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The Dynamics of Occupational Mobility and Household Well-Being in Rural Bangladesh

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Abstract - **Occupational mobility or moving up a career ladder are typically considered to be a welcome phenomenon for the workers. There are ample literatures on occupational mobility across generation in the context of developed countries but there only very limited studies exploring the dynamics of intergenerational occupational mobility in the context of developing countries, particularly in the context of Bangladesh because of limited sources of data on the subject. However, occupational choice of the households significantly affects household well-being in various ways. The occupation of the household significantly affects household income, food security, and child well-being of the households. This warrants a rigorous investigation into the dynamics of occupational mobility and its effect on household well-being in the developing countries like Bangladesh. This research, in this context, explores intergenerational occupational mobility in Bangladesh and its effect on household well-being. The empirical regression results show that occupational mobility and more specifically moving up in the occupational ladder enhances food security and child literacy, while occupational mobility also has significant effect in reducing child malnutrition in the survey area. Food security, child literacy and improvement in malnutrition are also positively affected by respondent's occupational level, level of education, number of household members engaged in income generating activities, land owned by the respondents, NGO membership, benefits from social safety nets, and training in income generating activities. Our results, thus, offer important policy implication.**
Keywords: **Occupation, Food Security, Malnutrition, Child Literacy, Household Well-Being**

I. INTRODUCTION

Mobility in occupation increases wages but the increase in wages due to occupational mobility may vary across groups of people and even can widen the wage gaps. In an agrarian society majority of the population are engaged and dependent on agriculture with low and limited returns to investment. Modernisation of the society in such largely depends on the sectoral shift of the economy itself. This essentially requires and often comes with occupational mobility of the society across generations. Households specially the younger members of the households are often envisioned to take challenges of the non-conventional yet high-rewarding risky occupational endeavours.

Occupational mobility has received increased attention in recent years. A major reason for this is the important implications of job mobility, such as the movement up a career ladder are typically considered to be a positive type of mobility, at least from the point of view of the worker. There are ample literatures on occupational mobility across generation in the context of developed countries but there only very limited studies exploring the dynamics of intergenerational occupational mobility in the context of developing countries, particularly in the context of Bangladesh. There are very few studies of occupational mobility in Bangladesh, mainly because there are very few sources of data on the subject. A handful of studies nevertheless exist on intra generational (i.e., inter-temporal) mobility in rural economies of Asia using household level panel data. For example, Swaminathan (1991) uses such data from a South Indian village for the years 1977 and 1985 to examine mobility in wealth. Similarly, Fuwa (1999) uses data from the Philippines to study occupational mobility. In a much-publicised study of a north Indian village, Drèze (1997) examine income mobility over five decades. However, study on persistence in outcomes across generations of the same family is rare.

A key reason for the absence of research on intergenerational mobility in developing countries is a lack of panel data or cross-section data with life histories of parents. Recently several studies have exploited the latter to study persistence in economic outcomes across generations. For example, Emran *et al.,* (2003) examine occupational mobility using Nepalese data. They find that mother's participation in non-farm work substantially raises the probability of daughter's non-farm participation in Nepal. A more recent and comprehensive study on economic mobility is by Grawe (2004) who studies father-son earnings data from the US, the UK, Pakistan, Peru, Nepal, Malaysia, and Ecuador. Grawe reports substantial earnings immobility in developing countries. Most importantly, when compared to developed countries, mobility is less in developing societies.

There are many studies, covering developed and less-developed countries, that have documented the persistence of economic and social inequalities across generations based on outcome indicators such as income, earnings, occupation, and level of education (Solon 1999, 2002; Bjorklund and Jantti 2008; Black and Devereux 2011; and Blanden 2013) In the literature on social mobility,

occupation is considered a good indicator of social status, incomes, and living standards (Weeden 2002; Goldthorpe and McKnight 2006; Giddens 2009; Kunst and Roskam 2010; and Lambert and Bihage, 2011). A low degree of intergenerational occupational mobility implies that the advantages and disadvantages inherent in the occupational status of one generation are transmitted to the next generation. A situation of low mobility across generations may be favourable for families that are in fortunate socio-economic circumstances, but in the case of families that are less fortunate, low mobility often entails "social exclusion, material and human capital impoverishment, and restrictions on the opportunities and expectations that would otherwise widen their capability to make choices" (Hancock *et al*., 2007).

