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Abstract

This paper examines the impacts of international remittances on household consumption expenditure and poverty in Bangladesh using computable general equilibrium modeling of the Bangladesh economy and microeconometric analysis at the household level. The former assesses the economic effects and distributional implications of remittances at the macro, sectoral, and household group levels, while the latter shows the association between remittances and household consumption expenditure, including poverty status. The first set of results shows that remittances have positive effects on the economy and they reduce poverty. The paper estimates that 1.7 out of the 9 percentage point reduction in the headcount ratio during 2000–2005 was due to the growth in remittances. A closer look at the household level further reveals the positive and significant impacts of remittances on the household's food and housing-related expenditures. The impacts on education and health expenditures are also positive but insignificant. This implies a limited role of remittances in creating domestic demand for rebalancing growth and in developing human capital necessary to achieve the MDGs. However, results based on logit regression suggest that the probability of the household becoming poor decreases by 5.9% if it receives remittances, which further confirms the positive impact of remittances. Given that migration and remittances also bring costs to the society, the study findings call for policies to maximize their benefits. This includes attracting more remittances through formal channels and increasing their productive use.

I. Introduction

International remittances are an important source of foreign exchange income for developing countries in Asia, including Bangladesh where it accounted for 10% of gross domestic product (GDP) in 2008 as sent by 5.8 million migrant workers abroad. Half of the top 10 recipients of remittances in the world are in Asia (Bangladesh, People's Republic of China, India, Pakistan, and Philippines) and such remittance flows contribute substantially to the economy, including household income and expenditure. The global crisis, however, has slowed down growth in the countries importing labor from developing Asia, reducing their hiring and leading to job protection for local workers over imported labor. This has placed migration and remittance flows at risk, dealing a significant blow to poverty reduction in labor-sending countries where a significant number of migrant and nonmigrant households rely on remittances. On the other hand, previous evidence also shows that remittances may increase during an economic downturn, helping to counter-balance the drop in the alternative sources of foreign funds in the migrant-sending countries.

The huge amounts of remittance inflows, which are even comparable with other financial flows such as foreign direct investment (FDI) and official development assistance (ODA), have significant impacts on the economy and may be critical to many developing countries in Asia. Recent evidence for Bangladesh shows a growing apprehension that the global economic crisis may reduce the flows of international remittances, resulting in a slowdown of the economy and reduced household welfare status. In anticipation of this trend, in April 2009, the Government of Bangladesh announced an incentive package targeting overseas workers and their remittances to mitigate the negative effects of the global economic slowdown. Key features of the package are to improve the quality of migrant workers and to tap the benefits from remittances. A number of policy supports were introduced focusing on skill development, revisions of current migrant labor laws and regulations, and new financial instruments to channel remittance money into productive use.

Remittances have become a prominent topic in the economics literature in the last two or more decades due to their increasing volume and important role in promoting growth and reducing poverty. The literature presents arguments in favor of the contribution of remittances to development and growth, but equally also objections to that effect.

Considering the issues above, this study examines the impact of remittances on the Bangladesh economy and household welfare. A number of studies have examined the impacts of foreign remittances on household welfare and poverty, but this study differs in its methodological approach. Two advanced approaches are adopted in this paper: (i) computable general equilibrium (CGE) modeling to explore the impacts of remittances at the macro level, on sectoral outcomes, and on poverty reduction during 2000 and 2005; and (ii) a cross-section econometric analysis to explore the links between remittances and poverty at the household level using the latest Household Income and Expenditure Survey (HIES) data (Bangladesh Census Bureau of Statistics 2005).

The rest of the paper is organized as follows. Section II discusses the trends of migration and remittances in Bangladesh, including the latest trends from the available monthly data. The impacts of remittances on the economy and household welfare, including poverty, are then examined in Section III using both CGE and microeconometric modeling techniques. Finally, the main findings and key policy implications are discussed in Section IV.

II. Trends of Migration and Remittances

A. General Trends

International migration from Bangladesh has increased over the years. As can be seen from Figure 1, outflow of migration from Bangladesh was slow during the 1980s but increased during the 1990s. In the early 2000s, the trend went downward for a while because of the 9/11 incidence in the US and the Iraq War in the Middle East. However, after 2007, the migration rate jumped by more than 60% compared to the previous year. The inflow of remittances to Bangladesh moved in tandem. According to the Bureau of Manpower, Employment and Training (BMET), the number of international migrants from Bangladesh during the period 1976–2008 is estimated at around 6.26 million (Box 1).

Box 1: Managing Migration in Bangladesh

There are five government ministries dealing with international labor migration in Bangladesh: the Ministries of Expatriates' Welfare and Overseas Employment, Home Affairs, Foreign Affairs, Finance and Civil Aviation, and Tourism. The Bureau of Manpower, Employment and Training (BMET) is the executing agency of the Ministry of Expatriates' Welfare and Overseas Employment in charge of processing labor migration. In particular, BMET is responsible for a wide range of functions, including control and regulation of recruiting agents, collection and analysis of labor market information, registration of job seekers for local and foreign employment, development and implementation of training programs in response to specific labor needs for national and international labor markets, and resolving legal disputes among key stakeholders.

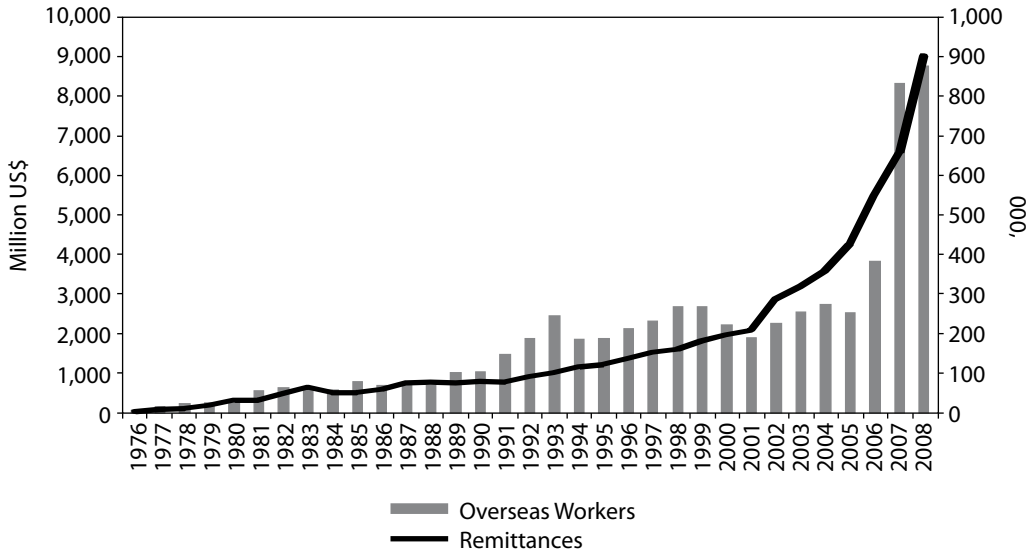
Under this arrangement, private employment agencies work under license from the government. After obtaining a license from BMET, the agencies recruit workers according to specifications of the foreign employers and then execute the migration process involving deployment abroad. Over time, recruiting agencies have been organized under the Bangladesh Association of International Recruiting Agencies.

In 1984, the government also established a limited company named the Bangladesh Overseas Employment Services Limited to take on a direct recruitment role. However, about 55–60% of total recruitment is still conducted through individual initiatives and social networks (Siddiqui 2003).

