhand government must realise the important financial contribution being made by its outmigrant population to the State and provide risk cover to the families of migrants through special migrant insurance schemes. Under these schemes, the State should provide life and accident insurance cover to migrants either free of cost or at subsidised rates. Such an initiative would provide greater financial security to the dependents of migrants in case of death or accident. Formulate a policy and clear-cut guidelines for issuing identity cards to migrants, in order to give them official recognition as bonafide residents of Uttarakhand. An identity card would not only prevent police harassment, but also help migrants in case of emergencies or accidents.

Idris (2010) suggested that to improve the credit accessibility in rural areas there is need to assess the potential of traditional institutions to provide credit in the absence of collateral. Support facilitation of the transfer of credit from formal institutions through MFIs to small scale farmers could help improve access and repayment rates. Develop awareness of agricultural insurance among small-scale farmers and strengthen the ability of agricultural insurance institutions to carry out their mandates will lower the risk faced by financial institutions in lending to small-scale farmers.

Singh *et al.* (2011) suggested that better basic infrastructure and good governance will attract huge private investment in farm- as well as non-farm sectors. Appropriate government policies in this direction would help in arresting labour out-migration. Emphasis needed to be accorded to identify the decision-making capability and knowledge level of women by giving thrust on girls education and organizing various training programmes involving trained and qualified women extension workers.

Gebrehiwot and Fekadu (2012) suggested that with the help of the development strategies put in place by the Government Organizations and NGOs, the community and other development stakeholders working in the area would have to design interventions contributing to reducing poverty and technological constraints (backwardness) which are the main causes for illegal outmigration. It is crucial for all concerned stakeholders like the

Relief Society of Tigray, Catholic Relief Society, the local government, the community, etc working in the area to give support and training on how migrants can create business oriented job individually and in cooperation with others. It is also highly recommended that further in-depth research be conducted with respect to the causes of illegal migration abroad, its consequences and impact on the family, challenges and coping mechanisms, multi-dimensionality of the migration process, and the security of migrants and livelihood of those who stay away from their homes

Etwire *et al.* (2013) recommended that the farmers and farmer groups should be educated on the essence of record keeping, operating a bank account, and credit management and repayment. There is the need to promote the concept of nucleus farmer or out-grower systems where a farmer works with many other farmers and fronts for them. There is also the need to coach farmers and farmer groups on good agricultural practices that can enable them to increase their productivity and subsequently wellbeing.

Joshi (2013) stressed that the government has need to develop maximum infrastructures and jobs to keep people residing in hill villages and make cogitative plan with immigrants to resources consolidation in their native villages for forestry and agro forestry and other resources generating.

Meenakshisundaram and Panchanatham (2013) suggested that agricultural labourers who were with multi skills can be engaged locally by giving special preferences according to their knowledge and experience in their known area. Also the agricultural labourers who had good educational background can be motivated and trained to start agro industries with financial support from Nationalized Banks.

Mahendra (2014) suggested that redesigning MGNREGS works so as not to coincide with the peak period in cereal centric agriculture can moderate labour scarcity, a remunerative price policy can make agriculture economically lucrative and promotion of rural infrastructure can provide the much needed linkage for accelerating the pace of agricultural development in the rural areas.

Santosh (2014) suggested that in order to reduce the rural-urban migration the government should strive to provide basic facilities in rural areas to create employment opportunities to strengthen the implementation process of the major government programmes such as MGNREGA, Aajeevika etc. to minimize seasonal rural-urban migration.

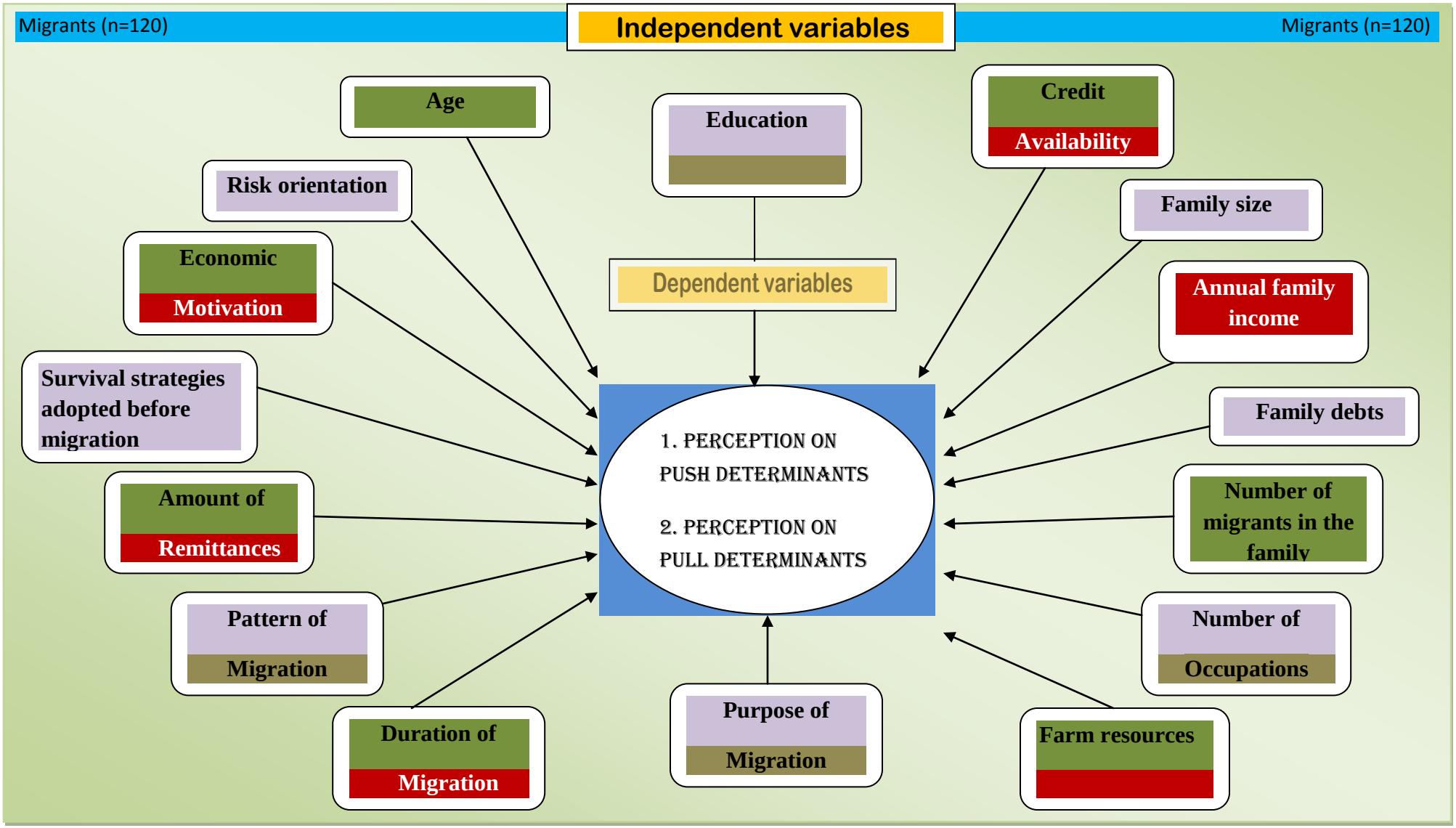

Figure 2.1. Conceptual model of the study

Chapter III

MATERIAL AND METHODS

This chapter deals with research design, sampling procedure, variables and their measurement, tools of data collection, statistical tests used and analytical procedures followed to interpret the data collected to carry out the present study. The details of the methodology followed in the present investigation is presented under the following heads.

3.1 Research design

3.2 Sampling procedure

3.3 Variables and their empirical measurement

3.4 Collection of data

3.5 Statistical tools used

3.6 Preparation of report

3.1 RESEARCH DESIGN

Ex post facto research design was followed for carrying out the study. *Ex post facto* research design is systematic empirical enquiry in which the independent variables are not directly manipulated because they have already occurred or they are inherently not manipulatable. Keeping in view the type of variables under consideration, the ex-post facto research design was selected as an appropriate research design.

3.2 SAMPLING PROCEDURE

3.2.1 Locale of the study

The State of Uttarakhand was selected purposively for the study, as the investigator hails from the same state. The investigator was familiar with the local language and local situation, this would help to build up quick rapport and also enable in-depth study combined with personal observation.

Figure 3.1. Map of the Uttarakhand showing the Almora district

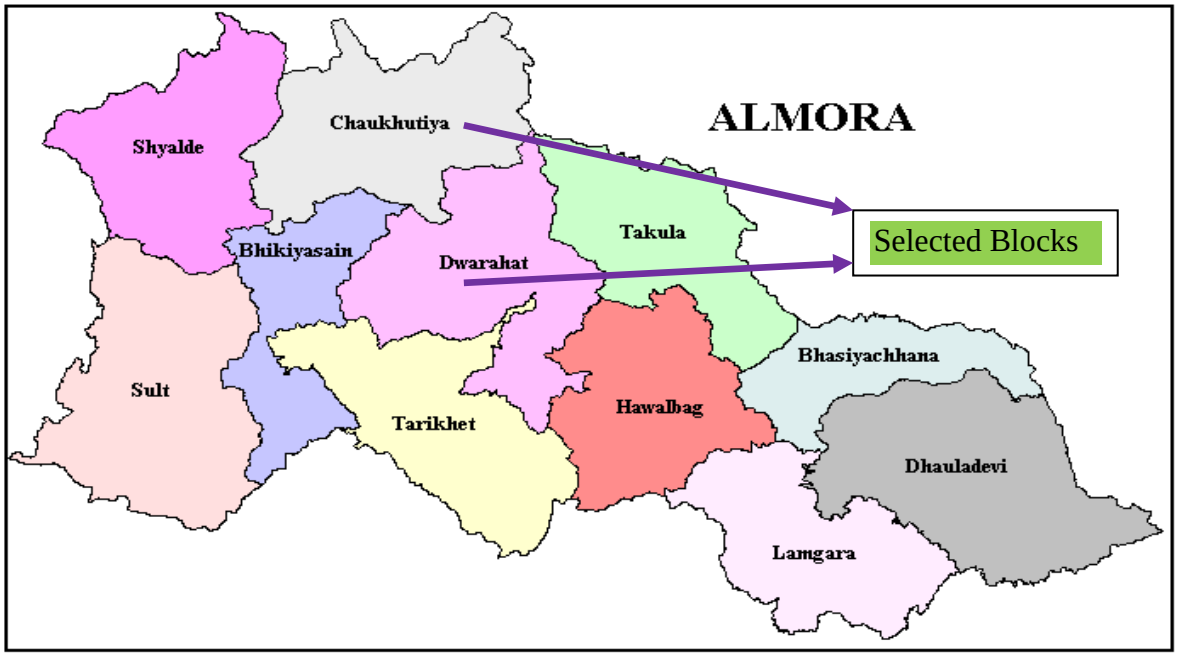

Figure 3.2. Map showing the selected Blocks of Almora district

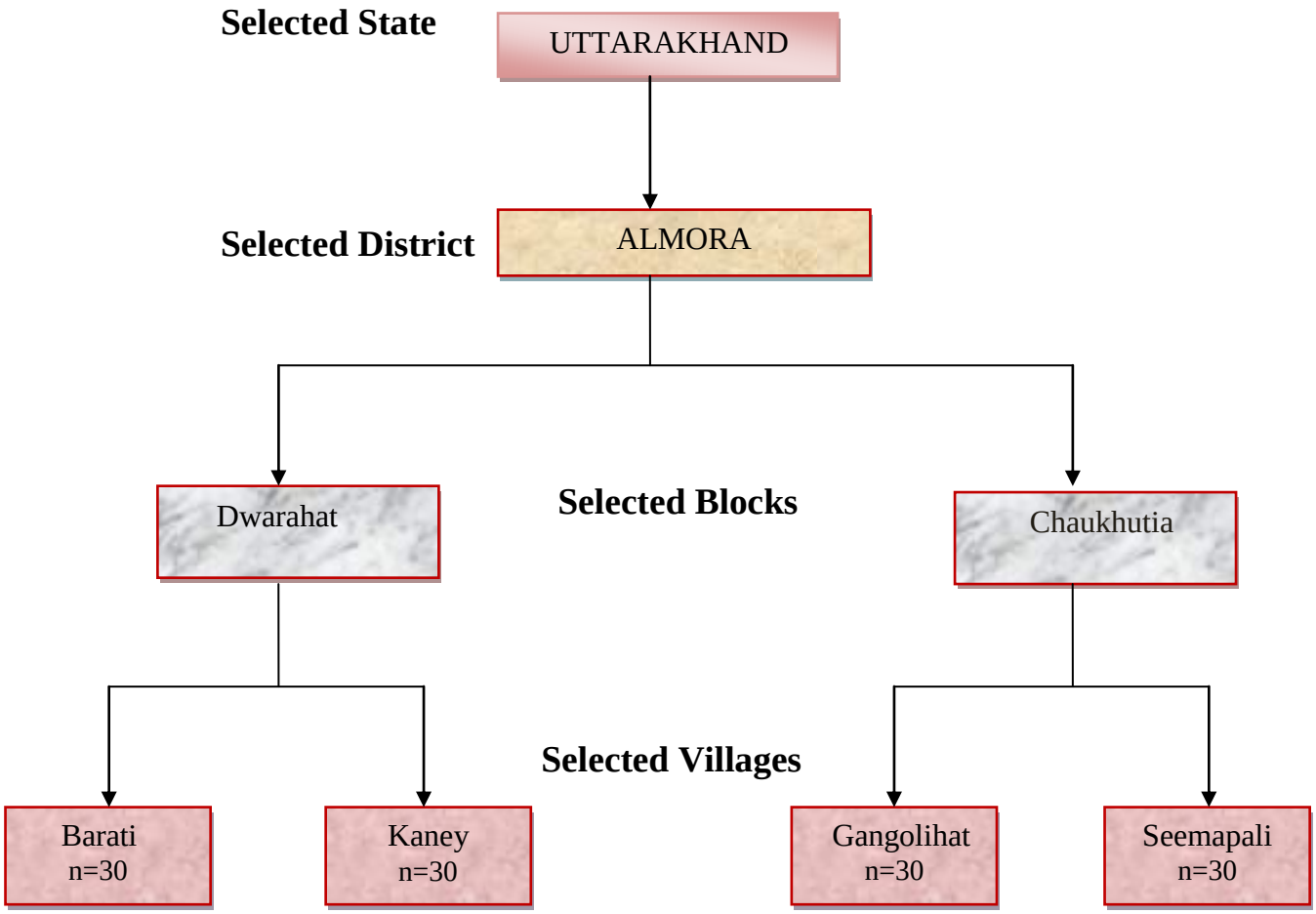

Figure 3.3. Sampling procedure followed in the study

3.2.2 Selection of the District

Out of 13 districts of the state, Almora district was selected purposively for the study as migration is occurring at a higher rate in this district. The district had shown negative population growth in 2011 census as compared to the 2001 census, which might be due to the migration of people from rural areas to urban areas (Peter, 2012), (Figure 3.1).

3.2.3 Selection of blocks

Block wise data on migrants was collected and out of 11 blocks of the district, two blocks where migration rate was high were selected purposively on the basis of the data in official records. The two selected blocks are Dwarahat and Chaukhutia (Figure 3.2).

3.2.4 Selection of villages

From the two selected blocks, data on number of migrants village wise was collected and two villages each from selected blocks having highest number of migrants were selected puposively. Thus a total of four villages were selected for the study. The villages selected were Barati and Kaney villages from Dwarahat block and Gangolihat and Seemapali from Chaukhutia block (Figure 3.3).

3.2.5 Selection of respondents

From each selected village, 30 migrants were selected as respondents at random thus making a sample of 120 respondents for the study.

3.3 VARIABLES AND THEIR EMPIRICAL MEASUREMENT

To facilitate study of the objectives, objectives were reframed into relevant variables with the help of experts and also based on extensive review of related literature. Later variables were grouped into two heads of dependent and independent variables. The Table 3.1 shows different variables selected for the study.

Table 3.1.Variables and their empirical measurement:

Sl. No.	Variables	Empirical Measurement
	Dependent Variables	
1.	Perception on determinants of migration	Schedule developed for the study
2.	Opinion on consequences of migration	Schedule developed for the study
	Independent Variables	
1.	Age	Chronological age of the respondents
2.	Education	Schedule developed for the study
3.	Credit availability	Schedule developed for the study
4.	Family size	Schedule developed for the study
5.	Annual family income	Schedule developed for the study
6.	Family debts	Schedule developed for the study
7.	Number of migrants in the family	Schedule developed for the study
8.	Number of occupations	Schedule developed for the study
9.	Farm resources	Schedule developed for the study
10.	Purpose of migration	Schedule developed for the study
11.	Duration of migration	Schedule developed for the study
12.	Pattern of migration	Schedule developed for the study
13.	Amount of remittances and their purpose of utilization	Schedule developed for the study
14.	Survival strategies adopted before migrating	Schedule developed for the study
15.	Economic motivation	Schedule developed for the study
16.	Risk orientation	Schedule developed for the study

3.3.1 Dependent variables

3.3.1.1 Perception on the determinants in the context of changing agrarian scenario:

Information on changing agrarian scenario has been collected from secondary sources and discussed clearly in the results and discussion chapter.

Migration is operationalised as the movement by people from one place to another with the intention of settling temporarily or permanently in the new location.

A migrant is an individual (male or female) who has migrated from his/her place of origin to another place in search of better avenues.

The perception of migrants on determinants of migration i.e. Push and Pull determinants can be operationalised as the way in which they understood, or interpreted the causes of migration which are forcing or attracting them respectively to migrate from their place of origin.

3.3.1.1.1 Perception on Push Determinants: Push determinants were operationalised as those factors which are forcing the people of a certain area to move out to another place in search of better avenues.

An exhaustive list of push determinants was prepared from review of literature and in consultation with experts. After pretesting of schedule, 13 statements were finalized for study.

Scoring: A score of three '3', '2' and '1' is assigned to agree, partially agree and disagree responses respectively. The maximum and minimum possible scores are 39 and 13 respectively. Whereas the maximum and minimum scores obtained were 36 and 12 respectively. The total score of each respondent is worked out by summing up the scores of all the statements.

Categorization: The respondents were grouped into following three categories i.e. low perception, medium perception and high perception on push determinants of migration based on exclusive class interval technique.

Category	Class interval
Low perception	12-20
Medium perception	20-28
High perception	28-36

Respondents' responses for all 13 statements were noted in the form of 'Agree', 'Partially agree' or 'Disagree' and the responses were expressed as frequencies and percentages.

3.3.1.1.2 Perception on Pull Determinants: Pull determinants were operationalised as those factors which are attracting the people to move into a new place in search of better avenues.

An exhaustive list of pull determinants was prepared from review of literature and in consultation with experts. After pretesting of schedule, 9 statements were finalized for study.

Scoring: A score of three '3', '2' and '1' is assigned to agree, partially agree and disagree responses respectively. The maximum and minimum possible scores are 27 and 9 respectively. The total score of each respondent is worked out by summing up the scores of all the statements.

Categorization: The respondents were grouped into following three categories i.e low perception, medium perception and high perception on pull determinants of migration based on exclusive class interval technique.

Category	**Class interval**
Low perception	9-15
Medium perception	15-21
High perception	21-27

Respondents' responses for all 9 statements were noted in the form of 'Agree', 'Partially agree' or 'Disagree' and the responses were expressed as frequencies and percentages.

3.3.1.2 Opinion on consequences of migration: It was operationally defined as the view or judgement of the respondents on the consequences of migration related to agriculture, women empowerment, biodiversity, food security and nutritional security.

With extensive review of literature and from help of experts and experiences gained while pretesting an exhaustive list of consequences of migration was prepared and further they were grouped into five categories *viz.,* Agriculture, Women Empowerment, Biodiversity, Food Security and Nutritional Security.

3.3.1.2.1 Agriculture: This can be operationalised as respondents opinion on changes occurred in cultivation of crops as a result of migration. Eight number of statements were included in the schedule to study consequences of migration on agriculture.

Scoring: A score of three '3', '2' and '1' is assigned to agree, partially agree and disagree responses respectively. The maximum and minimum possible scores are 24 and 8 respectively. Whereas the maximum and minimum scores obtained were 24 and 9 respectively. The total score of each respondent is worked out by summing up the scores of all the statements.

Categorization: The respondents were grouped into following three categories i.e. low opinion, medium opinion and high opinion respectively based on exclusive class interval technique.

Category	**Class interval**
Low opinion	9-14
Medium opinion	14-19
High opinion	19-24

3.3.1.2.2 Women Empowerment: Women empowerment refers to the increased personal, economic, social, or educational strength of rural women after migration of her father or husband or son or daughter of the family. This comprised of 8 statements.

Scoring: A score of three '3', '2' and '1' is assigned to agree, partially agree and disagree responses respectively of the female head of a family. There were two negative statements in the schedule and the scoring for these negative statements is reversed. The maximum and minimum possible scores are 24 and 8 respectively. Whereas the maximum and minimum scores obtained were 23 and 11 respectively. The total score of each respondent is worked out by summing up the scores of all the statements.

Categorization: The respondents were grouped into following three categories i.e. low opinion, medium opinion and high opinion respectively based on exclusive class interval technique

Category	**Class interval**
Low opinion	11-15
Medium opinion	15-19
High opinion	19-23

3.3.1.2.3 Biodiversity: Biodiversity can be operationalised for the present study as opinion of respondents' on different varieties of crop/cropping patterns/enterprises/new crop/new cattle breed introduced in the study area by migrants.

For this a set of 5 statements was prepared in consultation with experts.

Scoring: A score of '3', '2' and '1' is assigned to agree, partially agree and disagree responses respectively. The maximum and minimum possible scores are 15 and 5 respectively. Whereas the maximum and minimum scores obtained were 11 and 5 respectively. The total score of each respondent is worked out by summing up the scores of all the statements.

Categorization: The respondents were grouped into following three categories i.e. low opinion, medium opinion and high opinion respectively towards biodiversity based on exclusive class interval technique.

Category	**Class interval**
Low opinion	5-7
Medium opinion	7-9
High opinion	9-11

3.3.1.2.4 Food and nutritional security:

3.3.1.2.4.1 Food security: Food security is defined as a state in which "all the people at all times have sufficient food to meet their dietary needs for a productive and healthy life" For measuring food security of a respondent's family Household Food Insecurity Access Scale (HFIAS) used by Jennifer *et al.* (2007), which is an adaptation of approach used to estimate the prevalence of food insecurity in the United States (U.S.) annually was referred and used with slight modifications. The scale comprised of the nine statements.

Scoring: The HFIAS scale comprises of total 9 statements about occurrence of certain events related to food accessibility for which the respondents has to answer in the form of 'Yes' or 'No'. A score of one and zero was assigned to every "Yes" and "No" response respectively. In case of positive answers, the frequency of occurrence of these events were asked in terms of 'Rarely', 'Sometimes' and 'Often'. A score of 1, 2 and 3 were assigned to every rarely, sometimes and often.

Categorization: On the basis of score obtained the respondents were categorized into three categories i.e. rarely, sometimes and often respectively.

Category	Class interval
Rarely	0-8
Sometimes	8-16
Often	16-27

3.3.1.2.4.2 Nutritional security: For measuring nutritional security of a respondent's family a set of 6 statements was prepared in consultation with experts.

Scoring: A score of '3' '2' and '1' was assigned to agree, partially agree and disagree response respectively. The maximum and minimum possible scores are 18 and 6 respectively. The total score of each respondent was worked out by summing up scores of all statements.

Categorization: On the basis of score obtained the respondents were categorized into three categories i.e. low opinion, medium opinion and high opinion respectively.

Category	Class interval
Low opinion	6-10
Medium opinion	10-14
High opinion	14-18

Further, respondents opinion was grouped into low, medium and high categories based on the total score obtained in all the statements put together in Agriculture, Biodiversity, Women empowerment, Food security and Nutritional security.

