Factors Affecting Overseas Employment of Female Workers from Bangladesh

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ABSTRACT

This study attempts to explore the impacts of some demographic, economic and cultural factors on overseas employment of female workers as well as on overseas employment of total workers from Bangladesh. The Gravity model of trade is applied here with the panel data of 12 countries and 22 years. The random effect analysis is applied due to the importance of four time-invariant variables used in the study. The main gravity variables – Gross Domestic Product (GDP), population and distance- are found to be well fitted with literatures with expected signs and level of significance. The magnitude of impacts differs for female overseas workers than total overseas workers. The study reveals that while the effect of religion is insignificant in case of total overseas employment, it's impact on female overseas employment is highly significant. The negative effect of language for both types of employment reflect the fact that most of the workers, especially women workers, migrated abroad as home maids and didn't get the training on the official language of Bangladesh, English. Furthermore, the opportunity of earnings at destination countries proxied by remittances flows from those countries to Bangladesh has a highly positive impact and the magnitude is higher for female overseas workers. Therefore, the study suggests that appropriate policies and required support services should be provided to mitigate the migration cost. Also, countries with higher GDP, similar religion and higher income, networking and employment opportunities should be chosen as potential new labour markets for the female workers of Bangladesh.

Keywords: Female Worker's Overseas Employment, Gravity Model, Panel Data, Random Effect Analysis, Bangladesh
JEL Classifications: E24, C130

1. INTRODUCTION

One of the most prominent issues in Bangladesh is to achieve sustainable development goal of eradicating poverty by 2030. International remittances sent by migrant workers have emerged as a key driver of poverty reduction in many developing countries including Bangladesh. Almost half of its population are female but they are disproportionately affected by unemployment, underemployment and vulnerable employment. But women workers save and remit more percentage of income than their male counterparts. They prefer investment of remittances in education and health of the family members which are the pre-conditions for human capital development and sustained economic growth.

Women have always been present in migratory flows, traditionally as spouses, daughters, or dependents of male migrants and their migration as breadwinners that is as the main economic providers for their households are increasing day by day (IOM, 2014). Globally, there were 232 million international migrants in 2013 in which women comprised 48% of all international migrants worldwide and they constituted more than half of all migrants in 101 countries or areas. Among the main net emigration countries levels of net emigration of Bangladesh, China and India have become more than double (United Nations, 2103). The female unemployment rate more than doubled in the past decade rising from 3.3% in 1999-2000 to 7.4% in 2009-2010 whereas, over the same period, the rate of unemployment among men increased from only 1% point from 3.2% to 4.2%. Bangladesh is poised to

deepen its presence in the global migrant labor market because of its large and rapidly growing labor force, only two-third of whom can be domestically absorbed at very low wages.

Now-a-days Bangladesh is in a situation to give separate concentration to accommodate its human resources especially women workers not only with in the country but also in abroad. The recent increasing participation of female workers in the labor force shows that supply of female workers is rising while it is not possible for the country to accommodate its full range of labor force internally. Although before 1991 the international women migration from Bangladesh was very low due to several economic, social and cultural barriers as well as several government restrictions, recently it is rising showing the increased tendency of female workers to migrate abroad. Female labour demand has increased due to the shift of labour demand from industrial sectors to service sectors which are mostly female dominated services such as child care, household chores etc. in many developed countries (Omelainiuk, 2005). As a result, Europe, North America and parts of Asia are encouraging female migration from poorer regions in Africa, Latin America, Southeast, Central and Eastern Europe and Asia. At the same time, Bangladesh is facing some problems in its labour exporting exporting sector such as (i) rising competition in manpower export sector from India, Philippines, Pakistan, Sri Lanka, Indonesia and some other countries, and (ii) the problems of threat of closing down labor markets or closing down some traditional international labor markets such as UAE, Saudi Arabia and Kuwait continue to keep because of the alleged involvement of some Bangladeshi workers in smuggling, visa forgery, swindling and other crimes. Therefore, the country should not just wait to get demand for Bangladeshi female workers from abroad rather it should create demand for labor especially female labor from Bangladesh by exploring new labor markets and negotiating on the basis of destination country characteristics.

Along with theoretical analysis of various aspects of international female migration from Bangladesh, this article attempts to quantitively explore the impacts of historical, cultural, economic, religious and traditional factors on overseas employment of female workers from Bangladesh to 12 destination countries over the period of 1991 to 2012 by using bilateral gravity model of trade in case of bilateral overseas employment.