Reddy and Swaminathan (2014) investigates the low intergenerational occupational mobility in ten villages located in different agro-ecological regions in five States of India, particularly among big farmers and rural manual workers. Intergenerational occupational immobility was higher among manual workers from Scheduled Castes than manual workers from Other Castes. Kumar *et al*., (2002a, 2002b) examined intergenerational occupational mobility in India using National Election Study data from 1971 and 1996. They found that a high level of inequality between classes persisted with respect to opportunities for mobility. Surveys undertaken for identifying patterns of voter behaviour in elections may not, however, pay detailed attention to socio-economic variables, and hence the quality of information in these surveys on occupation and land ownership may not be reliable.

Motiram and Singh (2012) used data from the India Human Development Survey, 2005, jointly conducted by the University of Maryland and the National Council for Applied Economic Research (NCAER), to study intergenerational occupational mobility. This study showed that a substantial proportion of sons of low-skilled and low-paid workers remained in the same occupations as their fathers at the all-India level, for urban and rural areas combined. Kambourov and Manovoskii (2009) argue that wage inequality and occupational mobility are intimately related. Their empirical findings show that human capital is occupation specific and that the fraction of workers switching occupations in the U.S. was as high as 16% a year in the early 1970's and had increased to 21% by the mid-1990's. They further suggest that the increase in the variability of productivity shocks to occupations, coupled with the endogenous response of workers to this change, can account for most of the increase in within-group wage inequality.

Occupational mobility and wage inequality are interrelated because occupational mobility affects the distribution of occupational tenure and, thus, of human capital. In addition, occupations are characterized by fluctuating levels of productivity and demand for their services (Kambourov and Manovoskii 2008). Occupation-specific human capital ties people to their occupations and makes switching them difficult. Thus, the cross-sectional wage dispersion depends, among other things, on the distribution of occupational tenure in the population, and on the distribution of workers across occupations with different productivities and demands. To evaluate the connection between occupational mobility and wage inequality, one needs an empirically grounded general equilibrium model in which occupational mobility and wage inequality are endogenously determined (Kambourov and Manovoskii 2008).

Emran and Shilpi (2005) presents evidence on intergenerational occupational mobility from agriculture to the nonfarm sector using survey data from Nepal. Their results show a moderate partial correlation in non-farm participation between the father and a son. But in contrast, their result is strong for correlation in occupation choice between mother and daughter. They suggest that mother's nonfarm participation plays a causal role in daughter's choice of nonfarm occupation, possibly because of cultural inheritance through role model and learning effects, and transfer of reputation and social capital.

In Bangladesh, Asadullah (2011) used unique residential history data with retrospective information on parental assets to study household wealth mobility in 141 villages in rural Bangladesh. He used regression to estimates of father-son correlations and analyses of intergenerational transition matrices and showed substantial persistence in wealth even when he corrects for measurement errors in parental wealth. He did not find wealth mobility to be higher between periods of a person's life than between generations. He found that the process of household division plays an important role: sons who splinter off from the father's household experience greater mobility in wealth. Despite significant occupational mobility across generations, its contribution to wealth mobility, net of human capital attainment of individuals, appears insignificant. Low wealth mobility in their data is primarily explained by intergenerational persistence in educational attainment.

Monsueto *et al.,* (2014), for example, have analyzed the factors and distributive effects of occupational mobility in Brazil basing on data obtained from the monthly employment survey. The study has revealed that the mobility in occupation increases wages but the increase in wages due to occupational mobility is smaller for poor people than the wealthier people and it widens wage gaps. In another important study, Crespo *et al.,* (2013) investigated the influence of gender on occupational mobility in Portugal estimating logit model. The study states that the occupational mobility patterns are different between men and women and these patterns are remarkably less favorable for women. Another result show that being married reduces occupational mobility, native individuals show a more favorable pattern of occupational mobility, age contributes positively to reduce the probability of downward

mobility, not affecting the upward probability and with higher levels of schooling having a positive impact on the patterns of occupational changes. Tiwari (2016) has investigated the intergenerational occupational mobility as consequences of the socio-economic background of the individuals aiming at exploring the factors behind an individual choosing the identical occupation of his ancestors. The study has found, using a household survey data in Uttar Pradesh of India, 47.8% of the respondent has chosen his father occupation.

The research has taken binary logistic model and reveals that the individuals holding more land, the people having higher schooling experience as well as the respondents who possess more wealth trend to change their occupation from their forefather's occupation, moreover, caste of an individual has also a key role in determining intergenerational occupational mobility. Nayak and Gastwirth (1989) have made a study on the use of diversity analysis to assess the relative influence of factors affecting the income distribution. This research has used the convenient decomposability properties of diversity measure based on quadratic entropy to analyze the relative effects of factors – age, sex, and education on the income distribution. In the examining of the joint effects of the three factors on personal income in the United States, the findings reveal sex and education have quite a similar impact and both are stronger predictors than age.