3.3.2 Independent Variables:

3.3.2.1 Age: It refers to the chronological age of the respondents in completed years at the time of migration.

The respondents were asked to indicate their age in completed years. A score of one was given for each completed year. Based on the responses, respondents were grouped into three categories.

Category	Score
Upto 25 years	Up to 25
25-35 years	25-35
> 35 years	> 35

3.3.2.2 Education: It was operationally defined as the educational level attained by the individual respondent at the time of migration. The scores assigned to calculate education level of respondents is given below and the respondents were also grouped into the following categories.

Category	Score
Illiterate/ No schooling	1
Functionally literate(can read and write)	2
Primary school(upto 5^{th} class)	3
Middle school(upto 8^{th} class)	4
High school(upto 10^{th} class)	5
Intermediate(upto 12^{th} class)	6
Under graduation	7
Post graduation and above	8

3.3.2.3 Credit Availability: It was operationally defined as the sources of getting credit when needed around and nearby the study area. The respondents were asked to choose the source of credit available for them. Four credit sources were identified in the study area and according to the rates of interest charged scoring is assigned i.e. lesser is the rate of interest, higher is the score. The sources of credit and scores assigned were given below:

Category	Score
Private money lenders	1
Cooperative societies	2
Banks	3
Relatives and friends	4

3.3.2.4 Family Size: The family size was operationalised as the number of members in a respondent's family.

Scoring: A score of one was assigned to each member of the family. The maximum and minimum scores obtained were 10 and 4 respectively.

Categorization: On the basis of the scores obtained the family was categorized as small family, medium family and large family.

Category	Class Interval
Small family(4-6 members)	4-6
Medium family(6-8 members)	6-8
Large family(8-10 members)	8-10

3.3.2.5 Annual Family Income: It was operationally defined as the total annual income generated by all members in the respondent's family who were engaged in earning.

Scoring: A score of one is given to each Rs.10000/- earned by the respondent's family. The maximum and minimum scores obtained were 54 and 4 respectively.

Categorization: On the basis of obtained annual family income, the annual family income was categorized under five categories namely very low, low, medium , high and very high annual income.

Category	Class Interval
Very low (Rs 40,000-1,40,000)	4-14
Low(Rs 1,40,000-2,40,000)	14-24
Medium (Rs 2,40,000-3,40,000)	24-34
High (Rs 3,40,000-4,40,000)	34-44
Very high(Rs 4,40,000-5,40,000)	44-54

3.3.2.6 Family Debts: It was operationally defined as the amount of debts the respondents family has in monetary terms at the time of the interview.

Scoring: A score of one was given to each Rs.10000/- borrowed by the respondent's family. The maximum and minimum scores obtained were 12 and 0 respectively.

Categorization: On the basis of data obtained the respondents were grouped under three categories namely low debts, medium debts and high debts.

Category	Class interval
Low (Upto Rs 40,000)	0-4
Medium (Rs 40,000-80,000)	4-8
High (Rs 80,000-1,20,000)	8-12

3.3.2.7 Number of migrants in the Family: It was operationalised as the total number of migrants from a family who has migrated from his/her place of origin to another place in search of better avenues.

Scoring: A score of one was assigned to each member of the family who have migrated. The maximum and minimum scores obtained were 4 and 1 respectively.

Categorization: The families were grouped according to their number of migrants in a family i.e. one migrant, two migrants, three migrants and four migrants. The results of the respondents were expressed in the form of frequency and percentage.

Number of migrants/family	Score
One	1
Two	2
Three	3
Four	4

3.3.2.8 Number of occupations: It was operationalised as the job or profession which the family members were doing for living whether doing in migrated place or in the place of origin.

Scoring: A score of one was assigned to each occupation. The maximum and minimum scores obtained were 4 and 1 respectively.

Categorization: The families were grouped according to their number of occupation i.e. one occupation, two occupations, three occupations and four occupations. The results of the respondents were expressed in the form of frequency and percentage.

Number of occupations	Score
One	1
Two	2
Three	3
Four	4

3.3.2.9 Farm Resources: It refers to the resources available to the respondents in their farm. In this case the farm resources that were considered were farm size, irrigation facility, labour availability, number of crops cultivated per year, implements used in farming and other enterprises in farm.

Scoring: Farm size: For farm size a score of one was given to each acre of land of respondent. The maximum and minimum obtained scores were 18 and 5 respectively.

Irrigation facility: For irrigation facility a score of two and one was given to irrigated and rainfed respectively.

Labour availability: For labour availability a score of '3' '2' and '1' was given to the response continuum of available easily, available with medium difficulty and available with great difficulty respectively. The maximum and minimum obtained scores were 3 and 1 respectively.

Number of crops: For number of crops cultivated per year a score of one was given to each crop cultivated. The maximum and minimum obtained scores were 6 and 3 respectively.

Implements used in farm: For implements used in farming a score of one was given to each implement. The maximum and minimum obtained scores were 5 and 2 respectively.

Other enterprises: For other enterprises in farm, a score of one was given to each enterprise. The maximum and minimum obtained scores were 3 and 1 respectively.

The total score of respondent for this variable was obtained by summing up the total scores he/she obtained in above resources. The maximum and minimum scores obtained were 37 and 13 respectively.

Categorization: On the basis of scores obtained the respondents were categorized into three categories namely low level of farm resources, medium level of farm resources and high level of farm resources.

Category	Class interval
Low level of farm resources	13-21
Middle level of farm resources	21-29
High level of farm resources	29-37

3.3.2.10 Purpose of Migration: Purpose of migration was operationally defined as the ultimate reason for migration. From review of literature, expert consultation and pretesting the reasons/purposes of migration were collected and classified into agricultural and non agricultural purposes.

Scoring: A score of one was given to those who have migrated for agricultural purpose and a score of two was given to those who have migrated for non agricultural purpose.

Categorization: The respondents were categorized into two categories namely respondents migrated for agricultural purpose and respondents migrated for non-agricultural purpose.

Category	Score
Migration for agricultural purpose	1
Migration for non-agricultural purpose	2

3.3.2.11 Duration of Migration: It was operationalised as the number of years a respondents has migrated.

Scoring: A score of one was assigned to each year of migration of a respondent. The total score of respondent on this variable is total number of years migrated by him/her. The maximum and minimum scores obtained were 13 and 1 respectively.

Categorization: The respondents were grouped into following three categories i.e. Short term migration, Midterm migration and Long term migration.

Category	Class Interval
Short term migration(1-5 years)	1-5
Midterm migration(5-9 years)	5-9
Long term migration(9-13 years)	9-13

3.3.2.12 Pattern of Migration: Pattern of migration refers to the areas to where the migrants are migrating from rural areas.

Scoring: A score of 1 was assigned to those who have migrated from rural to rural, a score of 2 was assigned to those who have migrated from rural to urban areas and a score of 3 was assigned to those who have migrated internationally.

Categorization: The pattern of migration was categorized into three namely rural to rural migration, rural to urban migration and international migration. The results of the respondents falling under these categories were expressed in the form of frequency and percentage.

Category	Score
Rural to rural migration	1
Rural to urban migration	2
International migration	3

3.3.2.13 Amount of Remittances and Purpose of Utilization: It was operationalised as the amount of the money earned/generated due to migration and spent for different purposes.

3.3.2.13.1 Amount of remittances:

Scoring: A score of one was given to each Rs1000/- amount of remittance earned by a family per month. The maximum and minimum obtained scores for amount of remittance earned by a family were 45 and 3 respectively. The annual income of a family is aggregate of the income of all members of family including migrant and non migrant members. From the remittances earned by migrant members of a family some portion was utilized for different purposes and rest was saved for future.

Categorization: The respondents were categorized into five categories i.e. very low, low, medium, high and very high amount of remittances.

Category	Class Interval
Very low (Upto Rs 5,000)	Upto 5
Low (Rs 5,000-15,000)	5-15
Medium (Rs 15,000-25,000)	15-25
High (Rs 25,000-35,000)	25-35
Very high (>Rs 35,000)	35-45

3.3.2.13.2 Purpose of utilization: For this a set of 10 statements were prepared in consultation with experts and pretesting of schedule. The purpose of utilization of latest month was collected.

Respondents responses were noted against the purpose of utilization of remittances in the form of 'Yes' or 'No' and the responses were expressed as frequencies and percentages.

3.3.2.14 Survival strategies adopted before migration: Survival strategies adopted before migration was operationally defined as those alternative actions adopted as last resort before migration.

For this a set of 8 statements were prepared in consultation with experts.

Score: A score of one was assigned to each survival strategy adopted before migration. The maximum and minimum possible scores are 8 and 0 respectively. The maximum and minimum scores obtained were 8 and 2 respectively.

Categorization: The respondents were grouped into following three categories i.e. less survival strategies adopted, medium survival strategies adopted and high survival strategies adopted.

Category	Class interval
Less survival strategies adopted	2-4
Medium survival strategies adopted	4-6
High survival strategies adopted	6-8

Further, respondents responses for all 8 statements were expressed in the form of frequency and percentage.

3.3.2.15 Economic motivation: Economic motivation refers to those extrinsic/intrinsic economic factors which motivated respondents to migrate from their place of origin to other places.

For this a set of 6 statements were prepared in consultation with experts.

Score: A score of one and zero was assigned to every "Yes" and "No" response respectively. The maximum and minimum possible scores are 6 and 0 respectively. The total score of each migrant was worked out by summing up scores of all statements.

Categorization: The respondents were grouped into following three categories i.e. low level of economic motivation, medium level of economic motivation and high level of economic motivation based on exclusive class interval.

Category	Class interval
Low level of economic motivation	0-2
Medium level of economic motivation	2-4
High level of economic motivation	4-6

3.3.2.16 Risk Orientation: Risk orientation was operationalised as the extent to which the migrant is oriented towards taking risk and facing uncertainty in their life.

For this a set of 5 statements were prepared in consultation with experts.

Category	Class interval
Less risk oriented	1-2
Medium risk oriented	2-3
High risk oriented	3-4

Score: A score of one and zero was assigned to every "Yes" and "No" response respectively. The maximum and minimum possible scores were 5 and 0 respectively. Whereas the maximum and minimum scores obtained were 4 and 1 respectively. The total score of each migrant was worked out by summing up scores of all statements.

Categorization: The respondents were grouped into following three categories i.e. less risk oriented, medium risk oriented and high risk oriented based on exclusive class interval technique.

3.4 COLLECTION OF DATA

3.4.1 Instruments used for the study:

Data were collected from the selected respondents by using the interview schedule developed for the study. The interview schedule was developed in consultation with the advisory committee, experts in the field of Agricultural Extension, Statistics and Mathematics, Officers of the HESCO (NGO) working in the rural areas of Uttarakhand.

The interview schedule was pre-tested with the respondents (30 members) outside the study area, where similar conditions prevailed. Based on the experience gained in the pre-testing, the interview schedule was suitably modified wherever necessary. The finalized interview schedule used for the study was provided in Appendix A.

Interview schedule consisted of three parts. The first part consisted of primary information of the respondent i.e., respondent number, name, village, block and district. The second part consisted of profile characteristics of respondent and third part consisted of the dependent variables, i.e., Perception of migrants on the determinants of migration and Opinion of migrants on consequences of migration.

3.4.2 Method of data collection:

For collection of primary data, each selected respondent was personally contacted and interviewed with the help of interview schedule. It was made sure that the questions were correctly understood by the respondent by repeating the questions wherever necessary. Observation of respondents' background, behaviour, emotions, feelings, ideas, aspirations and surroundings were also made use of during interview. The secondary data was collected from the census report of 2001 and 2011 and from different annual reports prepared by the state government and related agencies.

3.5 STATISTICAL TOOLS USED

The following statistical tools were used for the analysis and interpretation of the data.

3.5.1 Frequency and percentage:

The data were subjected to frequencies and percentages used to know the distribution of the respondents according to selected variable.

Frequency is the number of items a variable is repeated.

Percentage is the number, amount, rate etc. expressed as if it is part of a total which is 100.

3.5.2 Class interval:

Exclusive method of class intervals was used to categorize variables. Class interval is difference between the upper and lower limit of a class and is calculated using the following formula.

$$C.I = \frac{\text{Maximum score} - \text{minimum score}}{\text{No. of classes}}$$

Under exclusive type of class intervals, the items whose values are equal to the upper limit are grouped in the next higher class.

3.5.3 Arithmetic mean ($\overline{X}$):

The mean is the quotient that results when sum of all the items in the series is divided by the number of items

$$\overline{X} = \frac{\sum x}{n}$$

Where

$\overline{X}$ = Mean

Σx = Sum of all the items

n = Number of items

3.5.4 Coefficient of Correlation:

It was used to find out the relationship between the scores of dependent and independent variables using the following formula.

$$r = \frac{\Sigma xy - \frac{\Sigma(x)\Sigma(y)}{n}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{n}\right]\left[\Sigma y^2 - \frac{(\Sigma y)^2}{n}\right]}}$$

Where

r = Co-efficient of correlation between x and y

Σx = Sum of scores of variable x

Σy = Sum of scores of variable y

Σx^2 = Sum of squares of scores of variable x

Σy^2 = Sum of squares of scores of variable y

$(\Sigma x)^2$ = Square of sum of variable x

$(\Sigma y)^2$ = Square of sum of variable y

Σxy = Sum of product of variable x and y

n = Size of sample

3.5.5 Multiple Linear Regression:

A multilinear regression model was developed for the study. It was used to find out the relationship between the determinants of migration and profile characteristics of migrants and also the extent to which selected profile characteristics are influencing perception of respondents towards determinants of migration.

$$\boldsymbol{Yi = f(X1, X2, X3X4X5X6X7X8X9X10X11X12X13X14X15X16)}$$

Where

$\boldsymbol{Yi}$ = Determinants of migration

$\boldsymbol{X1}$ = Age

$\boldsymbol{X2}$ = Education

$\boldsymbol{X3}$ = Credit availability

$\boldsymbol{X4}$ = Family size

$\boldsymbol{X5}$ = Annual family income

$\boldsymbol{X6}$ = Family debts

$\boldsymbol{X7}$ = Number of migrants in the family

$\boldsymbol{X8}$ = Number of occupations

$\boldsymbol{X9}$ = Farm resources

$\boldsymbol{X10}$ = Purpose of migration

$\boldsymbol{X11}$ = Duration of migration

$\boldsymbol{X12}$ = Pattern of migration

$\boldsymbol{X13}$ = Amount of remittances and their purpose of utilization

$\boldsymbol{X14}$ = Survival strategies adopted before migrating

$\boldsymbol{X15}$ = Economic motivation

$\boldsymbol{X16}$ = Risk orientation

3.6 PREPARATION OF REPORT

The data thus collected through interview schedule were coded, tabulated, analyzed and presented in tables to make findings easily understandable. The findings emerged out of data were suitably interpreted, necessary conclusions and inferences were drawn.

Chapter IV

RESULTS AND DISCUSSION

In this chapter, an attempt was made to examine the results based on empirical data of the present study. Results pertaining to profile characteristics of migrants and their perception on push and pull determinants, opinion of migrants on consequences of migration, amount of remittances and their purpose of utilization were discussed and meaningful conclusions were drawn in this chapter. Keeping the objectives in view, the data were collected and processed through the tools of the statistical analysis.

For the purpose of clarity and brevity, with reference to the objectives, results and discussions are presented under the following headings:

4.1 Profile characteristics of the migrant respondents.

4.2 Perception of migrants on determinants (push and pull determinants) of rural out migration.

4.3 Opinion on consequences of migration on Agriculture, food and nutritional security, biodiversity and women empowerment.

4.4 Amount of remittances and their purpose of utilization.

4.5 Relationship between profile characteristics and determinants of migration.

4.6 Strategy for reducing out migration.

4.1 PROFILE CHARACTERISTICS OF MIGRANTS

4.1.1 Age:

From the Table 4.1 and Figure 4.1 it was found that majority (64.17%) of the respondents were below 25 years of age, followed by 35.83 per cent were in 25-35 years age group and none of them were found to be above 35 years age.

Table 4.1. Distribution of respondents according to their age

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Up to 25 years	77	64.17
2	25-35 years	43	35.83
3	> 35 years	0	0.00

From the results obtained on age, it could be concluded that respondents below 25 years migrated more than other age groups. One of the reasons for above trend might be due to the fact that young people prefer to go to towns and cities for higher education, employment and business. Respondents who belonged to more than 35 years age group, prefer not to migrate as they already had crossed their age of personal development by acquiring education and skills, also they were well settled with their family in the village. Instead, they preferred their children to migrate for good education and employment. This is in conformity with the results of Chandan (2006), Singh *et al.* (2011), Mishra and Parul (2012), Pankaj and Belwal (2013), Madhu and Uma (2014) and Santosh (2014).

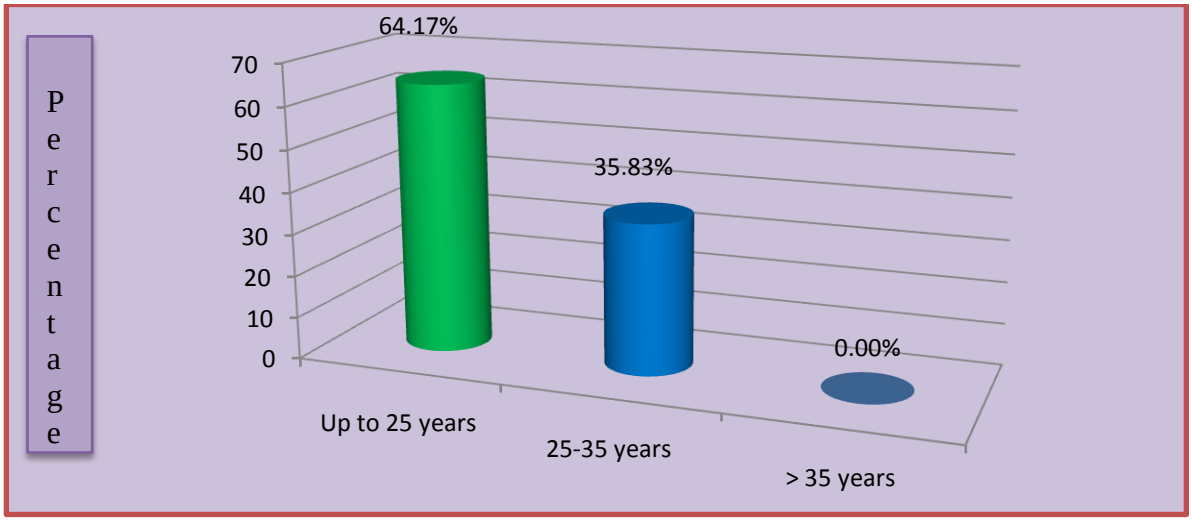

Figure 4.1. Distribution of respondents according to their age

4.1.2 Education:

From the Table 4.2 and Figure 4.2 it was known that majority of the respondents have completed education up to intermediate (30.84%), followed by high school (14.16%), middle school (13.33%), primary school (11.67%), under graduation (10.00%), illiterate (7.50%), post graduation and above (6.67%) and functionally literate (5.83%).

Most of the migrants (30.84%) had formal education upto intermediate. It was the highest level of education they can get while living in the village and for still higher education they had to move out of the village. It was seen in the study area that young people were also prone to migrate out of the villages after completing high school (14.16%) because either they wanted to do their further study in urban areas or towns or they wanted to quit their study for the purpose of employment. The respondents with low level of

education like primary school (11.67%) and middle school (13.33%) were also found to quit their school and moved out of the villages. The illiterate (7.50%) and functionally literate (5.83%) people also migrated from their villages in search of employment in the urban areas. The migrants having formal education upto under graduation and post graduation were mostly those who migrated for higher education to the urban areas. The result is in conformity with the results of Huang and Pieke (2003), Singh *et al.* (2011), Meenakshisundaram and Panchanatham (2013) and Santosh (2014).

Table 4.2. Distribution of respondents according to educational qualification

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Illiterate/ No schooling	9	7.50
2	Functionally literate(can read and write)	7	5.83
3	Primary school(upto 5th class)	14	11.67
4	Middle school(upto 8th class)	16	13.33
5	High school(upto 10th class)	17	14.16
6	Intermediate(upto 12th class)	37	30.84
7	Under graduation	12	10.00
8	Post graduation and above	8	6.67

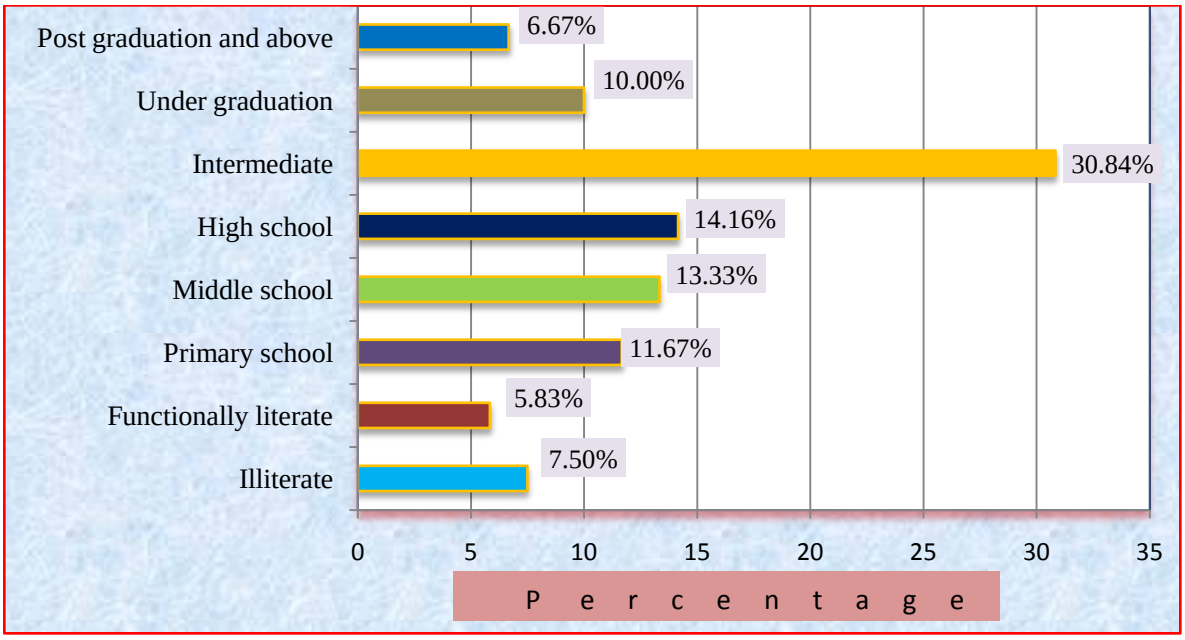

Figure 4.2. Distribution of respondents according to their educational qualification

4.1.3 Credit Availability:

It could be indicated from the Table 4.3 and Figure 4.3 that majority (44.16%) of the respondents expressed that the major sources of credit were cooperative societies followed by banks (30.00%), relatives and friends (18.34%) and private money lenders (7.50%).

Table 4.3. Distribution of respondents according to credit availability

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Relatives and friends	22	18.34
2	Banks	36	30.00
3	Cooperative societies	53	44.16
4	Private money lenders	9	7.50

Majority of the respondents took credit from cooperative societies because their interest rate is less. In case of informal institution, the migrants preferred to take credit from their relatives and friends because of the less interest rate. The interest rate of the cooperative societies was less than banks and also the migrants were well aware of cooperative societies in their areas so they preferred them more. The private money lenders charged highest interest rates so very few of the migrants lend credit from them and mostly they took in case of emergency. The result is in conformity with the results of Situation Assessment Survey (SAS) of farmers (2003), Mann *et al. (*2010) and Prathyusha (2014).

