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Migration in Bangladesh : Its Trend and Determinants

Introduction

WITH almost 100 million people crowded into 55,598 square miles, Bangladesh is one of the most densely populated nations Despite its heavy reliance upon traditional agriculture as a means of livelihood, it is undergoing drastic changes. An accelerating rate of migration and urbanisation are the inevitable fallout.

Migration is defined as permanent or semi-permanent change of residence (Lee 1966). Like fertility and mortality, it is largely determined, in the long run, by social, economic, cultural and geographic factors (UN 1973), which in turn, are influenced by the level of population mobility. Migration has been a neglected area, and Simmons *et al.* (1977) in their review of research findings on social change and internal migration had little to report on South Asia except India. Interest in determinants and consequences of migration has, however, been triggered off by the rapid acceleration of population mobility, specially rural to urban, in recent times. True indeed, large-scale migration was part, of the birth pains of Bangladesh—as many as ten million people having crossed the border to India in the wake of the war, making the biggest human tidal wave in history (Miranda 1982).

Although varying levels of fertility and mortality may account in part for the observed differential rates of growth between districts in Bangladesh, the magnitude of the latter suggests that movement of population plays a more important role (Chen and Chaudhury 1976). Internal migration in Bangladesh has been, principally, (a) rural-rural and (b) rural-urban.

In the rural areas, population pressure on farm land and the pressure of too many landless agricultural labourers act as push factors while the availability of more land under rice and jute and better opportunities for expansion of cultivated land due to low intensity of cropping act as pull factors (Huq 1974). Rural-rural migration may not necessarily involve large distance; rather, movement could be contiguous villages, unions, and districts, with net effect being shift from high- to low-density districts. Analyzing the 1961 census data, Obaidullah (1967) reported that villagers tend to migrate from high- to low-density districts. This could be due to a combination of extra-ordinary population pressure on land in higher-density districts and more economic opportunities in low-density districts, which have high levels of per capita rice production, larger farm sizes, and fewer agricultural labourers per acre of land (Chen and Chaudhury 1976). Movement to contiguous areas is the most common.

A similar pattern of out-migration increasing with population pressure is observed in Andean America (Preston 1969). Rochin (1972), too, found an 'inverse relationship between cropped land per capita and the number of off-farm migrants' in a group of Pakistani villages. The relationships, however, mostly refer to cropped land; they tell nothing about the productivity of the soil. Poor quality of land, or a low level of cash cropping—either because low demand for cash crop reduces income, or because poverty compels peasants to play safe by growing subsistence crops—means that low levels of income prevail (Connell *et al.* 1976), Chaudhury (1979) found that villages which have modern irrigation inputs like deep tubewell and bring more land under cash crop have low (out) migration rates. The same results have also been found in other developing countries. Ryan (1968) suggested that the proportion of Toaripi migrants was higher because they had very little land suitable for cash cropping.

Where rural to urban migration is concerned, higher levels of such movement within high-density districts would tend to accentuate differential rural growth rates between high and low-density distiicts. Rural migrants usually move to the closest urban areas and they mainly originate from densely populated areas (Chaudhury 1976). Rural to urban migration in Bangladesh presumably is due to a combination of 'push' factors in rural areas and 'pull' factors in urban areas. The migrants originate from the poorest and the richest families. The poorest people move due to the 'push' factors while the rich rural pulled migrants have been attracted by higher social opportunities, better health and better living standard of urban areas (Chaudhury 1978).

Similar results (of 'pull' on the rich and 'push' for the poor) have been found by Connell *et al.* (1976) in studies of Indian villages. Sovani (1965) in a survey of migrants from two districts in Bihar, India, found that households with the highest propensity to migrate were in the lowest and highest income groups. Similar findings in Africa have" led~J~oshi (1973*}* to hypothesise

that two types of migrants exist: 'on the one hand the illiterate, unskilled migrant labourer, who remains rurally oriented, who stays in town for only a limited duration and who can thus be considered outwardly mobile . . .' In contrast is—'the high aspiring, village-abhorring, would be permanent town dweller' *(ibid).* Connell *et al* (1976) state the 'push-pull' distinction as follows: "On the one hand migrants push out of the village because of poverty; on the other hand the migrants pull into the city by the attraction of high incomes and 'bright lights'."

People tend to move from areas of low to higher potential economic opportunities Population pressure, diminishing average landholding and lack of agricultural development programmes push the rural people towards the cities (CUS 1976). Villages where land is scarce, and distributed in a skewed manner and where the population of agricultural labourers is high, are likely to induce high rate of migration (Chaudhury 1978; Khan 1969).

