Seasonal Migration and Moving Out of Poverty in Rural India: Insights from Statistical Analysis

Guvvala Venkata Anupama
Lead Scientific Officer, Markets, Institutions, Nutrition, and Diversity
International Crops Research Institute for the Semi-arid Tropics (ICRISAT)
Patancheru, Telangana, India
Email: g.anupama@cgiar.org/ guvvalaanupama@gmail.com

Uttam Kumar Deb
Principal Scientist, ICRISAT
Patancheru, Telangana, India
Email: uttamkumardeb@gmail.com

Ma. Cynthia S. Bantilan
Program Director, Markets, Institutions, Policy, and Impacts
ICRISAT, Patancheru, Telangana, India
Email: c.bantilan@cgiar.org

Haragopal Vajjha
Professor, Department of Statistics
Osmania University
Hyderabad, Telangana, India
Email: haragopalvajjha@gmail.com

ABSTRACT

Rural households in many countries have used temporary or seasonal migration as a strategy to cope with natural shocks such as drought, means of employment and income generation during lean season, and to move out of poverty. This paper studies the linkages between migration, employment in economic activities, asset accumulation, and poverty reduction among rural households in a drought-prone village of India over the last four decades. The Dokur Village of Mahbubnagar District in Telangana State of India experienced persistent drought over a decade. To cope with this situation, many households of the village temporarily migrated to the nearby and faraway cities. ICRISAT had conducted household surveys in Dokur under the Village Level Studies (VLS) and Village Dynamics Studies (VDS) program since 1975. The present study has used the VLS-VDS dataset (1975–2012) and reorganized sample households into 46 dynasty households. Based on their participation in migration, sample households were grouped into two categories: migrant and non-migrant households. Household income was computed by sources for all households for all the study years. Contribution of migratory income and remittances to the total household income was quantified. To identify the factors responsible for migration decision, probit analysis was carried out. For each year, sample households were grouped into poor and non-poor category using both lower (USD 1.25 ppp per day per person) and upper (USD 2.00 ppp per day per person) poverty line. The study revealed that seasonal out-migration helped many households to come out of poverty even though they had experienced a decade of drought. In-depth analysis of asset accumulation behaviour of the households over time revealed important insights regarding their coping mechanism and the process of moving out of poverty.

Keywords: migration, poverty, asset accumulation, drought, dynasty, panel data, India
JEL Classification: I32, O15, and R23

INTRODUCTION

Rural households in many countries have used temporary or seasonal migration as a means of employment and income generation during the lean season, and as a strategy to cope with natural shocks such as drought, and to move out of poverty (Ellis 2003; Chiodi et al. 2010; Kunal and Bhagat 2012). Semi-arid or dryland regions of India are characterized by poor soil quality and low rainfall regimes with frequent occurrence of droughts (three out of five years). Seasonality in employment and low absorption capacity for growing labor force often aggravate the situation. With the expansion of road network along with better communication facilities, workers of the dry land regions in India have been constantly looking for opportunities outside their localities, which will enable them to increase their economic condition through temporary or seasonal migration. Paying a loan is among migrants' primary obligation rather than accumulating other assets (Orozco 2010). Research has shown that remittance recipient households typically are able to save above the average population but keep their resources informally (Orozco 2007). Available statistics indicate that 20 percent of the workforce in India has been opting for seasonal migration. Seasonal migration of labor is a common phenomenon in drought prone Mahbubnagar District of Telangana. Workers from the rural areas of Mahbubnagar go to the nearby and faraway places (Deb et al. 2002; Badiani 2007). It is often argued that there are many positive effects of seasonal migration on the rural sector through the remittances sent by the migrant workers to their family members staying in the villages which help to increase economic welfare of the households in terms of income, asset accumulation, and poverty reduction.

Some studies (Chiodi et al. 2010) have assessed the effects of migration on the process of asset accumulation using household data from poor rural areas in Mexico. However, results are not conclusive. Research has shown that in the short term, their condition improves and keeps them out of poverty, but in the long term, without appropriate and systematic means to achieve economic independence, their ability to get out of poverty does not change (Orozco 2010). Empirically testing of such complex things are constrained by lack of longitudinal panel data collected for several generations. This study have a unique opportunity to test the situation over a period of four decades for households of a drought prone village of Mahbubnagar District of Telangana State in India. The Dokur Village of Mahbubnagar District in Telangana State of India experienced frequent droughts and the village has low employment opportunities particularly during the drought years. To cope with this situation, many households of the village have temporarily migrated to the nearby and faraway cities.

To understand the role of migration on income, asset accumulation, and poverty reduction, it is important to know the answer of the following questions: What was the nature and extent of drought in the study village? When and how did the households opt for temporary or seasonal migration as a mechanism to cope with the adversities of drought and as a part of their livelihood strategy? What were the factors contributing towards decision to opt for migration? What was the impact of migration on their employment and income situation? What was the role of migration on asset accumulation of households? Had it helped the migrant households to move out of poverty? If so, what was the process? The case of Dokur Village was investigated to answer the above-mentioned questions in this paper.

The broad objective of the study is to understand the linkages between migration, employment in economic activities, income level, asset accumulation, and poverty reduction among rural households in a drought-prone

village (Dokur) of India. Specific objectives of the study are as follows:

- To document the long-term drought profile of the Dokur Village and Mahbubnagar District using secondary and primary data collected from various sources;
- To understand the situation and factors forcing the Dokur villagers to opt for temporary or seasonal migration as part of their livelihood strategy and as a mechanism to cope with the adversities of drought;
- To study the impact of migration on their employment and income situation;
- To assess the role of migration (remittances) on asset accumulation of households and moving out of poverty; and
- To put forward implications of the research findings for development policy.

