The Changing Landscape of International Migration: Evidence from Rural Households in Bangladesh, 2000-2014[1]

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Abstract

While international migration is increasingly recognized as a key driver of development, evidence suggests that the poor cannot readily take part in international migration due to the high placement cost. Using unique data on rural households in Bangladesh for the period 2000–2014, this study explores whether the socio-economic characteristics of the beneficiary households of international migration have changed over time. Our analysis shows that household education and asset levels are important determinants of international migration, particularly in earlier years. We also find that less educated and less wealthy households did take part in migration, albeit slowly, in recent time. In addition, social network facilitating migration within community is a key contributor to migration, but its predictive power declines over time. These findings suggest that entry barriers to international migration, resulting from paucity of financial, human and social capital endowment, have decreased over time. We also explore possible causes for such changes, including persistent demand for low-skilled workers in major destination countries, increasing domestic demand for educated workers, and increasing access to loans and grants to finance migration.

Key words: international migration; Bangladesh; panel data; human capital; migration network

[1] We wish to thank Tomoya Matsumoto, Rie Muraoka, and Chikako Yamauchi for their insightful comments and suggestions. This work was supported by the JSPS KAKENHI Grant Number JP15J11506. All errors remain ours.

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Introduction

As of 2015, there were244 million international migrants living outside their home countries, and workers' remittances to their familiestotalled601 billion US dollars(United Nations, 2016;World Bank 2016).Of that total,US$441 billion went to developing countries. Migration is now an important livelihood option for many households in developing countries, allowing them to access lucrative jobs, diversify income sources, and reduce covariate risk (Amuedo-Dorantes and Pozo, 2006; Gubert, 2002; Matsumoto et. al., 2006; Rosenzweig and Stark, 1989; Yang and Choi, 2007). Aid communities and the governments of developing countries are paying increased attention to international migration as a key driver of development.[1]This recognition has led to the adoption of the goal of facilitating migration and remittances as one of the Sustainable Development Goals (SDG) at the United Nations (UN) in 2015, in the hope that a greater number of poor households will avail themselves of the benefits of migration.[2]

In spite of high expectations for the role of international migration in poverty reduction, empirical evidence suggests that international migration is a largely middle-class phenomenon, often inaccessible to the poor (de Haas, 2010a; Massey, 1990). High cost of international migration constitutes an entry barrier. In addition to households' lack of financial resources to pay for migration, poor quality of human capital is another barrier to migration, at least at the initial phase of migration. Migrants tend to be positively selected on the basis of education and skills, even though many migrant worker jobs do not appear to require much education (de Haas, 2010b; McKenzie and Rapoport, 2010; Portes, 1979).This favoring of educated workers may be due to the fact that migrant jobs are often temporary and require good communication, information collection, and decision-making skills to remain being employed.

Literature suggests possible ways by which the poor and the less educated gradually avail themselves of international migration. The development of migration network can assist the poor to take up overseas jobs by reducing various costs of migration (de Haas, 2010a; McKenzie and Rapoport, 2007; Stark et al., 1986).[3]Network can reduce the direct cost of travel as well as the indirect cost of transaction measured in terms of time and effort to collect information on job availability and sources of funds to pay for migration. Similarly, development in migration network can lead to reversal of the sign of education-based selection

[1] While positive impact of international migration on origin households is found, it is important to note that some migrants find themselves in very vulnerable situation including human trafficking, labour exploitation, and frauds. According to our survey data in 2014, a total of 31 households (out of total 2,864 households, or 1%) said they were cheated by recruitment agents in the past and that the damage ranged from BDT 6,000to900,000 (mean BDT16,645)

[2] The SDG 10 on reducing inequality within and among countries includes two relevant clauses on migration: 1) facilitating orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies; and 2) by 2030, reducing to less than 3 per cent the transaction costs of migrant remittances and eliminating remittance corridors with costs higher than 5 per cent.

[3] Abramitzky et al. (2013) also provide an interesting case where the asset poor migrated actively. Based on data of historical migration from Norway to the US, they found no evidence of asset-related entry barrier when migration was affordable. When the immigration policy of the US became increasingly restrictive, the cost increased, thereby blocking the poor from further migration.

(McKenzie and Rapoport, 2010). Network can reduce information asymmetry between origin and destination communities, and/or between migrants and employers, making migrant work less risky and demanding in terms of education requirements than in the initial phase. Networks grow rapidly in the communities that send unskilled workers en masse. These findings suggest that international migration does eventually benefit the poor.

The existing literature on the changing characteristics of international migrant households in the past and at present mostly focuses on Mexico-US migration. This is one of the largest migration corridors in the world (UN, 2015), and the research on this corridor has accumulated detailed longitudinal data on migratory patterns. Similar studies of other areas are needed to determine whether the changing pattern of migrant households found in the Mexico-US case can explain migration pattern sin other parts of the world. Each migratory route is built on unique economic and social conditions within diverse institutional frameworks that affect labor mobility, so the characteristics of migrant households may differ substantially among regions.

This study makes an inquiry into socio-economic characteristics of international migrant households using the case of Bangladesh. It explores the roles of financial, human and social capital in determining international migrant household and examines how the importance of these forms of capital changes over time, using unique household panel data collected in 2000, 2008 and 2014. Our study is expected to contribute to a better understanding of the determinants of international migration in the past and at present by providing empirical evidence based on a migration route and region seldom studied for this purpose. Comparison of the similarities and differences across countries and regions is expected to verify and refine the existing model explaining the mechanism of selection of international migrant households. In addition to widening regional coverage, this research intends to contribute to the growing body of literature evaluating the impact of migration on households in developing countries by elucidating changing determinants of migrant households over time(Gibson et. al., 2013;Yang, 2011).

The rest of this paper is organized as follows. The next section provides background information on international migration from Bangladesh and proposes testable hypotheses. Section three introduces the data source and examines the descriptive data. Section four presents an empirical approach to the identification of changing characteristics of migrant households, followed by the results of our main analysis. Section five reports the results of supplementary analyses and discusses possible mechanisms by which the main results are obtained. Section six offers conclusions and policy implications.

International Migration from Bangladesh

Background

Bangladesh is the source country of seven million international migrants and the fifth largest source of emigrants after India, Mexico, Russia and China (UN, 2016). In 2015, Bangladeshi migrants remitted home a total of USD 15.31 billion, an amount equivalent to 13 percent of the country's GDP (World Bank, 2016). The majority of Bangladeshi migrants are employed in the Middle East and Southeast Asia, performing low-skill jobs. Figure 1 presents the number of annual departures of overseas workers from Bangladesh for the period 1976-2015 (BMET, 2016). It can be seen that overseas employment steadily increased from the mid-1970s to the early2000s and peaked in 2008, with more than 800,000 workers newly deployed abroad. This surge in departure can be attributed to the construction boom in the Middle East resulting from the hike in the world oil price. In the meantime, due to political turmoil, Bangladesh economy stagnated during the period of 2006-2009. The global financial crisis of 2008 explains the sharp reduction in newly departing workers thereafter. In recent years, the number of annual departures has fallen to 400,000 to 500,000 workers. While only a few thousand female migrants per year left for oversea jobs in the 1990s, they constituted 18.7% of total departures in 2015.[1]

The International Organization for Migration (IOM) conducted a large survey covering 10,000 nationally representative households in Bangladesh with migrants overseas to inquire about their migration experience and remittance use (IOM, 2009). This survey provides detailed information on the characteristics of migrant households such as asset ownership, income and consumption pattern. However, the survey does not sample non-migrant households, so the data cannot be used for quantitative analysis to identify particular characteristics of migrant households compared with the general population. Sharma and Zaman (2013) provide detailed descriptions and analysis of the determinants of international migration based on the results of their2007 survey. The level of human capital was positively correlated to the probability of migration, [2]while that of financial capital measured by owned land size did not show statistically significant predictive power. Because the study only uses sample households located in districts with a high incidence of international migration, the findings cannot be conclusive. Also, it is not clear whether there are any changes in the determinants of international migration over time.

[1] 103,718 woman workers departed for overseas jobs in 2015.