The presence of friends and relatives in the place of destination and previous migration experiences influence the decision to migrate. It has been found that significant number of migrants (40 to 50 per cent) lodge and board with their friends and relatives after arriving in town (Begum 1979; CUS 1980). Most information is dependent on previous migration flows (Connell *et al.* 1976). Connell *et al.* also refer to an IDRC study of migration of five urban centres in three continents, which found that 80 per cent of migrants obtained information from relatives or friends. Both Rempell (1970) and Godfrey (1973) found a positive relationship between migration rates and the number of kin in town.

In regard to selectivity of migrants, in a series of studies of Demographic Surveillance System—Matlab (ICDDR.B), it has been found that out-migr.ition of males occurred mostly during the age of 20-29 and 15-19 for females (CRL, Vol 3 & 4. 1978) Female migration is mostly marriage migration. Reviewing a good deal of literature on migration, Shaw (i975) found that persons in their late teens, twenties, and early thirties are more migratory than the rest.

In a study based on data from 68 villages in Mymensingh, Chaudhury (1978) found that overall education levels of migrants (64 per cent) and migrants families (41 per cent) are higher than that of the non-migrant study population (27 per cent). In a study by Herrick (1965) of in-migration to Santiago, the capital city of Chile, migrants were found to be more educated than those left behind.

The objectives of this paper are to present the patterns of interdistrict migration in Bangladesh during 1974-81 using census data and to obtain a better understanding of the factors which contributed to if. The first census of independent Bangladesh was taken in 1974 and the second in 1981.

Trends in Inttrnal Migration

Until the administrative reorganisation of the country in 1983-84, Bangladesh was divided into four divisions (Rajshahi, Khulna, Dhaka and Chittagong) which further ramified into 19 districts. Geographically Rajshahi and Khulna form the western and Dhaka and Chittagong the eastern region. The north-western districts have, on an average, less population density than the southern districts. The pressure on land is less in Rajshahi than in Dhaka division, specially Comilla and Noakhali districts. Faridpur district is vulnerable because of the river system flowing through it. Patuakhali and some parts of Noakhali district are frequently hit by cyclones.

Table 1 shows net out and in-migrants for different districts. The balance

TABLE 1-LIFE TIME NET MIGRANTS BY DISTRICTS, 1951-81

District	*1951*	*1961*	*1974*	1981
Chittagong Division				
Chittagong H. Tracts	+14471	+ 36473	+ 52592	+103268
Chittagong	+20608	+ 50513	+ 90849	+360402
Commilla	-76933	-189985	-358045	-211222
Noakbali	-95045	-202507	-261226	-257809
Sylhet	+58492	+ ?6813	+130675	-145647
Dhaka Division				
Dhaka	-57402	+ 50846	+578654	+736801
Faridpur	-13331	- 63213	-252777	-184306
Mymensingh	-29755	-122739	-111250	—144296
Tangail*	—	—	- 96870	- 88301
Khulna Division				
Barisal	+ 10964	- 51140	- 14478	—120990
Jessore	+20385	+114927	+ 40321	— 34599
Khulna	+37666	+ 74042	+227225	- 6403
Kushtia	+ 1608	+ 4475	+ 19199	- 7367
Patuakhali*	—	-	-184540	+ 16188
Rajshahi Division				
Bogra	+ 647	- 11577	- 16488	+ 9146
Dinajpur	+20470	+ 75381	+132409	+ 66837
Pabna	-37500	- 7(1615	- 99166	— 6755
Rajshahi	+38182	+ 66651	+ 60887	+ 68290
Rangpnr	+86473	+141655	+ 62029	-124738

*Created after 1961 census.

SOURCE: *Bangladesh Population Census, 1981:* Table 11.

between in- and out-migration is the net migration and the sum of in-migration and out-migration is the turnover for the district (GOB 1984). The estimates for 1951 through 1974 are based on place of birth statistics while that for 1981 are based on national growth rate method. The net migration rates for the period 1951-61 through 1974-81 are given in Figure 1.

