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ACRONYMS AND ABBREVIATIONS

ACC	Anti-corruption Commission
AGOA	African Growth and Opportunity Act
BASIS	Bangladesh Association of Software and Information Services
BBS	Bangladesh Bureau of Statistics
BCCRF	Bangladesh Climate Change Resilience Fund
BERC	Bangladesh Energy Regulatory Commission
BIDS	Bangladesh Institute of Development Studies
BMET	Bureau of Manpower, Employment and Training
BTCL	Bangladesh Telecommunications Company Ltd.
BTTB	Bangladesh Telegraph and Telephone Board
CAGR	Compound Annual Growth Rate
CBN	Cost of Basic Needs
CCTF	Climate Change Task Force
CD	Custom Duty
CIB	Credit Information Bureau
CPI	Consumer Price Index
CPRC	Chronic Poverty Research Centre
DCI	Direct Calorie Intake
EPZ	Export Processing Zone
EU	European Union
FDI	Foreign Direct Investment
FY	Fiscal Year
GATS	General Agreement on Trade in Services
GCC	Gulf Corporation Council
GDP	Gross Domestic Product
GED	General Economics Division
GIC	Growth Incidence Curve
GNI	Gross National Income
GNP	Gross National Product
GoB	Government of Bangladesh
GSP	Generalized System of Preferences
HDI	Human Development Index
HIES	Household and Income Expenditure Survey
HRD	Human Resource Development
HSC	High School Certificate
IC	Investment Climate
ICA	Investment Climate Assessments
ICRG	International Country Risk Guide
ICT	Information and Communication Technology
IDA	International Development Agency
IGS	Institute of Governmental Studies
ILO	International Labour Organization
IMF	International Monetary Fund
IOM	International Organization for Migration
IT	Information Technology
ITES-BPO	Information Technology Enabled Services and Business Process
KSA	Kingdom of Saudi Arabia
L/C	Letters of Credit
LDC	Least-Developed Country
LF	Labor Force
LMIC	Lower Middle Income Country
LTU	Large Taxpayers Unit
MFA	Multi-Fiber Arrangement
MIC	Middle Income Country
MLT	Medium Long-Term
MOEF	Ministry of Environment and Forests
MoEWOE	Ministry of Expatriates' Welfare and Overseas Employment
MPI	Multidimensional Poverty Index
MPRA	Munich Personal RePEc Archive
NBR	National Board of Revenue
NGO	Non-Governmental Organization
OECD	Organisation for Economic Co-operation and Development
OI	Opportunity Index
OLS	Ordinary Least Squares
PKSF	Palli Karma Sahayak Foundation
PPP	Purchasing power parity
PREM	Poverty Reduction and Economic Management
P-SD	Protective Supplementary Duty
PSM	Propensity Score Matching
P-VAT	Protective VAT
RD	Regulatory Duty
RMG	Ready-Made Garment
SDR	Special Drawing Right
SFYP	Sixth Five Year Plan
SIMA	Shore Intermediate Maintenance Activity
SMA	Statistical Metropolitan Area
SOE	State-Owned Enterprise
SSC	Secondary School Certificate

SSNP	Social Safety Net Program	VAT	Value Added Tax
TFP	Total Factor Productivity	WDI	World Development Indicators
UAE	United Arab Emirates	WDR	World Development Report
UNDP	United Nations Development Programme	WTI	World Trade Indicators
USA	United States of America		

Vice President:	Isabel M. Guerrero, SARVP
Country Director:	Ellen A. Goldstein, SACBD
Sector Director:	Ernesto May, SASPM
Sector Manager:	Vinaya Swaroop, SASEP
Task Team Leaders:	Zahid Hussain, SASEP
	Lalita M. Moorty, SASEP

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Chapter 1: Economic Growth in Bangladesh: Achievements, Prospects and Challenges

Summary

Bangladesh's GNI per capita more than tripled in the past two-and-a-half decades, from an average of US$251 in the 1980s to US$784 by 2011. This growth was accompanied by impressive progress in human development. Yet, after 40 years of independence, Bangladesh remains a low-income country with nearly 50 million people still impoverished and its economic growth potential under-exploited. It is therefore important to understand the drivers underpinning Bangladesh's growth process, what enabled the drivers to move Bangladesh forward, what its prospects are for graduating to middle-income country status by 2021, as envisaged in its Sixth Five-Year Plan, and what it would take to accelerate growth sufficiently to achieve this objective.

Growth Trends and Sources

1.1 **Bangladesh has sustained positive and accelerating growth for over three decades**. Per capita GNI has grown at a compound annual growth rate of 4.9 percent since the 1980s. Growth in GNI came almost entirely from growth in GDP in the 1980s and 1990s, but this changed in the last decade. GDP growth increased every decade from 3.7 percent in the '80s to 4.8 percent in the '90s and 5.8 percent in the '00s. Per capita GDP growth has accelerated by 1.7 percentage points every decade of the last three. The contribution to GNI growth of net factor income from abroad was only 0.1 percent on average in the '80s and 0.3 percent on average in the '90s. This increased to nearly 1.3 percentage points in the last half of the decade ending 2010, reflecting largely the emergence of remittance from Bangladeshi workers abroad as a significant source of household income.

1.2 **Bangladesh's growth performance kept up with other countries in the region**. Bangladesh is situated in a region of growth. In the 1990s, GDP growth rate increased by more than 1 percentage point per annum compared to the 1980s, and this acceleration of growth surpassed that of Pakistan and Sri Lanka. All four countries achieved more than 5 percent growth in the 2000s, and Bangladesh outperformed Pakistan and Sri Lanka with average GDP growth of 5.8 percent. Investment as a share of GDP increased in Bangladesh and, in the 2000s, in India, but stagnated in Sri Lanka and Pakistan. In none of the four major South Asian countries did the investment rates approach the 30-40 percent range seen in East Asian economies during the periods of their rapid growth.

1.3 **Increased labor productivity, due mainly to capital deepening, drove growth, especially in the last two decades**. While population growth has slowed, the proportion of working age has continued to increase, due to faster population growth in the earlier decades. However, population growth and demographic change have accounted for only a small part of the variation in GDP growth in Bangladesh over the past three decades. Bangladesh's economic growth over that period has been driven by growth in GDP per working-age person—a measure of labor productivity. In fact, the post-1990 acceleration in growth is almost entirely driven by changes in labor productivity. Analysis shows that capital deepening and, to a much lesser extent, TFP growth have been important to the growth in Bangladesh's labor productivity, which is also characteristic of the growth experienced in South Asia generally. Modest investment rates notwithstanding, capital deepening in both agriculture and industry played an important role.

1.4 **Capital deepening, in turn, was made possible by a steady decline in the population growth rate and increasing national savings rate.** The population growth rate has declined from nearly 3 percent per annum in the '70s to 1.3 percent in the '00s. National savings have increased steadily due to rapid increase in the domestic savings rate over the last two decades and surging remittance in the past

decade. The national savings rate in Bangladesh is now roughly the same as the South Asian average and that of low-income countries as a group.

What Has Driven the Increasing Capital Accumulation and Efficiency Growth?

Demographic transition, greater integration with the global economy, financial deepening, macro-economic stability and policy reforms enabled the increased savings and investment rates of the past three decades.

- **Demographic transition.** Bangladesh in now passing through the third phase of demographic transition with declining birth and death rates, but the cycle of demographic transition has yet to be completed. Fertility decline began a few decades later than the mortality decline. As a result, population size increased to about 149 million in 2010, more than three times its size in 1951. Total working-age population grew by around 3 percent per annum in the '80s and '90s, while population growth declined from about 2.8 percent to less than 2 percent. The dependency ratio continued to decrease during the last three decades, contributing to an increase in the savings rate.
- **Openness.** Openness in Bangladesh, as measured by the ratio of exports-plus-imports-to-GDP, increased from 16 percent on average in the '80s to over 40 percent in the '10s. Overall, by aligning nominal exchange rate to reasonably competitive levels and avoiding significant periods of real exchange rate appreciation, Bangladesh was able to preserve export competitiveness substantially. The emergence of a dynamic ready-made garments (RMG) industry was a significant positive achievement in manufacturing. Temporary Bangladeshi migrants abroad now constitute over 14 percent of Bangladesh's labor force.
- **Financial deepening.** Financial development indicators such as M2-to-GDP, private credit-to-GDP, and total deposits-to-GDP have risen significantly, indicating financial deepening. Bangladesh's financial system has come a long way from a state-dominated system to a now largely market-based system. The turnaround started in 1991 with quantitative improvements followed by a qualitative shift due to reforms in early 2000. These financial developments very likely contributed to the growth process in Bangladesh.
- **Macro-economic stability.** This stability was maintained consistently with only occasional slips. Inflation in Bangladesh was contained well below double digits most of the time. While credit goes to sound monetary management, macro stability was also underpinned by sound fiscal policy. Public savings in Bangladesh increased from 0.9 percent of GDP on average in the '80s to 2 percent on average in the next decade-and-a-half and remained well above 1 percent towards the end of the '00s. In addition to public savings, the overall budget deficit has been financed through prudent external borrowing that kept the effective interest rate on public debt at less than 5 percent. The public debt-to-GDP ratio has been declining throughout the last decade. Since adopting the floating exchange rate regime in 2003, the Bangladesh Bank has followed a market-based exchange rate policy that ensured smoothing out exchange rate volatility and building up foreign exchange reserves.
- **Policy reforms.** The growth performance of the Bangladesh economy has been associated with significant policy reforms in the last three decades. The policy reforms to create a more market-based economy varied in pace of implementation across sectors and over different periods. The experiment with the state-controlled economy after independence was reversed from the mid-1970s through gradual deregulation and liberalization to foster a process of private sector-led development. Bangladesh embarked on market-oriented liberalizing policy reforms towards the mid-1980s. The beginning of the 1990s saw the launching of a more comprehensive reform program, which coincided with a transition to parliamentary democracy from semi-autocratic rule. Successive governments since then have on balance built on these reforms.