This paper is consists of six major sections. After this introductory section, Section 2 discusses about the data sources and methodology used in the study. Section 3 documents the drought profile in the Dokur Village and Mahbubnagar District over a long period. Section 4 describes the labor force, employment trends, and migration pattern of Dokur villagers. Impact of temporary seasonal migration on household welfare is reported in Section 5. Conclusions and implications for policy are put forward in the last section (Section 6).

DATA AND METHODOLOGY

Data Sources

ICRISAT had conducted household surveys in Dokur under the Village Level Studies (VLS) program for the period 1975–1984, 1989, and 2001–2008. Since 2009, same households have been resurveyed by ICRISAT under the Village Dynamics Studies in South Asia (VDSA) project (http://vdsa.icrisat.ac.in). In addition to the household and member level datasets, focus group meetings (FGM), and personal interviews with key village informants provided in-depth understanding about the relevant issues.

Concepts and Definitions

Drought refers to a situation of scarcity on account of insufficient rainfall, crop failure, and a deficiency of moisture in soil. Scientists use long-term normal rainfall as a reference. If rainfall in a particular year is less than the long-term normal then it is considered as a drought year.

Migration is the movement by people from one place to another with the intention of settling temporarily or permanently in the new location. We have studied only seasonal and temporary migration in search of a job by one or more members of the family. Children (< 15 years of age) and elders (> 59 years) are not included in the labor force.

An ***asset*** in economic theory is an output good which can only be partially consumed or input as a factor of production which can only be partially used up in production. We have considered all six types of assets: agricultural land, residential and agricultural buildings, livestock, stock inventory, financial savings, agricultural tools , and consumer durables.

Income is the sum of all the wages, salaries, profits, interest payments, rents, and other forms of earnings received in a given period of time. The total household income is computed as the sum of income earned by all family members from different sources like crop cultivation, livestock rearing, farm labor, caste occupations, salaries of jobs, business, interests from deposits, gifts, and remittances.

Poverty is measured conventionally by establishing a poverty line, defined as the threshold level of income needed to satisfy basic minimum food and non-food requirements, and determine the number of households

(people) below that line as a percent of the total households (population). This Head-Count Index (HCI) is a measure of the incidence of poverty. This measure is easily understood by general public and hence is popular with policy makers and development practitioners. The limitation of the measure is that it is insensitive to changes in the level and distribution of income among the poor. Estimation of poverty line plays a very important role on the incidence of poverty.

Dynasty household is a sequence of households considered as members of the same family. The term 'dynasty' refers to the set of households included in subsequent rounds of the survey whose members belonged to the same household in the baseline survey. A dynasty is sometimes used interchangeably with 'extended family' or 'linked households'.

Analytical Procedure

Construction of dynasty household dataset – The sample households surveyed from 1975 to 2012 in Dokur Village including the split offs were considered for this analysis. Due to attrition, households were replaced with new households of similar characteristics or belonging to the same land holding group. There were also some changes in the sample households and sample sizes over time. Respondents belonging to the same families or dynasties in the years 1975–1979, 1983, and 2005–2012 were considered in this analysis. Respondents belonging to the same family tree, either parent, children, or siblings are considered as belonging to the same dynasty. The base year for this analysis is considered as 2012 and families, which were part of the survey in 2012 and also from 1975 to 2012, in the specific years either themselves or their parents were part of this analysis. If a child becomes the head of household in a particular year, his parent's characteristics like per capita land ownership, assets position, income, and credit were assigned to him in years prior to his becoming the head of the household. There are 46 such dynasty families in Dokur which were considered for analysis in this paper. Hence, it is a balanced panel database of 46 households studied for 14 survey years. All the monetary values were taken in per capita real[1] INR in 2009/10 prices.[2]

This dynasty group contains 19 large, 12 small, nine medium, and six landless households from 1975 to 1983 and 23 large, 12 small, seven medium, and four landless households in 2012 survey year. Basic characteristics of the migrant and non-migrant sample households are provided in Table 1.

Poverty and moving-out of poverty – For each survey year, sample households were grouped into poor and non-poor category using both lower (USD 1.25 ppp per day per person) and upper (USD 2.00 ppp per day per person) poverty line. Total income of all the family members from all sources is added in USD and per capita income per day was compared with the USD 1.25 for lower limit and USD 2.00 for upper poverty limit to find out the number of families below the limit who are regarded as poor.

Poverty levels are computed for each survey year. If a family was poor in a particular year and then became non-poor in later years for a continuous period of at least three years, then it was classified as moved out of poverty.

Migration – Based on their participation in migration, each year sample households were grouped into two categories: migrant and non-

1 By real, it means the Rupee value in constant prices converted using wholesale price index.
2 Foreign exchange rate in 2009 was INR 48.4 = USD 1

Table 1. Basic characteristics of the sample households: migrants and non-migrants

Indicators	Migrants		Non-migrants	
	2005	2012	2005	2012
Household size	6.2	4.8	5.4	4.6
Children (%)	0.19	0.25	0.3	0.3
Number of households	27	27	20	20
Female-male ratio (Child)	0.58	1.09	0.5	1.2
Female-male ratio (Adult)	0.95	0.82	1.1	0.9
Reproductive women	0.6	0.5	0.5	0.5
Child-woman ratio	0.52	0.4	0.6	0.5
Dependency ratio	0.4	0.3	0.4	0.6
Age of household head (years)	50.7	49.3	46.8	47.5
Education of household head (years)	2	2.4	3.2	3.7
Per capital and ownership (hectares)	0.25	0.26	0.43	0.55
Real farm income (INR/capita)	5,365	13,335	14,998	26,663
Real non-farm income (INR/capita)	5,464	17,305	6,026	11,624
Real total income (INR/capita)	10,829	30,640	21,024	38,287
Real ownership of non-land assets (INR/capita)	36,734	104, 562	76,111	223,103

Source: Authors' calculation, based on VDSA database
Note: All monetary values are 2009/10 equivalent INR.

migrant households. If a family member left the village and lives outside the village in place of work and visits village once in a while then he is considered as temporary or seasonal migrant. A household having at least one family member as migrant in any of the survey years then it was considered as migrant family. Household income was computed by sources for all the study years. Contribution of migratory income and remittances to the total household income was quantified and critical dependence on migratory income during the drought years was examined. To identify the factors responsible for migration decision, probit model was used. The role of temporary migration on asset accumulation and moving out of poverty was studied.

