AN ANALYSIS OF INTERNAL MIGRATION IN BANGLADESH

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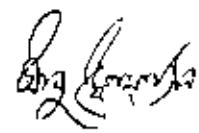
It is hereby declared that this thesis or any part of it has not been submitted elsewhere for the award of any degree or diploma.



ABU TOASIN MD. OAKIL

Dedicated to

My Parents

and

My Loving Wife

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ABSTRACT

In the 21st century, migration and its management have increasingly been identified as one of the major challenges for local, national, regional and global governance. Two sets of thinking are striving equally to gain legitimacy by creating new discourses on migration. One identifies migration as an essential element of globalization and development. The other views migration with suspicion and sees it as a threat to the security of states or their societal-cultural identities. Similarly, internal migration also poses positive and negative implications. Internal migration brings economic development to origin areas, at the same time it also threats the local labor market and accessibility to basic services to destination areas. These two consequences are also prevailing in Bangladesh.

Several studies have been carried out on international and internal migration highlighting its diversified dimensions all over the world. But studies on migration in Bangladesh are mostly related to migration policies, nexus between migration and development and situation of migrants and their status in urban areas. But, analysis of spatial interaction among regions and pattern of internal migration in Bangladesh are very limited. Moreover, a clear understanding of migration behavior remains a theoretical problem, albeit of many advanced and methodological researches in different disciplinary frameworks. In this continuation, this study aims to provide an analysis of migration pattern at regional level. In addition, this study would examine the influential capability of the factors and causes of migration. This study would also contribute in formulation of policies for more balanced regional development and growth.

The study follows simple analytical methodologies. Firstly, Migration pattern has been analyzed at district and regional level. Beside district and regional analysis of pattern, comparative analysis among regions has been carried out. Secondly, depending on regression analysis an attempt has been made to develop a functional form that would explain the relationship between migration and its determinants. Finally, based on established relationship of migration and its influencing factors, some broad and general policies have been suggested.

The study finds that the highest proportion (about 18%) of the total in-migration is made towards Dhaka, where large cities like Khulna and Chittagong show up as net out-migrant regions. Situation of Sylhet elucidates strong internal interaction of population flow and almost no relationship with other regions except few cases with Dhaka Division. Similarly, Barisal has less interaction with other region because of its geographical location. Most importantly, significant change in population statistics of Feni has also observed, where more than 17% of total population is from other districts.

In addition, the study analyzes and develops relationship between migration and socio-economic factors and others determinants of migration. Most important finding is that number of university has the most significant impact on in-migration. On the other hand, it has been found that looking for work has significant influence on out-migration but other variables have not. Finally, based on the findings of the study, some policy recommendations have been made for redirecting of population flow for more balanced development and optimum utilization of resources.

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

In the 21st century, migration and its management have increasingly been identified as one of the major challenges for local, national, regional and global governance. Two sets of thinking are striving equally to gain legitimacy by creating new discourses on migration. One identifies migration as an essential element of globalization and development. The other views migration with suspicion and sees it as a threat to the security of states or their societal-cultural identities (Siddiqui, 2005) Not only for international migration, internal migration also poses such implications. By internal migration, this study would mean movement of people within Bangladesh, among districts and also in some cases within district boundaries. Internal migration of such kind, in the course of economic development to origin areas, also threats the local labor market and accessibility to basic services to destination areas.

In Bangladesh, second course of action is more prominent than the first. Migration does bring economic development as a whole by creating employment opportunities in the destination areas and by developing the origin areas as well. In this course of action, it is also avoiding the consequences of regional disparity both in social and economic terms. Bangladesh is now considered having primate city structure, a monocentricity People are concentrating in few urban centers and causing pressure on the urban structure – basic services, governance, society and economy as well.

Over the last decade, the landscape of Bangladesh has changed remarkably. Persistent movement of people questions existing development strategies, which are largely based on sectoral approaches that often ignore the dynamic processes. The net migration (i e migrants/1000 population) increased dramatically from 1.2 to 16 4 in urban areas between 1984 and 1998. In rural areas, it increased from 1.5 to 4 0 during the same period (Siddiqui, 2005).

Several studies have been carried out on international and internal migration highlighting its diversified dimensions all over the world. But studies on migration in Bangladesh are mostly related to migration policies (Islam and Begum, 1983); nexus between migration

and development (Hugo, 1991; Afsar, 1995); situation of migrants and their status in urban areas (Siddiqui, 2005); and commonly trends of migration (IOM and UNDP, 2002). But, analysis of spatial interaction among regions and pattern of internal migration in Bangladesh are very limited In this continuation, this study aims to provide an analysis of migration pattern at regional level. In addition, this study would examine the influential capability of the factors and causes of migration. This study would also contribute in formulation of policies for more balanced regional development and growth.

1.2 Objectives of the Study

Keeping in mind the increased pressure of population on basic services, labor markets and resources, this study would try to elucidate following aspects -

i. To analyze present pattern of internal migration in Bangladesh
ii. To identify the determinants of internal migration in Bangladesh and describe the relationships between these determinants and internal migration with an appropriate functional form
iii. To suggest some general policies regarding migration for balanced urban and regional growth.

1.3 Scopes and Limitation of The Study

In this research, internal migration pattern for Bangladesh would be depicted. The study would not include International migration for analysis. The study intends to illustrate the pattern of population movement from district to district and region to region. It would also depict the regional-share. In regional-share analysis, contribution of districts to each other, located in the same region or division, would be calculated. On the other hand, inter-regional migration pattern will be presented. Depending on the dataset, population re-distribution would be tabulated showing the percentage of migrated people to the total population of a particular district.

Simultaneously, the study would list some important determinants of migration that could have influence on the migration pattern or migration decision. Moreover, the study would develop a relationship between migration and its determinants. Depending on which the study would also provide some general policies.

The scope of the study has been constricted mainly for data limitation. Data of migration is not available especially at district level. The responsible organization publishes the data on the basis of rural and urban area. So, it needed to calculate district-wise migration from the raw data. The organization has provided the cross-sectional data, but time-series data was not possible to attain. Again provided data does not match with the data for migration determinants on the basis of time. These data are taken for different time. Though these data are closely differed, but precision of analysis would be hampered. For this reason, all the variables that have influence on the migration pattern could not be incorporated. So, depending on the data availability and importance, explanatory variables of migration have been selected

1.4 Present state of problem

Almost all developing countries consider migration and urbanization to be one of their most critical population problems The major cities are considered to be continuing to grow rapidly in comparison with smaller cities, towns and rural areas and turning to monocentricity and thereby give rising urban unemployment. scanty housing, inadequate water and electricity supply, poor sanitation, shortage of transport and other services, and an overall decline in the quality of urban life. Many countries specifically attribute rural-urban migration as the cause of urban poverty. Similarly, it is generally believed that migration to the cities has a somewhat negative impact on rural areas; not only does it tend to draw away their more dynamic members, it also diverts national investment resources towards the towns This is evident in the way in which the 23 (of a total of 44) country Interim Poverty Reduction Strategy Papers (IPRSP) and PRSPs that mention migration deal with it Seventeen PRSPs mention migration as a cause of degradation of rural and urban ecological resources Some draw causal links between the spread of HIV/AIDs and migration and seven attribute increasing crime to rural-urban migration (Waddington, 2003).

Internal migration may have development effect and other positive effects on quality of life, but it does not lead to balancing of wage levels or the optimal allocation of labor among sectors because of spatial characteristics. It may amplify rural-urban inequalities and these disparities may encourage further migration and thus concentration of population and resources in large cities (Waddington, 2003). So, it is clear that policy maker and social,

spatial and economic planners should come forward to break such vicious circle and lead development towards more balanced, sustainable and optimal form.

Moreover, a clear understanding of migration behavior remains a theoretical problem, albeit of many advanced and methodological researches in different disciplinary frameworks (Shrestha, 1996). For Bangladesh, it is at the primitive stage Earlier in this chapter, some studies on migration have been discussed. Those studies concentrate and analyze behavioral and socio-economic facts of migration. Spatial analysis and pattern of migration are not illustrated properly depending on which spatial or regional planning could take place. But, consensus and awareness have developed and researches are being going on in the discipline of sociology, economics, geography and planning. In this respect, this study intends to contribute in this process.

1.5 Outline of the Methodology

This research executes the following steps to achieve its objectives –

i. Present Statement of Problem: Due to excessive pressure of population on natural resource, urban infrastructure, and environment and due to prevailing regional disparity, major concerns of urban and regional planning and economic planning should be given to control monocentricity of development. Dhaka City is growing as a primate city. It becomes difficult to manage Dhaka with the present population. With this context, this study seeks to examine why people concentrate in few regions of Bangladesh and what are the patterns exist.

ii. Literature Review: Keeping above two questions in mind, the study analyzes some literature in the field of migration to find out the nature, pattern and determinants of population movement in general. Literatures include articles, books, internet sources, etc

iii. Formulation of Objective: To clarify the research goal and question, three objectives have been set, which have been pursued and described in the following chapters.

iv. Data Collection: As the research intends to give insight into the overall migration situation of Bangladesh, it was not possible to carry out primary survey for precise analysis. So, data and information have been collected from secondary sources. Collected data have two dimensions - Migration data and Data on determinants of migration. Most of the data has been collected from Bangladesh Bureau of Statistics (BBS). Others are mainly internet sources.

v. Migration Pattern Analysis: Migration pattern has been analyzed at district and regional levels. This study considers division as a region. Beside district and regional analysis of pattern, comparative analysis among regions has been carried out

vi. Developing the Functional Form for Internal Migration in Bangladesh: Depending on the literature review, some important determinants of migration have identified. Then depending on regression analysis a model has been tried to develop that would explain the relationship between migration and its determinants.

v. Policy Formulation: Finally, based on the pattern of migration and established relationship of migration and its influencing factors, some broad and general policies have been suggested.

CHAPTER 2: LITERATURE REVIEW

This chapter summarizes some studies related to migration that helped in developing concept for this research. It describes previous studies conducted mainly for Bangladesh and Asia-Pacific region. It helps to find out the basic requirement for migration studies like possible analysis tools, push-pull factors of migration, migration policies and other development in the field of migration study. This section also describes some general notions, theories and typologies of migration for the study purpose.

2.1 Types of Migration

There are two basic types of migration studied by demographers –

i. Internal migration This refers to a change of residence within national boundaries, such as between states, provinces, cities, or municipalities. An internal migrant is someone who moves to a different administrative territory.

ii International migration This refers to change of residence over national boundaries. An international migrant is someone who moves to a different country. International migrants are further classified as legal immigrants, illegal immigrants, and refugees. Legal immigrants are those who moved with the legal permission of the receiver nation, illegal immigrants are those who moved without legal permission, and refugees are those crossed an international boundary to escape persecution.

This study would focus on internal migration. Internal migration refers to population mobility and movement within the borders of a nation state. It can take many forms. (permanent) rural-urban 'drift' certainly commands most attention, although research indicates that other types of migration flows may be just as large. These can be rural-rural, urban-urban, and urban-rural They occur for different reasons including labor migration, marriage, tourism. and comprise diverse groups and individuals It can be permanent, temporary, seasonal and circulatory. In Bangladesh, rural-urban migration takes many forms such as a. permanent migration, b. temporary migration, c. seasonal migration. d. circular migration and e. commuting. The process ranges from short distance mobility to long distance and long term movement (Mahbub, 1997).

2.2 Theories of Migration

There are different theories which seek to understand who migrates and why. Todaro's push-pull theory models the forces acting on individuals; a New Economics of Labor Migration approach to family decision-making explains migration as part of a strategy to diversify risk, or co-insurance. Other theories look at the types of networks that develop, using an actor-network approach where structure and power emerge and act upon agents. Migrant identities are an important explanatory factor in this approach (Waddington, 2003). Followings are some theories of migration –

Ravenstein's 'laws of migration'

Certain laws of social science have been proposed to describe human migration. The following was a standard list after Ravenstein's proposals during the time frame of 1834 to 1913. The laws are as follows:

1) Most migrants travel short distances and with increasing distance the numbers of migrants decrease. This law is based upon the assumptions that the higher travel costs and a lack of knowledge of more distant places acts against large volumes of migration.

2) Migration occurs in stages and with a wave-like motion. Based on his observations in the late nineteenth and twentieth centuries that migration occurred in steps with people gradually moving up the settlement hierarchy - from rural areas to villages, to towns, to cities and finally the capital city.

3) Migration increases in volume as industries and commerce develop and transport improves, and the major direction of movement is from agricultural areas to centres of industry and commerce.

4) Most Migrants are adult. Families rarely migrate out of their country of birth.

5) Women are more migratory than men within their country of birth but men more frequently venture beyond it.

Harris-Todaro Model

The Harris-Todaro Model is an economic model used to explain some of the issues concerning rural-urban migration. The main result of the model is that the migration decision is based on expected income differentials between rural and urban areas, not

wage differentials. This implies that rural-urban migration in a context of high urban unemployment can be economically rational if expected urban income exceeds expected rural income. However, Chaudhury (1978a) have identified in his study that rural push factors are rather influencing for migration decisions in Bangladesh.

New Economics of Labor Migration Approach

Economic theories of migration have only limited applicability in the area of forced migration, in which displaced persons often will have little or no time for deliberations of 'utility maximization'. However, despite the important substantive differences between economic and forced migration, economic considerations can still be expected to play a role in the area of forced migration. Neo-classical economic migration theory explains, as in Todaro Model, the decision to migrate as one of income maximization in which wealth differentials and differences in employment opportunities constitute important pull factors. In it micro-economic extension rational actors (be it individuals or larger units such as families or households) decide to migrate in the expectation of a positive, often monetary, net return from migration. In this framework, the decisive factor is income differentials as well as the probability of employment in the destination country In other words migration decisions can be seen as being guided by processes of income maximization and risk minimization (Thielemann, 2002).

2.3 Previous migration Studies in Bangladesh

In Bangladesh, adequate attention to migration aspects has not given due importance. Population distribution and its implication on the national and regional economy have not been understood The main reason is perhaps the lack of national and regional level data on migration The census data of Bangladesh is not sufficient to study the causes and consequences of migration because only some information about place of birth is available in the census schedule (Hossain, 2001).

One of the earliest attempts on analysis of internal migration in Bangladesh was done by Obaidullah (1967). He used census data for analysis district level migration. The issue of rural-urban migration was not addressed in his study.

One significant study was conducted by Chowdhury (1978a). The concentration of his study was rural out migration. It was a micro-level analysis giving attention to the causes of out-

migration from rural Bangladesh His main finding was that out-migration from villages are governed primarily by the rural push factors than the pull factors. Rather than income differential among regions as defined in the Harris Todaro model, push factors like land scarcity, unequal distribution of land and high proportion of agricultural laborers are main reasons for out-migration in Bangladesh as identified in his study.

In CUS (1990), it is mentioned that studies on migration have established a positive association between levels of infra-structural development of a region and the magnitude of out-migration.

Afsar (1995) argued that migrants often benefited more than non-migrants because of their innovative, risk taking and desperate nature. The benefits included higher or regular income, gain in wealth, greater access to public services and education (Hossain, 2001).