Can Bangladesh Maintain Current Growth Rates?

Growth continued to be resilient, at above 6 percent in recent years, despite several external shocks that slowed exports, remittance, and investment growth.

1.5 These exogenous shocks resulted in a decline in the efficiency of investment, but private investment managed to grow at a rate faster than that of GDP while the public investment rate declined until recently. The economy has shown resilience time and again, with several factors responsible for its resilience to global shocks so far. These include strong fundamentals at the onset of the crisis, the resilience of its exports and remittances, relatively under-developed and insulated financial markets and pre-emptive policy response. Bangladesh has developed a strong disaster management capacity to deal with natural disasters, rescue operations, and post-disaster relief/rehabilitation.

But resilience to recent global economic shocks can no longer be taken for granted.

- Bangladesh's garment exports have proven vulnerable to the second round effects of the great global contraction that reduced trade.
- The demand for Bangladeshi labor abroad has weakened considerably since 2009. Bangladesh's problem was compounded by the Saudi government's moratorium on new work permits and renewals, and a recruitment embargo by Malaysia.
- Infrastructure deficiencies constrain returns on investment, reflected in inadequate infrastructure coverage, poor management and cost recovery, and low quality of infrastructure services. The share of value-added infrastructure services in total GDP has remained mostly unchanged, at around 11 percent since the 1980s, with insignificant changes in forms of infrastructure.
- Business expansion is becoming increasingly difficult. Access to land is a major impediment to new investments, particularly in manufacturing; large, unused tracts are simply not available. Property registration typically takes 245 days in Bangladesh, compared with 44 days in India, 57 days in Vietnam, 22 days in Indonesia, and only 2 days in Thailand.
- Skills shortages are becoming a binding constraint. A World Bank survey of 1,000 garment firms in 2011 found that skills shortages are a serious disadvantage for firms looking to locate outside Dhaka. The finding reinforced the Bank's 2006 ICA survey in which more than a quarter of large firms and nearly a quarter of small metropolitan firms reported acute skills shortages.

Continued problems in the factors above have constrained flexibility and the ability of investors to respond to opportunities. A striking manifestation is the persistence of capital exports from Bangladesh over the last two decades. While the excess of national savings over investment was relatively small during the '90s and first half of the '00s, it increased significantly from fiscal 2005, reaching 3.7 percent of GDP in fiscal 2010. This reflects feeble growth in private investment and declining public investments to the extent that national savings could not be entirely absorbed domestically.

Is Current Growth Good Enough to Make Bangladesh a Middle-Income Country by 2021?

1.6 **This depends on what middle-income GNI per capita target Bangladesh can realistically shoot for**. At current middle-income country (MIC) thresholds, Bangladesh's per capita GNI would have to exceed US$1,006 to reach the lowest end of "low middle-income" status. Nominal Atlas GNI per capita will need to grow at a sustained 2.5 percent and total real GDP will need to grow at 3.8 percent per annum from now on for Bangladesh to barely make it to this threshold by 2021. Given Bangladesh's past growth achievements, this may appear like a cake walk. However, it is misleading because the income thresholds are revised from time to time to allow for international inflation, using the SDR deflator, expressed in US dollars. The SDR deflator on most occasions has increased and the thresholds have moved up. For instance, the lowest MIC threshold increased by 33.1 percent, from US$756 per capita in

2000 to US$1,006 per capita in 2011. If this is repeated in the next 10 years, then the minimum MIC threshold is likely to rise to US$1,310 Atlas GNI per capita by 2021.

1.7 **To reach any threshold, GDP growth and remittances would both play a vital role**. The difference between Atlas GNI per capita and Atlas GDP per capita in Bangladesh grew from US$22 in fiscal 2004 to US$60 in fiscal 2011, due largely to growth in remittances. Hence, both GDP growth and remittance growth would have to play a key role in achieving MIC status. If the share of remittances in GNI remained constant at its current 9 percent level, GDP per capita would have to grow at 5.2 percent and total GDP at 6.6 percent. This required GDP growth rate is sensitive to assumptions about the share of remittances in GNI. If the share of remittances declined to 5 percent, per capita GDP would have to grow by 5.6 percent and total GDP by 7.0 percent. If growth rates were to fall short of the required rate in the near future, the growth rates in the medium-term would need to be higher to make up the shortfall.

1.8 **If Bangladesh were to do better than reach just the lowest MIC threshold, then GDP growth would need to accelerate further**. To do slightly better than just reaching the lowest MIC threshold, Bangladesh could aim to attain US$1,450 GNI per capita by 2021, from the current US$784 per capita (in fiscal 2011). This would require per capita GDP to grow by 6.2 percent and the total GDP by 7.6 percent, assuming the share of remittance remains constant at 9 percent. The required total GDP growth rate accelerates to 8.0 percent if the share of remittances decline to 5 percent. These calculations assume a constant real exchange rate. The real GDP growth rate required to attain the same Atlas GNI growth rises with real depreciation of the Atlas exchange rate—which is a distinct possibility, judging from past experience.

1.9 **Clearly, maintaining the recent 6 percent average growth would be thoroughly inadequate to become even a low MIC by 2021**. Anything short of 7 percent annual growth from now on would make graduation to middle-income status by 2021 rather unlikely.

What Will it Take to Raise GDP Growth to 7-8 percent?

1.10 **Increased investment in physical and human capital, together with TFP growth will be crucial**. To project what is required for accelerating growth, we assume that Bangladesh maintains the investment-GDP ratio at the current 28.5 percent level throughout the next decade. Sustainable output growth would then be given by the growth of the labor force (adjusted for labor quality), and the rate of TFP increase. The Sixth Five-Year Plan anticipates Bangladesh's labor force to grow at 3.2 percent through 2015. These figures are augmented to reflect prospects for increased labor force participation of women, and reduced underemployment. We assume further that the feasible range for Bangladesh to increase average years of schooling is from 0.5 to 1.5 over the next decade, which would add 3.4-3.8 percent per year to effective labor force growth. We assume Bangladesh can at best achieve TFP growth of 1-3 percent per year. Finally, assume labor's share in total income is unchanged at 70 percent.

1.11 **With these assumptions, GDP grows about 5.6 percent per annum when TFP grows by 1 percent per annum,** and average years of schooling rises from the current 5.8 years to 6.3 years by 2021. If, instead, TFP grows by 3 percent per year and average years of schooling rises by 1 percent per year, GDP growth at the current investment rate could be 7.6 percent. A sustained 3 percent annual TFP growth throughout the next decade, however, is implausible. With all the other variables at the top of their ranges and TFP growing by 2 percent a year, Bangladesh could achieve output growth of 7.6 percent per annum. However, Bangladesh's TFP growth has struggled to reach positive territory, let alone grow by 2 percent.

1.12 **These scenarios support the view that sustained increases in Bangladesh's growth will require significant increases in the investment rate, to at least 33 percent of GDP, as well as efforts to increase labor force participation and worker skills through schooling**. TFP is unlikely to grow

from upgrading of production technologies in existing activities and investment in new products and processes when Bangladesh expects economic expansion to come from labor-intensive production as labor in competitor countries (such as China and India) becomes increasingly expensive. However, reallocation of resources from agriculture to industry would bring some increase in *aggregate* TFP (not firm-specific). Raising the level of investment in physical and human capital, then, is Bangladesh's most feasible option, and would also contribute to TFP growth. But what would this take?

1.13 **Bangladesh needs to focus on improving the business environment**. Having secured a reasonable level of macro-economic stability and completed the first-generation reforms, Bangladesh is now set to focus on issues of competitiveness and productivity through micro-economic reform programs. An enabling investment climate is a significant factor in any country's competitiveness. Firm-level, survey-based Investment Climate Assessments (ICAs) are commonly used to identify the principal bottlenecks to competitiveness and productivity growth and evaluate their impact on economic performance at the micro level. An ICA was last conducted in Bangladesh in 2006, covering private firms in both metropolitan areas and non-farm enterprises in peri-urban areas, small towns and rural areas. The data from this survey provide the basic information for an econometric assessment of the impact or contribution of the investment climate (IC) variables on productivity and a few other measures of economic performance such as exports, FDI, and employment.

1.14 **The results of this analysis help to narrow the policy focus on key factors to enhance productivity growth, exports, FDI and employment**. The analysis shows that productivity relies mostly on quality, innovation and infrastructure, and that infrastructure is as vital for exports and FDI as it is for productivity. This suggests a virtuous cycle of growth—better infrastructure improving productivity, which makes exports more competitive and attracts FDI, leading to further improvements in productivity, and so on. The most important factor in this grouping around infrastructure is the number of days for goods to clear customs. Power outages have the largest effect on FDI. Wages and capacity utilization are critical to employment. While these findings are based on data collected six years ago, more recent surveys confirm that they remain valid.

1.15 **Infrastructure issues continue to dominate as the most binding constraints on investment**. Bangladesh ranks last among its Asian competitors in prevalence of power outages. Currently, 87 percent of the country's power plants use natural gas as the primary energy. Unreliability of available gas to run these plants and the gas-based, captive generators in the private sector is a major problem. Power outages are a key reason why manufacturing productivity in Bangladesh is much lower than in Vietnam and China. Transportation has become another critical constraint. The Bank's Logistic Performance Index (LPI) rated Bangladesh's transportation infrastructure and services to be of poor quality. Bangladesh ranked 79th in the 2010 LPI, compared to China (27), Philippines (44), India (47) and Vietnam (53). Bangladesh is at a competitive disadvantage in terms of port infrastructure, paved roads, airport density, quality of air transport, and railroads.