On the regulation aspect, the government promulgated an Emigration Ordinance in 1982 that serves as the key regulatory instrument in relation to migration. Under the terms of the ordinance, only those with valid travel documents are allowed to emigrate. In this context, a letter of appointment, a work permit from a foreign employer, or an employment or emigration visa from a foreign government is considered to be a valid document (Sec. 7/3/a). A person selected by a foreign employer through an organization/recruiting agency recognized by the government or working under an agreement between two governments of sending and receiving countries is also allowed to emigrate (Sec. 7/3/b).

Lastly, the government also enacted an Overseas Employment Policy in 2006 with the main objectives to: (i) ensure opportunities at reasonable cost for both short-term and long-term migration; (ii) enhance migration opportunities for skilled and professionals; (iii) manage the recruitment process efficiently; (iv) brand fraudulent practices in the migration process as an offense against national interest and formulate new laws; (v) encourage remittances through formal channels; (vi) encourage long-term and short-term migrants to invest in Bangladesh; (vii) assist returning migrants in social and economic reintegration within the country; and (viii) arrange coordination work among related institutions.

Figure 1: Annual Flows of Overseas Workers and Remittances from Bangladesh, 1976–2008



Source: BMET website, available: www.bmet.org.bd, downloaded 12 December 2009.

There are three phases of migration in Bangladesh (Table 1). The first phase was during the period 1978–1989, in which migration was characterized by workers going to Middle East countries. Their total number was about 724,000 workers or about a flow of 52,000 workers per year. The second phase was characterized by the opening of Malaysia and Singapore markets for Bangladeshi workers from 1990 to 2000. As a result, outmigration quadrupled to around 205,000 workers per year so that during that period, about 2.3 million workers moved out from Bangladesh. The third phase started in 2001 until 2008, which was characterized by the opening of new markets for Bangladeshis in East European countries, Italy, Korea, and again in Malaysia after a 3-year embargo. The yearly migration rate doubled from the previous decade to 410,000 workers per year. As a result, Bangladesh has sent 3.28 million workers abroad during the last 8 years, which is more than the total number of migrants who went abroad in the earlier period of 1976–2000, i.e., for the last 25 years.

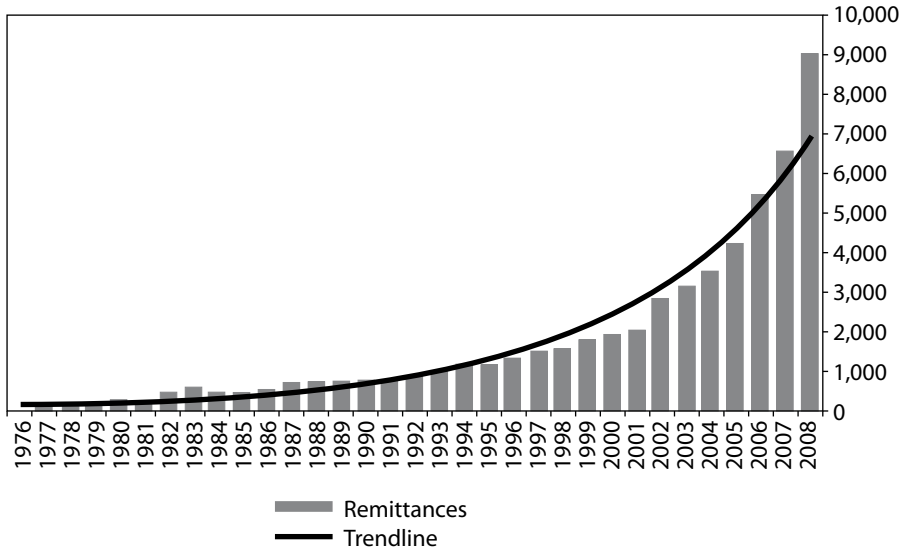
Table 1: Labor Migration from Bangladesh during the Three Phases of Migration, 1976–2008 ('000 workers)

Period	Professionall	Skilled	Semi-skilled	Less-Skilled	Total Temporary Migrants	Temporary Migrants per Year
1976–1989	38,6	257,3	77,6	350,5	723,9	51,7
1990–2000	87,5	728,1	430,4	1,012,8	2,258,8	205,3
2001–2008	53,9	959,6	499,3	1,770,5	3,283,3	410,4

Source: BMET website, available: www.bmet.org.bd, downloaded 12 December 2009.

The increasing trend and fluctuations in the migration flows during the period concerned are also reflected in the amount of remittances sent home by Bangladeshi migrant workers. In fact the amount of remittances shows a more steady increase during the period concerned. The increase in the last 8 years (i.e., during the third phase) even shows an exponential growth of remittance inflows (Figure 2).

Figure 2: Annual Flows of Remittances to Bangladesh, 1976–2008 (million US$)



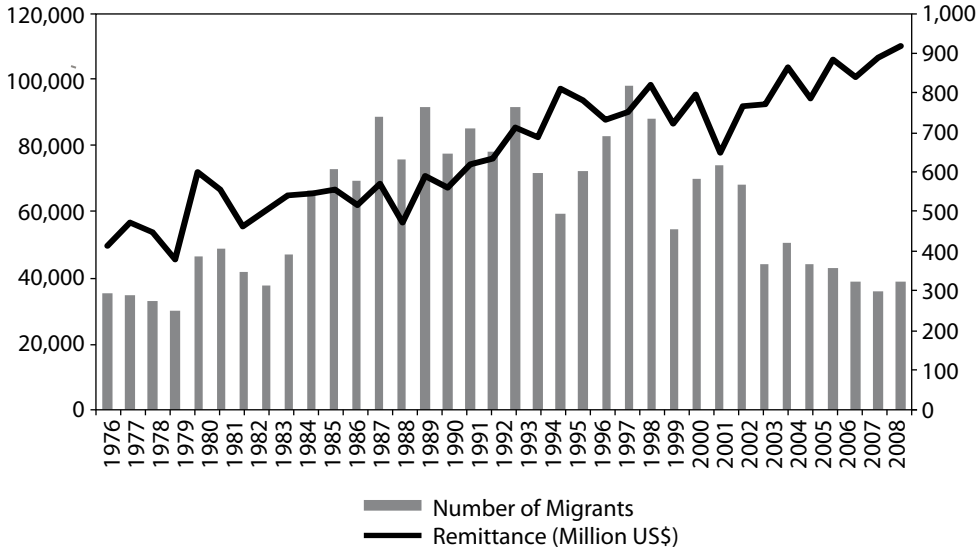
Source: IMF (2008).

It remains to be seen, however, whether the current global crisis will put a brake on the increasing flows of migration and remittances and mark a new phase in migration development in Bangladesh. Detailed indications from the latest monthly data on migration outflows and remittances inflows so far show two contradicting trends. First, the number of migrant outflows has significantly decreased since October 2008 and the current monthly rates are just slightly higher than those in 2006 (Figure 3). Furthermore, the monthly data clearly shows that migrant outflows have been dropping even more significantly since the beginning of 2009. Second, despite the declining number of migrant outflows and the current global recession, available data shows that monthly remittance inflows to Bangladesh have been booming in 2009, increasing by 22.3% to a record

$9.7 billion. The high growth may comprise repatriation of savings from turmoil-ridden financial markets abroad and diversion from informal (*hundi*) to formal channels. The healthy inflows of remittances and exports vis-à-vis a low growth in imports has resulted in swelling surpluses in the current account (Bangladesh Bank 2009).