Probit model was used to study the factors influencing a farmer to participate in migration.

In the probit model, response variable yi is binary such that:

$$y_i = 0 \text{ if } y_i^* \leq 0$$
$$= 1 \text{ if } y_i^* > 0$$

The probit procedure computes maximum likelihood estimates of the parameters using a modified Newton-Raphson Algorithm. The probit model takes the form:

$$\Pr(Y = 1|X) = \phi(X'\beta)$$

Where Pr denotes probability and ϕ is the cumulative distribution function (CDF) of the standard normal distribution.

DROUGHT PROFILE IN DOKUR

Dokur Village is located in Devarkadra Mandal of Mahbubnagar District which is about 125 kilometers (km) south of Hyderabad, the capital of Telangana State. The annual average rainfall in Dokur is 760 millimeters (mm). Normal rainfalls for Mahbubnagar District is 650 mm as per the meteorological department standards. Whenever the total quantum of rainfall during the crop year is less than this standard of 650 mm, that year is considered as drought year. Drought occurs very frequently (thrice every five years) in Dokur Village and in Mahbubnagar District. During the last century, consecutive years of drought have occurred periodically every 15–20 years in Mahbubnagar District. Annual rainfall data in Mahbubnagar Town about 30 km from Dokur indicate that rainfall fell below 650 mm in consecutive years was in 1920–1923, 1941–1942, 1971–1972, 1985–1986, 1991–1996, 2001–2005, and 2009 (Bidinger et al. 1991). Figure 1 presents the annual rainfall (in mm) in Dokur highlighting the drought years from 1975–2012.

LABOR FORCE, EMPLOYMENT TRENDS, AND MIGRATION

Labor Force

The age pyramid of the sample households for the year (2005) and the most recent year (2012) for male, female, and overall population is reported in Table 2. Household members are grouped into three categories: Children (up to 14 years), Working Age (15–59 years), and Old Age (60 years and above). Working age population has almost remained same with 65 percent in 2012 and 64 percent in 2005. During the early 2010s, about 25 percent of the total population was children while 10 percent members were of old age. Proportion of male and female population was unchanged.

Frequency of Migration

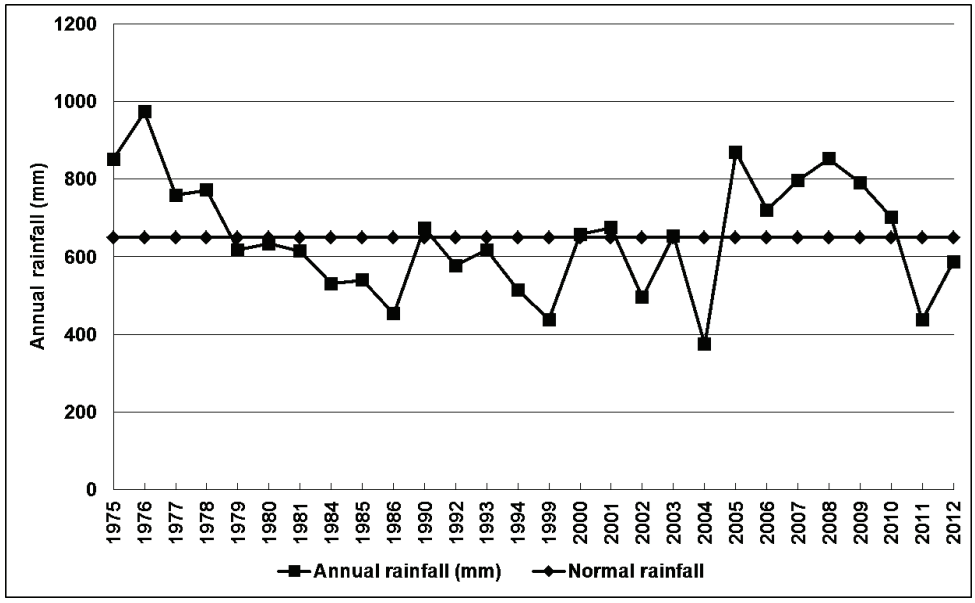
The frequency of distribution of households by the number of years they have someone migrating with the years ranging from 1 to 8 is presented in Table 3. Total number of working age persons in the age group of 15–59 years in the households involved is also studied. Fewer households (only four) are involved in continuous migration for all the eight years of 2005–2012. More number of persons (51) are involved only once in migration. It can be noted that none involved in migration for only six years.

Employment in Economic Activities

Workers are likely to migrate only if they do not have adequate employment and earning opportunities in the village. Involvement of individual household members in various economic and domestic activities is quantified. Following Hossain and Bayes (2009), economic activities were defined as those that generate income for the households or saves household expenditure for the acquisition of the goods and services from the market. This includes employment in agricultural and non-agricultural labor market, and also unpaid work for the household in crop cultivation, homestead gardening, livestock and poultry raising, cottage industry, transport operation, construction, business, and personal services. There are many other activities done mostly by women that are quasi-economic in nature which are not valued in national income accounting. Examples are food processing and preparation of meals for the family members, child care and helping old and sick members of the household, and tutoring of children. If the household had hired workers for doing these jobs, it would involve some expenditure. These activities are termed *domestic activities*.