1.16 **High transaction costs and uncertain private returns might lead to myopic investments**.[1] Policy uncertainty may also translate into increased transaction costs facing some types of vital long-term contracts, to the detriment of growth. This has indirect effects on long-term investments, particularly where government contracts are involved. For instance, it has proven to be very difficult to get private investors to make long-term commitments in the power sector. This is an area where future income streams depend on contracts being honored by successive governments. In the presence of such uncertainty, investors are understandably wary of making long-term investments. Other types of investments and contracts can operate reasonably well, even with political instability, so long as the future

[1] Khan, Mushtaq. 2010. *Political Settlements and the Governance of Growth-Enhancing Institutions*. This hypothesis has so far been based on anecdotal evidence. Future research, hopefully, will subject it to more rigorous testing.

income streams in question do not depend directly or indirectly on the government exchequer. Since infrastructure and power-sector investments require government guarantees for future payments, a vital set of contracts could be adversely affected.

What Way Forward?

1.17 **Bangladesh is one of Asia's youngest countries**. It is poised to exploit the long-awaited demographic dividend with a higher share of working-age population and a declining dependency ratio. Labor is Bangladesh's strongest source of comparative advantage. Its abundant and growing labor force is currently underutilized. However, Bangladesh's competitors are becoming expensive places to do business. In the next three-to-four years China's exports of labor-intensive manufactures are projected to decline. Chinese wages are rising above US$150-250 per month; labor shortages are becoming serious constraints in Chinese coastal areas, costly labor regulations are increasing, and the government has made it difficult for some foreign investors which have frightened others. Capturing just 1 percent of China's manufacturing export markets would nearly double Bangladesh's manufactured exports. The Bangladesh wage is half that of India, and less than one-third that of China or Indonesia.

1.18 **Bangladesh could take advantage of this low-cost edge on its competitors.** Bangladesh could become the "next China", with its labor-intensive manufactured exports growing at double-digit yearly rates, if it were to break the infrastructure bottleneck and put its large pool of underemployed labor to work. A recent Bank study showed that if Bangladesh improved its business environment to half India's level, it could increase its trade by about 38 percent. But, if Bangladesh hesitates for long, other competitors will take the markets China is vacating.

1.19 **Export product- and market-diversification are crucial to insulate the economy from external shocks, such as the global financial turmoil and recession that the US and EU economies have been experiencing**. Other countries' experience suggests that export diversification leads to generally strong economic performance. Diversification of the main migrant-labor destination countries could enable more Bangladeshis to work abroad, resulting in higher remittance and higher economic growth. It would also reduce the vulnerability of Bangladesh's remittance inflows.

1.20 **A new wave of reforms is needed to raise Bangladesh's growth path and mitigate the risk of a slowdown**. This growth path is achievable through a strategy that deepens and diversifies Bangladesh's labor-embedded exports to transform the country from a rural, agri-based economy into an urban, manufacturing economy. What hope does Bangladesh have to mitigate the key constraints identified above, given its deeply entrenched history of political non-cooperation? East Asia observers often point to the way governments in that region have forged partnerships with their private sectors through informal and formal networks. Bangladesh needs an innovative action agenda that will improve the policy-making of governments from election to election, and hold each new entity accountable for maintaining stability and continuity of policy. The governance environment of the past may have been just adequate to keep growth going, but now it could become a retardant to the accelerated growth needed to put Bangladesh firmly on the path to international integration and modernization.

I. Overall Growth Trends and Patterns

1.21 Bangladesh's GNI per capita more than tripled in the past two-and-a-half decades, from an average of US$251 in the 1980s to US$784 by 2011. This growth was accompanied by impressive progress in human development. What are the drivers underpinning Bangladesh's growth process? What drove the drivers? What are the prospects for graduating to a middle-income country by 2021? What will it take to accelerate growth to reach this objective?

1.22 **Per capita income has grown steadily in the last three decades.** It grew at a compound annual growth rate of 4.9 percent, while per capita GDP grew at a compound rate of 4.4 percent in the past two decades. The steady increase in per capita income growth was due to slowing of the population growth rate while GDP growth rates increased, with the latter dominating. GDP growth increased every decade from 3.7 percent in the '80s to 4.8 percent in the '90s and 5.8 percent in the '00s (Table 1.1). Per capita GDP growth accelerated by 1.7 percentage points in the last three decades. Human development went hand-in-hand with economic growth. Bangladesh's HDI increased by 71 percent in the past two decades.

Table 1.1: Growth and Human Development in Bangladesh

	1981-1990[1]	1991-2000[2]	2001-2005[3]	2006	2007	2008	2009	2010	2011
GDP Growth (average, %)	3.7	4.8	5.4	6.6	6.4	6.2	5.7	6.1	6.7
Per Capita GNI Atlas Method	251	341	416	500	520	570	640	700	784
Human Development Index	0.29	0.35	0.41	0.44	0.45	0.46	0.46	0.47	0.496

Note: 1/ HDI is average of 1980, 1985 & 1990. 2/ HDI is average of 1990, 1995 & 2000. 3/ HDI is average of 2000 and 2005
Source: Bangladesh Bureau of Statistics, UN, and the WB

1.23 **Growth in GNI came almost entirely from growth in GDP in the 1980s and 1990s, but this changed in the last decade**. The contribution of net factor income from abroad to GNI growth was only 0.1 percent on average in the '80s and 0.3 percent on average in the '90s. This increased to nearly 1.3 percentage points in the last half of the decade ending 2010.

1.24 **Bangladesh performed well within the region** (Table 1.2). During the 1980s Bangladesh grew by 3.7 percent per annum on average, but in the 1990s, its GDP growth rate increased by more than 1 percentage point per annum, surpassing those of both Pakistan and Sri Lanka. Together with India, all four countries exceeded 5 percent growth in the 2000s, with Bangladesh outperforming Pakistan and Sri Lanka in average GDP growth. South Asia grew more rapidly than any other region except East Asia during this period, and this growth helped all the countries of the region raise their living standards.

1.25 **Investment rates improved in selected South Asian countries, but did not approach those of East Asia**. Investment as a share of GDP increased in Bangladesh and, in the 2000s, in India. The shares stagnated in Sri Lanka and Pakistan. Only Bangladesh and India managed to maintain a rising investment-GDP ratio. However, none of the four South Asian countries had investment rates approaching the 30-40 percent of the East Asian economies during their rapid growth phases. Meanwhile, the labor force continued to grow rapidly in all four South Asian countries, except in Sri Lanka where it decelerated in the 2000s. Bangladesh's growth in labor force remained higher than India's and Sri Lanka's.

Table 1.2: Bangladesh's Growth—A Comparative Perspective

Region/ Period	GNI/Capita (PPP, Current International $)	Population (Millions)	Annual Rates of Change		Investment Share in GDP (Percent)
			GDP	Labor Force	
Bangladesh					
1981-1990	452	93.8	3.7	3.2	16.7
1991-2000	717	118.7	4.8	2.4	19.7
2001-2008	1221	139.2	5.8	2.5	23.9
India					
1981-1990	668	774.8	5.6	2.3	20.6
1991-2000	1,220	940.8	5.5	1.9	22.7
2001-2008	2,258	1086.8	7.4	2.0	28.6
Pakistan					
1981-1990	980	96.3	6.3	2.6	17.0
1991-2000	1,515	124.1	4.0	3.0	16.9
2001-2008	2,158	153.8	4.8	3.8	17.5
Sri Lanka					
1981-1990	1,129	16.1	4.2	1.3	24.9
1991-2000	2,072	18.1	5.2	1.4	25.2
2001-2008	3,479	19.5	5.1	0.8	22.9
East Asia & Pacific					
1981-1990	1,964	1696.2	5.2	2.5	28.6
1991-2000	3,835	1944.6	3.1	1.4	28.9
2001-2008	6,606	2113.6	3.8	1.1	25.7

Source: Estimates based on the World Bank's World Development Indicators

1.26 Income and productivity rose faster in Bangladesh than in Pakistan, but slower than in India and Sri Lanka (Table 1.3). Income growth has exceeded output growth in Bangladesh, while it's per capita GNI[2] increased 4.6-fold and productivity (measured by GDP/labor force) 3.5-fold in the last three decades. Bangladesh benefited from net inflow of factor payments, particularly in the most recent decade. Within the region, Bangladesh managed to increase income and productivity faster than Pakistan, but much slower than India and Sri Lanka.

1.27 Growth in per capita incomes exceeded growth in productivity in all four countries, and reflected a rise in the proportion of economically-active population in Bangladesh and Pakistan. Interestingly, a relatively small proportion of people in each of these four South Asian countries are economically active, due in part to relatively low labor force participation for women. Increases in the percentages of working-aged women who become economically active, combined with continued declines in dependency rates, are important channels for raising the growth of income per capita above the growth rate of productivity.

[2] Per capita GNI is a better indicator of living standards than GDP per capita because it better captures the income earned from production that actually accrues to the residents. There is, however, a close relation between the two indicators. A country's per capita income can be decomposed into productivity, the portion of domestic income that accrues to residents, and the labor force as a share of the total population: GNI/Pop = (GDP/LF) × (GNI/GDP) × (LF/Pop), where GDP/LF = production per member of the labor force; GNI/GDP = the proportion of income from production that accrues to residents; LF/Pop = the proportion of the population that is economically active; GNI/Pop = gross national income per capita.

By sector, growth acceleration occurred mainly in industry and services.

1.28 **As in most countries in the region, agricultural growth was modest while the contribution of industry and services to GDP growth rose**. Industry's contribution to growth peaked from slightly over 1 percentage point in the 1980s to 2.7 percentage points in 2006 while declining subsequently to 1.7 percentage points in 2010. The contribution of services to GDP growth increased from 1.8 percentage points in the 1980s to 2.1 percentage points in the 1990s and further to over 3 percentage points in the last half of the past decade. The contribution of agriculture remained below 1 percentage point throughout most of the past three decades. At a disaggregated level, growth in industry came largely from manufacturing and construction. Growth within the services sector has consistently been broad-based with wholesale & retail trade and transport, storage and communication consistently leading the way. In agriculture, crops and horticulture have been the dominant source of growth, although volatile.

