



## Migration Attributes in Adaptation and Its Correlates during Pandemic: The Socio-ecological Interpretation

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### ABSTRACT

Migration is an integral part of social ecology as well as economic development. The four streams of internal migration are rural-rural, rural-urban, urban-rural, and urban-urban. Rural-urban migration has its inherent linkages to agricultural development. In recent years, COVID-19 pandemic has accelerated the process of migration by humongous scale and magnitude. The study was conducted to examine the nature and extent of rural-urban migration, the role, performance and adaptation during migration of family vis-a-vis individual, the inter and intra-level interaction between two sets of variables, and lastly to generate a micro sociological policy based on the empirical research during 2020-21. Three urban and three rural areas of Birbhum district were selected purposively, depending on the prevalence of agricultural and non-agricultural activities. Three hundred respondents were identified through the snowball sampling method. The results show that variables like age, education, family size, income, expenditure, employment and management factor have the highest impact on migration. Also, both the pull and push factors are the main driver of migration.

### INTRODUCTION

Migration and location choice decision making is influenced by a wide range of location attributes, with a particular emphasis on quantifying the significance and nature of non-monetary moving costs (Kosar et al., 2022). It is inevitable in the process of social ecology (Afsar, 2003; Ballard, 2005) and induces economic development which further induces further migration (Zohry, 2005). There are four streams of internal migration which are rural-rural, rural-urban, urban-rural, and urban-urban. Among these four streams, rural-urban migration has certain distinct characteristics which affect developmental aspect of both places involved namely, place of origin and place of destination (Rudiarto et al., 2020). It is well known that developmental disparities between rural and urban triggers rural-urban migration (Conway, 2007; McCarthy et

al., 2009; Mlambo, 2018). The impact of migration can be assessed in several ways viz. welfare impacts, social impacts, economic impacts etc. (Edo et al., 2020). These impacts individually as well as collectively lead to social and economic disparities. Whereas displacement of surplus labour from the rural agriculture sector, through migration, increases the efficiency of rural farm sector in the labour surplus economy (Pramanik, 2021). On the other hand, skilled migrants can contribute to the development of the urban sector at a faster rate through their active participation in the urban labour market (Baumann et al., 2012). Migration has serious implications for social development and environmental sustainability (Poston et al., 2009). Migration decisions can be at the individual level as well as at the family level (Adger et al., 2021). The economic cause of rural-urban migration is the high wage disparity coupled with lower job opportunities in the rural

base (Yao & Jiang, 2021; Morales et al., 2022). Apart from having higher wages, urban formal sector has certain other advantages as well. It has minimum wage laws, pension schemes and unemployment benefits (Akhter et al., 2014). Migration promotes the development of urban informal sector (Paul et al., 2021). Urban informal sector has been considered as the resting place where the urban in-migrants work until they find a formal sector job (Selod & Shilpi, 2021; Tran et al., 2022; Szaboova et al., 2022). But increasing number of studies in recent years has repeatedly shown an alternative role of urban informal sector (Acharya et al., 2009; Pitooyo et al., 2021). Rural-urban migration has inherent linkages to agricultural development (Mianabadi et al., 2022). In rural areas there are low employment opportunities in non-farm sector and thus rural people are compelled to join agriculture sector (Rantso, 2016; Iqbal et al., 2021; Zheng & Gu, 2022). These result in surplus labour in the rural farm sector and trigger the problem of disguised unemployment (Nonthakot & Villano, 2008). As a consequence, rural agricultural labour is underpaid (Devereux, 2020; Pereira et al., 2021; Szabo et al., 2021). This has made agricultural sector less attractive among the rural people (D'Antoni & Mishra, 2010). On the other hand, agricultural productivity may get positive impetus if these extra labours are withdrawn from rural farm sector (Sharma & Bhaduri, 2009).

