CHAPTER- II

RURAL MALE OUT-MIGRATION AND RURAL DEVELOPMENT IN BIHAR: A SPATIAL ANALYSIS

II.1 Introduction

Out-migration and rural development are inter-dependent. Rural development aims to increase the status of people, which in the final analysis should encourage people to remain in rural areas. Out-migration is viewed as a consequence of the lack of development or developmental opportunities in rural areas. But very little is known of the causality of the interrelationship between these two phenomena. Available evidences suggest that the direction of this relationship may not be the same at all times and in all places (U.N.1983). Rural development has been found to reduce rural out-migration in some areas, whereas it seems to have had little impact in other areas. In fact, there is uncertainty about the structural determinants of rural out-migration. It occurs in a variety of developmental contexts, which differ in accordance with the level of socio-economic development of a country or a state. Thus, (Rao, 1986) rightly observed that migration is a major factor in economic development and manpower planning. It has acquired special significance in the context of commercialization of agriculture because of labour mobility. It is a major factor in urbanization and social change. It has notable feed back effects on the place of origin as the out-migrants from rural to urban areas maintain different kinds and degrees of contact.

II.2 Historical Perspective

Since time immemorial people have been shifting from one place to another as families, tribes, hordes and other forms of social groups for food, shelter, security and other reasons. This movement of people from one place to another for purpose of settling down is commonly known as migration. It has been a universal phenomenon (H. C. Upeti, 1981).

Migration has quite a long history in Bihar and its inhabitants have not only crossed the state boundary but also the international frontiers. Consequent upon the growth of modern industries and urbanization, migration from Bihar started around 1830.
when a large number of dwellers moved to different British colonies like Mauritius, Guyana, Trinidad, Fiji, Sri Lanka etc. as indentured labourers. Most of the emigrants were Bhojpuri speaking and middlemen and contractors forcibly transported them to distant places and they were employed in the plantation and agricultural sectors in such far off countries. The condition of these migrant labourers was often slave like. They were so brutally treated that they had to live ill clad, ill fed and ill housed with their meagre wages without any time-bound increment. Such migrations continued from the state till the First World War. There has been large-scale migration within the country as well from the middle of the 19th century and the most important destination of the migrants from Bihar have been the tea gardens of Assam and the industrial areas of West Bengal. Initially, the migration to tea gardens started from the plain regions of the state. But later on, after the close of the 19th century, the tribals from Chottanagpur became the major supplier of plantation labour. The industrial areas of West Bengal, however, had attracted migrants mainly from the North Bihar plains to work as Coolies, rickshaw or thela-pullers, night guards, workers in jute and other factories and for many such low-paid jobs. The sole object behind the movement of the Biharis to West Bengal during pre-independence period was to earn their individual living and to save some money for remittances, towards meeting the requirements of their families, left at home. A certain percentage of the migrants, however, chose in course of time to make Bengal their second home due to the favourable circumstances created by the prospects of secure monthly earnings and the facilities of railway transport. Nonetheless, they never lost touch with their native villages in Bihar completely. (Harprasad Chattapadhaya, 1987).

A large number of persons migrated to Assam and Bengal to take up small business and petty trades also. Before independence a considerable portion of the police force in Bengal consisted of Bihari migrants. Other important factors behind internal migration from Bihar, apart from the urge to improve their living conditions, have been the push factors of natural calamities like drought and semi drought conditions, flood, widespread epidemics, particularly malaria and plague and recurring famines. After the decline of indigo industry and that of saltpeter and the great earthquake of 1934, which caused tremendous disaster in North Bihar, the outflow of migration considerably increased to north-east plantation economy and Bengal (Thakur, 1988). In 1921, nearly 5 lakh tribals
from the Chotanagpur districts went to Assam tea gardens and another 7.25 lakhs went to Bengal from six districts of North Bihar (Iyer and Singh, 1992)*.6

Table II.1 reveals that the out-migration of males has declined over a period of time. The decline is consistent in both lifetime total male out-migration and rural male out-migration during the entire period covered in the study, viz. between 1961 and 1991. The proportion of male out-migrants are noted to be 5.59 %, 4.70%, 3.91% and 3.53 % in the years of 1961, 1971, 1981 and 1991 respectively, while rural male out-migration rates are recorded as 5.37 %, 4.06 %, 3.46 % and 3.07 % in the years of 1961, 1971, 1981 and 1991 respectively in Bihar. An analysis of the distribution of rural male out-migrants in terms of streams of migration i.e. rural to rural and rural to urban presents a different pattern. On one hand, the percentage distribution of rural to rural male out-migrants has declined over a period between 1961 and 1991. On the other hand, rural to urban out-migration has consistently increased from 1971 to 1991. Moreover, this stream of male migration has declined between 1961 and 1971. Thus there is no doubt that an average male of Bihar has become less mobile over a period of time.

Table II.1: Recent Trends of Inter-State Male Out-migration from Bihar

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Population</td>
<td>23301449</td>
<td>28846944</td>
<td>35930560</td>
<td>45202091</td>
</tr>
<tr>
<td>Rural Males</td>
<td>21140292</td>
<td>25728987</td>
<td>31170556</td>
<td>39045095</td>
</tr>
<tr>
<td>Male Out-migrants</td>
<td>1302302</td>
<td>1356345</td>
<td>1404433</td>
<td>1597287</td>
</tr>
<tr>
<td>Rural Male Out-migrants</td>
<td>1138700</td>
<td>1045788</td>
<td>1078147</td>
<td>1197675</td>
</tr>
<tr>
<td>Rural to Rural Male Out-migrants</td>
<td>506432</td>
<td>521975</td>
<td>355824</td>
<td>359714</td>
</tr>
<tr>
<td>Rural to Urban Male Out-migrants</td>
<td>630268</td>
<td>523813</td>
<td>722323</td>
<td>837961</td>
</tr>
<tr>
<td>Male Out-migration Rate</td>
<td>5.59</td>
<td>4.70</td>
<td>3.91</td>
<td>3.53</td>
</tr>
<tr>
<td>Rural Male Out-migration Rate</td>
<td>5.37</td>
<td>4.06</td>
<td>3.46</td>
<td>3.07</td>
</tr>
<tr>
<td>Distribution of Rural to Rural Male Out-migrants</td>
<td>38.89</td>
<td>38.48</td>
<td>25.34</td>
<td>22.52</td>
</tr>
<tr>
<td>Distribution of Rural to Urban Male Out-migrants</td>
<td>48.40</td>
<td>38.62</td>
<td>51.43</td>
<td>52.46</td>
</tr>
</tbody>
</table>

Source: Based on data obtained from the Migration Tables DIII (place of birth) for the years of 1951, 1961, 1971 & 1981 and D2 for (place of last residence) the year of 1991, Census of India.

Owing to limitation of census data it is not possible to present the complete picture of out-migration pattern district-wise. Furthermore, it seems impossible to calculate district-wise inter-state out-migration by using any indirect method. That is
why, the present discussion is limited to intra-district and inter-district pattern only on district level. However, inter-state out-migration has also been discussed for the state of Bihar as a whole. Before discussing the above topics, it is essential to present a picture of internal male in-migration for knowing the complete scenario of migration.

---

**Fig: II.1**

**BIHAR RECENT TRENDS OF MALE OUT-MIGRATION**

![Graph showing recent trends of male out-migration in Bihar](image)

---

**Fig: II.2**

**BIHAR DISTRIBUTION OF RURAL MALE OUT-MIGRANTS**

![Bar chart showing distribution of rural male out-migrants in Bihar](image)

---

**II.3 Internal Male In-migration**

The role of internal migration defined in terms of the movement of people across the smaller units within a country in the process of rural development or economic
development is widely recognized. It is found that migration takes place from low productive to high productive areas, from areas of low level of wages to those of higher wages and from the poor and backward to the rich and prosperous areas. Internal male in-migration (IMIMR) has been classified here into four categories by applying mean and standard deviation method. The district within individual category is arranged in descending order in terms of their proportion of internal male in-migration.

Very High IMIMR (above 153.02%) – Figure II.3 explicitly manifests that there are only two districts viz. Purbi Singhbhum and Dhanbad, which fall in the category of very high IMIMR. Dhanbad is exclusively famous for high-grade bituminous coal and Bokaro Iron & Steel Company whereas Purbi Singhbhum is well known for TISCO & TELCO. They have the largest concentration of in-migrants and these districts have Asia fame public and private enterprise, which engage people not only from within the state but outside the state also. Opening of new power projects and the development of Damoder Basin have also increased the absorbing capacity of workers in these districts.

High IMIMR (101.68 – 153.02%) – The location of districts with high IMIMR is situated in the heart of Chotanagpur Plateau. The districts, which come under this group of high IMIMR, are Ranchi and Hazaribag. Both districts have high level of urbanization, industrial centers and mining places, which ultimately lead to high in-migration. The above attractions not only attract in-migrants from long distances but they also influence local movement of people from surrounding districts.