[2] They found non-linear and inverted U-shape relationship between years of education and the probability of migration (current and past). Their estimate suggests that the workers up to nine years of education are positively selected and then the likelihood declines thereafter. Average years of education among adults in the year of their survey (2007) was 4.7 years (UNDP, 2016), suggesting that most workers faced positive selection on education.

Hypothesis

In recent decades, the economy of Bangladesh grew substantially, creating more favorable employment opportunities at home. Since 2010, it recorded an annual growth rate of more than 6%, and the unemployment rate declined from 5% in 2009 to 4.3% in 2014 (WDI,2016). Real wages dipped due to political instability in years 2006-2008,but increased steadily after 2010 (Zhang et al., 2013). It is plausible that some households are starting to refrain from migration as a result of increasing opportunity costs and that the trend may be more pronounced among comparatively educated households because the return on education generally increases with the development of non-farm sectors in rural areas (Estudillo and Otsuka, 2016).Therefore, we hypothesize that high education level is no longer the prerequisite for households to send their family members abroad.

It is probable that family financial assets is a critical determinant of international migration in Bangladesh because the cost is high and recursive. According to a survey conducted by the World Bank and the International Labour Organization (Abella and Martin, 2015), Bangladeshi migrants paid the highest migration cost among all the Asian migrants sampled in the Middle East. Foreign employers and brokers routinely sell visas to Bangladeshi agents and job seekers, raising migration costs to the level of 1-2 years of earnings. Most migrants are employed on short-term contracts and return home after two to three years. Migration cost is incurred again when a migrant renews a contract.

Meantime, there are notable changes that may have lowered the financial entry barriers to international migration. Increasing number of households in Bangladesh rely on overseas jobs as a primary source of income, and the welfare-increasing impact has been documented (Mendola, 2008; Ralihan, 2008; Sharma and Zaman, 2013) and witnessed by the general public. The government has introduced policies to reduce the direct and indirect costs of migration (OSCE et.al. 2006).[1]For example, bilateral agreements signed with some destination countries including Korea and Malaysia set a ceiling on recruitment fees. Financial institutions including microfinance have introduced lending programs for international migration. The above factors likely contribute to the relaxation of liquidity constraints. Small landholders in rural areas actively seek off-farm employment because population pressure exacerbates land scarcity (Nargis and Hossain, 2006). If the liquidity constraints are relaxed, small land holders may be more likely than large landholders to migrate abroad. We therefore hypothesize that land and other asset ownership has become a less important determinant of international migration.

The existing literature shows that the development of migration network plays a critical role in determining who migrates and who does not. The level of network reflects historical, cultural, social and economic factors that are associated with the determinants of migration in each village (Massey 1990). We argue, however, that its strength may be limited and not

[1] Bangladeshi government instituted a dedicated ministry (Ministry of Expatriates' Welfare and Overseas Employment) in 2001 to deal with the administration on overseas employment.

sustained over time in the context of Bangladesh. Most Bangladeshi migrants are employed on short-term contracts in the Middle East and in Asia, and many of the recipient countries do not provide an opportunity for foreign workers to apply for permanent residency.[1]As a result, migrants may have weak social connections and economic base at destination, which limits their ability to refer jobs to their family members and friends. The available literature does not provide evidence of change in the explanatory power of migrant network over time.

Recruitment (placement) agencies offer alternative channel of job referral and contribute to the weakening the role of migration network that is traditionally based on family and social ties(de Haas, 2010b).In the initial phase of migration, these agents are said to mobilize workers from villages close to Dhaka where their offices are located. The agents, however, also routinely look for new source communities to sustain their business as they cannot always expect their customers to use their service for the next migration; once migrated, people tend to rely on their social network (as opposed to agents) to access jobs abroad for themselves and for their family members.[2] Due to this practice, agents likely expand their operation, in more recent years, to villages further away from Dhaka with no experienced of overseas migration. In addition to the presence of agents, rapid development of information technology increases availability of information and means of communication (e.g. mobile and smart phones) among rural households, and contributes to facilitating their access to overseas jobs. We therefore hypothesize that migration network, while important, plays increasingly lesser role in predicting international migration.

Data Source and Description

Data

This study utilizes household survey data collected by the Bangladesh Institute of Development Studies (BIDS), the International Rice Research Institute (IRRI) and the Bangladesh Rural Advancement Committee (BRAC).[3]It is a panel-structured survey covering 62 districts (out of 64 districts) in the country. The sample villages and households are selected based on multi-stage random sampling method using socio-economic indicators of each district (see Rahmanand Hossain (1995) and Hossain et al. (2009) for more details on the sampling method).Five rounds of surveys were implemented to date for the years 1988, 2000, 2004, 2008 and 2014.The number of households sampled was 1231in 1988, and it has increased gradually to a total of 2846 households in 2014. The increase in sample size is primarily due to scaling up of survey. The attrition rates of surveys vary from 3% to 13%.New households are added

[1] Except for the highly skilled who are allowed to bring their families and have the right to access residency in the selected destination such as Singapore.

[2] According to our interviews with migrant households, this practice substantially reduces the risk of being cheated by agents and employers.

[3] The official title of the survey is “Survey on changes in rural economy and livelihoods of rural households in Bangladesh.”

when attrition takes place, and this feature of the survey generates unbalanced panel data. This study examines datasets from surveys conducted in 2000, 2008 and 2014, because the data for these years contain more information on the pertinent village characteristics than the data for other years.

The survey collects information on the socio-economic characteristics of rural households and their members. It also gathers information on households' migrant members who are living abroad, including their personal profiles, the purpose and cost of migration, the funding source of the cost, and the amount of remittance sent home.[1]However, the survey lacks information on the migration history of sample households for the years between surveys. In order to collect this information, an additional questionnaire was added in the 2014 survey round.

Since the survey only targets households in rural village settings, our analysis represents migration dynamics within rural areas. The rural focus of the survey implies that our study paid less attention to skilled migrants who are more likely reside in urban areas than in rural villages. Nonetheless, the sample households of the survey are nationally representative of the general population in Bangladesh in 1988, when the majority of the population lived in rural areas (Rahman and Hossain, 1995).

Descriptive Data

Table 1provides descriptive data of the sample households grouped by migration status in 2000, 2008 and 2014. Over the years, the proportion of international migrant households (defined as a household with its family member(s) working overseas at the time of survey) has increased from 8% in 2000 to 11% in 2008, and to 14% in 2014.[2]Some of the characteristics are differ significantly between migrant and non-migrant households across years. In 2000, the average education level of household adult members (above 16 year-old) in migrant households was 0.2 years higher than non-migrant households, but the difference is not statistically significant. In 2008, the difference increased and was significant; the average education level of migrant household adult members was 1.7 years higher than non-migrant household members. In 2014, however, the trend reversed, with migrant households having an average of 0.6 years less education than non-migrant, a statistically significant difference.

Migrant households had greater land asset endowment than non-migrants in all three years of surveys. The difference in land assets was large in earlier years (0.4 ha in 2000) and decreased by 75%to 0.1 ha in 2014. The narrowing gap may reflect a change in the pattern of

[1] A household survey commonly defines household members as those who stay under the same roof and share meals, but this particular survey asks whether the household has the members who are away (migrant household members) and document their biographic information.

[2] This is comparable to the result of the Household Income and Expenditure Survey (HIES) conducted by the government of Bangladesh in 2005, which shows that 9% of households have migrant(s) abroad (Raihan et al., 2008).

migration decisions.[1]Some differences in the village characteristics are also observed between migrant and non-migrant households. Migrant families generally resided in villages with better access to district towns in all surveyed years, but this characteristic has disappeared over time. Migrant families, on average, live in villages closer to Dhaka than non-migrant families.

Table 2 shows the individual level characteristics of migrant workers for each survey year. Despite the rise in education level of the general population, the average education level of migrant workers declined slightly, from 7.8years in 2008 to 7.4 years in 2014.[2]In 2000, the average real annual remittance was BDT 122,000 (US$ 1,754)[3], which increased to BDT141,000 ($2,026) in 2008 and declined to BDT 132,000 (US$ 1,899) in 2014. Migration cost shows fluctuated similarly, and was roughly 1.7-1.9times the size of annual remittances. Other characteristic of migrant workers worth noting is that the mean duration of migration increased from 50 months in 2000 to 91 months in 2014. These migrant workers find jobs mainly through agents, distant relatives, and friends.