2. LITERATURE REVIEW

The issues of International Migration have been on center point of many research and report conducted by economists and researchers. In Bangladesh, international migration plays a vital and indispensable role (Siddiqui, 2004). The country has a long history of migration and it is one of the major labor-exporting countries in the world. Each year a large number of people of this country voluntarily migrate overseas for both long- and short-term employment (Siddiqui, 2005). According to Ray et al. (2007), *"Bangladesh has a strong foundation. What it needs to do is to frame policies, create partnerships, allow responsible private entrepreneurship to flourish and inject professionalism in the management of the manpower export. All these can significantly improve the returns to the country from migration.*

There is no doubt about the gains—all it needs to do is to learn to reap maximum benefits out of this opportunity." However, recent research—with a few notable exceptions—has not paid adequate attention to gender differences in migration patterns, motivations, and impacts. It is the burning question that how much women can actually migrate to other countries. According to United Nation (2006), half of the total world's migrants (approximately 95 million) were women during 2005.

The reasons or factors due which male migration occur might be either same or different for female migration. Women are found to be less likely to migrate than their male counterparts (Richter and Taylor, 2008). The study by Richter and Taylor (2008) used panel data for rural people of Mexico and applied both fixed effect, random effect models. They found female's willingness to migrate are lower than male, education encourages female migration more than male but age matters for male rather than female migration. Although the authors found that migration network plays better role than economic policies, these findings are not highly significant. But interestingly, female migration networks are found to influence more than male migration networks. Moreover, authors also concluded that female migration networks strongly explain male migration proving women's commitment and attachment to their family at home. In an exploratory study by Das (2012) its is found that female migrants remit more than their male counterparts. The study empirically calculated that on an average, female workers sent 72% of their income as remittances while their male counterparts sent 45-45% of their income as remittances to their home countries. Another important finding of the study is that female migrants are more likely to send remittances through formal channel such bank which significantly contribute the economy of home country.

Bangladeshi overseas female workers are also facing problems. Sometimes declining trends of female migration could also be observed. A total of 101 returnee women migrants were interviewed as part of the study on Returnee female migrant workers of Bangladesh under IOM (2014). For most women interviewed in this study, poverty, lack of opportunity at home, absence of support from husbands whether because of illness or unwillingness or inability to find work, contributed to their decisions to migrate. Being a single parent, abandonment by husband, coupled with lack of support from family members and lack of employment opportunities in Bangladesh were cited by others as their reasons for migration. Others reported making not enough money from employment in Bangladesh, which necessitated their search for overseas employment. Experience of returnee migrant women that charts their entire migration experience can be useful in understanding and addressing some of the challenges faced by these migrant women and is the main purpose of this study. The potential declining trends of Bangladeshi emigrant nurses are identified by the study of Aminuzamman (2007). The study found that despite having huge demand for Bangladeshi nurses from abroad, due to some reasons trends of overseas employment of nurses from Bangladesh are declining. Among various reasons, major factors are lack of skills, cultural match, comprehensive overall plan etc. The study also identified that Europe, North America and

other non-Middle Eastern Countries have set highly specialized and technical skill demand and due to lack of those knowledge Bangladeshi nurses often could not apply for those positions. Assessing the pattern of female migration from Bangladesh, Islam (2010) concluded that there are shortcomings in the present systems for the overseas employment of Bangladeshi female workers.

Since there are substantial variation in migration experiences across gender lines (Rahman, 2011), it is necessary to conduct quantitative studies to analyze the effect of various economic, demographic, and cultural factors on female overseas employment from Bangladesh separately.

3. OBJECTIVES OF THE STUDY

Exporting manpower from Bangladesh is a broad phenomenon and it is the demand of time to conduct research study on the various aspects of it along with a separate concentration on overseas employment of female labor from Bangladesh. The main objectives of this article are -

i. To identify the impacts of some important economic, demographic and cultural factors on the flows of female overseas employment from Bangladesh to some selected destination countries.

ii. To compare between the effects of above-mentioned variables on total overseas employment and the effects on female overseas employment.

Comparison would allow to understand the factor to which female workers are sensitive while employed in abroad. The study also attempts to prescribe policy prescription along with guideline for searching new labor markets for female works.

4. A BRIEF ANALYSIS OF VARIOUS ASPECTS OF OVERSEAS EMPLOYMENT OF FEMALE WORKERS

4.1. Trends in Overseas Employment of Female Workers

The overseas employment of female workers from Bangladesh has remained unrecognized for a long period despite being started in 70's decade I formally and officially during 1776. But the number were very few before 1996 due to several bans on women migration until 2001. All categories of female workers migration were restricted in 1981 which has been relaxed in 1987 by restricting only migration of unskilled and semiskilled female workers. Further relaxation allowed to exclude professional women migration. According to Siddiqui (2005), from 2003 only unskilled and semi-skilled women worker's migrations were restricted. This increased the unofficial/illegal women migration and actual female migration could be 10-50 times more than the officially stated figures (Siddiqui, 2001). The official data on female workers overseas employment maintained by BMET are available from 1991 to onwards (Aminuzzaman, 2007). Aminuzzaman (2007) reported from the Nursing Directorate that many nurses migrated abroad on their own during 1985-1986.