Mahbub (1997) in his research gave a greater emphasis on the type or form of movement. He addressed that most of studies are based on seasonal or permanent migration. He took a pioneer look at the subject of circular migration and commuting. The study very rigorously analyzed the growing connection and linkage between rural and urban areas. By analyzing six villages in three districts, he found that movement of people in future would be dominated by lower classes. He found that low-income to lower-middle income people are highly mobile and lowest and middle income people are least mobile. Beside pattern analysis of commuting and circular movement, he also depicted the characteristics of the commuter, distance of travel and mode of commuting.

Hossain (2001) considered multivariate logistic regression model as an appropriate tool to analyze household data In his study, the independent variables were attributes of households but not of individuals They are land (farming) ownership, occupation, education, number of adult men and family size. Hossain showed that majority of migrants were very young at the time of their first migration by analyzing age distribution of migrants. Maximum migrants were in age group of 20-24 years. He also found the rate of migration for graduates was highest His study found most of the migrants were involved with studies. Through Multivariate logistic regression, he found the risk of out-migration was significantly higher for the households having occupation other than agriculture and higher education attended.

Thielemann (2002) tried to draw a relationship between the number of asylum-applications in each country and for each year with the following explanatory Variables The explanatory variables are constructed to allow for the examination of the certain theories on key pull-factors for asylum applications. These are –

i Annual GDP growth (in percent) and the total number of registered unemployed were considered as economic pull factors.

ii. Average distance between the capital of a destination country and the capitals of the top five countries of origin in each year were included as geographic factors.

iii. He used overseas development aid as a proxy variable for a country's 'liberalness'. It was expected that a more liberal country would attract a relatively high number of asylum seekers.

iv. To test network/historic ties theories, he considered the stock of foreign population from the top five asylum countries (at time t).

v. To analyze the importance and the effectiveness of asylum/deterrence policy measures the author uses a deterrence index fluctuating between 0 (lowest deterrent effect) to 5 (highest deterrent effect)

To estimate the relationships between these variables and relative burdens for individual countries, he used pooled ordinary least square regressions with panel corrected standard errors. Prais-Winston transformations are used to eliminate serial correlation of the errors and to take account of cross-section and panel specific auto-correlation. The analysis found strong support for the existence of economic, historic and political pull factors The effects of geographic and policy related factors point to the expected directions but were not statistically significant.

Afsar (2005) in her paper "Bangladesh: Internal Migration and Pro-poor Policy" discussed migration as a way for poverty reduction. Some available policy tools such as institutional, legislative and macro-economic etc. that can reduce the negative impact of internal migration are also explained in the paper. The paper presented a great analysis of internal migration and development nexus. With the help of ANNOVA testing the authors also found a strong correlation between the level of infrastructure and social

capital. She suggested to utilize urban-rural synergies to reduce poverty and spur economic growth in both urban and rural areas and to consider the process from regional perspective

Afsar in another study (2005) depicts the nexus between internal migration and development for Bangladesh. This paper reviewed existing policy to examine the relationship between migration and development. In the course of investigating pattern and trend of internal migration, this study focused on migrants' characteristics, problems faced by migrants, consequence of migration, government, non-government and international policy issues etc She explained development and migration linkage by illustrating remittance use, poverty and inequality in rural areas. Government policies are based on rural poverty reduction approaches. She also pointed to some policy gaps She explained there is profound disparity in income distribution and service delivery between space, class and gender, which are largely ignored by the government in policy formulation. Her suggestion was to promote inter and intra-regional equity in resource distribution.

Skeldon (2005) in one of his article describes migration policies for Asia. He took five countries – China, Vietnam, India, Pakistan and Bangladesh – as case study. In this article, the concern was international migration and development. It emphasized the international migration pattern of these countries and importance of remittance on development. Finally, he pointed out some major considerations for policy formulation in regard of international migration. Policy issues were direct control over migration to redirect migration internally and to focus on the problems faced by the international migrants like gender issues, harassments, vulnerability and protection of migrants.

Waddington (2003) explained some policies regarding migration control and redirection of people toward less developed region. He described the policies adopted in different countries and regions together with the success and failure of the policies. He labeled the policies as direct and indirect policies. Direct policies like police registration, travel restrictions, location-specific passes, employment limitations, ration cards and enforced resettlement programs had been failed and criticized on different grounds, as illustrated

by Waddington. Indirect policies on the other hand are more concern with the development process and better living but could affect migration decision more efficiently and indirectly.

2.4 Internal Migration and Urbanization in Bangladesh

In Bangladesh, rapid urbanization has taken place because of three contributing factors. These are – I) Rural to urban migration; ii) Geographical increase of urban territory; and iii) Natural growth of population in urban centers. Among these factors migration plays dominant role, which is apparent from the following table –

Table 2.1: The component of Urban Growth in Bangladesh

Year	Natural Increase (In percentage)	Migration and reclassification (In percentage)
1980-1985	37.6	62.4
1990-1995	39.9	60.1
2000-2005	41.9	58.1

Source: Afsar, 2000

Urbanization is an inevitable and unavoidable feature in the process of development. But in this course of development regional segregation and disparity have been increased. Many cities become incapable to cater to basic services and facilities to their citizens, whereas others are experiencing under utilization of resources. In this circumstance, it is essential to redirect development and thus population flow towards least developed areas by policy formulation.

As mentioned, urbanization is always expected for the economic growth of a nation, but ensuring balance among regions becomes critical issue in the recent concerns and thoughts of planning, geography, economics and other social science disciplines.

2.5 International Migration in Bangladesh

International migration is also a big issue for Bangladesh. Three types of international migration have been identified: the movement of emigrants as settlers, the movement of contract labor migrants and the movement of people in border areas (Skeldon, 2005). Following table shows the international migration from 1995 to 2001 for Bangladesh.

Table 2.2: Estimates of Annual Flow of Labor Migrants Going to Overseas Destination

Year	Labor Migration
1995	187543
1996	211714
1997	230765
1998	267667
1999	268182
2000	222182
2001	188965

Source. Skeldon, 2005

The international migration of Bangladesh had increased till 1999 and then followed a significant decline in the next two years. It might be reason of recipient countries concern about emigrants. Developed countries like United States, Canada, Australia and some European countries, who were important recipient of these overseas migrants, made emigration procedure difficult for their own social, cultural and economic safety.

2.6 Organizations Involved in Migration Studies in Bangladesh

There are different organizations and institutions that are contributing in the field of population, urbanization and migration studies in Bangladesh. Among those, important organizations are –

i. Refugee and Migratory Movements Research Unit (RMMRU), University of Dhaka
ii. National Institute of Population Research and Training
iii. Sample Vital Registration Survey (SVRS), Bangladesh Bureau of Statistics (BBS)
iv. Center for Urban Studies
v. Centre for Health and Population Research, ICDDRB
vi. Department of Urban and Regional Planning, BUET
vii. Department of Geography and Environment, University of Dhaka

Main government unit SVRS of BBS is responsible for conducting extensive survey on population flow, type and purpose of migration and direction of migration as well. Others are mostly educational institutions that carry out migration and other demographic analysis for research purposes only.

Besides, many international organizations are also contributing in this regard, namely –

i. United Nations – United Nation Development Program (UNDP), United Nations Children's Fund (UNICEF), United Nation High Commissioner for Refugees (UNHCR)

ii. Asian Development Bank (ADB)

iii. World Bank (WB)

iv. International Labor Organization (ILO)

v. Human Rights and Governance Programme (HUGO)

vi. Department for International Development (DFID)

CHAPTER 3: RESEARCH DESIGN

The methodology for this research is two fold – one is to identify the causes and factors, i.e. explanatory variables would be identified, and another is to investigate their extent of influence, for which purpose a functional form would be established to explain the relationship between migration and its determining factors. Finally some general policy recommendation would be suggested based on the outcome of above two tasks. The basic methodology followed for this study has been mentioned in the first chapter. This chapter would explain the data type and their collection and use in pattern analysis and functional form development

3.1 Concept of the Study

The study intends to provide inputs for policy formulation for internal migration by examining migration pattern and its relation with regional variations. The research would explain pattern or spatial distribution of internal migration, develop a functional form to represent the relationship between migration and its determinants using multiple regression and would also suggest some policies depending on the conducted analysis.

The study has been tried to incorporate analysis of both in-migration and out-migration and spatial distribution has been presented at district level. As the analysis will be conducted at district level, in-migration would mean people coming to a district from other districts of Bangladesh and out-migration would mean people going to other districts of the country.

3.2 Data Type and Data Collection

It has been stated earlier that two types of data have been collected. These are –

Migration Data: The study objective is to investigate the pattern of internal migration i e population movement within national boundaries. The study, therefore, required migration data at regional level. Though migration count at regional, divisional or district level is almost absent in Bangladesh, with the help of Sample Vital Registration System (SVRS), Bangladesh Bureau of Statistics (BBS) migration data at district level have been retrieved. The data is the accumulation of household survey conducted by SVRS.

For this survey purpose, SVRS defines migrants as those people who have changed their residence and is living at the last destination for six months or more. This form of population movement is mostly permanent in nature. This study is based on the data of such permanent migration. Season migrations and commuters are not included in the study.

A sample of 200 thousand households has been surveyed across the country. As the survey conducted at household level, it includes population from low-middle income group to higher income group. Lower income people's movement is mostly seasonal; it usually does not last for six month or more.

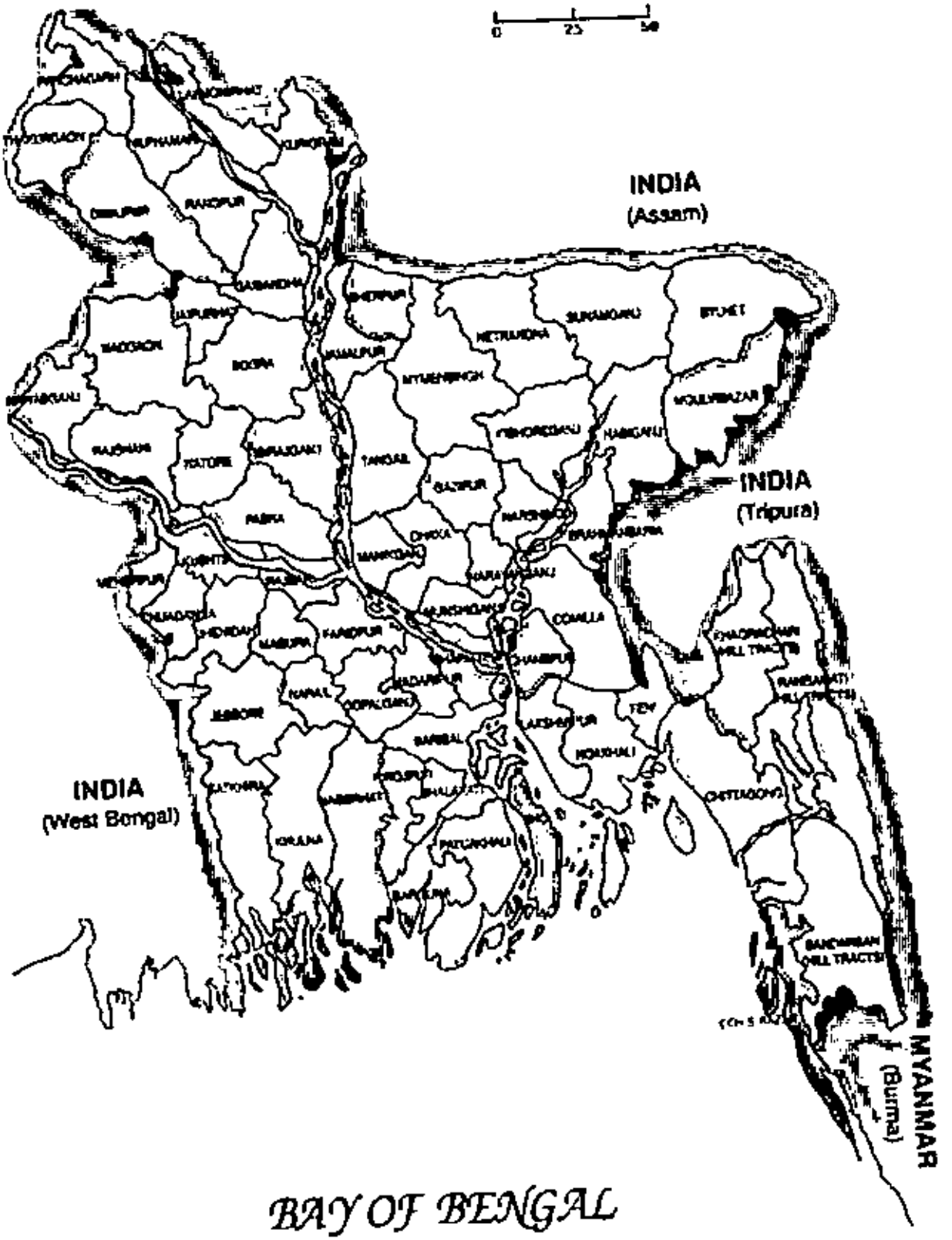
Sample was selected by stratified cluster design. Survey had been conducted on three strata – Rural, Urban and Statistical Metropolitan Area (SMA). These strata covered 129 sub-strata – 64 for Rural, 61 for Urban and 4 for SMA. Then sample size for each sub-stratum has been determined depending on the household number of each sub-stratum.

Data on Determinants of Migration: In different literatures, it has been described that rural push and urban pull factor influence the migration decisions. Depending on these studies, this research incorporates some important factors that are explained later. As the data on these factors would be included in the model development, it is necessary to collect these data at district level. So, data of identified factors are collected and manipulated from National and Zila Series of Population Census 2001, BBS. But, data collection was not limited to this. It has been tried to find data from different other sources like National Institute of Population Research and Training (NIPORT), Center for Urban Studies (CUS), International Organization of Migration (IOM) and many other internet sources

3.3 Migration Pattern Analysis

Internal migration pattern of Bangladesh has been analyzed at two different levels that is district-wise migration and regional/divisional migration. The study analyzes migration pattern for both in-migration and out-migration. In addition to these, regional or divisional interaction has also been included in the study. A district-map has been presented in Map 3.1 showing the Divisional boundaries.

Map 3.1: District Map of Bangladesh



Source: http://www.dcdhaka.gov.bd/mapofbangladesh.html

District-wise Migration Analysis: Bangladesh is divided into 64 districts on the basis of administrative functions. In this analysis, total in and out migration in each district is calculated in terms of percentage of total in and out migration respectively. The study represents such migration pattern for important districts in terms of net-migration flow. Net-migration is calculated as the difference between total in-migration and out-migration for each district.

Regional-share Analysis: In this study, region means division. Bangladesh has six administrative divisions. Each consists of several districts. Regional-share, that is, divisional-share is the percentage of in or out migration of a particular district within the division it belongs to total in or out migration in that district

Regional-share of a district has been calculated as –

$$\frac{\text{Sum of in/out migrant in district i from/to all the districts of the division j}}{\text{Sum of in/out migrant in district i from/to all the districts of the country}} \times 100$$

Here, i is a district that belongs to the division j.