Many argue that despite the global economic crisis, remittances to Bangladesh have remained strong and are likely to remain steady in the near future, citing that Bangladesh is probably the best performer globally in 2008 and 2009. This view is based on the assumption that as long as the crude oil price remains at least $50 per barrel, much of the investment programs in the Gulf region will continue to be implemented, which will absorb a lot of Bangladeshi workers. The Saudi budget, for instance, was implemented at a $52 per barrel price assumption even when the price was actually skyrocketing. Furthermore, despite apprehensions, the chances of a massive return of Bangladeshis from abroad are slim (PRI 2009). The recent figure on migrant outflows may however suggest that the optimistic view on remittances may not hold unless the current trend in migrant outflows continues. In this context, the government will have to remain focused on tackling the situation arising from an influx of migrant workers returning home after losing their jobs abroad (Ministry of Finance 2009).

Figure 3: Migrant Outflows and Remittance Inflows (million US$)

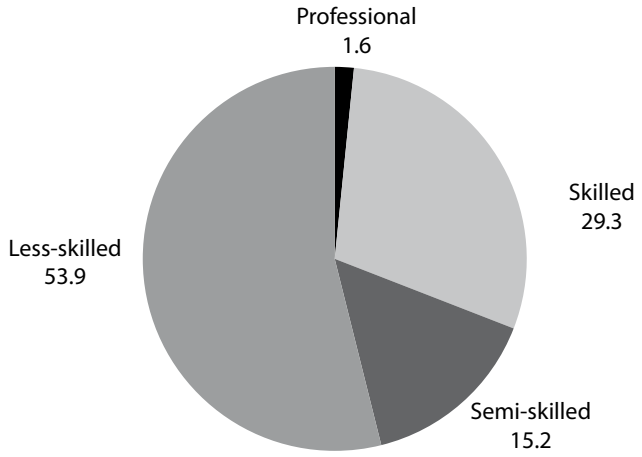


Source: BMET website, available: www.bmet.org.bd, downloaded 12 December 2009.

B. Migrants by Skill and Country of Destination

The most striking feature of Bangladeshi migrant workers is that they are mostly unskilled and working in Saudi Arabia. As can be seen from Figure 4, about 70% are in less-skilled and semi-skilled categories. They have less than 10 years of schooling with almost zero ability to communicate in English or the language of the destination country. In addition, they also have no certified training on any specific trade, making them employed in low-paying jobs such as casual work in hotels and shops, construction, farming, manufacturing, driving, cleaning and maintenance. These types of workers are the first to be laid off and sent back home during a crisis. In April 2009, for instance, only after repetitive requests from the Government of Bangladesh to the Government of Saudi Arabia (the largest employer of unskilled workers from Bangladesh) did the latter agree to introduce a 3-month temporary stay permit for these laid-off workers for them to be able to search for new jobs.

Figure 4: Share of Bangladeshi Migrants by Skill Categories, 2001–2008 (percent of total)



Source: BMET: www.bmet.org.bd

Skilled workers, who comprise around 29% of migrant workers, have some training such as in engineering trades like welding, metal and electrical works, and plumbing, which place them in a better position. Moreover, in most cases, they were also employed in domestic industries before going abroad. Therefore, they have some work experience that enables them to earn a better salary (about twice more than semi-skilled migrants) and a longer or better job contract with employment in manufacturing and service sectors such as shipbuilding, construction, heavy machineries, and industrial manufacturing. They also have a better opportunity to find a new job if they are laid off as a result of the crisis.

The professional category consists of only 1.6% migrant workers. This group includes engineers, doctors, accountants, pharmacists, agriculturists, teachers, and so on. In terms of income, this group earns around 5–8 times more than unskilled workers. In most countries, they are permitted to live with their families, enjoying the benefits of a better welfare system in the country such as free schooling and health services for children. In case they lose their jobs, most countries permit them to stay for a while to search for a new job. Therefore, they are the least likely to be affected by the global crisis.

In terms of the main country destinations, in addition to Saudi Arabia, the main destinations of Bangladeshi workers to the Middle East are United Arab Emirates, Kuwait, and Oman. In addition, as mentioned in the discussion on the second phase of migration development, Malaysia and Singapore have become the key destination countries for Bangladeshi migrant workers. Moreover, some new countries such as Bahrain, Italy, Republic of Korea, Libya, Qatar, and East European countries have also started to attract migrant workers from Bangladesh, especially those who are semi-skilled and skilled.

Table 2: Share of Bangladeshi Migrant Workers by Country of Destination (percent)

Period	Middle East	Libya	Malaysia	Singapore	Italy	Others
1976–1989	84.9	4.3	—	0.5	—	10.3
1990–2000	83.1	0.7	11.2	3.7	—	1.3
2001–2008	77.4	0.4	13.2	4.7	0.64	3.66

Source: BMET website, available: www.bmet.org.bd, downloaded 12 December 2009.

Overall, Middle East countries (consisting of Bahrain, Kuwait, Oman, Saudi Arabia, and United Arab Emirates) had recruited over 77% of the total Bangladeshi migrant workers during 2001–2008 (Table 2). This share was 5.7 percentage points lower than in the previous decade (1990–2000). However, the number of migrant workers going to this region increased by more than 35% during 2001–2008 compared to the number in the earlier period of 1990–2000. Therefore, the decline in the share of total migrant workers going to the Middle East reveals that some new markets in other countries have also opened up for Bangladeshi migrant workers even as the Middle East is still the key destination for them. For instance, Malaysia and Singapore now hold about 13.2% and 4.7% of Bangladeshi migrant workers, respectively. Italy has for the first time recruited nearly 21,000 Bangladesh workers (0.64% of the total). Other countries are Japan, Republic of Korea, Poland, Romania, Russia, and United Kingdom. These countries tend to hire skilled workers who earn much higher salaries than the unskilled ones. In some cases, these countries also offer permanent residency after a long-term employment contract.

III. Impacts of Remittances

A. Impacts at Macro and Sectoral Levels Based on a CGE Modeling Analysis

1. Main Features of the Model

A CGE model captures the detailed accounts of circular flows of receipts and outlays in an economy involving sectors, factors, commodities, and institutions. The approach simultaneously satisfies the general equilibrium conditions in various markets, which makes it useful in analyzing the links among various agents of the economy to see the impact of any shocks and/or policy changes. The CGE model used in this paper has been solved in comparative static mode to provide an instrument for controlled policy simulations and experiments. A solution in each simulation presents a complete set of socioeconomic, meso, and macro level indicators such as activity/commodity prices, factor demand and supplies, exports and imports, sectoral and total GDP, household incomes and expenditures, and household poverty situation. In the benchmark case, where there is no shock and/or policy change, the model is calibrated to exactly reproduce the base year values refected in the Social Accounting Matrix (SAM).

a. Activities

On the production side, it is assumed that each sector is a representative firm that generates value added by combining labor and capital. Assumption of a competitive setup ensures that the zero-profit condition holds. A nested structure for the production function is adopted by specifying sectoral output as a Leontief function of value added and intermediate input. Value added is represented by a constant elasticity of substitution (CES) function of capital and composite labor, which is a CES function of skilled and unskilled labor assumed to be fully mobile across sectors. The representative firm then remunerates factors of production and pays the dividends to households.

b. Households

Households receive incomes from payments to their factors of production used in the economy, which consist of labor, land, and capital. The households also receive dividends, government transfers, and remittances, as well as pay the direct income tax to the government. On the demand side, the household demand is derived from a Cobb-Douglas utility function that reflects the existing consumption patterns. This means that the share of expenditure on each good is fixed. Household savings are accordingly assumed as a fixed proportion of total disposable income.

c. Foreign Trade

It is assumed that foreign and domestic goods are imperfect substitutes. This important differentiation is introduced by the standard Armington assumption, which is reflected in the use of a CES function between imports and domestic goods. On the supply side, producers make an optimal distribution of their production between exports and domestic sales according to a constant elasticity of transformation function. Furthermore, a finite elasticity export demand function is assumed. Even if it is assumed that the international terms of trade are given, the small country assumption for Bangladesh is rejected. Hence, it is assumed that foreign demand for Bangladeshi exports is finite. Accordingly, to increase exports, local producers must decrease their free on board prices. Imports are endogenously determined in the model, filing the gap of domestic demand and supply for products.