After withdrawal of low skilled female migration, a positive trend of lower-level occupation is observed. According to Islam (2009), a total number of more than 80,000 women works migrated abroad up to 2008 but still female migration remains 2-4% of total migration.

A rising tendency of female worker's migration is observed from 2008 to 2013 as seen in Table 1. Although rising tendency but it is not yet satisfactory. In 2012 female constitute only 13.78% of total overseas employment from Bangladesh which increased to only 17.38% in 2013.

4.2. Country Wise Overseas Employment of Female Workers from Bangladesh

Generally, we can see that most Bangladeshi migrant people are working in Saudi Arabia, the U.A.E., Malaysia, the U.K., Kuwait, the U.S.A., Oman and Singapore. Some ne countries such as Bahrain, Qatar, Jordan, South Korea, Brunei, Mauritius, Italy and other countries are also demanding Bangladeshi workers. During 1976 to October 2008, Saudi Arabia ranked for first and foremost destination for Bangladeshi migrants accounted for about 42% of total manpower export.

Over the time the labour market for Bangladeshi migrants varied a lot. Saudin Arabia, Iran, Iraq and Libya were the major destinations during 1970s. Although still Saudi Arabia remain as major destination, some other countries such as Malaysia, UAE have also emerged as important destination countries Bangladeshi workers. Siddiqui (2005) reported that Malaysia and UAE have become major destinations for Bangladeshi migrant workers after the Asian financial crisis of 1997.

Table 1: The Overseas Employment of Workers from Bangladeshm

Year	Female overseas employment	Yearly increases (%)	Total overseas employment	Female employment as% of total Employment
1991	2,189	-	147,131	1.49
1992	1,907	−12.88	188,124	1.01
1993	1,793	−5.98	244,106	0.73
1994	1,995	11.27	186,326	1.07
1995	1,612	−19.2	187,543	0.86
1996	1,994	23.7	211,714	0.94
1997	1,762	−11.63	231,077	0.76
1998	939	−46.71	267,667	0.35
1999	366	−61.02	266,182	0.14
2000	454	24.04	222,686	0.20
2001	659	45.15	188,965	0.35
2002	1,216	84.52	225,256	0.54
2003	2,353	93.5	254,190	0.93
2004	11,259	378.5	272,958	4.13
2005	13,570	20.53	252,702	5.37
2006	18,045	32.98	381,516	4.73
2007	19,094	5.81	832,609	2.29
2008	20,842	9.15	875,055	2.38
2009	22,224	6.63	475,273	4.68
2010	27,706	24.67	390,702	7.09
2011	30,579	10.37	563,062	5.43
2012	37,304	21.99	607,798	6.14
2013	56,400	51.19	409,253	13.78

Source: BMET and Authors' calculation

By October 2008, the UAE and Malaysia remain as the second and third important destinations of Bangladeshi migrants occupying 20.58% and 10.85% migrants, respectively. That is, Saudi Arabia alone constitutes more than one-third share of overseas employment. Again, Saudi Arabia and the U.A.E., both are the destinations of more than half of the exported manpower of Bangladesh. Other important destinations of Bangladeshi migrants are the U.K., Kuwait, the U.S.A., etc. Though Malaysia is an important destination of Bangladeshi migrants, Asian financial crisis of 1997 slowed down migration from Bangladesh to Malaysia during 1998-2004. There were only 25957 people migrated to Malaysia during that period which was very much lower than that of people migrated in 1997 accounted for about 0.15 million (BMET, 2009). Table 2 shows the trend in female worker's overseas employment from Bangladesh classified by major destinations from the period from 1991 to April, 2014. As it seen from the Table 2 that the major destination countries for female workers are UAE (31.51%), UAE (26.64%), Saudi Arabia (KSA) (15.32%), Jordan (8.75%) and others. The overseas employment of female workers as a percentage of total female overseas employment from Bangladesh to Singapore, Pakistan, UK, Italy, Hong Kong, Brunei, Mauritius and Cyprus are <0%.

According to BMET estimates up to p to April, 2014 the major destination countries for female workers are Lebanon (31.51%), UAE (26.64%), Saudi Arabia (15.32%), Jordan (8.75%), Mauritius (4.86%), Libya (3.71%), Malaysia (3.14%), and Oman (3.11%). The overseas employment of female workers as a percentage of total female overseas employment from Bangladesh in Singapore, Qatar, Pakistan, UK, Italy, Hong Kong, Bahrain, Kuwait, Brunei, and Cyprus were <0%.