Medium IMIMR (50.35 – 101.68%) – The districts, which fall in this group of medium IMIMR are situated in a scattered pattern. However, most of the districts of this group are concentrated in the Chotanagpur Plateau. The districts, which lie in this group, are Patna, Paschimi Singhbhum, Giridih, Katihar, Lohardaga, Gumla, Purnia, Palamu and Muzaffarpur. Thus barring a few districts, majority of the districts are located in the Chotanagpur Plateau. All the districts of the Chotanagpur Plateau have various kinds of mining and industrial activities, which require labourers and technicians for their operations. In addition to the above, forestry activities also employ a large number of local labourers. The districts of Patna, Purnia and Katihar are constantly gaining population from inter-district in-migration whereas the district of Muzaffarpur is gaining on account of intra-district in-migration. Purnia and Katihar are gaining due to their vast
BIHAR
INTRA - DISTRICT
RURAL MALE OUT-MIGRATION
1991

INDEX

- VERY HIGH (≥ 56.53)
- HIGH (40.18 - 56.53)
- MEDIUM (23.84 - 40.18)
- LOW (7.49 - 23.84)
- VERY LOW (< 7.49)

FIG.: II.4

66
BIHAR
INTERNAL MALE IN-MIGRATION
1991

INDEX
- VERY HIGH (≥ 153.02)
- HIGH (101.68 - 153.02)
- MEDIUM (50.35 - 101.68)
- LOW (< 50.35)

FIG.: II.3

62
prospects of agricultural development and high influx of Bangladeshi refugees. Muzaffarpur, the commercial capital of Bihar is receiving population from the surrounding areas due to its central location in the North Ganga Plain. Patna is gaining on account of its position as the capital of Bihar. In-migrants largely belong to the service classes.

Low IMIMR (less than 50.35 %) - Purbi Champaran had the lowest internal male in-migration rate in Bihar according to 1991 census. The reason behind this low IMIMR is that it has high density of population and low-level of industrialization. Again, it has a rugged topography, which leads to low agricultural productivity. Other districts, which have very low level of IMIMR, are Sitamarhi, Khagaria, Saran, Madhubani, Jehanabad, Gopalganj, Bhojpur, Gaya, Vaishali, Samastipur, Darbhanga, Deoghar, Nalanda, Aurangabad, Begusarai, Godda, Araria, Rohtas, Saharsa, Paschim Champaran, Nawada, Sahibganj, Siwan, Madhepura, Dumka, Bhagalpur and Kishanganj. Thus, more than two thirds of the districts of Bihar have low level of in-migration and they are exclusively confined either to the North Ganga Plain or the South Ganga Plain. These districts have low industrial base and only few food-processing factories are located in a scattered pattern. Even these factories have been closed down for many years due to bureaucracy, labour problem, inadequate supply of electricity, political interference and social insecurity. Most of the districts have chronic problems of inundation and most of the lands of these districts are submerged under water during the rainy season. It seems that agriculture is the only means of livelihood and that sector too has crossed the limit of labour absorption capacity of the manpower, employed. The labour absorption capacity in the service sector is also quite meagre due to low infrastructural and socio-economic development.

II.4 Internal Male Out-migration: Distance and Streams

Migration is as old as man himself. It is one of the principal causes of fluctuation in population along with natural increase or decrease in population. Migration may be motivated by various factors, which may be personal, political, economic and natural forces. In the modern age migration is chiefly motivated by technological advances and industrial development. Redistribution of population and industrial development go hand in hand. Since migration results in the redistribution of population, its study assumes
great importance in the analysis of demographic data (Prabhakar, 1986). However, in countries like India where 75% of population live in villages, rural out-migration has a special significance in the context of rural development. Sometimes it plays a decisive role in the social and economic activities of the households. The flow of money from the out-migrants may raise the economic status of the families, which in turn may raise the level of aspirations. Therefore, rural out-migration may be considered to be an important factor behind rural development and the major social and economic changes in the rural areas of the society (Singh and Sharma, 1983).

Migration and distance can hardly be separated. A change of residence necessarily involves spatial consideration. In fact, it is the distance that determines various types of migration: inter-country, inter-state or international. In the Indian Census, district is the smallest unit for which information regarding movement of people is available. On the basis of distance, the movement of people has been classified into four categories: intra-district migration, inter-district migration, inter-state migration and inter-national migration. Furthermore, movement within the same district or intra-district migration is interpreted as short distance migration; inter-district migration is considered medium distance migration and inter-state migration as long distance migration. The census of India provides data only for intra-district and inter-district out-migration on district level. Thus analysis of out-migration is restricted to intra-district and inter-district out-migration only. However, inter-state out-migration has also been described for the state of Bihar as a whole. In the studies of internal migration, four types of migration streams are generally discerned for every kind of distance of out-migration. These are (i) rural to rural (ii) rural to urban (iii) urban to urban and (iv) urban to rural. Since this study is limited to rural out-migration only, two types of out-migration streams i.e. rural to rural and rural to urban out-migration have been discussed.

II.4.i Intra-District Male Out-migration

Intra-district male out-migration rate is defined as the proportion of male out-migrants in the given geographical region to the total male population of the region during the given period of time. Rural poverty, manifested in low agriculture income, low productivity and unemployment is an important factor behind pushing people out of their
native places towards areas with greater employment opportunities. The pressure of population resulting in higher labour-land ratio has been widely hypothesized as one of the important causes of poverty and rural out-migration in India. With a given level of technology, there are certain labour forces, which can be absorbed by agriculture. As the population continues to grow, unless the non crop husbandry sectors or cottage and small scale industries in the rural areas expand so as to absorb the surplus, increasing numbers of people must move to the urban centres or other rural areas to obtain gainful employment. Intra-district rural male out-migrants are those persons who out-migrate from rural area to other rural or urban areas within the district. The intra-district male out-migration rates (IDMOR) have been categorized into five types by the application of mean and standard deviation method, which has been arranged into descending order. Very High IDR MOR (above 56.53 %): The districts of Purbi Singhbum and Dhanbad are included in this group of very high IDR MOR, which is explicitly manifested from fig. II.4. These two districts are famous for high level of urbanization, industrial development and mining activities. The big industries like TISCO & TELCO at Jamshedpur and iron & steel industry at Bokaro have broadened the scope of absorption of workers, which further resulted in expanding up quite a good number of small townships in both the districts. These two districts demand highly qualified technicians for the industrial units and also unskilled workers to serve the formal and non-formal sectors but the tribals living there are forced to work as mining and industrial labourers, domestic helpers and construction workers.

High IDR MOR (40.18. 56.53%): The districts included in this group have also high level of infrastructural and socio-economic development. All districts, namely, Ranchi, Paschimi Singhbum and Hazaribag expect Patna, are exclusively confined to the Chotanagpur Plateau and they have a hub of mining and industrial activities, which attract people from the surrounding areas. However, Patna is gaining on account of its position as the capital of Bihar and out-migrants largely belong to the service classes.

Medium IDR MOR (23.84-40.18 %): The districts which come under this group of medium IDR MOR do not form any pattern; rather they are located in a scattered manner. They are located in all physiographic regions of Bihar. The districts of Chotanagpur Plateau, namely, Gumla, Palamu, Lohardaga, & Giridih are specialized in mining.
forestry and primitive agricultural activities. The multi-purpose Kosi Projects of Madhepura, sugar and pharmaceutical industries of Muzaffarpur, silk industry of Bhagalpur, high level of agricultural development in Saran and Nawada and so on, have stimulated males to move from rural areas to other places within the districts on such a large scale.

**Low IDR MOR (7.49- 23.84 %):** The districts remaining in this group have low level of urbanization and industrial development. Local avenues for job absorption of surplus labour in the above sector also seem to be bleak. Although the district headquarters have got the status of urban areas, most of the people are engaged in the service sector. That is why spread-effect of town is of very limited level. The literacy level is of course high in this group, which also acts as catalyst force to move long distance rather than short ones.

**Very Low IDR MOR (below than 7.49%)** Khagaria is the only district, which remains in the category of very low IDR MOR. It has a very low level of urbanization and industrialization for which the labourers of the area cannot be locally absorbed. Yearly inundation of the entire district during the rainy season causes less displacement of people.

In short, high unemployment rate, meager income, alarming population growth, inadequate housing, lack of facilities for higher education etc. are the factors to be reckoned while explaining the low level of intra-district movement of people.

**II.4.ii Intra-District Rural to Rural Male Out-migration**

Intra-district out-migration relates to short distance movement within the district of enumeration. This movement is mainly due to marriage or out-migration of labourers at the time harvesting or out-migration for education etc. The necessity of out-migration in most areas of the region arises due to the growth of the local population to levels beyond the carrying capacity of the land at the present level of technology. The predominance of the agricultural sector and the availability of new agricultural land have been the major reasons for rural to rural out-migration. Moreover, intra-district rural to rural male out-migration (INDRRMO) has been categorized into five groups with the application of mean and standard deviation method.