d. Government

The government collects direct tax revenue from households and firms and indirect tax revenue from domestic and imported products. Its expenditure is allocated between the consumption of goods and services (including public wages) and transfers to other institutions, such as government transfers to households and saving-investment accounts. The model accounts for indirect or direct tax compensation in the case of a tariff cut.

e. System Constraints and Equilibrium Conditions

There are four constraints in the modeling system. The real constraint refers to domestic commodity and factor markets, while the nominal constraint represents two macro balances of the current account balance of the rest of the world and the savings–investment balance. Sectoral supply is a composite of imports and output sold in the domestic market. Composite demand, on the other hand, includes final demand (i.e., private and public consumption expenditure and investment) and intermediate input demand. Variations in the sectoral prices assure equilibrium between sectoral supply and demand. In the case of factor markets, it is assumed that total quantities of factors supply are fixed. This specification also implies a full mobility of labor and capital across producing activities, and variations in their returns (e.g., wages and profits) assures equilibrium in the factor market. The transfer inflows (transfers to and from domestic institutions) are fixed but imports and exports are determined endogenously in the model. Foreign saving is fixed in this model and exchange rate acts as the numeraire. Finally, for the saving–investment equilibrium, the model treats the saving decision (marginal propensity to save of the households) as given, and hence investment has to adjust to ensure equality between saving and investment.

2. Modeling Development

a. Data

The CGE model was developed using SAM 2005, which serves as the consistent and comprehensive database of the economy. The SAM is mainly developed from (i) SAM 2000 prepared by the International Food Policy Research Institute, Washington, DC. (Arndt et al. 2002); (ii) *Bangladesh Economic Review*, published by the Ministry of Finance; (iii) export receipts and import payments published by the Bangladesh Bank; and (iv) National Income Estimates published by the Bangladesh Bureau of Statistics.

b. Accounts

The SAM identifies the economic relations through four types of accounts: (i) production activity and commodity accounts for 26 sectors; (ii) nine factors of production with four different types of labor and five types of capital; (iii) current account transactions among four main institutional agents; household and unincorporated capital, corporation, government, and the rest of the world; and (iv) two consolidated capital accounts to capture the flows of savings and investment by private and public institutions.

c. Activity and Commodity

The activity account is represented by 26 producing activities. A distinction is made between activity and commodity, and the commodity account is also denoted by 26 commodity types. Therefore, each sector produces one commodity.

d. Institution Accounts

Current transactions are captured among four institutional agents in the economy: households and unincorporated capitalist, corporate enterprise, government, and rest of the world. Household account includes seven representative groups, which consists of five rural groups and two urban groups. Two consolidated capital accounts, domestic and rest of the world, are distinguished by public and private sector origin to capture the flows of savings and investment by institutions and rest of the world, respectively.

e. Representative Households

The 2005 SAM distinguishes seven household types, classified according to size of land holding and occupation of the household's head in rural areas, and to level of education of the household head in urban areas.

f. Labor Factor

The SAM includes nine factors of production: land, ponds, nonagricultural capital, agricultural capital (further disaggregated into livestock and poultry), and four labor categories disaggregated by education levels and types of activity (agriculture and nonagriculture). The factor classification is based on the 21 factor classification used in the 1999–2000 SAM developed by the International Food Policy Research Institute for Bangladesh.

The disaggregation of factors, individuals, activities, and institutions in the SAM and model is summarized below:[1]

Table 3: Disaggregation and Description of Accounts in the SAM and CGE Model: Activities, Institutions, and Factors

Accounts	Description
Activities/Sectors	
Agriculture (7)	Paddy, Grains, Other Crops, Livestock, Poultry, Fish and Shrimp
Industries (9)	Rice Milling, Grain Milling, Other Food, Clothing, Ready Made Garments, Knitwear, Textiles, Petroleum Products, and Other Industries
Services (10)	Urban Construction, Rural Construction, Public Construction, Utility, Trade, Transport, Housing, Education-Health, Public Administration, and Private Services
Institutions	
Households (7)	Rural: Landless, Agricultural Marginal, Agricultural Small, Agricultural Large, Nonagricultural Urban: Low educated household head, High educated household head
Others (3)	Government, Corporation and Rest of the World
Factors of Production	
Labor (4)	Unskilled Agriculture Labor, Skilled Agriculture Labor Unskilled Nonfarm Labor, Skilled Nonfarm Labor
Capital (5)	Nonagriculture Capital, Land, Ponds, Agriculture Capital Poultry, Agriculture Capital Cattle

3. Simulation Results

The headcount poverty in Bangladesh declined from 49% in 2000 to 40% in 2005. This means a 9 percentage point reduction in poverty rate over the 5-year period. The annualized reduction rate is therefore about 1.8 percentage points. At the same time, remittance flows recorded a phenomenal growth, increasing from $1.949 million in 2000 to $3.848 million in 2005, i.e., a 97% increase. The annualized remittance growth is therefore around 20%. To examine the impact of remittance growth on the economy and poverty, the model is then subjected to a remittance shock in the form of a 97% decrease in remittance flows. The simulation of negative remittance growth is to isolate the contribution of remittances on the economy and poverty reduction in Bangladesh during the period 2000–2005. The base values of all other parameters are retained. The simulation results are then grouped into three subsections: (i) macroeconomic and sectoral impacts; (iii) impacts on factor market; and (iii) impacts on household consumption, welfare, and poverty.

[1] More information about modeling development and data used is available from the authors.

a. Macroeconomic and Sectoral Impacts

The macroeconomic effects of the simulation are reported in Table 4. Except for the real GDP growth rate presented in the first row, all other variable estimates are in nominal terms. Recall that the simulation entails a negative shock in the economy, i.e., a reduction in remittance flow by 97%. As a result, real GDP declines by 0.25% from the base year value. Looking at the sectoral outputs, manufacturing output is increased by 6.14% due to a large positive export growth, which increased by 18.9%. However, the services sector experiences a negative growth of 1.78% due to reallocation of resources to the manufacturing sector. Changes in output by traded and nontraded sectors are also summarized in the table, where it is seen that due to large export growth, output of traded sector expands at the expense of the nontraded sector.

Table 4: Macroeconomic Effects of a Negative Remittance Shock (percentage change from benchmark)

Variable	Percent Change
Real GDP	–0.25
Agriculture	0.05
Manufacturing	6.14
Service	–1.78
Traded	4.05
Nontraded	–1.80
Consumption	–3.10
Imports	–2.14
Exports	18.86

Note: Real GDP is equal to the sum of consumption, investment, and government consumption plus exports less imports in real terms for all sectors in the economy. Simulation outcomes are compared to base values.
Source: Authors' calculation based on simulation results.

The sectoral effects of a 97% reduction in remittance inflows are summarized in Table 5. As can be seen from the table, except for the export-oriented sectors, most other sectors experience negative impacts in terms of total output and domestic sales. As a result of the remittance shock, the real exchange rate appreciates, leading to an increase in exports and a decrease in imports. In order to supply larger amounts of exports of goods and services, resources are reallocated to the export-oriented sectors such as textiles, clothing and seafood. The reallocation results in a rise of exports of goods and services and a loss of output of nonexportable/nontradeable sectors. The increase in export is also due to significant reduction in the domestic demand as a result of the negative shock of remittance inflows that also cause imports to decline. These findings are in line with the reduction in GDP because of the decline in remittances.