Inter-Regional Interaction Analysis: Inter-regional interaction has been explained by the contribution of other divisions to the in or out migration of particular district.

$$\frac{\text{Sum of in/out migrant in district i from/to all the districts of the division j}}{\text{Sum of in/out migrant in district i from/to all the districts of the country}} \times 100$$

Here, i is a district that does not belong to the division j.

Population Re-distribution: It is the analysis of migrant population in respect of total population of a particular district. It is the proportion of migrant population of a district to its total population, calculated by determining percentage of in-migrants in a district from other districts of the country to the total population of the district.

3.4 Developing the Functional Form for Internal Migration in Bangladesh

i. Identification of Migration Determinants

Most significant part of the research was to incorporate factors that significantly influence migration pattern in Bangladesh. For identifying the factors, the study follows previous experiences in this area. Literature has been searched to find out the reasons behind taking migration decision. Literatures are mostly based on primary survey that is direct questionnaire survey. In the chapter on literature review, it can be seen that there is shortage of research, study and information in this field of study. There are, however, some studies that tried to conduct micro-level analysis showing the behaviors and characteristics of the people who are more inclined to migrate and also depict the nature of the destination place that attracts them to do so. Learning from these previous studies, this research tried to accommodate some of those determinants. It was not possible to incorporate all the variables i.e. determinants as described in the previous studies for Bangladesh. But, it has been tried to include all the aspects that could have significant role in determining migration pattern.

Besides, this study considers variables other than the variables related to individual or household characteristics. A macro-level analysis or spatial analysis of migration pattern has been performed to elucidate the overall scenario of the country. So, variables covering socio-economic aspects have included in this research. As a macro-level analysis, migration determinants have been identified based on the spatial variations or disparities in terms of social and economic opportunities and benefits. Following is the list of variables that have been initially selected –

Table 3.1. Variable Description and Data Source

Variable Name	Variable Description	Source of Data
In_mig	In-migration to Each District	BBS, 2004
Out_mig	Out-migration from Each District	Do
Own_dwl	Percentage of Household Owned Dwellings	BBS, 2001 (National Series)
Pop_den	Population Density (population per sq km)	Do
Maried	Percentage of Married People	Do
Pop_15_24	Percentage of People Within15-24 Years of Age	Do
Unma_15_24	Percentage of Unmarried People Within15-24 Years of Age	Do (Estimated)
Own_aglnd	Percentage of Household Own Agricultural Land	Do
Lit	Percentage of Literate People (7 years or more)	BBS, 2001 (Zila Series)
Mun_pop	Percentage of Municipal (Pourasava and City corporation) Population	Do
Urb_pop	Percentage of Urban (Municipal and other urban areas) Population	Do
NonAg_Act	Percentage of People Engaged in Non-Agricultural Activities (10 years and more)	Do
Look_act	Percentage of People Looking for Work (10 years and more)	Do
Edu_Inst	Number of School, College, Madrasa per Thousand Population	BBS, 1998. www.bbs.bd.gov
Infra	Density of Metal Road Km/skm	Do
H_bed	Hospital and Clinic Beds per Thousand Population	Do
Cul_lnd	Percentage of Cultivable Land	Do
Ph_bed	Public Hospital Beds per Thousand Population (2002)	Zaman, Islam and Karim. 2005.
PcGDP	Per capita GDP (2002)	Do
Wage_agr	Agricultural Wage Rate Taka per Day	BBS, 1998 (Year Book)
Unv	Number of Universities Both Public and Private	http://www.isrt.ac.bd/universities/list-of-universities-in-bangladesh.php
P_unv	Number of Public University	Do
Flood_hz	Flood hazard rank score	http://www.gisdevelopment.net/application/natural_hazards/floods/floods002b.htm

ii. Correlation Analysis

The study intends to explain the relationship of internal migration with its determinants using regression model. Models have been developed for the in-migration and the out-migration differently. In these models, percentage of in-migrated and percentage of out-migrated household to sample households are taken as dependent variables. Independent variables are listed in the above table

Correlation analysis has been necessary to identify the important variables that have influences on the process of internal migration. Depending on the correlation analysis, independent variables have been selected to perform regression analysis.

Data Transformation: To produce best-explained model, data transformation is also considered. Mainly logarithmic transformation has been carried out so that more variables can be incorporated in the model.

iii. Multiple Regression Analysis

In Bangladesh, migration decision analysis had been conducted by logistic regression analysis to determine the influential capacity of variables on migration decision. These analyses are micro-analysis depending on the data primarily collected. But, this research focuses on the analysis of spatial distribution of migration. Such type of macro-analysis limits the scope of the research by making primary data collection difficult.

In Bangladesh, socio-economic data are available at district level. Depending on these data availability, the study prefers multiple regression analysis It enables to utilize multiple variables that would be selected from the correlation analysis and it is the most widely used analysis tool preferred by different researchers for diversified research purposes

Though multiple regression is a widely used statistical tool, it has assumptions that must be fulfilled for developing models. The assumptions are –

i Linear relationship between Y and X_k

ii Errors (e) are normally distributed, distributed homoskedastically over the levels of the predictions (Y) and the levels of X_k, and neither autocorrelated nor correlated with X_k.

iii. Variance of Y is homoskedastic over the various levels of X_k

iv. X_k are not collinear, i.e. not related with each other

Linearity would not exist for all kind of analysis, but the multiple regression analysis could simply utilize transformation of data to fit linear equation. Multiple regression could take many forms like polynomial model, logarithmic model, reciprocal model and exponential model etc. (Pindyck and Rubinfeld, 1981)

In this study, it is assumed that variables are linearly related and there remain homoskedasticity among the variance of variables. Fourth assumption has greater implication over the model in this study. As the study analyses cross sectional data at district level, auto-correlation is bound to exist. This leads to the problem of multicollinearity. Multicollinearity occurs when the explanatory variables are highly inter-correlated with each other. This may not necessarily be a problem, but it can prevent precision of an analysis. So, attempt has been made to overcome above problems and it has been described in the model development section.

iv. Selection of Best-reduced Model

If there exists correlation between dependent variable and independent variables, it is not likely that the regression model would have significance. To develop best fitted regression model, it is necessary to perform different tests, checks and diagnosis. These are described below –

Coefficient of Determination Test: The coefficient of determination (R^2) denotes how best the model is explained by the included variables. Coefficient of determination is the proportion of variance in dependent variable that is explained by independent variables. In most cases, models with R-square greater than 0.5 is considered acceptable. This study considers this standard and tries to select model with best R^2

Testing the Significance of the Regression Coefficient: After analyzing coefficient of determination, *t*-statistic is required for testing the Significance of the Regression Coefficient. The *t*-statistic is calculated as the ratio of the estimated coefficient to the estimated standard error. If the *t*-statistic is significant within 95% confidence level, then the coefficients are significant too.

Collinearity Diagnosis: If *t*-statistic shows some coefficient insignificant, then collinearity might exist among the variables. Followings are some process of collinearity diagnosis –

i. Check the *t* ratios
ii. Check for unstable parameter values across sub-samples
iii. Check for unstable Parameters Across Specification
iv. Check the Simple Correlation Matrix
v. Check R_k^2
vi. Check the Tolerance and VIF
vii. Check the Eigen-values and Condition Index.

In this study, *t*-statistics, R^2 test, VIF and tolerance and eigen-values and Condition Index are examined to select the best-reduced model that has no or least problem with multicollinearity. The Pearson correlation table can also give some indication about the existence of collinearity. Checks are performed as follows –

Tests	Standard Value
t-statistics	Greater than 2.00 or less than –2.00
VIF	2.50 or less
Tolerance	0.40 or more
Condition Index	Less than 15

The study performed above analyses to select the best-reduced model. For developing this model different methods of regression have been applied like entered, removed, forward, backward and stepwise regression analyses. Model fitting summary and collinearity diagnosis have been applied for every developed model to identify the best-reduced model as mentioned earlier.

3.5 Migration Policy Formulation

Migration policies suggested in this study is based on general concept and literature review. Depending on the pattern analysis, it has been tried to identify the most attractive regions where people are concentrating and by model development, effect of particular factor on migration has been understood. These analyses helped the study to suggest from or to where population should be redirected. But, how the population would be redirected is suggested based on general concepts

Moreover, the study also recommends some methodological improvements in the field of migration that was not possible to incorporate within the scope of this study.

CHAPTER 4: MIGRATION PATTERN IN BANGLADESH

It has been mentioned earlier that lack of data availability in Bangladesh always limits the scope of studies. In this study, some unpublished data have been processed and summarized in a form that the study required. Depending on the data, it becomes possible to depict inter-district and inter-divisional migration patterns, both in-migration and out-migration pattern. This study tries to give emphasis on spatial analysis of migration rather than microanalysis of a particular region to understand the underlying causes of migration. Analysis or study on regional distribution of population flow, which is very important for urban and regional planning, is almost absent in the country.

4.1 District-wise Migration in Bangladesh

Migration information of different districts has been presented in appendix-I as percentage share of districts in the total migration. Only districts with positive net-migration or net in-migration have been presented in the following table –

Table 4.1. Migration of District in Bangladesh with Positive Net-Migration, 2004

Districts	% of total Out-migration	% of total In-migration
Dhaka Division		
Dhaka	2.21	18.33
Gazipur	1.55	1.84
Jamalpur	0	1.64
Manikganj	0	0.54
Munsiganj	0	0.30
Netrokona	1.38	5.38
Rajbari	1.09	1.43
Sherpur	1.90	0.16
Barisal Division		
Barisal	1.26	2.64
Patuakhali	0.66	1.09
Chittagong Division		
Brahmanbaria	1.09	3.87
Chandpur	0.78	0.88

Districts	% of total Out-migration	% of total In- migration
Cox's Bazar	1.29	1.85
Feni	1.16	8.69
Lakhshmipur	0.87	3.35
Khulna Division		
Jessore	1.24	1.99
Rajshahi Division		
Bogra	1 31	1.67
Dinajpur	0.97	6.24
Jaipurhat	0.17	0.18
Kurigram	0.92	1.48
Naogaon	0.46	0.70
Nawabganj	0.21	0.31
Pabna	0.62	0 64
Panchagarh	0.85	2.98
Rangpur	1.00	1.04
Sirajganj	0.27	0.40
Sylhet Division		
Sunamganj	1.06	2 53

Source Calculated from SVRS Data, 2004

The obvious scenario is in case of Dhaka mega-city. About 18% of the migration is made towards the Dhaka, whereas the out-migration from this district is only 2 21%. Most important part is that mega-cities like Khulna and Chittagong have not attracted people enough to become net-out-migrant regions. Main reason for Khulna being net out-migrants district is that it is losing its industries like collapse of Jute industries and other associated industries. In terms of inter-district migration, the districts shown in the table are regions of net in-migration. Dinajpur and Feni have shown significant influx of people next to Dhaka. Other districts included in this table have population flow almost similar for both directions. A divisional or regional interpretation is that Rajshahi, though considered in less developed regions, has most of districts with net positive in-migration. Whereas, Rajshahi district being divisional headquarter has net out-migration similar to Khulna and Chittagong. In recent years, there have been increases in the investment of non-agricultural sectors in Dinajpur and Panchagarh districts. This creates better

employment opportunities in these districts which encourages greater population influx. In the following table a list of net in-migrant and net out-migrant districts have been presented –

Table 4.2. List of Net In/Out-migrant Districts in Bangladesh, 2004

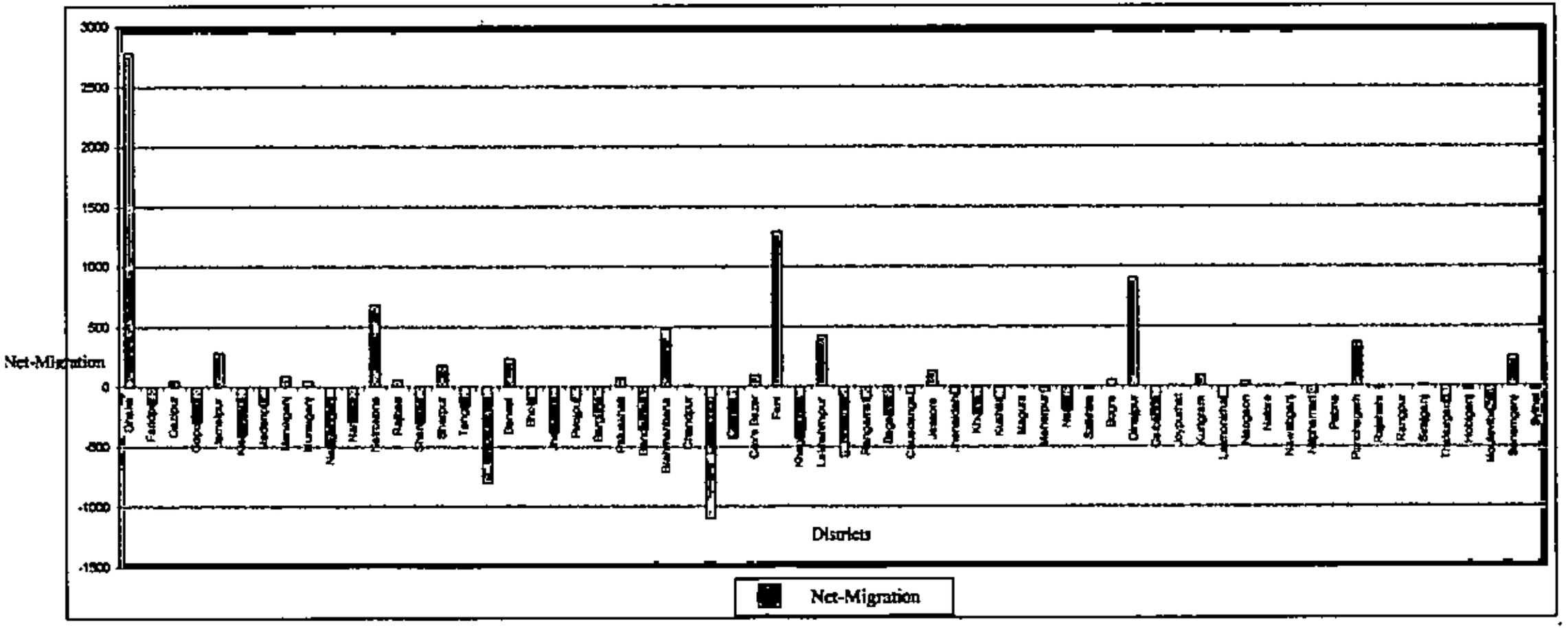
Migration	Districts
Net In-migration	Dhaka, Gazipur, Jamalpur, Manikganj, Munsiganj, Netrokona, Rajbari, Sherpur, Barisal, Patuakhali, Brahmanbaria, Chandpur, Cox's Bazar, Feni, Lakhshmipur, Jessore, Bogra, Dinajpur, Joypurhat, Kurigram, Naogaon, Nawabganj, Pabna, Panchagarh, Rangpur, Sirajganj and Sunamganj
Net Out-migration	Faridpur, Gopalganj, Kishorganj, Madaripur, Narayanganj, Narsindi, Shariatpur, Tangail, Mymensingh, Bhola, Jhalakathi, Pirojpur, Barguna, Bandarban, Chittagong, Comilla, Khagrachhari, Noakhali, Rangamati, Bagerhat, Chuadanga, Jhenaidah, Khulna, Kushtia, Magura, Meherpur, Narail, Satkhira, Gaibanda, Lalmonirhat, Natore, Nilphamari, Rajshahi, Thakurgaon, Hobiganj, Moulavibazar and Sylhet