### METHODOLOGY

The study was conducted in the purposively selected Birbhum district from the red laterite zone of West Bengal, covering 300 households with an equal share of rural and urban households. The selection of the district was mainly guided by the dominance of rural-urban migration and the wide prevalence of both agricultural and non-agricultural activities. Three urban areas viz. Rampurhat, Sainthia and Dubrajpur, and three rural areas viz. Narayanpur, Kusumba and Pratappur from Birbhum district were selected purposively. Then, fifty households from each urban and rural area were selected purposively for the present study. After that, 300 family members interviewed from the three villages and three urban areas following a non-random snowball sampling method using personal interview schedules. Respondents were engaged in both farm and off-farm activities. Before taking up actual fieldwork,

a pilot study was conducted to understand the area, its people, institution, communication, and social system, and the knowledge, perception, and attitude of the people. The study was conducted during the period between the years 2020 and 2021, which was the peak period of COVID-19 pandemic. The structured questionnaire used in the present study consists of both open and closed questions consisting of two sets of variables i.e., (i) independent variables ( $x_1$ - $x_{11}$ ) and (ii) dependent variables ( $y_1$ - $y_3$ ). The independent variables are age ( $x_1$ ), education ( $x_2$ ), family size ( $x_3$ ), family income ( $x_4$ ), risk factor ( $x_5$ ), management factor ( $x_6$ ), natural calamities ( $x_7$ ), employment status ( $x_8$ ), expenditure ( $x_9$ ), push factors ( $x_{10}$ ) and pull factors ( $x_{11}$ ). Peoples' perceptions of role expectation ( $y_1$ ), performance expectation ( $y_2$ ) and migration adaptation ( $y_3$ ) were collected using a pre-tested structured interview schedule, and the associations between the eleven independent variables were examined using quantitative approaches such as coefficient of correlation, stepwise regression, path analysis and canonical co-variate analysis with the help of IBM SPSS v26.0 and the web-based programme OPSTA.

### RESULTS AND DISCUSSION

It has been found that variable age, education, management factor, pull factor have recorded strong associations with the dependent variable role expectation (Table 1). Age, education factor, management factor, pull factor has recorded strong association with the dependent variable, performance expectation. Lastly, variable management factor, employment status factor, pull factor, push factors have recorded strong associations with the dependent variable, migration adaptation. A similar study suggested that during the pandemic, social participation and annual family income showed a positive significant relationship with awareness level while the respondent's adaptation level was associated with the use of personal cosmopolite sources and participation in extension activities (Roy & Ghosh, 2022).

The variable age recorded a strong but negative correlation with role expectation. It implies that in the minds of the young migrant a higher role is expected to be scattered in the migrant places. This higher role includes a decent job pull of dignity & security. The other variable education has recorded a significant but positive correlation. This implies that the propensity for

**Table 1.** Multiple co-efficient of correlation of migration attributes and selected socio-ecological variables ( $x_1$  to  $x_{11}$ )

Independent variables	'r' value		
	Role expectation ( $y_1$ )	Performance expectation ( $y_2$ )	Migration adaptation ( $y_3$ )
Age ( $x_1$ )	-0.236*	-0.204*	-0.109 <sup>NS</sup>
Education ( $x_2$ )	0.249*	0.289**	0.149 <sup>NS</sup>
Family size ( $x_3$ )	-0.070 <sup>NS</sup>	-0.117 <sup>NS</sup>	0.140 <sup>NS</sup>
Family income ( $x_4$ )	0.108 <sup>NS</sup>	0.111 <sup>NS</sup>	0.001 <sup>NS</sup>
Risk factor ( $x_5$ )	0.163 <sup>NS</sup>	0.108 <sup>NS</sup>	0.170 <sup>NS</sup>
Management factor ( $x_6$ )	0.570**	0.529**	0.159 <sup>NS</sup>
Natural calamities ( $x_7$ )	-0.023 <sup>NS</sup>	0.010 <sup>NS</sup>	-0.067 <sup>NS</sup>
Employment status ( $x_8$ )	-0.115 <sup>NS</sup>	-0.019 <sup>NS</sup>	-0.276**
Expenditure ( $x_9$ )	-0.092 <sup>NS</sup>	-0.056 <sup>NS</sup>	-0.172 <sup>NS</sup>
Push factors ( $x_{10}$ )	0.031 <sup>NS</sup>	0.097 <sup>NS</sup>	0.279**
Pull factors ( $x_{11}$ )	0.240*	0.174 <sup>NS</sup>	0.321**