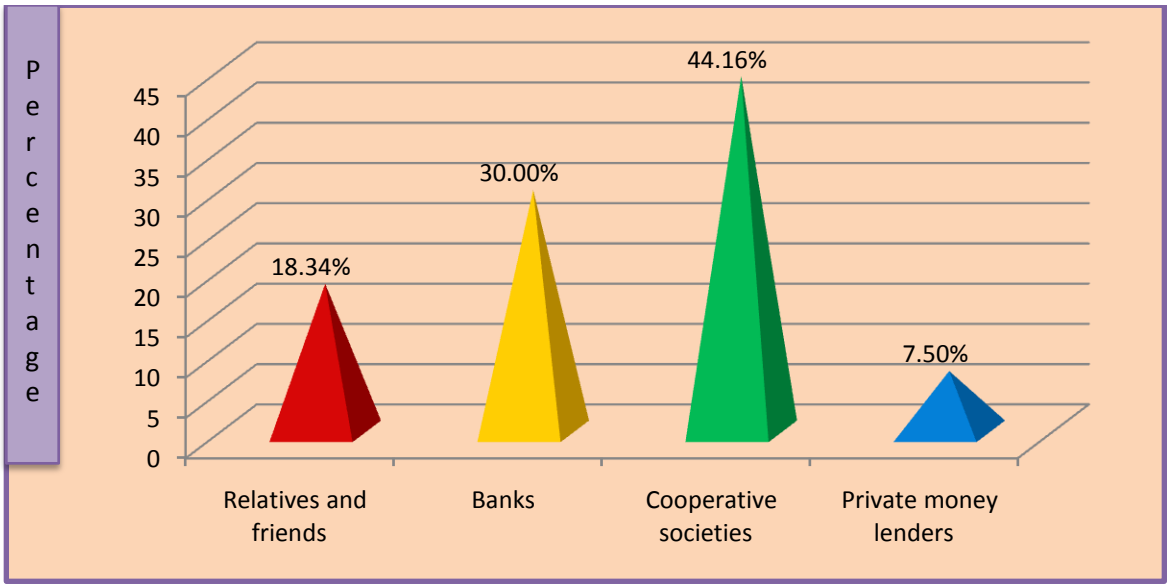

Figure 4.3. Distribution of respondents according to credit availability

4.1.4 Family Size:

It could be indicated from the Table 4.4 and Figure 4.4 that 55.00 per cent of the respondents had medium family size (6-8 members), followed by small family (4-6 members) (35.84%) and large family (8-10 members) (9.16%).

Table 4.4. Distribution of respondents according to their family size

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Small family(4-6 members)	43	35.84
2	Medium family(6-8 members)	66	55.00
3	Large family(8-10 members)	11	9.16

It is clear from the Table 4.4 and Figure 4.4 that most of the migrants had medium family size ranging from 6 to 8 members. Mostly the migrants lived with their parents after their marriage and also had at least one sibling and one child with them and the family was headed by the parents of the migrant mostly. It was also observed that in most of the cases migrant member of the family was the main source of income of the family and the whole family was dependent on him only. The families having 4 to 6 members were mostly nuclear families. Most of these families had at least two children with them and the family was headed by the migrant only. In case of large families having family members from 8 to 10 were also joint families with at least three siblings together, also having at least three children and parents of the migrant member. The family was headed by the parents of the migrant member. This is in conformity with the results of Swati (2007), Antara *et al.* (2009), Rao *et al.* (2010) and Osondu and Ibezim (2013).

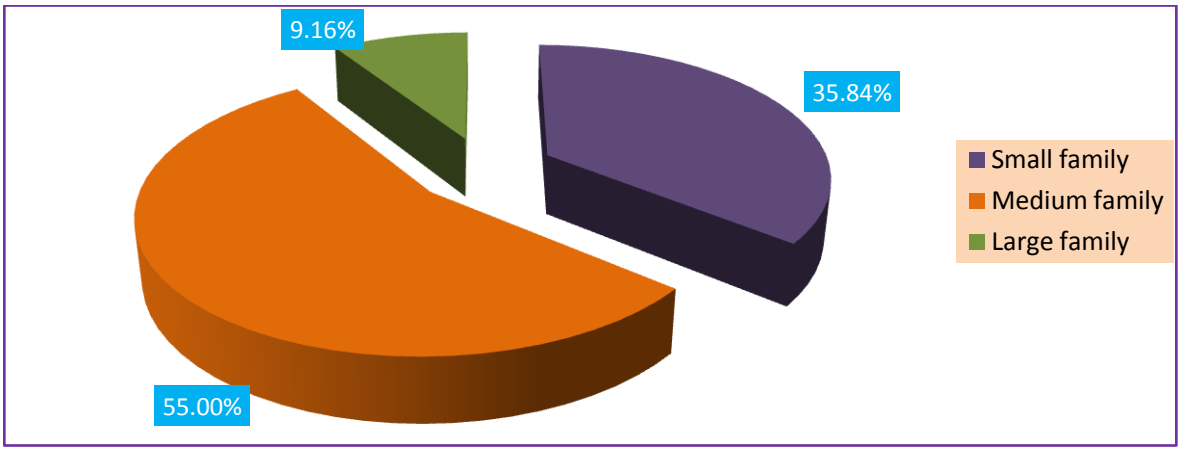

Figure 4.4. Distribution of respondents according to their family size

4.1.5 Annual Family Income:

It could be seen from the Table 4.5 and Figure 4.5 that majority (57.50%) of the respondents had low level of annual income followed by very low annual income (25.00%), medium annual income (10.00%), high annual income (5.00%) and very high annual income (3.34%).

Table 4.5. Distribution of respondents according to annual family income

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Very low (Rs 40,000-1,40,000)	30	25.00
2	Low(Rs 1,40,000-2,40,000)	68	56.66
3	Medium (Rs 2,40,000-3,40,000)	12	10.00
4	High (Rs 3,40,000-4,40,000)	6	5.00
5	Very high(Rs 4,40,000-5,40,000)	4	3.34

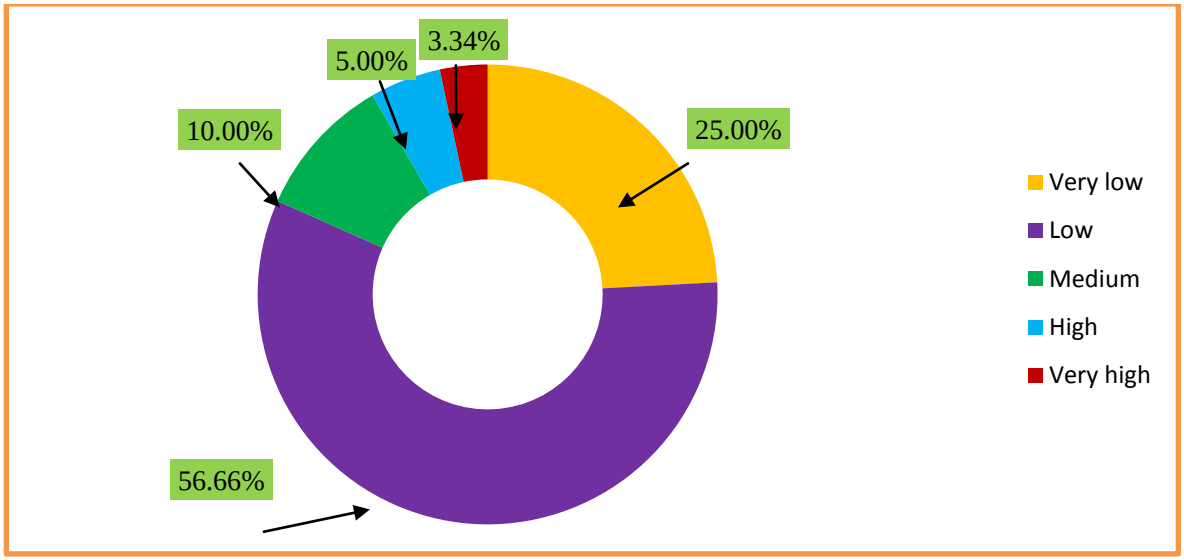

Figure 4.5. Distribution of respondents according to their annual family income

The families having low annual income mostly depend on the income of the migrant member doing low wage job in urban areas and the other family members did labour work in the villages itself which provide them income for 3-4 months in the whole year. The families having medium annual income also had more than one earning hand in the family. The migrant member of the family had good earning job in the urban areas and other family members also had seasonal work in the village. The high annual income families had more than one permanent and good earning job in the family. The migrant

member was doing job in urban areas and the other earning person, mostly, the father of the migrant was doing some Government job in or nearby the village. This is in conformity with the results of Kapse *et al.* (2009) and Thoke and Gunjal (2009).

4.1.6 Family Debts:

The results of the Table 4.6 and Figure 4.6 indicated that majority (57.50%) of the respondents family had medium debt followed by high debt (25.83%) and low debt (16.17%).

Table 4.6. Distribution of respondents according to family debts

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low (Upto Rs 40,000)	20	16.67
2	Medium (Rs 40,000-80,000)	69	57.50
3	High (Rs 80,000-1,20,000)	31	25.83

Most of the respondents have taken debt for the purpose of house construction, children's education, health care, purchasing household goods and vehicle and for family member's marriage. High debt of Rs 80,000-120,000 was mainly taken for the house construction and marriage by the respondent's family. Medium debt of Rs 40,000-80,000 was mainly taken for the children's education and health care of the family members. Low debt of upto Rs 40,000 was taken for purchasing household goods and vehicle (mostly two wheeler). Most of the families, who had taken low debt and medium debt, had already paid back the debt from migrant's income. Some of the respondents had not taken any debt and they were economically more stable than others.

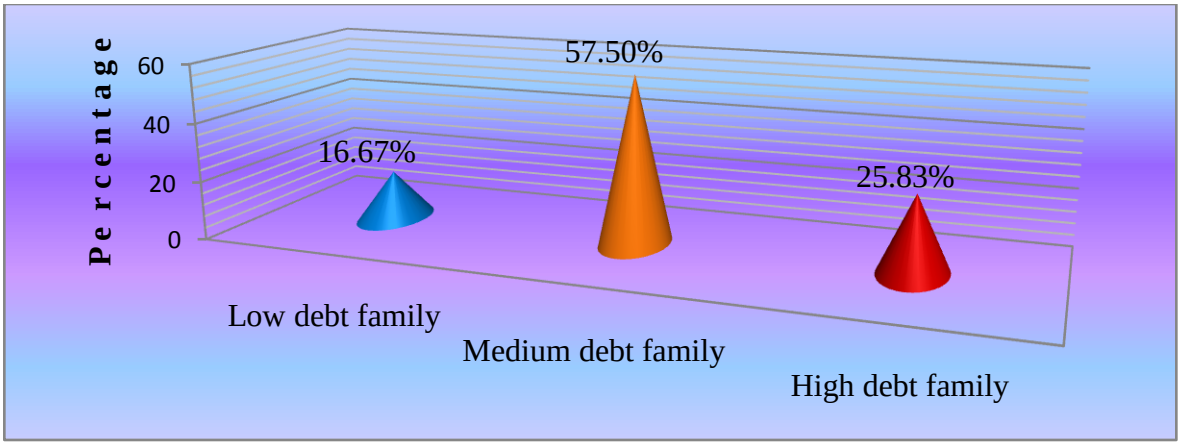

Figure 4.6. Distribution of respondents according to family debts

4.1.7 Number of migrants in the Family:

The results shown in the Table 4.7 and Figure 4.7 revealed that, majority (73.33%) of the families were having one migrant in their family followed by two migrants (20.00%), three migrants (4.17%) and four migrants (2.50%).

The families having one and two migrants had the main motive of getting remittances by doing job in the destination area. The families having three and four migrants had sent their family members for both education and income purposes, one or two members were doing job in destination area and other migrants were studying. It has also been observed that if one migrant is getting good income after migration the other family members were also thinking of migration to the same place. In most of the families it was noticed that two or three migrants were living together in the migrated area and doing job in the same area. This was done to reduce the cost of living in the migrated area. Such migrants were found to send more amount of remittances to their family. This is in conformity with the results of Priya and Edward (2004) and Singh *et al.* (2011).

Table 4.7. Distribution of respondents according to number of migrants in the family (N=120)

S. No.	Category	Frequency	Percentage (%)
1	One	88	73.33
2	Two	24	20.00
3	Three	5	4.17
4	Four	3	2.50

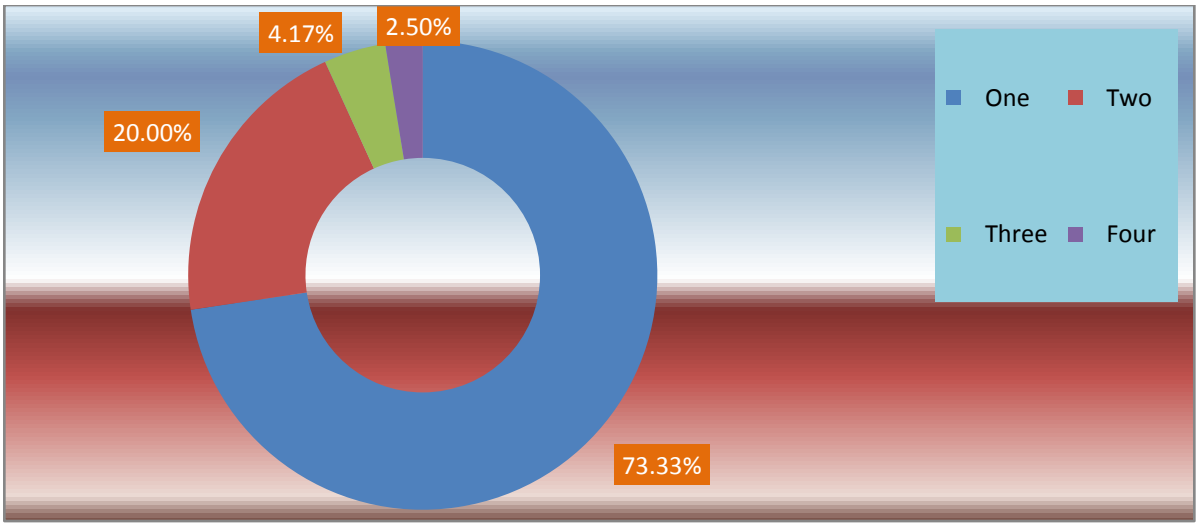

Figure 4.7. Distribution of respondents according to number of migrants in the family

4.1.8 Number of occupations:

It could be indicated from the Table 4.8 and Figure 4.8 that, majority (57.50%) of the respondents had two occupations in their family followed by one (23.34%), three (15.00%) and four (4.16%).

Table 4.8. Distribution of respondents according to number of occupations of the family (N=120)

S. No.	Category	Frequency	Percentage (%)
1	One	28	23.34
2	Two	69	57.50
3	Three	18	15.00
4	Four	5	4.16

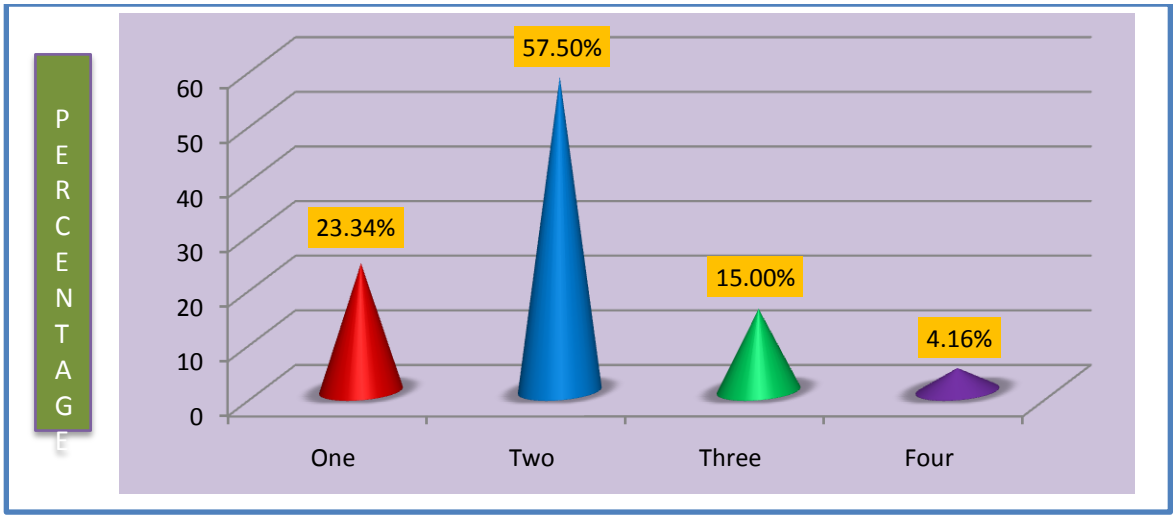

Figure 4.8. Distribution of respondents according to number of occupations of the Family

In most of the families it was observed that two members of the family were engaged in two different occupations to get income either in the migrated area or in the village itself. The family member who was engaged in seasonal occupation in villages mostly does labour work like construction works, agricultural work in other's fields, fruit harvesting and transportation, shop keeping *etc.* Some of them were also migrating seasonally to nearby villages. In some families, the members living in the villages were doing Government jobs within or nearby the villages like clerks in banks and other govt. departments. Some of them were employed as teachers, anganwadi workers and nurse in district govt. hospital and they get regular income. The families having more than two

occupations were mostly engaged in seasonal work and the families having one or two occupations did some regular jobs in or outside the villages and got regular income, hence other family member did not have need to work. This result is matching with the results of Deshingkar (2006) and Mahendra (2014).

4.1.9 Farm Resources:

The results in the Table 4.9 and Figure 4.9 revealed that the majority (64.16%) of the respondents had medium level of farm resources followed by low (18.34%) and high (17.50%).

Table 4.9. Distribution of respondents according to farm resources available at their farm

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low level of farm resources	22	18.34
2	Medium level of farm resources	77	64.16
3	High level of farm resources	21	17.50

The farm resources comprised of the cultivated land (in acres), irrigation facility, labour availability, number of crops grown per year, implements used in farming and other enterprises in farm of migrant respondents. It was noticed during the study that most of the migrants had enough land but they were not cultivating the whole of it as it was scattered and also the size of their fields was less. Almost whole study area was rainfed, without any irrigation facilities amd the respondents used few farm implements like sickle, spade, kudal, grass cutter and bullock cart for pulverising their fields as they could not run heavy implements like tractor in the hilly area. They grew few crops like paddy, wheat, maize, pulses, millets *etc.* throughout the year. Out of these crops, most of them preferred to grow millets and pulses because they could be cultivated with comparatively less effort and less water requirement than other field crops but the productivity was less and it was enough for only family consumption. The labours were available with medium difficulty in the study area and interestingly most of the agricultural work was done by the females of the family. The results are matching with the results of Anup *et al.* (2010) and Mukundarao (2011).

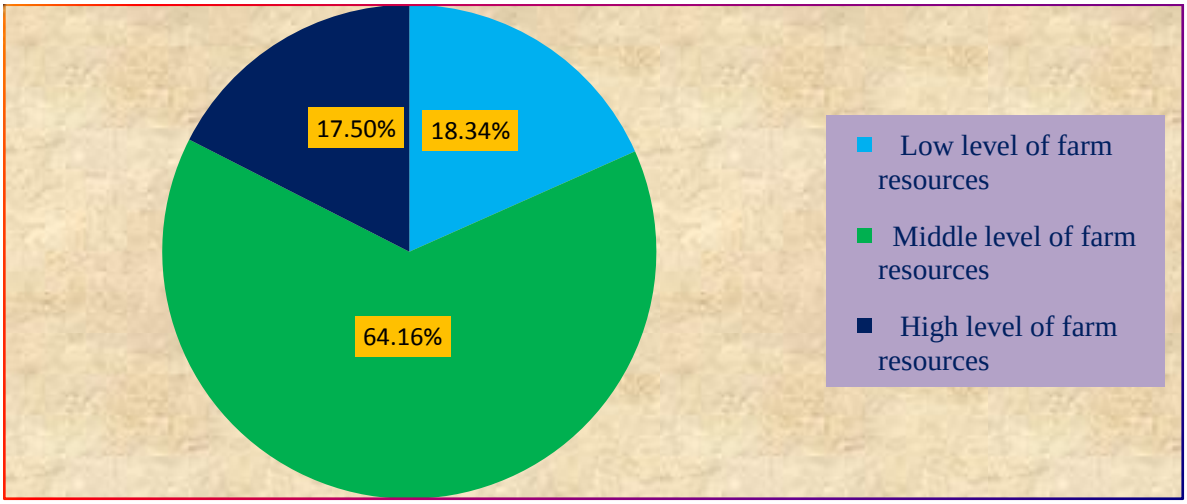

Figure 4.9. Distribution of respondents according to farm resources available at their Farm

4.1.10 Purpose of Migration:

It could be clear from the Table 4.10 and Figure 4.10 that majority (85.84%) of the migrants migrated due to non agricultural purposes and very few (14.16%) of the migrants migrated for agricultural purposes.

Table 4.10. Distribution of respondents according to their purpose of migration (N=120)

S. No.	Category	Frequency	Percentage (%)
1	Migration for agricultural purpose	17	14.16
2	Migration for non-agricultural purpose	103	85.84

The most probable reason for this kind of result was most of the migrants were not wholly dependent on agriculture for their living before migration as it is not renumerative. They were doing some other non agricultural works in the villages for their livelihood but later when these employment opportunities also gradually declined, they migrated to other places. Very few of the migrants who migrated for agricultural work in the destination areas are mostly seasonal migrants. Majority of the migrants were engaged in non agricultural occupations as the income from them was comparatively high and regular as compared to the agricultural work. These migrants migrated for medium to long term to the destination areas. The migrated members of the family were mostly working as waiters in restaurants and hotels, auto drivers and some were driving govt. and private vehicles, acting

as security guards, army men, plumbers, electricians, carpenters, porters, domestic servants, bus conductors, rickshaw pullers, did transportation work, construction work in govt. and private buildings *etc.* The migrants with high level of education did permanent job in the urban areas like govt. teachers, clerks and officials in banks and other govt departments like municipality, Public Work Department (PWD), Jal Sansthan, nurses and doctors in govt. hospitals. They also did private jobs like teaching in coaching centres and private schools, clerks and officials in private organisation, estate businesses, nurse and doctor in private hospitals. This is in conformity with the results of Deshingkar (2006) and Anamica (2010).

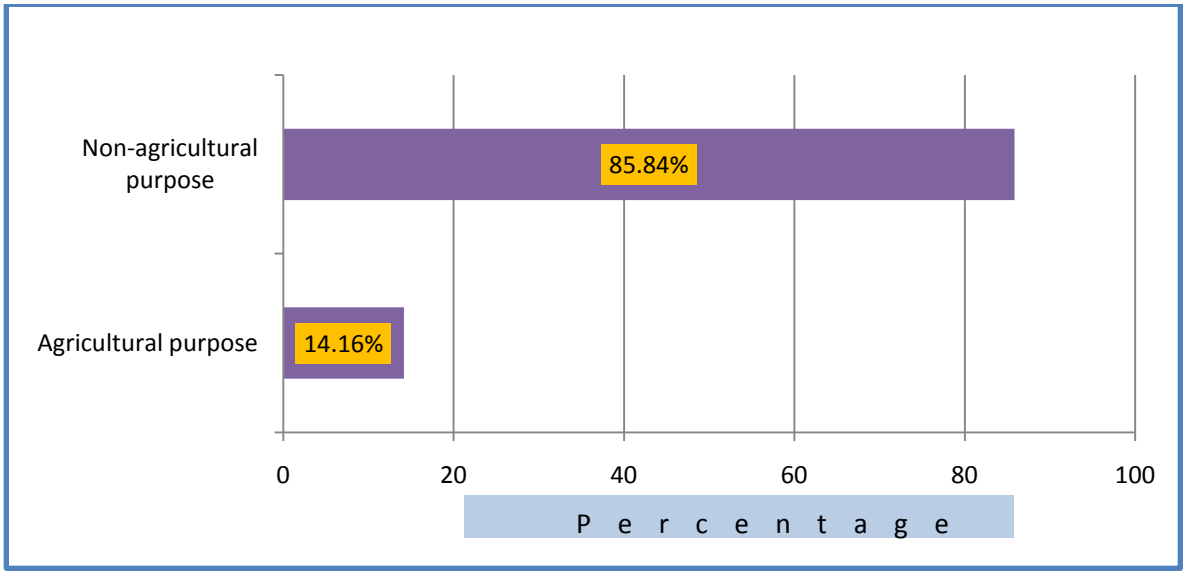

Figure 4.10. Distribution of respondents according to their purpose of migration

4.1.11 Duration of Migration:

The Table 4.11 and Figure 4.11 indicated that majority (69.16%) of the migrants migrated for midterm of 5-9 years followed by short term (20.00%) of 1-5 years and long term (10.84%) of 9-13 years.