Fig. II.5 clearly reveals that the districts having very high level of IDRRMO are lying in scattered pattern, which had IDRRMO more than 81.19% in 1991. The
districts, which belong to this group are Madhepura, Gumla, Sahibganj, Kishanganj, Palamu and Jehanabad. People are compelled to move from one place to another within the district due to social insecurity and uneven conditions of agricultural development. The next group consisting of those districts, which had IDRRMO varying from 67.26 to 81.19% in 1991, is identified as high IDRRMO zone and constituent districts are situated in the North Ganga Plain, the South Ganga Plain and Santal Parganas. The districts, namely, Siwan, Dumka, Khagaria, Godda, Madhubani, Katihar, Saharsa, Munger, Lohardaga, Purba Champaran, Rohtas, Gopalganj, Bhagalpur, Nawada, Gaya, Araria, Paschim Champaran, Purnia, and Vaishali are included in this group. The medium level of IDRRMO ranging between 53.33 % and 67.26% is found in the districts of Darbhanga, Deoghar, Muzaffarpur, Saran, Begusarai, Nalanda, Sitamarhi, Aurangabad, Hazaribag, Giridih, Paschimi Singhbhum, and Samastipur. The districts namely Bhojpur and Paschimi Singhbhum are put under the heading of low IDRRMO where migration rate varies from 39.41 to 53.33%. Lastly, highly developed and urbanized districts like Patna, Dhanbad, and Purbi Singhbhum had migration rate below 39.41% in 1991. Rural people generally prefer urban areas to rural areas for out-migration in these districts because urban areas have scope capacity of labour absorption. Rugged topography and the resultant low agricultural development in Dhanbad and Purbi Singhbhum are not conducive to the movement of male population from one rural area to another.

II.4.iii Intra-District Rural to Urban Male Out-migration

Among the different forms of out-migration, rural to urban out-migration stream is considered more significant than the rest from the socio economic point of view. The concentration of big industries and other economic activities in the cities and towns attracts migrants in large numbers from rural areas to boost up their economy. The increasing trend of out-migration from rural to urban areas has been in due consideration of the existing differential in the availability situation of income and the differential in the levels of the various amenities of life. Very low level of earnings and socio-economic facilities of life available in the agriculture based economy of the rural areas push the labour forces to the urban areas for higher income and better amenities of life in the modern establishments. Rural-urban out-migration brings about changes not only in the life of the out migrants but also in case of the people who are left behind at their native
places. Occasional returns of the out-migrants to their native places provide opportunities for social interaction between the mobile and immobile people leading to the process of cultural diffusion. If rural to rural out-migration is female out-migration, rural to urban out-migration is male out-migration. Thus, the more an individual is poor, landless and socio-economically deprived, the greater the chance for his out-migration from rural to the urban areas (Raju, 1987)*. Moreover, both the rich and the poor are almost equally prone to out-migration. The rich out-migrate out of desire for better and greater comforts of life, while the poor out-migrate out of economic compulsion to eke out their living. The flow of people from rural to urban areas occurs mainly for economic reasons, although other factors such for education, health etc are also relevant. Thus it induces changes not only in the life of the out-migrants but also in the life of the people of native places through the process of cultural diffusion. Intra-district rural to urban male out-migration (IDRUMO) has been categorized into five groups for understanding of their inherent patterns.

Figure II.6 reveals that Purbi Singhbhum and Dhanbad fall in the group of very high IDRUMO, which had migration rate above 44.91% in 1991. It has been discussed earlier that these two districts are highly urbanized districts of Bihar, where a hub of mining and industrial activities attract a large number of rural male workers from their surrounding villages. A large number of small scale and ancillary industries have mushroomed in the townships providing employment to the people. Thus these towns have not only become the centers of attraction for their hinterland but also for other places of the country as well. The next group of high IDRUMO comprises of those districts, which are exclusively located in the Middle Ganga Plain, and migration varies from 34.84 to 44.91%. Patna, Samastipur, Bhojpur, Sitamarhi, and Aurangabad are included in this group. The districts with migration rate varying between 24.77 and 34.84% have been clubbed as medium IDRUMO. Most of the districts are located either in the North Ganga Plain or the Chotanagpur Plateau. Nalanda, Hazaribag, Paschimi Singhbhum, Ranchi, Giridih, Saran, Begusarai, Deoghar, Vaishali, Araria, Muzaffarpur, Gopalganj, Darbhanga, and Purnia are such districts, which are included in this group. A large part of these districts lying in the North Ganga Plain have flood prone areas. That is why people move from rural to urban areas for safeguarding themselves.
BIHAR
INTRA - DISTRICT
RURAL-URBAN MALE OUT-MIGRATION
1991

INDEX
- VERY HIGH (>= 44.91)
- HIGH (34.84 - 44.91)
- MEDIUM (24.77 - 34.84)
- LOW (14.69 - 24.77)
- VERY LOW (< 14.69)

FIG: II.6
71
against flood. The districts of Chotanagpur Plateau having high concentration of industrialization in urban areas also attract people from their hinterland. The districts, which come under the group of low IDRUMO, have migration rate from 14.69 to 24.77%. Although they are widely distributed throughout the state, they are intensively concentrated in the Central Plain and Santal Parganas. The districts having very low level of IDMRUMO are spread in the peripheral areas of the state and these districts had migration rate of less than 14.69% in 1991. Siwan, Madhubani, Palamu, Kishanganj, Madhepura, Gumla, and Sahibganj are included in this group. They have very low level of urbanization, infrastructural and industrial development, which cause obstacles for transfer of people from rural into urban areas within the district.

Thus it is a matter of concern that in spite of having high density of population in the rural areas of Bihar, males do not out-migrate to the neighbouring rural areas or to the urban areas within the district. This kind of by passing local small towns, cities and headquarters happens because of an acute shortage of employment opportunities in the rural areas, excessive population pressure on meagre amount of land, lack of irrigation and small-scale industries and the basic amenities of life. The neglect of the small towns have also impeded their economic growth and they are already so much congested that they do not have any capacity for absorption.

II.4.iv Inter-District Rural Male Out-migration

The trend of inter-district out-migration in Bihar is somehow related to the pressure of population and economic resources of the districts. In the context of a predominately agricultural economy and a consistently fast growing population, the small and declining size of agricultural land holdings has been the basic factors behind male out-migration. In both time and space, out-migration was triggered off especially under lean agricultural conditions caused by periodic droughts, floods and low prices of the produce. The zeal to improve the standard of living has been another vital consideration for the movement of landless agricultural labourers from rural areas. The location of urban industrial concentrations and major construction sites, within the state is a strong pull factor. Above all, out-migration from a particular region perpetuates itself. The pioneer out-migrants not only generate more out-migration from their native areas but
also determine the direction and sphere of the economic activities of their follower out
migrants in most cases. Thus rural unemployment and under-employment, increasing
population, lack of adequate cultivable plots, increasing population pressure upon a very
meager amount of land, chronic flood and drought, almost a total lack of rural industries,
acute shortage of basic amenities of life in the villages and so on make rural life
completely stagnant and deadly, where from the peasants and workers are compelled to
leave tottering villages and crowd into distant cities and other agriculturally prosperous
regions. The districts with various kinds of inter-district rural male out-migration rates
(INDRMOR) in Bihar have been arranged into five categories for their studies in detail.

**Very High INDRMOR (above 47.72%):** The districts which can be grouped under the
heading of very high INDRMOR are Aurangabad and Bhojpur and they have migration
rate higher than 47.72% in 1991, which is shown in fig. II.7. Both the districts have long
tradition of migration since the British period. As the density of population is quite high
and per capita cultivable land is quite low there, people drift towards other areas of lower
density. Due to dry climate in this region people are of better physique and are working
in the police forces. Because of historical and geographical reasons, large numbers of the
educated and literate people in Bihar are employed as skilled labourers or for supervisory
works in the industrially developed Chotanagpur region.

**High INDRMOR (34.85-47.72%):** The districts, namely, Jehanabad, Munger, Nawada,
Nalanda and Gaya, with high INDRMOR are clustered in the Central Plain. Its
inhabitants are hard working and assertive. It has a higher percentage of scheduled caste
population and the distribution of land is not as disproportionate as in the north. A high
rate of literacy has made people conscious of their rights and the social unrest in this area
is due to feelings of comparative deprivation. In spite of double cropping and cultivation
of cash crops, the high density of population makes this vast region as an out-migrating
region. Thus, man-made composite environment compels the people to move to other
places of the state for security and economic prosperity.