\*\*Correlation is significant at the 0.01 level, \*Correlation is significant at the 0.05 level, <sup>NS</sup> Not significant

migration has higher role expectations among the migrant with higher education (Dustmann & Glitz, 2011). Similarly, management factor as executed in the entire system contributes to us better role expectations by the migrant. The other variable, pull factor has become a strong predictor for better role expectation. Albeit, the attraction for higher income, better opportunity and higher social security does act as the pull factor as well as higher role expectations (Bartram, 2015).

The variable management factor recorded a strong and positive correlation with role expectation. Migration decisions are influenced in some ways by life satisfaction maximization, and it is generally noticed when migrants understand what to expect from their move (Schiele, 2021). The task complexity and creativity show an association between management and employees' work engagement (Afsar & Umrani, 2019) which implied that in the minds of the young migrant a higher role is expected to be scattered in the migrant places which can justify their creativity and ability to work hard. This higher role includes a decent job pull of dignity & security. The other variable employment recorded a significant but negative correlation. This implied that the propensity for migration has higher role expectation among the migrant with higher education. Similarly, pull factor as executed in the entire system contributes to us better role expectations by the migrant. The other variable, push factor has become a strong predictor for better role expectation. Albeit, the attraction for higher income, better opportunity and higher social security does act as the pull

factor as well as higher role expectations. A similar study also found that education has a direct effect on poverty and the income of a person. These things play a vital role in migration (Fisher et al., 2007).

Table clarifies that the direct effect of the exogenous variable, management factor has been the highest and it has also routed the highest direct effect of as many as exogenous variables. So, the variable management factor has become the strongest determinant for role expectation of migrant. Expenditure has recorded the highest and negative indirect effect. It implies that the migrants remain always apprehensive of expected expenditure to be incurred during their migration process (Chandrasekhar et al., 2015). The residual effect being 54.6 per cent, it is to imply that 54.6 per cent of the variant in role expectation could not be explained with the combination of the 11 exogenous variables.

It is quite discernible that the direct effect of the exogenous variable, management factor has been the highest and it has also routed the highest direct effect of as many as exogenous variables (Table 3). So, the variable management factor has become the strongest determinant for role expectation of migrant. Expenditure has recorded highest and negative indirect effect. It implies that the migrants remain always apprehensive of expected expenditure to be incurred during their migration process (Hasanah, 2015). The residual effect being 58 per cent, means 58 per cent of the variant in role expectation could not be explained with the combination of the 11 exogenous variables.

**Table 2.** Decomposition of role expectation ( $y_1$ ) into selected socio-ecological variables ( $x_1$ - $x_{11}$ )

Variables	TE	DE	IE	HIE
Age ( $x_1$ )	-0.236	-0.154	-0.082	-0.035 ( $x_6$ )
Education ( $x_2$ )	0.249	0.201	0.048	0.036 ( $x_6$ )
Family size ( $x_3$ )	-0.070	-0.124	0.054	0.043 ( $x_2$ )
Family income ( $x_4$ )	0.108	0.033	0.075	0.035 ( $x_6$ )
Risk factor ( $x_5$ )	0.163	0.042	0.121	0.097 ( $x_6$ )
Management factor ( $x_6$ )	0.570	0.533	0.037	0.014 ( $x_{11}$ )
Natural calamities ( $x_7$ )	-0.023	0.045	-0.068	-0.042 ( $x_6$ )
Employment status ( $x_8$ )	-0.115	-0.079	-0.036	-0.017 ( $x_6$ )
Expenditure ( $x_9$ )	-0.092	0.040	-0.132	-0.097 ( $x_6$ )
Push factors ( $x_{10}$ )	0.031	0.012	0.019	0.035 ( $x_6$ )
Pull factors ( $x_{11}$ )	0.240	0.166	0.074	0.046 ( $x_6$ )

Total Effect= TE, Direct Effect= DE, Indirect Effect= IE, Highest Indirect Effect = HIE, Residual effect: 0.546