Occupational choice of the households also affects household well-being in various ways. The primary occupation of the household significantly affects household income, food security, and child well-being of the households (Tiwari 2016, Asadullah 2011). However, literature exploring the effect of occupational mobility is scant in the context of the developing countries. The background, thus, warrants a rigorous investigation into the dynamics of occupational mobility and its effect on household well-being in the developing countries like Bangladesh. This research, in this context, attempts to explore intergenerational occupational mobility in the rural context of Rangpur and Gaibandha districts of Bangladesh.

This research aims at exploring some specific objectives

1. Identifying the factors affecting occupational mobility in northern Bangladesh.
2. Exploring the effect of occupational mobility on household food security in northern Bangladesh.
3. Investigating the effect of occupational mobility in reducing child malnutrition, and
4. Examining the effect of occupational mobility in increasing child literacy in the survey area.

II. DATA AND RESEARCH METHODS

This research is based on primary data collected from household survey in rural areas of Bangladesh. Data have been collected and used for the purpose of the study using questionnaire survey. About 400 households have been surveyed from two Districts, namely Rangpur and Gaibandha, randomly drawn from northern Bangladesh. Two Upazillas were randomly picked from each District giving us four Upazillas. In this way, we got Pirgacha and Kaunia Upazillas from Rangpur district, and Sundorganj and Sadullahpur Upazillas from Gaibandha District. From each Upazilla we take four Unions randomly and then from each Union we survey 25 households. Each Upazilla in such gives us 100 respondents giving us 400 respondents altogether for the purpose of this study. However, given the focus of the study, we also followed purposive sampling in selecting Unions and Upazillas. Specifically, we categorically dropped the district headquarter while selecting Upazilla and then dropped the Upazilla headquarter while selecting Union. This purposive sampling enabled us to get respondents from remote villages, who are the focus of this study.

Data were collected using questionnaire survey. Randomly selected households were visited at their doorsteps to collect primary data. Questionnaires include demographic characteristics, economic endowment, occupational choices, occupational involvement, income generating activities, village level characteristics, household welfare including children's health, nutrition, and education. The survey questionnaires also comprise of both close and open-ended questions depending on the nature of the information required. Apart from quantitative survey, some relevant qualitative feedbacks were also collected through in-depth interview where necessary.

Three data enumerators were collecting data from the field level while one supervisor oversaw monitoring the accuracy and validity of the data on everyday basis. Data collectors were asked to submit their filled in questionnaire at the end of the day to the assigned supervisor. The supervisor used to check the data, randomly visit some respondents next day to verify authenticity in data collection. Data collection process in such was strictly monitored.

The collected data were stored using SPSS and STATA. Data collectors were trained to store collected data using SPSS for further analysis. It is monitored and made sure that the collected data were stored everyday soon after the collection of the data. This immediate storing of the data by the same collectors also enabled to check for accuracy of the collected data.

The research questions are explored and estimated using standard statistical and econometric techniques using econometric software STATA. Occupational mobility is a complex issue, especially for missing values emanating from the absence of a time invariant dataset. Given that most of the outcome indicators (e.g., if there is any occupational mobility across generations in the said household) are binary, we are using Probit and Logit models

for regression analysis. Findings of these analyses are presented in the following Section.

To explore the mobility of occupation across generations of the respondents and to simplify the analysis, occupation in this study is classified into four broad categories as

1. Occupation 1: day laborer in agriculture, non-agriculture & conventional crop farming
2. Occupation 2: Non-conventional farming (maize, sugarcane, commercial vegetables)
3. Occupation 3: Agricultural enterprises: nursing, poultry, fisheries, livestock
4. Occupation 4: business, self-employment, and service.

We defined occupational mobility from father's generation to son's the following way: If the respondent's main occupation is different from that of the father. Occupational mobility in such is a binary indicator with value 1 if child has different occupation than that of the father, and zero otherwise.

The patterns of occupation over the generations have been interviewed in the survey data. The figure shows that there is gradual change in the pattern of occupation, and mobility in occupation is seen to take place between father's generation and respondent's generation. However, to estimate the determinants of intergenerational occupational mobility econometric estimation including OLS, Probit and Logistic regression model are employed.