Table 3 provides a list of the destination countries of international migrant workersin2014. The country hosting largest number of Bangladeshi workers was Saudi Arabia (26%), followed by the United Arab Emirates (UAE) (20%) and Malaysia (13%). The majority of these migrants are working in the Gulf or Asia, while a small proportion find employment in Europe and North America. Almost all international migrants in our survey sample are male; there were only 4 and 8 female migrants in 2008 and 2014 respectively (not shown in tables).

Empirical Approach and Results

Probitmodel Estimation

We identify major characteristics of the international migrant households using the following probit regression;

$$\Pr\left(Migrant\ hh_{ijkt} = 1\right) = \Phi\ (\ \beta_{1t}HH_{it} + \beta_{2t}Vill_{it} + \beta_{3t}Mignet_{jt-1} + \beta_{4t}Dv_{kt}\ ), \quad (1)$$

Where Φ is the cumulative normal distribution function and standard errors are clustered at village level. The dependent variable has value 1 if a household (*i*) has one or more household members abroad for work at the time of survey in year (*t* = 2000, 2008 or 2014).[4]The regression uses pooled observations of surveyed households in 2000, 2008 and 2014 with year

[1] An average size of land owned by any household declines due to increase in population (0.5 ha in 2000 to 0.4 ha in 2014) and this may partly explain the narrowing gap between the two groups.

[2] Between years 2000-2013, mean schooling years among adults in Bangladesh increased from 3.7 years to 5.1 years (UNDP, 2016).

[3] 1USD=69.65TK (based on 2010 official exchange rate from World Development Indicators)

[4] We wanted to identify households with workers abroad for at least a few months but this was not possible because the only data available for some migrants was the year of departure. Note that the main occupation of a small number of migrant workers is student and that they earn cash and send home by doing part-time jobs.

dummies interacted for all covariates, allowing coefficients to be comparable across years.[1]In addition, year dummies which are interacted with division dummies are added in the regression to control for time and division specific unobserved effects, denoted asDiv_{kt} (k=1,2,…,6) in the equation above.

HH_{it} is a vector of the characteristics of a household (*i*) in a survey year (*t*), and includes land assets (in log),[2][3]non-land assets, education level of workers, and information on household member composition such as number of adults and dependency ratio of the old and young members. We used the proportions of household's workers with highest level of education completed in each of the six education levels (illiterate, primary education, up to post graduate) as the variables representing household education level.[4] Household access to electricity (=1 if yes) is also included.

$Vill_{jt}$ is a vector of the characteristics of a village (*j*=1,2,…,62) in a survey year (*t*)and it reflects economic infrastructure and labor market conditions. It includes travel time to the district town and to the nearest bank branch as well as distance to capital city, Dhaka. $Vill_{jt}$ also includes the proportion of non-migrant or home-based workers employed in the non-farm sector in each village; this is constructed using observations from sample households. This variable, representing non-farm labor participation, may be endogenous because a migrant household may receive remittances, which could help to create more non-farm jobs for the household members. To reduce this bias, we construct the variable village-level non-farm sector participation by subtracting own household (*i*). We also include an indicator variable that has a value of one if the household suffered from floods in the survey year.

The last covariate $Mignet_{jt-1}$ captures the level of social capital that facilitates migration at village level. We constructed two variables, one for international migration network and one for domestic migration network. These networks are defined as the proportion of migrant workers abroad (or in country)among the total working members of the sample households in each village regardless of their current location (i.e., both domestic and international migrants are included in the denominator). This variable is likely endogenous and may suffer from simultaneity because the network levels may be correlated to household and/or village attributes that influence the probability of migration. To control this simultaneity, we

[1] The use of interaction terms in non-linear models must be cautioned because the marginal effects on extreme values may turn close to null (Karaca-Mandic et. al. 2012). We therefore estimated our equations with linear specification with robust standard errors. We found, however, that our results largely unchanged quantitatively. The results available upon request.

[2] The literature points to non-linear relationship between asset and the likelihood of migration (McKenzie and Rapoport, 2010; VanWey, 2005).We tried fitting squared term to our specification, but it was insignificant. The exclusion did not change our main findings.

[3] Due to the conversions of land size in log scale, landless (4% of total sample) are left from the estimation. Very small number of landless are international migrant households (1,4, and 3 households in 2000, 2008 and 2014 respectively) and most landless are still left out from overseas employment option to date. Sensitivity check using the level and squared terms of land asset in place of log-scaled value does not change our main findings on land holdings.

[4] We did not use household heads' education level as a measure because migrant households likely appoint migrants 'female spouses or parents as heads.

use lagged values of international and domestic migration network in our estimation. Lagged value is commonly used to address selection bias in migration literature (Quisumbing and McNiven, 2010; Mendola, 2008; McKenzie and Rapoport, 2007) though its use must be carefully evaluated (Gibson et. al., 2013)[1]. We used the migration network in 1988 as an explanatory variable for the observations for 2000. For the observations for 2008 and 2014, migration network in 2000 and 2004, respectively, are used.

The results of the regression based on equation (1) identify important factors associated with the characteristics of international migrant households, but there is the possibility of reverse causality. The financial and human capital of the households that send migrants for long periods of time likely captures the impact of migration. For example, some parts of the land owned by a migrant household might have been purchased through remittances. Therefore, following McKenzie and Rapoport (2007), the study conducts an analysis with alternative specification that controls for reverse causality by focusing on the households that initiate migration;

$$\Pr\left(NewMig\ hh_{ijkt} = 1\right) = \Phi\ (\ \beta_{1t}HH_{it} + \beta_{2t}Vill_{it} + \beta_{3t}Mignet_{jt-1} + \beta_{4t}Dv_{kt}\ ), \quad (2)$$

Where Φ is cumulative normal distribution function and standard errors are clustered at the village level. The dependent variable of the equation (2) is $NewMig\ hh_{ijkt}$ which takes value 1 if the household is a new migrant household. A new migrant household is defined as a household which sends worker(s) abroad for the first time in the period between the year *t-3* and *t* for each survey year *t*. Using this definition, we examined the migration history of surveyed households and found that there were 129 new migrant families in 2000, 85 in 2008, and 76 in 2014.In this estimation based on equation (2), we use restricted samples conditioned on no past history of migration.[2]

Results: Probit Models

Table 4 presents the results of the regression based on equations (1) and (2). Columns (1) to (3) show the results of probit regression on all migrant households using pooled observation for 2000, 2008 and 2014 (equation (1)). Columns (4) to (6) present the results for analysis using new migrant households as a dependent variable (equation (2)).

Education

The results of regression show significant effects of household education level on the probability of being a migrant household. The estimates based on equation 1 show that

[1] This literature uses lagged value to instrument endogenous variable (migrant dummy or remittance). Gibson et. al.,(2013) shows that the use of (lagged) network is questionable when the variable of interest is the migrant earning because the strength of network tends to show a positive relationship with wage level.

[2] This specification removes 507 households from our sample; these households have migrants in the past or continued to send them abroad. Inclusion of these households in our analysis as additional reference group, however, does not alter our main result.

households with a large proportion of workers with high secondary education (9-12 years) are likely to have international migrants in all years. We find that the effect of education changes over time. The coefficient of workers with junior secondary level of education (6-8 years) increases sharply from 0.040 in 2000 to 0.083 in 2008 and 0.103 in 2014. The coefficient of workers with primary education (1-5) also increases gradually from 0.027 in 2000 to 0.056 in 2014, showing that lower education levels are increasingly contributing to the likelihood of migration.

When we use new migrant households (equation (2)) to examine the correlation between education and the probability of migration, there is a statistically significant relationship between the coefficients of some of the higher education levels (mid-high and master/Ph.D.) in 2000. This relationship, however, disappears in later periods. This suggests that the positive association between education and the likelihood of migration is declining in recent migration.

Land and Non-Land Asset

The results, based on equation 1 reveal that size of land holding has a positive and significant effect on the likelihood of migration in all surveyed years. This lends support to our hypothesis that land ownership is an important determinant of migration because it likely provides the means to pay for the initial cost of migration. The positive impact, however, becomes smaller and less significant in the last two periods with the coefficients decreasing from 0.020in 2008 to 0.009 in 2014; during this period, the entry barriers to international migration based on land assets decreased. The effect of non-land asset also turns negative and significant in 2014.