Table 4.11. Distribution of respondents according to their duration of migration

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Short term migration(1-5 years)	24	20.00
2	Medium term migration(5-9 years)	83	69.16
3	Long term migration(9-13 years)	13	10.84

The migrants who migrated for 5-9 years did good jobs in the destination areas. They got sufficient income, although some of them have changed 2-3 jobs in destination areas but now most of them got sufficient income for them and also for their family for almost throughout the year. Long term migrants were engaged in more relatively good, permanent jobs that fetched them regular income. The short term migrants generally migrated to nearby villages or towns and did seasonal work like construction work, fruit harvesting and transportation and other agricultural works. They did not get income throughout the year from migration hence in between they visited their villages in search of construction and agricultural work in their own and others' fields in the villages. They went back to the destination area when work was available there. The same results were found by Deshingkar (2006), Pankaj and Belwal (2013) and Madhu and Uma (2014).

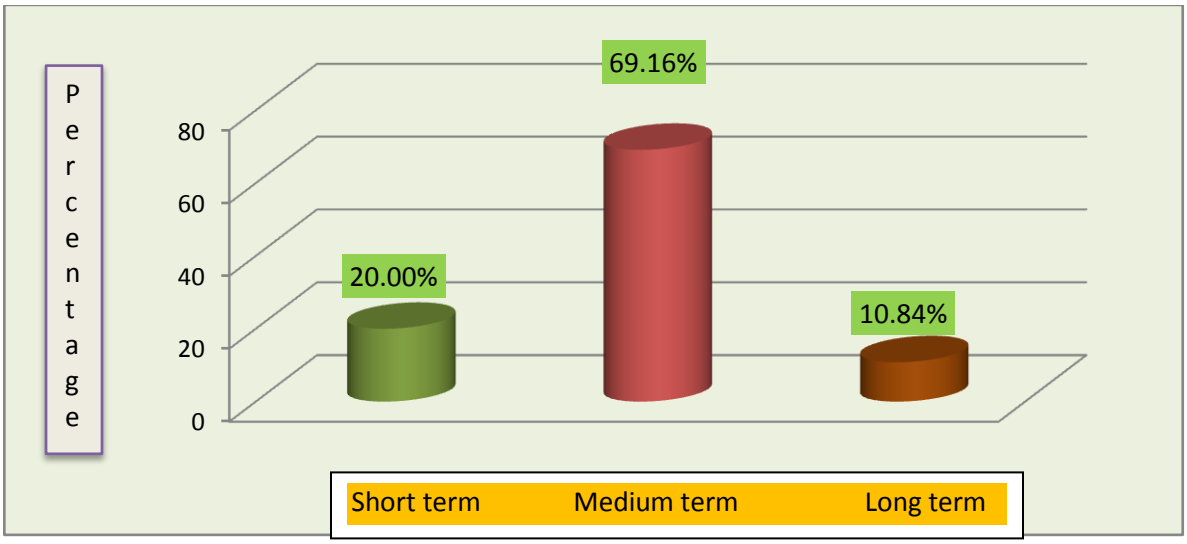

Figure 4.11. Distribution of respondents according to their duration of migration

4.1.12 Pattern of Migration:

The results shown in the Table 4.12 and Figure 4.12 revealed that majority (77.5%) of the migrants migrated from rural areas to urban areas followed by rural to rural areas (22.5%) and none of the migrant (0.00%) was migrated internationally.

Table 4.12. Distribution of respondents according to their pattern of migration

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Rural to rural migration	27	22.5
2	Rural to urban migration	93	77.5
3	International migration	0	0.00

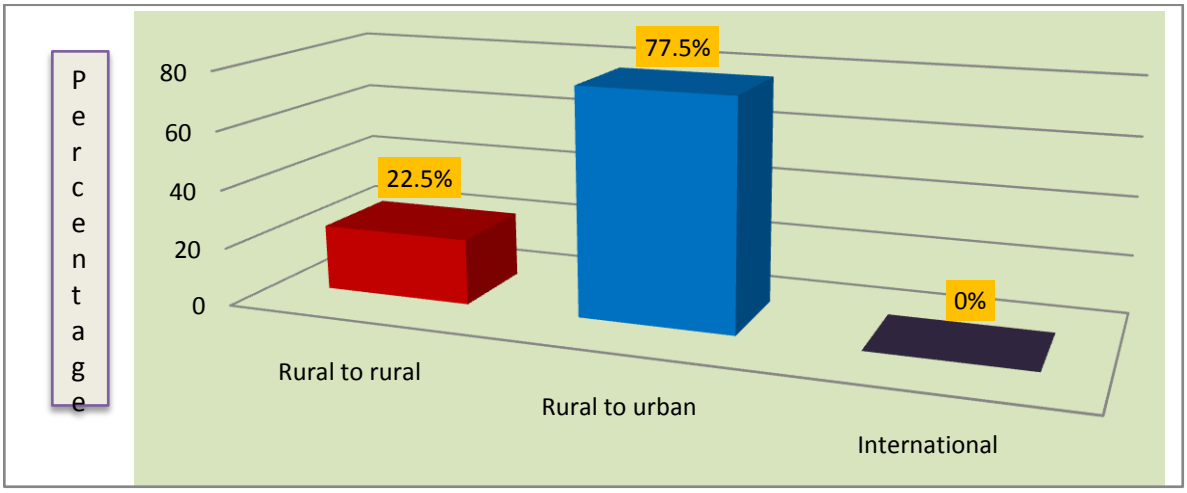

Figure 4.12. Distribution of respondents according to their pattern of migration

The Figure 4.13 indicated the pattern of migration flow from the study area. The major intra-state and inter-state migration was presented in graphical form, which gives an idea about the destination places of migrants. The migrants preferred delhi, Haryana, Uttar Pradesh, Himanchal Pradesh and Punjab for inter-state migration and Haridwar, Dehradun, Bageshwar, Udham Sing Nagar and Nainital districts of Uttarakhand for intra-state migration.

4.1.13 Survival strategies adopted before migration:

Results from the Table 4.13 and Figure 4.14 inferred that majority (76.67%) of the migrants had adopted medium level of survival strategies before migrating to other placers followed by high (13.33%) and low (10%).

Table 4.13. Distribution of respondents according to survival strategies adopted before migration

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Less survival strategies adopted	12	10
2	Medium survival strategies adopted	92	76.67
3	High survival strategies adopted	16	13.33

It is quite logical to say that nobody wants to leave their family, village and their culture hence all the respondents initially adopted survival strategies to avoid migration. The respondents, who could not support their family financially before migration, had to

adopt more survival strategies to fulfil the basic needs. Most of the migrants were economically weak which made them to adopt survival strategies to a medium extent. Some of the migrants were very poor so they adopted high level of survival strategies before they migrated to meet the required household expenses.

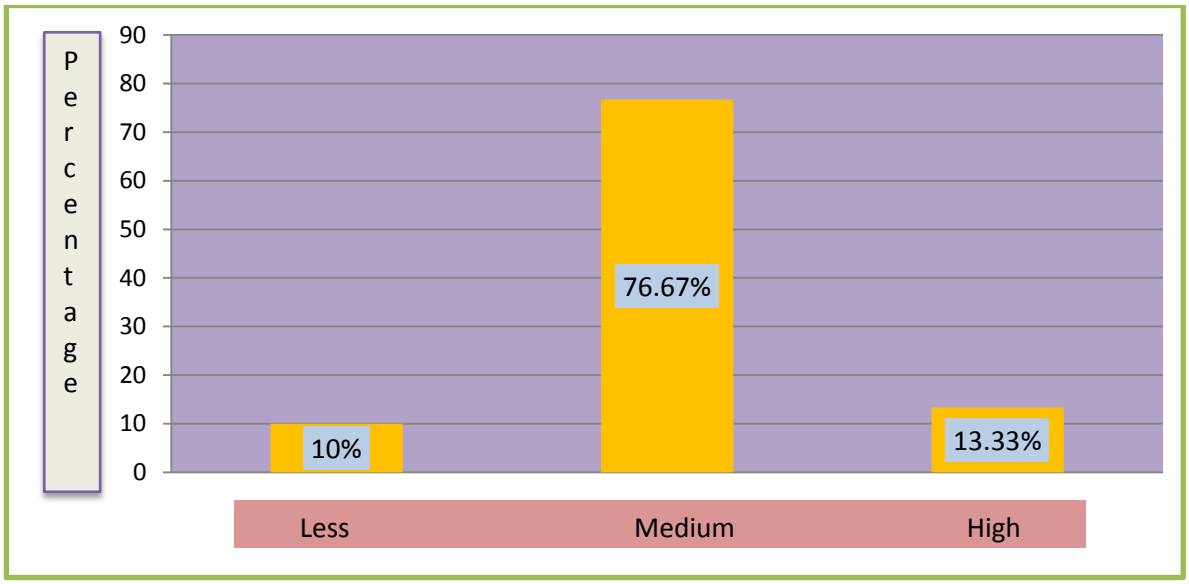

Figure 4.14. Distribution of respondents according to survival strategies adopted before migration

The results of Table 4.14 and Figure 4.15 indicated that a large majority (91.67%) of the migrants had searched for local nonfarm employment in their villages first before migrating to other places. The local nonfarm employment opportunities are house construction, pathways construction, transportation of local goods *etc.* 84.16 per cent of the migrants had to borrow money from different sources when the family faced financial problems. 81.67 per cent of migrants used their food reserves in case of shortage of food but they had limited amount of food reserves. The migrants (76.67%) also sold their land to others as the lands nearby the roads were costly, most of migrants with roadside land sold their land. The migrants who had livestock also sold them (74.16%) to others in the same village or nearby villages, so that they can avoid migration. Similar results were reported by Gebrehiwot and Fekadu (2012). Some of them (64.16%) also sold their gold and other expensive materials. Some of them had borrowed food from others (39.16%) and these migrants were comparatively more poor than others. Very few of them (9.16%) had sold their household and farm equipments such as grass cutters, carts etc. as they do not possess expensive farm machineries and equipments.

Table 4.14 Distribution of respondents according to the various survival strategies adopted before migration

(N=120)

S. No.	Survival strategies adopted before migration	Frequency	Percentage (%)
1	Using food reserves	98	81.67
2	Selling livestock	89	74.16
3	Borrowing food	47	39.16
4	Selling gold / other expensive materials	77	64.16
5	Seeking local nonfarm employment	110	91.67
6	Selling household and farm equipment	11	9.16
7	Selling land	92	76.67
8	Borrowing money	101	84.16

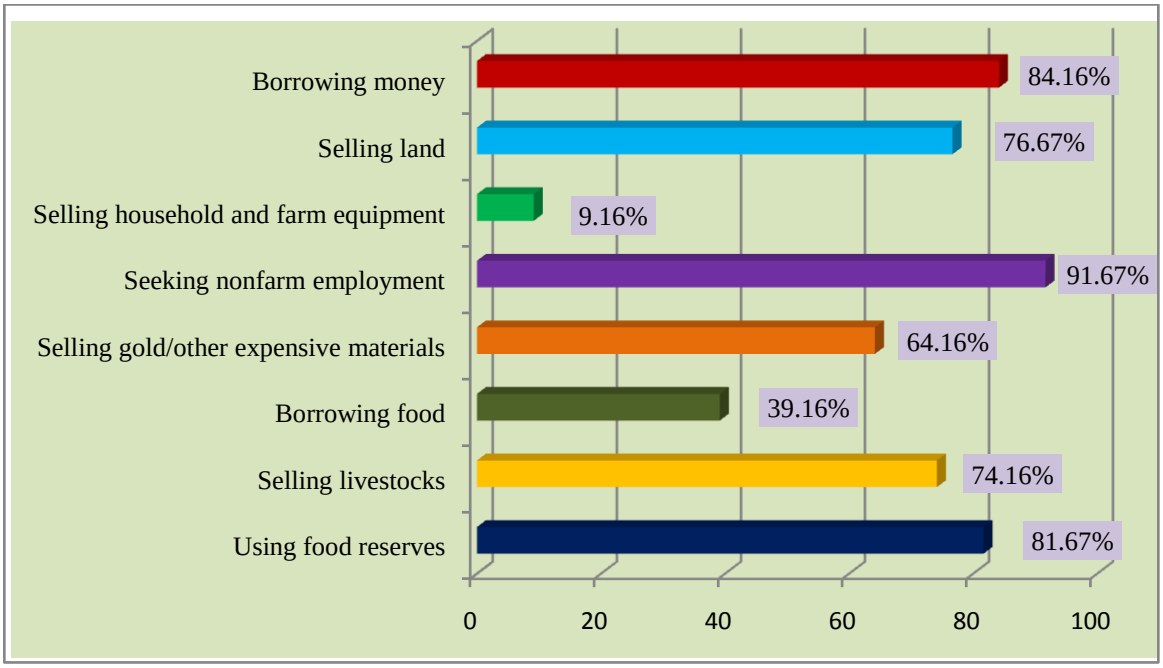

Figure 4.15. Distribution of respondents according to the various survival strategies adopted before migration

4.1.14 Economic motivation:

It could inferred from the Table 4.15 and Figure 4.16 that, majority (61.67%) of the migrants had medium level of economic motivation followed by high (25.83%) and low (12.5%).

Table 4.15. Distribution of respondents according to their economic motivation

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low level of economic motivation	15	12.50
2	Medium level of economic motivation	74	61.67
3	High level of economic motivation	31	25.83

The probable reason for this result might be due the fact that most of the migrants migrated for earning money. Migrants faced the problem of meeting their household expenses like educational expenses, medical expenses, house construction expenses, marriage expenses of family members, purchasing household goods. As they were not getting desired wages in their villages they were economically motivated to earn more money to meet these expenses. Hence 87.50 per cent of migrants were found to be in medium to high economically motivated category. Similar results were obtained by Sajith (2004), Veeraiah *et al.* (2005), MukundaRao (2011) and Prathyusha (2014).

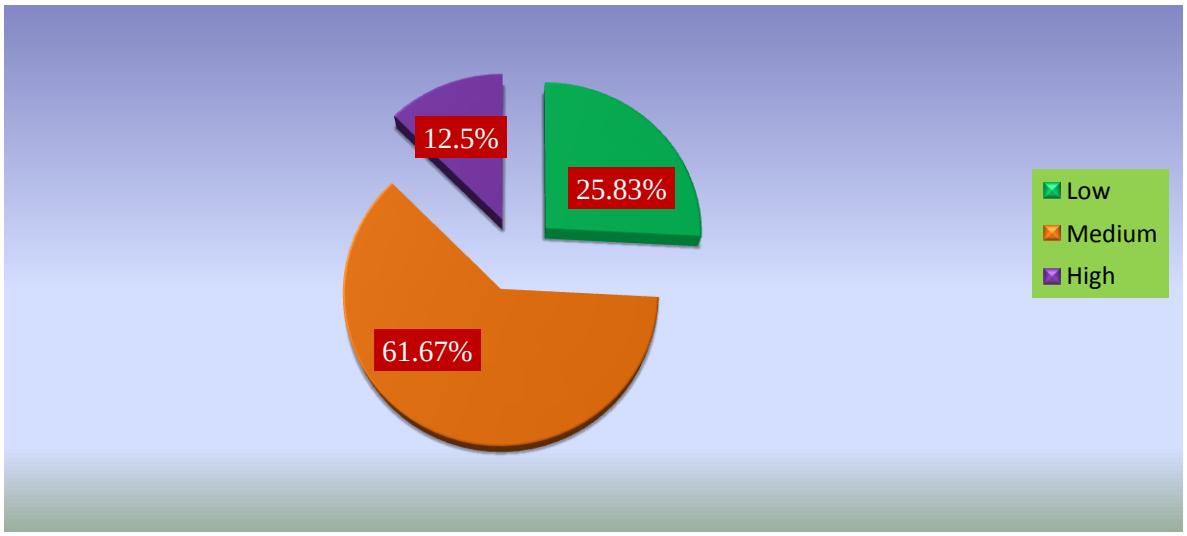

Figure 4.16. Distribution of respondents according to their economic motivation

4.1.15 Risk Orientation:

It could be revealed from the Table 4.16 and Figure 4.17 that majority (61.67%) of the migrants were having medium risk orientation followed by less (20.83%) and high (17.5%).

Table 4.16. Distribution of respondents according to their risk orientation

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low risk oriented	25	20.83
2	Medium risk oriented	74	61.67
3	High risk oriented	21	17.50

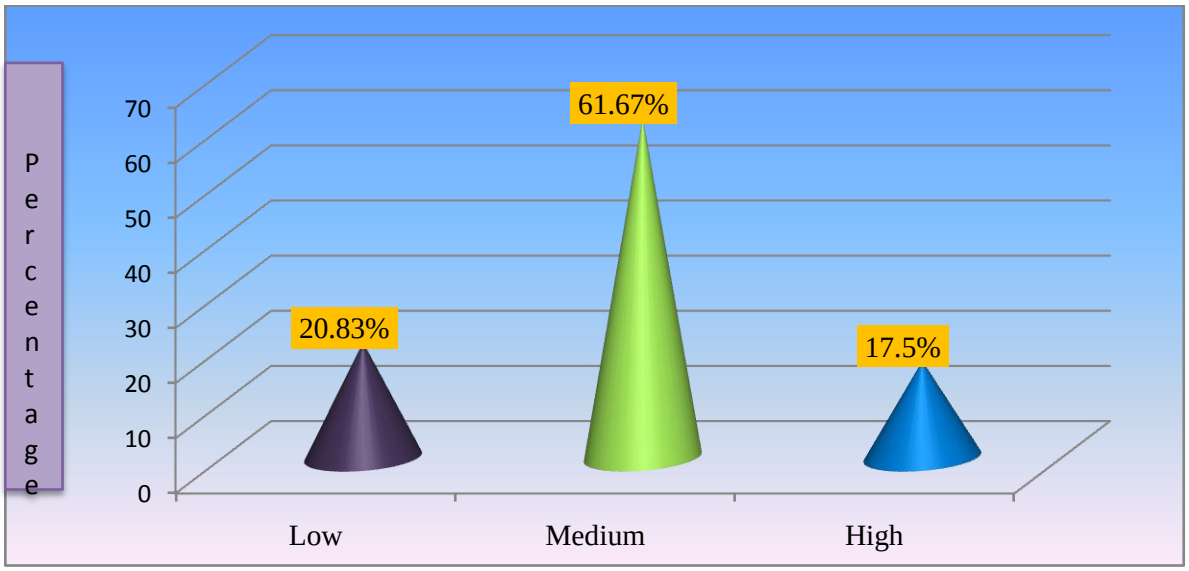

Figure 4.17. Distribution of respondents according to their risk orientation

The probable reason for this kind of result is due to the fact that most of the migrants were willing to take the risk of moving outside the villages in search of jobs, instead of staying back in the villages. The relatives and friends of the migrants living in the urban areas were also motivating them to migrate and some of them also arranged jobs for the migrants in the urban areas. The migrants were influenced by their peer group who were doing good jobs in the urban areas and whom they considered to reduce the risk involved in migration. The high risk oriented migrants might be well educated and confident enough that they will get good jobs in the destination area. The results obtained in the study i.e. 82.50 per cent of respondents with low to medium risk orientation supported this finding in the study area. The same results were reported by Ramesh and Venkataramaiah (2004), Sivasubrahmaniyan (2003), Suresh (2004), Reddy *et al.* (2007), Chidananda (2008) and Kiran and Shenoy (2010) .

4.2 Respondents perception on the determinants (push and pull determinants) compelling them for out migration in the context of changing agrarian scenario

Table 4.17. Changing agrarian scenario over the years in Uttarakhand

S.No.	Crops	Area (ha)			
		2009-10	2010-11	2011-12	2012-13
1	Cereals	944982	925080	896774	870622
2	Pulses	56895	61209	55690	61027
3	Oilseeds	29785	27211	29705	31693
4	Fruits	193787	197853	20027	200851
5	Vegetables	58451	61482	62956	62993

Source: Uttarakhand at a glance (2010-11, 2011-12, 2012-13 and 2013-14)

The Table 1.17 indicated that the area under cereals has been decreased over the years, while the area under pulses, oilseeds, fruits and vegetables has been increased over the year. The net sown area in the state has been decreased to 7,14,189 ha (2011-12) from 7,53,711 ha (2008-09). The fallow land has been increased to 1,35,412 ha (2011-12) from 1,06,28 ha (2008-09). Besides as agriculture in the villages is totally based on the rains with no irrigation facilities, the produce is hardly enough from the small land holdings to sustain the families. The little that the villagers hope to get from their fields is destroyed or eaten by the wild animals, leaving the people with nothing to fend for themselves. The downsizing in cattle herd size has severe consequences for the traditional system. Traditional hill agricultural practices were developed which involved the integration of crops, livestock, trees, and humans (Jain *et al*., 2005). The significant decline of cattle means that an integral component of soil revitalization from manure is harmed. This led to declining agricultural productivity due to the decline in soil fertility.

4.2.1 Perception on Push Determinants:

The results in the Table 4.18 and Figure 4.18 indicated that, majority (64.17%) of the migrants had high level of perception on push determinants of migration followed by medium (25%) and low (10.83%) level of perception on push determinants of migration.

Table 4.18. Distribution of respondents according to their perception on push determinants of migration

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low	13	10.83
2	Medium	30	25.00
3	High	77	64.17

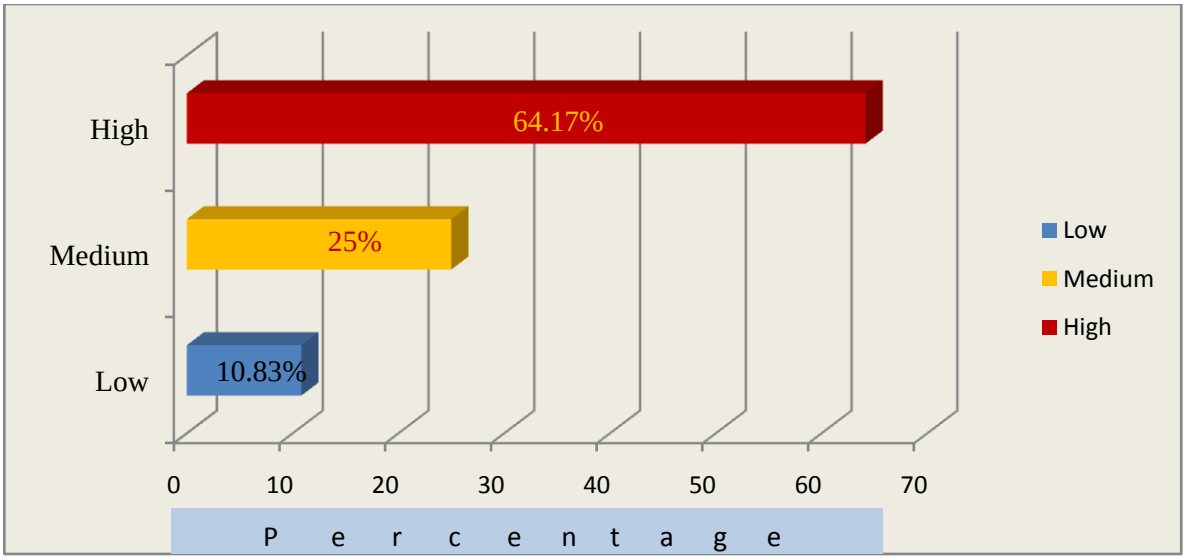

Figure 4.18. Distribution of respondents according to their perception on push determinants of migration

Majority of the migrants had high level of perception on push determinants of migration because they might be facing many problems in the village which were making their living difficult. Push determinants were strongly forcing them to move out of the village even though they did not want to leave their family behind and to settle down in urban areas.