Table 1.3: Decomposition of Growth in GNI Per Capita

Region/ Period	GDP/Labor Force (PPP, Current International $)	GNI/GDP (PPP, Current International $)	Labor Force/ Population	GNI/Capita (PPP, Current International $)
Bangladesh				
1981	792.5	1.02	0.40	360
1990	1146.8	1.02	0.43	550
2000	1774.2	1.04	0.45	890
2008	2804.8	1.09	0.48	1600
Percent change	*253.9*	*7.01*	*19.46*	*344.44*
India				
1981	1321.0	1.00	0.37	490
1990	2410.1	0.99	0.37	890
2000	4149.6	0.99	0.38	1560
2008	7730.0	1.00	0.39	3040
Percent change	*485.2*	*-0.40*	*7.22*	*520.41*
Pakistan				
1981	2235.9	1.08	0.29	710
1990	4224.4	1.04	0.29	1260
2000	5683.6	0.99	0.30	1690
2008	7581.1	1.02	0.34	2600
Percent change	*239.1*	*-5.66*	*15.28*	*266.20*
Sri Lanka				
1981	2098.6	0.99	0.40	830
1990	3684.3	0.99	0.40	1450
2000	6557.3	0.98	0.41	2670
2008	11185.4	0.98	0.41	4490
Percent change	*433.0*	*-1.84*	*3.63*	*440.96*
East Asia & Pacific				
1981	2811.7	0.99	0.48	1342
1990	5243.1	1.00	0.52	2736
2000	8955.5	0.99	0.54	4757
2008	15714.1	1.00	0.55	8658
Percent change	*458.9*	*1.36*	*13.90*	*545.26*

Source: Staff estimates based on the World Bank's World Development Indicators

Figure 1.1: Expenditure Share (% of GDP)

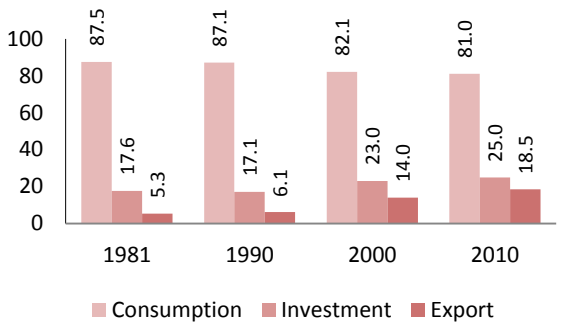
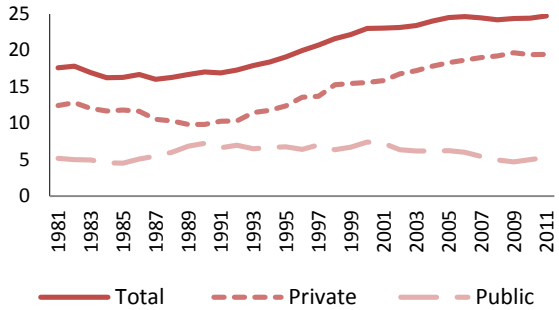


Figure 1.2: Investment Rate (%)



Source: Bangladesh Bureau of Statistics

1.29 **This highlights three important characteristics of the growth process in Bangladesh.** Firstly, the manufacturing sector has been the largest single contributor to growth in the past two decades. As a result, the share of manufacturing in total GDP increased from 11.1 percent in 1980 to 17.9 percent in 2010. Secondly, the role of services in the growth process has been important, with the share of services remaining stable at around 50 percent of GDP throughout the last three decades. Wholesale & retail trade; transport, storage and communication; and financial services together accounted for nearly half of the service sector GDP. Thirdly, a stable share of services and rising share of industry brought down the share of agriculture from 33.2 percent in 1980 to 20.2 percent in 2010 (Table 1.4).

By expenditure category, the share of private investment and exports has increased consistently, although private consumption dominated the contribution to real expenditure growth.

1.30 **Consumption has been the main driver of real expenditure growth in the past three decades, while investment expenditures lagged.** Although consumption figured highly in expenditure growth, growth in exports and private investments outstripped that of consumption. As a result, the share of consumption in total expenditure has declined, but it still accounts for over 80 percent of Bangladesh's GDP (Figure 1.1). The share of private consumption in particular declined from 83 percent in 1981 to 75.6 percent in 2010. With rising growth until recently, the share of exports in GDP increased from 5.3 percent in 1981 to 18.5 percent in 2010. The share of private investment in GDP increased from 12.4 percent in 1981 to 15.6 percent in 2000 and the share of public investment increased from 5.2 percent to 7.4 percent in the same period. While private investment continued to rise in the succeeding decade, albeit at a much slower pace, public investment declined steadily to 4.8 percent in 2010 (Figure 1.2). Investment in Bangladesh has largely neglected infrastructure. Meanwhile, total investment in hard infrastructure in China, Thailand, and Vietnam exceeded 7 percent of GDP, a rate

Table 1.4: Sectoral Share (% of GDP)

	1980	1990	2000	2010
Agriculture	**33.2**	**29.5**	**25.6**	**20.2**
o/w Crops & horticulture	21.5	19.3	14.6	11.3
Industry	**17.1**	**20.8**	**25.7**	**29.9**
o/w Manufacturing	11.1	12.5	15.4	17.9
Construction	4.8	6.0	7.8	9.1
Services	**49.7**	**49.7**	**48.7**	**49.9**
o/w Wholesale and Retail Trade	11.3	12.2	13.4	14.4
Financial Services	1.6	1.6	1.6	1.9
Transport and Communication	8.5	9.3	9.2	10.8

Source: Bangladesh Bureau of Statistics

considered appropriate for high and sustained growth.[3] Those countries also invested another 7-8 percent of GDP in education, training and health. In Bangladesh, public investment in (hard) infrastructure was less than 2 percent of GDP.

II. Sources of Growth

GDP growth was driven by growth in labor productivity.

1.31 **Labor productivity has driven growth, especially in the past two decades**. GDP growth can be decomposed into growth in GDP per working-age person; demographic changes; and population growth.[4] An increase in any of these three increases GDP growth. While population growth has slowed, the proportion of working-age population has continued to increase, due to faster population growth in the earlier decades. As a result, changes in the ratio of working-age-to-total population have contributed to growth since the 1980s. However, population growth and demographic change have accounted for only a small part of the variation in GDP growth in Bangladesh over the past three decades. Bangladesh's economic growth over that period has been driven by growth in GDP per working-age person—a measure of labor productivity. In fact, the post-1990, acceleration in growth is almost entirely driven by changes in labor productivity (Table 1.5).

Table 1.5: Decomposition of GDP Growth

	1981-85	1985-91	1991-96	1996-2003	2003-06	2006-09
Growth in real GDP per capita	3.8	6.3	12.8	25.2	15.1	15.7
Growth in Labor Force Participation	2.3	3.0	-8.6*	12.7	2.5	5.0
Labor Productivity Growth	1.5	3.1	23.4	11.1	12.3	10.2

Source: Bangladesh Bureau of Statistics and Sixth Five Year Plan

*This reflects changes in the definition of labor force that was later reversed.

1.32 **Why did labor productivity go up**? Labor productivity grows either because of capital deepening or growth in total factor productivity (TFP). If workers are given better machines and equipment—i.e., if there is capital deepening—labor productivity rises. In addition, labor productivity grows gradually if there is an improvement in the efficiency with which capital and labor inputs are used in the production process. This is TFP growth. Which of these two factors dominate in Bangladesh?

Labor productivity growth was driven by capital deepening.

1.33 **Growth accounting is used to decompose increases in output per worker (labor productivity) so as to determine the contributions from accumulation of physical and human capital per worker and residual measure of the change in TFP**. The growth accounting methodology focuses attention on the role of underlying factor inputs: physical capital, labor augmented for changes in labor quality using educational attainments, and the residual role of increases in the efficiency with which those factors are used. Growth accounting is simple and internally consistent, and has been used in a wide variety of contexts, despite its limitations.[5]

[3] Commission on Growth and Development, 2008, p. 36.

[4] See Jyoti Rahman and Asif Yusuf, *Economic Growth in Bangladesh: Experience and Policy Priorities*, not dated.

[5] Bosworth and Collins (2003) outline some limitations. Firstly, growth accounting shows only the proximate sources of growth and is not intended to determine the underlying causes of growth. Consider a country with rapid increases in both

1.34 **Growth accounting for Bangladesh is set out below** (Table 1.6). The table shows estimates of TFP growth, contribution of capital stock to growth and contribution of quality-adjusted labor to growth under different assumptions about the share of capital in total income and returns to scale. The labor growth rate was 2.3 percent during 1981-90 and increased to 3.2 percent in the next two decades because of the demographic transition, increase in female labor force participation, and increase in average years of schooling. By contrast, the growth rate of capital stock decreased to 7.5 percent in the 1990s from the average rate of 8.2 percent in the 1980s. Capital stock growth rose back to 8.2 percent annual average in the last decade.

1.35 **The results indicate that capital deepening drove labor productivity growth**. Depending on assumptions about returns to scale and the share of capital in total income, the TFP estimates vary from -2.18 percent per year to -0.21 percent during the '80s, indicating no productivity growth in the economy.[6] The picture changes, however, over the next two decades which have higher values of the estimates of TFP growth. In sum, growth accounts show that both capital deepening and, to a much lesser extent, TFP have been important for Bangladesh's growth. This is generally similar to the growth experience in South Asia.[7] Modest investment rates notwithstanding, capital deepening in both agriculture and industry played an important part.

Table 1.6: Growth Accounts for Bangladesh

	GDP Growth	Physical Capital Growth		Human Capital Growth	Labor Growth
1981-90	3.73	8.17		0.47	2.30
1991-00	4.80	7.49		0.68	3.26
2001-10	5.82	8.20		0.68	3.22
	TFP Growth				
	α = 0.3, γ = 1.0	**α = 0.4, γ = 1.0**	**α = 0.5, γ = 1.0**	**α = 0.4, γ = 0.8**	**α = 0.4, γ = 1.2**
1981-90	-0.66	-1.20	-1.74	-0.21	-2.18
1991-00	-0.21	-0.56	-0.92	0.51	-1.63
2001-10	0.63	0.20	-0.23	1.33	-0.92
	Contribution of Capital Stock to Growth				
1981-90	2.45	3.27	4.09	2.62	3.92
1991-00	2.25	3.00	3.74	2.40	3.59
2001-10	2.46	3.28	4.10	2.62	3.94
	Contribution of Labor (quality adjusted) to Growth				
1981-90	1.94	1.66	1.38	1.33	1.99
1991-00	2.76	2.37	1.97	1.89	2.84
2001-10	2.73	2.34	1.95	1.87	2.81

Note: Return to schooling = 5%. α is the share of capital in the output, γ = 1 is constant return to scale, γ > 1 is increasing return to scale, γ < 1 decreasing return to scale.