The regression results of the equation (2) show a positive effect of land ownership on the probability of new migration in 2000 and 2008, comparable to the results in the first equation. However, the coefficient was not significant (and negative) in 2014, so land ownership was no longer a predictor of the probability of migration among new entrants. A similar pattern was observed for the coefficients of non-land assets.

Other household characteristics with significant correlation to the likelihood of migration include number of adult (working-age members) in households. This is likely due to the fact that households tend to send additional household member(s) abroad if available.[1]Higher dependency ratio of elderly members in a household contributes positively to the likelihood of migration in 2000, but not in subsequent years. The dependency ratio of young children is mostly not significant except in 2014 where it negatively affects the likelihood of migration. This suggests that the presence of young children deters migration likely because they need parental care.

[1] At the same time, families left behind by migrants tend to live with relatives, increasing the household size of a migrant family.

Village Characteristics and Economic Infrastructures

Some village characteristics also present strong effect on household probability of migration. Households in villages closer to Dhaka are more likely to migrate in 2000 as indicated by the negative coefficient of distance for the first specification. It suggests that recruitment agents with offices in Dhaka mobilize workers from villages closer to Dhaka for convenience.[1]Proximity to Dhaka also reduces recruitment costs as workers have to travel to Dhaka to process passport and to travel abroad. Distance to Dhaka, however, is not an important determinant in 2008 and 2014. As we put forward in our hypothesis, this may imply that agents are now recruiting new workers from areas farther away from Dhaka. Easy access to district towns also contributes to increased likelihood of migration in all years; the coefficient nearly doubles in 2008(equation (1)). District towns are important information dissemination points and also provide access to long-distance transportation facilities.

One of the proxy variables of village level economic infrastructure is the travel time to the closest bank branch. The results show that households with such favorable economic infrastructure are less likely to migrate in 2000, but the sign of the coefficient reverses in 2014.Furthermore, the variable is not significant in all years for the estimates based on equation 2. Availability of non-farm jobs in villages does not explain the likelihood of migration in any significant and consistent manner. This suggests the absence of trade-off between the availability of home-based jobs and international migration.

The occurrence of natural disasters does not explain the likelihood of migration overall in the first specification, but has a significant and positive effect on the probability of being new migrant households in 2008. In that year, the large cyclone *Sidr* hit the country with devastating effect in many parts of the country.

International and Domestic Migration Network

We find that international migration network is a strong and significant explanatory variable that positively predicts the likelihood of migration. Yet it is noteworthy that the explanatory power of this variable declines between 2008 and 2014. In the first specification, the probability of international migration depends less and less on the occurrence of international migration in villages; the coefficients decline from 0.751 in 2008 to 0.505 in 2014.

Our analysis using new migrant households strengthens our finding. The coefficients of international migration network decline from 0.763 in 2000 to 0.267 in 2008. In this specification, it is notable that the coefficient was not significant in 2014, indicating that network no longer has a statistically significant effect on new migration. It is not unusual for migration networks to grow or die out over time (de Haas 2010b), so the past level of network

[1] Agents are required to establish their head offices in Dhaka by the law.

may not fully explain the likelihood of migration. However, it is surprising to find that it loses significance completely.[1]

We also used lagged value of domestic migration network to determine if there is any relationship between domestic migration and the likelihood of international migration. The coefficients are negative and not significant.

Fixed Effects Estimation

Our estimates suggesting reduced entry barriers to international migration are biased if they suffer from omitted variable problems. Innate ability of a household, for instance, may be positively correlated to human, financial and social capital, resulting in estimates with upward bias. Exploiting the panel structure of our data, we additionally implement fixed effects estimation to control for time-invariant unobserved household and village characteristics by adopting the linear probability model. Fixed-effects estimation adds to our main findings by allowing robust interference on the causal relationship. Our linear probability model with household level fixed effects is given as follows;

$$Migrant\ hh_{ijt} = \gamma_i + \delta_{1t} HH_{it} + \delta_{2t} Vill_{jt} + \delta_{3t} Mignet_{jt-1} + \varepsilon_{it} \qquad (3)$$

where γ is household fixed effects. We use the same covariates as in equation (1) but remove ones that are time-invariant.[2]In this model, we restrict our samples to balanced panel by removing households that were newly added or disappeared between survey periods.[3]The fixed effects estimation focuses on households that started and stopped sending their family members abroad (i.e. change in migration status from the previous survey round. This contrasts with our probit estimation that focuses on households that started migration (new migrant households, in equation (2)) or on all migrant households regardless of the change in migration status (equation (1)).

The results of fixed effects model estimation, presented in Table 5, support our findings from probit estimates that show gradual participation of migration among households with relatively low education and assets. The coefficient of the proportion of workers with secondary education level (6-8 years) is 0.009 and statistically not significant in 2000, but it is 0.076 and significant in 2008. Similarly, the coefficient of the primary education level (1-5 years) increases from -0.007 in 2000 to 0.029 in 2014, though the coefficients are not significant. Meanwhile the coefficient of mid-high secondary education level (9-12 years)

[1] It is worthy of further investigation to verify this finding using other data source; since our data uses stratified samples of households within selected villages to construct village network variable, it is not entirely free from measurement errors.

[2] They are distance to Dhaka (km) and division dummies.

[3] As we find the evidence of non-random attrition using attrition tests, we conducted a sensitivity check to determine whether or not it affects our findings. Our main findings remain unchanged with or without the weight (results available upon request). The number of sample households panel data is greater than the cross sectional entries in 2000 (1882 in CS and 1942 in Panel) because some households split in subsequent years and they are assigned common original households as a matched panel.

declines from 0.112 in 2000 to 0.086 in 2014. As to the financial capital, household land assets contribute positively to the probability of migration in 2008, but it presents no significant effect in 2014. Non-land assets increase the likelihood of migration in 2000, but decrease the likelihood in the subsequent survey years. One notable difference in the fixed effects estimates compared to those of probit analysis is the effect of migration network; the change in the level of network does not explain (the change in) the likelihood of international migration in all years. This is not surprising because we saw in our probit estimations that the network fails to explain the incidences of new migrant households. Although the network explains the occurrence of migration overall (including long-term migration), it is not very important in explaining the change in migration status. It is worth noting that the coefficients of international migration network, though not significant, drop sharply from 0.247 in 2008 to 0.006 in 2014. The large standard errors of the coefficients of migration network likely reflect heterogeneity in the ways network develops over time.

Factors Contributing to the Change in the Landscape of International Migration

Our estimation results suggest that the landscape of international migration among rural households in Bangladesh changed substantially, and that entry barriers to international migration based on education, assets and migration network eased between 2000and2014. In this section, we explore some of the factors that may have contributed to these changes. Our first question asks why households with comparatively less educated workers are increasingly participating in international migration. We explored this question by examining the demand side of migrantlabour markets and home employment opportunities. Our second question relates to the declining role of household assets in predicting the probability of migration. We examine the data to determine whether the cost of migration has declined or if migration network played any role in reducing this cost. We also consider the availability of external financing to pay for migration costs.

Factors Contributing to Widening Education Levels

One key factor that likely contributes to the increased participation of low-educated migrant households is the nature of the demand for migrant workers. Table 6presents the results of multinomial log it analysis of migrant households by destination region in 2014.[1]We find that education level of workers in a household differs substantially among the destination regions. There is evidence that workers with lower education actively migrate to the Middle East and Asia (columns (1) and (2) in Table 6).In particular, the coefficient of primary education is positive and significant for households with workers in the Middle East. While initial phase of migration to the Middle East and Asia probably involved relatively educated workers to deal with perceived risks and uncertainties of migrant jobs, it is likely that the required education level has come down to the level that matches the requirement of jobs. The

[1] We are unable to conduct this analysis using samples for earlier years due a lack of information.

major sectors that employ migrant workers in these regions are construction and services. The education levels of workers are substantially higher among households with worker(s) in North America and Europe than those with workers(s) in the Middle East and Asia.