The econometric models exploring the key research objectives, i.e., the determinants of occupational mobility, and the effects of occupational mobility on household food security, child malnutrition and child literacy can be written as

$$Occupation\_mobility = \alpha_1 + \beta_1\left(Occupation_{father}\right) + \gamma_i Controls + \mu_i \quad (i)$$
$$Food\_Security_i = \alpha_2 + \beta_2(Occupational\_mobility) + \gamma_i Controls + \mu_i \quad (ii)$$
$$Malnutrition\_child = \alpha_2 + \beta_2(Occupational\_mobility) + \gamma_i Controls + \mu_i \quad (iii)$$
$$Literacy\_child = \alpha_2 + \beta_2(Occupational\_Mobility) + \gamma_i Controls + \mu_i \quad (iv)$$

The conventional wisdom and empirical literature (e.g., Blanden 2013, Black and Devereux 2011, Lambert and Bihage 2011, Kunst and Roskam 2010, Giddens 2009, Bjorklund and Jantti 2008, Grawe 2004, Emran *et al.,* 2003) suggest that occupational choices are heavily influenced by several factors, including human capital, physical capital, social capital, parent's occupation, etc. These are captured in equation (i) above. The equation (ii)-(iv), on the other hand, postulate the effect of occupational mobility on household food security, malnutrition of children, and literacy of children in the household. This is because, occupation and income of the parents often determine the level of schooling, health and nutrition the children will get (Kunst and Roskam 2010, Giddens 2009, Bjorklund and Jantti 2008, Emran *et al.,* 2003).

III. EMPIRICAL ANALYSIS

The empirical analyses are designed to identify the covariates that might influence occupational mobility of the current generation from that of the older generation. The regression control includes: Father's education, mother's education, parents' wealth, respondent's level of education, if respondents received any training from GO/NGO, father's occupation, number of household members engaged in income generating activities, land owned by parents, number of siblings, father-child age difference, gender of the respondent, religion of the respondent, if the respondent is a member of any NGO, respondent's level of social capital, vibrancy of the village (captured separately through the distance from Upazilla, distance from College, distance from bank), household level shocks such as if any of the parents died before the respondent turned adolescent, if respondent's parents were subject to river erosion, and if respondent's parents suffer any major wealth loss in their grown up period.

We include economic vibrancy of the respondents' residence because opportunity to education, training, job and business can vary significantly due to proximity to certain facilities such as Upazilla centre, College for education and Bank for financial and business purposes. We also included household level shocks including loss of parents at the early age, loss of land-properties due to river erosion, and loss of family properties due to natural calamities, seasonal shocks, accidents and so on. These are important because shocks can severely cut the opportunity for children to have desired level of education, training and even health which in turn can significantly affect their occupation, income, and well-being.

Table I below shows the descriptive statistics of the key variables used in the econometric estimation in this study. The descriptive statistics show that about 41.2% respondents have changed their occupation from that of their fathers'. Table I also shows that about 22.3% respondents have moved up to more skilled occupations than that of the parents. Among other variables, the Table shows that average education rate is 7.3 years, 23% respondents have got training, 26% have NGO membership, slightly more than one (1.34) members engaged in income generating activities, about 94% of the respondents are Muslims, 74% respondents were male, average safety net benefits is Taka 1200 (monthly), and average remittance received Taka 5500.

TABLE I DESCRIPTIVE STATISTICS OF THE KEY VARIABLES USED IN REGRESSION ANALYSIS

Variables	Min	Max	Average	Std. deviation
Occupational Mobility	0	1	0.412	0.246
Respondent changed to more skilled occupation than parents (*yes=1)*	0	1	0.223	0.312
Level of education (years)	0	16	7.34	2.521
Got IGA training (yes=1)	0	1	0.23	0.323
Respondent's level of occupation	1	4	2.71	1.423
Numbers of HH members engaged in income generating	0	4	1.34	0.843
Land owns by parents (*in bigha*)	0	35	6.24	2.845
If receives social safety net benefits (Taka)	0	5000	1200	2200
If receives remittances	0	75000	5500	4500
Household size	1	7	4.34	1.843
Gender of respondent if Male	0	1	0.74	0.043
If religion is *Islam* (*yes=1*)	0	1	0.94	0.021
If member of any NGO (*yes=1*)	0	1	0.26	0.223
Level of Social Capital	0	1	0.425	0.334
Distance from Upazila (*km*)	0	10	3.535	2.523
Distance from Bank (*km*)	0	3	1.134	0.832
Distance from College (*km*)	0	10	4.534	3.221
Observation (*N*)= 400				

Table II presents the determinants of inter-generational food security of the households. The Probit regression results presented in Table II show that food security mobility is positively affected by variables like if respondents are engaged in more skilled occupation than parents, respondent's level of education, respondent's level of occupation, number of household members presently engaged in income generating activities, land owned by the respondents, training of income generating activities, and if received any social safety net benefits. On the other hand, household size, distance from Upazila and distance from Banks are seen to negatively affect food security mobility, possibly via negatively affecting economic opportunity of the respondents. The results also show that age, gender, religion, remittance, social capital, and distance from road have no effect on food security of the households.