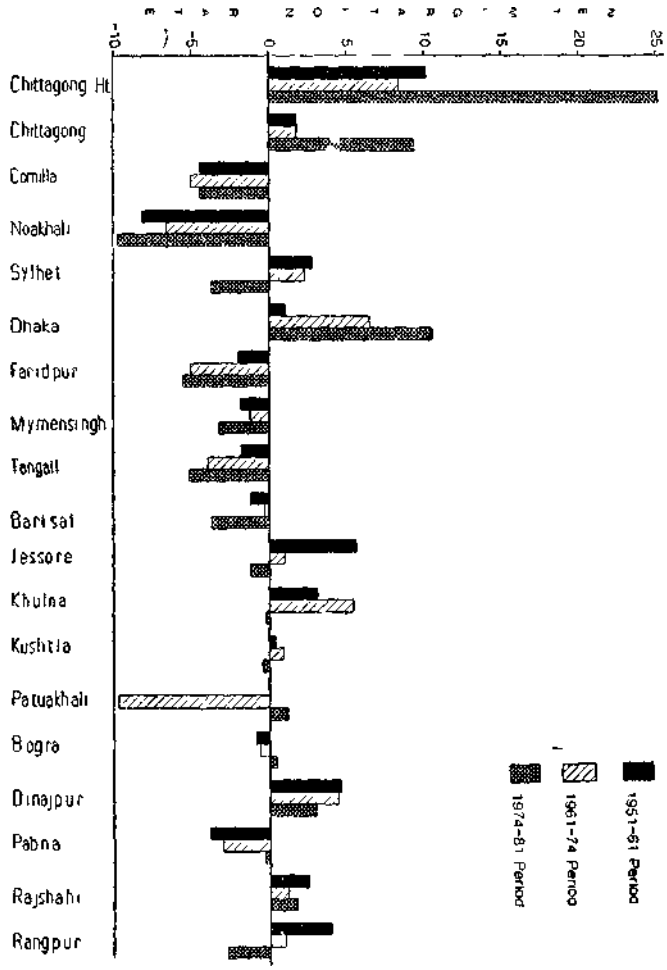

Fig. 1.

(a) *1974-81*

Chittagong division is net receiver. Chittagong and Chittagong Hill Tiacts showed a net gain of more than 35 per cent of the total gains reported in 1981.

Chittagong Hill Tracts gained people mainly because of the upgradation of hilly areas into urban localities and incentives for settling there (GOB 1984). Next net gaining district is the capital district Dhaka, which reported 30 per cent of the total gains. All districts except Patuakhali in Khulna division lost population. Khulna district, the second largest port district, itself for the first time showed net loss in population migration since the 1940s. The northern divisions balanced their population in migration streams.

(b) 1961-74

Rajshahi received the largest number of net migrants, followed by Khulna, while Chittagong and Dhaka lost people to other divisions. The net migration rate was 5.7 per 100 for Rajshahi, —3 9 for Chittagong, 0.4 for Khulna and — 1.2 for Dhaka. This indicates that while the western regions had a net inflow, the eastern region had a net outflow to the West (Krishnan and Rowe 1978).

(c) 1951-61

In western region Bogra and Pabna districts show net out-migration both in the 1951-61 and 1961-74 period. Dhaka and Chittagong were net receivers and so were Chittagong Hill Tracts. Except Barisal, districts in the Khulna division were net gainers during this period.

(d) 1941-51 Intercemal Period

Pabna alone among the western region districts (in the Khulna and Rajshahi divisions) was a net loser during this period. So was Dhaka, surprisingly. Comilla and Noakhali were losing while Chittagong and Chittagong Hill Tracts were gaining.

Krishnan and Rowe (1978) observe that during 1941-74, internal movement has remained unidirectionally westward/north-westward. But during 1974 81 the trend has changed, with Khulna division (western region) losing its population.

Framework and Conceptual Model

The substantial literature on the determinants of migration has recently been surveyed in Shaw (1975), Todaro (1969) and UN (1973). Factors influencing people's decision to migrate are thought to include relative income and employment conditions in origin and destination areas, education levels and access to education, land availability and population pressure, family ties and other amenities across areas (Bilsborrow and Wmegarden 1982).

According to the standard human capital theory of migration, as revised

and extended by Todaro (1969), the net returns to migration depend on Ihe following factors:

—'expected' earning from employment in a potential destination area;
—forgone earnings in the origin area;
—the direct costs of migration;
—length of the potential migrant's time horizon;
—subjective discount rate.

Although one might expect the first three factors to be particularly relevant on a macro level, the first factor will be difficult to measure where data are not reliable. The last two are more sensitive to individual (i e. micro level) variation in such characteristics as age. Age selectivity of migrants may, however, be taken as macro level analysis.

Some studies have established that relevant information from more personal sources such as friends, relatives, and neighbours who have migrated and then either returned or remained—rather than from public information media such as the TV, newspaper, books and magazines—is a very important factor in influencing migration decision (Rothenberg 1977; Begum 1979; CUS 1980). Besides, this may reduce the cost for migration.

Although there have not been many empirical works on the effects of the size of landholding on migration in contemporary LDCs at either micro or macro level, it has been observed that greater land availability in the area of origin seems to have a uniformly negative effect on out-migration (Knowles and Anker 1977). One should, however, consider the quality and, consequently, the productivity of land. Brown and Jones (1985) observed that higher pressure on the economic base of a given area plays an important role in generating rural-rural migration. Knowles and Anker (1977) found in African migration studies that the per cent urban exhibits positive estimated coefficient in determining migration. Billsborrow and Winegarden (1982) also support this. They also state : "This variable is so powerful that it indicates tbat macro level studies of migration in low-income countries are likely to be seriously biased if they do not take into account the absorptive capacity of cities."