Growth in the home economy may also explain the widening of education levels of migrant household workforce. In our earlier estimation, we did not find evidence supporting the substitution hypothesis (i.e. that the domestic migration network is negatively associated with the likelihood of overseas migration) (Table 4). To examine this hypothesis further, we analyze the determinants of wage, including returns to education, in different work locations to understand how households with varying educational endowment choose work locations. We have information on the monthly salary of domestic and international migrant workers in 2014 and used this variable (in log form) to analyze variation in returns to education by work location. Since we use worker level information in this analysis, covariates include worker characteristics (age, gender and education) along with other household and village characteristics variables used in earlier analysis. Heckman selection model is employed[1] to address selection bias for each worker category. The instrumental variables are number of workers per household and lagged international and domestic migration networks. These variables are associated with the choice of work location, but do not seem to affect level of salary directly, except through the choice of location.

The results of the regression on monthly salary show that salary from international migration does not seem to reward schooling for most workers except for those with tertiary education and above (column (3) in Table 7). This is in clear contrast to the results of out-district domestic migration, which shows increasing returns to education (column 2). The wage premium of international migrant salary is represented by the large constant term. It is domestic job rather than overseas jobs that reward education for workers with mid-level education; this seems to imply that the opportunity costs for international migration are high for those with substantial education.

Factors Contributing to Declining Asset Holdings

We find evidence that households with comparatively fewer assets are migrating in recent years. It is likely that the direct and/or indirect costs of migration have decreased and made migration affordable. The existing literature identifies development of migration network as a contributing factor to the reduction in cost (McKenzie and Rapoport, 2007; Stark et al., 1986). We test this hypothesis using our survey data on the direct cost of migration (=amount spent to send workers abroad[2]). Since most migration is temporary and the cost is incurred each time a worker migrates or re-migrates, this information likely reflects the prevailing cost of migration in the village at the time of survey. We conducted simple pooled OLS regression

[1] We have also estimated this model using selection bias correction terms based on multinomial log it (Kurosaki and Kahn 2006) and find that the results are consistent.

[2] It includes costs of obtaining travel documents, domestic and international travel, and agent/handling fee. We have this information for each worker who was found abroad at the time of survey in 2000, 2008 and 2014.

analysis on the price adjusted cost of migration in 2000, 2008 and 2014(in log value) using the same covariates as in equation (1). The regression outcome shows no significant or consistent association between international migration network and the cost of migration among our sample in all years (see Table 8).[1] This is consistent with our earlier finding that village level migration network shows weaker correlation with the likelihood of migration in recent years. Meanwhile, our descriptive data (Table 2) shows a decline in price-adjusted average migration cost from 2008 to 2014 (decrease by BDT25,990 or by 11.9%) and this decline may have allowed some households to seek jobs abroad.

We find some evidence of the reduction in the indirect cost of migration, namely the cost of borrowing. Figure 2 presents the primary source of funds from which new migrants[2]finance their first migration. We classify sources of funds into three categories: 1) self-financing, including own saving and the sales of assets; 2) borrowing based on collateral (assets) or land lease; and 3) borrowing and grants without collateral (from families, relatives and NGOs). Availability of the last source of funds likely helps the asset-poorto finance migration cost. The Figure 2 shows that the availability of non-collateral loans and grants among new migrants was 6% in 2000, and increased to 19% and 52% in 2008and 2014. Increased availability of non-collateral loans and grants must have substantially relaxed liquidity constraints. One contributing factor to the increased borrowing opportunities is the diffusion of international migration. As much as 14% of rural households have family member(s) working abroad in 2014, and up to 21% of them have had migrant family members in the past decade. It is likely that international migration gained recognition as trustable and relatively safe ventures.

Factors Contributing to Declining Migration Network

The result of our estimations, though indirectly, support the evidence that the main factors contributing to the declining influence of network likely include the presence of recruitment agents that can facilitate overseas jobs for households with no prior experience of migration. In addition, mobile and smart phones are readily available in villages, providing increasingly easy access to information on overseas jobs and agents. We also identify external factors that may have reduced the importance of networks in recent years. Bangladesh has suffered substantially from the moratoriums on new hire imposed by major destination countries in recent years (Economist 2013). Major destination countries including Saudi Arabia, UAE, Kuwait and Malaysia imposed recruitment moratoriums ranging from a few to several years. As shown in Figure 1, the sanction imposed by Saudi Arabia is particularly hard-felt; it resulted in a sudden and very sharp drop in new deployment from 2008 onward. These

[1] We did not control for variations in destination country in this estimation because the choice is considered endogenous. This can make estimation rather noisy because costs likely reflect expected earnings, which differs widely by destination.

[2] A new migrant is defined as those who migrated for the first time between the year t-3 to year t for each survey year t.

moratoriums make it difficult for migrant workers to secure jobs and to find jobs for others. This precarious nature of migrant legal status in the Middle East and Asia stands in sharp contrast to that in North America and Europe where long-term residency is secure status.

Conclusion and Policy Implications

This paper examined the characteristics of the beneficiaries of international migration in rural Bangladesh for the period from 2000 to 2014.Our findings strongly suggested that entry barriers to international migration based on financial, human and social capital have decreased in recent years and that international migration had become a more accessible livelihood option for households of various levels of resource endowments. We also found that role of migration network in predicting the likelihood of migration waned over time, which is in contrast to the findings of existing literature on Mexico-US migration, where network plays a dominant role in determining who migrates by lowering entry barriers over time (McKenzie and Rapoport, 2007; Stark et al., 1986). The limited role of migration network in Bangladesh likely reflects a particular pattern of migration found in the Asian region, namely the temporary nature of migration and the limited opportunity of access to permanent residency abroad. The active role played by recruitment agents also may have contributed to this process. Our results therefore point to the possibility that the role of social capital in determining international migration decisions may substantially differ by region.

Our results also pointed out that entry barriers to international migration based on financial and human capital declined due to other factors than social network. These factors included the composition of the destination countries and increasingly favorable employment opportunities in domestic economy. We found some evidence that liquidity constraints likely declined as international migration became one of the main livelihood options for many rural households.

The results of this study demonstrated the value of examining the determinants of migration using the example of migration routes that is seldom studied. Similar studies of other migratory routes may also contribute to refining existing knowledge and models by providing additional evidence. Furthermore, our findings call for a need to determine if the development impact of migration and remittances also varies over time. We expect that new migrant households may allocate a larger portion of remittances to consumption than investment if their capital endowment is substantially smaller than the migrant households in the past.

Our findings carry important policy implications. The government of Bangladesh has been active in making overseas jobs available to a greater number of households, especially among the poor.[1] The results of our estimates provide evidence that the landscape of

[1] The Poverty Strategy Paper drafted by the government refers to workers remittance as one of the two pillars of the economy along with garment industry (IMF 2013). The country's 6th Five-Year-Plan on economic development, launched in 2013, includes a number of initiative and objectives to facilitate migration, particularly among the poor and to promote productive use of remittance.

international migration in the country is changing in favour of the poor. Furthermore, our finding calls for policy interventions addressing the needs of new migrant households, which are likely in debt and repaying loans with high interest rates because many of them rely on non-collateral loans. The government would be well advised to consider supporting new and potential migrant families by encouraging the provisions of non-collateral and low-interest loans for migration.