Dokur people were engaged in different economic activities like agriculture, farm

Figure 1. Total annual rainfall (mm) in Dokur during 1975-2012



Source: (1) VDSA rainfall data collected from the Dokur Village for the years 1975–1981 and 2011–2012; (2) Devarakadra mandal rainfall data for 2003–2004 and 2006–2007; (3) Mahabubnagar District rainfall data for 1984–1986, 1990, 1992–1994 and 1999–2002 from Boppana et al. 2010.

Table 2. Distribution (%) of the population in sample households by age group (2005–2012)

Category	Age group (Years)	Male		Female		Total population	
		2005	2012	2005	2012	2005	2012
Children	0-4	9.9	8.0	5.5	15.6	7.8	11.8
	5-14	21.5	15.2	13.8	11.0	17.8	13.1
Working age	15-39	44.6	45.5	45.9	41.3	45.2	43.4
	40-59	17.4	20.5	21.1	22.0	19.1	21.3
Old age and retired	60 and above	6.6	10.7	13.8	10.1	10.0	10.4
All groups		100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculation, based on VDSA database

Table 3. Frequency of migration for persons in working age group of 15–59 years in Dokur

No. of years of migration	Households involved	No. of members involved in migration							
		2005	2006	2007	2008	2009	2010	2011	2012
8	4 (19)	6	7	8	7	7	7	7	7
7	4 (17)	5	6	4	6	5	5	6	4
5	5 (18)	2	2	2	6	6	4	4	4
4	8 (40)	8	8	7	6	6	4	4	5
3	10 (50)	6	11	9	11	3	2	3	3
2	13 (51)	6	11	3	3	1		2	6
1	13 (51)	5	1	1	2		1		7

Source: Authors' calculation, based on VDSA database
Note: Figures in parentheses indicate the total number of working members in the families involved in migration.

and non-farm wage labor, migration, caste occupations, running rice and flour mills, plying autos, running private telephone booths, general shops, and selling milk. During drought years, agriculture activities are at the minimum level. Especially agriculture labor force does not find work in the village which is the main reason for them to move out to urban areas for work. Most of the migrants perform unskilled non-farm activities like construction, road laying, mud work, stone cutting, etc. Some of them are engaged in salaried jobs like service boys in hotels and sales boys in shops. Some people with driving skill had hired vehicles and run them to earn their income. Some of them who had basic education and undergone some training worked as teachers. People with some money invested on petty businesses like pawn shops.

A comparison of employment days during normal (2009 and 2010) and drought years (2011 and 2012) revealed that in a drought year agricultural activities are on a lower scale, farmers spend less time in crop cultivation, and engage in other type of works (Table 4). Farmers spend more time on domestic work and family work like house construction, etc., during drought, to complete the pending work in the absence of adequate agriculture work. Livestock rearing and caste occupations gain more prominence during drought years. Farmers engage even in farm labor work and are involved more in unskilled labor like running transport vehicles. Income from business is reduced, as the purchasing capacity of farmer is reduced in a drought year.

Migration from Dokur Village

Dokur villagers have opted for temporary or seasonal migration as well as permanent migration. Permanent migration is the complete movement out of the villages in which case they are no longer considered part of the village. About 30 servicing caste households (washermen and barbers) migrated permanently to Goa and Pune. The majority of laborers migrated to Hyderabad for mud work, construction, hamali (loading and unloading), and private monthly salaried jobs such as watchmen, telephone booth operators, drivers, and waiters at hotels and lodges. Laborers

Table 4. Migration in Dokur, 2001 and 2006

	Migrating households		Non-migrating households		Total households
	No.	%	No.	%	No.
Census 2001	185	36	330	64	515*
Census 2006	208	42	289	58	497

Source: Gandhi et al. 2008

Note: * The total number of households in the village dropped as 14 families moved permanently to Hyderabad and four households consisted of elderly people who had passed away.

received INR 100–75 per day depending upon the type of work and their gender. Monthly salaries varied between INR 1,500 and INR 3,000. Out-migration to Maharashtra and Gujarat increased in Dokur from around 1998 when a local labor contractor began offering advance payments of between INR 7,000–10,000 for migrant labor contracts. Advances were useful for clearing old debts, repairing or reconstructing houses, and for meeting marriage expenses. Workers were employed for 9–10 months with a monthly salary of INR 750–800 with free accommodation and food. Monthly salaries were adjusted against advances (Deb et al. 2002).

Gandhi et al. (2008) reported high incidence of poverty related mobility or seasonal migration, and cases of HIV-AIDS in Dokur due to perennial drought. They also indicated that migration had gained importance as a major livelihood option in Dokur before 2000. The observed trend in migration over the next five years from 2001 showed that it did not decrease, but rather to the contrary, increased from 36 percent of the total households having at least one migrating member in 2001 to 42 percent in 2006 (Table 5). Usually, the migrating member was the head of the household and his or her spouse.

In this paper, the focus is on temporary or seasonal migration. Seasonal migration is the movement of workers and their family members out of the villages for a short period of time as an occupational choice. Seasonal out-migration from Dokur Village began in the 1970s but on a very small scale. Out-migration increased more rapidly after 1992 because of the increase in population (leading to fragmentation of land holdings), the lack of work within the village throughout the year, the higher wage rates that were offered outside the village and the evolution of a young generation that were attracted towards urban life. Around 910 people out of 2,737 (more than 30% of Dokur's population) were seasonal migrants to Hyderabad, Nizamabad, Pochampadu, and Mahbubnagar within the state, and to Gujarat and Maharashtra outside Telangana. In 2001, a full census of all households of the Dokur Village was carried out, which showed that 191 households in Dokur (37% of total households) received income from seasonal migration. Income from migration contributed more than 25 percent of the total household income. On the other hand, 12 percent of the households in the village depended primarily (more than 75%) on migration income (Deb et al. 2002).