Results of migrants perception on various push determinants that are compelling them to move out of their villages were furnished in Table 4.19 and Figure 4.19. All of the migrants perceived that lack of employment opportunities as the major push determinant. It has also been noticed while interacting with migrants that majority of the parents do not want their children to stay back in the village and do agriculture as it is non remunerative and drudgeous in the study area. Agriculture in hills does not provide food throughout the year as it is rainfed with scattered lands without irrigation.

The employment opportunities in the villages were very few and they generated irregular and less income. The migrants got employment only for some portion of the year. Hence this kind of result appeared in the study. This indicated an increased dependence on wage-earning occupations and decrease in dependence on agricultural works in the second generation.

Migrants agreed that the other push determinants like inability to meet basic needs, increased household expenses, inability to meet educational expenses and medical expenses (which might be due to unproductive agriculture), peer group influence, lack of or improper coverage of Government employment guarantee schemes like MNREGA and inability to clear off their family debts were also the main reasons that forced respondents to migrate to other places. Other reasons like crop failure due to drought and heavy rainfall, family conflict, social caste and status related struggle in village and reduced employment due to increased the use of farm machinery were also some other reasons perceived by them. This is in conformity with the results of Angba (2003), Gerard (2003), Deshingkar (2003), Priya and Edward (2004), Mobile Creches Publication (2008), Singh *et al.* (2011), Debasis and Pravat (2013), Kyaing (2013), Prashant (2013), Madhu and Uma (2014) and SantoshKumar (2014).

4.2.2 Perception on Pull Determinants:

The results shown in the Table 4.20 and Figure 4.20 inferred that majority (59.16%) of the migrants had medium perception on pull determinants of migration followed by low (23.34%) and high (17.5%) perception.

Table 4.20. Distribution of respondents according to their perception on pull determinants of migration

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low	28	23.34
2	Medium	71	59.16
3	High	21	17.50

Table 4.19. Perception of migrants on various push determinants of migration: (N=120)

S.No.	Push Determinants	Agree		Partially Agree		Disagree	
		n	%	n	%	n	%
1	Crop failure due to heavy rainfall causes migration of farmers to the cities	87	72.50	21	17.50	12	10.00
2	Crop loss due to severe drought causes migration of farmers to the cities	89	74.16	16	13.34	15	12.50
3	Lack of employment opportunities in the village forcing the rural people to migrate	120	100.00	0	0.00	0	0.00
4	Inability to meet basic needs with existing income causes rural urban migration	117	97.50	3	2.50	0	0.00
5	Inability to meet educational expenses of children causes migration	109	90.83	7	5.84	4	3.33
6	Migration occurs due to inability of people to meet medical expenses of their family	92	76.67	20	16.67	8	6.66
7	Rural people migrate if they cannot clear off their family debts with the existing income	97	80.83	21	17.50	2	1.67
8	Social caste and status related struggle in village causes migration to the cities	39	32.50	34	28.34	47	39.16
9	Peer group of rural people influence them to migrate to cities	101	84.16	11	9.17	8	6.67
10	Increased use of farm machinery reduced employment opportunities in villages, which is forcing people to migrate	23	19.16	13	10.84	84	70.00
11	Increase in household expenses, the rural people tend to take decision to migrate	110	91.67	6	5.00	4	3.33
12	When a person faces family Conflict he would like to leave his family and to migrate to other place	65	54.16	17	14.17	38	31.67
13	Lack of or improper coverage of Government employment guarantee schemes like MGNREGA play important role in taking the decision to whether to migrate or not	98	81.67	15	12.50	7	5.83

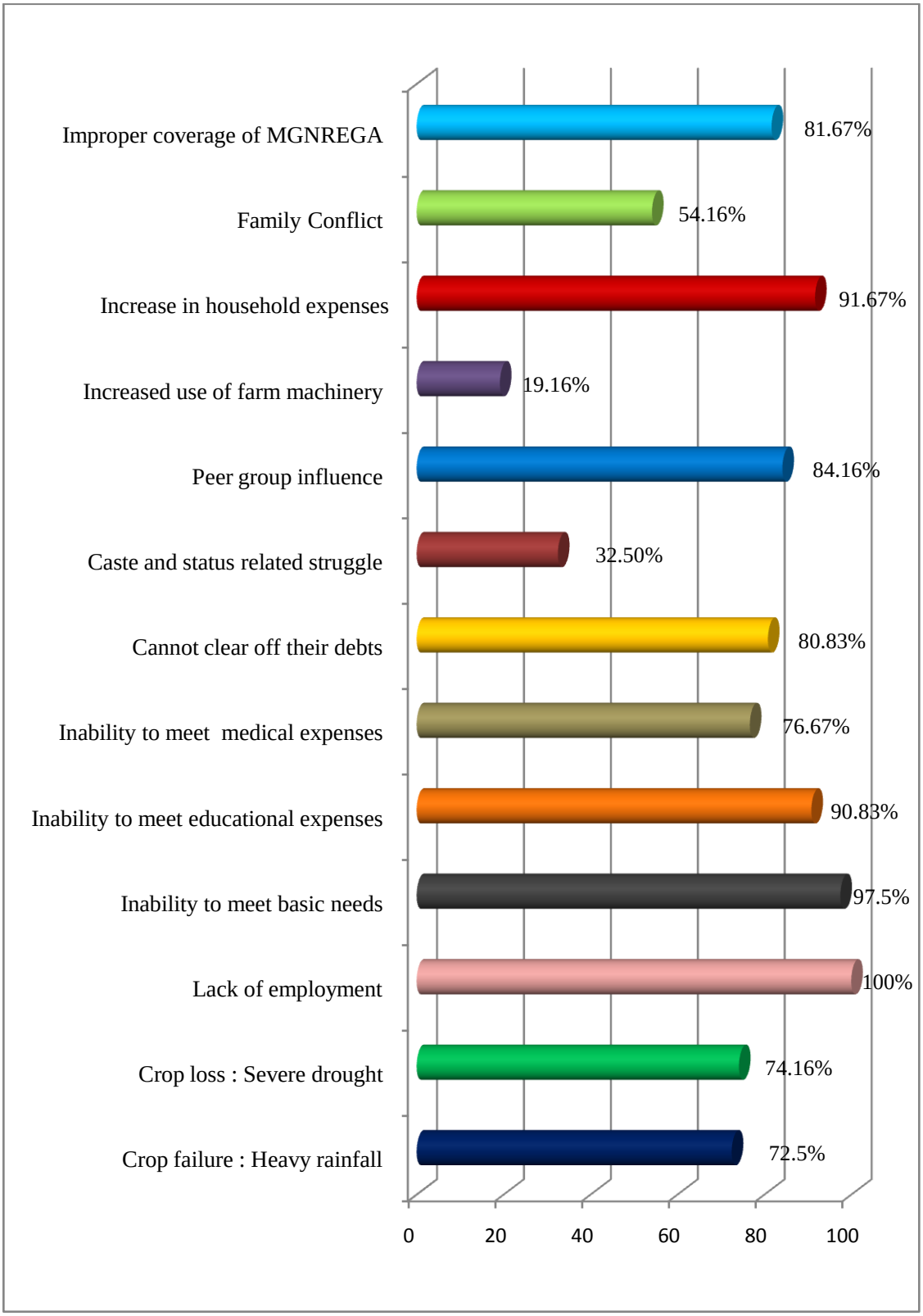

Figure 4.19. Perception of migrants on various push determinants of migration

Majority of migrants had medium perception on pull determinants of migration because they were mostly attracted by the pull factors which were related to employment only like employment opportunities, higher wages and regular work in the urban areas. The lack of opportunities for economical and social development in the villages were also the reasons for their attraction to the urban areas. In urban areas presence of their relatives and friends was also the reason for this attraction as it reduced the risk and struggle in searching the jobs and getting settled in the urban areas.

It is clear from the Table 4.21 and Figure 4.21 that majority (93.33%) of the migrants perceived that high demand of labors attracted rural youths to urban areas as all of them were facing employment related problems in the villages. 89.16 per cent of the migrants perceived that urban areas had better earning opportunities than rural areas due to more industrialisation and business opportunities that provided more constructional and labour work in the urban areas. 84.16 per cent of migrants perceived that experience of already migrated persons motivated other people to migrate, it was also noticed that mainly respondents interested in construction works were influenced by their relatives and other villagers to migrate and most of them migrated in groups.

80 per cent of migrants also perceived that higher wages that can be earned in the urban areas as compared to the rural areas was one of the important pull determinants. 75.83 per cent perceived that work is available throughout the year in urban areas. For them, migration was definitely an improvement in their lives as it was an escape from dire poverty situation in the villages. They were also attracted to the factors of urban areas like ease of life (73.33%), improved railway / road and transport facility and communication networks in cities (64.16%), modern city life style (57.5%) and less drudgeous work comparatively (48.33%). This is in conformity with the results of Tiwary *et al.* (2002), Gerard (2003), Deshingkar (2003), Priya and Edward (2004), Deshingkar (2008), Joshi (2013), Debasis and Pravat (2013), Kyaing (2013) Madhu and Uma (2014) and Santosh (2014).

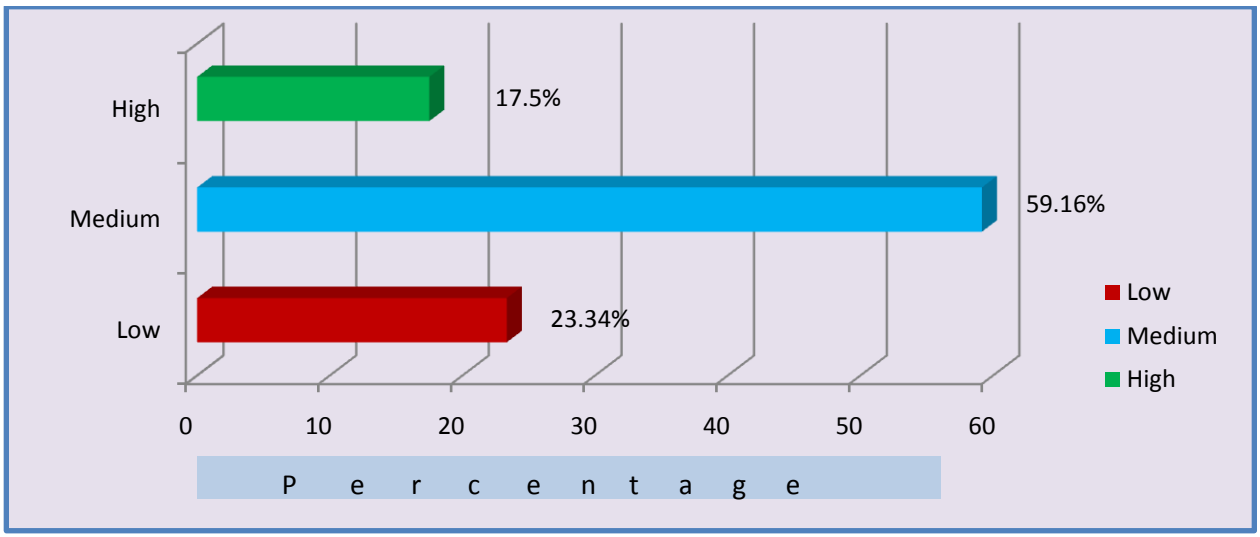

Figure 4.20. Distribution of respondents according to their perception on pull determinants of migration

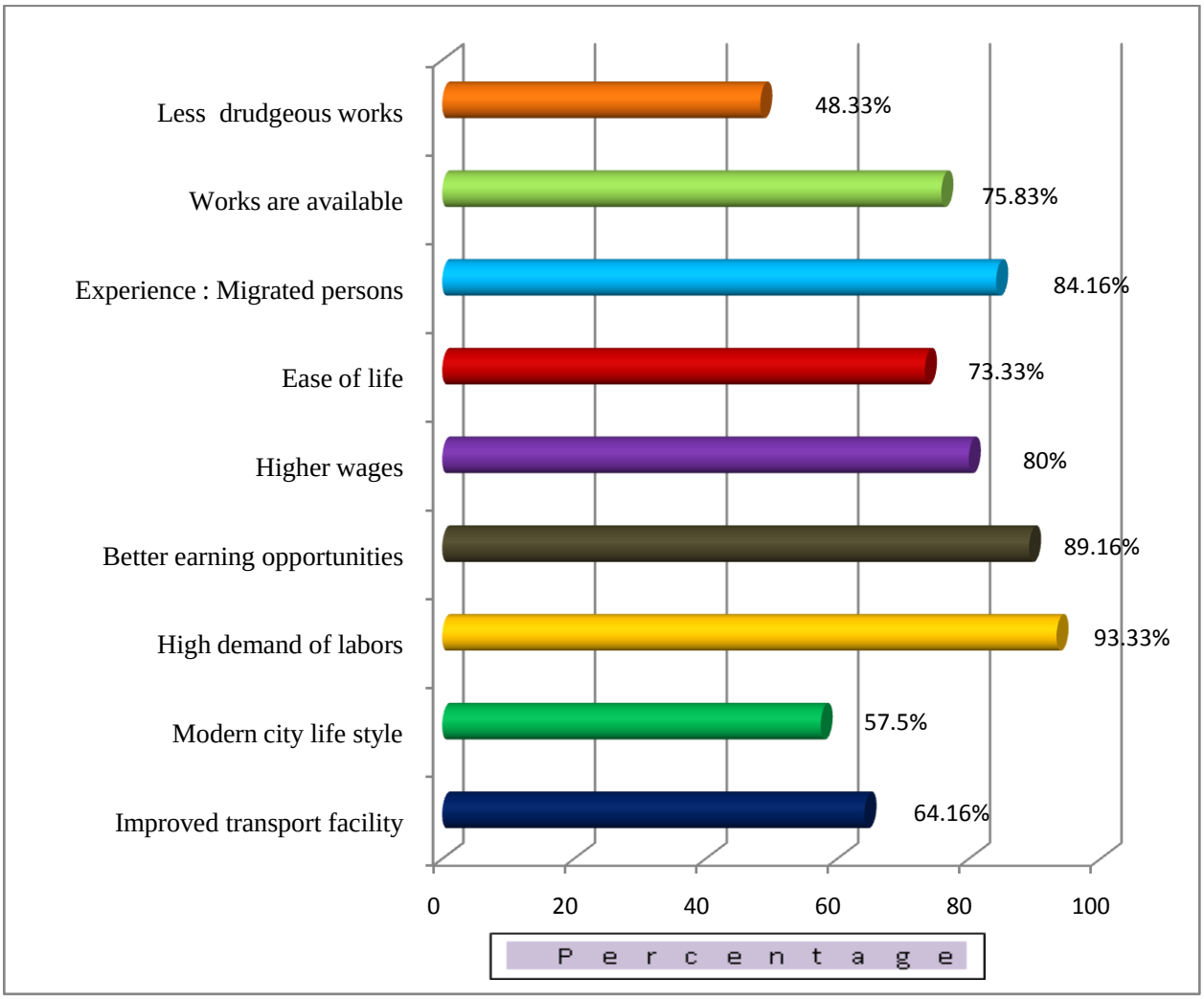

Figure 4.21. Distribution of respondents according to their perception on various pull determinants of migration

Table 4.21. Perception of migrants on various pull determinants of migration: (N=120)

S.No.	Pull Determinants	Agree		Partially Agree		Disagree	
		n	%	n	%	n	%
1	Improved railway / road and transport facility and communication networks in cities is attracting rural people	77	64.16	28	23.34	15	12.50
2	Modern city life style is attracting rural youth	69	57.50	32	26.67	19	15.83
3	High demand of labors in urban areas attract rural youths to migrate and work in urban areas	112	93.33	5	4.17	3	2.50
4	In urban areas there are better earning opportunities than rural areas	107	89.16	9	7.50	4	3.34
5	In the place where you have migrated wages are higher comparatively	96	80.00	14	11.66	10	8.34
6	Ease of life people in urban areas is attracting people towards cities	88	73.33	17	14.17	15	12.50
7	Experience of already migrated persons motivate other people to migrate	101	84.16	13	10.84	6	5.00
8	In the place where you have migrated works are available throughout year	91	75.83	19	15.83	10	8.34
9	In the place where you have migrated works are not drudgeous comparatively	58	48.33	16	13.33	46	38.34

4.3 Opinion on consequences of migration

4.3.1 Consequences of migration on Agriculture:

Results of Table 4.22 and Figure 4.22 that majority (71.67%) of migrants had low opinion on consequences of migration on Agriculture followed by medium (23.33%) and high (5%).

Table 4.22. Distribution of respondents according to their opinion on consequences of migration on agriculture

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low	86	71.67
2	Medium	28	23.33
3	High	6	5.00

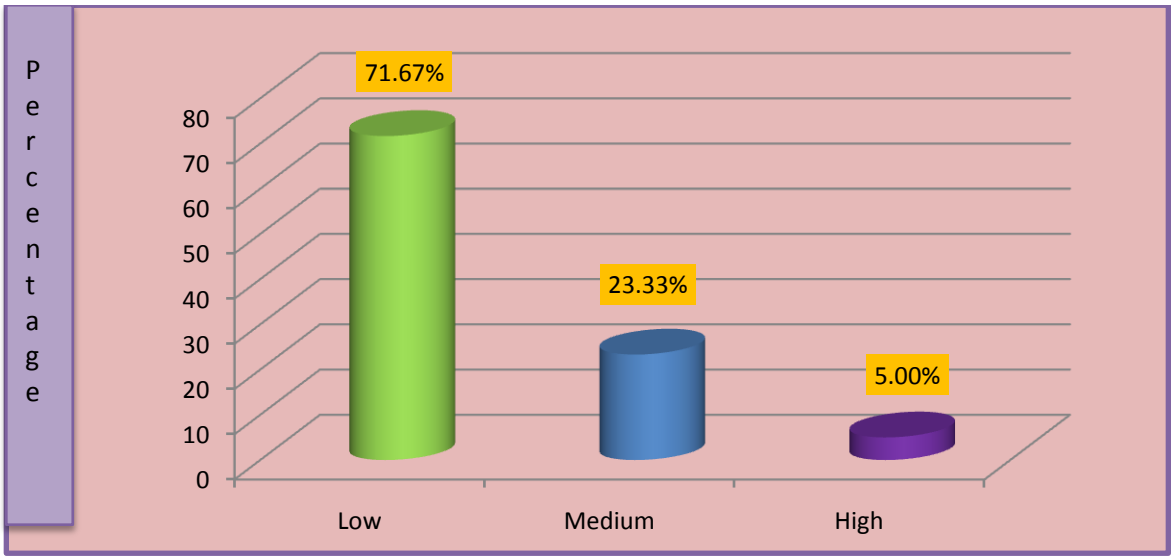

Figure 4.22. Distribution of respondents according to their opinion on consequences of migration on agriculture

The most probable reason for the above result might be that majority of the migrants migrated for doing non agricultural work in the migrated places so they did not bring back any new crops or varieties to the villages. Respondents expressed that agriculture was non remunerative because of the low productivity of hilly lands hence very few of them were interested in investing the remittances earned due to migration on agriculture. Hardly they purchased other farm inputs like seeds from the remittances as they

use previous year stored seeds, pesticides, implements *etc*. Hence significant changes in agriculture due to increased migration were not observed in the study. A negative consequence i. e. decreased labour availability for the agricultural work due to migration of youth led to creation of employment for seasonal migrants who came from other villages. This is in conformity with the results of deBrauw (2007).

4.3.2 Consequences of migration on Women Empowerment:

The results shown in the Table 4.23 and Figure 4.23 revealed that majority (61.67%) of the females of the family opined that there was medium women empowerment after the migration of the males of the family followed by high (21.66%) and low (16.67%) opinion respectively.

Table 4.23. Distribution of respondents according to their opinion on consequences of migration on women empowerment

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low	20	16.67
2	Medium	74	61.67
3	High	26	21.66

The medium women empowerment was due to the fact that most of the migrants were young, they were either newly married or unmarried and had their parents with them, so most of the household decisions were taken by the father or mother (in case of death of their husbands) of the migrants. The wives of the migrants were mostly engaged in the household works and agricultural works. In the households headed by the females, the females were taking all decisions regarding households, farm management, and utilization of remittances for different purposes. They also learnt the calculation of family budget and its management. They also gained confidence and respect from the family members and prestige in the village. In some cases where the entire family of migrants were engaged in agriculture on large areas, the women felt more burden physically and mentally. This is in conformity with the results of Paris *et al.* (2005) and Anmol (2010).

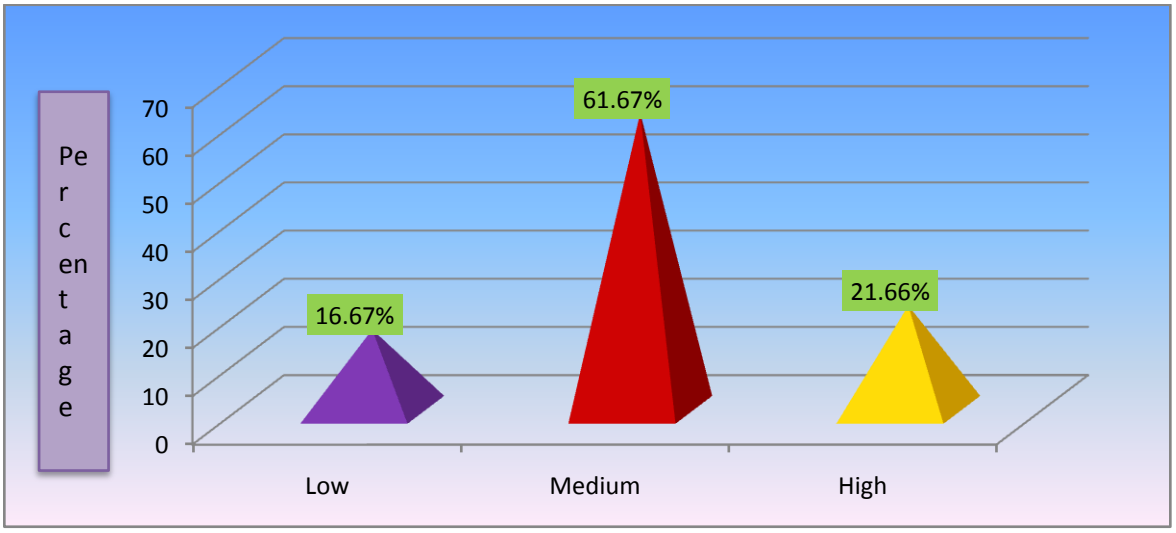

Figure 4.23. Distribution of respondents according to their opinion on consequences of migration on women empowerment

4.3.3 Consequences of migration on Biodiversity:

From the Table 4.24 and Figure 4.24 it could be observed that most of the respondents were having low opinion (80%) about change in biodiversity, followed by medium opinion (11.67%) and high opinion (8.33%).

Table 4.24. Distribution of respondents according to their opinion on consequences of migration on biodiversity

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low	96	80
2	Medium	14	11.67
3	High	10	8.33

The reason behind majority having low opinion on less changes in biodiversity due to migration was that after migration, the migrants had not introduced any new variety or crop, enterprise, cattle breeds, fruit or forest trees in the villages, but were only sending back the remittances and other household goods to their families in the village. There were not much changes in the cropping pattern of the families of migrants, they were using the same crops and varieties as before. Hence majority had low opinion towards changes changes in biodiversity due to migration.