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Table 1 Characteristics of Sample Households by Migration Status in 2000, 2008 and 2014

	2000			2008			2014			Equality of means		
	All	Non Migrant	Migrant	All	Non Migrant	Migrant	All	Non Migrant	Migrant			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(3) - (2)	(6) - (5)	(9) - (8)
Household characteristics												
Household size including migrants	5.6	5.4	8.3	5.6	5.4	7.4	5.0	4.7	6.5	2.9***	2.0***	1.8***
No. of adult members (working age 16-50)	2.3	2.3	2.7	2.8	2.6	3.9	2.5	2.3	3.5	0.4**	1.2***	1.2***
Average years of education among adults	3.3	3.3	3.5	4.4	4.2	5.9	4.1	4.2	3.6	0.2	1.7***	-0.6***
Owned land of hh (ha)	0.5	0.5	0.9	0.5	0.5	0.6	0.4	0.4	0.5	0.4***	0.2**	0.1**
Non-land asset (in 1,000 Bangladesh Taka)	7.5	6.0	25.9	6.7	6.5	8.4	15.3	14.4	21.0	19.9*	1.9	6.6
No. of old members over 50 / total no. of workers in households	0.6	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.6	0.5***	0.0	0.0
No. of children under 5 / total no. of workers in households	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	-0.1***	-0.1**	-0.1**
=1 if hh has access to electricity	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.9	0.1	0.0	0.2***
Village characteristics												
Travel time to district town (hour)	1.0	1.1	0.7	0.7	0.7	0.5	0.6	0.6	0.5	-0.4***	-0.2***	-0.1
Distance to Dhaka (100 km)	2.0	2.1	1.5	2.0	2.1	1.5	2.0	2.1	1.6	-0.6***	-0.6***	-0.5***
Travel time to the nearest bank (hour)	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5	-0.1	-0.1*	0.0
Proportion of home-based workers in non-farm sector excl own	0.43	0.42	0.49	0.43	0.43	0.47	0.46	0.45	0.49	0.07*	0.04	0.03
=1 if hh or village with major flood damage in the survey year	0.09	0.10	0.03	0.19	0.18	0.26	0.01	0.01	0.01	-0.06***	0.08	0.00
Migration Networks												
No. of international migrants / total no. of workers (village)	0.05	0.05	0.16	0.09	0.07	0.23	0.11	0.08	0.25	0.12***	0.16***	0.17***
No. of domestic migrants / total no. of workers (village)	0.13	0.13	0.13	0.15	0.16	0.12	0.20	0.20	0.14	-0.00	-0.03*	-0.06***
Observations	1882	1737	145	2010	1779	231	2846	2461	385			
			(8%)			(11%)			(14%)			

Notes; *** p<0.01, ** p<0.05, * p<0.1

Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)

Table 2. Characteristics of International Migrant Workers in 2000, 2008, and 2014

	2000 (1)	2008 (2)	2014 (3)
Age		30.4	32.5
Years of education	7.72	7.76	7.44
Yearly remittances (in 1,000 Bangladesh Taka)	122	141	132
Months away (cumulative)	50	65	91
Migration cost (in 1,000 Bangladesh Taka)	227	248	219
Job facilitated by agent (=1)	n.a.	0.34	0.40
Job facilitated by family members (=1)	n.a.	0.25	0.16
Job facilitated by friends and relatives (=1)	n.a.	0.36	0.42
Observations	185	330	497

Notes; Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)
"n.a." means not available.

Table3. Destination Countries of Migrant Workers in 2014

Destination Countries	Freq.	%
Saudi Arabia	128	26%
United Arab Emirates	101	20%
Malaysia	63	13%
Oman	50	10%
Kuwait	26	5%
Qatar	24	5%
Singapore	17	3%
Bahrain	10	2%
India	5	1%
Europe	32	6%
North America	8	2%
Others/unknown	33	7%
Total	497	100%

Table 4 Factors Associated with the Characteristics of International Migrant Households in 2000, 2008, and 2014 (Probit)

	Migrant HH (=1)			New Migrant HH (=1)		
	2000	2008	2014	2000	2008	2014
	n=145	n=231	n=385	n=129	n=85	n=76
	(1)	(2)	(3)	(4)	(5)	(6)
	Probit			Probit		
Household characteristics						
Proportion of workers with primary education level (1-5)	0.027	0.036	0.056***	0.022	0.007	-0.006
	(0.019)	(0.025)	(0.020)	(0.018)	(0.015)	(0.009)
Proportion of workers with Jr.secondary education level (6-8)	0.040*	0.083***	0.103***	0.047**	0.040**	0.006
	(0.022)	(0.024)	(0.025)	(0.020)	(0.016)	(0.013)
Proportion of workers with mid-high secondary education level (9-12)	0.075***	0.099***	0.105***	0.070***	0.037**	0.001
	(0.020)	(0.021)	(0.027)	(0.021)	(0.016)	(0.010)
Proportion of workers with tertiary education level (13-15)	-0.027	-0.019	0.029	-0.051	-0.052	0.020
	(0.032)	(0.043)	(0.042)	(0.034)	(0.035)	(0.017)
Proportion of workers with master/Ph.D. level (>15)	0.041	-0.047	0.034	0.126**	-0.049	-0.020
	(0.039)	(0.072)	(0.033)	(0.049)	(0.061)	(0.030)
Land size (h.a. in log)	0.018***	0.020***	0.009*	0.012***	0.007**	-0.002
	(0.005)	(0.004)	(0.005)	(0.005)	(0.003)	(0.002)
Non-land asset value of the hh (in 100,000 Bangladesh Taka)	0.010	-0.024	-0.009**	0.008	0.017	-0.002
	(0.011)	(0.028)	(0.004)	(0.011)	(0.013)	(0.003)
Total number of adults (working age 16-50)	0.002	0.018***	0.038***	-0.001	0.008***	0.007***
	(0.005)	(0.005)	(0.004)	(0.005)	(0.003)	(0.002)
No. of member above 50/total workers	0.038***	-0.002	0.009	0.034***	-0.005	0.004
	(0.008)	(0.011)	(0.010)	(0.007)	(0.008)	(0.006)
No. of children under 5/total workers	-0.011	-0.008	-0.029***	-0.006	-0.015*	-0.004
	(0.008)	(0.011)	(0.009)	(0.007)	(0.009)	(0.005)
=1 if hh has access to electricity	0.017	-0.004	0.010	0.016	-0.004	-0.012
	(0.014)	(0.019)	(0.016)	(0.014)	(0.012)	(0.010)
Village characteristics						
Travel time to district town (hour)	-0.039***	-0.077**	-0.071**	-0.040***	-0.059***	-0.009
	(0.011)	(0.035)	(0.032)	(0.010)	(0.022)	(0.011)
Travel distance to Dhaka km * 1/100	-0.032***	-0.012	-0.004	-0.025***	-0.000	0.006
	(0.010)	(0.011)	(0.011)	(0.009)	(0.008)	(0.005)
Travel time to bank (hour)	-0.035*	0.022	0.065**	-0.025	0.023	0.011
	(0.019)	(0.046)	(0.026)	(0.017)	(0.025)	(0.010)
Proportion of home-based workers in non-farm sector excl own	-0.012	0.007	-0.054	-0.018	-0.015	-0.001
	(0.048)	(0.041)	(0.053)	(0.048)	(0.031)	(0.023)
=1 if hh or village with major flood damage in the survey year	-0.038	0.015	-0.030	-0.026	0.024**	0.009
	(0.031)	(0.022)	(0.044)	(0.030)	(0.011)	(0.020)
Migration network						
Lagged international migration network in village	0.731***	0.751***	0.505***	0.763***	0.267**	0.066
	(0.267)	(0.096)	(0.084)	(0.287)	(0.135)	(0.068)
Lagged domestic migration network in village	-0.070	-0.124	-0.041	-0.052	-0.002	-0.016
	(0.071)	(0.079)	(0.068)	(0.066)	(0.059)	(0.029)
Division*Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,456			5,949		

Notes; Pooled regression using all three years of observations
Dependent variables =1 for migrant households or new migrant households in the survey year
Reporting marginal effects evaluated at mean values of each year
New migrant hh = starting first migration within 4 years including the survey year
Numbers in parenthesis are standard errors
Standard errors are clustered by village
*** p<0.01, ** p<0.05, * p<0.1
Base education = no education /illiterate
Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)

Table 5 Factors Associated with the Characteristics of International Migrant Households in 2000, 2008, and 2014 (Household FE)