Source: World Bank etimates

1.36 **Independent evidence confirms that growth in Bangladesh has been driven by capital deepening**. Growth based on capital deepening increases the (marginal)

accumulations of capital per worker and factor productivity. The decomposition provides no information about whether the productivity growth caused the capital accumulation (for example, by increasing the expected returns to investment) or whether the capital accumulation made additional innovations possible, or some combination. Secondly, growth accounts measure total factor productivity as a residual. In addition to changes in economic efficiency, this residual will reflect a range of other determinants of growth, not accounted for by the measured increases in factor inputs. Changes in TFP should not be treated as synonymous to technological innovation. Thirdly, the decomposition is sensitive to measurement of inputs and outputs, and to the underlying assumptions about the production process. Finally, growth accounts are an appropriate tool for examining growth experiences over longer periods of a decade or more. The supply-side approach is not designed to capture cyclical relationships between variables or effects of short-term shocks. By construction, cyclical movements in output simply will be reflected in the residual measure of TFP.

6 What is the interpretation of negative TFP growth? This is not unusual in the related literature. It can be due to over-estimation of factor inputs, presence of distortions resulting in misallocation of resources or simply because TFP is measured as a residual reflecting our ignorance about the growth process. Over-estimation of factor input is particularly likely in case of labor in a country like Bangladesh where under-employment is high. Labor force growth in TFP analysis is measured as growth in employed population that includes both the fully employed and under-employed.

7 See Susan M. Collins, *Economic Growth in South Asia: A Growth Accounting Perspective*.

Figure 1.3: General Index of Real Wage (1969-70 = 100)

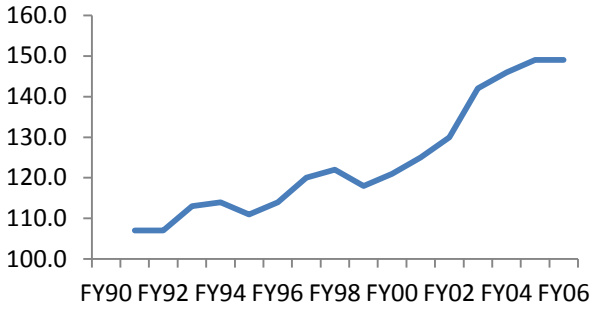
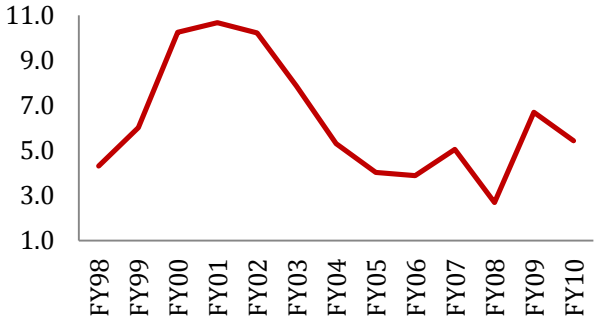


Figure 1.4: Real Interest Rate (%)



Source: Based on Bangladesh Bureau of Statistics and Rushidan Islam, *An Analysis of Real Wage in Bangladesh and Is Implications for Underemployment and Poverty*, BIDS, 2009.

productivity of labor and decreases the (marginal) productivity of capital. The real wage index shows positive real wage growth at a roughly increasing rate during the decade-and-a-half for which data is available, starting from 1990 (Figure 1.3). Real interest rates do not appear to have a similar time trend, but tended to decrease in the last decade (Figure 1.4).

1.37 **There is also evidence of convergence**.[8] According to standard neoclassical theory, given any starting point, countries with a lower initial capital-labor ratio—and as a result, lower per capita output—are expected to grow faster than developed countries because of diminishing returns on investment, with a given technology. Convergence, thus, implies that those countries which have higher initial per capita income are expected to experience lower growth than other countries. Table 1.7 shows that Bangladesh's rate of convergence is increasing and has exceeded the 2 percent convergence rate found internationally.

The proximate drivers of capital deepening have been a steady decline in the population growth rate and increasing savings rate.

1.38 **Population growth rate has declined from nearly 3 percent per annum in the '70s to 1.3 percent in the '00s** (Figure 1.5). When population growth declines, any increase in the growth of goods and services, minus that needed for reinvestment purposes, is available for improving the living standards of the population. If GDP grows at some constant rate while population growth rate is declining, per capita income growth increases simply because the denominator is growing at a decreasing rate. This is the direct effect. There is also an indirect effect working through reduced need for reinvestment to maintain the existing capital per worker. Thus, a slower rate of population growth in Bangladesh enables higher rates of net investment and therefore higher levels of capital per worker as well as per capita income over the longer run.

Table 1.7: Evidence of Convergence

	BD/US GNI (current PPP US$) percent	Rate of Convergence (%)
1980	0.92	
1990	1.02	1.0
2000	1.15	1.2
2010	1.83	4.8

Source: BBS & WDI

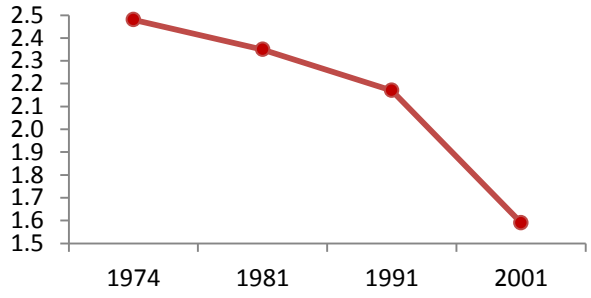
1.39 **National savings have increased steadily**. Neoclassical growth theory suggests

[8] Poor economies with smaller capital stock should grow faster than richer economies when growth is based on capital accumulation.

that an increase in the national savings rate will raise the growth rate associated at any level of income.[9] The relationship between national savings and economic growth is quantitatively strong and robust to different types of data and methodologies (see Mankiw et al. 1992, Attanasio et al. 2000, and Banerjee and Duflo 2005, among many others). Countries with high savings rates for long periods tend to experience large and sustained economic growth. A good example is the experience of the developing countries in East Asia, such as China, Singapore, Korea, Malaysia, Thailand, and Taiwan. There has been a rapid increase in domestic savings rate over the last two decades in Bangladesh. The national saving rate has increased equally fast (Figure 1.6), and is now roughly the same as the South Asian average and for low-income countries as a group. Increasing remittance has stimulated national savings.

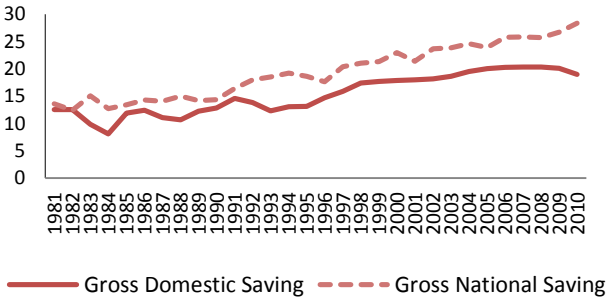
1.40 **Human capital accumulation has helped growth**. According to modern growth theory, the accumulation of human capital is an important contributor to economic growth. Life expectancy at birth is viewed as a broad measure of the overall health of the population, encompassing the prevalence of disease and illness of the workforce. A higher life expectancy indicates a healthier, more productive workforce. Life expectancy also measures changes in population structure, with a higher life expectancy associated with lower mortality rates and a longer life span for older workers and retirees. Human capital, measured in terms of levels of education and health, is often suggested as a possible source of growth. A better educated, more skilled workforce is likely to be able to produce more from a given resource base than less-skilled workers. Life expectancy in Bangladesh has increased from 51.3 years on average in the '80s to 66.2 years in the 2000s and average years of schooling increased from 2.7 on average in the '80s to nearly 6 years by the end of the last decade.

Figure 1.5: Intercensal Growth Rates



Source: Bangladesh Bureau of Statistics

Figure 1.6: Savings (% of GDP)



Source: Bangladesh Bureau of Statistics

[9] There is a strong simultaneous relationship between aggregate savings and growth—growth may influence saving as much or more than saving affects growth. However, no less important is the causality that runs from higher savings to higher growth, where the mechanism resides on the well-known process of capital accumulation. Improved national savings provides the funds to take advantage of more and larger investment opportunities. This, in turn, increases the capital stock, which effectively used for economic production contributes to higher output growth. Although in theory domestic investment does not have to be supported by national savings in an open economy, in practice the connection between the two is quite close.

III. Bangladesh's Growth Enablers

1.41 **What enabled capital accumulation and factor productivity growth**? There is some debate in the literature on the interdependencies between capital accumulation and efficiency growth. This debate is moot in the context of Bangladesh's experience so far because efficiency growth has been too small to explain capital accumulation and, by the same token, capital accumulation does not seem to have fostered efficiency gains through positive spillovers and externalities. Both capital accumulation and efficiency growth appear to have been underpinned by a common third set of variables.

Demographic transition.

1.42 **Bangladesh in now passing through the third phase of demographic transition**. It is experiencing declining birth and death rates, but the cycle of demographic transition is yet to be completed. Fertility decline began a few decades later than the mortality decline. As a result, population size increased to about 149 million in 2010; more than three times the size in 1951. For a given population growth rate, faster growth in the working-age population increases the size of the workforce, which should be positively related to output growth. At the same time, for a given growth rate of the working-age population, faster overall population growth implies an increase in the relative size of the dependent population. Per capita GDP growth increases when the growth of the working-age population outpaces overall population growth and vice versa. Total fertility rate has decreased very significantly in Bangladesh in response to falling infant mortality rate (Table 1.8).