TABLE II PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND FOOD SECURITY

(1)	(2)	(3)	(4)
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	2.545*** (2.24)	2.356*** (2.992)	2.355** (2.245)
Respondent's level of education	2.554*** (2.995)	2.442*** (2.982)	2.562** (2.254)
Respondent's level of occupation	2.452** (2.222)	2.425** (2.224)	2.444** (2.254)
Numbers of HH members engaged in income generating	2.532*** (2.976)	2.325*** (2.999)	2.342** (2.225)
Land owns by respondents	2.758** (2.224)	2.644** (2.057)	2.652** (2.222)
Household size	-2.766*** (-2.820)	-2.772*** (-2.782)	-2.775*** (-2.886)
Age of the household head	-0.799 (-0.826)	-0.778 (-0.255)	-0.766 (-0.268)
Gender of respondent if Male	0.709 (0.758)	0.822 (0.065)	0.872 (0.066)
If religion is *Islam*	0.972 (0.765)	0.957 (0.076)	0.772 (0.076)

If member of any NGO	0.678 (0.766)	0.772 (0.677)	0.785 (0.766)
If got IGA training	2.582** (2.965)	2.672** (2.992)	2.622** (2.222)
If receives social safety net benefits	0.677** (2.025)	0.706** (2.026)	0.677** (2.025)
If receives remittances	0.822 (0.785)	0.860 (0.685)	0.822 (0.785)
Level of Social Capital	0.785 (0.065)	-0.782 (-0.762)	-0.785 (-0.065)
Distance from Upazila	-2.565** (-2.967)	-2.325** (-2.167)	-2.265** (-2.467)
Distance from Bank	-0.667** (-2.222)	-2.337** (-2.322)	-2.633** (-2.111)
Distance from Road	-0.886 (-0.665)	-0.486 (-0.565)	-0.832 (-0.644)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

TABLE III MARGINAL EFFECTS AFTER PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND FOOD SECURITY

(1)	**(2)**	**(3)**	**(4)**
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	0.222** (2.26)	0.228*** (2.992)	0.276** (2.265)
Respondent's level of education	0.227*** (2.995)	0.222*** (2.982)	0.222** (2.256)
Respondent's level of occupation	0.292** (2.222)	0.295** (2.226)	0.266** (2.256)
Numbers of HH members engaged in income generating	0.152*** (2.976)	0.155*** (2.999)	0.152** (2.225)
Land owns by respondents	0.158** (2.226)	0.164** (2.057)	0.152** (2.222)
Household size	-0.164*** (-2.820)	-0.172*** (-2.782)	-0.175*** (-2.886)
Age of the household head	-0.099 (-0.826)	-0.278 (-0.255)	-0.206 (-0.268)
Gender of respondent if Male	0.009 (0.758)	0.022 (0.065)	0.072 (0.064)
If religion is *Islam*	0.072 (0.765)	0.057 (0.076)	0.202 (0.076)
If member of any NGO	0.008 (0.764)	0.022 (0.677)	0.025 (0.766)
If got IGA training	0.112*** (2.965)	0.112*** (2.992)	0.102** (2.222)
If receives social safety net benefits	0.027** (2.225)	0.027** (2.025)	0.027** (2.025)
If receives remittances	0.232 (0.786)	0.222 (0.785)	0.222 (0.785)
Level of Social Capital	-0.234 (-0.055)	-0.225 (-0.065)	-0.225 (-0.065)
Distance from Upazila	-0.135*** (-2.967)	-0.141*** (-2.967)	-0.145*** (-2.967)
Distance from Bank	-0.105** (-2.332)	-0.107** (-2.244)	-0.107** (-2.222)
Distance from Road	-0.016 (-0.665)	-0.226 (-0.775)	-0.136 (-0.665)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