**Table 3.** Decomposition of performance expectation ( $y_2$ ) into selected socio-ecological variables ( $x_1$ - $x_{11}$ )

Variables	TE	DE	IE	HIE
Age ( $x_1$ )	-0.204	-0.116	-0.088	-0.051 ( $x_2$ )
Education ( $x_2$ )	0.289	0.292	-0.003	-0.038 ( $x_3$ )
Family size ( $x_3$ )	-0.117	-0.179	0.062	0.062 ( $x_2$ )
Family income ( $x_4$ )	0.111	0.069	0.042	0.033 ( $x_6$ )
Risk factor ( $x_5$ )	0.108	-0.005	0.113	0.093 ( $x_6$ )
Management factor ( $x_6$ )	0.529	0.506	0.023	0.020 ( $x_2$ )
Natural calamities ( $x_7$ )	0.010	0.064	-0.054	-0.039 ( $x_6$ )
Employment status ( $x_8$ )	-0.019	0.020	-0.039	-0.016 ( $x_6$ )
Expenditure ( $x_9$ )	-0.056	0.069	-0.125	-0.092 ( $x_6$ )
Push factors ( $x_{10}$ )	0.097	0.105	-0.008	-0.049 ( $x_2$ )
Pull factors ( $x_{11}$ )	0.174	0.097	0.077	0.044 ( $x_6$ )

Total Effect= TE, Direct Effect= DE, Indirect Effect= IE, Highest Indirect Effect = HIE, Residual effect: 0.580

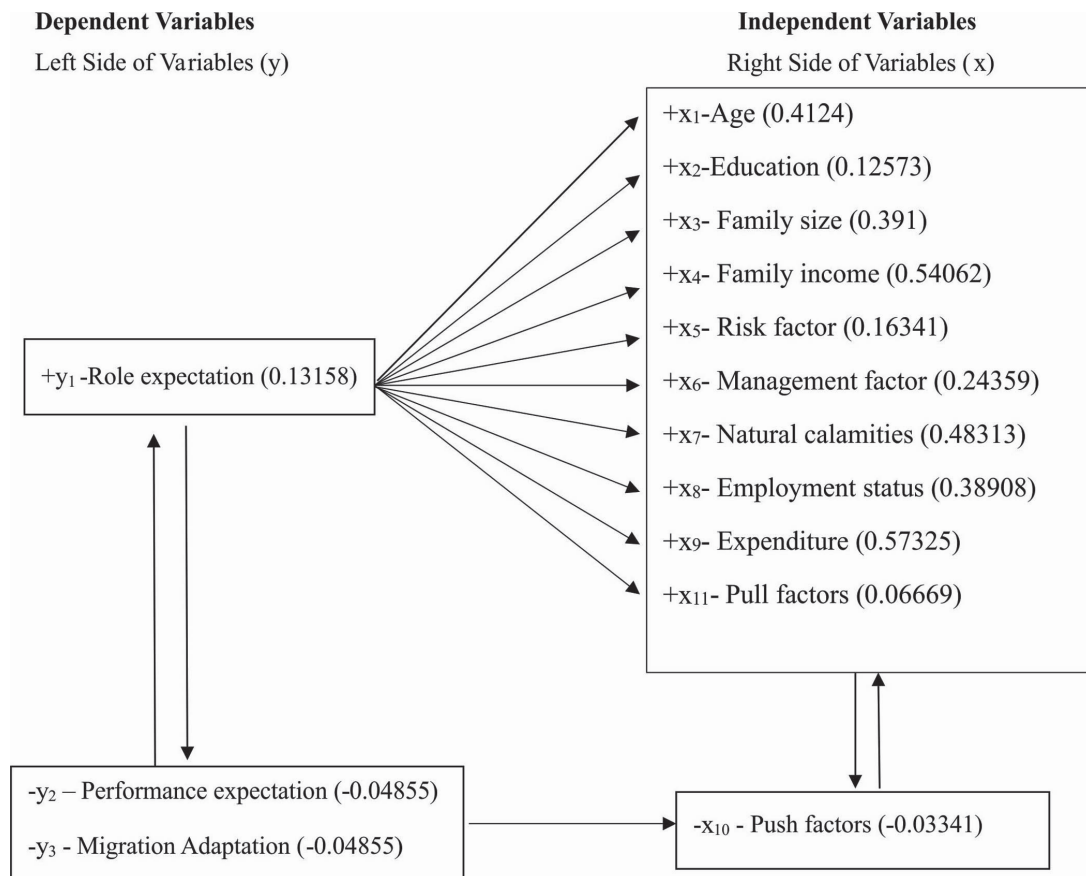
**Table 4.** Decomposition of migration adaptation ( $y_3$ ) into selected socio-ecological variables ( $x_1$  to  $x_{11}$ )