Table 1.8: Total Fertility Rate (for Women aged 15 to 49)

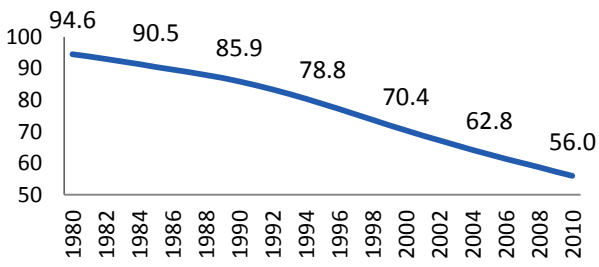
1993-94	3.40
1999-00	3.30
2004	3.00
2007	2.70
2010	2.12

Source: Bangladesh Demographic and Health Survey

1.43 **In Bangladesh, total working-age population grew by around 3 percent per annum in the 1980s and 1990s, while population growth declined**, from about 2.8 percent in the 1980s to less than 2 percent in the 1990s. Even though the rate of growth of working-age population has declined to around 2.2 percent in the 2000s, it is still well above the population growth rate, making Bangladesh poised for the "demographic dividend". The dependency ratio has continued to decrease in the past three decades (Figure 1.7).

1.44 **What caused the rate of population growth to decline**? Population control is among the most important policy achievements in human development in Bangladesh. Contraceptive prevalence increased from 8.5 percent in the 1970s to 54.1 percent in 2010. A combination of education, social marketing of population control materials and ideas, and technical advice based on family health workers yielded an effective service delivery system to enable Bangladesh reduce population growth rate sharply by cutting the birth rate. Population policy interventions were complemented by increased labor force participation of women from less than 4.1 percent in the 1974 to 36 percent in 2010.

Figure 1.7: Age Dependency Ratio (non-working-age-to-working-age, %)



Source: World Development Indicators

Increased integration with the global economy and deregulation.

1.45 **Progress with reforms in trade policies, particularly in the early 1990s, led to a significant reduction in tariff and non-tariff barriers.**[10] Openness in Bangladesh, as measured by the ratio of exports-plus-imports-to-GDP, increased from 16 percent on average in the 1980s to over 40 percent in the 2010s (Figure 1.9 and 19). By aligning nominal exchange rate to reasonably competitive levels and avoiding significant periods of real exchange rate appreciation, Bangladesh was able to preserve export competitiveness to a significant extent. Deregulation in the industrial sector was slow. The emergence of a dynamic readymade garments (RMG) industry was a significant positive achievement in the manufacturing sector although the rest of the manufacturing activities (with a few exceptions such as the pharmaceutical industry, and ceramics) have continued to suffer from deep-rooted governance, finance, infrastructure and other problems.[11] Deregulation in agriculture, which started in the early-1980s, involved liberalization of the fertilizer and irrigation equipment markets, reforms in the public food grain distribution system, and reduction of subsidies on modern inputs like fertilizer. The overall impact of the reforms was favorable with positive effects on agricultural production and productivity.[12]

Financial deepening.

1.46 **Financial development indicators such as M2-to-GDP, private credit-to-GDP, and total deposits-to-GDP are rising, indicating financial deepening** (Figure 1.10 andFigure 1.11). Bangladesh's financial system has come a long way from state domination to the now largely-market-based system. The turnaround started in 1991 with quantitative improvements followed by a qualitative shift as a result of reforms in early 2000. These financial developments very likely contributed to the growth process in Bangladesh.

1.47 **Hard evidence shows that rising levels of financial development have caused higher investment rates and per capita GDP by enhancing both the level and efficiency of investment.**[13] This is consistent with cross-country evidence. Moving away from a financial system that relies heavily on nationalized banks, administered interest rates and directed credit helps channel national savings into investment, thus fostering growth. Rahman (2007) studied the association of financial development with investment as a share of GDP and per capita income and found that they broadly moved together,

Figure 1.9: Increasing International Trade (% of GDP)

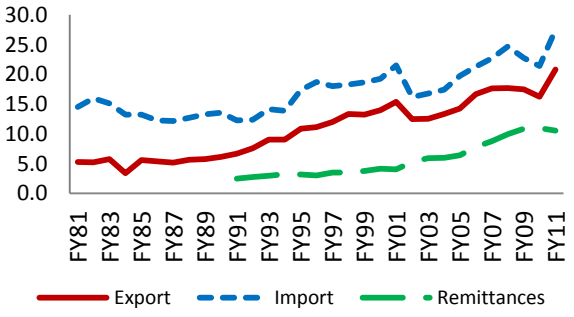
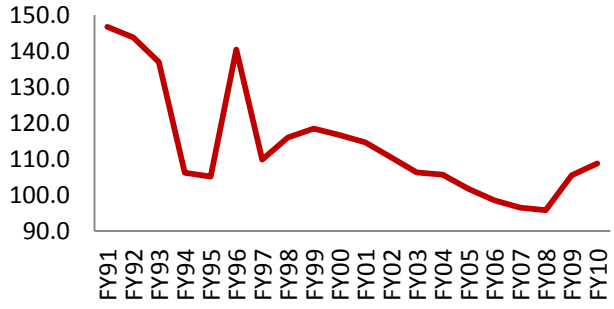


Figure 1.8: Real Effective Exchange Rate Index



Source: Bangladesh Bank

[10] For details on economic reforms and the impact of trade reforms on economic performance, see Sobhan (1991), Mujeri et al. (1993), Mujeri (2002), Mujeri (2003), and Mujeri and Khondker (2002).

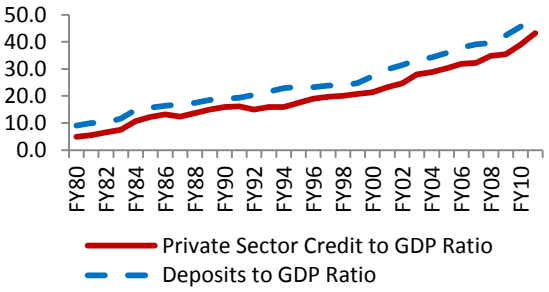
[11] For example, the large fiscal drain by the state owned enterprises (SOEs) is a major problem area in fiscal management.

[12] Salim and Hossain.2006. Market deregulation, trade liberalization and productive efficiency in Bangladesh agriculture: an empirical analysis.

[13] World Bank. 2007a, p. 143.

reflecting a close association among financial development, investment and per capita income during the period.[14] Rahman shows that financial development has a positive and statistically significant long-term impact on both the investment-GDP ratio as well as on per capita GDP in Bangladesh. A one percent positive shock to financial development (credit-to-GDP ratio in this case) generates about 0.7 percent positive impact on investment-GDP ratio and about 0.6 percent positive impact on per capita income, meaning more domestic credit to the private sector generates more investment activities and hence more per capita income.

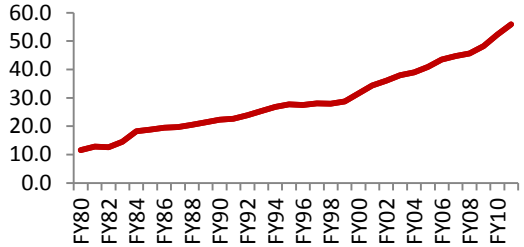
Figure 1.10: Deposits-to-GDP and Private Sector Credit-to-GDP Ratios



Source: IMF

Macro-economic stability.

Figure 1.11: M2-GDP Ratio



Source: Bangladesh Bank

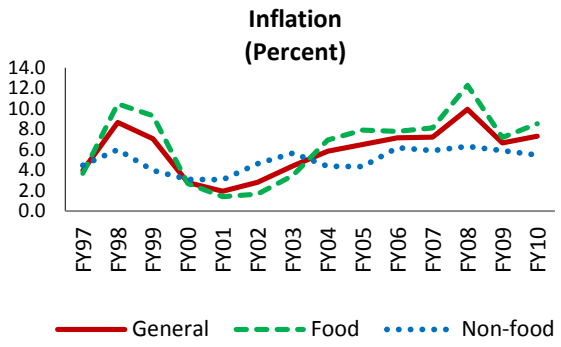
1.48 **Inflation in Bangladesh was contained well below double-digits most of the time**. This helped avoid frictions in the growth process. High inflation distorts economic incentives by diverting resources away from productive investment to activities involving speculation. Inflation can also reduce savings as households try to maintain the real value of their consumption. As inflation increases and turns volatile, the inflation risk premiums on financial transactions increase nominal interest rates. When inflation stays higher than those of trading partners, it affects external competitiveness through appreciation of the real exchange rate. Last but not the least; when inflation rises beyond a threshold, it adversely impacts economic growth. Credit goes to good monetary management which helped to maintain inflation in single digits.

1.49 **Macro stability was also underpinned by sound fiscal policy**. Fiscal policies affect growth through two distinct channels. First, the more governments save, it adds to the pool of finances available for investment. Second, higher government savings are indicative of sounder overall macro-economic management, including lower rates of inflation, prudent exchange rate policies, and monetary management. Stable economies, in turn, lower the risks for investors and therefore lower the cost of capital for long-term investments. Public savings in Bangladesh have increased from 0.9 percent of GDP on average in the '80s to 2 percent on average in the next decade-and-a-half and remained well above 1 percent towards the end-2000s. Bangladesh is the only country in South Asia with positive public savings.