Table 5: Sectoral Effects of a Negative Remittance Shock (percentage change from benchmark)

Activity	Volume Effects					Price Effects			
	E	X	M	Q	D	PD	PV	PX	PQ
Paddy		–2.91		–2.91	–2.91	–0.11	–0.64	–0.11	–0.11
Grains		–1.05	–8.06	–3.81	–1.05	0.14	–0.87	0.14	1.72
Other Crops	7.92	1.23	–6.49	0.69	1.15	–0.14	–0.47	–0.10	0.11
Livestock		–1.53	–9.57	–1.57	–1.53	–0.51	–1.27	–0.51	–0.49
Poultry		–2.59		–2.58	–2.59	–0.49	–2.01	–0.49	–0.49
Shrimp	10.03	3.33		–0.22	–0.22	–2.15	–0.86	–0.23	–2.15
Other Fish	5.72	–2.08	–10.37	–2.17	–2.17	–0.65	–1.49	–0.60	–0.64
Rice Milling		–2.83	–9.10	–3.06	–2.83	0.05	0.01	0.05	0.20
Grain Milling		–3.23	–7.88	–3.31	–3.23	1.15	0.00	1.15	1.20
Food	5.06	–0.89	–8.50	–3.02	–1.57	–0.35	–0.03	0.20	0.59
Mill Cloth		–4.11		–4.11	–4.11	1.29	–0.05	1.29	1.29
Readymade Garment	16.62	14.26	–8.61	4.15	4.27	–5.76	0.01	1.12	–5.67
Knitwear	30.67	30.56	–6.68	–5.45	12.37	–9.58	–0.03	1.48	3.27
Other Textiles	20.29	17.62	12.19	15.18	17.57	0.61	–0.06	0.65	2.22
Other Industry	4.25	0.07	–4.99	–2.37	–0.19	0.70	–0.03	0.90	2.31
Urban Construction		–1.81		–1.81	–1.81	0.81	0.00	0.81	0.81
Rural Construction		–2.77		–2.76	–2.77	0.36	0.01	0.36	0.36
Public Construction		–3.29		–3.29	–3.29	1.11	0.04	1.11	1.11
Utility		0.18		0.18	0.18	0.18	–0.05	0.18	0.18
Trade		–1.59		–1.59	–1.59	0.09	–0.06	0.09	0.09
Transport		–2.26		–2.26	–2.26	0.37	0.01	0.37	0.37
Housing		–2.76		–2.75	–2.76	0.07	0.01	0.07	0.07
Education - Health		–2.44		–2.44	–2.44	0.13	–0.16	0.13	0.13
Public Administration		–1.81		–1.81	–1.81	0.18	–0.17	0.18	0.18
Private Service		–2.48		–2.48	–2.48	0.09	–0.11	0.09	0.09

E = Exports, X = Domestic output, M = Imports, Q = Composite output, D = Domestic demand. PD = Domestic goods price, PV = Value-added price, PX = Aggregate output price, PQ = Price of composite goods.
Source: Authors' calculations based on simulation results.

b. Factor Market Impacts

Due to lower economic activities and GDP in the domestic economy as a result of reduction in remittances, the returns to factor incomes are expected to be adversely affected. As can be seen in Table 6, wage rates of all types of workers decline and the decline is more pronounced in the agricultural sector than in the nonagricultural sector. Similar effects can also be seen on the returns to different categories of capital. The fall in agricultural capital such as land, ponds, poultry, and cattle are also higher than in nonagricultural capital. This reflects the relatively more sluggish factor reallocation in the agriculture sector compared to the nonagricultural sector.

Table 6: Impact on Returns to Factors of Production

Variable	Percent Change
Agriculture labor, unskilled	–4.6
Agriculture labor, skilled	–4.6
Nonfarm labor, unskilled	–3.7
Nonfarm Labor, skilled	–4.2
Nonagriculture capital	–4.0
Land	–4.1
Ponds	–5.1
Agriculture capital poultry	–5.5
Return to agriculture capital cattle	–5.1

Source: Authors' calculations based on simulation results.

c. Impacts on Household Consumption, Welfare, and Poverty

Table 7 highlights the real consumption effects of the remittance shock on different groups of households. Remittance is practically a direct transfer from the rest of the world to migrant households in Bangladesh. Therefore, the flow has an immediate impact on household income and consumption. As can be seen from the table, household real consumption declined by more than 3% because of the reduction in remittances. The negative impacts are uniformly distributed across the representative household groups. This shows that the role of remittances in the economy has already been widespread and significant, affecting all household groups, both farmers and nonfarmers. This is obviously a unique feature of Bangladesh since the link between remittances and farmers in other countries might not be as well established like in Bangladesh. One of the reasons is the fact that 70% of Bangladeshi migrant workers are unskilled, including those coming from farmer families.

Table 7: Effects on Real Consumption (percentage change from benchmark)

Households	Percent Change
Rural	
Landless farmer	–3.18
Marginal farmer	–3.11
Small farmer	–3.08
Large farmer	–3.07
Nonagriculture	–3.11
Urban	
Low education	–3.12
High education	–3.15

Source: Authors' calculation based on simulation results.

To examine the effects of remittances on poverty status of households, the Foster-Greer-Thorbecke (FGT) poverty measures (Foster et al. 1984) are calculated based on a poverty line defined as the minimum income required to maintain a subsistence level of consumption. Two different poverty lines for rural and urban households are

endogenously determined in the CGE model by taking into account the rural and urban price difference. The FGT poverty indices allow a computation of three measures of poverty: headcount ratio, poverty gap index, and squared poverty gap index. The first poverty indicator, headcount ratio, is the proportion of population with a per capita income below the poverty line. This is the simplest measure of poverty. The second indicator, poverty gap index, measures the depth of poverty, and estimates the average distance separating the income of the poor from the poverty line as a proportion of the income indicated by the line. The final indicator, squared poverty gap index, measures the severity of poverty that quantifies the aversion of the society toward poverty. As mentioned before, the current analysis adopts the representative household approach, and uses the vectors of consumption resulting from the dynamic model to generate the consumption vectors based on the household survey.[2]

Table 8: Poverty Effects (percentage point change over the base year values)

Scenarios	Rural Households					Urban Households		All
	Landless	Marginal Farmer	Small Farmer	Large Farmer	Nonfarm	Low Education	High Education	
Headcount Poverty (P_0)								
Base	0.626	0.562	0.372	0.171	0.449	0.445	0.106	0.401
Remittance shock	0.641	0.579	0.383	0.179	0.472	0.462	0.119	0.417
Poverty Gap (P_1)								
Base	0.171	0.136	0.076	0.027	0.112	0.109	0.019	0.097
Remittance shock	0.181	0.144	0.081	0.031	0.118	0.119	0.022	0.109
Poverty Severity (P_2)								
Base	0.063	0.046	0.021	0.007	0.038	0.038	0.005	0.033
Remittance Shock	0.073	0.055	0.027	0.009	0.045	0.044	0.006	0.039

Note: Households are grouped based on nonincome variables that affect poverty incidence in all household categories.
Source: Authors' calculations based on simulation results.

As expected and in line with the impacts of remittance shocks on household real consumption, the poverty situation of all household groups worsens because of the remittance shock. This is due to the fall in their income and consumption, which increases the poverty rates (Table 8). All the three measures of poverty, i.e., headcount ratio, poverty gap, and poverty severity, increase for all household groups. The headcount ratio rises by about 1.6 percentage points compared to the base value of 40.1%; poverty gap increases by 1.2 percentage points from 9.7% in the base year; and poverty severity increases by 0.6 percentage point from the base year value of 3.3%.[3] Comparing the impacts on the three poverty indicators, the negative impacts on poverty headcount is therefore more significant than on poverty gap, which is even larger than that of poverty severity. This means that the poorest of the poor relatively receive the smallest adverse

[2] Poverty analysis is performed using the Distributive Analysis/Analyze Distributive software for distribution and poverty analysis developed by Duclos, Araar, and Fortin (2006).