Seasonal migration is practiced mostly by labor households. Extent of seasonal migration is higher in the drought years than in the normal rainfall years. During the drought years, employment opportunity in the village decreases with reduction in area under crop cultivation, the demand for labor for other

Table 5. Comparison of working days during drought and normal years

Primary occupation	Wage work days	Real net yearly income (INR)	Domestic work days	Own livestock work days	Own farm work days
Drought years (2011 and 2012)					
Business	105	24,551	18	2	3
Cattle/poultry rearing	128	32,653	8	0	0
Farm labor	62	6,664	29	6	10
Local wine/toddy tapping and selling	143	16,718	14	0	0
MGNREGS	20	1,621	7	2	1
Running transport vehicles (auto, cycle-rickshaw, taxi)	118	16,772	2	0	0
Unskilled labor	76	10,555	10	0	1
Own farm, livestock, and domestic work			21	22	15
Others	34	4,284	20	0	0
Normal years (2009 and 2010)					
Business	112	28,525	45	9	16
Cattle/poultry rearing	72	14,937	15	0	1
Farm labor	37	3,621	33	10	15
Local wine/toddy tapping and selling	130	11,934	15	0	0
MGNREGS	24	2,310	17	4	6
Running transport vehicles	88	18,194	20	0	33
Salaried job	141	13,401	25	0	1
Unskilled labor	52	5,066	25	1	2
Own farm, livestock, and domestic work			41	24	18
Others	41	3,591	26	0	0

Source: Authors' calculation, based on VDSA database
Note: All monetary values are 2009/10 equivalent INR.

activities also decreases. Labor households have very little asset base in village, so they opt to move out for survival.

In the mid-seventies and early eighties, Dokur experienced in-migration particularly during the peak crop production season especially to meet the demand for paddy cultivation, etc. The area under paddy crop decreased drastically due to the non-availability of water in tanks and wells, and the failure of bore wells. In the face of this decline, villagers sought alternative employment opportunities elsewhere.

Who Migrates?

Is there any special age group who migrates? What is the relationship between one's caste and education? Do the females migrate more than the male workers? Eleven to eighteen percent (11–18%) of members of respondent families

are migrants. In mid-2000s, the proportion of migrants to the total family members was only 14 percent; this has meanwhile, gone up to 17 percent in early 2010s. Comparative analysis of the migrants by their landholding group (i.e., labor, small, medium, and large) reveals that very few members from large land holding group opt for migration. Among the 46 dynasty households, 80 individuals from 27 households participated in seasonal migration. The number varied depending on drought situation. During drought years, the number of migrants increased by 60 percent compared to normal rainfall years.

There are more male than female migrants. Around 60–75 percent of migrants were men. Most of the migrants did not have any formal education, while a few of them have primary education. Hence, it is obvious that the type of jobs they were engaged in urban areas were unskilled non-farm employment (e.g., construction works, stone cutting, mud work, and cable work (Table 6). The migrants did not have any formal education (Table 7); hence, their wages were low (Table 8). As education has gained more importance and literacy levels have increased, there is gradual increase in the share of persons with technical knowledge and training in teaching, etc. The salaried jobs are, likewise, gaining more importance. Analysis also revealed that working age people in 15–59 years of age participate in seasonal migration. Large proportion of migrants (76–91%) was in the most productive age group of 15–40 years (Table 9). However, relatively younger population (up to the age 57 years) are now taking part in migratory works than a decade before when even the elderly population (aged 60 to 67 years) worked as migratory workers. Thanks to various positive developments like normal rainfall accompanied by MGNREGS works, social safety net programs such as old age pensions, widow pensions, subsidized food through public distribution system, and efforts from self-help groups (SHGs) for employment creation in the village.

Linkage between caste and migration — Farmers from higher castes like Reddy, Vysya, and Brahmins migrated to work in higher positions like teachers, lawyers, and government jobs. Farmers from lower castes like backward castes, scheduled castes, and tribes migrated as laborers. The capacity of different caste groups to migrate also influenced the level and nature of diversification. In early 2000s, 48 percent households in Dokur had at least one household member involved in seasonal out-migration as a source of livelihood. It was observed that most of the migrant households belonged to the backward castes (BC) and scheduled castes (SC) during the study period (Table 10).

In Dokur, about 60 percent of the migrant households belonged to the Telaga (BC) and Madiga (SC) castes. Scheduled castes and backward castes were better placed to migrate for a number of reasons. First, it was socially acceptable for the women of scheduled and backward caste households to carry out various labor roles, whilst women of forward caste households were expected to occupy themselves only with household work. Second, while it is a step down the social ladder for forward caste households to be involved in many of the labor opportunities available, labor opportunities were often either commensurate with the current social status or a step up the social hierarchy for scheduled (and sometimes backward) caste households. Finally, there were certain caste occupations that were particularly valued and required special skills (for example blacksmiths or goldsmiths). Thus, for some forward or backward castes, there was an advantage to be focusing on a particular niche activity. A small number of these households (belonging to weaving, business, goldsmiths, and service castes) migrated permanently to towns where they could access larger markets (Deb et al. 2002).

Table 6. Distribution of migrant population in Dokur

Type of work	2005	2006	2007	2008	2009	2010	2011	2012
Non-farm work (Cable, construction, or mud work)	27	33	29	28	17			
Salaried jobs (company worker, LIC agent, government. or private job, police, servants, etc.)	7	5	5	6	7	10	13	13
Service sector (Working in a hotel, shop, STD booth)		3		3	1			
Running own vehicles		1		1	1		1	3
Unskilled labor						12	10	18
Tailor				1	1			
Mason						1	1	
Others	2	2			1		1	1
Total	36	44	34	39	28	23	26	35