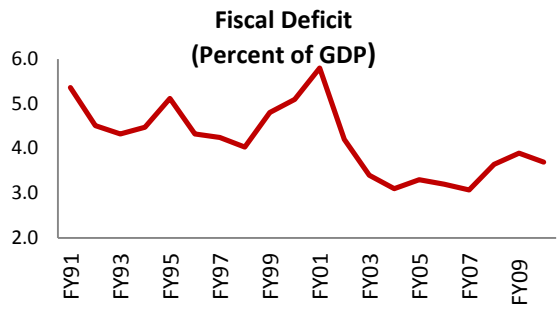
1.50 **In addition to public savings, the overall budget deficit has been financed through prudent external borrowing that kept the effective interest rate on public debt at less than 5 percent.** Recourse to monetary financing of deficit has been used as a very short-term measure that has often been quickly reversed. The public debt-to-GDP ratio declined throughout the last decade. Since adopting the floating exchange rate regime in 2003, the Bangladesh Bank has followed a market-based exchange-rate policy that ensured smoothing out exchange-rate volatility and building up foreign exchange reserves. Monetary policy allowed monetary aggregates to expand in line with growth in demand for credit in the private sector and price stability. Bangladesh has received favorable ratings from international agencies like Moody's and Standard and Poor's, reflecting its good track record in macro-economic management. Box 1.1 presents charts on several key macro-economic indicators that underpinned Bangladesh's macro-economic stability.

[14] Rahman, Habibur (2007), *Financial Development: Economic Growth Nexus in Bangladesh.*

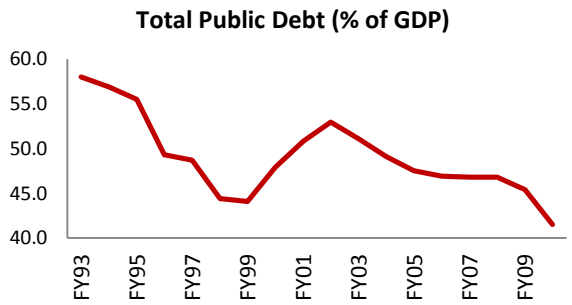
Box 1.1: Macro-economic Stability



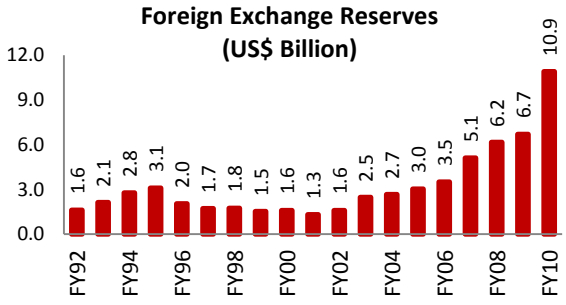
Source: Bangladesh Bureau of Statistics



Source: Bangladesh Bank



Source: Bangladesh Bank



Source: Bangladesh Bank

Policy reforms in the last two-and-a-half decades unleashed private-sector initiatives in several sectors.

1.51 **The growth performance of the Bangladesh economy has been associated with significant policy reforms within the last three decades**. The policy reforms toward creating a more market-based economy had a varied pace of implementation across sectors and over different periods.[15] The experiment with the state-controlled economy after independence was reversed from the mid-1970s through gradual deregulation and liberalization to foster a process of private sector-led development. Bangladesh embarked on market-oriented liberalizing policy reforms towards the mid-1980s. These reforms were carried out against the backdrop of deep macro-economic imbalances, which had been caused in part by a preceding episode of severe deterioration in the country's terms of trade. The beginning of the 1990s saw the launching of a more comprehensive reform program, which coincided with a transition to

[15] A growing body of recent research highlights the role of economic reforms in the growth of total factor productivity (TFP) and capital accumulation. The term economic reform generally refers to macroeconomic stabilization and structural adjustment policies which include trade liberalization, and prudent fiscal and monetary policies. It is argued that trade liberalization leads to higher competition, which is ultimately met through higher total factor productivity growth. Open countries have greater access to new technologies, larger markets, and improved management techniques. They also tend to have fewer distortions and better resource allocation, and their firms are more likely to be competitive on world markets.

parliamentary democracy from semi-autocratic rule. Successive governments since then have on balance built on these reforms. The reforms in other areas such as in the energy and in infrastructure policies, however, lagged behind creating serious deficiencies in the quality and quantity of relevant services.[16]

1.52 **Reforms in Bangladesh moved broadly in ten-year cycles.** Pro-market reforms of the early 1980s were followed by deepening of market-oriented reforms in the 1990s. These represented a significant departure from the historical stance that favored government ownership and market intervention. The appetite for reforms ebbed by the close of the 1990s. The reform momentum re-emerged in early 2000 as a new government laid out its poverty reduction strategy with emphasis on reforming institutions of governance, economic management, and the investment climate. Significant reforms were implemented in trade, banking, telecommunication, state-owned enterprises, public procurement and public financial management in the decade ending 2010.

1.53 **The pattern of reforms has generally followed a path of least resistance**. These low-hanging fruits are now mostly exhausted. Institutional reforms have lagged behind economic policy reforms. Accelerating economic progress further will require going into a more complicated phase of reforms involving significant political tradeoffs. There are emerging signs that unless institutional reforms are carried out on a sustained basis, past achievements may be at risk. These reforms are now needed in order to address a whole range of factors adversely affecting investment incentives and production efficiency. It remains to be seen how far the economic growth momentum can withstand a stagnating or weakening of the institutions of economic and political governance. This governance gap may adversely affect the substantial gains attained in the social sectors as well.

Hard evidence is lacking, but conventional wisdom credits the better growth performance of the 1990s and 2000s to the economic policy reforms.

1.54 **Many of these reforms were implemented at a faster rate during the 1990s and 2000s**. It is possible to get a sense of the importance of economic reform to the country's growth process within the framework of the traditional growth theory, which provides a simple equation to measure the speed of an economy's convergence to its steady-state growth path. Mankiw, Romer and Weil (1992)[17] have argued that the percentage of the gap to its steady state growth path that an economy closes each year can be calculated as follows:

Percentage gap closed (λ) = income share of labor (population growth rate + trend growth of the efficiency of labor + capital depreciation rate).*

We assume a population growth rate of 1.5 percent, a labor efficiency growth of 1 percent, and a capital depreciation rate of 5 percent. The share of labor can have a wide range of values depending upon the definition of capital adopted. For a relatively narrow definition, it can be as high as 0.7 while, with a broader view of capital closer to the endogenous growth theory, the value can be as low as 0.2. With these two extreme values, the estimates of the percentage gap closed for the Bangladesh economy vary between 0.015 and 0.0525.

1.55 **Growth theory predicts that reforms contribute to growth by raising the economy's long-run steady-state growth path**. The effects of the reforms can be captured as a one-time and once-and-for-all upward shift in the steady-state growth path.[18] Based on the assumption, the growth rate in the

[16] There are several areas of concern. For example, difficulties in the power sector, including "system losses", supply constraints, and low reliability of services; labor problems in the ports resulting in high shipping costs; poor governance and inefficient business regulation.

[17] Mankiw, Romer and Weil (1992), *A Contribution to the Empirics of Economic Growth.*

[18] Asian Development Bank, *Economic Growth and Poverty Reduction in Bangladesh,* April, 2004.

short run will accelerate by an amount equal to λ x Δy, where Δy is the proportional change in the economy's steady-state growth path due to reforms carried out in the economy. Then, for a value equal to 1.5 percent and with an average annual acceleration of 1 percent in economic growth in the past three decades, this would imply that the policy reforms of the period boosted the long-run steady-state growth path of the Bangladesh economy (Δy) by 67 percent. On the other hand, if the value of λ is taken as 5.25 percent the upward jump in the economy's steady-state growth path was 19 percent. In either case, these reflect powerful changes in the economy's long-run growth prospects due to economic reforms.

1.56 **Another simple way to analyze the impact of reform on growth is to estimate the trend equation of GDP and add to that equation an ordinal additional time trend for the years when reforms were in full gear**. The statistical estimation for the period 1980-2010 yields:

Log GDP = 13.58 + .046 Time Trend
(.015) (.0008)
(Numbers in parenthesis are standard errors.)

The simple trend growth rate is 4.6 percent per annum for the period 1980-2010. The goodness of fit (R-squared) is 0.99.

1.57 While reforms in Bangladesh started prior to the 90s, it gained real momentum following the change of political regime in 1991. However, reforms since then have been episodic. These episodes are modeled by introducing an additional trend variable that captures the reform episodes.[19] The estimated equation is:

Log GDP = 13.67 + .033 Time Trend + .029 Reform Period
(.015) (.002) (.004)
(Numbers in parenthesis are standard errors.)

1.58 R-squared is 0.997. The additional trend is strongly significant, adding 2.9 percent to growth annually due to reforms. The reform-augmented equation has a higher constant and lower coefficient on time trend, suggesting that the ordinal trend growth rate is lower in the absence of reforms. The result is that the reform dummy has a positive, large, and statistically significant coefficient, and is robust to several other ways of modeling the post-1990 period.