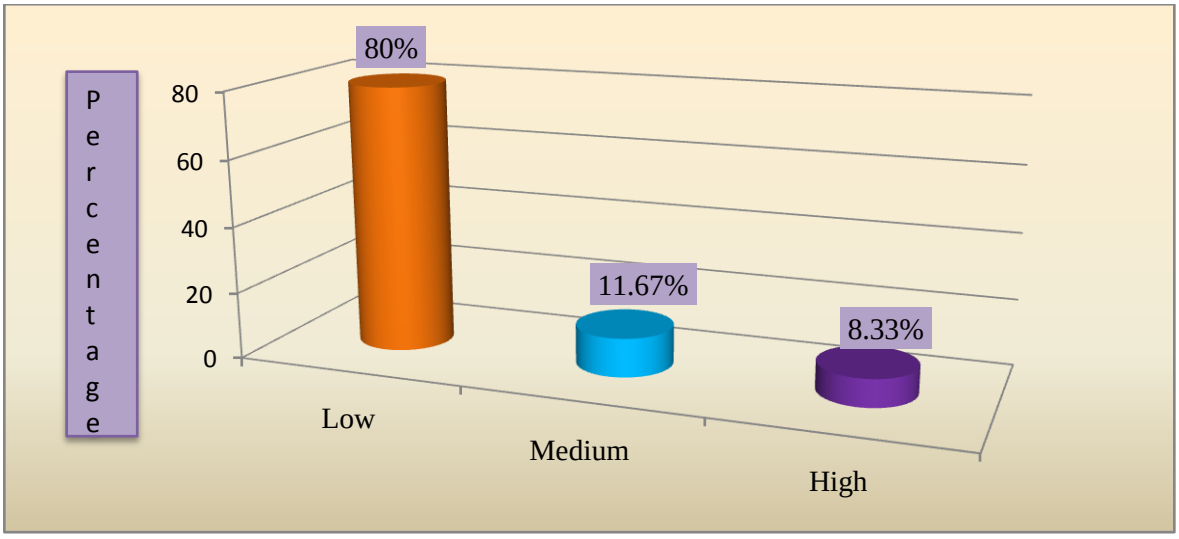

Figure 4.24. Distribution of respondents according to their opinion on consequences of migration on biodiversity

4.3.4 Consequences of migration on Food security:

It could be found from the Table 4.25 and Figure 4.25 that majority of the respondents had often food security (75.83%), followed by sometimes (16.67%) and rarely (7.50%) food security as a consequence of migration.

Table 4.25. Distribution of respondents according to their opinion on consequences of migration on food security

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Rarely	9	7.50
2	Sometimes	20	16.67
3	Often	91	75.83

It was observed during the study that most of the households were food secure after the migration of their family member or members than earlier. The migrants were sending back enough remittances for consuming sufficient food by their family members. The family members of some of the migrants were also doing agricultural work in their fields and getting some of the food items from it for a few months and rest were purchased from the market. Very few of them were still food insecure because of the fact that those

migrants were getting very low remittances and their cost of stay in the urban areas was comparatively more, so they were unable to send enough money back to their family to secure food throughout the year. The result is in conformity with the results of Deshingkar (2006).

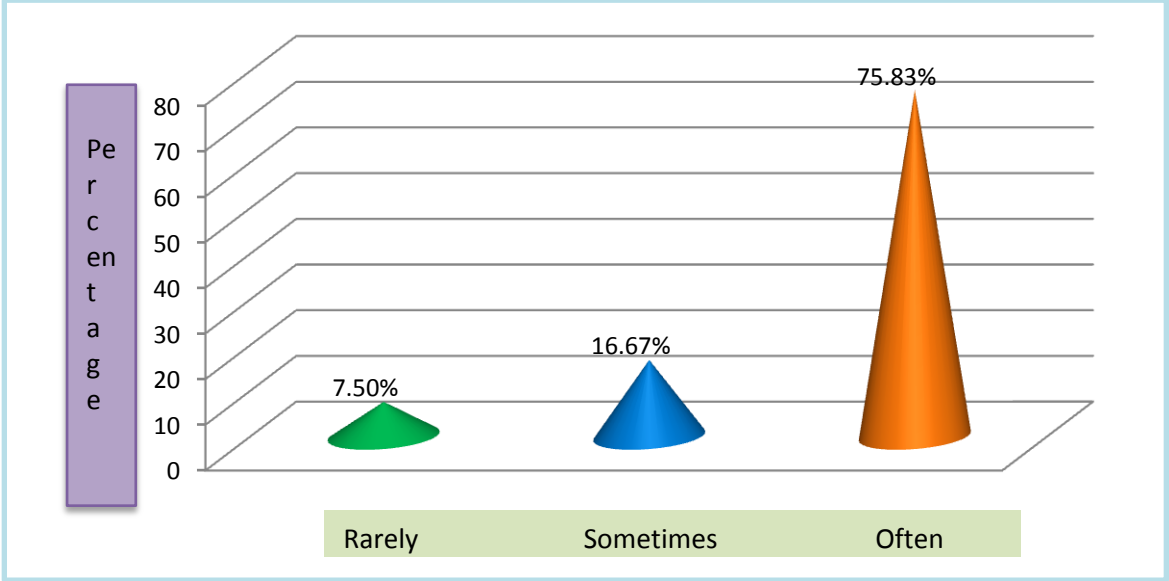

Figure 4.25. Distribution of respondents according to their opinion on consequences of migration on food security

4.3.5 Consequences of migration on Nutritional security:

From the Table 4.26 and Figure 4.26 it was found that majority of the respondents had medium opinion about nutritional security (65.84%), followed by low opinion (20.83%) and high opinion (13.33%).

Table 4.26. Distribution of respondents according to their opinion on consequences of migration on nutritional security

(N=120)

S. No.	Category	Frequency	Percentage (%)
1	Low opinion	25	20.83
2	Medium opinion	79	65.84
3	High opinion	16	13.33

Majority of the families of the migrants had medium level of opinion on consequences of migration on nutritional security. The probable reason might be due to the fact that after migration, the family members of the migrants were having enough money to

purchase the food but they were not well aware of the concept of nutritional security. In fact they should have high nutritional security as they had high food security but due to their lack of knowledge about the composition and importance of the nutritious diet, majority of them had only medium to low opinion on nutritional security. Most of the families took the daily diet of cereals + dairy products + pulses + vegetables and sometimes taking the fruits, fleshy foods (fish, chicken, meat, egg) and rarely took dry fruits/ Nuts. In very few cases the family members noticed the stunting growth of their children due to lack of nutrition. It was observed during interview that the frequency of taking fleshy foods was somewhat increased as compared to the frequency of taking these food items before migration of their family member.

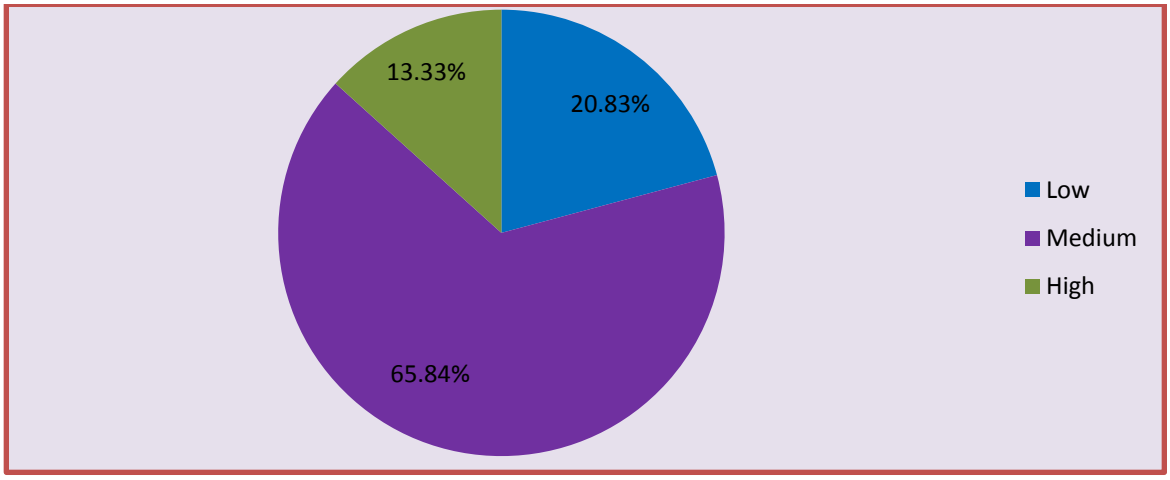

Figure 4.26. Distribution of respondents according to their opinion on consequences of migration on nutritional security

It was also observed during the study that all of the migrants thought that their decision to migrate was right, given the situation in their villages. They were of the opinion that, in a similar situation, people should migrate to other places. It is clear from the Table 4.27 and Figure 4.27 that majority of the respondents had low opinion on consequences of migration on agriculture and biodiversity, medium opinion on consequences of migration on women empowerment and nutritional security and high opinion on consequences of migration on food security.

The probable reason for their low opinion on agriculture and biodiversity might be their tendency of not spending remittances on agriculture and other farm enterprises. Medium opinion on women empowerment might be due to the fact that farm and family was managed both by the parents of migrant and women, hence medium opinion on women

empowerment was obtained. The probable reason for high food security might be due to the fact that they utilized the remittances primarily on purchasing and consuming food items.

Table 4.27. Distribution of respondents according to their opinion on consequences of Migration (category wise)

(N=120)

Category	Agriculture		Women empowerment		Biodiversity		Food security		Nuritional security	
	n	%	n	%	n	%	n	%	n	%
Low	86	71.67	20	16.67	96	80	9	7.5	25	20.83
Medium	28	23.33	74	61.67	14	11.67	20	16.67	79	65.84
High	6	5	26	21.66	10	8.33	91	75.83	16	13.33
Total	120	100	120	100	120	100	120	100	120	100

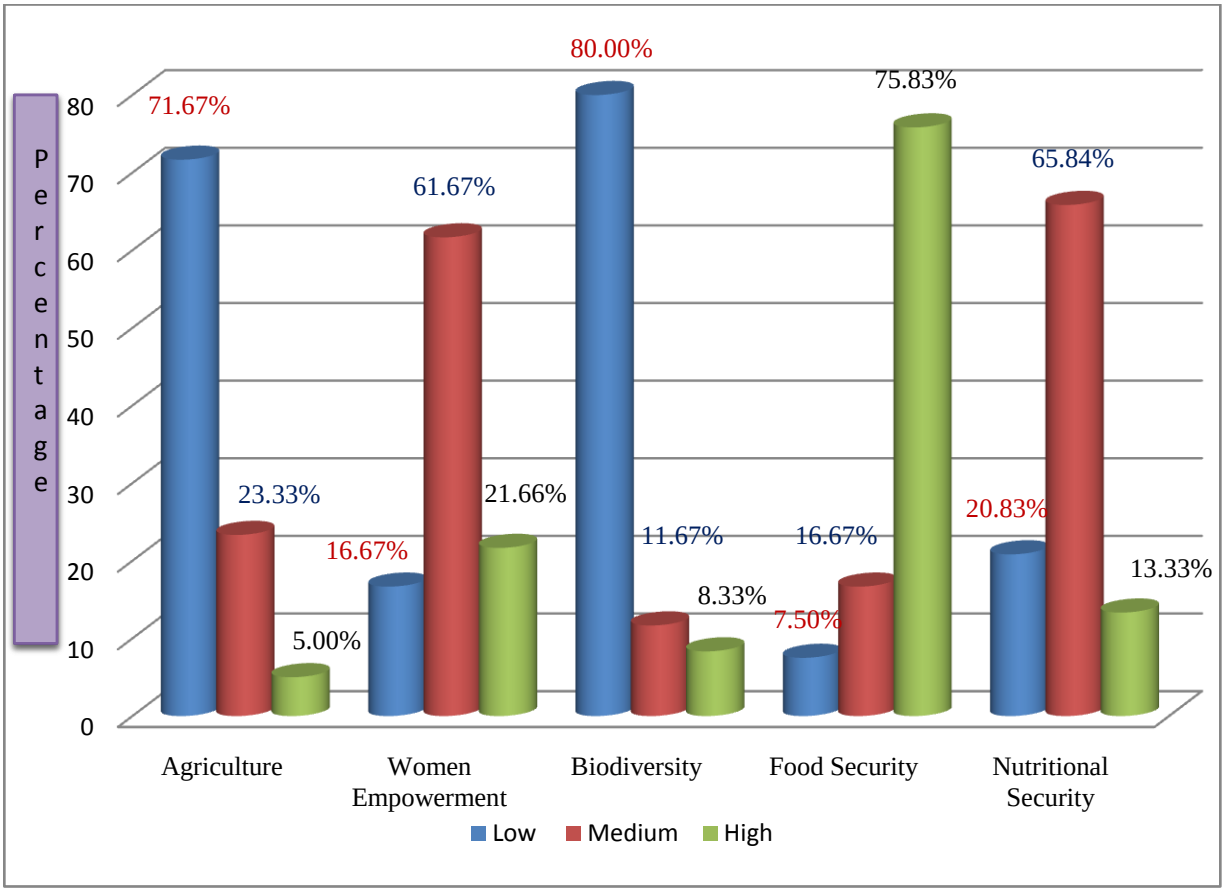

Figure 4.27. Distribution of respondents according to their opinion on consequences of Migration(category wise)

4.4 Amount of remittances and their purpose of utilization:

4.4.1 Amount of Remittances earned per month:

It could be inferred from the Table 4.28 and Figure 4.28 that more than half (56.67%) of the respondents were earning low remittance in the range of Rs 5,000-15,000 followed by very low (20.83%) %) remittances upto Rs 5,000, medium (10.83%) in the range of Rs 15,000-25,000, high (7.5%) remittances in the range of 25,000-35,000 and very high (4.17%) earned remittances in the range of 35,000-45,000 per month.

Table 4.28. Distribution of respondents according to the amount of remittances earned per month

(N=120)

Category	Frequency	Percentage (%)
Very low (Upto Rs 5,000)	25	20.83
Low (Rs 5,000-15,000)	68	56.67
Medium (Rs 15,000-25,000)	13	10.83
High (Rs 25,000-35,000)	9	7.50
Very high (>Rs 35,000)	5	4.17

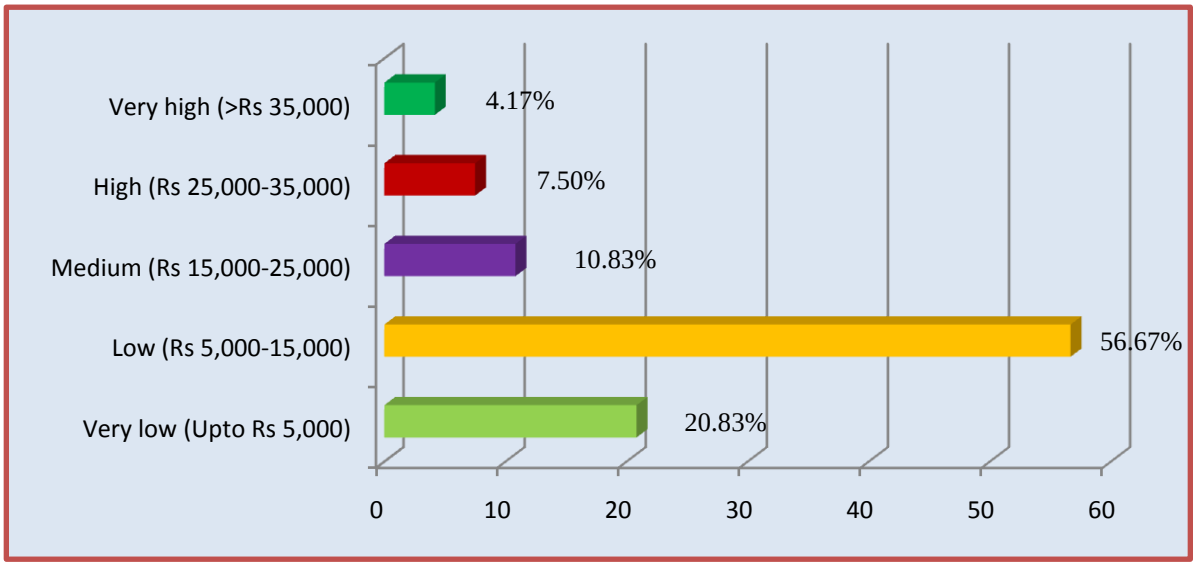

Figure 4.28. Distribution of respondents according to the amount of remittances earned per month

Remittances earned due to migration are increasingly becoming the most direct, immediate and significant contribution to the livelihoods of the poor people of the hilly areas. Majority of the migrants worked as waiters in hotel and restaurants, assistant in small shops, drivers of govt. and private vehicles, security guards and getting low remittances.

Some of the respondents were engaged in weaving, carrying load on Thellas, brick making, laundry works, auto drivers, rickshaw pullers, construction workers in govt. and private buildings, etc. that earned very low wages. Some of the migrants who worked as middle men, clerks, estate agents etc. got medium remittances. Very few of them with high education did permanent jobs like teachers in public or private schools, technical jobs in corporate sectors, junior engineer in Government agencies etc. that yielded high and very high remittances.

4.4.2 Purpose of utilization:

The Table 4.29 and Figure 4.29 indicated the different purposes of utilization of the remittances earned by the family of migrant, however the whole amount of remittance was not totally utilized by the family of the migrants, some portion was kept as savings for future use by most of the respondents (50.83%). Majority of the respondents (more than 50 per cent) had utilized the remittances for their children's education (94.16%), followed by purchase of food (90.83%), house construction (89.16%), purchase of household goods (87.5%), health care (81.67%), and clearing of debts (65.83%). Less than half of the migrants utilized remittances for purchase of farm inputs (fertilizers, pesticides, seeds, implements) (39.16%), purchase and maintenance of cattle / poultry etc. (35.83%) and for hiring farm labour (26.67%).

Majority of the respondents spent remittance money on their children's education. They sent their children outside the village for higher education and most of their children stay in urban areas only so the migrants had to spend more money to meet out their expenses. The remittances were also utilized for purchasing food items and household goods, house construction and purchasing household goods to increase their status of living. It was also observed during interview that half of the migrants also saved some portion of remittances for future use, this reflected that the family of migrants had received surplus income after meeting their family requirements. They also used the remittances for health care and to clear off their debts which they took previously for different reasons. It was also noticed during study that very few of the migrant families had took debts after the migration of migrants. Very few of the family members of the migrants used remittances for agricultural purposes and hiring farm labour because they got enough money to fulfill their dietary need. Agriculture in hilly areas does not provide food throughout the year and is also non remunerative so they preferred to save the money for future use instead of

spending for agricultural purposes.The same result was generated by Afsar (2003), Katz (2003), Sander (2003) and Chandan (2006).

Table 4.29. Distribution of respondents according to the purpose of utilization of remittances

(N=120)

S.No.	Purpose of utilization	Frequency	Percentage (%)
1.	Purchase of Food	109	90.83
2.	Children education	113	94.16
3.	Purchase of farm inputs (fertilizers, pesticides, seeds, implements)	47	39.16
4.	Hiring farm labour	32	26.67
5.	Health care	98	81.67
6.	House construction	107	89.16
7.	Purchase of household goods	105	87.5
8.	Clearing of debts	79	65.83
9.	Purchase and maintenance of cattle / poultry etc.	43	35.83
10	Saving for future	61	50.83

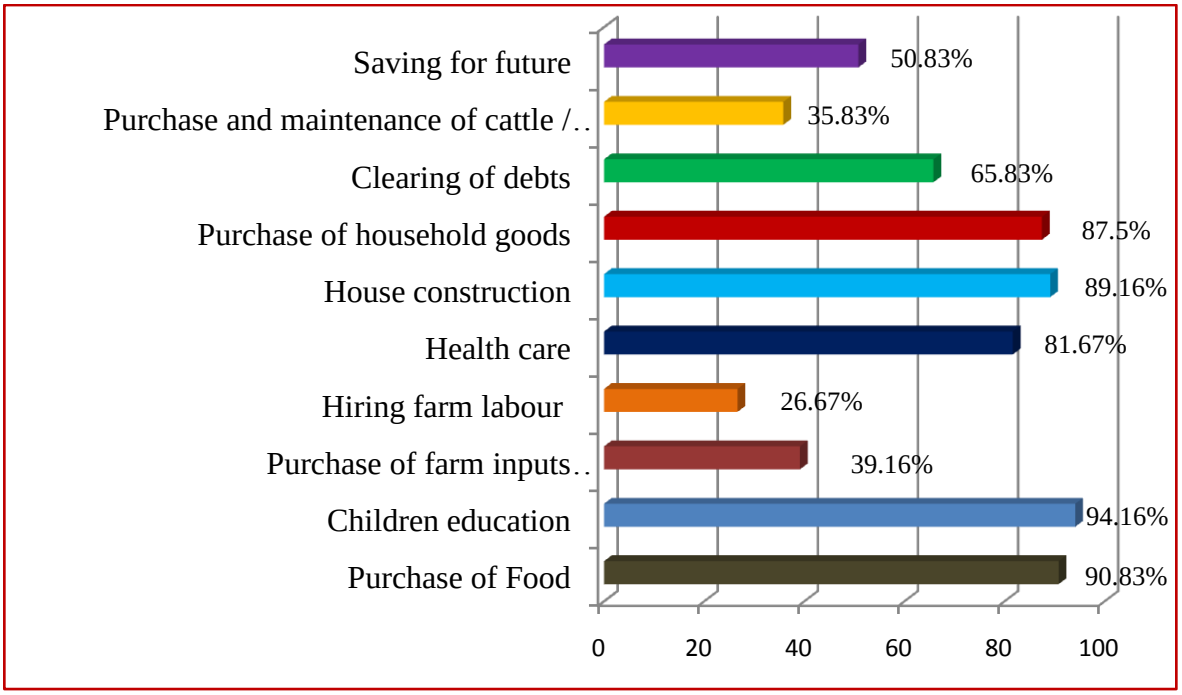

Figure 4.29. Distribution of respondents according to the purpose of utilization of remittances

4.5 Relationship between profile characteristics and perception on determinants of migration

In order to study the relationship of profile characteristics of migrants with perception on push and pull determinants of migration, the correlation coefficient values ('r') were computed and the values are presented in the Table 4.30. The relationship of profile characteristics with push and pull determinants of migration were tested with relevance to Null hypothesis and Empirical hypothesis.

4.5.1 Relationship between profile characteristics and perception on push determinants of migration:

The relationships between profile characteristics of migrants and perception on push determinants were tested with relevance to null and empirical hypothesis.

Null hypothesis: There will be no significant relationship between perception on push determinants of migration and profile characteristics and both of these are independent.

Empirical hypothesis: There will be significant relationship between perception on push determinants of migration and profile characteristics and both of these are dependent.

It is revealed from the Table 4.30 that, the calculated 'r' values between push determinants of migration and profile characteristics like age, education, credit availability, family size, annual family income, family debts, number of migrants in the family, number of occupations, purpose of migration, amount of remittances, survival strategies adopted before migration, economic motivation and risk orientation is greater than table 'r' value at 1 per cent level of probability. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it can be concluded that there was significant relationship between above characteristics and push determinants of migration.

On the other hand the calculated 'r' values between push determinants of migration and farm resources, duration of migration and pattern of migration were less than table 'r' value. Hence null hypothesis was accepted and empirical hypothesis was rejected for these variables. Therefore, it can be concluded that there was no significant relationship between above profile characteristics and push determinants of migration.

Table 4.30. Relationship between the profile characteristics and push determinants of migration

S.No.	Independent Variable	Correlation coefficient 'r' values
1	Age	-0.875**
2	Education	0.724**
3	Credit availability	-0.448**
4	Family size	0.583**
5	Annual family income	0.544**
6	Family debts	0.692**
7	Number of migrants in the family	0.372**
8	Number of occupations	-0.422**
9	Farm resources	0.152(NS)
10	Purpose of migration	-0.384**
11	Duration of migration	0.091 (NS)
12	Pattern of migration	0.001 (NS)
13	Amount of remittances	0.521**
14	Survival strategies adopted before migration	-0.497**
15	Economic motivation	0.549**
16	Risk orientation	0.576**

* Significant at 5 per cent level of probability

** Significant at 1 per cent level of probability NS - Non significant

'r' tab value at 1% level of probability = 0.20972

'r' tab value at 5% level of probability = 0.16032

There is positive and significant relationship between push determinants of migration and profile characteristics like education, family size, annual family income, family debts, number of migrants in the family, amount of remittances, economic motivation and risk orientation.