The Model

Regression models of interdistrict migration are usually formulated in terms of different costs and opportunities between districts. For a rural, agrarian society, such as Bangladesh, these differentials must assume an unusual form because of relative self-sufficiencies of rural, peasant economies and therefore of the economic uniformity of the nation (Krishnan and Rowe 1978). Differentials may, however, be observed, in association with the country's gco-

grapby, in the intensity of cultivation, demographic structure, in the extent of urbanisation or modernisation, or in the degree to which districts contribute to the country's economy.

As gathered from existing literature, the theoretical relationship of the different variables is schematically illustrated in Figure 2 as a conceptual model. As discussed, net migration rate for 1974-81, is taken as dependent variable, measured as avearge rate per 1,000 population per annum. The selection of independent variables used in this paper is a product of both availability of data and the results of similar studies in the past as gleaned from existing literature. The independent variables are as follows:

AGE : A life cycle variable used for selectivity of migration measured as percentage of population aged 20-29.

PRESS : Population pressure for each district—defined as its total population divided by the number of persons employed in primary, secondary and tertiary sectors together.

EDUC : The percentage of total population, who have passed the 10th grade and above examination.

CI : The percentage of gross cultivated area (multiple-cropped lands counted more than once) in net cultivated area (land cropped once or more).

IRR : Percentage of irrigated agricultural land.

AREA : The area of origin district or approximate average distance between persons in miles in district, measured as **f* (area in square miles/2n).

PGDP : Per capita Gross District Product meaiured as current factor cost in taka.

URBAN: The level of urbanisation—urban population as percentage of total district population.

PMIG: Prior migration, net migration rate for the 1961-74 period.

An econometric problem arises from the possible simultaneity between migration flows in the dependent variable and some of the explanatory variables. Migration analysis at the macro level typically involves an attempt to relate the flow of migrants over a period of five years or more to a set of explanatory variables which cover a much more limited time period (usually either the initial or terminal year). The greatest danger lies in using values for the explanatory variables from the end of the period covered by the migration flow

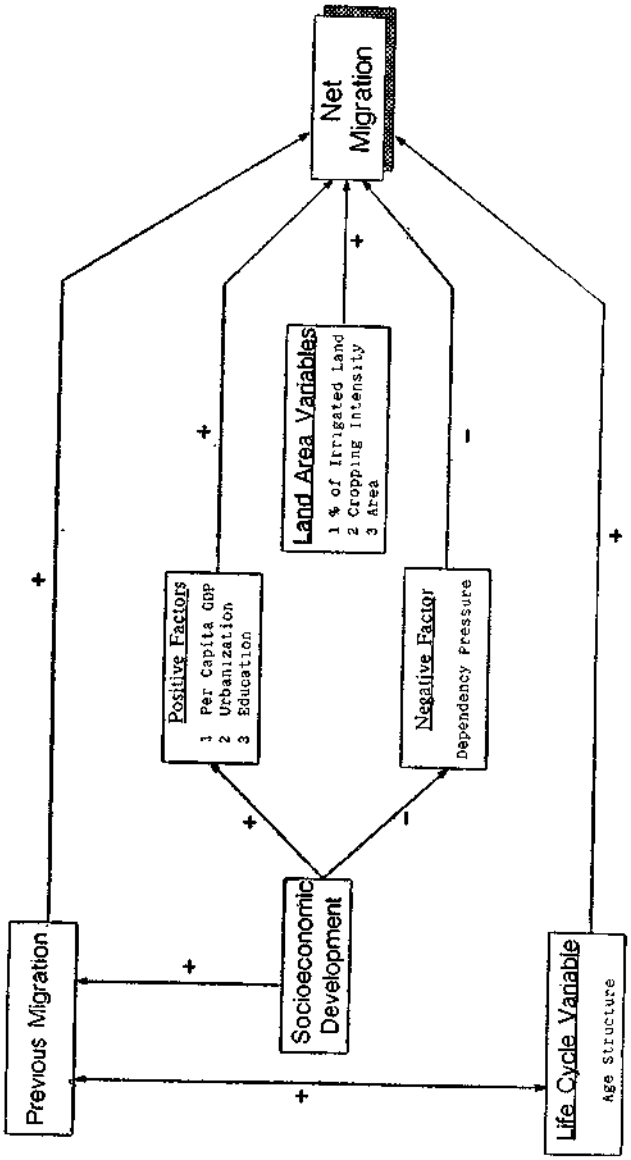
Net Migration
Land Area Variables
1 % of Irrigated Land
2 Cropping Intensity
3 Area
Positive Factors
1 Per Capita GDP
2 Urbanization
3 Education
Negative Factor
Dependency Pressure
Socioeconomic Development
Previous Migration
Life Cycle Variable
Age Structure
+
+
+
-
+
-
+
+
+

Fig. 2.