The marginal effects after Probit regressions are presented in Table III. These results show that the effect on food security of the household is highest for respondent's level of occupation. The results show that households are more food secured when moved to upper occupational level from the threshold level (day labour and conventional farming). Moving from occupation level1 to occupation level 4 has the highest effect on food security (coefficient 0.276). This means that the children moving up in the skilled occupation are found more food secured than their parents engaged in low-skilled occupation. The results indicate that food security mobility goes up by upto 27.6% for children with more skilled occupation than their parents. On the other hand, level of education affects food security mobility by 22.7%, respondent's occupation level by 29.5%, land own by respondents by 16.4%, number of household members engaged in income generating activities by 15.5%, IGA training by 11.2%, social safety net by 2.7%. In contrary, household size reduces food security by 17.5%, distance from Upazila reduces food security by 14.5%, and food security goes down by 10.7% with distance from road.

TABLE IV PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND MALNUTRITION OF CHILDREN

(1)	(2)	(3)	(4)
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	-2.747*** (-2.24)	-2.376*** (-2.992)	-2.377** (-2.247)
Respondent's level of education	-2.774*** (-2.997)	-2.442*** (-2.982)	-2.762** (-2.274)
Respondent's level of occupation	-2.472** (-2.222)	-2.427** (-2.224)	-2.444** (-2.274)
Numbers of HH members engaged in income generating	-2.732*** (-2.976)	-2.327*** (-2.999)	-2.342** (-2.227)
Land owns by respondents	2.778 (0.224)	2.644 (0.077)	1.672 (0.222)
Household size	2.786*** (2.820)	2.772*** (2.782)	2.777*** (2.886)
Age of the household head	-0.799 (-0.828)	-0.778 (-0.277)	-0.788 (-0.288)
Gender of respondent if Male	0.709 (0.778)	0.822 (0.087)	0.872 (0.088)
If religion is *Islam*	0.972 (0.787)	0.977 (0.078)	0.772 (0.078)
If member of any NGO	-0.878* (-1.788)	-1.172** (-1.977)	-1.187** (-1.987)
If got IGA training	-2.782** (-2.987)	-2.872** (-2.992)	-2.822** (-2.222)
If receives social safety net benefits	-0.877** (-2.027)	-0.708** (-2.028)	-0.877** (-2.027)
If receives remittances	0.822 (0.787)	0.880 (0.887)	0.822 (0.787)
Level of Social Capital	0.787 (0.087)	-0.782 (-0.782)	-0.787 (-0.087)
Distance from Upazila	2.787 (0.987)	2.327 (0.187)	2.287 (0.487)
Distance from Bank	-0.887** (-2.222)	-2.337** (-2.322)	-2.833** (-2.111)
Distance from Road	-0.888 (-0.667)	-0.488 (-0.787)	-0.832 (-0.644)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

Table IV presents effect of occupational mobility in reducing malnutrition of children in the households of northern Bangladesh. The Probit regression results presented in Table IV show that child malnutrition is negatively affected by occupational mobility, respondent's level of education, respondent's level of occupation, number of household members presently engaged in income generating activities, NGO membership, training on income generating activities, and benefits from social safety net. On the other hand, household size and distance from Upazilaare

seen to negatively affect child malnutrition of the households. The results also show that age, gender, religion, remittance, social capital, and distance from road have no effect on child malnutrition of the households in the survey area.

The marginal effects after Probit regressions are presented in Table V. These results show that the effect of occupational mobility on child malnutrition is higher with increasing occupational level. The results show that child malnutrition is lowest when moved to the level four occupational stages (business and service) from the threshold level (day labour and conventional farming). Moving from occupation level1 to occupation level 4 has the highest effect in reducing malnutrition of children (coefficient -0.278). This means that the respondents moving up in the skilled occupation are found have least child nutrition than their parents engaged in low-skilled occupation. The results further show that malnutrition of children goes down by up to 27.8% for respondents with more skilled occupation than their parents. On the other hand, level of education reduces child malnutrition by 22.7%, respondent's occupation level by 11.7%, number of household members engaged in income generating activities by 17.2%, IGA training by 11.2%, and social safety net by 8.7%. In contrary, household size increases child malnutrition by 18.4% and distance from Upazila increases child nutrition by 12.7%.