From the figure 4.1 (shown in the next page), it is clear that net-migration of Dhaka district is positive and very higher compared to other districts. Next highest net in-migrant districts are Feni, Dinajpur and Netrokona. Whereas, Chittagong, Mymensingh, Comilla and Noakhali show significant net out-migration. Districts with high net out-migration have been shown below –

- Chittagong
- Mymensingh
- Noakhali
- Narayanganj
- Comilla
- Khagrachhari
- Kishorganj
- Jhalakathi
- Bandarban
- Shariatpur
- Gopalganj
- Narsindi
- Gaibanda
- Barguna
- Khulna
- Bagerhat
- Narail
- Moulavibazar
- Tangail
- Madaripur
- Faridpur
- Bhola
- Thakurgaon

According to the study of Islam (1999) the prominent districts of migrants' origin are Faridpur, Barisal, Comilla, Dhaka, Noakhali and Mymenshingh. Similarly, this study finds that Faridpur, Mymensingh, Comilla and Noakhali are net out-migrant districts that out-migration in these districts are greater than in-migrations

Figure 4.1: District-wise Net-Migration in Bangladesh, 2004



4.2 Regional Pattern of Migration

Regional pattern of migration depicts the percentage of total migration (in or out) for a district that occurs within the division, where that district belongs. That is, percentage of in\out migrants in a district of a particular division having origin\destination within that division. Because of proximity and easy communication, population re-distribution through migration process would be more significant for districts within same divisional boundary. But, it is not obvious for all divisions or districts. Some districts or a particular division might come up with greater number of population influx or exodus of population. Following analysis will be a clear indication about the regional pattern that exists in the country.

In the next table, regional pattern analysis of Dhaka Division has been explained. Regional-shares of different districts of Dhaka division have been demonstrated as the percentage of total migration to or from particular district of Dhaka division.

Table 4.3: Regional-share Analysis of Dhaka division in migration pattern

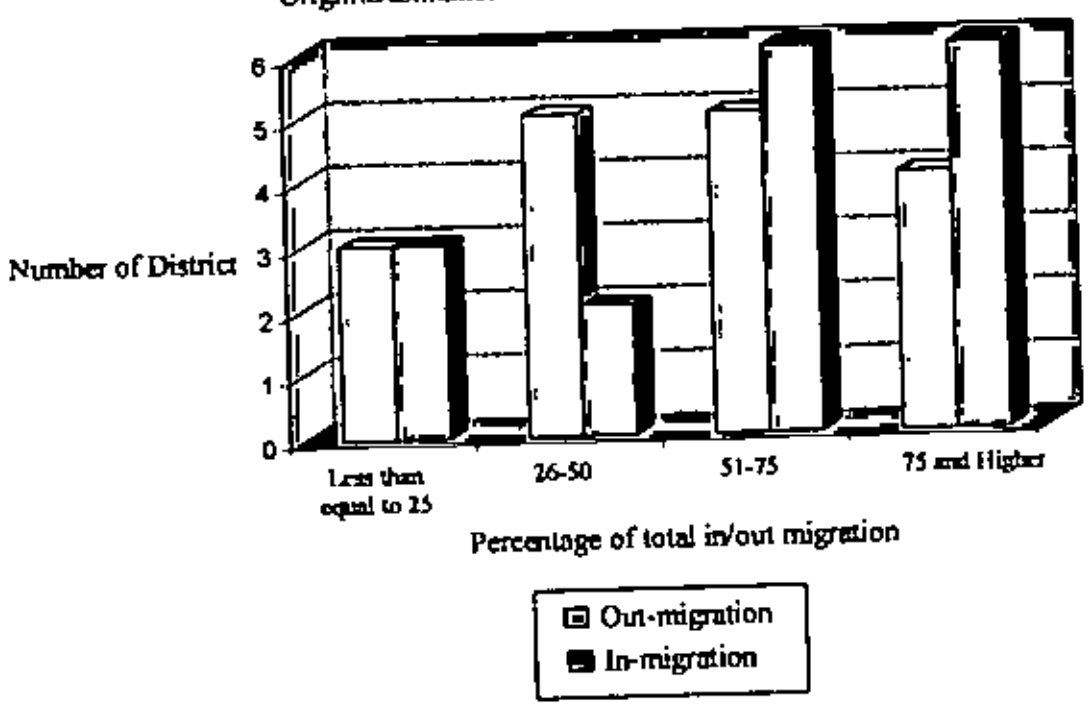
District	% of Total Out-Migration	% of Total In-Migration
Dhaka	38.42	41.72
Faridpur	73.39	72.77
Gazipur	81.65	58.36
Gopalganj	47.34	60.00
Jamalpur	-	20.14
Kishorganj	81.39	9.52
Madaripur	65.31	83.87
Manikganj	-	32 26
Munsiganj	-	78 85
Mymensingh	89.12	97.21
Narayanganj	43 12	54.46
Narsindi	50.83	82 89
Netrokona	88.61	90.17
Rajbari	53.72	17.41
Sariatpur	63.11	62 96
Sherpur	45.83	93.20
Tangail	45.52	53.78

Source: Calculated from SVRS Data, 2004

In most cases, major in-migration takes place within the division except Rajbari, Kishorganj and Jamalpur districts. Geographical location of Rajbari does not permit it to work as an attractor for Dhaka division as it is well isolated from other districts of the division by a major river. It seems physical barrier has negative influence on migration decision. Dhaka district as a capital is operating both as an origin and a destination for all over the country.

Jamalpur, Manikganj and Munsiganj do not have any contribution in out-migration for the division and the country as well. It is very apparent and well known that Dhaka City has great inflow of population from some of these districts, but the analysis depicts different pictures. From the empirical studies, it is clear that most of the low income migrants move on a short-term basis. But, the study has been carried out on the migration data that are collected through household survey basis, which incorporates legal and mostly established households and most importantly the survey includes migrants with changes of residence for six or more months. So, the study represents the pattern of migration for lower-middle income group to higher-income group, for which group Jamalpur, Manikganj and Munsiganj have no out-migration.

Figure 4.2: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Dhaka Division



Source: Calculated from SVRS Data, 2004

Above figure of distribution shows that in Dhaka division high number of districts has in-migration over 50% that originated from Dhaka division. For out-migration, most of the districts are within the limit of 26% to 75%.

Opposite to Dhaka Division, migration of Barisal is not very significant within the Division. Barisal Division is isolated from rest of the country. It makes the division economically backward and physically unattractive. Following is the analysis of regional contribution of districts of Barisal division –

Table 4.4: Regional-share Analysis of Barisal division in migration pattern

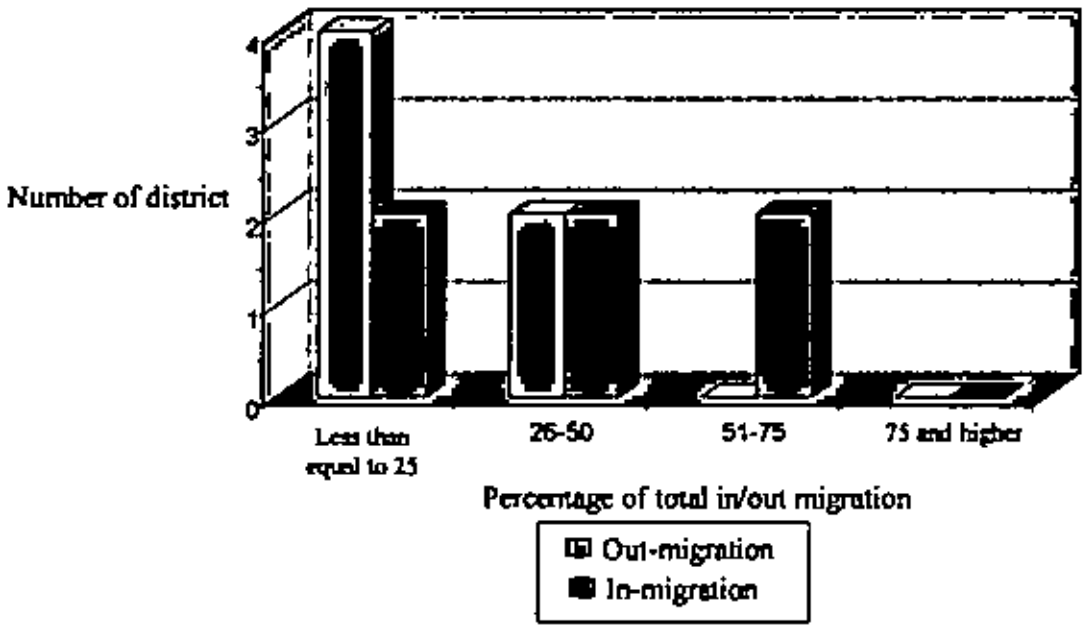
Districts	% of Total Out-Migration	% of Total In-Migration
Barguna	14.76	56.67
Barisal	17.51	30.11
Bhola	4.31	48.05
Jhalokathi	28.07	52.00
Patuakhali	28.07	21.28
Pirojpur	14.55	12.07

Source: Calculated from SVRS Data, 2004

For Barisal division, both types of migration i.e. In-migration and Out-migration, are not significant. Intra-divisional migration shows that Barguna, Bhola and Jhalokathi have attracted people from districts of Barisal Division. Out-migration within this division is not significant

In-migration has similar distribution for the division, but there is no district with regional-share more than 75% for in-migration. On the other hand, out-migration shows higher number of districts with regional-share less than equal to 25% of total out-migration Because, socio-economic and physical conditions of the districts within Barisal Division are almost similar to each other Economy is mainly based on agriculture and fishery and communication system is poor with the districts within the division and around the division. So, people tend to move from this division to the districts of other divisions, where employments are more available in different sectors of economy and quality of life is better. The distribution of regional-share for Barisal Division has been presented at the next page.

Figure 4.3: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Barisal Division



Source: Calculated from SVRS Data, 2004

In the previous analysis of migration pattern for districts, it has been found that Chittagong is not a net in-migrant district. But, population flow within this division is greater in comparison to others.

Table 4.5: Regional-share Analysis of Chittagong division in migration pattern

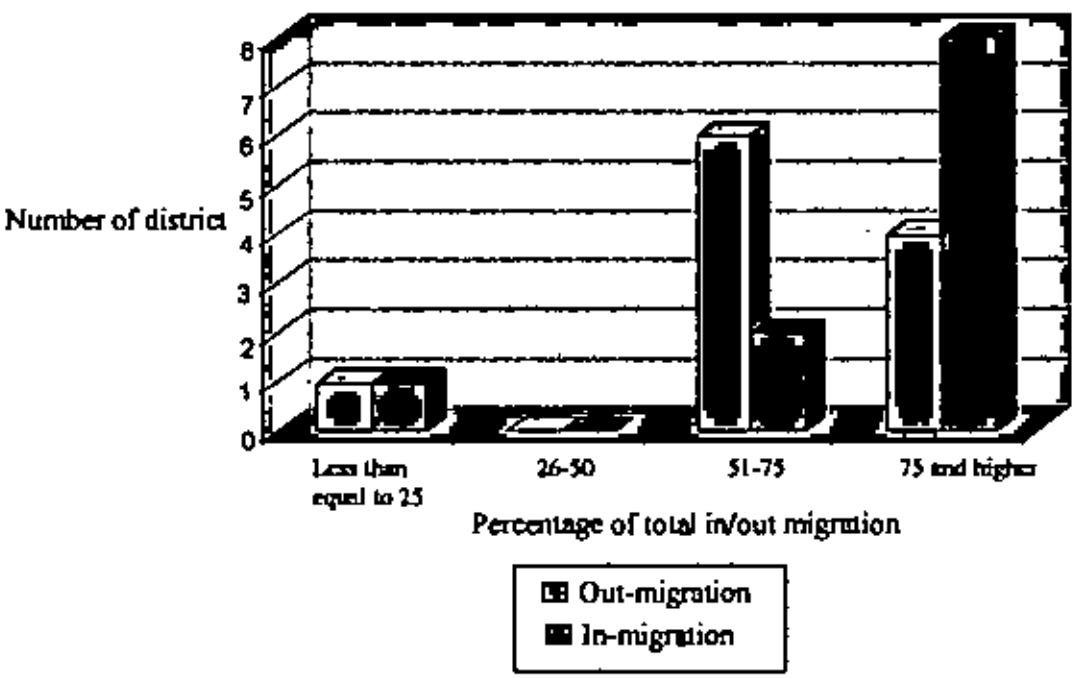
District	% of Total Out-Migration	% of Total In-Migration
Bandarban	67.04	85.39
Brahmanbaria	0.00	72.86
Chandpur	53.73	90.07
Chittagong	77.51	94.96
Comilla	69.98	62.20
Cox's Bazar	84.23	97.81
Feni	86.50	78.69
Khagrachhari	69.39	0.00
Lakhshmipur	68.00	87.00
Noakhali	69.20	87.40
Rangamati	80.49	84.03

Source: Calculated from SVRS Data, 2004

From the column of in-migration in the above table, it is clear that on an average more than 80% of in-migration is held within the division for Chittagong except Khagrachhari. Khagrachhari has no in-migration originated within the Division, 100% of in-migrants come to this district are from outside the region. As hill districts have no such pull factors yet Khagrachhari attracted people from other divisions. This can be explained by the fact that all the migrants come here are government officials, who were transferred here for official purposes.

For out-migration the results are similar here. Brahmanbaria shows no out-migration within the division and Chandpur shows little less but more than 50% out-migration within this division.