	International Migrant Household (= 1)		
	2000	2008	2014
	(1)	(2)	(3)
	Panel FE		
Household characteristics			
Proportion of workers with primary education level (1-5)	-0.007	0.000	0.029
	(0.018)	(0.019)	(0.020)
Proportion of workers with Jr.secondary education level (6-8)	0.009	0.076***	0.068**
	(0.028)	(0.028)	(0.030)
Proportion of workers with mid-high secondary education level (9-12)	0.112***	0.094***	0.086***
	(0.029)	(0.026)	(0.028)
Proportion of workers with tertiary education level (13-15)	-0.021	0.026	0.023
	(0.060)	(0.041)	(0.047)
Proportion of workers with master/Ph.D. level (>15)	-0.082	-0.065	-0.009
	(0.172)	(0.072)	(0.067)
Land size (h.a. in log)	0.006	0.009*	-0.008
	(0.006)	(0.005)	(0.006)
Non-land asset value of the hh (in 100,000 Bangladesh Taka)	0.001***	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)
Total number of adults (working age 16-50)	0.017***	0.020***	0.055***
	(0.006)	(0.004)	(0.006)
No. of member above 50/total workers	0.037***	0.009	0.045***
	(0.011)	(0.011)	(0.013)
No. of children under 5/total workers	0.021**	-0.010	-0.040***
	(0.010)	(0.010)	(0.011)
=1 if hh has access to electricity	-0.000	-0.014	-0.015
	(0.015)	(0.016)	(0.014)
Village characteristics			
Travel time to district town (hour)	0.020*	-0.054***	-0.021
	(0.011)	(0.016)	(0.019)
Travel time to bank (hour)	0.015	0.012	0.077**
	(0.020)	(0.023)	(0.033)
Proportion of home-based workers in non-farm sector excl own	0.125**	0.038	0.024
	(0.060)	(0.052)	(0.060)
=1 if hh or village with major flood damage in the survey year	-0.009	0.018	0.045
	(0.018)	(0.018)	(0.086)
Migration network			
Lagged international migration network in village	0.247	0.151	0.006
	(0.249)	(0.160)	(0.123)
Lagged domestic migration network in village	-0.114	-0.038	0.085
	(0.099)	(0.085)	(0.077)
Year dummies	Yes	Yes	Yes
Constant	-0.064*	-0.064*	-0.064*
	(0.038)	(0.038)	(0.038)
Observations	5,826		
R-squared	0.093		
Number of households	1,942		

Notes; Pooled panel fixed effect regression using balanced panel data of 2000 and 2008, 2014.
Dependent variables =1 for migrant households
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Base education = no education /illiterate
Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)

Table 6 Determinants of Destination Regions of International Migrant Households in2014

	Middle East	Asia	North A. & Europe
	n=312	n=80	n=24
	(1)	(2)	(3)
		mlogit	
Household characteristics			
Proportion of workers with primary education level (1-5)	0.036**	0.011	-0.001
	(0.015)	(0.011)	(0.002)
Proportion of workers with Jr.secondary education level (6-8)	0.053***	0.033**	0.003
	(0.018)	(0.015)	(0.003)
Proportion of workers with mid-high secondary education level (9-12)	0.049**	0.023**	0.009***
	(0.021)	(0.011)	(0.003)
Proportion of workers with tertiary education level (13-15)	-0.063	0.021	0.022***
	(0.047)	(0.022)	(0.007)
Proportion of workers with master/Ph.D. level (>15)	0.026	-0.110*	0.027***
	(0.028)	(0.064)	(0.010)
Land size (h.a. in log)	0.006	0.003	0.002
	(0.005)	(0.002)	(0.002)
Non-land asset value of the hh (Tk 100,000)	-0.006	-0.001	0.001***
	(0.004)	(0.001)	(0.000)
Total number of adults (working age 16-50)	0.023***	0.009***	0.002**
	(0.004)	(0.002)	(0.001)
No. of member above 50/total workers	0.005	0.010**	0.001
	(0.012)	(0.005)	(0.002)
No. of children under 5/total workers	-0.003	-0.010	-0.006*
	(0.007)	(0.007)	(0.003)
=1 if hh has access to electricity	-0.016	-0.003	0.104***
	(0.016)	(0.013)	(0.024)
Village characteristics			
Travel time to district town (hour)	-0.095***	0.014	-0.031
	(0.036)	(0.017)	(0.022)
Travel distance to Dhaka km * 1/100	-0.002	-0.006	0.004
	(0.012)	(0.006)	(0.003)
Travel time to bank (hour)	0.100***	0.004	-0.065
	(0.026)	(0.017)	(0.041)
Proportion of home-based workers in non-farm sector excl own	-0.008	0.020	-0.101***
	(0.045)	(0.014)	(0.022)
=1 if hh or village with major flood damage in the survey year	-0.058	0.029	-0.019
	(0.062)	(0.024)	(0.017)
Migration network			
Lagged international migration network in village	0.390***	0.110**	0.098***
	(0.101)	(0.044)	(0.030)
Lagged domestic migration network in village	-0.107	-0.023	0.142***
	(0.084)	(0.044)	(0.044)
Division dummies	Yes	Yes	Yes
Observations		2,768	

Notes; Multinomial logit analysis using all household observations in 2014 data
Dependent Variable =1 if household has migrant(s) in the destination
Reporting marginal effects evauated at mean values of each category
Numbers in parenthesis are standard errors
Standard errors are clustered by village
Base category = non migrant hh n=2352
Base education = no education /illiterate
*** p<0.01, ** p<0.05, * p<0.1
26 households have migrants in mutiple destinations - for these, a destination with longer duration of stay in the past 5 years is assinged
Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)

Table 7 Determinants of Monthly Salary (log) of In-district Migrants, Out-district Migrants, and International Migrants in 2014

	In-district migrant		Out-district migrant		International migrant	
	n=100		n=857		n=484	
	(1)		(2)		(3)	
	heckman		heckman		heckman	
Migrant's characteristics						
Age	0.130***		0.019***		-0.006	
	(0.030)		(0.003)		(0.015)	
Age_sq	-0.002***		-0.000***		0.000	
	(0.000)		(0.000)		(0.000)	
=1 if male	0.054		0.296***		-0.181	
	(0.193)		(0.053)		(0.194)	
Primary schooling level (1-5) (=1)	0.102		0.115**		-0.081	
	(0.210)		(0.046)		(0.090)	
Junior secondary schooling (6-8) (=1)	-0.349		0.150***		-0.094	
	(0.230)		(0.054)		(0.096)	
Mid-higher secondary schooling (9-12) (=1)	0.033		0.181***		0.038	
	(0.221)		(0.057)		(0.094)	
Tertiary schooling (13-15) (=1)	0.095		0.302***		1.162***	
	(0.318)		(0.087)		(0.170)	
Master and Ph.D. (>15) (=1)	0.254		0.585***		0.361**	
	(0.366)		(0.113)		(0.181)	
Household characteristics						
Land size (h.a. in log)	0.065*		0.054***		0.066***	
	(0.035)		(0.011)		(0.016)	
Non-land asset value of the hh (Tk 100,000)	0.123		0.013		0.033*	
	(0.128)		(0.011)		(0.019)	
HH member above 50/total workers	-0.378**		0.042		-0.053	
	(0.150)		(0.031)		(0.049)	
Children under 5/total workers	-0.034		0.015		0.005	
	(0.159)		(0.028)		(0.059)	
=1 if hh has access to electricity	0.162		0.068*		0.041	
	(0.174)		(0.035)		(0.087)	
Village characteristics						
Travel time to district town (hour)	0.234		-0.025		-0.140	
	(0.230)		(0.063)		(0.130)	
Travel distance to Dhaka km * 1/100	-0.044		-0.000		0.033	
	(0.144)		(0.027)		(0.034)	
Travel time to bank (hour)	-0.407*		0.003		-0.049	
	(0.213)		(0.061)		(0.088)	
Proportion of home-based workers in non-farm sector excl owr	0.521		0.271***		-0.214	
	(0.408)		(0.100)		(0.161)	
=1 if hh or village with major flood damage in the survey year	0.450		0.163		-0.138	
	(0.475)		(0.137)		(0.190)	
Division dummies	Yes		Yes		Yes	
lambda		0.261		-0.182**		-0.260***
		(0.230)		(0.089)		(0.068)
Constant	6.598***		8.482***		10.842***	
	(1.006)		(0.155)		(0.486)	
Observations	4,394	4,394	4,394	4,394	4,394	4,394

Notes; Heckman selection model for each categort of worker (using all workers information)
Dependent variable=monthly salary in Bangladesh Taka (Log)
Numbers in parenthesis are standard errors
Standard errors are clustered by village
Base education = no education /illiterate
Education category is assigned using final education year of the worker (mutually exclusive)
Village-clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Instruments = number of adults in households, lags of international and domestic migration network

Table 8 Determinants of the Initial Cost of International Migraiton (log) in 2000, 2008, and 2014