Education has a direct bearing on perception on push determinants. As the respondents are getting higher education their perception on push determinants was increasing, because of the fact that according to their educational qualification they were not getting the required employment and wages in the villages so they prefer to migrate to the places of better employment and high wages. Hence a positive and significant relationship appeared in the study. Similar results were reported by deBrauw *et al.* (2002), Zhu (2002) and Singh *et al.* (2011).

The family size also has direct relationship with their perception on push determinants as the number of family members increased, to meet the requirements of a big

family, they had more need of money and thus for migration, so their perception is positive. Similar findings were reported by deBrauw *et al.* (2002), Singh *et al.* (2011) and Suman (2013).

Inspite of higher annual income, respondents perception on push determinants of migration was positive, this indicated the intensity of problems faced by respondents in their villages. Also higher remittances earned by migrants might have increased their annual income. Hence the severity of problems existing in their villages coupled with attracting features of urban areas, might have produced this result. This is in line with findings of Edward *et al.* (2003) and Suman (2013).

The migrants were not able to clear off their family debts if they had stayed back in the villages. They were paying back their debts using the remittances earned during migration, so it had positive bearing on perception on push determinants of migration. Similar findings were reported by Debasis and Pravat (2013).

As the number of the migrant members in a family increased, perception on push determinants was found to increased, which might be due to the fact that migrants were getting good remittances and education opportunities. These findings are same as those reported by Priya and Daniel (2003).

The remittances earned due to migration were utilized for different purposes by the families of the migrants, as the amount of these remittances increased it facilitated the family to overcome the problems they were facing in villages so perception on push determinants of migration was found to be positively correlated with amount of remittances.

All of the migrants indicated lack of employment opportunities in the villages as main push determinant of migration, so it was clear that the migrants had financial problems and as these problems increased they were economically motivated to take the decision of migration to other places, hence positive correlation appeared between economic motivation and perception on push determinants.

There were so many risks like adjusting to the new area, getting good jobs, higher wages and regular income *etc.* when a migrant took the decision to migrate. The more the risk orientation of a migrant, the more is his perception on towards push determinants of migration. Hence this result might have appeared in the study.

On the other hand there is negative and significant relationship between push determinants of migration and profile characteristics like age, credit availability, number of occupations, purpose of migration and survival strategies adopted before migration.

As the age of respondents increased their perception on push determinants of migration decreased because of the fact that young people were facing more employment and education related problems in the villages as compared to older people. Also they did not want to engage in agricultural work as the older ones were doing, they perceived agriculture as non remunerative occupation, so age has negative relation with perception on push determinants of migration. Similar results were obtained by deBrauw *et al.* (2002), Mishra and Parul (2012), Pankaj and Belwal (2013) and Suman (2013).

The credit sources in the studied area were providing the required financial assistance to the family in case of shortage of money and as the credit availability increased in the villages the need for migration decreased, so a negative correlation appeared between credit availability and push determinants of migration.

The family members were engaged in some occupations in the village either seasonally or permanently, when more are the number of occupations of a family, the migrant felt less need to migrate out of the village. It is quite logical that engagement of family members in different occupations will reduce the financial risk for the family. Hence this result might have appeared in the study.

The respondents who perceived more on push determinants migrated to urban areas for the purpose of non agriculture work as it is fetching them with more remittances than agricultural work. Hence this result appeared in the study.

The families that faced the financial problems adopted some survival strategies and could overcome the problems. As they adopted more survival strategies, no one in the family was taking decision to migrate out of the village, so has negative relationship with perception on push determinants of migration. Hence the negative relationship between perception on push determinants and survival strategies adopted before migration indicated clearly that the more the survival strategies adopted, the less is the perception towards migration.

4.5.2 Relationship between profile characteristics and perception on pull determinants of migration:

The relationship between profile characteristics of migrants and perception on pull determinants were tested by relevant null and empirical hypothesis.

Null hypothesis: There will be no significant relationship between perception on pull determinants of migration and profile characteristics of respondents and both of these are independent.

Empirical hypothesis: There will be significant relationship between perception on pull determinants of migration and profile characteristics of respondents and both of these are dependent.

Table 4.31. Relationship between the profile characteristics and pull determinants of migration

S.No.	Independent Variable	Correlation coefficient 'r' values
1	Age	-0.828**
2	Education	0.680**
3	Credit availability	-0.379**
4	Family size	0.489**
5	Annual family income	0.618**
6	Family debts	0.671**
7	Number of migrants in the family	0.484**
8	Number of occupations	-0.338**
9	Farm resources	0.078(NS)
10	Purpose of migration	0.205*
11	Duration of migration	0.128 (NS)
12	Pattern of migration	0.065 (NS)
13	Amount of remittances	0.437**
14	Survival strategies adopted before migration	-0.349**
15	Economic motivation	0.606**
16	Risk orientation	0.505**

* Significant at 5 per cent level of probability

** Significant at 1 per cent level of probability NS - Non significant

'r' tab value at 1% level of probability = 0.20972

'r' tab value at 5% level of probability = 0.16032

It is clear from the Table 4.31 that, the calculated ‘r’ values between pull determinants of migration and purpose of migration were greater than ‘r’ table value at 5 per cent level of probability, where as the calculated ‘r’ value is greater than ‘r’ table value at 1 per cent level of probability in case of age, education, credit availability, family size, annual family income, family debts, number of migrants in the family, number of occupations, amount of remittances, survival strategies adopted before migration, economic motivation and risk orientation. Hence, null hypothesis was rejected and empirical hypothesis was accepted for these variables. Therefore, it can be concluded that there was significant relationship between above characteristics and pull determinants of migration.

The calculated ‘r’ values between pull determinants of migration and farm resources, duration of migration and purpose of migration were less than ‘r’ table value. Hence null hypothesis is accepted and empirical hypothesis was rejected. Therefore, it can be concluded that there was no significant relationship between above characteristics and pull determinants of migration.

There is positive and significant relationship between pull determinants of migration and profile characteristics like education, family size, annual family income, family debts, number of migrants in the family, purpose of migration, amount of remittances, economic motivation and risk orientation.

The higher educational qualifications of the migrants attracted them to the destination areas as there were good opportunities for employment and still higher education in the these areas, so there is positive relationship found between education and perception on pull determinants of migration.

As the family size increased the migrants were more attracted to the destination areas due to financial problems in their family and attracting features of urban areas.

The annual family income might have increased due to the remittances earned by the migrants in the migrated places. As they got higher income as compared to villages due to migration, then were more attracted to those places of getting higher income.

As the family debts increased the migrants were more attracted to the destination areas, so that they could clear off their debt which was difficult if they had stayed in the villages, hence a positive correlation appeared between these two variables.

If one member was getting more educational and employment opportunities in the family after he/she has migrated out of the village, the other family member were also willing to migrate to the same place, so positive correlation appeared between the number of migrants in the family and their perception on pull determinants of migration.

The migrants were interested in doing the non agricultural work as the returns were high, hence more are the non agricultural works, and higher is their perception on pull determinants of migration.

The increased amount of remittances also increased the attraction of migrants to the destination areas. These remittances fulfilled the needs of their family and they were not willing to leave the jobs and come back to the villages.

The higher the respondent is economically motivated, the more the pull determinants he perceived in the urban areas. Hence a positive and significant correlation appeared between these two variables.

More the risk orientation of migrants, more they were attracted to the destination areas as they were mentally prepared to face the problems in the destination area.

The other profile characteristics of the migrants like age, credit availability, number of occupations and survival strategies adopted before migration were negatively correlated with perception on pull determinants.

The young people of the villages were more attracted to the other areas of higher prosperity, as there will be more scope for their personal and future development, so as the age increased their attraction to these areas decreased.

The increased credit availability in the rural areas provided the option for the family to get money when they needed, so there is no need to migrate in search of money. Hence negative correlation appeared in the study.

As the number of occupations has increased for the family, the family members were economically strong enough to meet out their family requirements, so the members of the family were not migrating to other places.

The survival strategies adopted facilitated the family to overcome the economic crisis, hence more are the strategies adopted, lesser perception on pull determinants of migration was perceived by migrants.

4.5.3. Multiple Linear Regression analysis for push and pull determinants of migration

To show the functional relationship between one dependent variable to another independent variable, multiple regression approach is very useful tool.

4.5.3.1 Multiple Linear Regression analysis for push determinants of migration:

Table.4.32. Multiple linear regression analysis of the selected independent variables with the perception of migrants on push determinants of migration

S.No.	Independent variables	Partial regression coefficient values (b)	Computed 't' values
1	X_1 Age	-0.077	$-2.054^{(NS)}$
2	X_2 Education	0.466	3.628**
3	X_3 Credit availability	-0.542	$-2.411^{(NS)}$
4	X_4 Family size	0.425	2.562**
5	X_5 Annual family income	0.723	2.480**
6	X_6 Family debts	0.365	4.662**
7	X_7 Number of migrants in the family	1.012	3.048**
8	X_8 Number of occupations	2.436	2.436*
9	X_9 Farm resources	-0.1110	$-0.8369^{(NS)}$
10	X_{10} Purpose of migration	0.135	2.416*
11	X_{11} Duration of migration	0.734	$1.7062^{(NS)}$
12	X_{12} Pattern of migration	0.108	$1.258^{(NS)}$
13	X_{13} Amount of remittances	0.9421	4.1387**
14	X_{14} Survival strategies adopted before migrating	-0.675	$-2.584^{(NS)}$
15	X_{15} Economic motivation	0.686	$1.777^{(NS)}$
16	X_{16} Risk orientation	0.276	$1.660^{(NS)}$

* Significant at 5 per cent level of probability $R^2 = 0.890$ F = 31.910**

** Significant at 1 per cent level of probability NS = Non Significant

't' value at 1% level of probability = 2.58 't' value at 5% level of probability = 1.96

Table 4.32 indicated that the coefficient of determination R^2 value was significant as the "F" value was significant at 0.01 level of probability. The significance of "F" value

suggest the desirability of analyzing the partial regression coefficients (b values) resulting from regression analysis. The R^2 value of 0.890 indicated that all the selected 16 independent variables put together explained about 89.00 per cent variation in perception of migrants on push determinants of migration. Thus it could be concluded that the independent variables selected to a large extent explained the variation in perception on push determinants of migration. In other words the variables included in the study were relevant to the problem selected.

The partial regression coefficient values presented in Table 4.32 further revealed that the independent variables i.e. X_2 (education), X_4 (family size), X_5 (annual family income), X_6 (family debts), X_7 (number of migrants in the family) and X_{13} (amount of remittances) were found to be positively significant at 0.01 level of probability, whereas X_8 (number of occupations) and X_{10} (purpose of migration) were found to be positively significant at 0.05 level of probability as evident from their significant 't' values.

As the independent variable education, family size, annual family income, family debts, number of migrants in the family and amount of remittances, number of occupations and purpose of migration changed the perception on push determinants of migration also changed in porportion.

4.5.3.2 Multiple Linear Regression analysis for pull determinants of migration:

Table 4.33 indicated that the coefficient of determination R^2 value was significant as the "F" value was significant at 0.01 level of probability. The significance of "F" value suggest the desirability of analyzing the partial regression coefficients (b values) resulting from regression analysis. The R^2 value of 0.778 indicates that all the selected 16 independent variables put together explained about 77.80 per cent variation in perception of migrants on pull determinants of migration. Thus it could be concluded that the independent variables selected to a large extent explained the variation in perception on push determinants of migration. In other words the variables included in the study were relevant to the problem selected.

The partial regression coefficient values presented in Table 4.33 further revealed that the independent variables i.e. X_5 (annual family income), X_6 (family debts), X_8 (number of occupations), X_{10} (purpose of migration), X_{15} (economic motivation) and X_{16}

(risk orientation) were found to be positively significant at 0.01 level of probability whereas X_2 (education) found to be positively significant at 0.05 level of probability as evident from their significant't' values. As these independent variables changed, change in perception on pull determinants of migration was also observed.

Table.4.33. Multiple linear regression analysis of the selected independent variables with the perception of migrants on push determinants of migration

S.No.	Independent variables	Partial regression coefficient values (b)	Computed 't' values
1	X_1 Age	-0.041	$-0.957^{(NS)}$
2	X_2 Education	0.353	2.415*
3	X_3 Credit availability	-0.452	$-1.770^{(NS)}$
4	X_4 Family size	0.144	$0.762^{(NS)}$
5	X_5 Annual family income	0.507	4.513**
6	X_6 Family debts	0.331	3.726**
7	X_7 Number of migrants in the family	-0.336	$-0.892^{(NS)}$
8	X_8 Number of occupations	1.995	3.366**
9	X_9 Farm resources	-0.067	$-0.851^{(NS)}$
10	X_{10} Purpose of migration	0.8557	2.1074*
11	X_{11} Duration of migration	-0.082	$-0.986^{(NS)}$
12	X_{12} Pattern of migration	0.740	$1.550^{(NS)}$
13	X_{13} Amount of remittances	0.134	$1.318^{(NS)}$
14	X_{14} Survival strategies adopted before migrating	-0.431	$-1.453^{(NS)}$
15	X_{15} Economic motivation	0.3599	4.8954**
16	X_{16} Risk orientation	0.8941	2.7248**

* Significant at 5 per cent level of probability $R^2 = 0.778$ F = 22.595**

** Significant at 1 per cent level of probability NS = Non Significant

't' value at 1% level of probability = 2.58 't' value at 5% level of probability = 1.96

4.6 Strategy for reducing out migration

4.6.1 Suggestions to Government to reduce out migration by encouraging Eco-tourism

1) Serious efforts should be made to make the study area an ecotourism site as spectacular scenic views of nature will attract the tourists.

2) Rural people should be motivated to provide homestay facilities to local and foreign tourists.
3) Financial aid in the form of special loans should be extended to rural people to renovate their houses so as to make them as convenient homestays for tourists.
4) Loan should be given to rural youth to purchase vehicles like cars or jeeps or buses for tourism purpose.
5) Tourism department should take steps to train the rural people as guides for tourists, train them on hospitality, hygiene, cleanliness *etc.*
6) Government should take initiative for construction of wider roads and extend the railway lines to the ecotourism areas by including the labour oriented construction works under MGNREGA.
7) Loans should be extended to rural youths for establishment of medical shops, internet cafes, vehicle repair shops, petrol bunks, provisional stores *etc.*
8) Government should help in providing computers with internet facility to all the hosting families of ecotourist villages.

These efforts will certainly improve income levels of rural people and reduce migration. The surplus money can be reinvested in agriculture.

4.6.2 Suggestions to Government to reduce out migration by improving Agricultural productivity in hills

1) Forest department should take steps on afforestration to prevent the menance of wild animals like monkeys and wild boars for the field and orchard crops.
2) Government should extend subsidies on loans for micro irrigation like drip in field and orchard crops suitable for rainfed slopy hills.
3) Provide fund for establishing new cottage industries in the villages like carpet making, handlooms and crafts making, pickle, jam and jelly making through financial institutions.
4) Fund for research to SAU for development of suitable farm machinery, integrated farming system, high yielding varieties suitable for organic farming in hill slopes.
5) Government should extend loan for starting of small scale agro based industries like bakery industry, mushroom cultivation and value addition, floriculture production *etc.*

6) Government should take steps to establish more than one KVK for each district as the coverage area of existing KVKs is very large, which hinders their activity in rural areas.

4.6.3 Suggestions for State Agriculture University (GBPUAT, Pantnagar, Uttarakhand)

4.6.3.1 Research

1) Research and development of improved high yielding crop varieties suitable for organic farming, which can be grown well in high altitude, low fertile soil and rainfed conditions of study area.
2) Associated improved crop and resource management practices to increase cropping intensity, productivity and income, and diversify livelihoods should be researched.
3) There is need to develop suitable light weight agricultural implements and machinery to increase the mechanization of agriculture in high hills of the state to reduce the workload of farmers especially farm women who are majorly engaged in almost all laborious farm activities.
4) Research on various diversified farming systems based on the locality should be done as most of the farmer had included only dairy units along with the agriculture.
5) Research on organic farming practices for export oriented production.
6) Research on low volume, high value crops like spices, fruits, forestry should be done, so that the farmers can generate additional income along with cultivation of agricultural field crops.
7) Research on millet crops which are suitable for hilly areas should be done.
8) Research should be done on medicinal herbs which can be cultivated in hilly areas as these herbs can contribute as an important source of income to the farmers of hills.

4.6.3.2 Extension

1) The SAU should provide the required extension services to the rural areas by using the ICTs tools to empower the rural farmers with knowledge and information regarding new improved and developed agricultural practices and technologies to encourage their engagement in agriculture sector.

2) Diversified enterprises, organic farming practices, high yielding varieties, farm machinery *etc*. proven in research should be extended to farmer fields through demonstrations, exposure visits and use of ICTs.
3) As there is very less research done on the issue of migration of local people and its consequences on agriculture, SAU should encourage the post graduate extension students to take migration as their problem for research and explore more facts and reasons for migration and propose a suitable strategy to reduce it.
4) Arrange visits for farmers, women and rural youth to the areas of greater prosperity where SAU has done significant efforts to help farmers in generating more income through proper resource utilization, so that they can develop their trust on the extension personnel of SAU and understand and adopt the practices followed in the villages they visit.
5) Low volume, high value crops are to be introduced to farmers through demonstrations or exposure visits.
6) Multiple options such as vocational training, increasing information flows regarding rural investment opportunities, the provision of loans from financial institutions, developing market linkages for selected farm and non-farm products and services need to be explored by KVKs and Non-governmental organizations and agencies.
7) The KVKs should focus on development of entrepreneurial competence of rural youth by providing them vocational training, this would definitely enhance the interest of the rural youth in self employment and their investment in productive activities that can generate a return, while staying in the villages only as opposed to moving out of the villages for employment in other non farm sector.
8) Every farmer should be made aware of the possible consequences of migration on the places of origin and inculcate the habit of learning lessons on generating the income by their own efforts from their acquired information and knowledge base, skills and training.

4.6.4 Suggestions for Non Governmental Organisations (NGOs)

1) The NGOs should come forward to work in rural areas for the development of these areas as there are very few NGOs like HESCO working in rural hilly areas.

2) Organization of training programmes, demonstrations on use and importance of improved agricultural practices and technology to encourage the involvement of youth in agriculture.
3) NGOs should identify the innovative farmers in the villages, motivate and help them to develop location specific farm machineries and implements (farmer innovations) which can help the farm men and women to perform the agricultural work with less physical efforts.
4) NGOs should take steps in constitution of a committee comprising of farmers, NGO officials, Government officials, financial institution officials and local leaders for development of the working plans to solve the employment related problems in the area.
5) Majority of the respondents do not use chemical fertilizers in their field, instead of this they utilize the manure generated from their livestock to improve the fertility status of their soil but in a unscientific way, they were decomposing it in open places so most of the nutrients from the manure was getting lost in open condition, therefore the extension personnel should educate farmers on scientific methods of manure production.
6) The farmer should be trained to imbibe the spirit of group dynamics, team spirit, thrust and saving to participate in the self help groups to acquire needed financial support.
7) The NGOs should transfer the new technologies developed on production of millets and medicinal herbs to the farmers.
8) NGOs should guide the rural farmers on group strengthening, group production and group marketing of organic produce at premium prices.

Strategy to reduce out migration from hilly areas of Uttarakhand

As Almora district of Uttarakhand is a tourist place, the current burning problem of migration from the study area can be overcome to a major extent through the venture of ecotourism. Government should take serious steps through tourism department and NGOs and motivate rural people to provide homestay facilities for tourists. Also government should aid for rural youth for establishment of hotels, petrol bunks and medical shops for promoting tourism. State government should make efforts to improve road, railway lines

and other communication facilities to eco-tourist villages. Government through forestry department should focus on afforestration and also focus on establishment and maintenance of medicinal plants. These efforts will certainly reduce migration of rural youth from hilly areas as they find ample employment opportunities in their native villages itself. The income generated by rural people through hosting tourists can be reinvested in Agriculture. State Agricultural University should focus research and extension on organic farming, development of light weight implements, diversified enterprises suitable for hills, low volume and high value crops, nutritious recipes from organic farm products and mushroom cultivation.

In addition to transfer of proven technologies, extension agencies should also focus on group formation and group marketing for farm and nonfarm produce generated in the villages. They should try to link major farm produce and nonfarm produce to private marketing people. These measures will improve agricultural productivity of the study area and ultimately reduces out migration.

4.3 EMPIRICAL MODEL OF THE STUDY

The conceptual model formulated (Fig.2.1) for this research study was tested and based on the results an empirical model was developed and is presented in Figure 4.30.

This model was hopefully conceived to give an objective assessment of push and pull determinants of migration. This model was tested with the help of correlation analysis to find out the relationship between independent and dependent variables.

Both push and pull determinants of migration were positively and significantly related to education, family size, annual family income, family debts, number of migrants in the family, amount of remittances, economic motivation and risk orientation.

Further push and pull determinants of migration were found to be negatively and significantly related with age, credit availability, number of occupations, and survival strategies adopted before migration. Purpose of migration was positively and significantly related with pull determinants of migration and negatively and significantly related with push determinants of migration.

Push and pull determinants of migration were not significantly related with farm resources, duration of migration and pattern of migration.

Plate1. Data Collection of the study

Figure 4.13. Pattern of Migration paths from the study area

	Lines showing Intra-state migration
	Lines showing Inter-state migration

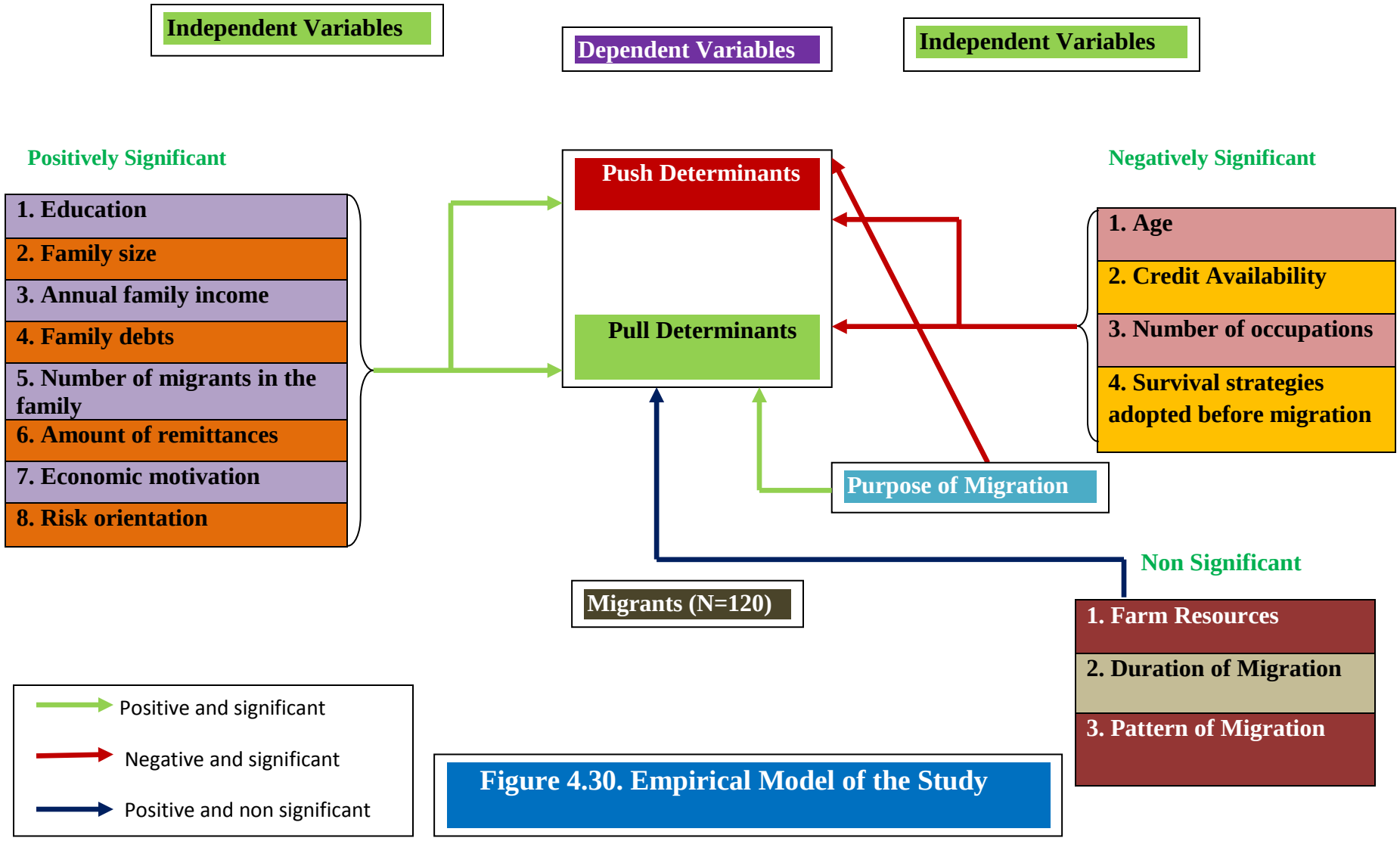

Figure 4.30. Empirical Model of the Study

Chapter V

SUMMARY AND CONCLUSION

The phenomenon of migration has gained global importance in recent years, as more number of people are leaving their place of origin and moving to other places in search of better living options, nationally and internationally. Migration from the mountains of Uttarakhand to the other places is an age old practice and has its own importance in life of the mountain people. The people who reside in these mountainous regions of the state have always been on move to secure their livelihoods against hunger and poverty. Migration has been used by the rural people as survival strategy to cope up with the employment and financial problems.