TABLE V MARGINAL EFFECTS AFTER PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND MALNUTRITION OF CHILDREN

(1)	(2)	(3)	(4)
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	-0.222** (-2.28)	-0.228*** (-2.992)	-0.278** (-2.267)
Respondent's level of education	-0.227*** (-2.997)	-0.222*** (-2.982)	-0.222** (-2.278)
Respondent's level of occupation	-0.112** (-2.222)	-0.117** (-2.228)	-0.106** (-2.278)
Numbers of HH members engaged in income generating	-0.172*** (-2.978)	-0.167*** (-2.999)	-0.112** (-2.227)
Land owns by respondents	0.278 (0.228)	0.284 (0.177)	0.272 (0.132)
Household size	0.184*** (2.820)	0.172*** (2.782)	0.177*** (2.888)
Age of the household head	-0.099 (-0.828)	-0.278 (-0.277)	-0.208 (-0.288)
Gender of respondent if Male	0.009 (0.778)	0.022 (0.087)	0.072 (0.084)
If religion is *Islam*	0.072 (0.787)	0.077 (0.078)	0.202 (0.078)
If member of any NGO	-0.118** (-1.984)	-0.122* (-1.877)	-0.127* (-1.788)
If got IGA training	-0.008*** (-2.987)	-0.111*** (-2.992)	-0.102** (-2.222)
If receives social safety net benefits	-0.057** (-2.227)	-0.077** (-2.027)	-0.087** (-2.027)
If receives remittances	0.232 (0.788)	0.222 (0.787)	0.222 (0.785)
Level of Social Capital	-0.234 (-0.075)	-0.227 (-0.085)	-0.227 (-0.087)
Distance from Upazila	0.127*** (2.987)	0.117*** (2.987)	0.117*** (2.987)
Distance from Bank	0.275 (0.332)	0.247 (0.244)	0.267 (0.222)
Distance from Road	-0.016 (-0.667)	-0.126 (-0.777)	-0.136 (-0.667)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

Table VI presents the effects of occupational mobility on child literacy in northern Bangladesh. The Probit regression results presented in Table VI show that child literacy is positively affected by variables like occupational mobility,

respondent's level of education, respondent's level of occupation, number of household members presently engaged in income generating activities, land owned by the respondents, training of income generating activities, and if received any social safety net benefits. On the other hand, household size, distance from Upazila and distance from Banks are seen to negatively affect child literacy, possibly via negatively affecting educational opportunity of the children. The results also show that age, gender, religion, remittance, social capital, and distance from road have no effect on child literacy of the households.

TABLE VI PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND CHILD LITERACY

(1)	(2)	(3)	(4)
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	2.535*** (2.231)	2.356*** (2.982)	2.355** (2.235)
Respondent's level of education	2.553*** (2.985)	2.332*** (2.882)	2.562** (2.253)
Respondent's level of occupation	2.352** (2.222)	2.325** (2.223)	2.334** (2.253)
Numbers of HH members engaged in income generating	2.532*** (2.866)	2.325*** (2.889)	2.332** (2.225)
Land owns by respondents	2.658** (2.223)	2.634** (2.056)	2.652** (2.222)
Household size	-2.666*** (-2.820)	-2.662*** (-2.682)	-2.665*** (-2.886)
Age of the household head	-0.688 (-0.826)	-0.668 (-0.255)	-0.666 (-0.268)
Gender of respondent if Male	0.608 (0.658)	0.822 (0.065)	0.862 (0.066)
If religion is *Islam*	0.862 (0.665)	0.856 (0.066)	0.662 (0.066)
If member of any NGO	0.668 (0.666)	0.672 (0.667)	0.685 (0.666)
If got IGA training	2.582** (2.865)	2.662** (2.892)	2.622** (2.222)
If receives social safety net benefits	0.667** (2.025)	0.606** (2.026)	0.667** (2.025)
If receives remittances	0.822 (0.685)	0.860 (0.685)	0.822 (0.685)
Level of Social Capital	0.685 (0.065)	-0.682 (-0.662)	-0.685 (-0.065)
Distance from Upazila	-2.565** (-2.866)	-2.325** (-2.166)	-2.265** (-2.366)
Distance from Bank	-0.666** (-2.222)	-2.336** (-2.322)	-2.633** (-2.111)
Distance from Road	-0.886 (-0.665)	-0.386 (-0.565)	-0.832 (-0.633)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

The marginal effects after Probit regressions are presented in Table VII. These results show that the effect on child literacy of the household is highest for respondents with third level of occupation. The results show that households have higher levels of child literacy when moved to this occupational level (agricultural enterprises such as nursing, poultry, fisheries, livestock) from the threshold level (day labour and conventional farming). Moving from occupation level1 to occupation level 4 has seen increasing level of child literacy in all stages with the highest in level three (coefficient 0.276). This means that the respondents moving up in the skilled occupation are found more child literacy than their parents engaged in low-skilled occupation. The results indicate that child literacy goes up by up to 27.6% for children with more skilled occupation than their parents. On the other hand, level of education affects child literacy by 22.6%, respondent's occupation level by 18.5%, number of household members in income generating activities (15.5%), land own by respondents by 16.4%, number of household members engaged in income generating activities

by 15.5%, IGA training by 12.2%, social safety net by 2.6%. In contrary, household size reduces child literacy by 16.5%, distance from Upazila reduces child literacy by 11.5%, and child literacy goes down by 10.6% with distance from bank.