Figure 4.4: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Chittagong Division



Source: Calculated from SVRS Data, 2004

Above figure represents that highest portion of districts belong to greater than 50% class for both in and out migration. But, Khulna comes out with results of different character. There is no such higher regional-share as Chittagong has. But, regional-share is diverged ranging from 20% to 85% around. The results are shown in the following table –

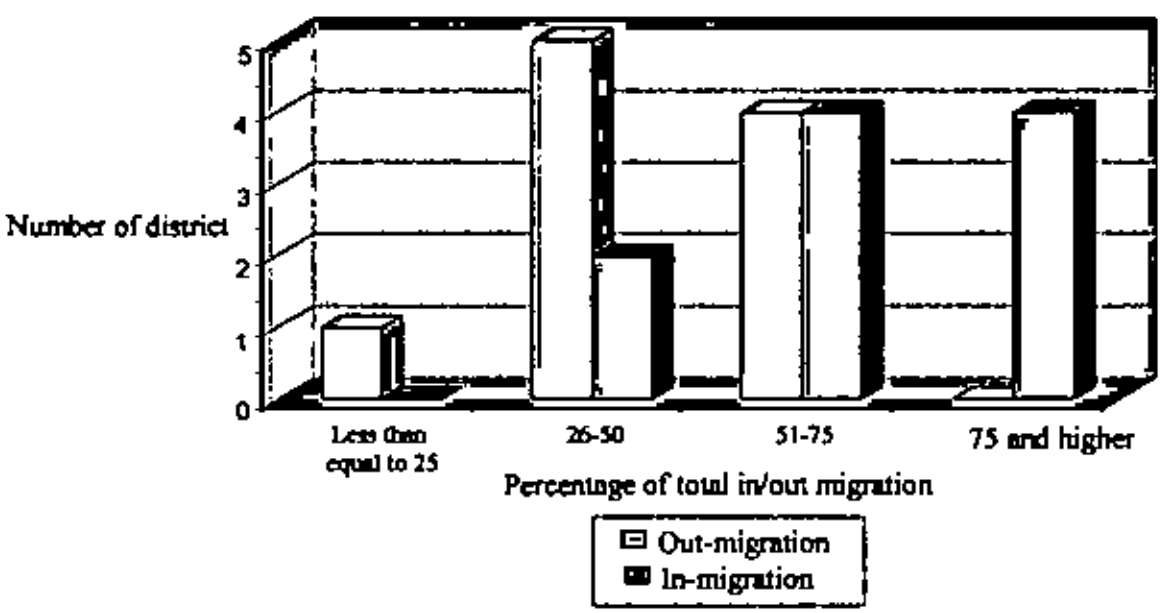
Table 4.6: Regional share Analysis of Khulna division in migration pattern

District	% of Total Out-Migration	% of Total In-Migration
Bagerhat	28.35	79.22
Chuadanga	75.00	86.84
Jessore	50.93	72.89
Jhenaidah	71.60	37.00
Khulna	33.61	47.83
Kushtia	21.07	51.77
Magura	49.25	75.44
Meherpur	41.46	54.29
Narail	28.41	61.54
Satkhira	58.24	85.91

Source: Calculated from SVRS Data, 2004

Like Dhaka, Khulna district also attracts people from other regions and the out-migration is more outward as the quality of life in Khulna is better than any other districts within Khulna division. The distribution of regional-share for Khulna Division has been shown below –

Figure 4.5: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Khulna Division



Source: Calculated from SVRS Data, 2004

For Rajshahi Division, the pattern is little diverse. Regional-share for in-migration and out-migration varies from 20% to 90%. It has been shown in the next table –

Table 4.7 Regional-share Analysis of Rajshahi division in migration pattern

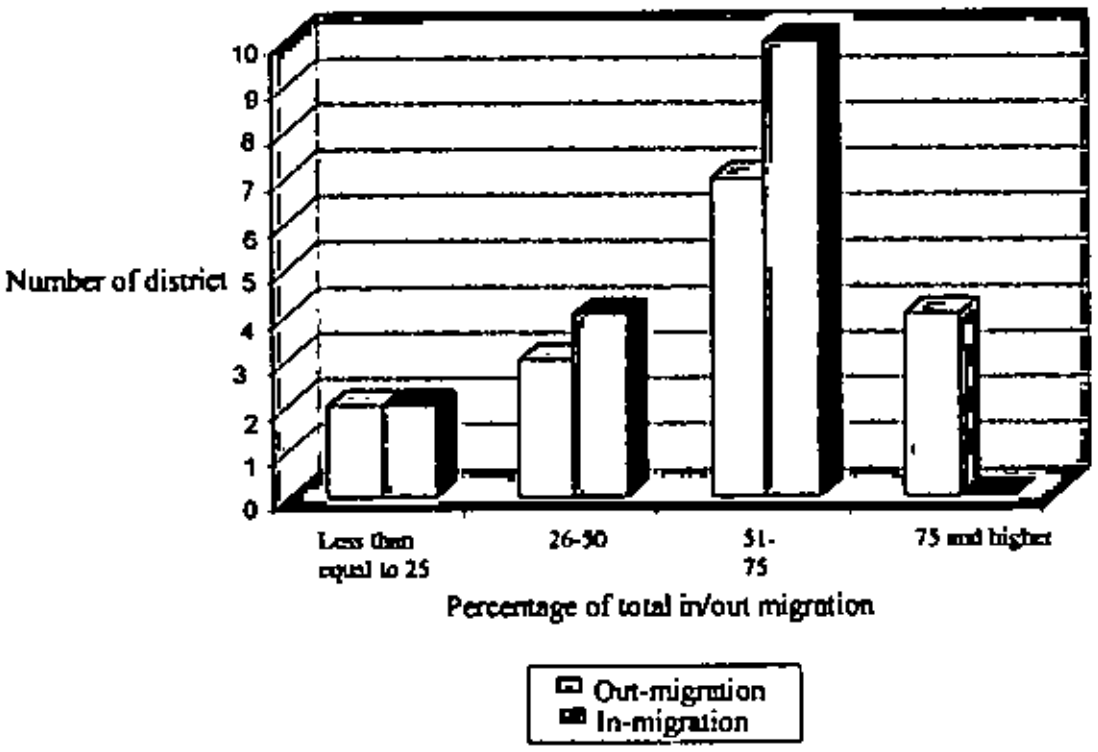
District	% of Total Out-Migration	% of Total In-Migration
Bogra	82.30	55.40
Dinajpur	37.72	27.00
Gaibanda	20.61	31.78
Jaipurhat	93.33	58.06
Kurigram	12.58	19.22
Lalmonirhat	55.83	52.63
Naogaon	55.00	73.33
Natore	76.71	59.72
Nawabganj	94.44	58.49
Nilphamari	71.84	73.45
Pabna	44.86	27.03
Panchagarh	55.48	15.40
Rajshahi	66.29	52.63
Rangpur	61.05	56.67
Sirajganj	44.68	47.83
Thakurgaon	55.93	71.11

Source: Calculated from SVRS Data, 2004

From the above table, it is clear that regional-share for in-migration has significant variation among districts. The situation is similar for out-migration, but significant portion of out-migration is occurred within the division. For in-migration the measure varies from 15% to 73%, where it is 12% to 94% for out-migration.

Unlike Dhaka and Khulna, the reasons behind less regional-share of in-migration for Panchagarh, Kurigram, Dinajpur and Gaibanda are agricultural activities and production in these districts. Moreover, Dinajpur attracts highest people for this region and about 70% of them are from outside the division. In recent years, Dinajpur and Panchagarh experience significant change in investment pattern. Non-farm activities have promoted and in-migration in these districts increases.

Figure 4.6: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Rajshahi Division



Source: Calculated from SVRS Data, 2004

In Sylhet division, Sunamganj poses net in-migration and also acts as an attractor for outsiders. Though Habiganj shows little in-migration from own division, it has contributed very less in total migration. Other than these districts, situation elucidates strong internal interaction of population flow. Following table represents the regional-share of Sylhet division –

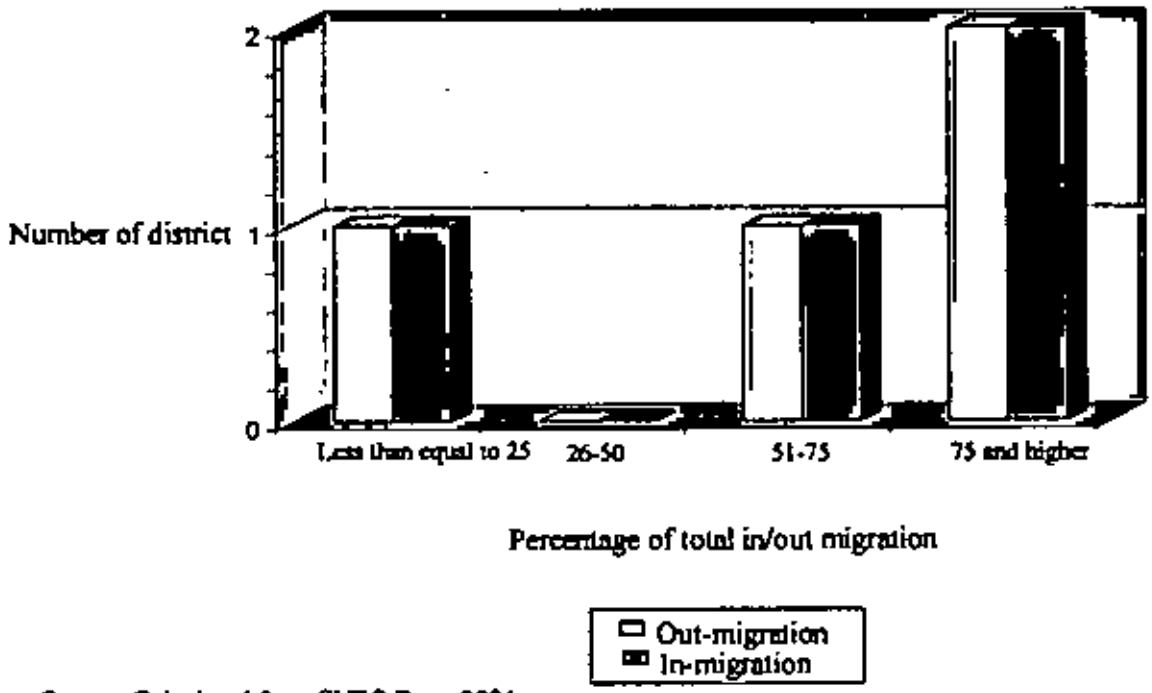
Table 4.8: Regional-share of Sylhet division in national migration pattern

Districts	% of Total Out-Migration	% of Total In-Migration
Habiganj	78.68	1.78
Moulavibazar	82.72	90.38
Sunamganj	5.46	57.01
Sylhet	70.64	98.40

Source: Calculated from SVRS Data, 2004

As Sylhet Division has only four districts, the distribution would not represent significant result. Yet, distribution of districts by regional-share has been figured below –

Figure 4.7: Distribution of Districts by Percentage of their In\Out Migrants Having Origin\Destination within Sylhet Division



Source: Calculated from SVRS Data, 2004

From the above figure, it is clear that regional-share for both in-migration and out-migration is very significant. Among four districts, two districts have more than 75% of regional-share for in-migration and out-migration.

In addition to the analysis of regional pattern of migration of six divisions, inter-regional interaction analysis has been presented in the next section.

4.3 Inter-Regional Interaction Analysis

After analyzing migration on district and regional basis, this section intends to analyze inter-regional or inter-divisional population flows. Though it is clear from the above discussion that regional-share of migration is significant, there are some cases where inter-division linkage and interaction have great contribution in population redistribution. Following table shows inter-regional interaction for Dhaka Division.

Table 4.9: Migration Pattern of Selected Districts of Dhaka Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Khulna	Chittagong	Rajshahi	Barisal	Sylhet	Khulna	Chittagong	Rajshahi	Barisal	Sylhet
Dhaka	14.47	10 00	26.58	10.26	0.26	12.29	9.47	13.56	21.92	1 05
Faridpur	6 73	0.31	19.27	0 31	0.00	9.42	7 85	5 76	3.66	0.52
Gazipur	1.50	4.12	10.49	2.25	0.00	8.20	11.36	16.40	5.68	0 00
Gopalganj	15.69	2.52	31.37	3.08	0.00	36.67	3.33	0 00	0.00	0.00
Jamalpur	0	0	0	0	0	0 35	2 12	77.39	0.00	0.00
Kishorganj	0.36	1.09	10.77	0.55	5.84	0	0.68	0.00	1 36	88.44
Madaripur	4.08	0 41	25.31	4.90	0.00	8 60	3 23	0	4.30	0.00
Manikgonj	0	0	0	0	0	13.98	10.75	25.81	17 20	0.00
Munsiganj	0	0	0	0	0	0	0	3.85	13.46	3.85
Narayangan	8.62	18.41	17.41	10.95	1 49	9.90	2.97	20.79	11 88	0.00
Narsindi	11.05	19.06	11 60	2.49	4.97	1.32	13 16	0	1.32	1.32
Netrokona	0 84	5.49	0	0.00	5.06	0.32	3.02	1.40	0.00	5.08
Rajbari	12.77	8.51	16.49	8.51	0.00	4.05	0.40	76.92	1.21	0.00
Shariatpur	0.61	15.55	19.82	0.91	0.00	14.81	3.70	0	18.52	0 00
Sherpur	0	0	54.17	0 00	0.00	0.49	0	1.46	2.43	2 43
Tangail	1.03	5.52	46.55	0.00	1.38	5.88	18.49	14.29	2.52	5.04
Mymensingh	0.84	2.09	4.85	0.00	3.10	0	0.76	1.52	0 00	0.51

Source: Calculated from SVRS Data, 2004

But, in case of Narsindi out-migration towards Chittagong division is 19.06% and in-migration from Chittagong division is 13 16%. It is significantly greater than average interaction scenario of Dhaka division with Chittagong Division. The reason might be easy accessibility from Chittagong division. With Sylhet Division, the overall population redistribution is insignificant. But, this region contributes 88% of the total in-migrated population of Kishorganj. From this point of view, Kishorganj should be considered in the region of Sylhet Division. Similarly, Gopalganj has greater interaction with Khulna and Jamalpur with Rajshahi.

An obvious example of inverse relation of distance with population movement is the population flow pattern between Barisal and Sylhet. Because of the distance and communication difficulties, Barisal has less interaction with other region. But, people in the districts of Barisal out-migrate to Dhaka Division in great numbers. This region also shows marked relationship with Khulna region.