**Medium INDRMOR (21.98 to .85%):** The districts with medium INDRMOR have
encircled the zone of high INDRMOR. Nawada, Lohardaga, Saran, Patna, Vaishali,
Siwan, Ranchi, Hazaribag, Giridih, Purbi Singhbhum, Rohtas and Bhagalpur are enlisted
under this group. Influx of out-migrants from neighbouring districts in the Chotanagpur
Plateau has been considered as vital reason for medium level of migration rate in the districts of Chotanagpur Plateau whereas medium level of rural development in the Plain give rise to medium kind of migration rate.

Low IMDRMOR (9.10 to .98%): Although the districts are located in a dispersed pattern in the group of low INDRMOR, they are primarily concentrated in the North Ganga Plain and Santal Parganas. The districts, which can be clubbed in this group, are Darbhanga, Khagaria, Begusarai, Gumla, Palamu, Samastipur, Gopalganj, Madhubani, Madhepura, Purnia, Muzaffarpur, Dhanbad, Saharsa, Deoghar, Godda, Dumka and Sitamarhi. In Santhal Parganas and Chotanagpur Plateau, migration rate is of low level due to large scope of labour absorption within the district itself whereas low level of literacy is considered as an important cause for low migration rate in the North Ganga Plain.

Very Low INDRMOR (Below .910%): The districts with very low INDRMOR are situated in the peripheral areas of Bihar. The districts, which can be clubbed in this group, are Katihar, Purba Champaran, Paschim Champaran, Paschimi Singhbhum, Araria, Sahibganj, and Kishanganj. The size of landholding is larger here, which minimizes the rate of out-migration. Low level of literacy among the tribal population in Paschimi Singhbhum and Sahibganj hinders the process of transfer of people from these districts to other districts.

II.4.v Inter-District Rural to Rural Male Out-migration

Inter-district rural to rural out-migrants are those who migrate from rural areas of one districts to the rural areas of another district within the same state. The necessity for inter-district rural to rural male out-migration in most cases arises due to the growth of the local population to the levels beyond the carrying capacity of the land at the present level of technology. All districts of Bihar with different patterns of inter-district rural to rural male out-migration (INDRRMOR) has been grouped into five categories.

It is clearly revealed from fig. II.8 that the districts of Katihar and Godda had very high INDRRMO, viz., ranging above 53.87% in 1991. The districts with high INDRRMO where migration rate varies from 42.60 to 53.87% surround this zone. All districts of the above mentioned groups are located either in the North Ganga-Kosi Flood Plain or the Santal Parganas. A large number of Bangladeshi infiltrators have made their
home in this region and thereby pressure of population on land has reached its nadir state in the rural areas. At the same time, industrial development and urbanization are of low level. Again, low level of agricultural development and literacy are also prevalent in this zone. Thus poverty stricken illiterate rural males are compelled to leave their home for their sustenance. The districts showing medium INDRRMO are encircling the zone of high migration rate. Deoghar, Kishanganj, Khagaria, Saharsa, Dhanbad and Giridih are included in this group, which had migration rate between 31.33 and 42.60% in 1991. Lohardaga and Palamu are located in isolation. It is observed that more than fifty percent of the districts are placed in the group of low INDRRMO in Bihar and it had migration rate between 20.06-31.33 % in 1991. Most of the districts, namely, Samastipur, Vaishali, Purba Champaran, Begusarai, Paschim Champaran, Gopalganj, Muzaffarpur, Darbhanga, Sitamarhi and Madhubani are situated in the North Ganga Plain whereas Bhagalpur, Nawada, Aurangabad, Jehanabad, Munger, Gaya and Rohtas are located in the Central Plain. This group also consists of some districts of the Chotanagpur Plateau viz. Ranchi, Gumla, Paschimi Singhbhum, Hazaribag, and Purbi Singhbhum. The districts lying near the Ganges in the western part of the state form a region of very low INDRRMO, having migration rate less than 20.06 % in 1991. It forms a compact belt through juxtaposition of the districts through extension from north to south. High literacy, nearness to the metropolitan city of Patna, relative prosperity, high agricultural development etc. lead to low level of migration from this region. Thus the densely populated districts of Bihar have low level of inter-district rural to rural male out-migration. The burden of the existing resources of these districts is already high and whatever out-migration is found here is not because of economic activities but due to social obligations.

II.4.vi Inter-District Rural to Urban Male Out-migration

Rural-urban male out-migration is an inevitable effect of the process of urbanization-industrialization. This entails allocation of surplus labour from the low productivity, low-income rural sector to high productivity, high-income urban sector. The urban centres have many pull factors for rural population, i.e. attraction of high income, concentration of various activities, growth of education, better amenities of life etc. Instability of agriculture & income and desire for stable source of income from jobs, multiplication of wants and available means of spending are also important factors.
Abolition of zamindari system, ceiling on landholdings, insecurity in rural areas, desire to provide better education to children and bringing up children near the source of employment, tendency of well off rural people to dispose of their landed property in rural areas and construct or purchase house property in towns also increased the rural to urban out-migration. Inter-district rural to urban male out-migration (INDRUMO) has been classified into four groups for further analysis.

The districts with very high INDRUMO coincide with districts having high agricultural development. This is clearly depicted in fig. II.9. The districts, namely, Madhubani, Bhojpur, Siwan, Rohtas, Saran, Nalanda, Jehanabad and Aurangabad are included in this group and migration rate exceeded 63.70% in 1991. All the districts except Madhubani are situated in the central western zone of the state. High literacy is accompanied by low level of urbanization & industrialization in these districts, which ultimately result in high migration towards the mining and industrial belt of Chotanagpur Plateau. The next group of high INDRUMO includes those districts, which are located in the western side of Bihar, and it has migration rate from 51.11 to 63.70%. It comprises of Nawada, Gopalganj, Vaishali, Munger, Sitamarhi, Hazaribag, Gumla, Begusarai, Gaya, Palamu, Purba Champaran, Samastipur, Darbhanga, Giridih and Muzaffarpur. Thus the above pattern of rural to urban transfer of people clearly reveals that the males from the high-density zone of western Bihar are shifted towards the sparsely populated zone of the eastern region. The group of medium INDRUMO ranging between 38.51 and 51.11% consists of the districts, which are dispersedly located. Moreover, a large number of districts are concentrated on the eastern side having high INDRUMO. Paschim Champaran, Bhagalpur, Saharsa, Paschimi Singhbhum, Khagaria, Purbi Singhbhum, Lohardaga, Patna and Araria are included in this group. All the districts, which have migration rate lower than 38.51%, are exclusively concentrated in the eastern part of the state. In this group of low INDRUMO, there are two completely contradictory groups of districts with respect to economic development. The developed districts, namely, Dhanbad, Ranchi etc. have enough scope of employment and labour absorption within the districts themselves whereas lack of knowledge and ignorance of job opportunity in under-developed districts, namely, Kishanganj, Purnia, Katihar, Madhepura etc. make people less mobile.
BIHAR
INTER - DISTRICT
RURAL - URBAN MALE OUT-MIGRATION
1991

INDEX

- VERY HIGH (>= 63.70)
- HIGH (51.11 - 63.70)
- MEDIUM (38.51 - 51.11)
- LOW (< 38.51)

FIG.: II.9

79
Thus low level of inter-district rural to urban male out-migration is due to stagnation in the economy of the state, particularly its urban economy in the eighties and nineties. The pull factors were not enough to attract the out-migrants from the rural areas of the state to its urban centres. Such a hypothesis also gets supported from the fact that during 1981-91 there was considerable decline in the secondary sector employment in the state and the persons dependent on agricultural sector grew to some extent.

II.4.vii Inter-District Net Rural Male Migration

The basic impact of out-migration is on the transformation of spatial dimension as well as on the attributes of population. The Indian Census of 1991 was handicapped to project data duly cross classified by ages, educated levels and other socio economic characteristics of out migrants and hence a reference to the net migration with total population may be easier to spell out, indicating the balance of distribution. Net migration is to be understood by the sum of differences between inter-districts in-migration rate and out-migration rate. Statistically, it is defined in positive (gain) or negative (loss) ways. Positive balance indicates the drawing capacity of the economic and demographic forces of the district concerned whereas the negative balance indicates the draining capacity of the economic, demographic and cultural forces. The districts with different patterns of inter-districts net rural male migration rates (INDNRMMR) have been classified into five groups.