Source: Authors' calculation, based on VDSA database

Table 7. Distribution (%) of migrants by education level

Education Category	2005	2006	2007	2008	2009	2010	2011	2012
Migrant members (count)	36	44	32	39	28	23	26	35
No formal education	53	57	59	44	54	48	42	37
Primary (1–5)	22	20	19	21	11	4	15	14
High school (6–10)	6	11	16	15	18	30	27	23
Intermediate (11–12)	14	11	6	15	11	9	8	17
Higher education (>12)	6	0	0	5	7	9	8	9
Non-migrant members	133	133	83	136	131	128	119	110
No formal education	54	50	55	46	48	46	47	45
Primary (1–5)	13	12	19	13	13	13	14	13
High school (6–10)	23	26	18	27	27	33	30	33
Intermediate (11–12)	5	8	5	8	8	6	8	8
Higher education (>12)	5	5	2	4	4	2	1	1

Source: Authors' calculation, based on VDSA database

Table 8. Average per capita income from migration (in real INR) 2009/10 in different non-farm activities in Dokur

Type of work	2005	2006	2007	2008	2009	2010	2011	2012
Non-farm work (Cable, construction, or mud work)	8,878	10,137	25,803	13,730	7,516			
Salaried jobs (company worker, LIC agent, government. or private job, police, servants, etc.)	15,890	23,441	20,275	21,793	19,499	12,800	34,485	31,261
Service sector (Working in a hotel, shop, STD booth)		7,710		14,309	19,300			
Running own vehicles		36,817		40,747	11,210		68,126	46,826
Unskilled labor						11,701	17,274	30,767
Others	14,121	5,317		4,683	5,125	3,003	70,808	5,700

Source: Authors' calculation, based on VDSA database
Note: All monetary values are 2009/10 equivalent INR.

Table 9. Distribution of working age (15–59 years) members in Dokur dynasty

	2005	2006	2007	2008	2009	2010	2011	2012
Migrant members	36	44	32	39	28	23	26	35
Non-migrant members	133	133	83	136	131	128	119	110

Source: Authors' calculation, based on VDSA database

Factors Affecting Decision for Seasonal Migration

Seasonal migration from the Dokur village was influenced by both push and pulls factors. Push factors include drought, lack of employment and income opportunity in the village. Pull factors include higher wages and income earning opportunities, etc. Probit analysis was performed to understand the influencing factors of the decision of a member to migrate. Dependent variable was whether the person had migrated in a particular year or not. If yes, then the variable would have a value of 1; otherwise 0. Estimated coefficients (Table 11) showed that likelihood of a worker to opt for seasonal migration is higher if the person has less land or non-land assets, and the person is male rather than female. If the worker is relatively young (age less than 55 years) then he or she is likely to migrate. Results also indicated that if a household employment opportunity is inadequate to engage the workforce of the family ready to work as a wage labor, then the person is likely to take part in seasonal migration.

On the other hand, persons having more land ownership, non-land assets are less likely to opt for seasonal migration. Female workers having comparable socio-economic background with their male counterpart had less likelihood to opt for seasonal migration.

Reasons for migration – Long time association with the village gave the study

Table 10. Distribution (%) of migrants by castes

	Caste	2005	2006	2007	2008	2009	2010	2011	2012
Migrants	Backward Caste	56	75	100	80	91	92	94	83
	Forward Caste	31	25	0	13	0	0	0	6
	Scheduled Caste	13	0	0	7	9	8	6	11
Non-migrants	Backward Caste	80	70	65	68	66	65	60	64
	Forward Caste	20	23	30	29	31	32	37	36
	Scheduled Caste	0	7	5	3	3	3	3	0

Source: Authors' calculation, based on VDSA database

Table 11. Econometric analysis: migration over the years using probit analysis

Dependent variable= Participation in migration dummy, 1 if participant		
	Coefficient	**Significance**
Constant	-0.64278	**
Large household dummy	-0.07388	
Percent irrigated area	-0.02151	
Own total area per capita	-20.4691	**
Inadequate employment opportunity to serve as a wage labor	0.166212	
Drought dummy	-0.04838	
Real non-land assets per capita (in '000 INR)	-0.0032	**
Male dummy	0.773683	**
Years of education	0.003182	
Real base year assets per capita (in '000 INR)	-0.00113	
Pseudo R2 = 0.1941		
Log likelihood = -484.8922		
Number of obs = 1193		

Source: Authors' calculation, based on VDSA database
Note: * and ** represent that coefficients are significant at 5% and 1% level, respectively.

group a unique opportunity to know the underlying reasons and destinations for migration. Agricultural work is seasonal and there are inadequate employment opportunities in the village throughout the year. Therefore, workers have to search for employment outside their village during off-season. Out-migration for any non-farm work provides higher and relatively regular income. Caste occupations like goldsmiths, washer men, barbers, etc. have no demand in the village anymore. Since it is difficult for them to move to other occupations, they are forced to out-migrate for employment. Movement of washer men to Pune, barbers

to Goa, and goldsmiths to Hyderabad is very common due to high demand for their work in those locations. The younger generation prefer to work in cities since they feel that their position in society will be elevated by this act. Complete liberty, absence of parental restrictions and control attracts them to move to cities.

Reduction in seasonal migration in the recent years after the introduction of MGNREGS – Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), introduced in Dokur in 2006, has been creating employment in the village and was successful in controlling out-migration from Dokur since 2008. Participants of the scheme who are mostly small land owners and landless households benefitted through employment during the lean season and it contributed to their food security.