Table 4.10. Migration Pattern of Different Districts of Barisal Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Chittagong	Rajshahi	Dhaka	Khulna	Sylhet	Chittagong	Rajshahi	Dhaka	Khulna	Sylhet
Barisal	3.23	7.37	63 59	7.37	0.92	14.51	3.08	20.00	32.31	0
Bhola	26.32	4 78	64.59	0.00	0.00	19.48	1.30	20.78	10.39	0
Jhalokathi	6.96	6 96	46.17	11.60	0.23	0.00	0.00	12.00	36.00	0
Pirojpur	12.12	11.52	55.76	6.06	0.00	0.00	0 00	32.76	55.17	0
Barguna	15.13	14 39	54.61	1.11	0.00	6.67	0 00	6.67	30.00	0
Patuakhali	12.28	4 39	55.26	0.00	0.00	59.57	0 00	17.02	2.13	0

Source: Calculated from SVRS Data, 2004

In case of Chittagong division, though Feni has showed no such interaction with other divisions, it has some linkage with Barisal due to proximity. It has captured most migrants from Chittagong. As mentioned earlier, Chittagong has greater regional-share for its districts. Only Brahmanbaria and Comilla show some interaction with Rajshahi Division. Khagrachhari district has shown no significant inter-regional linkage. It does not attract people from other divisions or regions. Inter-regional interaction of different districts of Chittagong division is shown below –

Table 4.11: Migration Pattern of Selected Districts of Chittagong Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Khulna	Rajshahi	Dhaka	Barisal	Sylhet	Khulna	Rajshahi	Dhaka	Barisal	Sylhet
Bandarban	0.00	3.14	0.90	28.25	0 67	0.00	13.48	0	1.12	0.00
Brahmanbaria	0.00	26.74	19.79	0 53	52.94	2.10	1.20	18.89	0.00	4.95
Chandpur	0.75	20.90	20.90	0.00	3 73	4 64	0	5.30	0.00	0.00
Chittagong	1.62	9.63	4.77	3 07	3.40	0.00	0	1.44	3.60	0.00
Comilla	0 34	21.59	3.54	0.67	3.88	1 83	0	29.88	6.10	0.00
Cox's Bazar	0.00	13.51	2.25	0.00	0.00	0.00	0	1.88	0.31	0.00
Feni	2.50	6.00	5.00	0.00	0.00	2.81	2.54	4.94	9.82	1.20
Khagrachhari	0.93	16.12	8.18	5.37	0.00	0	0	0	0	0
Lakshmipur	1.33	23.33	2.67	0.00	4.67	6.07	1.04	5.55	0.35	0.00
Noakhali	1.45	7.73	21.61	0.00	0 00	0.00	2.44	9.76	0.41	0.00
Rangamati	0.25	1.73	14.32	0.74	2.47	0.32	0.96	14 70	0.00	0.00

Source: Calculated from SVRS Data, 2004

For Khulna Division, the interactions are more towards Rajshahi and Dhaka. Following is the interaction pattern for Khulna division –

Table 4.12: Migration Pattern of Selected Districts of Khulna Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Chittagong	Rajshahi	Dhaka	Barisal	Sylhet	Chittagong	Rajshahi	Dhaka	Barisal	Sylhet
Bagerhat	11.86	11.08	23.71	24.74	0.26	5 84	1.30	8.44	5.19	0
Chuadanga	0.00	13 00	9 00	3.00	0.00	2.63	0.00	10.53	0 00	0
Jessore	1.87	31.78	11 21	4.21	0.00	1.75	4.08	13.99	7 29	0
Jhenaidah	0 62	16.05	11.73	0.00	0.00	4 00	3.00	56.00	0.00	0
Khulna	3 69	16.80	23.36	21.31	1.23	5 53	4.74	24.51	17.39	0
Kushtia	1 65	17 77	55.37	1.65	2.48	2.13	8 51	36 88	0 00	0.7
Magura	4 48	13.43	32.84	0.00	0.00	7.02	1.75	14.04	1.75	0
Meherpur	0.00	32.93	24 39	1.22	0.00	0.00	5.71	40.00	0.00	0
Narail	7.95	38.64	25.00	0 00	0.00	0.00	21.54	15.38	1.54	0
Satkhira	2.94	31.18	7.06	0.59	0 00	4.03	0.00	10.07	0.00	0

Source: Calculated from SVRS Data, 2004

Similar to Barisal, People of Khulna Division are less inclined to go towards Sylhet and Chittagong Divisions. But, this division shows better population flow with Rajshahi as opposed to Barisal. Being close to Dhaka, movement of people between Kushtia and Dhaka is notable Another important flow occurs between districts of Khulna and Rajshahi Division.

From Rajshahi's point of view, there is less population movement between Rajshahi and Khulna From the following table, it can be said that Rajshahi has link only with Dhaka except some few cases with Khulna and Chittagong. Gaibanda and Kurigram show greatest population out-migration to Dhaka, 76% ad 80% respectively. Within these percentages of contribution, Jamalpur and Rajbari receive most of the people come out from Gaibanda and Kurigram respectively. The inter-regional interaction of Rajshahi Division has been presented as follows –

Table 4.13: Migration Pattern of Selected Districts of Rajshahi Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Khulna	Chittagong	Dhaka	Barisal	Sylhet	Khulna	Chittagong	Dhaka	Barisal	Sylhet
Bogra	1.33	4.87	11.06	0.00	0.44	8.71	13.59	17.77	2.44	2.09
Dinajpur	2.99	3.59	53.29	0.60	1.80	5.21	27.65	32.50	5.87	1.77
Gaibanda	1.82	1.01	75.96	0.00	0.61	3.74	28.50	21.96	2.34	11.68
Jaipurhat	6.67	0	0	0.00	0.00	16.13	0	6.45	3.23	16.13
Kurigram	1.26	5.66	80.50	0.00	0.00	7.06	34.12	34.90	3.14	1.57
Lalmonirhat	5.00	8.33	30.00	0.83	0.00	0.00	26.32	21.05	0.00	0.00
Naogaon	2.50	0	42.50	0.00	0.00	5.83	10.00	10.83	0.00	0.00
Natore	0.00	0	23.29	0.00	0.00	1.39	11.11	18.06	6.94	2.78
Nawabganj	0.00	0	5.56	0.00	0.00	1.89	3.77	3.77	0.00	32.08
Nilphamari	0.00	0.57	9.77	0.00	17.82	5.31	3.54	12.39	0.88	4.42
Pabna	7.48	0	47.66	0.00	0.00	15.32	12.61	41.44	0.00	3.60
Panchagarh	9.59	2.05	32.88	0.00	0.00	52.05	1.36	25.34	4.87	0.97
Rajshahi	2.86	6.86	21.14	2.29	0.57	23.68	0.66	21.71	0.66	0.66
Rangpur	0.58	5.23	27.91	5.23	0.00	6.11	8.33	27.22	0.00	1.67
Sirajganj	0.00	0	55.32	0.00	0.00	10.14	2.90	37.68	0.00	1.45
Thakurgaon	1.69	3.95	29.38	0.00	9.04	2.22	4.44	13.33	6.67	2.22

Source: Calculated from SVRS Data, 2004

As described earlier, population does not flow between Sylhet and Barisal and between Sylhet and Khulna as well. It has been shown below –

Table 4.14. Migration Pattern of Selected Districts of Sylhet Division from/to Other Divisions

Districts	% of Total Out-Migration to					% of Total In-Migration from				
	Chittagong	Rajshahi	Dhaka	Khulna	Barisal	Chittagong	Rajshahi	Dhaka	Khulna	Barisal
Habiganj	10.15	5.08	6.09	0	0	80.47	0.00	17.16	0.59	0
Moulavibazar	0.00	7.37	9.92	0	0	2.56	5.13	1.92	0.00	0
Sunamganj	9.84	12.02	72.68	0	0	11.26	10.80	17.47	2.76	0.69
Sylhet	3.78	11.63	13.66	0.29	0	0	0	1.60	0	0

Source: Calculated from SVRS Data, 2004

In Hobiganj, about 80% of total in-migrants come from Chittagong and for Sunamganj. about 70% of the out-migrant goes to Dhaka. Other than these, people of Sylhet Division have fewer tendencies to move.

4.4 Migration and Population Re-distribution

Following the inter-regional interaction, the study finds out percentage of migrant population in every district. Here, the portion of migrant population to total population of the respective districts has been calculated. Next table shows contribution of migrants in the accounts of total population for selected districts, where the contributions are felt significant –

Table 4.15. Percentage of total population In-migrated in selected districts

Districts	In-migrated population from other districts	
	Percentage of total population in the district	Percentage of total inter-district migration
Dhaka	5.13	18.33
Faridpur	1.53	1.11
Gazipur	2.19	1.84
Jamalpur	1.88	1.64
Netrokona	6.58	5.38
Rajbari	3.63	1.43
Barisal	2.71	2.64
Patuakhali	1 80	1.09
Bandarban	4.14	0.52
Brahmanbaria	3.93	3 88
Cox's Bazar	2.54	1.85
Feni	17.38	8.70
Lakhshmipur	5 43	3.35
Rangamati	8.35	1 82
Jessore	1.94	1.99
Khulna	1.50	1.47
Dinajpur	5.69	6.24
Panchagarh	8 57	2.98
Sunamganj	3 06	2.53
Sylhet	1.72	1.82

Source: Calculated from SVRS Data, 2004

Migrant people have significantly changed the population statistics for Feni, where more than 17% of total population is from other districts. Other districts that have a good percentage of in-migrants are Panchagarh, Rangamati, Netrokona, Dinajpur, Lakhshmipur and most obviously Dhaka. In the case of Dhaka, though the percentage is lower than other above-mentioned districts due to greater number of total population, the number of in-migrants is huge. So, clearly a significant change has occurred in the distribution of people for Bangladesh.

4.5 Summary Findings

Followings are the summary findings of the study -

- The highest proportion (about 18%) of the total in-migration is made towards Dhaka.
- Most important part is that mega-cities like Khulna and Chittagong show up as net out-migrant regions.
- Regional-share of Rajbari is not significant due to geographical location as it is isolated from other districts of the division by a major river.
- Due to locational advantage and being hub of economic and administrative activities, Dhaka district has inflow and outflow of people from all over Bangladesh
- For Barisal division, regional-share for out-migration is less, mostly because of permanent nature of migration and less difference among districts within the division. So, they prefer to go outside the division especially to Dhaka.
- On an average 80% of in-migration is held within the division for Chittagong except Khagrachhari.
- Khulna comes out with results of more diversified nature. Population flow within the region is and outside region is not significant but noticeable.
- Unlike Dhaka and Khulna, agricultural activities and production made Panchagarh, Kurigram, Dinajpur and Gaibanda more diversified in terms of population flow.
- Sylhet situation elucidates strong internal interaction of population flow.
- Barisal has less interaction with other region. Similarly, Sylhet has almost no relationship with other regions except few cases with Dhaka Division.
- For Chittagong, only Brahmanbaria and Comilla showed some interaction with Rajshahi Division. Other than these, movements are more internal.

- In case of Rajshahi, important flow occurs between districts of Khulna and Rajshahi Division
- Migrant people have significantly changed the population statistics for Feni, where more than 17% of total population is from other districts
- In the case of Dhaka, though the percentage is lower than other above-mentioned districts due to greater number of total population, the number of in-migrants is huge.

CHAPTER 5: DETERMINATION OF FUNCTIONAL FORM FOR INTERNAL MIGRATION IN BANGLADESH

As described earlier, this study has tried to describe the relationship between internal migration and determinant of migration on a macro-scale by developing a functional form using regression analysis. To fulfill this objective, this chapter tries to elucidate the process and considerations involved in determining the functional form.

5.1 Determining Functional Form of In-migration

5.1.1 Analyzing Determinants of In-Migration

Determinants of internal migration are the factors affecting migration decisions. In this analysis, these are considered as independent variables or explanatory variables in Ordinary Least Square technique, where number of in-migrants or out-migrants have been taken as dependent variable. So, it was necessary to identify independent variables that have significant influence over the dependent variable (Firstly, In-migration).

Table 5.1: Correlation (Pearson) Between In-migration and Determinants of In-migration (Initial Selection)

	In_mig	Own_dwl	Lit	Mun_pop	Urb_pop	Pop_Den	Married	Pop_15_24	Unma_15_24	Ill_bed	Phy_bed	PrGDP	Edu_Inst	Own_aglnd	Cul_Ind	Wage_agr	Unv	Pub_unv	Blood_bk	Infra	NonAg_Act	Look_act
In_mig	1																					
Own_dwl	-0.578	1																				
Lit	0.247	-0.404	1																			
Mun_pop	0.617	-0.812	0.110	1																		
Urb_pop	0.512	-0.898	0.412	0.866	1																	
Pop_Den	0.699	-0.682	0.312	0.711	0.659	1																
Married	-0.313	0.407	-0.278	-0.253	-0.254	-0.230	1															
Pop_15_24	0.368	-0.646	0.456	0.679	0.690	0.533	-0.088	1														
Unma_15_24	0.466	-0.773	0.527	0.641	0.676	0.510	-0.753	0.674	1													
Ill_bed	0.425	-0.605	0.192	0.592	0.615	0.219	-0.250	0.401	0.521	1												
Phy_bed	0.119	-0.265	0.181	0.227	0.203	0.077	-0.243	0.229	0.376	0.501	1											
PrGDP	0.500	-0.857	0.399	0.768	0.878	0.665	-0.197	0.734	0.652	0.436	0.129	1										
Edu_Inst	-0.236	0.212	-0.178	-0.279	-0.219	-0.495	-0.029	-0.231	-0.682	0.178	0.242	-0.260	1									
Own_aglnd	-0.358	0.408	0.406	-0.190	-0.342	-0.107	0.227	-0.299	-0.299	-0.205	-0.017	-0.277	0.278	1								
Cul_Ind	-0.020	0.288	-0.102	-0.076	-0.242	0.087	-0.193	0.089	-0.165	-0.509	-0.187	-0.193	-0.075	0.288	1							
Wage_agr	0.187	-0.437	0.173	0.328	0.471	0.207	-0.559	0.160	0.566	0.346	0.089	0.415	-0.115	-0.201	-0.365	1						
Unv	0.830	-0.766	0.350	0.832	0.716	0.836	-0.261	0.559	0.568	0.478	0.253	0.704	-0.286	-0.100	-0.062	0.244	1					
Pub_unv	0.709	-0.549	0.407	0.847	0.756	0.716	-0.233	0.616	0.581	0.490	0.145	0.753	-0.346	-0.078	-0.080	0.123	0.902	1				
Blood_bk	0.073	-0.025	-0.004	0.011	-0.024	0.275	0.157	-0.238	0.005	-0.223	-0.293	-0.010	-0.352	0.133	0.046	0.247	0.063	0.057	1			
Infra	0.557	-0.361	0.161	0.379	0.342	0.594	0.206	0.316	0.330	0.157	-0.054	0.290	-0.529	-0.494	0.262	0.120	0.486	0.412	0.154	1		
NonAg_Act	0.532	-0.700	0.290	0.506	0.646	0.616	0.444	0.416	0.630	0.275	-0.022	0.696	-0.268	-0.343	-0.308	0.539	0.486	0.436	0.235	0.368	1	
Look_act	0.350	-0.570	0.498	0.414	0.510	0.316	-0.742	0.272	0.717	0.392	0.107	0.447	0.029	-0.219	-0.262	0.661	0.369	0.440	0.096	0.232	0.581	1

Dependent variable: In_mig

Above table showed the correlation between explanatory variables and dependent variable (ln_mig) Depending on the table, significant explanatory variables have been identified. Due to the absence of correlation, following independent variables or determinants of in-migration are excluded –

i Lit = Percentage of Literate People (7 years or more)
ii. Maried = Percentage of Married People
iii. Pop_15_24 = Percentage of People Within15-24 Years of Age
iv. Unma_15_24 = Percentage of Unmarried People Within15-24 Years of Age
v. H_bed = Hospital and Clinic Beds per Thousand Population (1998)
v Ph_bed = Public Hospital Beds per Thousand Population (2002)
vi. Edu_Inst = Number of School, College, Madrasa per Thousand Population (1998)
vii Own_aglnd = Percentage of Household Own Agricultural Land
viii. Cul_lnd = Percentage of Cultivable Land
ix. Wage_agr = Agricultural Wage Rate Taka per Day (1998)
x Flood_hz = Flood hazard rank score (1998)
xi. Look_act = Percentage of People Looking for Work (10 years and more)

In addition to these variables, two other independent variables are excluded. These variables have similar characteristics with another selected variable In these cases, variables with high correlation have been included in further analysis Followings are such types of variables –

i. Urb_pop = Percentage of Urban (Municipal and other urban areas) Population
ii P_unv = Number of Public University

In the next table, incorporated variables are shown with their corresponding correlations. In the study, variables with significant correlation (absolute value >= 0.5) is considered in the OLS regression analysis.