It is generally said that urban areas are net gainers in the process of transfer of people whereas rural areas are net loosers. Moreover fig. II.10 manifests that there are certain rural areas in Bihar, which receive more population than they deport people from their land. Dhanbad stands at top among the gainer districts. It had net migration rate above 12.75% in 1991, and is placed in very high INDNRMMR. The next group of districts with high net migration is located in the eastern part of Bihar and the net migration rate varies from 0 to 12.75 %. The districts, namely, Paschimi Singhbhum, Araria, Sahibganj, Katihar and Purnia are included in the group of high INDNRMMR and they are net gainer districts in the process of transfer of people. The net positive transfer of rural males is guided towards the northeastern region of Bihar due to vast prospects of agricultural development with the taming of river Kosi whereas the districts of the Chotanagpur Plateau are net gainer districts due to their industrial and mining
BIHAR
INTER - DISTRICT
NET RURAL MALE MIGRATION
1991

INDEX
- VERY HIGH (>= 12.75)
- HIGH (0.00 - 12.75)
- MEDIUM (-12.75 - 0.00)
- LOW (-30.92 - -12.75)
- VERY LOW (< -30.92)

FIG.: II.10
81
potentialities, where workers easily get several kinds of employment. Again, forestry activities also absorb a large number of workers. The districts with medium INDNRMMR are mainly agglomerated in Chotanagpur Plateau and the North Ganga Plain and these districts have net migration between -12.75 to 0 percent. In fact, all these districts are losers in terms of the in and out migration but the intensity of loss is low. It simply means that rural males desert their places of origin more in number than the arrival of males in their places from other districts of Bihar. The districts in this group are: Paschim Champaran, Hazaribag, Dumka, Godda, Madhepura, Purba Champaran, Deoghar, Muzaffarpur, Gumla, Saharsa, Ranchi, Palamu, Samastipur, Sitamarhi, Begusarai, Madhubani, Giridih, and Gopalganj. The districts with low INDNRMMR are spread in a scattered manner throughout the state and net migration rate varies from -30.92 to -12.75%. All the districts of this group lose their rural males with medium intensity. The districts, namely, Saran, Gaya, Nalanda, Jehanabad, Munger, Aurangabad and Bhojpur are included in this group. Male population from this zone are pushed to other region due to low level of urbanization, low level of industrialization, annual recurrence of flood, high population pressure on land and so on. Lastly, very low INDNRMNR is observed in those districts of the South Ganga Plain, which has a long tradition of the removal of people from the area and these districts have net migration rate below -30.92%. This data clearly divulges the fact that these districts lose their maximum males. This zone is losing its working population not only due to push from agricultural land but also due to attraction for better jobs and wages in the adjoining district of Patna and the industrial districts of Chotanagpur.

II.4.viii Inter-State Rural Male Out-migration

Out-migration is of particular importance in the state of Bihar. Its enterprising rural population has supplied labour force more than any other Indian state except Assam to Assamese tea gardens. The Hooghly industrial region of West Bengal has provided another important recruiting ground for the Bihari workers (Ahmad, 1969)*10. Furthermore, it is rightly visualized that the poverty stricken Bihari people have contributed to the labour force throughout the country. In case of inter-state out migration males take the lead both in rural to rural and rural to urban out-migration movement. The
state of Bihar had 3.53% inter state male out-migration rate in 1991 whereas the state has only 3.07% in term of inter-state rural male out-migration rate. It means that the urban males are more out-migrating than rural males. Thus, it is contradictory to the law of Ravenstein (1885)\textsuperscript{11} that the natives of towns are less migratory than those of the rural parts of the country. “The reason behind this extremely low figure for the crucial male migration are mainly two: first, due to various reasons the census does not adequately capture the short-term or seasonal / circulatory migrants and secondly, the census migration figures are based on the in-migration in the place of enumeration, and since Bihar experiences much more out-migration to other states than in migration, the figures for migrant population in Bihar are low. Majority of out-migrants from Bihar are enumerated not in Bihar, but somewhere else outside the state.

Fig. II.11 reveals that West Bengal is considered as the most favorite state for Bihari out-migrants where more 43% of out-migrants from Bihar reach. Delhi, the capital of India, occupies the second place in term of providing shelter to out-migrants of Bihar. The high level of out-migration is occurring here but Delhi has very limited employment generating capacity under capital intensive industrialization and consequently the incoming illiterate and unskilled out-migrants are absorbed only in a very poorly paid and low productive work in urban informal sectors. Such informal sectors are characterized by very low wages, low productivity, cutthroat competition, insecurity and exploitation. So although such migration helps to avoid starvation, it does not improve their economic condition adequately nor permits their upward social mobility. Further, it leads to a colossal waste of human resources and of the national potential. So the out-migrants are in fact moving from rural poverty to urban poverty (Mukherji, 1995) \textsuperscript{12}. The neighbouring state of Uttar Pradesh in the west counts 9.38% of out-migrants. The other neighbouring states of Bihar viz. Madhya Pradesh and Orissa accounts for 6.37% and 4.25% of out-migrants. The only other state in which the number of Bihari out-migrants is large in number is Assam and it has 7.99% of out-migrants. Some other states which are not the neighbouring states of Bihar but they also act as playground of rural male out-migrants from Bihar are Maharashtra (4.11%), Punjab (3.65%), Haryana (2.80%), Gujarat (1.47%) and Rajasthan (1.39%). In spite of being large states, Tamil Nadu, Kerala, Karnataka, Andhra Pradesh have the lowest level of rural male out-migration.
INDIA
INTER-STATE
RURAL MALE OUT-MIGRATION
1991

FIG.: II.11
84
from Bihar. It seems that language becomes the main hurdle for the uneducated and unskilled Bihari labourers to penetrate into the job market of the southern states. There are other numerous smaller states, which have low level of out-migration due to their being small in size.

II.4.ix Inter-State Rural to Rural Male Out-migration from Bihar

Rural to rural out-migrants are likely to be temporary, poorly educated and from the poorer section of the rural community. They reflect the lack of adequate income earning opportunities at their native places. The most deprived group of all is those labourers who are permanently mobile having inadequate land for them to be able to live permanently at one place. Rural to rural migration within India in the recent decades may be specifically seen to be the result of uneven capitalist penetration of agriculture leading to peaking of labour demand in certain seasons and resulting in the rise of mechanisms which source cheap labour over long distances. The development of capital agriculture in some regions on one hand and the stagnancy of dry land agriculture, floods or droughts, low impact of anti-poverty program in providing employment near homes on the other, all account for out-migration (Srivastava, 1998)\textsuperscript{13}. It is evident from appendix II.10 that high percentage of inter-state rural to rural male out-migration from Bihar is found in those states, which are either very small in size or where commercial farming is prevailing. Andaman & Nicobar Islands has the maximum percentage of migration rate from Bihar and is followed by Himachal Pradesh and Arunachal Pradesh. However, these states have very small size of male out-migration from Bihar. Anyway, Assam and Uttar Pradesh are other important states, which have also large share of rural to rural male out-migration from Bihar. Out-migrants are mainly absorbed in tea gardens of Assam. Furthermore people are engaged in mechanized farming in western Uttar Pradesh. On the other hand, industrially and economically advanced states have low share of rural to rural male out-migration from Bihar. The states, which come under this group of low share of rural to rural male out-migration, are Delhi, Maharastra, Karnataka, Rajasthan and West Bengal.
II.4.x Inter-State Rural to Urban Male Out-migration from Bihar

It can be easily concluded from appendix II.11 that the states, which are more, advanced in terms of economic development, urbanization and industrialization have more rural to urban male out-migration from Bihar. Maharashtra stands in the top list where the share of rural to urban male out-migration from Bihar is the highest. This is followed by Delhi, West Bengal, Haryana, Meghalaya and Chandigarh. It is noticed that the states, which have the highest share of rural to rural male out-migration, have the lowest share of rural to urban male out-migration from Bihar. Himachal Pradesh has the lowest share of rural to urban male out-migration from Bihar and is followed by Andaman & Nicobar Islands, Karnataka, Andhra Pradesh, Arunachal Pradesh and Uttar Pradesh.

II.4.xi Inter-State Net Male Migration from Bihar

It transpires from appendix II.12 that there is not even a single state in India where male population of any state have out-migrated more in number to Bihar than the Bihari male in-migrants to that state. It definitely shows the state’s backwardness in terms of agricultural development, infrastructural development, socio-economic development, urbanization and industrial development. Bihar looses its maximum male population to West Bengal. It has been discussed earlier that West Bengal is the traditional centre for male out-migrants from Bihar. Anyway, out-migrant’s primary interest is employment in factories, tea gardens and Raniganj coalfields and the secondary interest is in commerce, transport and employment in other services mainly in Greater Calcutta. Delhi comes as the next state after west Bengal followed by Assam, Maharashtra, Madhya Pradesh, Uttar Pradesh, Punjab, Orissa, Haryana, Gujarat, Rajasthan, Chandigarh, Arunachal Pradesh, Himachal Pradesh, Andhra Pradesh, Karnataka, Meghalaya, Andaman & Nichobar Islands and Nagaland. Thus it can be easily concluded that inter-state net male migration to other states of India was heavily against Bihar in 1991, the out-migrants being 5.6 times as numerous as in-migrants.