(Knowles and Anker 1977). The practice of using values for the explanatory variables which refer to the initial year in the period covered by the migration flow is surely preferable to using end-of-period values.

Variables thus defined here refer to the year 1974 (the beginning year of 1974-81 period) except for the dependent variable, which leads the explanatory variables and therefore pertains to the 1974-81 period.

All else being equal, per capita gross district product *(PGDP),* level of urbanisation *(URBAN)* and education level *(EDUC)* as the indicators of socio-economic development are expected to have direct relationship with in-migration, which ultimately will affect the net migration rate. A high value of *PGDP* and *URBAN* signifies a larger number of employment opportunities, and should yield positive and relatively high net migration rate. Besides, the higher the degree of prior urbanisation, the greater the absorptive capacity of urban areas. Krishnan and Rowe (1978) found that urbanised areas within or on the fringes of densely populated areas are net receivers of migrants.

Following Todaro, 'expected' earnings in a potential destination area are defined as the product of the average wage and the probability of employment in the modern sector. Additionally, it is hypothesised that the better educated migrants and those having more information on job market conditions have a relative advantage in finding employment at a higher wage in a given destination area (Knowles and Anker 1977).

Educational level variable *(EDUC)* should also display a positive relationship with net migration rates. The rationale is simple that the higher an individual's level of educational attainment, the more likely he will be aware of differential opportunities, amenities, etc , that could be availed of at the alternative places (Shaw 1975). An educational selectivity with respect to migration has been noted throughout the Third World (Brown and Sanders 1981). Also, educational facilities at above secondary (Grade 10) levels are often located in urban areas, attracting migrants attempting to pursue higher education (Rundquist 1985). In the case of a more 'push'-originated migration, poorer and less educated people may migrate, and a reversed relationship may be expected. An inverse relationship is expected between net migration and the negative factor of socio-economic development, *PRESS* variable. A pressure on the economic base of a given district can generate 'push factor' increasing out-migration.

The opportunity cost of labour withdrawn from agriculture in the home district depends most directly on the quantity and quality of farm land available (Knowles and Anker 1977). Cropping intensity *(CI)* is considered here as a proxy variable for the level of agricultural development and demand for agricultural labour. Cropping intensity can alleviate population pressure on land by increasing agricultural production. A higher cropping intensity may generate employment opportunity in the villages which in turn may reduce out-migration. On the other hand, population pressure may lead to higher

productivity through intensive cultivation of land, by greater labour utilisation resulting from greater availability of land, by bringing more fallow land under cultivation and by changes in agricultural practices or cropping pattern through important innovations in techniques of cultivation over time. Virtually all the productive land in Bangladesh is being cultivated at a cropping intensity of about 155 per cent. It has been found that districts which experienced the highest rate of growth of agricultural output also experienced highest net in-migration. A positive relationship is expected between cropping intensify and net migration rate, other things being equal.

In addition to cropping intensity, the opportunity cost of labour withdrawn from agriculture should also be related to soil quality. In Bangladesh, although soil quality is generally good some variation occurs between areas in agricultural potential land due to variations in rainfall. Additionally, as one moves from lower to higher altitudes, the ground water level tails Thus, irrigation is a very important means for agricultural production. The agricultural potential of the total land area in a district can be approximated by the percentage of total agricultural land to the irrigated area. The higher the agricultural area brought under irrigation scheme, the higher will be the employment opportunity. Thus, a positive relationship is expected between this land variable *(IRR)* and net migration rate.

The area of origin district *(AREA)* is introduced to control for the fact that the greater is the share of internal migration, defined as all changes of residence that occur within the geographic unit, the larger is the area of that unit (Schultz 1982). Thus, the expected relationship of origin area on a district's out-migration rate is negative and with in-migration positive; the relationship is thus positive with net migration rate.

As discussed, previous migration becomes an important source of information to potential in-migrants from place of origin (UN 1978). Previous experience may reduce the cost of migration. A positive relationship is expected between previous net migration rate and current migration rate. The percentage of the population aged 20-29 *(AGE)* at the beginning of the migration interval is an indicator that captures both the past in-migration experiences of an area and the risk of out-migration in the succeeding period for the aforementioned age group. Besides, age selectivity in migration is an important factor. This indicator can operate on current in-migration in two ways:

—through the effect of previous in-migration i.e. high percentage; of population in this age can mean a high in-migration in the past; where previous migration is bigh, current migration is likely to be high;

—through socio-economic development; where economic development is more, the percentage of population in the young adult age group t;nds to be high and in-migration also tends to be high (Llosa 1982).