	Initial Cost of Migration Per Worker (log)		
	2000	2008	2014
	n=143	n=226	n=381
	(1)	(2)	(3)
		OLS	
Household characteristics			
Proportion of workers with primary education (1-5)	0.284*	0.0574	-0.0528
	(0.168)	(0.129)	(0.0851)
Proportion of workers with Jr.secondary education (6-8)	0.316**	0.184	-0.114
	(0.138)	(0.138)	(0.110)
Proportion of workers with mid-high secondary education (9-12)	0.444***	0.174	0.0640
	(0.158)	(0.119)	(0.125)
Proportion of workers with tertiary education (13-15)	0.671**	-0.0523	-0.129
	(0.288)	(0.181)	(0.395)
Proportion of workers with master/Ph.D. (>15)	0.357	-0.402	-0.654
	(0.247)	(0.311)	(0.433)
Land size (h.a. in log)	-0.00898	-0.0224	-0.0190
	(0.0382)	(0.0357)	(0.0310)
Non-land asset value of the hh (Tk 100,000)	0.0222	0.114	-0.0421**
	(0.0632)	(0.0777)	(0.0192)
Total number of adults (working age 16-50)	0.0457*	0.0143	0.0222
	(0.0267)	(0.0202)	(0.0216)
No. of member above 50/total workers	-0.187	-0.0568	0.0135
	(0.121)	(0.0787)	(0.0530)
No. of children under 5/total workers	0.0261	0.0468	0.0484
	(0.0607)	(0.0680)	(0.0832)
=1 if hh has access to electricity	0.0407	-0.0951	0.188
	(0.0796)	(0.0871)	(0.219)
Village characteristics			
Travel time to district town (hour)	-0.215***	-0.0918	0.266
	(0.0779)	(0.238)	(0.377)
Travel distance to Dhaka km * 1/100	0.0751	-0.00742	0.171
	(0.0489)	(0.0450)	(0.105)
Travel time to bank (hour)	0.152	-0.0618	-0.213
	(0.127)	(0.227)	(0.237)
Proportion of home-based workers in non-farm sector excl own	-0.0474	-0.276	-0.0349
	(0.307)	(0.209)	(0.362)
=1 if hh or village with major flood damage in the survey year	0.0273	-0.121	0.312**
	(0.226)	(0.0811)	(0.128)
Migration network			
Lagged international migration network in village	0.0129	0.132	0.427
	(1.614)	(0.396)	(0.386)
Lagged domestic migration network in village	0.185	0.594	0.458
	(0.467)	(0.440)	(0.666)
Year dummies	Yes	Yes	Yes
Division dummies	Yes	Yes	Yes
Constant	9.652***	11.83***	9.465***
	(1.003)	(0.612)	(1.026)
Observations		750	
R-squared		0.199	

Notes; Pooled regression using all years of observations
Dependent variables =average cost of international migration per worker in Bangladesh Taka (log)
Numbers in parenthesis are standard errors
Standard errors are clustered by village
*** p<0.01, ** p<0.05, * p<0.1
Base education = no education /illiterate
Prices are adjusted at 2010 level by using CPI from World Development Indicators (WDI)

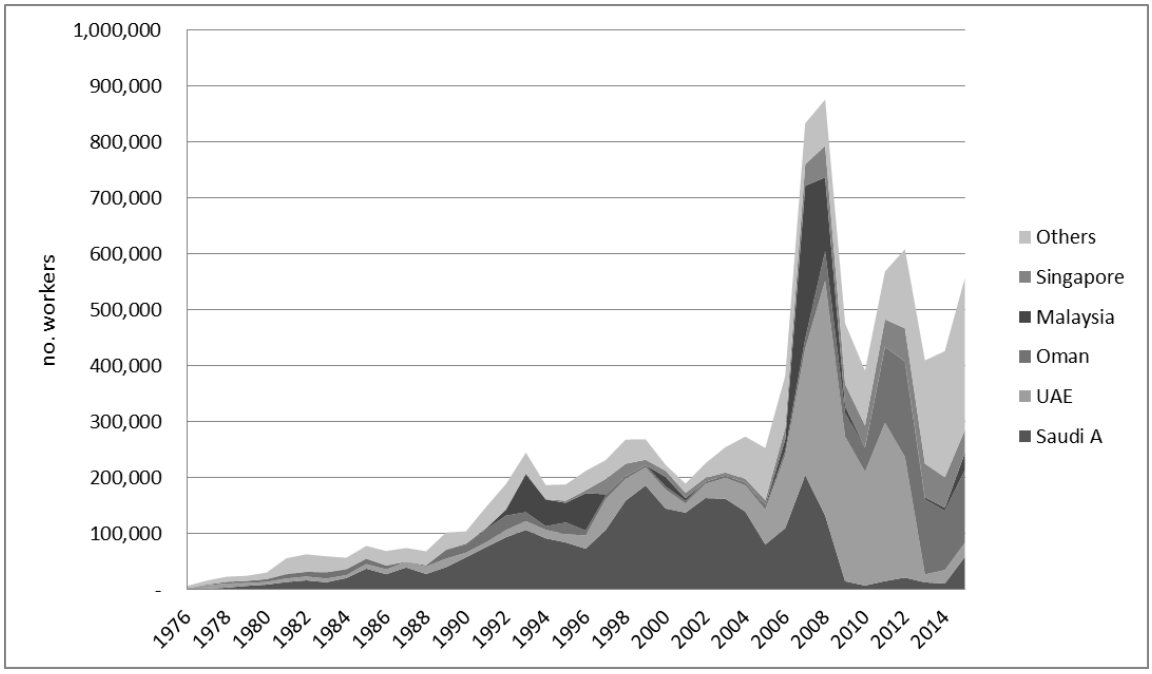

Figure 1Annual Outflow of Overseas Workers from Bangladesh by Major Destination Countries, 1976-2015

Source: Bureau of Manpower, Employment and Training, Bangladesh

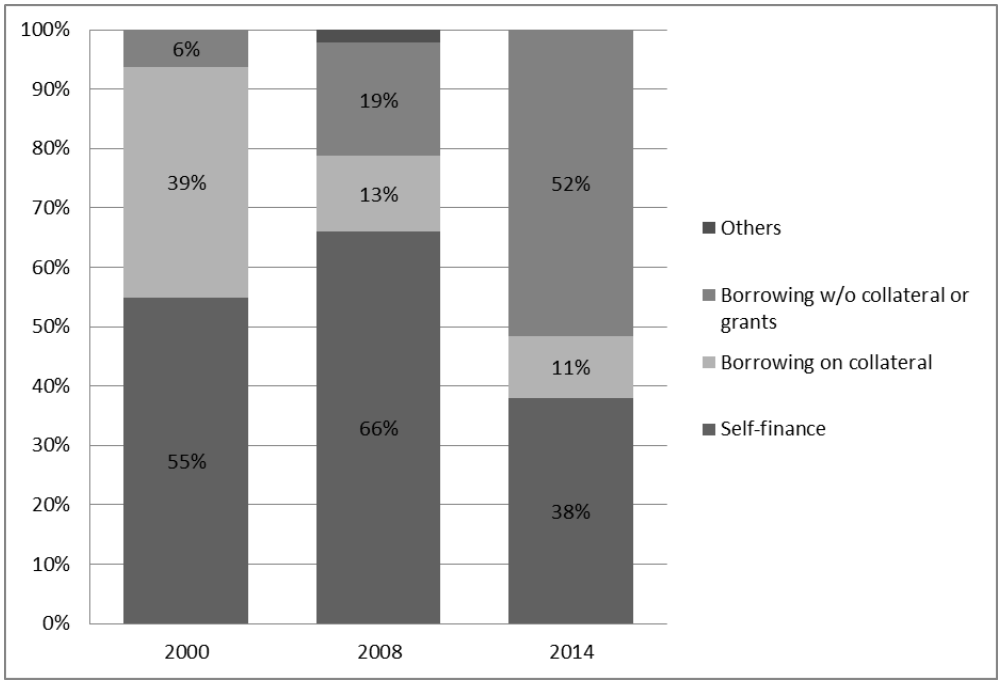

Figure 2 Primary Sources of Funds for Migration among New Migrants in 2000, 2008, and 2014

Notes: The numbers of observations are 133, 47, and 66 for the years 2000, 2008, and 2014.