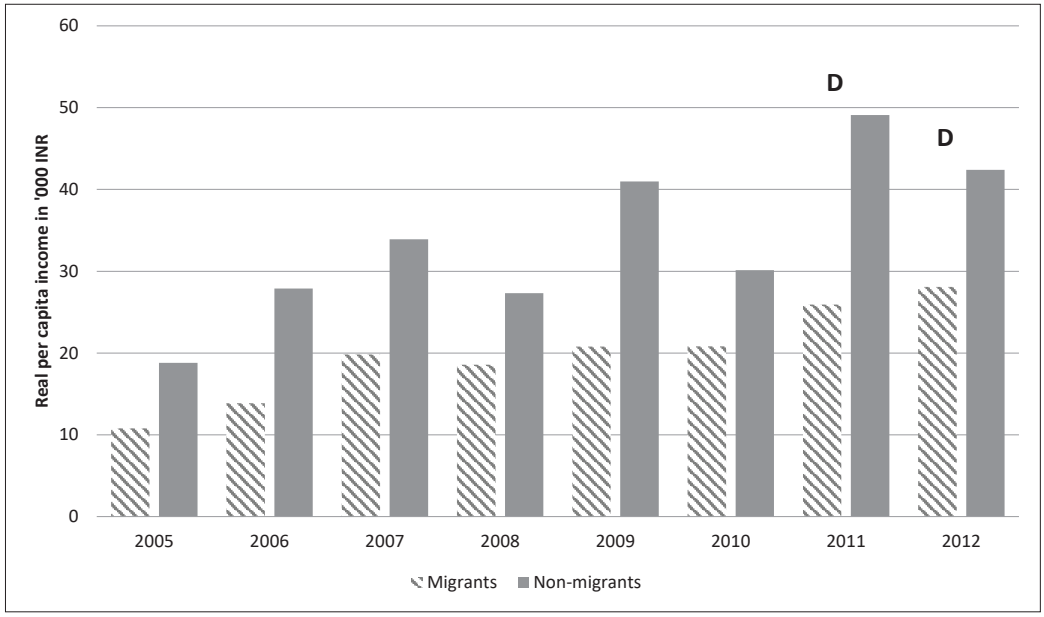
IMPACT OF MIGRATION ON HOUSEHOLD WELFARE

Migration has enhanced household welfare of the Dokur villagers. Impacts of migration on income of the household, asset accumulation and on poverty reduction are discussed here.

Income

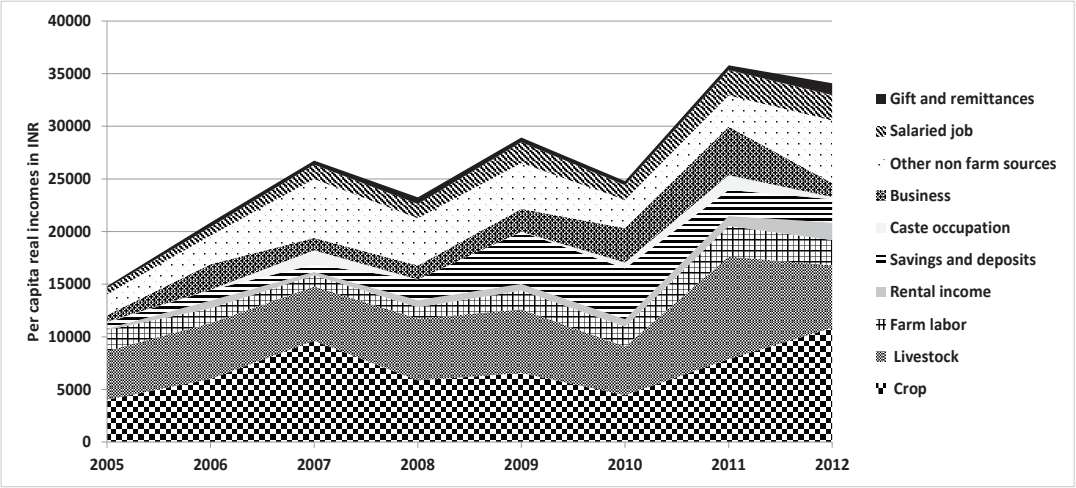
Per capita real income has gradually increased over time for both migrant and non-migrant households of Dokur village (Figure 2 and Figure 3).

Figure 2. Per capita income trends in ('000 INR) Dokur dynasty households over time: 1975–2012



Source: Authors' calculation, based on VDSA database
Note: "D" indicates drought year.

Figure 3. Per capita income (in real INR) 2009/10 from different sources in Dokur



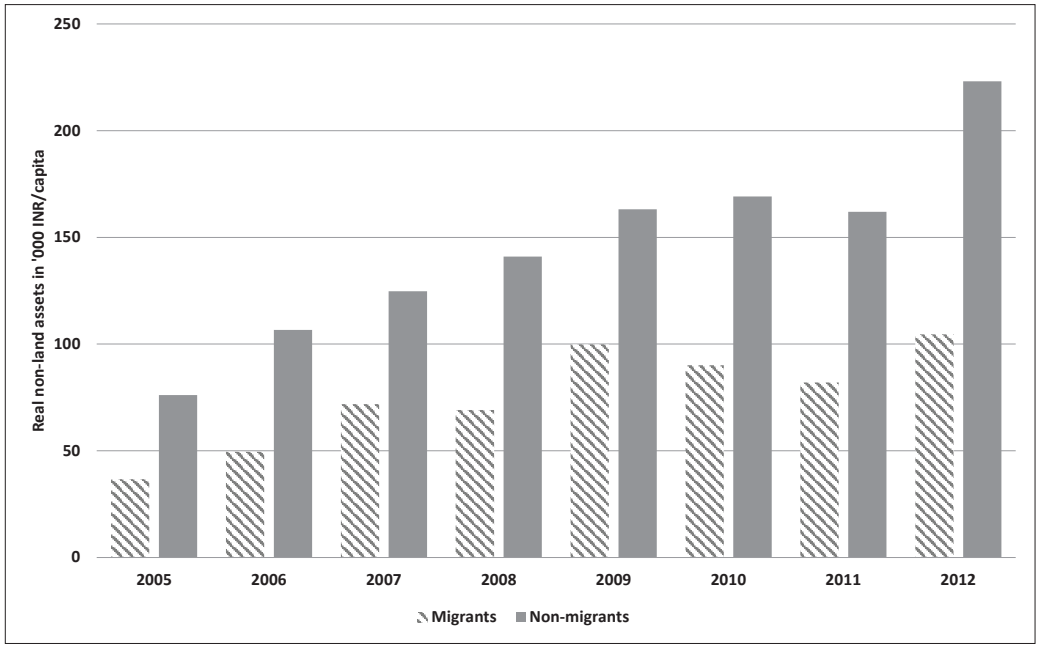
Source: Authors' calculation, based on VDSA database