The Data

Demographic and other data which may be used for analysing the demographic and economic development in Bangladesh are very scarce (Holmberg 1983). Population censuses have been taken regularly since the end of the nineteenth century. Although vital registration system is maintained, the reliability of its data is low. Interregional migration statistics have not been developed as yet. In previous censuses (upto 1974), questions regarding previous place of residence and duration of stay at present residence were used to estimate lifetime migration. These might be severely influenced by mortality. In the 1981 census, net internal migration was estimated through the application of the national growth method. This method is basically founded on an assumption of equality between the intercensal growth rates of the districts and that of a country, as a whole. A growth rate greater than the national average is interpreted as net in-migration and a rate less than the national average as net out-migration (Shryock and Siegal 1973). The population under study is assumed to be 'closed' to international migration because in Bangladesh, this phenomenon is relatively insignificant.

It is not directly possible to determine the extent to which a given rate is determined by origin or destination factor (Brown and Jones 1985). Net migration rate, data on level of urbanisation, area and education are taken from the census reports. Cropping intensity, percentage of irrigated agricultural land and per capita gross district product are taken from *Bangladesh Statistical Year Book.*

Empirical Results

Correlation

Table 2 presents the matrix of Spearman Rank Order correlation coefficient. The correlation matrix reveals a number of moderate but statistically significant correlations between the variable of interest (net migration rate) and the several explanatory variables.

As expected, per capita gross district product *(PGDP)* shows a significant (at 0 01 probability level) positive correlation (0.549) with net migration rate. Generally, the level of income is directly correlated with the standard of living and areas of high level of living tend to be areas of net in-migration while areas of low level of living tend to be areas of net out-migration (Llosa 1982). Urbanisation, which is an indicator of socio-economic development, expectedly shows a significant relationship (correlation is 0.596) with net migration rate. It was expected that districts with higher level of education are those with higher in-migration rate i.e., higher net migration. This expectation is not strongly supported, when we look at the weak correlation (0.34)

TABLE 2— MATRIX OF SPEARMAN RANK ORDER CORRELATION COEFFICIENT
(WITH SIGNIFICANT LEVEL)

PM1G	.6614								
	SIG .001								
PRESS	.4681	.5346							
	SIG .022	SIG .009							
AGE	.6795	.6517	.8564						
	SIG .001	SIG .001	SIG .000						
URBAN	.5959	.6277	.2534	.3045					
	SIG .004	SIG .002	SIG. 148	SIG .102					
PGDP	.5487	.5029	.6298	.7801	.2668				
	SIG .007	SIG .014	SIG .002	SIG .000	SIG .135				
IRR	-.2211	-.1255	.0734	—.0167	.0088	—.1325			
	SIG .181	SIG .304	SIG .383	SIG .473	SIG .486	SIG .294			
EDUC	.3430	.1134	—.0466	.2174	.5048	.1559	.3793		
	SIG .075	SIG .322	SIG .425	SIG .186	SIG .014	SIG .262	SIG .055		
CI	-.1887	—.2522	.1486	—.1232	—.0167	—.0145	.1099	—.1695	
	SIG .220	SIG .149	SIG .272	SIG .308	SIG .473	SIG .476	S IG .327	SIG .244	
AREA	.1334	.5645	.5417	.5064	.2579	.2677	—.0596	—.0527	—.1319
	Sig .293	SIG .006	SIG .008	SIG .013	SIG .143	SIG .134	SIG .404	SIG .415	SIG .295
	MIG81	PMIG	PRESS	AGE	URBAN	PGDP	IRR	EDUC	Cl

between education variable *(EDUC)* and net migration rate (MIG81). Although some empirical findings confirm that migration is selective with respect to education, generalisation about the impact of various levels of educational attainment on migration behaviour is another matter. On the one hand, as Shaw (1975) mentions, there is common recognition that using measures such as years of school completed cannot take quality of education differential achievement within the same level of consideration. On the other hand, selecting a scale of measurement by which levels of education can be related to propensity to migrate in a wide variety of contexts represents a real problem. Speare (1974) also mentions in the Taiwan context that education may have little effect on one's chances of obtaining satisfactory employment in the city since what one defines as satisfactory may vary with one's education.

The negative factor of socio-economic development variable, dependency pressure *(PRESS),* shows strong influence but the sign is opposite to the direction expected. A tentative explanation may be that fewer openings are available for migrants in the wage labour markets, and they have to be selective in migrating areas.