Table 5 2: Correlated Determinants of In-migration

	In_mig	Own_dwl	Mun_pop	Pop_Den	PcGDP	Unv	Infra	NonAg_Act
In_mig	1							
Own_dwl	-0.578	1						
Mun_pop	0 617	-0.812	1					
Pop_Den	0 699	-0.682	0.711	1				
PcGDP	0 500	-0.857	0.766	0 665	1			
Unv	0 810	-0.766	0.832	0 836	0.704	1		
Infra	0 557	-0.361	0.379	0.594	0.299	0.480	1	
NonAg_Act	0.532	-0.700	0.506	0.616	0.696	0.485	0 308	1

Except for number of universities and population density other variables show low correlation with in-migration. After excluding so many variables, the above table shows internal correlation among variables. These internally correlated variables have to be removed for regression analysis other wise there may arise problem of multicollinearity. The problems with collinearity have been mentioned in chapter 3. So, for first instance linear regression analysis has been performed to determine the model. Then collinearity has been assessed and problems with collinearity have been tried to overcome.

5.1.2 Initial Model

Initial model has been developed performing OLS analysis on the selected variables. Selected explanatory variables had good correlation with dependent variable. But there may exist problems of collinearity. So, collinearity diagnosis was needed besides the test of model fitting. Initially from the model summary, the research observes how much the model fits to the data set. Followings are the model summary and coefficient estimates of initial model –

Table 5 3: Model Summary of Initial Linear OLS Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1(a)	0.884	0.782	0.755	0.11113

a) Predictors: (Constant), NonAg_Act, Infra, Mun_pop, Pop_Den, PcGDP. Own_dwl, Unv

Table 5.4: Coefficients Estimates of Initial Linear OLS Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	- 488	0.376		-1.299	0.199
	Own_dwl	005	0.003	0.233	1.529	0.132
	Mun_pop	- 001	0.003	-0.040	-.298	0.767
	Pop_Den	-9.090E-05	0.000	-0.303	-2.154	0.036
	PcGDP	.000	0.000	-0.236	-1.788	0.079
	Infra	.419	0.140	0.236	2.998	0.004
	Univ	.041	0.006	1.106	7.158	0.000
	NonAg_Act	.020	0.004	0.458	4.432	0.000

a) Dependent Variable: ln_mig

Above estimates of coefficients exhibit first two variables are not significant t-statistics and significance level are very low for Own_dwl and Mun_pop. This statistics gives the sense of existence of collinearity So, collineearity has been tested depending on the values of tolerance and VIF. Following is the collinearity statistics for initial model –

Table 5.5: Collinearity Statistics of Included Variables in Initial Model

Coefficients	Tolerance	VIF
(Constant)		
Own_dwl	0 168	5.970
Mun_pop	0.219	4.559
Pop_Den	0.197	5.075
PcGDP	0.223	4.479
Infra	0.631	1.584
Univ	0 163	6.131
NonAg_Act	0.364	2 746

It is in fact suggested that one should start to worry when any of the tolerances is below 0 40. Even by the latter standard the tolerances are satisfactory. The VIF is another equivalent multicollinearity diagnostic, which was reported for each equation. If the values of VIF are less than 2.50, there is nothing to worry about the results of the regression coefficients, which are robust (Allison, 1999, p 141 cited in Oshaghemi, 2001). In this case, there is something to worry about the initial model. In the collinearity statistics, almost every variable represents tolerance and VIF beyond the acceptance level. It is apparent from the above table that collinearity exists in the model and following diagnosis also shows existence of collinearity

Table 5.6: Collinearity Diagnostics of Included Variables in Initial Model

Model	Dimension	Eigen value	Condition Index	Variance Proportions							
				(Constant)	Own_dwl	Mun_pop	Pop_Den	PcGDP	Infra	Univ	NonAg_Act
1	1	6.326	1.000	.00	.00	.00	.00	.00	.00	.00	.00
	2	1.177	2.318	.00	.00	.00	.00	.00	.00	.08	.00
	3	.266	4.873	.00	.00	.03	.00	00	68	.01	.00
	4	097	8.087	.00	.00	.39	.29	.00	.20	.01	.03
	5	.068	9.617	.00	.01	.12	.08	.00	.00	.53	.07
	6	.045	11.861	.00	.00	.22	.53	06	.09	26	.22
	7	019	18.046	.00	.00	.13	.05	.69	.00	.05	.51
	8	.001	87.019	1.00	.99	.09	04	.24	.01	.05	.17

a) Dependent Variable. In_mig

Eigenvalues provides an indication of how much correlation exists among the independent variables. That means, the lower is eigenvalue the higher is internal correlation. On the other hand, condition index greater than 15 indicates a possible problem and an index greater than 30 suggests serious problem with multicollinearity (Habib, 2004). By comparing these values with the values in the table, the study depicts two variables (dimension 7 and 8) have crossed the limit or thumb rule and it is also clear in the tolerance table. But, from the table of correlation, it has been found that dimension 7 and 8 i.e. Number of University and Road Density have better relation with the dependent variable. So, the study intended to perform other OLS analysis like forward, backward and stepwise regression analysis to incorporate most representative variables and to overcome the problem of collinearity.

5.1.3 Best Reduced Model

As mentioned in the research design chapter, the study performed other methods of regression analysis. The study finds stepwise method as appropriate for this study. In the following sections, the model result and other diagnosis have been presented.

In the stepwise regression, four models have been developed to represent relationship between in-migration and its determinants. Model summary of stepwise regression shows better R^2 for fourth model, where four variables are included. Following is the model summary and estimates of coefficient of the stepwise regression –

Table 5.7: Model Summary of Stepwise Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1(a)	0.810	0.656	0.651	0.13257
2(b)	0.833	0.693	0.683	0.12628
3(c)	0.845	0.713	0.699	0.12308
4(d)	0.870	0.756	0.740	0.11439

a. Predictors: (Constant), Unv
b. Predictors: (Constant), Unv, Infra
c. Predictors: (Constant), Unv, Infra, NonAg_Act
d. Predictors: (Constant), Unv, Infra, NonAg_Act, PcGDP

Table 5.8: Coefficients Estimates of Stepwise Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.100	0.017		5.913	.000
	Unv	0.030	0.003	0.810	10.879	.000
2	(Constant)	0.041	0.027		1.531	.131
	Unv	0.026	0.003	0.705	8.730	.000
	Infra	0.389	0.144	0.219	2.708	.009
3	(Constant)	-0.064	0.058		-1.111	.271
	Unv	0.024	0.003	0.634	7.358	.000
	Infra	0.362	0.141	0.203	2.571	013
	NonAg_Act	0.007	0.003	0.163	2.052	045
4	(Constant)	0.068	0.067		1.016	.314
	Unv	0.030	0.004	0.821	8 311	000
	Infra	0.301	0.132	0.169	2 279	026
	NonAg_Act	0 014	0 004	0.333	3 676	.001
	PcGDP	-0.001	0.000	-0.360	-3.235	.002

a. Dependent Variable: ln_mig

The study ignores the result for constant. Stepwise regression includes variables judging their significance in the model, it is apparent to have better t-statistics for all coefficients included in the model. This regression excludes those variables that have less representation in the model or could cause problem of extreme multicollinearity. Such variables are Mun_pop, Pop_Den and Own_dwl. Still there remains possibility of having collinearity in the model variables, so following analysis has been performed.

Table 5.9: Collinearity Statistics of Included Variables in Stepwise Regression

Model		Tolerance	VIF
1	(Constant)		
	Unv	1.000	1.000
2	(Constant)		
	Unv	.771	1.298
	Infra	.771	1.298
3	(Constant)		
	Unv	.644	1.552
	Infra	.764	1.309
	NonAg_Act	.758	1.319
4	(Constant)		
	Unv	.423	2.365
	Infra	.748	1.336
	NonAg_Act	.503	1.990
	PcGDP	333	3.003

Table 5.10: Collinearity Diagnostics of Included Variables in Stepwise Regression

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	Unv	Infra	NonAg_Act	PcGDP
1	1	1.189	1.000	.41	.41			
	2	.811	1.211	.59	.59			
2	1	1.993	1.000	.07	.06	07		
	2	.842	1.539	.09	.68	.00		
	3	166	3 470	.85	25	93		
3	1	2 866	1 000	.01	.02	.03	.01	
	2	.889	1.796	.01	.60	.00	.00	
	3	.209	3.705	.03	.15	.96	.05	
	4	037	8.792	.95	.23	.01	.94	
4	1	3.808	1.000	.00	.01	.02	.00	00
	2	896	2.062	.00	40	.00	.00	.00
	3	238	3.996	00	.07	.91	.01	.01
	4	.037	10.119	.54	.12	.01	.68	.00
	5	020	13.654	45	.41	.06	.30	.98

a) Dependent Variable: ln_mig

Depending on the standard values of tolerance or VIF, collinearity statistic depicts that there is problem with collinearity for the variable of Per Capita GDP in the fourth model. Further analysis of collinearity represents that the collinearity of PcGDP variable is highest among others, albeit it is within the acceptable limit. But, the estimates of coefficients showed that PcGDP variable has negative impact on the model, which is very unusual as this variable has positive correlation with dependent variable. This sort of unusual value of coefficient gives indication of collinearity. So, the study accepts the third model as there exists no perfect collinearity among variables and R-square result is also good.

5.1.4 Model Explanation

Final model has been selected on the basis of R-square and collinearity diagnosis. Beta coefficient i.e. standardize coefficients are considered for the model.

Beta coefficients are used to make statements about the relative importance of the independent variables in a multiple regression model Usually beta coefficients are normalized or connected with the variance of the dependent variable. Such rescaling of regression makes beta coefficient capable of direct interpretation (Pindyck and Rubinfeld, 1981)

The model is **ln_mig = - 0.064 + 0.634 Unv + 0.203 Infra + 0.163 NonAg_Act,** whose coefficient of determinant is 0.713

From the model, the most important finding is that number of university has the most significant impact on in-migration, for one unit of change in Unv variable 0.634 change occurs in the variance of in-migration. Such kind of relation might be the cause of sampling technique As the survey represents households of the country, it mostly incorporates middle-income group. Other important determinants are infrastructure, in this case road length per square km

Though GDP has been tried to incorporate in the model, because of collinearity it is not possible It is very apparent that GDP would have significant correlation with other variables of development indicators. Yet this model incorporates economic indicator that

can influence migration decision. It is NonAg_Act variable that represents percentage of district population involved in non-agricultural activities.

5.2 Determining Functional Form of Out-migration

The study explains the process of model formulation for in-migration so far. It has been tried to incorporate variables or so-called push factors that might have some impacts on out-migration and in-migration as well. These variables include flood hazard, employment situation like looking for work statistics, marital status and GDP. But the correlation matrix of out-migration and its determinants does not show significant relation between out-migration and its determinants. Following table shows the correlation matrix –

Table 5.11: Correlation between Out-migration and Determinants of Out-migration (Initial Selection)

	Out_mig	Own_dwl	Lit	Mun_pop	Urb_pop	Pop_Den	Married	Pop_15_24	Unma_15_24	H_bed	Ph_bed	PcGDP	Edu_Inst	Own_aglnd	Cul_Lnd	Wage_agr	Cns	Publ_univ	Flood_hz	Infra	NonAg_Act	Look_act
Out_mig	1																					
Own_dwl	-0.317	1																				
Lit	0.191	-0.404	1																			
Mun_pop	0.239	-0.812	0.440	1																		
Urb_pop	0.317	0.898	0.412	0.896	1																	
Pop_Den	0.126	-0.682	0.732	0.71x	0.659	1																
Married	0.141	0.487	-0.278	0.253	-0.254	-0.230	1															
Pop_15_24	0.014	-0.646	0.456	0.679	0.690	0.533	-0.083	1														
Unma_15_24	0.304	-0.773	0.527	0.645	0.676	0.510	-0.753	0.674	1													
H_bed	0.255	-0.605	0.892	0.592	0.612	0.219	-0.256	0.401	0.521	1												
Ph_bed	-0.017	-0.265	0.181	0.222	0.293	0.07x	-0.245	0.239	0.376	0.501	1											
PcGDP	0.276	-0.857	0.369	0.766	0.878	0.695	-0.197	0.734	0.652	0.436	0.129	1										
Edu_Inst	-0.131	0.212	0.178	-0.279	-0.210	-0.495	-0.029	-0.231	-0.082	0.178	0.342	-0.260	1									
Own_aglnd	-0.127	0.408	0.306	-0.190	-0.342	-0.107	0.227	-0.299	-0.299	-0.205	-0.017	-0.277	0.278	1								
Cul_Lnd	-0.296	0.288	0.360	-0.076	-0.242	0.087	0.193	0.089	-0.165	-0.399	-0.184	-0.193	-0.074	0.288	1							
Wage_agr	0.530	-0.437	0.173	0.328	0.471	0.202	-0.559	0.160	0.586	0.146	0.069	0.415	-0.115	-0.201	-0.365	1						
Cns	0.178	-0.777	0.364	0.645	0.730	0.830	-0.286	0.576	0.593	0.489	0.260	0.714	-0.287	-0.109	-0.066	0.262	1					
Publ_univ	0.323	-0.745	0.437	0.847	0.756	0.710	-0.233	0.616	0.581	0.480	0.145	0.753	-0.346	-0.078	-0.060	0.325	0.911	1				
Flood_hz	0.019	-0.025	-0.004	0.011	-0.024	0.275	-0.157	-0.218	0.005	-0.223	-0.293	-0.010	-0.352	0.133	0.046	0.247	0.074	0.057	1			
Infra	0.152	-0.382	0.165	0.433	0.398	0.591	-0.144	0.178	0.311	0.198	0.022	0.319	-0.322	0.110	0.219	0.508	0.506	0.486	0.139	1		
NonAg_Act	0.243	-0.700	0.290	0.506	0.646	0.616	-0.434	0.416	0.639	0.275	-0.022	0.696	-0.268	-0.343	-0.308	0.539	0.488	0.456	0.233	0.220	1	
Look_act	0.520	-0.570	0.498	0.414	0.510	0.316	-0.742	0.273	0.747	0.392	0.107	0.447	0.029	-0.219	-0.262	0.661	0.396	0.440	0.096	0.211	0.581	1

Dependent variable: Out_mig

From the above matrix, some significant or nearly significant variables are identified and represented in the following table –

Table 5.12: Correlated Determinants of Out-migration

	Out-mig	Own_dwl	Urb_pop	Maried	Unma_15_24	Cul_lnd	Wage_agr	Look_act
Out-mig	1							
Own_dwl	-0.317	1						
Urb_pop	0.337	-0.898	1					
Maried	-0.343	0.407	-0.254	1				
Unma_15_24	0.304	-0.773	0.676	-0 753	1			
Cul_lnd	-0.296	0.288	-0.242	0 193	-0.165	1		
Wage_agr	0.530	-0.437	0.471	-0.559	0 566	-0.365	1	
Look_act	0 520	-0.570	0.510	-0.742	0.717	-0.262	0.661	1

It is clear that looking for work and agricultural wage rate are significant enough to be included in a model, but other variables are not. Moreover, agricultural wage rate is calculated from the agricultural wage rates of formal districts of Bangladesh. This reduces the acceptance of Wage_agr variable in the model formulation. Yet this table gives some insight that married population, ownership of dwelling and ownership of cultivable land have negative relations with out-migration, whereas unmarried young population and percentage of urban population encourage out-migration. The model to represent relationship between out-migration and its determining variables is not developed, because of insignificant impact of independent variables over dependent variable.