Income from both farm and non-farm sources has increased. Growth in per capita real income was slow in the seventies and eighties but rapid in the recent years particularly after 2005. During the last four decades, per capita income of all households increased by 5 times: from real INR 6,612 in 1975–1977 to real INR 31,558 in 2010–2012. During the same period, income of non-migrant households increased from INR 6582 to INR 39,073. Within a span of only eight years (2005 and 2012) per capita income increased by three times for migrant households (from INR 10,829 to INR 30,640) and two times for non-migrant households (from INR 21,024 to INR 38,287). During the mid-seventies and eighties, income had drastically fallen in the drought years (like 1979 and 1983), but in the recent years (2011 and 2012) because of migration, implementation of employment generation schemes such as MGNREGS and non-farm work opportunities in the village, villagers do not experience such fall in income. In 2005, migrants were able to bring home about real INR 1,012 per person. Such returns have gradually increased by 7–10 times over the years.

Asset Accumulation

Dokur households have accumulated assets in the form of agricultural land, livestock, agricultural buildings like cattle shed, non-agricultural buildings like residential houses, stocks of farm produce and farm inputs, tools and machines used in crop production and caste occupations etc., consumer durables and financial assets like savings. Figure 4 shows the trends in asset accumulation for migrant and non-migrant households. Per capita ownership of total assets for all households has increased by seven times, from INR 21,515 in 1975 to INR 156,102 in 2012. During this period, per capita real asset ownership increased by seven times for non-migrant households. Per capita real asset ownership increased three times for migrant households (INR 33,801 in 2005, and then to INR 95,069 in 2012). People migrating to urban

Figure 4. Per capita non-land asset accumulation ('000 INR) in Dokur by migrants and non-migrants



Source: Authors' calculation, based on VDSA database

areas brought a broader range of food products, new styles of clothing and other consumer goods back to the villages when they returned from contracts. Migrant households with similar level of income were able to accumulate more consumer durables such as television, refrigerator, fan, furniture, utensils, cooking instruments than their non-migrant counterpart.

Poverty Situation

Studies on poverty have looked at the ways in which the poor manages to move out of poverty by building assets while coping with their vulnerable situation (Orozco 2010). We were interested to know whether seasonal migration has played any role in poverty reduction among the Dokur villagers and particularly to the migrant households. We have studied poverty situation among the sample households in Dokur using both Lower Poverty Line (USD 1.25 ppp per day per person) and Upper Poverty Line (USD 2.00 ppp per day per person). For each year, sample households were grouped into poor and non-poor category using both lower and upper poverty line. Our analysis revealed that poverty was rampant among all types of households in the seventies and eighties (Table 12). Poverty was declining but at a very low rate. Poverty reduction was rapid since 2005 for both migrant and non-migrant households. In 2011 and 2012, none of the households were poor. However, some households are experiencing up and down in poverty situation across years. They are transient poor (Table 13).

Multiple factors have contributed for moving out of poverty. These are: (1) intensification of agriculture through adoption of modern varieties (MVs) and changes in cropping pattern; (2) diversification of agriculture (cultivation of high value crops, non-crop farming activities, integration of crop-livestock) and engagement in non-farm activities; (3) migration (seasonal

Table 12. Trends (%) in poverty among migrant and non-migrant families of Dokur

Year	Migrant	Non-migrant
2005	50	50
2006	19	13
2007	0	5
2008	7	6
2009	0	9
2010	8	0
2011	0	0
2012	0	0

Source: Authors' calculation, based on VDSA database

Table 13. Number of migrants vs. poverty

	Migrant	Non-migrant	Total
Moved out of poverty	19	22	41
Transient poverty	3	2	5
Total	22	24	46

Source: Authors' calculation, based on VDSA database

and temporary) and commuting to nearby and faraway places for increased employment and earning; (4) ownership of irrigated or dry land; and (5) social safety net programs such as employment guarantee schemes (MGNREGS) and subsidized food distribution under PDS that contributed to farmers in a positive way to come out of poverty.

Health Condition and Welfare

The main nuisance of migration in Dokur is HIV-AIDs. In most of the cases, farmers went to urban areas for work leaving the family behind. They share common accommodation with fellow workers in project sites. This had led to illegal relations and culminated in HIV-AIDS. This is highly prevalent and a major disaster, especially of migrants from Dokur to tourist places like Goa, Mumbai, and some places in Gujarat. Some of the farmers also faced some health issues due to changes in the weather and sources of drinking water. Gandhi, et al. (2008) compared the general and sexual health status of migrants and non-migrants and indicated that the health of the migrants was relatively poor compared to non-migrants, with 36 percent of the respondents at the migration sites complaining of ill-health and considerable difficulties in handling daily tasks, and 29 percent suffering from sexually-related illnesses (gonorrhoea and syphilis being the common illnesses in Dokur). Migrants proved to be a higher risk, with respect to general and sexual health. Farmer couples migrating for work leaving the children and elder family members behind was a common feature in Dokur. This situation often results to strained relationships, and children lacking in care and attention tend to develop bad habits. The societal bond and relations with friends and relatives also get affected negatively.

CONCLUSIONS

Dokur villagers have experienced frequent droughts. Drought has affected their livelihoods. To cope with the situation they had migrated away to different places on a temporary basis. Results have shown that economically down trodden households generally opted for migration. Income of both migrant and non-migrant households has increased over time and poverty has declined. In the most recent years (2011 and 2012), none of the sample households were poor. Seasonal migration helped the Dokur villagers to move out of poverty and contributed positively towards asset accumulation.

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