It was expected that in the larger districts, people would need to travel longer distance on an average, in order to cross regional boundaries to be counted as migrants; hence the low out-migration. On the other hand, in-migration will be higher in such districts. But the low insignificant correlation (0.133) of the *AREA,* variable indicates that 'pull' migrants may cross long distance. This is supported by Chaudhury's (1978) survey of 68 villages in Mymensingh district. He stated: "The 'push' migrants are likely to travel a short distance mostly, in the countryside in search of unprecise prospects for work, because they are poor, they cannot afford the initial cost of movement over longer distance … In contrast, the better off'pull' migrants can afford to move to a selected town even if it is situated at a long distance" (Chaudhury 1978: 4).

Percentage of irrigated land *(IRR)* shows an unexpected negative correlation (—0.221) with migration. Considering the land tenure system in Bangladesh, it may indicate that the high proportion of land held by a few land owners is more significantly related to rates of out-migration. Out-migration may increase (decreasing in-migration) with an increasing disparity in distribution of land. The correlation coefficient (—0.189) result for cropping intensity *(CI)* does not support the hypothesis that higher cropping intensity would reduce out-migration. Virtually all the cultivated land in Bangladesh is being cultivated with higher cropping intensity. Besides, changes in agricultural practices through mechanisation create unemployment in rural areas, which in turn increases out-migration.

Life cycle variable *(AGE)* shows a high positive correlation with net migration rate, which is significant at least at 0.001 probability level. This supports

our hypothesis that people at these ages (20-29 years old) have a higher propensity to migrate. The positive correlation revealed in this study seems to indicate that the in-migration effect of age structure is much more than the out-migration effect.

A high positive correlation (0.661) can be noted between previous net mi|;ration *(PMIG)* and current net migration rates *(MIG81),* This is not surprising because previous migration can reduce the indirect cost by providing information. Besides, the extent of previous migration can be an indicator of better economic opportunities, and may hence tend to attract more in-migrants (Llosa 1982).

Regression Analysis

Table 3 gives the bivariate regression analysis of the dependent variable net

TABLE 3—BIVARIATE REGRESSION FOR DETERMINANTS OF MIGRATION

Explanatory Variables	*Dependent Variable : MIG81*			
	B	*t Ratio (Significant level)*	*Beta*	R^2
PMIG	1.102	3.695 (.001)	.667	.445
URBAN	0.607	2.768 (.013)	.557	.311
PGDP	.006	6.450 (.000)	.843	.111
CI	.007	.014 (.955)	.013	.000
EDUC	5.766	1.255 (0.226)	.292	.085
AREA	.285	.622 (.542)	.149	.022
IRR	—0.296	-1.165 (.260)	-.272	.074
AGE	7.056	4.771 (.000)	.757	.572
PRESS	163.32	6.359 (.000)	.839	.704

migration rate *(MIG8J)* with all independent variables. Frona the bivariate regression, it appears that previous migration *(PMIG),* indicators of socio-economic development variables such as per capita gross district product *(PGDP)* and level of urbanisation *(URBAN),* and the life cycle variable (age structure *AGE),* exert net migration *(MIG81)* inflating effects attaining significance at least at 1 per cent probability level. The variable irrigated land *(IRR)* shows negative but non-significant coefiicient with net migration rate, which was unexpected. Dependency pressure *(PRESS)* does not show its expected association; it is significant at least at 0.001 probability level. This does not indicate that migration trends respond to dependency pressure. The relationship of cropping intensity (CO, one of the land area variables, although positive, seems very weak.

The variable per capita gross district product *(PGDP)* explains more than 70 per cent variation in district net migration rate. Prior migration *(PMIG),* age structure 20-29 *(AGE)* moderately explain the variation of net migration rate.

In the next step of regression analysis, we select the five most significant variables to do multivariate regression analysis. Table 4 presents the results of the multivariate regression analysis, where regression 1 shows net migration rate as a function of socio economic development, per capita gross district product, prior migration and age structure. The positive factors of socio-economic development variables, namely per capita gross district product *(PGDP)* and urbanisation level *(URBAN),* show expected positive (significant at 10 per cent probability level) relationship with the net migration rate. The standardised regression coefficients (i.e., the beta coefficients) represent the marginal effects on net migration rate changes in the explanatory variables in standard deviation (Chatterjee and Price 1977). From regression 1, it appears that, other things remaining constant, corresponding to one standard deviation unit increase in the level of per capita gross district product *(PGDP),* net migration rate would increase, on an average, by 0.66 standard deviation units; and one standard deviation unit increase in urbanisation level *(URBAN)* will increase net migration rate by 0.29 standard deviation units. A comparable standardised increase in the level of previous migration *(PMIG)* is associated with an increase in current net migration rate at 0.09 standard deviation unit. Thus, the respective beta coefficients suggest that the response of net migration change to per capita gross district product is almost eight times that for a comparable change in previous migration rate.