The state is increasingly facing the problem of inter-district and inter-state migration of the youths from the rural areas to urban areas. This is changing the population distribution between rural and urban areas. The rural areas are facing the problem of decreasing agricultural production as they are constantly losing their valuable human assets to urban areas. In addition to this problem, agriculture is also being neglected as it has become non remunerative due to harsh climate, poor irrigation and soils.

Hence, keeping in view of this alarming situation of increasing trend of migration and its ill effects on agriculture and deficit of studies related to the magnitude and importance of the issue, the current study is the modest conscious attempt by the investigator to unearth the possible push and pull determinants of migration as perceived by migrants and the consequences of migration on the place of origin and to suggest a suitable strategy to reduce the rural out migration of the rural people.

5.1 OBJECTIVES OF THE STUDY

1. To study the profile characteristics of the migrant respondents
2. To find out the respondents perception on the determinants (push and pull determinants) compelling them for out migration in the context of changing agrarian scenario.
3. To find out the consequences of migration on Agriculture, food and nutritional security, biodiversity and women empowerment as opined by respondents.

4. To determine the amount of remittances made by the respondents and their purpose of utilization.
5. To find out the relationship between profile characteristics and determinants of migration.
6. To evolve a suitable strategy for reducing out migration based on the suggestions of stakeholders.

5.2 RESEARCH DESIGN

Ex post facto research design was followed for carrying out the study.

5.3 SAMPLING PROCEDURE

The State of Uttarakhand was selected purposively for the study as the investigator hails from the state. Almora district was selected purposively for the study as migration is occurring at a higher rate in this district. Block wise data on migrants was collected and out of 11 blocks of the district, two blocks where migration rate was high were selected purposively. The two selected blocks are Dwarahat and Chaukhutia. Two villages from each selected block having highest number of migrants were selected puposively. Thus a total of four villages were selected for the study. The villages selected were Barati and Kaney villages from Dwarahat block and Gangolihat and Seemapali from Chaukhutia block. From each selected village, 30 migrants were selected as respondents at random thus making a sample of 120 respondents for the study.

5.3 VARIABLES AND THEIR EMPIRICAL MEASUREMENT

5.3.1 Dependent variables

Perception on determinants of migration and opinion on consequences of migration were the dependent variables of the study.

5.3.2 Independent variables

The independent variables selected for this study were age, education, credit availability, family size, annual family income, family debts, number of migrants in the family, number of occupations, farm resources, purpose of migration, duration of migration, pattern of

migration, amount of remittances and their purpose of utilization, economic motivation and risk orientation.

5.4 COLLECTION OF DATA

Data were collected from the selected respondents by using the interview schedule developed for the study and tabulated the data by employing appropriate statistical methods. The secondary data was collected from the census report of 2001 and 2011 and from different annual reports prepared by the state government and related agencies.

5.5 MAJOR FINDINGS OF THE STUDY

5.5.1 Profile characteristics of migrants

The findings with regard to the selected profile characteristics of the respondents indicate that majority (64.17%) of the respondents were below 25 years of age, 30.84 per cent had education upto intermediate. Majority (44.16%) of the respondents used cooperative societies as source of credit, had medium family size (55%), had low annual income (56.66%), had medium family debts (57.50%), had one migrant in the family (73.33%), had two numbers of occupations (57.50%) and medium level of farm resources (64.16%). Majority of the respondents migrated for non agricultural purposes (85.84%), migrated for medium term (69.16%) and pattern of migration is from rural areas to urban areas (77.5%) Majority of respondents had adopted medium level of survival strategies before migration (76.67%), had medium level of economic motivation (61.67%) and medium level of risk orientation (61.67%).

5.5.2 Perception of migrants on determinants (push and pull determinants) of out migration

Majority of the migrants had high level of perception on push determinants of migration (64.16%) and medium level of perception for pull determinants of migration (59.16%).

5.5.3 Opinion on consequences of migration

Majority of the migrants had low opinion about consequences of migration on agriculture (71.67%), medium opinion about consequences of migration on women empowerment (61.67%), low opinion about consequences of migration on biodiversity (80%), had often food security (75.83%) and medium opinion about consequences of migration on nutritional security (65.84%).

5.5.4 Amount of remittances and their purpose of utilization

More than half (56.67%) of the respondents were earning low remittance in the range of Rs 5,000-15,000 followed by very low (20.83%) %) remittances upto Rs 5,000, medium (10.83%) in the range of Rs 15,000-25,000, high (7.5%) remittances in the range of 25,000-35,000 and very high (4.17%) earned remittances in the range of 35,000-45,000 per month. Majority (94.16%) of the respondents had utilized the remittances for their children's education, followed by purchase of food (90.83%), house construction (89.16%), purchase of household goods (87.5%), health care (81.67%), and clearing of debts (65.83%). Less than half of the migrants utilized remittances for purchase of farm inputs (fertilizers, pesticides, seeds, and implements) (39.16%), purchase and maintenance of cattle / poultry etc. (35.83%) and for hiring farm labour (26.67%). 50.83 per cent of the migrants had kept some portion of the remittances for their future use.

5.5.5 Relationship between profile characteristics and perception on determinants of migration

The independent variables like education, family size, annual family income, family debts, number of migrants in the family, amount of remittances, economic motivation and risk orientation were positively and significantly related with push and pull determinants of migration. The independent variables like age, credit availability, number of occupations and survival strategies adopted before migrating were negatively and significantly related with migration. The independent variable purpose of migration was positively and significantly related with pull determinants of migration and negatively and significantly related with push determinants of migration. The independent variables like farm resources,

duration of migration and pattern of migration have shown positive and non significant relationship with migration.

In multiple linear regression analysis the R^2 value of 0.890 indicated that all the selected 16 independent variables put together explained about 89.00 per cent variation in perception of migrants on push determinants of migration and the R^2 value of 0.778 indicated that all the selected 16 independent variables put together explained about 77.80 per cent variation in perception of migrants on pull determinants of migration.

5.5.6 Strategy for reducing out migration

5.6.1 Suggestions for Government

5.6.1.1 Suggestions for Government to income for rural people through Eco-tourism

1) Serious efforts should be made to make the study area an ecotourism site as spectacular scenic views of nature will attract the tourists.
2) Government should take initiative for construction of wider roads and extend the railway lines to the ecotourism areas by including the labour oriented construction works under MGNREGA.
3) Loans should be extended to rural youths for establishment of medical shops, internet cafes, vehicle repair shops, petrol bunks, provisional stores *etc.*
4) Government should help in providing computers with internet facility to all the hosting families of ecotourist villages.

5.6.1.2 Suggestions for Government to improve Agricultural productivity in hills.

1) Forest department should take steps on afforestration to prevent the menance of wild animals like monkeys and wild boars for the field and orchard crops.
2) Provide fund for establishing new cottage industries in the villages like carpet making, handlooms and crafts making, pickle, jam and jelly making through financial institutions.
3) Fund for research to SAU for development of suitable farm machinery, integrated farming system, high yielding varieties suitable for organic farming in hill slopes.
4) Government should extend loan for starting of small scale agro based industries like bakery industry, mushroom cultivation and value addition, floriculture production *etc.*

5.6.2 Suggestions for State Agriculture University (GBPUAT, Pantnagar, Uttarakhand)

5.6.2.1 Research

1) Research and development of improved high yielding crop varieties suitable for organic farming, which can be grown well in high altitude, low fertile soil and rainfed conditions of study area.
2) There is need to develop suitable light weight agricultural implements and machinery to increase the mechanization of agriculture in high hills of the state to reduce the workload of farmers especially farm women who are majorly engaged in almost all laborious farm activities.
3) Research on various diversified farming systems based on the locality should be done as most of the farmer had included only dairy units along with the agriculture.
4) Research on low volume, high value crops like spices, fruits, forestry should be done, so that the farmers can generate additional income along with cultivation of agricultural field crops.

5.6.2.1 Extension

1) The SAU should provide the required extension services to the rural areas by using the ICTs tools to empower the rural farmers with knowledge and information regarding new improved and developed agricultural practices and technologies to encourage their engagement in agriculture sector.
2) Diversified enterprises, organic farming practices, high yielding varieties, farm machinery *etc.* proven in research should be extended to farmer fields through demonstrations, exposure visits and use of ICTs.
3) Arrange visits for farmers, women and rural youth to the areas of greater prosperity where SAU has done significant efforts to help farmers in generating more income through proper resource utilization, so that they can develop their trust on the extension personnel of SAU and understand and adopt the practices followed in the villages they visit.
4) Multiple options such as vocational training, increasing information flows regarding rural investment opportunities, the provision of loans from financial institutions, developing market linkages for selected farm and non-farm products and services need to be explored by KVKs and Non-governmental organizations and agencies.

5) The KVKs should focus on development of entrepreneurial competence of rural youth by providing them vocational training, this would definitely enhance the interest of the rural youth in self employment and their investment in productive activities that can generate a return, while staying in the villages only as opposed to moving out of the villages for employment in other non farm sector.

5.6.3 Suggestions for Non Governmental Organisations (NGOs)

1) Organization of training programmes, demonstrations on use and importance of improved agricultural practices and technology to encourage the involvement of youth in agriculture.
2) NGOs should identify the innovative farmers in the villages, motivate and help them to develop location specific farm machineries and implements (farmer innovations) which can help the farm men and women to perform the agricultural work with less physical efforts.
3) NGOs should take steps in constitution of a committee comprising of farmers, NGO officials, Government officials, financial institution officials and local leaders for development of the working plans to solve the employment related problems in the area.
4) The farmer should be trained to imbibe the spirit of group dynamics, team spirit, thrust and saving to participate in the self help groups to acquire needed financial support.
5) The NGOs should transfer the new technologies developed on production of millets and medicinal herbs to the farmers.
6) NGOs should guide the rural farmers on group strengthening, group production and group marketing of organic produce at premium prices.

5.6 IMPLICATIONS OF THE STUDY

1. It is observed from the study that majority of the respondents were below25 years age group followed by 25-35 years age group, therefore it can be concluded that majority of the migrants are youth. In order to retain youth in the villages, government and concerned stakeholders should take necessary steps for promotion of ecotourism and carry out location specific research and extension for higher returns.

2. It is clear from the study that all of the migrants felt strong need for more employment opportunities in the villages, so government should take initiatives to provide the required employment opportunities in the villages.
3. Majority of the respondents of the study are educated upto intermediate. The government should provide educational and employment opportunities to the rural youth in their locality itself to retain them in their villages.
4. The study explored the probable reasons behind migration of youth from rural areas to urban areas which will help the government organizations, non government organizations and private agencies to frame a suitable plan of work to reduce the problem of migration.
5. The researchers should develop varieties suitable for escaping the drought, heavy rains and light weight farm machinery suitable for hills and design structures which can reduce the runoff of the rain water, as these are the main push determinants unearthed in the study.
6. The low productivity of hilly lands was the major constraint revealed in the study. Efforts should be made to improve the soil health and to conserve the soil fertility with suitable measures.
7. In the study it was observed that the hilly farmers do not use much of chemical fertilizers for crop production, so there is a vast scope for organic farming in these regions, the government should come forward to promote organic farming on large scale.
8. The study revealed that push determinants were more responsible for the taking up decision to migrate to other places than pull determinants, the government should focus on proper implementation of rural development schemes, improve infrastructure, educational and employment opportunities in the villages to prevent migration.
9. The negative relationship between number of occupations and perception of migrants on push and pull determinants, suggested that to decrease the migration the number of farm as well as nonfarm occupations in the rural areas should be increased. Hence SAU, KVKs and NGOs should conduct research on organic farming, diversified farming, high value crops and improve water harvesting. Emphasis should be given to educate the farmers on group production and group marketing.

5.7 POINTS SUGGESTED FOR FUTURE RESEARCH

1. The present study is limited to one district and four villages of the state. The study needs to be replicated on larger samples covering most of rural villages, so that the inferences drawn can be generalized to a greater extent that is warranted from the present study.
2. The present investigation has covered sixteen profile characteristics of the respondents, few more variables may be added in future studies to unearth the comprehensive profile of the respondents.
3. A separate study can be taken up exclusively focusing on developing a suitable strategy to reduce migration.
4. The study was confined to documenting the consequences of migration in rural areas. Similar efforts could be initiated in plain areas of the state to assess the consequences of rural urban migration on urban areas.
5. Consequences of migration on livelihoods, rural economy, labour availability, health care, employment etc. which could not be covered in this study can be researched.
6. The present study has covered only migrants in the areas, in future the perception of non-migrants on push and pull determinants of migration and their opinion on consequences of migration can be investigated.
7. It is interesting to know that though the migrants got good remittances, they were not utilizing it for agricultural development, so a separate study should be carried out to explore the probable reason behind this and to develop a suitable strategy to solve this problem.
8. As lack of employment opportunities is a severe problem in rural villages of Uttarakhand, future studies can be concentrated on generation of more employment opportunities both paid and self in the rural areas from the stakeholders perspective..

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DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF AGRICULTURE RAJENDRANAGAR HYDERABAD -500030

Rural Out Migration in Uttarakhand in the Changing Agrarian Scenario

Respondent No:

Name of the respondent:

District:

Block:

Village:

Phone no:

INDEPENDENT VARIABLES

1. Age of the respondent:

No. of completed years at the time of migration-

2. Educational Status:

Educational qualification	Mark
Illiterate (never went to school)	
Can read and write	
Primary(upto 5^{th} class)	
Middle(upto 8^{th} class)	
High school (upto 10^{th} class)	
Intermediate(upto 12^{th} class)	
Undergraduate	
Post graduate and above	

3.Credit Availability: If you are in need of money from where will you take credit? Please tick the source-

Source	Mark
Private Money Lenders	
Cooperative Societies	
Relatives and Friends	
Banks	
Others (Specify)	

4. Family size:

Specify total number of members in your family -

Additional information:

Type of family – Nuclear / Joint

Total no. of earning members (specify the numbers) –

5. Annual Family Income:

Annual Income (In RS.)	Family member
Total (Rs.)	

6. Family Debts:

Amount (Rs.)	Interest (**Additional information)**	Paid back or Not **(Additional information)**

7. Number of migrants in the family:

8. Number of Occupations:

9. Farm Resources:

a) Farm Size (Acres) – Cultivated land
b) Irrigation facility – Rainfed / Irrigated
c) Labour availability – Available easily
Available with medium difficulty
Available with great difficulty
d) Number of crops cultivated per year –
e) Implements used in farming –
Specify implements used -
f) Other enterprises in farm –
Specify other enterprises (Like cattle, poultry, ducks, pigs etc.) -

10. Purpose of Migration:

a) Agricultural
b) Non Agricultural (Specify)

11. Duration of Migration:

12. Pattern of Migration:

Domestic – (a). Rural to Rural
(b). Rural to Urban
International

13. Amount of Remittances and their Purpose of Utilization:

a) How much income you are earning / month from migration?
b) From the income earned due to migration, indicate whether you are spending for the below mentioned purposes or not -

S.NO.	**Purpose of utilization**	**Yes/No**	**Amount spent (In Rs. / month) (Additional information)**
1	Purchase of Food		
2	Children education		
3	Purchase of farm inputs (fertilizers, pesticides, seeds, implements)		

4	Hiring farm labour		
5	Health care		
6	House construction		
7	Purchase of household goods		
8	Clearing of debts		
9	Purchase and maintenance of cattle / poultry etc.		
10	Saving for future		
11	Others		

14. Survival Strategies adopted before migrating:

What kind of measures have you taken to overcome financial problems before migration? Please tick among the following –

S.No.	Survival strategies	Adopted/Not adopted
1	Using food reserves	
2	Selling livestock	
3	Borrowing food	
4	Selling gold / other expensive materials	
5	Seeking local nonfarm employment	
6	Selling household and farm equipment	
7	Selling land	
8	Borrowing money	
	Others (specify)	

15. Economic Motivation:

S.No.	Economic Motivation	Yes / No
1	One should migrate to earn more income	
2	A person with more money is respected everywhere, hence migration is a positive aspect	
3	The most successful person is one who derives greater benefit by migrating	
4	A person should try new ideas like migration which may earn him money	
5	It is difficult for a person's children to make a good start unless he provide them with economic assistance obtained through migration	
6	A person must earn his living but the most important thing in life can't be defined in economic terms	

16. Risk Orientation:

S.No.	Risk Orientation	Yes/No
1	A person should take more of a chance in making huge profit than to be content with a smaller but less risk profits	
2	It is good for a person to take risk by migrating when he knows that his chance of success is fairly high	
3	A farmer who is willing to take greater risk by migrating than of his counterparts usually proves better financially	
4	It is better for a person not to try new ideas like migration unless most others in the locality have migrated with	
5	Moving to a entirely new place for the purpose of earning involves risk, but it is worth	

DEPENDENT VARIABLES

1. Perception of migrants on determinants of migration –

a. Push Determinants (Issues at the village / family / individual level)

S.No.	Statements	Agree	Partially agree	Disagree
1	Do you think that Crop failure due to heavy rainfall causes migration of farmers to the cities?			
2	Do you believe that crop loss due to severe drought causes migration of farmers to the cities?			
3	Lack of employment opportunities in the village forcing the rural people to migrate			
4	Do you think that inability to meet basic needs with existing income cause rural urban migration?			
5	Do you believe that Inability to meet educational expenses of children causes migration?			
6	Migration occurs due to inability of people's to meet medical expenses of their family			
7	Rural people migrate if they cannot clear off their family debts with the existing income			
8	Do you think that social caste and status related struggle in village causes migration to the cities?			
9	Do you feel peer group of rural people influence them to migrate to cities?			

10	Do you think that increased use of farm machinery reduced employment opportunities in villages, which is forcing people to migrate?			
11	If there is increase in household expenses, the rural people tend to take decision to migrate			
12	When a person faces family Conflict he would like to leave his family and to migrate to other place			
13	Do you think that lack of or Improper coverage of Government employment guarantee schemes like MNREGA play important role in taking the decision to whether to migrate or not?			
14	Others			

b. Pull Determinants (Attracting features of place of migration)

S.No.	**Statements**	**Agree**	**Partially agree**	**Disagree**
1	Do you believe that Improved railway / road and transport facility and communication networks in cities is attracting rural people?			
2	Do you think that modern city life style is attracting rural youth?			
3	High demand of labors in urban areas attract rural youths to migrate and work in urban areas?			
4	Do you think that in urban areas there are better earning opportunities than rural areas?			
5	In the place where you have migrated wages are higher comparatively			
6	Do you believe that ease of life people in urban areas is attracting people towards cities?			
7	Experience of already migrated persons motivate other people to migrate			
8	In the place where you have migrated works are available throughout year			
9	In the place where you have migrated works are not drudgeous comparatively			
10	Others			

2. Opinion of migrants on consequences of migration –

I. Agriculture:

S.No.	Statements	Agree	Partially agree	Disagree
1	Do you feel that due to migration of people from your area now there is less labour availability for agricultural work in the village?			
2	Do you think that the remittances generated due to migration helped in improving the agriculture production in your fields?			
3	Do you believe that due to migration new crops and varieties are cultivated by farmers?			
4	Do you think that in rural areas people use the remittances generated due to migration mainly for agricultural purpose?			
5	Do you believe that migration of a member from a family increases the agricultural work load on other members of the family?			
6	Do you think that migrant families are using different types of farm inputs like implements/fertilizers/pesticides than common ones?			
7	Do you feel that due to the remittances earned from migration, farmers are using more inputs like fertilizers and pesticides in crop cultivation?			
8	Due to migration of people to other places for long period of time resulted in bringing up uncultivated land into cultivation			
9	Others			

II. Women empowerment:

S.No.	Statements	Agree	Partially agree	Disagree
1	Due to migration of my husband / son / father, I have started taking decisions in farm management			
2	Ever since my husband / son / father, migrated I am managing the entire house			
3	I am taking decisions on spending the remittances earned due to migration			
4	Due to increased income from migration I am gaining more respect / prestige in village			
5	Due to the new responsibility as family head my confidence level / courage increased			

6	Due to migration as my family became female headed family I am looked down by others			
7	After family head migrated I learnt calculations and I am able to manage family budget			
8	Due to migration of family head I am more burdened physically and mentally			
9	Others			

III. Biodiversity

S.No.	Statements	Agree	Partially agree	Disagree
1	Before migration, we grew one / two crops / season. Due to increased income after migration we are growing several crops.			
2	Due to increased income from migration, in addition to crops we are taking up other enterprises also (specify)			
3	Due to migration new crops entered the village.			
4	Due to migration number of varieties in crops increased			
5	Because of migration, new cattle breeds were introduced in our village			

IV. Food security :

S.No	QUESTION	RESPONSE OPTIONS	RESPONSE
1.	In the past four weeks, did you worry that your household would not have enough food?	0 = No 1=Yes	
1(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
2.	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No 1=Yes	

2(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
3.	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0 = No 1 = Yes	
3(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
4.	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No 1 = Yes	
4(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
5.	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No 1 = Yes	
5(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
6.	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0 = No 1 = Yes	

6(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
7.	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	0 = No 1 = Yes	
7(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
8.	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No 1 = Yes	
8(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
9.	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No 1 = Yes	
9(a).	How often did this happen? (If Yes)	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	

V. Nutritional security :

I. Do you think that it is not enough to take only food but it is necessary to take a nutritious food? Agree/ Partially agree/ Disagree

II. Do you think that after migration your family members are healthier than before migration? Agree/ Partially agree/ Disagree

III. Do you agree that your daily food comprises of combination of food items? Agree/ Partially agree/ Disagree

If agree then select the combination

a. Only Cereals (Wheat/wheat flour, rice, ragi etc.)
b. Cereals + Pulses (Redgram, greengram, chickpea, hosegram etc.)
c. Cereals + Dairy products (Milk, Curd, Ghee, Paneer)
d. Cereals + Dairy products + Pulses
e. Cereals + Dairy products + Pulses + Vegetables
f. Cereals + Dairy products + Pulses + Vegetables + Fruits
g. Cereals + Dairy products + Pulses + Vegetables + Fruits + Fleshy Foods (Fish, Chicken, Meat, Egg)
h. Cereals + Dairy products + Pulses + Vegetables + Fruits + Fleshy Foods + Dry fruits/ Nuts

IV. Do you feel that frequency of any food item has increased after migration? Agree/ Partially agree/ Disagree

V. Have you noticed stunting growth of your children due lack of proper nutrition? Agree/ Partially agree/ Disagree

VI. Is anyone in your family are suffering from disease due to lack of proper nutrition? Agree/ Partially agree/ Disagree