[3] Furthermore, poverty and other effects could have been more pronounced if informal remittance amounts are incorporated into the "remittance" simulation. The ratio between formal and informal channels in Bangladesh is reported to be 54.5.

impacts from remittance shocks. This is consistent with the notion that they must be the least involved in the migration process and have received the least remittances. The former is because of the relatively expensive cost of migration that in many cases prohibits the poorest from participating in the process. Moreover, the minimum requirement in terms of skill and language, for instance, also puts the poorest group in a worse position to participate in the migration.

Nonfarm rural households appear to suffer most, followed by urban low-educated households and landless farmers. This is due to the background of the migrant workers as most of them belong to the low education household category in urban areas, and nonfarm households in rural areas. Thus the impact of a decline in remittances is expected to be relatively larger on these two groups compared to other household groups. Impact of remittance inflow is relatively small on the higher-educated households as the share of remittance income to their total income is also relatively small, especially compared to other households (see Table 9). On the other hand, since the share of remittance income of landless farmers is relatively large, the impact of a decline in remittances is moderate.

The key finding from the discussion on the impacts of remittance shock on poverty points to the fact that if there were no such growth in remittances during 2000 and 2005, headcount poverty would have risen by 1.7 percentage points. Therefore, it can be concluded that out of the 9 percentage points decline in headcount poverty observed during 2000 and 2005, almost 17.8% of that decline was due to the growth in remittances. This shows the important role of remittance flows in helping to smooth consumption and reduce poverty in Bangladesh. The estimate of the poverty impact of remittances is however relatively lower than the estimates from other studies. Box 2 discusses this issue in more detail.

Table 9: Distribution of Household Income by Sources, 2005

Income Sources	Rural					Urban		Total
	Landless	Marginal	Small	Large	Nonfarm	Low Education	High Education	
Agriculture labor, unskilled	3.3	8.9	10.6	15.2	3.0	1.1	0.6	4.2
Agriculture labor, skilled	1.3	3.5	4.1	5.9	1.2	0.4	0.2	1.6
Nonfarm labor, unskilled	29.5	20.4	18.3	12.2	32.2	61.8	1.5	18.5
Nonfarm labor, skilled	20.2	14.0	12.5	8.3	22.0	14.7	49.8	21.7
Capital land	3.1	8.3	17.4	34.6	4.3	2.5	3.4	8.5
Capital ponds	1.1	2.9	6.1	12.1	1.5	0.9	1.2	3.0
Capital poultry	0.4	0.5	0.4	0.3	0.3	0.1	0.1	0.2
Capital livestock	1.1	1.5	1.6	1.4	1.1	0.3	0.1	0.7
Capital (nonfarm)	28.5	29.3	18.2	0.5	22.9	7.3	34.5	31.7
Government transfer	5.0	4.6	4.7	4.2	5.0	4.7	3.7	4.3
Remittance	**6.5**	**6.1**	**6.1**	**5.3**	**6.5**	**6.2**	**4.9**	**5.6**
All Sources	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bangladesh SAM (2005).

Box 2: A Comparison with Findings from Other Related Studies

To assess the impact of remittance flows on poverty, World Bank (2006) used a variant of the poverty-elasticity approach to estimate the poverty impact of income change. The framework basically relates the change in poverty to income growth with the main objective of showing that the incremental income from remittances can be assessed in the same way as incremental income from economic growth. Accordingly, one can simulate the impact of eliminating remittances by modeling an income decline equal to the original remittance level. For the sake of simplicity, it is assumed that other parameters remained unaltered. For example, there will be no offsetting rise in domestic income sources or other adjustments to spending behavior or labor supply. The model is estimated using cross-country data for 81 countries.

The results show that the effect of removing remittances depends on three key factors, namely (a) the initial extent of remittance share in income (i.e., higher initial levels mean steeper income declines); (b) initial level of poverty, and (c) the degree of inequality. The key simulation findings are:

(i) The average rise in the headcount ratio for higher-remittance countries (12.2 percentage points) is more than twice that of the lower-remittance countries (5 percentage points).

(ii) In each of these above two groups, the impact is much greater for those countries with higher initial headcount ratios.

(iii) The estimated effect of inequality change of an assumed 2 point worsening in the Gini coefficient produces only a small marginal impact on the estimated change in the poverty rate.

In another model linking national poverty levels to mean income and the Gini coefficient to measure inequality in 71 developing countries, a 10% increase in per capita international remittances generates a 3.5% decline in poverty (Adams and Page 2005). Among other recent studies, IMF (2005) used a sample of 101 countries for the period 1970–2003 and broadly confirmed these findings.

There are also attempts to complement the simulated poverty reduction impacts of international remittances with evidence from household surveys. According to evidence based on household data, the flows of remittances are believed to have reduced poverty headcount ratio by 11 percentage points in Uganda, 6 percentage points in Bangladesh, and 5 percentage points in Ghana (Adams 2005).

Compared with the previous studies, the poverty impact estimate in this paper is relatively small as remittance is estimated to reduce poverty by 1.7 percentage points. This relatively lower estimate may be due to the use of a constrained optimization framework of the CGE model that takes the general equilibrium effect into account. Previous studies use unconstrained and partial equilibrium frameworks that tend to overestimate the impacts of any shock.

B. Impacts at the Household Level Based on Microeconometric Analysis

1. Methodology and Data

This section conducts microeconometric analysis to explore the links between remittances and poverty in Bangladesh using household survey data. There are not many studies in the context of Bangladesh that also apply microeconometric techniques to analyze remittances and household welfare. The most recent one is by Sharma and Zaman (2009) that uses the propensity score matching method to compare the welfare status of migrant and nonmigrant families. They find that overseas migration conveyed substantial benefits to families as measured by household consumption, use of modern inputs, and level of household savings. They however did not make any attempt to link remittances with household poverty. Another important difference with this study is the type of data used. The current study uses data from the HIES, which is nationally representative, whereas the study by Sharma and Zaman (2009) uses data from a survey of 20 villages in 10 districts. The following sections present detailed analysis of the data source, methodology, and microeconometric exercises undertaken in the current study.

The HIES is conducted by the Bangladesh Bureau of Statistics. It is the prime source of socioeconomic information at the household level. Since 2000, HIES has placed much emphasis on collecting income data in addition to expenditure and consumption data. The latest HIES in 2005 includes a more comprehensive coverage of different income sources of households to obtain detailed information on household income, expenditure, and consumption; determines poverty profiles for both rural and urban areas; and gathers household level information on health status, educational level, standard of living by administrative division, and other detailed data on socioeconomic characteristics.

In HIES 2005, household income was defined as the sum of household earnings from wages and salaries, pensions, agricultural activities, land and property, business, professional fees, rent and gifts, etc. in cash or kind from all members of the household in the same period of time. However, household expenditure comprises household consumption and nonconsumption expenditure. Consumption expenditure is the sum of goods and services households actually consumed. Nonconsumption expenditure includes income taxes and other taxes, insurance premium, and gifts.