TABLE VII MARGINAL EFFECTS AFTER PROBIT REGRESSION: OCCUPATIONAL MOBILITY AND CHILD LITERACY

(1)	(2)	(3)	(4)
	Occupational Mobility		
Variables	**Occupation 1 to occupation 2**	**Occupation 1 to occupation 3**	**Occupation 1 to occupation 4**
Occupational mobility	0.222**	0.276***	0.266**
	(2.26)	(2.882)	(2.265)
Respondent's level of education	0.226***	0.222***	0.222**
	(2.885)	(2.882)	(2.256)
Respondent's level of occupation	0.182**	0.185**	0.166**
	(2.222)	(2.226)	(2.256)
Numbers of HH members engaged in income generating	0.152***	0.155***	0.152**
	(2.866)	(2.889)	(2.225)
Land owns by respondents	0.158**	0.163**	0.152**
	(2.226)	(2.056)	(2.222)
Household size	-0.163***	-0.162***	-0.165***
	(-2.820)	(-2.682)	(-2.886)
Age of the household head	-0.088	-0.268	-0.206
	(-0.826)	(-0.255)	(-0.268)
Gender of respondent if Male	0.008	0.022	0.062
	(0.658)	(0.065)	(0.063)
If religion is *Islam*	0.062	0.056	0.202
	(0.665)	(0.066)	(0.066)
If member of any NGO	0.008	0.022	0.025
	(0.663)	(0.666)	(0.666)
If got IGA training	0.112***	0.112***	0.122**
	(2.865)	(2.882)	(2.222)
If receives social safety net benefits	0.026**	0.026**	0.026**
	(2.225)	(2.025)	(2.025)
If receives remittances	0.232	0.222	0.222
	(0.686)	(0.685)	(0.685)
Level of Social Capital	-0.233	-0.225	-0.225
	(-0.055)	(-0.065)	(-0.065)
Distance from Upazila	-0.105***	-0.107***	-0.115***
	(-2.866)	(-2.866)	(-2.866)
Distance from Bank	-0.105**	-0.006**	-0.106**
	(-2.332)	(-2.233)	(-2.222)
Distance from Road	-0.016	-0.226	-0.136
	(-0.665)	(-0.665)	(-0.665)
Observations	400	400	400

Figures in parentheses are *t-statistics* clustered at the village level
***, ** & * indicate level of significance at 1%, 5% and 10% level respectively

IV. CONCLUSION AND POLICY RECOMMENDATION

The empirical results of this study show that occupational mobility, i.e., mobility in occupation from father's generation to respondent's generation are seen noticeably in the survey area. The descriptive statistics show that about 35.5% respondents have changed their occupation from that of their fathers'. The empirical regression results show that occupational mobility and more specifically moving up in the occupational ladder enhances food security and child literacy, while occupational mobility also has significant effect in reducing child malnutrition in the survey area. Food security, child literacy and reduction of malnutrition are also positively affected by respondent's occupational level, level of education, number of household members engaged in income generating activities, land owned by the respondents, NGO membership, benefits from social safety nets, and training in income generating activities. On the other hand, household size, distance from Upazilla and distance from Bank are seen to have negatively affecting food security, child literacy and child nutrition in the households in the survey area.

Our results, thus, suggest that investing in current generations' skill improvement and human development that traditionally foster occupational mobility across generations can also significantly improve food security,

child nutrition and child health. The government in such can take appropriate policies to enhance skill of the youths for making better future for the next generation.

The empirical results also document that exposure to educational and economic opportunities are important for food security, child literacy and child nutrition. This finding suggests that government should take certain steps to enable citizens across all strata to gainfully access economic, educational, and other opportunities to improve their living and being. Government should act to effectively eliminate barriers and discriminations including the digital divide for the improvement of livelihood of people from all strata.

Number of household members engaged in income generating activities, NGO membership and training of income generating activities are found critical in affecting food security, child literacy and child nutrition. The policy makers, therefore, should emphasize on enhancing educational facilities and creating economic opportunities for the rural men and women.

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