Although the coefiicient of dependency pressure *(PRESS)* variable is insignificant, it shows the expected sign. A possible explanation is that both positive and negative factors of socio-economic development indicators together act better in determining net migration rate.

The model in regression 1 has explained almost 88 per cent of district-level variation in net migration rate.

TABLE 4—MULTIVAR1ATB PEGRESSIO 1 FOR DETERMINANTS OF NET MIGRATION RATE

	Dependent Variable : Net Migration Rate (M1G81)					
	Regression 1			*Regression 2 (Forward)*		
	B	*Beta*	*t Ratio*	*B*	*Beta*	*t Ration*
Constant	—28.52			-12.93		
PGDP	.005	.662	1.859*	.005	.760	8.075**
URBAN	.311	.285	1.862*	.437	.401	4.263**
PMIG	.145	.088	0.623			
AGE	1.333	.143	0.658			
PRESS	—1.003	—. 005	-.012			
R^2		0.879			0.864	
F ratio		18.98**			50.90**	
d.f.		5.13			2.16	

*Significant at .10 probability level. **Significant at .01 probability level.

Forward regression analysis is also made to find out the influence of these (five) independent variables on the depedent variable Regression 2 of Table 4 gives the results of this analysis. The findings presented seem to indicate that per capita gross district product *(PGDP)* and urbanisation level *(URBAN)* are the main factois that determined the extent of interdistric migration in Bangladesh, for 1974-81. On its own, *PGDP* explains 71 per cent variations in net migration rates among the districts. Adding the variable urbanisation level *(URBAN),* 86 per cent of the variations in the dependent variable could be expected.

Historically, the process of urbanisation can be interpreted as a movement away from rural-agricultural economic activity and dispersed rural-agricultural community living. Shaw (1975: 76) states the following reasons:

1. Increasing income elasticities of demand for non-agricultural goods a nd services;
2. Non-agricultural technological response and non-agricultural occupational specialisation to accommodate (1);
3. Increasing non-agricultural occupational interdependence and emergence of interindustry linkage in close proximity to required resources;

4. Centralisation of populations in and around a network of non-agricultural occupational, industrial, and amenity-related facilities.

Income differentials in the form of aggregate district income *(PGDP)* are considered to play a major role in the decision to migrate from one place to another. Per capita GDP in a district also reflects the expected wages in that district. In a study of U.S. net interstate migration over the 1950-60 period, Okun (1968) found that his income proxy-service income per capita at place of origin, was the most significant predictor of net migration at the place of origin.

Going by the aforementioned results, net migration in Bangladesh during 1974-81 tended to be heavily dependent upon socio-economic development and less dependent upon previous migration patterns. It should be noted, however, that migration patterns in the past may have been influenced by the socio-economic factors then operating.

Conclusion

The paper has addressed three issues in explaining the interdistrict movement of people in Bangladesh in 1974-81. These issues are: (a) identification of factors of migration; (b) examination of relationship of the explanatory variables with migration; and (c) assessment of the relative importance of these factors.

The specific purpose of this paper has been to determine the impact of socio-economic development, land availability with agricultural productivity, age structure and previous migration pattern on migration in Bangladesh. Of the nine explanatory variables used in the study, four were found to be significantly correlated with the interdistrict movement of people in Bangladesh. These variables include per capita gross district product, urbanisation level, previous migration status, and percentage of the 20-29 year old population, with the first two explaining about 86 per cent of the district variation.

The level of socio-economic development (per capita gross district product and urbanisation level) exerts a great influence on current net migration. This is in keeping with Miranda's prognosis (1982 : 230) when, reviewing the historical mobility trend of the country, he stated that "the new geo-econormc conditions of Bangladesh as independent nation will force both an urban structure and a higher degree of mobility to emerge."

Land area variables do not show any significant relationship with migration rate because land inequality in the country may create inequality in income in the district resulting in greater out-migration. Efforts should perhaps primarily be made to place the Bangladesh society's characteristic lack of geographical mobility in the context of 'the social relations of production, the forms of

property and particularly land tenure system underlying those relations' (Standing 1981),

Although the empirical evidence we have reviewed is ske'chy and in many ways inadequate, it gives some indications which future studies must take into consideration. Surveys and village studies will be called to play an increasingly major role in providing data on migration. In a country where nine out of ten live in villages, it seems hardly possible to overemphasise the rural perspective (Miranda 1982). Nevertheless, the specific patterns of mobility in Bangladesh villages suggest that emphasis should perhaps be put on exposing what mobility actually or potentially does to this socio-economic set-up rather than on the individual migrants as such.

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