The HIES 2005 questionnaire contains nine sections, and questions on remittances are collected in section 8 under the heading Other Assets and Income. For the current analysis, it is found that the number of households receiving remittances from abroad is 905, from the total sampled households of 10,080 in the HIES 2005 dataset. This means that the proportion of migrant households is only about 9% of the total sample. Table 10 summarizes the mean expenditure and expenditure patterns of migrant and nonmigrant households. As can be seen from the table, migrant households seem to have higher

expenditures than nonmigrant households. Moreover, the mean expenditures on food, education, healthcare, durables, and household repairs of migrant households are also higher than nonmigrant households. Migrant households also eat high-quality food (more fish and meat), dress better, buy more household appliances, and save a good part of their remittance receipts (Sharma and Zaman 2009).

Table 10: Mean and Share of Household Expenditure by Category of Commodity and Migrant Status in Bangladesh, 2005

Category	Without Remittances		With Remittances	
	Mean Expenditure (Taka per month)	Expenditure Share (%)	Mean Expenditure (Taka per month)	Expenditure Share (%)
Food	3115.1480	52.19	3202.9430	53.20
Education	432.3034	7.24	479.6984	7.97
Healthcare	196.9039	3.30	243.4223	4.04
Durables	55.2831	0.93	61.1383	1.02
House rent and repair	602.9995	10.10	732.7704	12.17
Others	1566.6751	26.25	1301.1327	21.61
Total expenditure	5969.3130	100.00	6021.1050	100.00

Source: HIES (BBS 2005).

2. Remittances and Consumption Expenditure Patterns

To examine the link between remittance and expenditure patterns in a systematic way, the paper ran a series of cross-section regressions considering different types of expenditures such as for housing, medication, education, durable goods, and food as dependent variables. The main purpose is see whether remittance appears as a significant explanatory variable in those expenditures. The model can be represented as follows:

$$Household_{exp} = \beta_0 + \beta_1 hh\_size + \beta_2 Edu + \beta_3 Urbrur\_1 + \beta_4 hh\_age + \beta_5 \text{Re}ligion +$$
$$\beta_6 Married + \beta_7 Int\_rem + \beta_8 emp\_area + \beta_9 emp\_\text{sec}t + \beta_{10} dep\_ratio + \beta_{11} f\_head\_1 + \varepsilon$$

where:

$Household_{Exp}$= Household related expenditures as dependent variable (i.e., housing, medication, education, durable goods, and food)

hh_size = Household size

Edu = Education level of the household head (*0-9 = class 0-9; 10 = secondary; 11 = higher secondary; 12 = graduate; 13 = postgraduate; 14 = medical degree; 15 = engineering degree; 16 = others)*

urbrur_1 = *Rural or Urban*

hh_age = Age of household

Religion = *1 = islam; 2 = hinduism; 3 = buddhism; 4 = christianity; 5 = others*

Married = Marital status (*1= married; 2 = never married; 3 = widowed; 4 = divorced; 5 = separated*)

Int_rem = Household receives international remittances (dummy variable) (*1 = remittances received; 0 = otherwise)*

emp_area = Employment area (dummy variable) (*1 = rural; 0 = otherwise*)

emp_sect = Employment sector (dummy variable) (*1 = nonagriculture; 0 = otherwise*)

dep_ratio = Dependency ratio[4]

f_head_1 = Sex of head of household (*1= male; 0 = otherwise*)

Table 11 summarizes the regressions results, showing that only in the case of food and housing-related expenditure does the dummy variable international remittance appear to be positive and significant. This suggests that the positive impact of remittances is only significant for these two types of expenditure. In the case of medical and education expenditure, the remittance coefficient is positive but insignificant. On the other hand, the regression coefficient for remittance variable is negative and insignificant for durable goods expenditure. The results imply that the role remittances can play in rebalancing growth by creating domestic demand is limited. Moreover, the insignificant impact of remittances on education and health also means that the flows do not help to develop human capital vital for long-term growth and for achieving the MDGs.

[4] In general, dependency ratio measures the ratio (in percent) of dependent people divided by the percentage of working group people. Therefore, dependency ratio refers to the population structure of the labor force aged below 15 and above 60, known as the dependent part of the labor force. Effective dependency ratio considers the ratio of the economically active population in comparison to the inactive. Moreover, effective dependency ratio does not consider age profile only, but also whether people are economically active. We have calculated dependency ratio based on adult equivalence measure by weight and sex as presented by Ahmed and Shams (1994) cited by Edlund and Rahman (2005). For this calculation we followed the usual rule as follows:

$$Dependency\ ratio = \frac{Aged < 15 + Aged > 60}{Aged\ 15 - 60}$$

Table 11: Regressions on the Key Component of Expenditures

Variables	Housing-related Expenditure		Medical Expenditure		Education Expenditure		Durable Goods Expenditure		Food Expenditure	
	Coeff.	S. E.	Coeff.	S. E.	Coeff.	S. E.	Coeff.	S. E.	Coeff.	S. E.
hh_age	–3.13	2.51	0.68	0.80	7.63*	2.63	0.00	0.78	2.79	3.17
hh_size	0.76	17.00	–8.47	5.44	5.01	17.84	5.00	5.37	581.18*	21.03
Religion	–94.77	70.14	3.34	23.40	53.44	77.11	–6.42	27.56	–35.54	92.79
Married	25.43	52.94	0.90	16.80	–2.14	53.56	–10.18	15.65	102.13	66.19
Int_rem	159.24*	70.14	8.84	22.43	81.80	74.61	–15.58	22.76	423.83*	88.65
urbrur_1	–168.88**	99.63	–84.51*	31.57	–99.06	100.06	–4.02	32.90	–329.78*	125.14
sex_1	–662.01*	196.48	–72.23	66.96	–7.17	227.26	–78.05	58.14	–211.08	258.15
Edu	–4.42	8.30	–2.65	2.64	1.03	8.75	1.60	2.61	100.66*	10.36
emp_area	56.96	96.69	17.38	30.36	8.56	97.62	10.90	32.13	205.53*	120.66
emp_sect	–34.37	66.63	–83.11*	21.33	–69.59	71.30	–14.47	21.15	192.98*	83.79
dep_ratio	135.53	166.78	–41.66	53.02	69.29	175.30	–19.72	50.78	–1585.26*	207.75
f_head_1	225.71*	117.83	142.98*	42.89	51.92	133.91	21.86	30.29	716.16*	158.06
R- square		0.0213		0.0273		0.0156		0.0094		0.4109

* significant at 1% level; ** significant at 5% level.

3. Remittances and Poverty

It is important to determine the factors affecting household poverty and to explore whether the remittance variable appears to be a significant explanatory variable. In order to identify these factors a logit regression model of the following type, which uses the HIES 2005 database, is applied.

$$pov = \beta_0 + \beta_1 p\_\exp nd + \beta_2 hh\_size + \beta_3 t\_land + \beta_4 edu + \beta_5 hh\_age + \beta_6 religion$$
$$+\beta_7 \text{int}\_rem + \beta_8 emp\_area + \beta_9 emp\_\sec t + \beta_{10} dep\_ratio + \beta_{11} f\_head\_1 + \varepsilon$$

where:

pov = Poverty level (dependent variable) (*1 = Poor, 0 = Nonpoor*)

p_expnd = Per capita expenditure

hh_size = Household size

t_land = Total land of the household

edu = Education level of the household head (years of schooling)

hh_age = Age of household head

religion = Religion of the household (*1 = Islam; 2 = Hinduism; 3 = Buddhism; 4 = Christianity; 5 = Others*)

int_rem = Household receives international remittances (dummy variable) (*1 = remittances received; 0 = otherwise*)

emp_area = Employment area (dummy variable) (*1 = rural; 0 = otherwise*)

emp_sect = Employment Sector (dummy variable) (*1 = nonagriculture; 0 = otherwise*)

dep_ratio = Dependency ratio

f_head_1 = Sex of head of household (*1 = male; 0 = otherwise*)

The regression results in Table 12 show that per capita expenditure, total land, household size, education level of the household head, dependency ratio, dummy variable for employment area (rural or urban), and international remittances (receive or not) are statistically significant. However, age of household head, religion, and employment sector are statistically insignificant. The results show that for one unit increase in total land of the associated household, the log odds of household poverty decreases by 0.29. In the same way, with an increase of household size and dependency ratio by one unit, the log odds of the household being poor increases by 0.15 and 1.82, respectively. However, in the case of the dummy variable for employment area, a change in working area from urban to rural leads to a rise in the log odds ratio of the household being nonpoor to 0.62. In the case of international remittances, moving from nonreceiving households to remittance-receiving households, the log odds ratio of the households being poor decreases by 0.26. In the case of education of the household head, with a one year increase in educational qualification, the log odds of the households being poor decreases by 0.03.