4.3. Remittances and Women Workers

In 2012, Bangladesh was the sixth-largest remittance receiving country in the world (World Bank, 2012a). Total remittances were 14163.99 million US$ in 2012 which declined in 2013 to 13432.13 million US$ in 2013. Remittances reached 10.5% of GDP in fiscal year 2011 from 4% in fiscal year 2004. Remittances contribute to the growth of output in the economy by augmenting consumption and investment demand as well as savings. According to IOM survey (2010), remittances sent by Bangladeshi migrants have a high positive correlation to their level of education.

By definition the level of migrants' remittance flows depends on the migrants' income and their propensity to save and remit, that is, the fraction of income they choose not to consume abroad and the fraction of savings they choose to remit back home. Some studies have identified that the propensity to save and remit are higher among women relative to men.

Due to lack of data on disaggregated remittances flow by sex of remitters and receivers, there is little knowledge about relationship between gender and remittances and about contribution of migrant women to local development in countries of origin. Despite the lack of data, some studies provide a simple overview of relation between women migration and remittances flow. Some Studies identified that the three factors: namely the volume, the frequency and the sustainability of resources over time, are affected by the sex of remitter.

Nguyen and Purnamasari (2011) analyzed the Indonesian Family Life Survey data and found that, in Indonesia, the impacts of international migration on sending households are likely to vary depending on the gender of the migrants. The major findings of the study are: while migration reduces the working hours of remaining household members this effect is not observed in households with female migrants, female migration and their remittances tend to reduce child labor, impacts of migration and remittances on school enrollment are not statistically significant but this result is interesting in that the directions of the effects can be opposite when the migrant is male or female.

In Bangladesh a recent study by Das (2012) on "Female Migrants Remittances and Contribution to the National Economy "have shown that female contribution to the remittance is more than their male counterpart because they remit on average 72% of her income to the home against the men who remit 45-50% of their income and remittance of the female migrant workers usually uses for the repayment of family loan (32.61%), followed by family consumption (31.52%) and investment in small business or buying of agricultural land (26.09%) while a small portion of remittances are also used in family welfare.

Hence it is more likely to be that female workers will remit larger portion of their income to their families in home country than their corresponding male workers. Despite the flow of female workers migration from Bangladesh is low; the remittances sent by them have a significant impact on their families as well as on the nation as a whole. With the recent declining trend of remittances to Bangladesh and huge emphasis of remittances on sustained growth of the country, utmost importance should be given to ensure a smooth flow of remittances to the country. Increasing

Table 2: Destination Country Wise Overseas Employment (Female)

Destination country	Overseas employment	Percentage	Destination country	Overseas employment	Percentage
KSA	32,124	15.32	Singapore	824	0.29
UAE	77,159	26.64	UK	146	0.07
Kuwait	7,658	3.71	Italy	461	0.20
Oman	16,968	3.11	Hong Kong	556	0.03
Qatar	3,927	0.02	Pakistan	38	0.02
Bahrain	3,686	1.70	Cyprus	83	0.03
Lebanon	82,775	31.51	Brunei	81	0.04
Jordan	52,315	8.75	Mauritius	12602	4.86
Libya	531	0.255	Others	871	0.33
Malaysia	651	3.14			

Source: BMET, from 1991 up to April, 2014

Female Workers overseas employment along with male workers will raise the remittance flow to Bangladesh.

5. METHODOLOGY AND EMPIRICAL ANALYSIS

5.1. Background of the Gravity Model

The gravity model is analogous to Newton's Law of Gravity, which states that the gravity between two objects is directly related to their masses and inversely related to the distance between them. Following Newton's Law of Gravity, Tinbergen (1962) introduced the gravity model of international trade. According to basic gravity model of trade, trade flow between countries is positively related with the attractive "mass" of two economies and negatively related with the distance between them. If we define Trade$_{ijt}$ as total trade between countries i and j at time t, Dist$_{ij}$ as the distance between the two countries, and the gravitational "mass" as the product of gross domestic products of countries i and j at time t, the basic gravity model of trade can be defined as,

$$Tradeijt = f\left[\frac{(GDPit.GDPjt)}{Diistij}\right]$$

Taking natural log of the regression equation is specified as

$$lnTradeijt = a_0 ln\left(gdpit.gdpjt\right) + a_1 lndistij + uijt \qquad (1)$$

Theoretical justifications for the model have been provided by Linnemann (1966), Anderson (1979), and Deardorff (1998). Since their introduction in 1960's gravity model has been used for assessing trade policy implications and, particularly recently, for analyzing the effects of free trade agreements on international trade (Kepaptsoglou et al., 2010). This model is well used in the study of trade and investment. Extension of the model by adding dummy variables to control for demographic, geographic, ethnic/ linguistic, and economic conditions are also found in the literature.