II.5 Out-migration and Rural Development

Out-migration and rural development are inter-dependent. Rural development aims to increase the welfare of the people, which in the final analysis should
encourage people to remain in rural areas. Out-migration is viewed as a consequence of the lack of development or developmental opportunities in rural areas. As long as rural development has its aim to increase the welfare of rural areas it will in the final analysis encourage the population to remain in rural areas; in fact it has a crucial impact on the emergence, continuation and reversal of migratory flows. Sometimes it plays a decisive role in social and economic activities of the household also. The flow of money from the in-migrants may raise the economic status of the family, which in turn may lead to a rise in level of aspiration. Therefore, rural out-migration may be considered to be an important factor for rural development as well as for a major social and economic change in the rural areas of the society. Moreover, the activities of rural development may be seen from three different angles: (i) agricultural development (ii) infrastructural development and (iii) socio-economic development.

II.5.1 Out-migration and Agricultural Development

In the context of a predominately agricultural economy and a consistently fast growing population, the small and declining size of agricultural landholdings has been the basic cause of out-migration. In both time and space, out-migration was triggered off especially under lean agricultural conditions caused by periodic droughts, floods and low price of the produce. The zeal to improve the standard of living has been another vital consideration, which is vivid in increasing the movement of landless agricultural labourers from rural areas to either rural or urban places. Therefore, it would be of major interest to note as to how much of such contention is true with regard to Bihar. It has been verified by calculating the correlation coefficients of rural male out-migration with major components of agricultural development. Keeping these facts in view, an attempt has been made in present study to analyze the extent and magnitude of agricultural development with intra-district rural male out-migration and inter-district rural male out-migration bringing into forces inter regional variations on the basis of certain variables like (i) percentage of net sown area to total geographical area (ii) percentage of gross irrigated area to gross cropped area (iii) fertilizer consumption in kg. per thousand hectares and (iv) productivity per hectare.

Table II.2 illustrates the zero order correlation matrices between the development variables of intra-districts and inter-districts rural male out-migration and the explanatory
variables of agricultural development. These correlations provide useful information on
the basis of structure of the association between pairs of variables. It is observed that all
variables of agricultural development are negatively associated with intra-districts rural
male out-migration. Intra-district out-migration is negatively correlated with the
percentage of net sown area and the value of correlation coefficient is \( r = -0.51 \) in 1991,
which is statistically significant at 1% level of significance. It means that if the large
share of land is cultivated, it will absorb larger proportion of rural males and will lead to
decline the local movement of people. On the contrary, inter-district rural male out-
migration is negatively related with proportion of net sown area but it is absolutely
insignificant. Thus it can be established that the proportion of the net sown area mainly
controls short distance migration whereas it has no influence over medium distance
migration.

High degree of negative correlation (\( r = -0.32 \)) between intra-district rural male
out-migration and irrigation suggest that any positive change in irrigation would bring a
negative change between them. Irrigation and inter-district out-migration is positively
associated with each other. The value of correlation coefficient is \( r = 0.60 \), which is
significant at 1% level of significance. From the above correlation it may be inferred that
people from upper castes do not like to work as manual labour in the nearest urban
centers. They generally prefer to be engaged in such manual activities at far off places for
hiding their social status.

To boost agricultural production, the application of chemical fertilizer is rather a
must. Thus, as an important input, its bearing on the variable of agricultural development
is quite high which is clearly reflected from correlation coefficient i.e. \( r = 0.52, r = 0.61, r =
0.58, r = 0.53 \) in 1991 for percentage of net sown area to total geographical area,
consumption of fertilizer and productivity per hectare respectively. It means that
increased use of fertilizer would bring a significant positive change in agricultural
productivity, which in turn will lead to agricultural development. The consumption of
fertilizer is negatively associated with intra-district out-migration, which is substantiated
by the negative bearing of correlation coefficient \( r = -0.33 \). On the other hand application of
fertilizer in the field is positively associated with inter-district out-migration. Anyway,
the value of correlation coefficient is insignificant. It means that medium distance
migration is not governed by the consumption of fertilizer but it checks local mobility. Thus, it is rightly observed by S.K. Mishra (1981)*14 that agricultural development provides more employment to rural people and hence, helps to lighten the burden on urban areas by slowing down rural to urban transfer of population.

The last variable under the study of agricultural development here is productivity per hectare. This variable has also negative bearing upon intra-district out-migration i.e. \( r = -0.36 \), the coefficient of the variable is statistically significant at 5% level of significance. This suggests that the impact of productivity is substantial for short distance out-migration. In contrary to above finding, inter-district out-migration is positively related with productivity per hectare. Somehow the value of correlation coefficient is insignificant.

Thus the above result leads to conclude that the push factors for local mobility get declined with the increase in agricultural variables. However the transfer of rural males for medium and long distance migration is not governed by agricultural development at the place of origin. It is probably guided by the circumstances prevailing at the place of destination where they are moved to. Thus, this suggest that during the period under consideration, the development in agricultural sector would have contributed to intra-district rural male out-migration in three ways: the surplus generated in the agricultural sector would have been used to acquire not only quality education available in the urban areas, thus, leading to greater rural male out-migration from the agriculturally developed district, but also the richer section of population of these districts would have moved out to exploit the benefits of urbanization and to invest in activities such as real state business, trade and commerce and the like in urban centre. Therefore, initial spurt in the growth of agricultural development leads to more rural male out-migration. The second stream of rural male out-migration could be attributed to the influence of the existence of low levels of income from agriculture and low level of education among the people. These landless and marginal landholders are forced to out-migrate to nearby towns for their survival. However, even at the place of destination they are employed in informal service sector. Third factor behind for intra-district rural male out-migration is the movement of people from one rural area to another within the district.
II.5.i

Out-migration and Infrastructural Development

Even after frequent use of the term 'infrastructure' it is not well defined in precise and widely acceptable manner. A number of interchangeable terms such as "social overhead", "economic overhead", "overhead capital", "basic economic facilities" etc. have been used to denote services, which are generally identified with infrastructure. However, some basic characteristics that infrastructural services possess can be identified. They are (a) essential but not directly productive, (b) pre-requisite of development, (c) non-importability, (d) lumpiness (e) external and economies and (f) provision by state (Joshi, 1996)* 15. As we have observed earlier, the primary objective of rural development programs is the welfare of people living in the rural areas. The creation of infrastructural facilities is the basic need for any development programs, because it provides necessary base to launch the economic and social development campaigns. Put differently, the level of development infrastructure facilities in a rural setup, also speaks for the level of its socio-economic development and should be helpful in containing out migration from the rural areas. In the field of infrastructure availability, regional imbalances both at the inter-state and intra-state level have characterized rural development in India. However, the variations in the levels of development in various districts and regions of the state are accompanied by equally sharper variations in infrastructural facilities. In this study three variables have been taken into consideration for the measurement of infrastructure facilities with respect to out-migration in Bihar: (v) percentage of villages having post & telegraph and telephone connections, (vi) percentage of villages having pucca road and (vii) percentage of households having electricity.

The utility of post telegraph and telephone connection has increased manifolds due to fast means of communication in this modern era of industries and has become an important variable of development. The village possessing post & telegraph and telephone connection is not only negatively correlated with intra-district rural male out-migration but also it is significant at 1% level of significance. The correlation coefficient is r = -0.39 in 1991. Thus from the above correlation, it becomes an established-fact that the village having post & telegraph offices and telephone connections mitigates the
transfer of rural males within the district in Bihar. However, the above-mentioned amenity is positively associated with inter-district rural male out-migration. The value of correlation coefficient is only $r=0.01$ in 1991, which is completely insignificant.

Another variable namely the availability of pucca road in the village hampers local mobility but the value of correlation coefficient is not significant. The reason behind this logic is that the availability of pucca road presents an opportunity before the people to work outside the rural area and to come back at night to their houses. That is why, the village having pucca road facility is negatively associated with local mobility, which is evident from correlation coefficient $r=-0.25$ in 1991. On the other hand, it also provides an easy access for transfer of rural males to other places. This is especially for medium and long distance out-migration. That is why, inter-district rural male out-migration has also negative correlation coefficient $r=-0.01$ in 1991. Moreover it indicates that the availability of pucca road in the village neither helps nor becomes an obstacle for inter-district rural male out-migration in Bihar.