Variables	TE	DE	IE	HIE
Age ( $x_1$ )	-0.109	-0.055	-0.054	-0.022 ( $x_2$ )
Education ( $x_2$ )	0.149	0.128	0.021	-0.046 ( $x_{10}$ )
Family size ( $x_3$ )	0.140	0.063	0.077	0.027 ( $x_2$ )
Family income ( $x_4$ )	0.001	-0.084	0.085	0.048 ( $x_{11}$ )
Risk factor ( $x_5$ )	0.170	0.077	0.093	0.048 ( $x_{11}$ )
Management factor ( $x_6$ )	0.159	0.061	0.098	0.020 ( $x_{11}$ )
Natural calamities ( $x_7$ )	-0.067	-0.104	0.037	0.053 ( $x_8$ )
Employment status ( $x_8$ )	-0.276	-0.311	0.035	0.018 ( $x_7$ )
Expenditure ( $x_9$ )	-0.172	-0.108	-0.064	-0.031 ( $x_{11}$ )
Push factors ( $x_{10}$ )	0.279	0.274	0.005	0.034 ( $x_{11}$ )
Pull factors ( $x_{11}$ )	0.321	0.228	0.093	0.041 ( $x_{10}$ )

Total Effect= TE, Direct Effect= DE, Indirect Effect= IE, Highest Indirect Effect = HIE, Residual effect: 0.682

It is quite discernible that the direct effect of the exogenous variable, employment status has been the highest and it has also routed the highest negative direct effect of as many as exogenous variables (Table 4). So, the variable management factor has become the strongest determinant for role expectation of migrant. Management factor recorded highest and positive indirect effect. It implies that the migrants remain always apprehensive of expected expenditure to be incurred during their migration process (Adamson & Tsourapas, 2020). The residual affect being 68.2 per cent implied that 68.2 per cent of the variant in role expectation could not be explained with the combination of the 11 exogenous variables.

This CCA analysis implies that role expectation is the most significant and multifunctional predictive character as most of the independent variables are showing an association with role expectation variable. A similar study also suggests that immigrants who are well-educated and aware before migrating, as well as those who relocate at a young age for better employment opportunities, have higher degrees of socio-cultural integration (Fokkema & de Haas, 2015). The two other predicted characters, performance expectations and migration adaptation have been conglomerated together and they are being impacted by a solitary predictor push factor (Maurya et al., 2022 & Kumari et al., 2021). It is interesting



**Figure 1.** Canonical correlation analysis to derive the interaction pattern of left and right-sided variables (dependent and independent variables)

that having maneuvering of a solitary character push factor; we can isochronously deal with two dependent variables.

### CONCLUSION

The study provides a vivid picture of the rural-urban migration in West Bengal and it is associated linkages with agricultural efficiency and urban informal sector. Migration is an inevitable part of social ecology. Both the push and pull factors are the main driver of migration. The present study highlighted the three predicted characters i.e., role expectation, performance expectation and migration adaptation in terms of the relationship with other eleven independent variables. The report submitted by IPCC (February 2022) has envisaged a humongous escalation of migration, especially in south-east Asian countries due to climate change. More studies are required to elicit the present status of migration and at the same time prediction analysis will help us to simulate future migration volume and characters. Every government should promulgate a strong policy to extend socio-economic and spatio-temporal support for migrant workers, especially migrants from rural to urban centers.

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