Gravity models were initially based on Newton's gravity law, but recent contributions have also provided the micro foundations in the context of migration analysis (Grogger and HWanson, 2011). These models have been widely used in the empirical analysis of migration due to their relatively good forecasting performance (Fertig and Schmid, 2000; Karemera et al., 2000 or Kim and Cohen, 2010; among others). Like flows of international trade, flows of international migration from source country to destination countries is driven by the attractive forces and impeded by the costs of moving from one country to another. Although application of gravity model in migration studies is fewer than its application in trade and investment, studies by Lewer and Berg (2008), Karemera et al. (2000), Ramos and Suriñach(2013), Emmanuel et al. (2009) and others analyzed various aspects of labor migration based on gravity model but none of these studies focused on international migration of female workers separately.

In particular, migration stocks or flows between two countries are supposed to increase with their size and decay with the cost of migration. The cost of migration often captured by distance and other barriers of migration. Usually, the most representative variables of the size of country are GDP and population. Therefore, it is expected that migration be a positive function of population size of the host and home country and a negative function of distance (which controls for migration costs). Usually, gravity models are often extended with additional variables related to different pull and push factors.

5.2. Model selection and Data Analysis

This article covers flow of female workers from Bangladesh to 12 countries around the world over the period of 1991 to 2012. The countries are chosen on the basis of availability of required data and because until now these countries are the major destination countries for Bangladeshi women overseas workers. Nine countries (Saudi Arabia, United Arab Emirates, Oman, Kuwait, Lebanon, and Jordan) are from the Middle East regions, two countries (UK and Italy) are from Western Europe, three countries (Brunei Darussalam, Malaysia, and Singapore) are from South-Eastern, and Mauritius which is from Africa are included in the sample as major destination countries of Bangladeshi female workers overseas employment.

On the basis of the analysis of theoretical background of Gravity model discussed earlier we can define the following gravity model of trade incorporating three more time invariant dummy variables named religion, common colonizer and language to capture the impact of cultural similarities on export flows from the country in addition with the basic variables of the model while dependent variable is bilateral exports of goods and services from country i (Bangladesh) to country j(destination nations) at time t.

Applying the same logic of gravity model of trade in case of international migration and incorporating three time-invariant dummy variables namely Religion, Common Colonizer and Language to capture the impact of cultural similarities, the following basic and simplest gravity equation to analyze the factors effecting total overseas employment from Bangladesh at time t could be constructed.

$$lnTOE_{ijt} = \gamma_0 + \gamma_1 \ln(GDP_{jt} / GDP_{it}) + \gamma_2 lnDistance_{ijt}$$
$$+\gamma_3 ln\left(Popjt / Popit\right) + \gamma_4 Relgion_{jt} + \gamma_5 Comcol_{ijt} +$$
$$+\gamma_6 Language_j + \gamma_7 lnRemittance_{jit} + \varepsilon_{ijt} \qquad (2)$$

Where, all of the variables except dummies are taken in natural logarithmic form. The original model of trade is extended to incorporate some other demographic and cultural influence on exports of goods and services from Bangladesh.

Where dependent variable represents flows of total overseas employment of workers from country i to j at time t. GDP of destination country relative to source country at time t is defined as, $\text{Re}lative\ GDP_{jit} = (\frac{GDP_{jt}}{GDP_{it}})$ which is expected to have a positive impact since people are more likely to migrate to higher income country relative to domestic country. ($Popjt/Popit$), indicate population of destination country relative to population of Bangladesh. The negative effects of relative population are expected since more population at home country reduces migrated labor requirements. The geographical distance between the capital cities of respected countries (in km) are represented by Distance$_{ij}$ variable. The variable, Relgion$_{ij}$ is a dummy variable which takes

value 1 if country i and j share same religion (if country j is a Muslim country since Bangladesh is a Muslim country) otherwise it takes 0 value. Another dummy variable denoted by $Comcol_{ij}$ which is equal to 1 when two countries (Country i and j) have had a common colonizer for a long period of time and 0 otherwise. $Language_j$ dummy takes value 1 if English is spoken by at least 20% of the population of destination nations otherwise it takes zero. In case of migration besides the high-income countries the opportunity of earning income abroad is also an important factor while the impact of this factor would be captured by using the flow of remittances from the destination nation (country j) to country of origin (i) and this impact is expected to be positive. Data on all variables are collected from different sources (see Appendix Table-AI for details about sources of data).