Electrification of village is another important consideration, as it is invariably associated with high economic productivity where electricity is available, progress is manifested in the establishment and growth of manufacturing and industrial concerns. From the individual point of view, electrification enhances the quality of life and enables the use of such consumer goods as radio and television. The effect of electrification is, therefore expected to be negative on intentions to move. The above observation by Sun Hee Lee (1985)*16 is completely contradictory in the context of intra-district rural male out-migration. This is justified by correlation coefficient, which has the value of $r=0.64$ in 1991 and it is also significant at 1% level of significance. Furthermore, electricity is also positively associated with inter-district rural male out-migration and the value of correlation coefficient is only 0.15 in 1991. The reason behind this is that there is no existence of rural or household industries in rural areas of Bihar. The pressure of electricity has not provided any employment-generated programme. On the other hand, the availability of electricity has created awareness among people through radio, television etc. to know about the employment scheme of other areas. Therefore the availability of electricity is positively associated with intra-district and inter-district out-migration.
Table II.2: Correlation Matrix, 1991

<table>
<thead>
<tr>
<th></th>
<th>X1</th>
<th>X2</th>
<th>X3</th>
<th>X4</th>
<th>X5</th>
<th>X6</th>
<th>X7</th>
<th>X8</th>
<th>X9</th>
<th>X10</th>
<th>X11</th>
<th>Y1</th>
<th>Y2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X2</td>
<td>.52**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X3</td>
<td>.73**</td>
<td>.61**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4</td>
<td>.56**</td>
<td>.59**</td>
<td>.59**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X5</td>
<td>.63**</td>
<td>.27</td>
<td>.47**</td>
<td>.16</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X6</td>
<td>.66**</td>
<td>.35*</td>
<td>.60**</td>
<td>.32*</td>
<td>.78**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7</td>
<td>-.40**</td>
<td>-.14</td>
<td>-.08</td>
<td>-.09</td>
<td>-.23</td>
<td>.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X8</td>
<td>.41**</td>
<td>.38*</td>
<td>.46**</td>
<td>.38*</td>
<td>.23</td>
<td>.34*</td>
<td>-.21</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X9</td>
<td>.06</td>
<td>.48**</td>
<td>.30</td>
<td>.27</td>
<td>-.05</td>
<td>.01</td>
<td>.44**</td>
<td>.01</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X10</td>
<td>-.40**</td>
<td>-.38*</td>
<td>-.50**</td>
<td>-.60**</td>
<td>-.19</td>
<td>-.41**</td>
<td>-.23</td>
<td>-.66**</td>
<td>-.38*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X11</td>
<td>-.49**</td>
<td>-.43**</td>
<td>-.28</td>
<td>-.08</td>
<td>-.40**</td>
<td>-.21</td>
<td>.67**</td>
<td>-.32*</td>
<td>.21</td>
<td>-.10</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1</td>
<td>-.51**</td>
<td>-.32*</td>
<td>-.33</td>
<td>-.36</td>
<td>-.39*</td>
<td>-.25</td>
<td>.64**</td>
<td>-.48**</td>
<td>.22</td>
<td>.30</td>
<td>.46**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Y2</td>
<td>.07</td>
<td>.60**</td>
<td>.23</td>
<td>.20</td>
<td>.01</td>
<td>-.01</td>
<td>.15</td>
<td>.20</td>
<td>.79**</td>
<td>-.31*</td>
<td>-.07</td>
<td>-.02</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Significant at 1% level of significance
* Significant at 1 % level of significance
II.5.iii Out-migration and Socio-Economic Development

Actually the whole gamut of the progress of human society can be reflected by the socio-economic development of a region. In fact, it covers the entire modern technique and social improvement on which our present day society stands up. Thus, it involves structural transformation and a composite long-term vision. Bihar the land of ancient civilization is famous for socio-economic development from ancient times. However, it experienced declining phases during the British period, the effect of which is still reflected in the state. Even after independence, unfortunately, the class, which guided the destiny of Bihar, remained hostile to such a strategy because it threatened its entrenched feudal legacy. The establishment of a few heavy industries and educational institutes in the midst of an essentially feudal agricultural economy with practically no economic inter dependence, has not altered the socio-economy of Bihar in any significant manner. This has led to discontent among the rural population. The absence of proper educational and health facilities has further accelerated out-migration from the rural areas. The association of intra-district and inter-district rural male out-migration has been measured with the following variables of socio-economic development: (viii) dependency ratio (ix) literacy rate (x) percentage of main workers and (xi) percentage of industrial workers.

The dependency ratio is defined as the ratio of the addition of population of less than 15 years and the population above 60 years with the population aged from 15 to 59 years. A large percentage of dependent population tends to reduce savings and investments and inhibits the rate of economic and social advancement of a country or region as a large proportion of scarce resources are diverted towards consumption. Also an increasingly large number of persons continue to enter the working ages, swelling the ranks of the unemployed. This way, dependency ratio is the reverse indicator of rural development. It is observed that when dependency ratio is quite high, rural males will move to farther places. This tendency is prevalent because out-migrant's dependent members are taken care of in the joint family system at places of origin in Bihar. These out-migrants prefer to go to such far off places where they can earn the maximum amount of money. That is why, dependency ratio is negatively related with intra-district out-
migration whereas it is positively associated with inter-district out-migration and the value of correlation coefficients for both of them are \( r = -0.48 \) and \( r = 0.20 \). It is but natural that heavy burden of the unproductive age group population on workers will compel the males to earn more for their maintenance. Therefore, they are bound to leave the rural areas of Bihar as the opportunity for labour absorption and wage rate is quite low within the district.

Although literacy is the foremost sign of rural development, it is positively associated with both the kinds of out-migration. This is evident from the value of correlation coefficients which are \( r = 0.22 \) and \( r = 0.79 \) in 1991. Thus, it can be easily justified that the level of literacy stimulates the transfer of males from rural areas to other places in Bihar and this is especially true for inter-district rural out-migration. The reason behind this scenario is that literacy raises the level of aspiration of the people of rural areas. Individuals having attained a high level of education in rural areas may have difficulty in finding the position corresponding to their level of skills and are thus more prone to migrate. It is obvious that the better educated are better informed about the opportunities as they make greater use of the formal and informal channels of information. Hence they are more prone to out-migrate. Literacy is positively associated with both kinds of out-migration.

The percentage of main workers is positively related with intra-district out-migration whereas it is negatively related with inter-district out-migration and the values of correlation coefficients are \( r = 0.30 \) and \( r = -0.31 \). The reason behind this is that firstly, the persons generally live at working places due to poor transport facility. Secondly, housing is not a major problem because it is available at cheap rent and they can also impart education to their children at places of working. Thirdly, small and nuclear family also stimulate rural males to work within the limit of the district so that they can remain in constant touch with the places of origin. Lastly, there is almost uniformity of wage rate throughout the state.

The share of industrial workers is positively related with intra-district out-migration whereas it is negatively associated with inter-district out-migration. This is evident from the values of correlation coefficients \( r = 0.46 \) and \( r = -0.07 \) respectively. More or less the same kind of explanation about out-migration and main workers can be put
forward to show the above relationship. It is observed that there is a striking similarity in wage rate and the availability of seasoned work throughout the state of Bihar. Labourers, therefore, not only cross the district boundary but also state boundary.

II.5.iv Stepwise Regression Analysis

After identifying major factors responsible for the operation of inter-regional differentials of rural male out-migration, stepwise regression analysis has been employed here to avoid the problem of multicollinearity and to ascertain the relative importance of these factors under the headings of intra-district and inter-district rural male out-migration and variables of rural development. However, stepwise regression technique is also weakened by the tendency for highly inter-correlated variables to eliminate one another. Only when there are prior guidelines and the number of variables is small, the stepwise procedure is used effectively. Such a procedure tells us about the contribution of an added variable in explaining the dependent variables. Secondly, it helps to see whether the new variable is worth including in the model or not. Furthermore, it also helps us in keeping watch over the changes in the value of the regression coefficient and their standard errors. The contribution of independent variables has been tested by means of standard t-test. To test the goodness of fit, F ratio is also computed. Here adjusted $R^2$ or $R^2$ is the square of multiple correlation coefficient adjusted to the degree of freedom that indicates the proportion of total variance accounted for by the equation.

Intra-District Out-migration and Variables of Rural Development

The explanatory variable in step 1 of table II.3 is the electricity. The percentage of households having electricity is the most important variable of intra-district rural male out-migration in 1991 and it alone explains 41.2% variation of intra-district out-migration. It is significant at 1% level of confidence and F value is also significant on that very level. The inclusion of proportion of main workers in step 2 improves the overall fitness of the equation considerable as the value of $R^2$ increases from 0.412 to 0.622 and $R^2$ from 0.397 to 0.603. Thus the contribution of main workers is itself around 21.0% in explanation of out-migration. F value and regression coefficient are also significant at 1%. The same process is repeated in the 3rd step where electricity, main workers and post and telegraph facility influence intra-district out-migration and regression coefficients for
Table II.3: Stepwise Regression Results of Intra-District Rural Male Out-migration and Variables of Rural Development