After analyzing the pattern of internal migration and relationships with its determinants, the study seeks to provide some policies. The recommended policies have been discussed in the next chapter.

CHAPTER 6: POLICY RECOMMENDATION FOR INTERNAL MIGRATION

In this chapter, the study tries to highlight some policies regarding internal migration and population distribution. Policies recommended here are based on theoretical concepts and analysis carried under this research.

Policies to influence migration and population distribution may be divided into direct policies, specifically designed to alter migration behaviour, and indirect policies, where the impact on migration is secondary to the basic goals of the policy. Policies that restrict migration often do more harm than good (Skeldon, 2005 and Waddington, 2003).

Direct controls include police registration, travel restrictions, location-specific passes, employment limitations, ration cards and enforced resettlement programmes. These kinds of controls require efficient administration and are mainly adopted by strong, stable, authoritarian regimes, and centrally planned economies (Waddington, 2003). Government policies that aim to control migration are criticised for restricting individual freedom, being costly and administratively difficult to implement, and generally ineffective.

This study mainly follows the indirect policy options to divert population movement from concentric pattern to more diverse and disperse way. As it is human right to move and there are many evidences of linkage between population movement and development, policy formulation should emphasize redirection of population movement to encourage more balanced development through optimum and equitable utilization of national resources. National governments should try to alter the population distribution through explicit migration policies to avoid and reduce the adversities of over-urbanization.

The study realizes the problems of policy implication and application in Bangladesh and focuses on providing indirect policies. Administrative setup, economic condition and planning initiative are weak and at the primitive stage. Moreover, political economy does not permit strong direct policy applications. Direct policy might result in corruption and government failure as well.

In Indonesia, a number of policies were introduced to limit the opportunities for employment of unskilled workers in Jakarta, including the removal of unlicensed sidewalk vendors, marginal workers and beggars from the city streets. These regulations proved difficult to administer and led to a rise in petty corruption (Oberai, 1987, cited in Waddington, 2003).

Considering the above problems related to policy formulation, this study suggests some indirect migration policies depending on the study findings. It has been tried to find out important determinants of migration for internal migration in Bangladesh. The analysis finds number of universities, road network and availability of non-agricultural activities are the important determinants for in-migration. For out-migration, important determinant is looking for work.

The study suggests to create provisions for higher educational facilities in districts where population pressure is relatively less. It is also essential to reduce pressure on selected districts mainly Dhaka. To redirect the population from Dhaka to other districts, university might play important role. Even distribution of higher educational facility would reduce population concentration to few districts. Secondly, road network also has significance in attracting population. Development of transport infrastructure would also reduce population flow from less developed districts to developed districts and attract people from other districts as well. So, districts from where people are moving out need more development in the transport infrastructure sector. Finally, development of non-agricultural activities would also attract people from other regions and districts. To do this, government should take necessary actions for industrial decentralization and administrative decentralizations as well. Following the study findings, some general policies have been suggested here –

i. Depending on the developed functional form, the study recommends to provide university in areas, where population should be redirected. These areas would include Pabna, Faridpur, Kishorganj, hill district areas, Barisal and Sunamganj, where population in-migration is lower, from where out-migration is greater or from where out-migration towards Dhaka Division are greater. Though Khulna and Chittagong have some universities, the study suggests for improvement of higher educational facilities.

Establishment of new public university or private universities in Khulna and Chittagong would help to attract people more as per the developed model in the study and might also reduce out-migration.

ii. This study emphasizes to provide transport infrastructure facilities in the least developed areas and areas with low population pressure so that people tend to move in those areas and ensure balanced utilization of resources. Following districts are listed where such development activities should take place –

- Faridpur	- Barguna	- Satkhira
- Gopalganj	- Bandarban	- Gaibanda
- Kishorganj	- Chandpur	- Jaipurhat
- Madaripur	- Comilla	- Kurigram
- Narayanganj	- Khagrachhari	- Lalmonirhat
- Narsindi	- Noakhali	- Natore
- Sariatpur	- Rangamati	- Nawabganj
- Tangail	- Bagerhat	- Nilphamari
- Mymensingh	- Chuadanga	- Pabna
- Barisal	- Jhenaidah	- Panchagarh
- Bhola	- Magura	- Thakurgaon
- Jhalokathi	- Meherpur	- Habiganj
- Pirojpur	- Narail	- Moulavibazar

Most of the districts listed above have net out-migration that is out-migration is more compared to in-migration. Other factors considered are – i. more out-migration towards Dhaka Division, ii. less regional-share and/or iii. less developed from economic point of view.

iii. One most important indirect policy for population redirection is industrial decentralization. The study finds that non-agricultural activities encourage in-migration. Where industrial developments are concentrated, different types of non-agricultural activities are likely to occur. So, to attract people in a particular place, decentralization of industries is necessary. In addition, industrial decentralization would reduce income inequality among regions and would reduce pressure in primate city by significantly decreasing population flow towards that city.

For implementation of such policy, government has to formulate policies like tax exemption or rebate in some urban areas and extra tax imposition in certain urban area. Many governments have passed laws to restrict the size of cities and to foster a more

dispersed urbanization pattern by shifting resources to the hinterland and secondary cities (Waddington, 2003) Industrial development should be discouraged in or near Dhaka City by land use control and taxation policies and at same time industrial development near cities of Rajshahi, Sylhet, Barisal and Khulna divisions have to be encouraged. The abovementioned list of less developed districts with greater out-migration could be followed

This policy will also reduce population out-migration from less developed districts as percentage of people looking for work will be reduced. The study finds that 'looking for work' variable has correlation with out-migration so industrial development in less developed areas will generate employment opportunities and will thus discourage population out-flow.

iv. The study finds that 'Urban Population or Municipal Population' has positive impact on in-migration. Government could take policies to develop small urban centers in the districts mentioned above to encourage in-migration to those areas. Extension of small towns by providing urban services to the surrounding areas of small towns or incorporating more areas within municipalities' jurisdiction.

Other than this, some general policies like the following might help to reduce out-migration and to encourage in-migration –

- Recognition and legitimization of tenure of migrants, squatters, slums-dwellers
- Upgrading of slums and squatter communities
- Sites and service projects
- Low cost housing
- Employment for migrants and the urban poor.

Urban dispersion and decentralization strategies have been always advocated by researchers for more balanced urbanization. Though urban and industrial dispersal could be interpreted as same policy, but the study separates these to draw attention. Urban dispersal would require decentralization of infrastructure, industrial activities, public services, and administrative functions, as well as diverting investment from cities towards small towns and villages.

v. Rural development policies like rural resettlement policies, micro-credit schemes, participatory inter-sectoral development schemes, provision of public services and amenities (including infrastructure) in rural areas, administrative and industrial decentralizations, land reform, development of rural non-farm sector, price support for agricultural products to raise rural incomes are very important beside industrial decentralization. Such rural policies also increase non-farm activities and income as well. Development of non-farm activities has significant impact on in-migration as per study findings. This study also finds that per capita GDP has positive correlation with in-migration. So, any increase in income will induce population in-flow. Depending on these findings, the study suggests to implement rural development policies in the districts, which are net out-migrants.

vi. There are some other general policies that can be applied for balancing the population flow. Information support system would also encourage migration. From previous studies, it is learnt that social network in some cities are persistently encouraging in-migration to those cities. Developing mechanisms to provide information to prospective migrants about employment opportunities, low-cost housing options and accessibility to basic services like health facilities, schools and utility services etc. would help in breaking existing social network and thus promoting migration to other cities and regions.

Sometimes, government could take direct policies to control population in-migration toward particular place. Privileges in terms of social, cultural and economy are given to the natives of the land. Services like enrolment in schools, hospitals, and application approval for utility services, insurance facilities etc are provided to the natives on a priority basis. Such nativist policies are difficult to apply, but in some countries these are effective.

It is also recommended that some policies to utilize the positive effects of migration have to be formulated. It is very essential to develop system to reduce exploitation and provide protection for migrants who are very vulnerable. Though migrants are very vulnerable, when they are overseas, internal migrants are also vulnerable to job insecurity, harassments of native terrors, housing problems and other social and cultural insecurities. Development of information support system might help to reduce such risks and

vulnerabilities, but government has to take necessary steps in this regard. Another important issue of migration is transfer of remittance to their origin places. Facilitating the transfer of remittances should be one of the key policies of government. This would reduce the permanent migration to cities and would facilitate development of origin areas as well.

However, this study has tried to provide with some general policies, it was not possible to give concrete explanation of policy implication. Because, national policy regarding migration and migrants are almost absent. Rural development, though effective and most acceptable policy, is the only policy that has been given greatest consideration. There is no application of direct policy or urban dispersal policy. Decentralization of industries has been envisaged as one of the greatest tools for rural development and controlling migration. its application remains at distant standing.

Nonetheless migration or movement is right of the people, it cannot be prohibited or controlled directly. It becomes essential for our country to formulate policy to ensure benefits of migration and reduce pressure on certain urban centers.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

The contextual factors of why some policies work remain critically important. Better systems of data collection would greatly enhance this understanding and improve the design and implementation of appropriate policies. Underlying causes of migration and factors influencing migration and process and pattern of migration are required to address for better policy formulation.

Government policies that aim to control migration are criticized on several ground like 1) they restrict the freedom of the individual to move and to choose her/his own residential and working location; 2) they are often costly and administratively difficult to implement; 3) they are usually ineffective because of the complexity of factors which govern population distribution including socio-economic disparities; 4) and according to neo-classical economic theory such policies destroy a natural equilibrating mechanism which, on its own, would have balanced the spatial distribution of population with economic opportunities (Ammassari, 1994).

Many early attempts to redistribute population away from major (or primate) cities failed because (1) they acted against the need to achieve the economies of scale essential to the time, (2) there were critical political difficulties of de-concentrating power away from the centre. Such policies should be responsive to the economic and political context of the time – and hence reactive (Waddington, 2003).

Reactive and proactive policy formulation largely depends on detail analysis of the situation. In Bangladesh, government has no policy under such consideration. Researches become limited to analyze the situation of migration and contribution of migration in development process. Yet, several migration studies have been conducted and designed to offer better understanding of the migration situation in Bangladesh, but policy formulation and its implementation have never followed such studies. This study has provided certain new inputs for the policy makers, but detailed analysis of the process was not possible due to data unavailability.

The study finds that the highest proportion (about 18%) of the total in-migration is made towards Dhaka. The study analyzes and develops relationship between migration and

socio-economic factors and others determinants of migration. Most important finding is that 'number of university' has the most significant impact on in-migration. On the other hand, it has been found that 'looking for work' variable has significant influence on out-migration but other variables have not.

The study recommends further analysis in this field as well. It is recommended here to analyze the process of migration decision-making. Migration decision analysis might be carried out through explaining the utility function that incorporate social, political and economic costs and benefits of migration. Utility function simply analyzes the benefits or costs of taking migration decision.

Even more precisely, at micro-level logistic analysis of migration decision explaining the probability of changing location for a person could provide a better insight into migration decision-making process and thereby could help in spatial economic planning process. Discrete choice model or probit model might be applicable in this respect.

At present, Bangladesh is experiencing tremendous urbanization pressure and growing with a primate type of city structure. Larger cities become unable to cater for basic services and facilities to the citizens and also have failed to provide employment opportunities, whereas small towns and rural areas are declining due to rapid and large out-migration. It is appropriate time to take necessary steps. The study hopes and intends to provide some insights into this field, which eventually assist in better policy formulation.

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Appendix-I: Migration of All Districts in Bangladesh, 2004

Districts	Percentage of total Migrants	
	Out-migration	In-migration
Dhaka	2.206	18 328
Faridpur	1.898	1.109
Gazipur	1.550	1.840
Gopalganj	2.073	0.348
Jamalpur	0.000	1.643
Kishorganj	3 181	0.853
Madaripur	1 422	0.540
Manikganj	0.000	0.540
Munsiganj	0.000	0.302
Narayanganj	3.501	0.586
Narsindi	2.102	0 441
Netrokona	1.376	5.376
Rajbari	1.091	1.434
Sariatpur	1.904	0.157
Sherpur	0.139	1.196
Tangail	1.684	0.691
Mymensingh	6.938	2.287
Barisal	1.260	2 642
Bhola	1.213	0.447
Jhalokathi	2.502	0.290
Pirojpur	0 958	0.337
Barguna	1.573	0.174
Patuakhali	0.662	1.091
Bandarban	2.589	0 517
Brahmanbaria	1.086	3.872
Chandpur	0.778	0.877
Chittagong	7.176	0 807
Comilla	3.443	0 952
Cox's Bazar	1.289	1.852
Feni	1 161	8.691
Khagrachhari	2.485	0.000
Lakhshmipur	0.871	3.350
Noakhali	4.807	1.428
Rangamati	2.351	1.817
Bagerhat	2.253	0.894
Chuadanga	0.581	0.221
Jessore	1.242	1.991

Jhenaidah	0.940	0.581
Khulna	2.833	1.469
Kushtia	1.405	0.819
Magura	0.389	0.331
Meherpur	0.476	0.203
Narail	1.533	0.377
Satkhira	0.987	0.865
Bogra	1.312	1.666
Dinajpur	0.970	6 235
Gaibanda	2.874	1 242
Jaipurhat	0.174	0.180
Kurigram	0 923	1.480
Lalmonirhat	0.697	0.110
Naogaon	0.464	0.697
Natore	0.424	0.418
Nawabganj	0.209	0.308
Nilphamari	1.010	0.656
Pabna	0.621	0.644
Panchagarh	0.848	2.978
Rajshahi	1.016	0 882
Rangpur	0.999	1.045
Sirajganj	0.273	0.401
Thakurgaon	1.028	0.261
Habiganj	1 144	0.981
Moulavibazar	2.049	0.906
Sunamganj	1.062	2.525
Sylhet	1.997	1.817
Total	**100.00**	**100.00**

Source: Calculated from SVRS Data, 2004