Now let's turn our attention to the main analysis of the study that is to capture the influential variables effecting the overseas employment flows of female labor from Bangladesh for which a similar model could be considered as follows where the dependent variable indicates the flows of female workers overseas employment from Bangladesh to 12 destination countries at time t. The set of the explanatory variables remain are same as in equation-2.

$$lnFOE_{ijt} = \gamma_0 + \gamma_1 \ln(GDP_{jt} / GDP_{it}) + \gamma_2 lnDistance_{ijt}$$
$$+\gamma_3 ln\left(Popjt / Popit\right) + \gamma_4 Relgion_{jt} + \gamma_5 Comcol_{ijt} +$$
$$+\gamma_6 Language_j + \gamma_7 lnRemittance_{jit} + \varepsilon_{ijt} \quad (3)$$

Most of the previous studies have found that the characteristics of place of origin do not appear to have much net influence on migration (Ehrenberg and Smith, 2010) while the characteristics of migrants themselves have much influence. In this study data on 12 countries over 30 years have been taken to estimate the regression models 2, 3, 4 and 5. Panel data gravity equation can be estimated by using ordinary least squares (OLS), scaled ordinary least squares (SOLS), Tobit model, Fixed effect (FE) and Random effect estimation procedure. We will apply the Random Effect GLS Regression Model since this is the most consistent method of estimating panel gravity equation incorporating time invariant dummy variables. Fixed effect model often drops the time invariant dummy variables which are very important in this study. Also, Hausman tests revealed that random effects model should be chosen over fixed effect one. So, the Random Effect GLS Regression technique will be applied here.

6. EMPIRICAL FINDINGS AND ANALYSIS

At first some basic descriptive statistics and correlation analyses have been represented in section 6.1, following it the details results of regression models are discussed and represented in section 6.2.

6.1. Descriptive Statistics and Correlation Analysis
There are some missing values in data sets due to non-availability of some county's data for some years. It can be seen from the Table 3, that number of observations for some variables are less than others.

For example, remittances from Brunei Darussalam, Jordan, Lebanon and Mauritius to Bangladesh could be found separately in any sources. And data on remittances from Italy to Bangladesh are missing for some years. Sufficient variations are observed from standard deviation of all variables except Religion, Comcol and Languages which are binary variables.

The Correlation between total overseas employment and other explanatory variables are shown in Column (2) of Table 4. And in column (3), correlation between female overseas employment and other explanatory variables are represented.

As expected, relative GDP and population of destination countries to GDP and population of Bangladesh, as well as Distances between Bangladesh and destination countries are negatively correlated with both total overseas employment and female overseas employment. Common religion and common colonizer are also expectedly positively associated but unexpectedly, language (at 20% of people are speaking English) is negatively correlated with both total and female overseas employment. The negative association with language might be due to the fact that most of the labor who migrate from Bangladesh are unskilled, low educated. Finally, as expected remittances from destination countries are positively correlated with both total and female overseas employment while the relationship is higher for the later than the former.

6.2. Estimated Regression Results and Analysis
Empirical findings of four gravity regressions using panel data on 12 countries over 22 years are reported in the Table 5. The relevant dependent and explanatory variables are represented in column (1). The estimated coefficients along with p-values within parenthesis for the gravity models of total overseas employment (represented by equation-2) are represented in column (2). And findings of

Table 3: Descriptive Statistics Representation

Variable Explanation	Number of Observations	Mean	Standard deviation	Min	Max
Log Total Overseas Employment$_{ijt}$	264	7.03	3.86	0	12.95
Log Female Overseas Employment$_{ijt}$	264	3.38	2.87	0	9.67
Log Relative Current GDP (GDP_{jt}/GDP_{it})	264	0.52	1.84	-2.37	3.72
Distance$_{ijt}$	264	8.39	0.35	7.86	8.99
Log Relative Population (Pop_{jt}/Pop_{it})	264	-3.17	1.52	-6.03	-0.65
Religion$_{ijt}$	264	0.67	0.47	0	1
Comcol$_{ijt}$	264	0.67	0.47	0	1
Language$_j$	264	0.67	0.47	0	1
Log Remittance$_{jit}$	162	6.70	1.82	0.71	10.28

Source: Study Findings

the equation equation-3 which is the gravity models to analyze the female overseas employment are represented in column (3). Empirical estimates reported on the Table 5 reveals that the main gravity variables – income and distance- for both models fit well with the literature with expected signs. The positive effects of relative GDP_{jit} are significant at 5% level of significance for the first model which is highly significant (at 1% level of significance) for the second model.

As well as the magnitude of impacts differ across models. Increasing distance between countries decreases the total and female overseas employment at 1% level of significance and the magnitude of effects are lower for female than the total overseas employment. The high value of overall R^2 is 0.57 in model 1 and 0.47 in model 2. This implies that 57% variations of total overseas employment from Bangladesh to 12 countries are well explained by the variations of incorporated independent variables. And 47% variations of female overseas employment from Bangladesh to 12 countries are well explained by the variations of incorporated independent variables and leftover portions are unexplained by the model. The possible reasons behind this scenario might be the fact that international migration especially for female workers is a matter of getting the opportunity to be employed abroad rather than to choose to be employed abroad according to their own choice.