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intercept</th>
<th>Regression Coefficient</th>
<th>t</th>
<th>R²</th>
<th>- R²</th>
<th>Increase in R²</th>
<th>F</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7</td>
<td>8.283</td>
<td>0.642</td>
<td>5.292**</td>
<td>0.412</td>
<td>0.397</td>
<td>28.004**</td>
<td>0.525</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7</td>
<td>0.749</td>
<td>7.412**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.438</td>
<td></td>
</tr>
<tr>
<td>X10</td>
<td>-55.093</td>
<td>0.471</td>
<td>4.661**</td>
<td>0.622</td>
<td>0.603</td>
<td>32.122**</td>
<td>0.419</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7</td>
<td>0.707</td>
<td>6.809**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>X10</td>
<td>0.434</td>
<td>4.217**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.427</td>
<td></td>
</tr>
<tr>
<td>X5</td>
<td>-44.88</td>
<td>-0.148</td>
<td>0.642</td>
<td>0.613</td>
<td>0.02</td>
<td>22.681**</td>
<td>0.162</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7</td>
<td>0.675</td>
<td>5.992**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.487</td>
<td></td>
</tr>
<tr>
<td>X10</td>
<td>0.461</td>
<td>4.23**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.452</td>
<td></td>
</tr>
<tr>
<td>X5</td>
<td>-0.145</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.163</td>
<td></td>
</tr>
<tr>
<td>X9</td>
<td>-55.015</td>
<td>0.09</td>
<td>.784*</td>
<td>0.648</td>
<td>0.609</td>
<td>16.992**</td>
<td>0.28</td>
<td></td>
</tr>
</tbody>
</table>

** Significant at 1% level of significance
* Significant at 5% level of significance

the above variables are .707, .434 and -.148 respectively. The contribution of post and telegraph facility in explanation of out-migration is only .6%. However, it is important to note that the last variable of post and telegraph facility has negative influence on out-migration and, it is significant. The values of R² and - R² have increased from .622 and .603 to .642 and .613 respectively in 3rd step. In step 4 the value of R² has declined from .613 to .609. It simply means that the next variable of literacy is not a dominant factor in explaining out-migration. These three variables taken together explain 64.2% variations in intra-district out-migration.

\[ Y = -44.880 + .707**x_7 + .461**x_{10} + (-.145)x_5 + \varepsilon \]

\[ R^2 = 64.2\% \]

Where, \( x_7 \) = percentage of households having electricity
\( x_{10} \) = percentage of main workers
\( x_5 \) = percentage of villages having post & telegraph facility
Inter-District Rural Male Out-migration and Variables of Rural Development

Table II.4 presents all the details of the district-wise variations in the regression analytic results of inter-district male out-migration with reference to selected rural variables. It is evident that literacy is the most important variable in determination of inter-regional disparities of inter-district out-migration in 1991. This single variable explains 62.3% variation in out-migration. Both regression coefficient and F value are significant at 1%. The above finding is supported by G.S. Mehta\textsuperscript{17} that educational level of individuals is an important parameter influencing migration motivation and mobility pattern. Individuals with higher level of education tend to migrate more frequently to different places and different wage paid ranges of occupation even when the mobility is over a larger distance as compared to less educated individuals.

The next variable is irrigation, which explains maximum variation of inter-district out-migration after literacy. Both R\textsuperscript{2} and \( -R\textsuperscript{2} \) have increased from .623 to .686 and .670 respectively in 2\textsuperscript{nd} step. This way irrigation itself explains 6.3% variation in out-migration. The importance of the above variable is also enhanced because regression coefficient and F ratio are significant at 1%. This process is followed up till 6\textsuperscript{th} step but when we enter from step 6 to step 7 there is decrease in \( -R\textsuperscript{2} \). This indicates that the variables included till step 6 influence variation in out-migration. Anyway, in step 3 the new variable enters as productivity of land, which is negatively related with inter-district out-migration. It alone explains 3.1% variation in out-migration. The next variables enter in step as dependency ratio and it is positively related with out-migration. It explains 1.9% variation in out-migration. In step 5, the next variable enters as consumption of fertilizer. Its own contribution for variation in out-migration is 2.7% and it is negatively related with out-migration. The last variable enters in step 6 as the percentage of villages having electricity, which is negatively related with out-migration. At this particular juncture, the value of R\textsuperscript{2} and \( -R\textsuperscript{2} \) are .776 and .738 and F is significant at 1% whereas regression coefficient is significant at 5%. In sum the variables like literacy rate, irrigation and dependency rate are positively associated with out-migration whereas the variables like productivity of land, consumption of fertilizer and electricity are negatively
Table-II.4: Stepwise Regression Results of Inter-District Rural Male Out-migration and Variables of Rural Development

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intercept</th>
<th>Regression Coefficient</th>
<th>t</th>
<th>R²</th>
<th>-R²</th>
<th>Increase in R²</th>
<th>F</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₉</td>
<td>-29.174</td>
<td>0.79</td>
<td>8.138**</td>
<td>0.623</td>
<td>0.614</td>
<td>66.224**</td>
<td>0.187</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₁</td>
<td>0.652</td>
<td></td>
<td>6.359**</td>
<td>0.286</td>
<td>0.063</td>
<td>42.618**</td>
<td>0.058</td>
<td></td>
</tr>
<tr>
<td>X₂</td>
<td>-25.413</td>
<td>0.286</td>
<td>2.790**</td>
<td>0.686</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₉</td>
<td>0.649</td>
<td></td>
<td>6.582**</td>
<td>0.002</td>
<td>0.019</td>
<td>25.815**</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>X₂</td>
<td>0.413</td>
<td></td>
<td>3.534**</td>
<td>0.002</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₄</td>
<td>-15.551</td>
<td>-0.216</td>
<td>0.717</td>
<td>0.694</td>
<td>0.031</td>
<td>32.045</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₉</td>
<td>0.685</td>
<td></td>
<td>6.929**</td>
<td>0.002</td>
<td>0.067</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₂</td>
<td>0.359</td>
<td></td>
<td>3.011**</td>
<td>0.002</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₄</td>
<td>-0.254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₅</td>
<td>-44.368</td>
<td>0.158</td>
<td>1.654*</td>
<td>0.736</td>
<td>0.708</td>
<td>0.019</td>
<td>25.815**</td>
<td>0.019</td>
</tr>
<tr>
<td>Step 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₉</td>
<td>0.699</td>
<td></td>
<td>7.335**</td>
<td>0.002</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₂</td>
<td>0.431</td>
<td></td>
<td>3.590**</td>
<td>0.002</td>
<td>0.068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₄</td>
<td>-0.185</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₅</td>
<td>0.21</td>
<td></td>
<td>2.200**</td>
<td>0.002</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₆</td>
<td>-55.718</td>
<td>-0.229</td>
<td>0.763</td>
<td>0.73</td>
<td>0.027</td>
<td>23.162**</td>
<td>0.032</td>
<td></td>
</tr>
<tr>
<td>Step 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₉</td>
<td>0.794</td>
<td></td>
<td>6.946</td>
<td>0.002</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₂</td>
<td>0.365</td>
<td></td>
<td>2.888</td>
<td>0.002</td>
<td>0.068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₄</td>
<td>-0.183</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₅</td>
<td>0.203</td>
<td></td>
<td>2.159</td>
<td>0.002</td>
<td>0.067</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₆</td>
<td>-0.229</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X₇</td>
<td>-56.786</td>
<td>-0.145</td>
<td>0.776</td>
<td>0.738</td>
<td>0.013</td>
<td>20.255**</td>
<td>0.341</td>
<td></td>
</tr>
</tbody>
</table>

** Significant at 1 % level of significance
* Significant at 5 % level of significance

related with out-migration. Moreover, six variables together explain 77.6% variation in out-migration. The final regression equation is as follows:

\[ Y = -56.786 + 0.794 X_9 + 0.365 X_2 + (-0.183) X_4 + 0.203 X_8 + (-0.229) X_3 + (-0.145) X_7 + e \]

\[ R^2 = 77.6\% \]

Where, \( X_9 = \) literacy rate
\( X_2 = \) percentage of irrigated area
$X_4$ = productivity per hectare  
$X_5$ = dependency ratio  
$X_3$ = consumption of fertilizer  

II.6 Summary  

The analysis of patterns and magnitudes of rural male out-migration in Bihar shows that the highest level of intra-district or local mobility of rural males is found in the industrial cum mining belt of the Chotanagpur Plateau whereas the lowest level of such mobility is observed in the North Ganga Plain. So far the inter-district mobility is concerned, there are two attractive shelters of out-migration viz. industrial-cum-mining region of Chotanagpur Plateau and the Kosi region characterized by higher size of landholding. Rural males in Bihar generally drift from north to south and west to east. This west to east migration is clearly reflected from rural to urban out-migration. Lastly, inter-state or long distance migration clearly demonstrates that the state of Bihar loses its male population to every state of India and urban males are more migratory than rural males in this pattern of out-migration. They primarily drift towards West Bengal and the western part of the country. The relationship between intra-district out-migration and rural development and between inter-district out-migration and rural development reveals that local mobility declines with the growth of agricultural variables whereas their positive effects on medium distance out-migration are not convincing. In case of infrastructure variables, one variable namely the proportion of post offices, telegraph and telephone connections thwarts local mobility whereas another variable, namely, electricity enhances local mobility and their effects on medium distance are insubstantial. Regarding socio-economic development the negative influence of dependency ratio is observed for short distance migration whereas the share of main workers and industrial workers boost local mobility. Moreover, literacy rate and decency ratio enhance inter-district mobility in Bihar.
References