It is important to note, however, that the estimated coefficients of the logit model have no direct economic interpretation. In this regard, the most preferred one is the estimation of marginal and income effect of the measures, which are presented in Table 13. Assuming that other things remaining the same, the results show that a one unit increase in household size leads to a 3.5% increase in the probability of the household becoming poor. In the same way, a unit increase in the dependency ratio of the household increases the probability of the household becoming poor by 43.4%. On the other hand, a unit increase in the total land owned by household reduces the probability of the household becoming poor by 7.1%. Per capita expenditure also has an impact on poverty situation, i.e., with a one unit increase in per capita expenditure, the probability of the household becoming poor decreases by 0.2%. In the case of dummy variable of employment area, moving from urban to rural areas decreases the probability of

households becoming poor by 15.7%. Furthermore, on the key variables concerned in this study, the probability of a household becoming poor decreases by 5.9% if the households receive international remittances. This shows the important role of remittances in reducing poverty.

Table 12: Result of Logit Regression for Poverty

Variables	Coefficients (Std. Error)
Per capita expenditure	–0.0011 *(0.0001)**
Household size	0.1493 *(0.034)**
Total land of the household	–0.3005 *(0.065)**
Educational level of the household head	–0.0323 *(0.016)**
Age of household head	0.0036 *(0.004)*
Religion of the household	0.089 *(0.135)*
Household receive international remittances	–0.254 *(0.13)***
Employment area (dummy variable)	–0.664 *(0.137)**
Employment sector (dummy variable)	–0.0394 *(0.123)*
Dependency ratio	1.8076 *(0.334)**
Sex of head of household	0.2326 *(0.222)*

* significant at 1% level; ** significant at 5% level.
Source: Authors' calculation.

Table 13: Marginal and Income Effects of Logit Regression

Variables	Marginal/Impact Effects
Marginal Effects	
Per capita expenditure	–0.002*
Household size	0.035*
Total land of the household	–0.071*
Educational level of the household head	0.007*
Dependency ratio	0.43*
Impact Effects	
Household receive international remittances	–0.059*
Employment area (dummy variable)	–0.157*

Source: Authors' calculation.

IV. Key Findings and Policy Implications

The analyses in this paper clearly suggest that remittances play a very important role in Bangladesh with regard to macroeconomic stability and household well-being, which are indicated by consumption level and poverty incidence. More specifically, as to the role of remittances in reducing poverty in Bangladesh, the CGE modeling result shows that 1.7 percentage points out of a 9 percentage point reduction in headcount poverty during 2000–2005 can be attributed to the growth in remittances. The results of marginal and income effects from logit regression further suggest that the probability of a household becoming poor decreases by 5.9% if the household receives remittances. These two key findings clearly show the pro-poor aspect of remittances in Bangladesh. However, remittances do not seem to boost household demand for durable goods, education, and health. This means that they may not play a role in creating domestic demand for rebalancing growth, nor in generating human capital that is essential for achieving the MDGs and promoting long-term growth.

There is growing apprehension in the country supported by recent evidence that the global economic crisis may slow down the flows of international remittance to Bangladesh. Given the analysis presented in this paper, this will adversely affect the economy and household welfare, which is not limited to the migrant household but could also affect nonmigrant households. Examining the current trend, Bangladeshis working in the services sector and other crisis-prone industries in the United States and the United Kingdom, which account for at least 30% of total remittances, are particularly vulnerable to the global shock, which results in economic downturns in the migrant destination countries. More importantly, the economic situation in Middle East countries, a major source of Bangladesh's remittances, is now facing a double whammy of collapsing oil prices and global credit squeeze resulting from the global financial crisis. As a result, construction activities are slowing down, threatening the future of most Bangladeshi migrant workers. These call for specific policy actions from the government and other key stakeholders at both market and sectoral levels, and from migrant workers as well. These include:

(i) **Market Diversification:** Considering the important role of remittances, appropriate policies to respond to the current trends and adverse situation in migration and remittances in Bangladesh are very important. This includes bilateral negotiations to find out new markets and remove problems in recruitment, for instance, in Malaysia and Mauritius, which have imposed a temporary ban on issuing visas to a significant number of Bangladeshi migrant workers. The government can also encourage the private sector to take advantage of new markets in the former Soviet Union countries and Canada.

(ii) **Financial Incentives and Instrument:** Government can use some resources allocated from the stimulus package in the current budget to tackle the adverse

impact of the global financial crisis by directly supporting returning migrants. This can be done through direct or conditional financial support, training, and other technical assistance to ensure that the migrant workers are even more ready to compete once the global economic situation has improved. The government can also provide extra incentives to the remitters to attract more formal flows of remittances. As was announced, the government will help banks and other formal remittance channels build a digital network to facilitate remittance flows and reduce its associated costs. This can be complemented by necessary measures to channel remittance money into productive investment.

(iii) **Risk Reducing and Welfare Enhancing Measures:** The government may initiate new programs that will maximize the benefits and reduce the risks of remittances to improve the welfare of migrant workers and their families, especially poor rural households, by providing institutional support for the promotion of formal and semiformal remittance services and other support services taking advantage of Bangladesh's well-established microfinance network. This may include: (i) increasing remittance inflows through formal channels by providing low-cost but reliable remittance financial services; (ii) enhancing knowledge, awareness, and use among the migrant workers and their families about formal and other financial and nonfinancial services; (iii) promoting better investment opportunities for sustainable and productive use of remittance incomes via investment opportunity development, microenterprise development, and enterprise development support.

(iv) **Skill Development:** It is important to keep improving the skill of Bangladeshi migrant workers for them to be able to compete with migrant workers from other countries. During 2009, a number of policies were announced focusing on enhancing existing training centers and reforming their curricula. In particular, the National Skill Development Council would be reorganized and the capacity of the BMET would be enhanced to meet the challenge. Private–public partnerships would also be considered for investments in skill development projects. In addition, there would be revisions of current migrant labor laws and regulations.

Eventually, if domestic economic conditions improve and a conducive environment is developed for better job creation and higher growth, it would be possible to revert from a labor-exporting strategy to a policy of retaining workers who could then contribute directly to the country's economic growth.

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About the Paper

Selim Raihan, Bazlul H. Khondker, Guntur Sugiyarto, and Shikha Jha examine the impacts of international remittances on household consumption expenditure and poverty in Bangladesh using a computable general equilibrium model and microeconometric analysis. Their results show that remittances have positive effects on economy and reduce poverty. It is estimated that 1.7 out of a 9 percentage point reduction in the headcount ratio during 2000–2005 was due to the growth in remittances. Moreover, the probability of a household becoming poor decreases by 5.9% if it receives remittances, further confirming the positive impact of remittances. Given that migration and remittances also bring costs to the society, the findings call for policies to maximize their benefits, including facilitation of higher remittance flows through formal channels and increasing their productive use.

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