Table 4: Correlation analysis

(1)	(2)	(3)
Variables	(Log) Total Overseas Employment$_{ijt}$	(Log) Female Overseas Employment$_{ijt}$
Log Relative Current GDP (GDP_{jt}/GDP_{it})	-0.47	-0.18
Distance$_{ijt}$	-0.50	-0.14
Log Relative Population (Pop_{jt}/Pop_{it})	-0.42	-0.21
Religion$_{ijt}$	0.47	0.46
Comcol$_{ijt}$	0.29	0.09
Language$_j$	-0.24	-0.31
Log Remittance$_{jit}$	0.26	0.47

Source: Study Findings

As expected, an increase in population of destination countries relative to that of Bangladesh, significantly reduces both total overseas employment and female overseas employment flows from Bangladesh as seen in column (2) and in column (3).

In case of effects of Religion insignificant effects on total employment are found but it significantly positively effects female overseas employment. Having a common colonizer negatively effects both total overseas employment and female overseas employment with the lower magnitude of effects for female overseas employment than total overseas employment. The negative impacts of language on both total and female overseas employment are found to be significant. The magnitude of this negative effect is larger for the female overseas employment. The highly significant positive effects of remittances are found in both models. On an average total overseas employment from Bangladesh increased by 45% for 1% increase in remittances from destination countries. The effects are higher for female overseas employment-1% increase in remittances from destination countries increases female overseas employment by 46% on an average. The higher the income opportunity, the higher the international migration of labor from Bangladesh.

The estimated outputs of basic gravity model of total overseas employment and female overseas employment are comparable since both models contain similar set of explanatory variables and estimated by similar method. The positive coefficients of relative GDP of destination country to Bangladesh implies that the higher income of destination country relative to home raises the propensity of the workers to migrate abroad and the magnitude of impact of this variable is higher for female overseas employment than total overseas employment. The negative coefficients of destination nation's population relative to population of Bangladesh indicates the larger the labor market abroad relative to labor market of home country, the lower movement of workers from source country to other countries. Relative population does not influence female overseas employment. Since the cost of migration increases with increasing distances, the flow of total overseas employment decreases with increased distances. The coefficients of distance variable are found to have significantly negative impact on both total and female overseas

Table 5: Estimated Results of Regression Analysis of Gravity Models

Column (1)	Column (2)	Column (3)
Variable Explanation		
Dependent Variable	(Model-1) Total Overseas Employment	(Model-2) Female Overseas Employment
Explanatory Variables		
Log Relative Current GDP (GDP_{jt}/GDP_{it})	0.99 (0.037) ***	1.96 (0.000) ***
Distance$_{ijt}$	-9.86 (0.000) ***	-3.61 (0.00) ***
Log Relative Population (Pop_{jt}/Pop_{it})	-2.07 (0.000) ***	-1.68 (0.000) ***
Religion$_{ijt}$	0.60 (0.381)	2.68 (0.000) ***
Comcol$_{ijt}$	−6.62 (0.000) ***	-1.85 (0.032) ***
Language$_j$	-1.37 (0.001) ***	-1.26 (0.001) ***
Log Remittance$_{jit}$	0.45 (0.000) ***	0.46 (0.000) ***
Constant	85.44 (0.000) ***	24.09 (0.000) ***
Number of Observations	162	162
Number of Groups	8	8
Overall R^2	0.57	0.47
Wald chi2	205.59	134.82
Prob > chi2	0.000	0.000

GLS Random Effect Model has been applied to estimate both regression equations. P values are represented within parenthesis. ***, ** and * indicate that coefficients are significant at 1%, 5% and 10% level of significant respectively

employment which implies that overseas employment of Bangladeshi workers is likely to be less in those countries having higher distances with source country than those having lower distances.

International migration of workers is likely to be more among similar countries while similarity among countries would be captured by similar religion, language, historical background etc. The case of female overseas employment, the effects of religion variable is positively highly significant which implies that women workers from Bangladesh are more likely to move to the other Muslim countries than non-Muslim countries. The evidence on the fact that religion hinders women workers international migration is also found on other studies. While female share in international migration has been on increase, lives of majority of women in many countries are confined within the house to uphold religious rites and women's dignity (Siddiqui, 2001). Similarities between countries in terms of historical background are captured by using $Comcol_{ij}$ variable which is found to have a negative impact reflecting that movement of Bangladeshi labor to other countries which are also colonized by Great Britain just like Bangladesh are lower than the movement to other countries. This common colonizer is found to have significantly negative effect on both total and on female overseas employment. The negative coefficients associated with the language dummy in both models are due to the fact that so far most of the workers specially women workers migrated to abroad mostly to the Middle East countries as home maid and didn't get the training on official language of Bangladesh, English. The logical explanation of these results can be found from the fact that rich countries are increasingly dependent on migrant women in the domestic, health, entertainment and textile sectors (Orozoco,2005). Asian women meet the demands for medical personnel and domestic workers in Middle Eastern countries (Maimbo et al., 2005). Aminuzamman (2007) found that the prime factors for the declining numbers of emigrant nurses from Bangladesh are lacks of: adequate skills, cultural reorientation, professional skills and training and comprehensive strategic plan for the exportation of skilled manpower. However, with increased education and skilled labor migration common official language would have the positive impact.

The estimated impact of Remittance variable is highly statistically significant reveals that the higher income opportunities abroad raise the movement of workers from our country. The significant positive coefficients of remittances indicate that the flow of female overseas employment is significantly influenced by this variable because the cost of migration is mitigated by the presence of native people at abroad who are sending their income to their homeland as remittances through better personal contacts while besides monetary cost,the costs of migration incorporates the psychic cost of leaving family ties, cost of adopting in a new society or culture in destination nations etc. As a result, the opportunity to be employed at destination nations becomes higher.

7. CONCLUSION AND POLICY PRESCRIPTION

For raising economic growth and poverty reduction of the nation, the contribution of manpower export sector should be maximized

since it has been already proved as a comparatively cheapest, lasted route to accrue economic benefit. Since almost half of the population of this country is women, the country should focus on utilizing these human resources by exporting female labor abroad. The female labor migration specially the international female labor migration is mainly a demand driven phenomenon. The foreign demand for female labor in many sectors especially in service sectors are rising day by day.

International trade researchers have been extensively applying the gravity model of trade in case of migration for its explanatory power and considerable empirical robustness. This study also adopted the gravity model of trade to quantitatively explain the effects of some important economic, demographic and cultural factors on flow of Bangladeshi female workers to 12 destination countries and 22 years. The study reveals that female workers flows are higher towards those countries which have high relative GDP, less distances with home country, similar religion (Islam), and higher remittances inflows history. The higher remittances flows reflect the high-income opportunities, better networking and employment opportunities which reduces migration costs. There is growing evidence that women workers working abroad can play an important role by sending remittances to their country of origin towards poverty reduction through ensuring food security, education and health. Therefore, it is their right to have separate policy coherence such as easy credit system with longer repayment periods, ensuring their safe working condition, providing adequate training and skill on their prospective jobs abroad, providing basic knowledge on using information technology and communication skill that is foreign language skill at least English language, giving orientation on the culture of the recipient countries before their departure etc.

Attempts must be taken to regain the access into the traditional markets which have been closed off. As well as new labor market should be explored in order to diversify the labor market. The study suggests that countries with higher GDP than the home country and higher income opportunities should be explored first while searching new labor markets destinations for female workers of Bangladesh.

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APPENDIX

Table-AI: Data sources

Variable Description	Variable Specification	Sources of Data
Number of Annual Flow of Total Overseas Employment from Bangladesh	TOE_{ijt}	BMET database (http://www.bmet.gov.bd/BMET/stattisticalDataAction)
Number of Annual Flow of Female overseas Employment from Bangladesh	FOE_{ijt}	BMET database (http://www.bmet.gov.bd/BMET/stattisticalDataAction)
GDP (in current US Dollar)	GDP_{it} and GDP_{jt}	WDI (http://data.worldbank.org/data-catalog/world-development–indicators)
Population (in thousands number)	Pop_{it} and Pop_{jt}	UNCTAD (http: unctadstat.unctad.org)
Distance (in km)	$Distance_{ij}$	CEPII (http://www.cepii.fr/anglasihgraph/bdd/distances.html)
Religion (dummy variable, =1 if Islam, 0=Otherwise)	$Religion_{ij}$	World Religion Map (http://www.mapsofworld.com/world-religion-map.htm)
Language (dummy variable, =1 if English, 0=Otherwise)	$Language_{j}$	The world Fact Book, Central Intelligence Agency (CIA)(https://www.cia.gov/library/publications/the-world-factbook.html)
Common Colonizer (dummy variable, =1 if have common colonize, 0=Otherwise)	$Comcol_{ij}$	CEPII (http://www.cepii.fr/anglasihgraph/bdd/distances.html)
Annual Inflow of Remittances to Bangladesh	$Remmittance_{jit}$	Foreign Exchange Policy Department, Bangladesh Bank. (http://www.bangladesh-bank.org/econdata/wagermidtl.php)