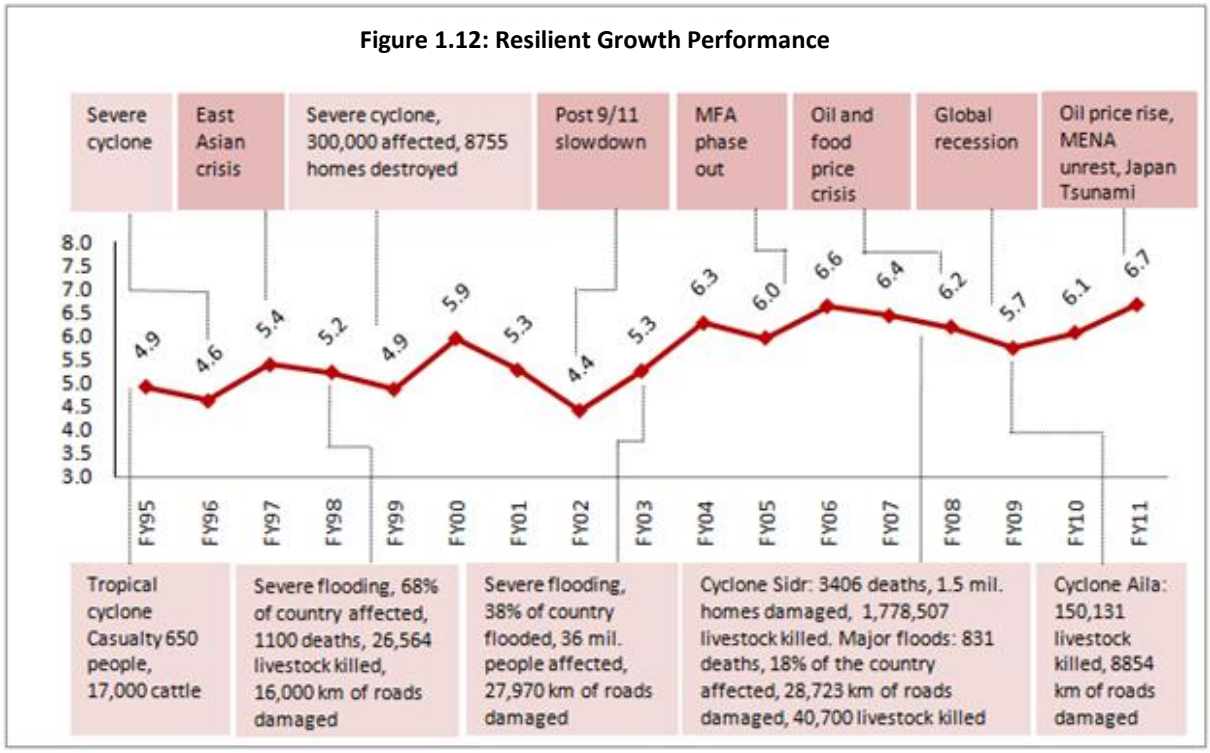
IV. Can Bangladesh Maintain Current Growth Rates?

1.59 **Growth continued to be resilient at above 6 percent in recent years, despite several external shocks that slowed exports, remittance and investment growth**. In the second half of the past decade, Bangladesh faced political uncertainty (fiscal 2006-2007); two major floods, a disastrous cyclone Sidr, and Avian Flu (last half of 2007); food and energy price crisis (first half of 2008); global financial meltdown and recession (fiscal 2008-2009); political transition followed by mutiny (first half of 2009); and rapid deterioration of the power and gas supply situation (first half of 2010). These exogenous shocks resulted in a decline in the efficiency of investment, but the private investment rate itself managed to

[19] The additional time trend takes the value 0 for all years prior to 1991; 1,2,3,4 for 1991-94; 4,4 for 1995& 1996, 5, 6 for 1997 & 1998, 6, 6, 6 for 1999 to 2001; 7,8,9,10 for 2002 to 2005; and 10,11,12 for 2006 to 2008; 12, 12 for 2009 & 2010. The reason for using the same value for dummy in certain years is that reforms did not move forward in those years. This ordinal measurement of the reform variable is based on the World Bank, *India: Policies to Reduce Poverty and Accelerate Sustainable Development,* Annex 8.1, Report No. 19471-1N, January 31, 2000.

grow at a rate faster than the growth of GDP while the public investment rate declined.[20] The economy has demonstrated resilience time and again (Figure 1.12).

Figure 1.12: Resilient Growth Performance



Sources of economic resilience in Bangladesh.

1.60 **Economic resilience can be defined as the adaptive responses of an economy that enables it to recover from or adjust to the effects of adverse shocks**. It has two dimensions: the extent to which shocks are dampened and the speed with which the economy reverts to normal following a shock. While Bangladesh is highly susceptible to natural disasters and subject to various global and internal shocks, over the years it has improved the ability to deal with these shocks and built better resilience.

Resilience to global shocks.

1.61 **Bangladesh is vulnerable to global shocks; particularly global recessions, oil price shocks, and food price shocks**. Despite increasing exports and imports Bangladesh still is less open than its peers (Table 1.9). While lack of openness hinders growth, it provides protection from the volatility of external demand arising from global business fluctuations. Relatively low levels of trade and financial integration largely sheltered the financial system and nonfinancial corporations from the contagion of global financial crisis and the subsequent economic recession. Bangladesh's financial sector survived the global financial turmoil relatively unscathed due to low exposures to structured foreign exchange products and credit derivatives, with the exception of some forward contracts. Off-balance sheet activities are typically small and mainly basic swap contracts that do not represent significant risks. External developments have not created asset quality problems nor precipitated a credit crunch.

1.62 **Bangladesh has limited external exposure despite being a WTO member since its inception**.

[20] Private investment increased by 1.1 percentage point of GDP during FY06-10.

While Bangladesh has an open trade regime and full current account-convertibility of the taka, it maintains some capital account controls to protect the relatively small economy from volatile international capital flows. The government permits unrestricted inflows and outflows of non-resident owned direct or portfolio investments and earnings thereon but restricts investment abroad by residents as well as short-term fund inflows and outflows other than normal trade credit. This policy regime kept banks and financial institutions in Bangladesh free of toxic assets and contagion from external markets in the global crisis, safeguarding their solvency and liquidity. Meanwhile, relatively low energy intensity (Table 1.9) makes Bangladesh more resilient to oil price shocks, while near self-sufficiency in cereals makes the country resilient but not impervious to grain price shocks.

Table 1.9: Openness and Energy Intensity in Selected Countries

	Trade (% of GDP)	Energy imports, net (% of energy use)	Energy use (kg of oil equivalent per capita)
	2009	*2008*	*2008*
Bangladesh	40.1	16.3	175
China	49.1	5.8	1598
India	43.6	24.6	545
Malaysia	171.3	-28.0	2693
Philippines	62.5	43.4	455
Singapore	49.2	100.0	3828
Sri Lanka	147.0	43.2	443
Vietnam	43.1	-20.1	689
Low-income countries	59.1	5.7	357

Source: World Development Indicators and Bangladesh Bank

Note: Adapted from Dr. Atiur Rahman, Country Presentation: Bangladesh, Hanoi, May 5, 2011.

1.63 **Several factors explain Bangladesh's resilience to global shocks so far**. These include strong fundamentals at the onset of the crisis, the resilience of its exports and remittance, relatively under-developed and insulated financial markets, and pre-emptive policy response. Booming exports and remittance in the years immediately preceding the crisis helped build foreign-exchange reserves to a comfortable level while prudent fiscal management reflected in low deficit and debt had preserved space for policy response. Notwithstanding fears of shrinking markets, factory closures, and large-scale bankruptcies, Bangladesh's exports have coped well particularly in the US market due to the so called Wal-Mart effect. Consumers in the US and EU continued purchasing RMG products as they switched from more expensive to cheaper products offered by chains like Wal-Mart. The latter is the single largest buyer of Bangladesh's RMG products. Bangladesh's low-end exports also benefited from rising labor costs in India and China. China, in particular, has been losing its competitive edge in the low-end RMG market due to the appreciation of its currency, rising labor costs and labor shortages. This has enabled the knitwear sector to maintain the production volume at levels prior to the onset of the financial crisis.

Resilience to natural disasters

1.64 **Bangladesh has developed a strong disaster-management capacity to deal with natural disasters, rescue operations and post-disaster relief/rehabilitation**. Several international evaluations of Bangladesh's disaster-management system have found it to be reasonably effective.[21] The government's adoption of a Comprehensive Disaster Management Program in 2003 brought significant improvements in the institutional capacity to deal with emergency. Improvements have occurred in terms of policies to

[21] Dorosh, del Ninno and Shahabuddin Eds., 2004. *The 1998 Floods and Beyond—Towards Comprehensive Food Security in Bangladesh.*

reduce leakages in food distribution and allowing private sector to import, an effective and well-targeted vulnerable-group feeding program, construction of cyclone shelters, and establishment of early-warning systems. Bangladesh has been increasingly successful in providing assistance through cash grants in emergency situations. The government campaigns to educate households on food and water safety precautions during floods and cyclones have proved effective. NGOs have proved invaluable in delivering disaster management services.

But resilience to recent global economic shocks can no longer be taken for granted.

1.65 **Merchandise exports suffered setbacks in fiscal 2010 and 2012**. Bangladesh's garment exports withstood the first round effects stemming from the global economic crisis. However, it has shown to be vulnerable to the second round effects working through the transmission mechanism of reduced trade. Market share in EU was affected by competition from China on the back of withdrawal of quotas and a sharp depreciation of the Euro against taka. Several non-garment exports were hit, albeit temporarily, by the recession including leather, frozen food and jute. Frozen shrimp, a major export item, suffered a steep decline in price from US$5 per kg to US$3.7 per kg. Moreover, exporters of frozen fresh water shrimps suspended shipments to the EU for six months after 50 consignments to the region were cancelled on health grounds. The voluntary export restriction took effect on June 1, 2009. In addition, shrimp exporters and farmers in the southwestern coastal region of Bangladesh were hit hard by cyclone Aila (end of May 2009). An estimated 124 thousand mega tons of shrimp were washed away and embankments were significantly damaged.22 Export of finished leather products suffered a steep decline in fiscal 2009. In response Bangladeshi manufacturers started developing their expertise in footwear and leather bags and purses, as these items continued to grow by 10 percent and 90 percent respectively in fiscal 2010. The declining global demand for fashionable and costly leather products opened an opportunity for Bangladesh to produce ordinary but essential items. The cost of production is lower in Bangladesh than in China and India, which has resulted in increased orders from European markets. A sharp recovery in exports in FY11 was followed by an equally sharp decline in export growth in FY12 because of weak demand in Europe and the deteriorating efficiency of the trade logistics infrastructure. Exports grew by 7 percent in July 2011-May 2012, relative to the same period the previous year. Slower growth in woven garments, knitwear, and leather and decline in export of frozen food and jute goods underpinned the slower export growth.

1.66 **Meanwhile, the demand for Bangladeshi labor abroad weakened**. In 2012, Bangladesh was the sixth-largest remittance receiving country in the world.[23] Remittance flows have proven to be more resilient than private capital flows as a source of external financing in times of economic crisis, and they have surpassed various types of foreign-exchange inflows in importance. In the past, global remittance flows have been stable, or even counter-cyclical, during an economic downturn in the recipient country, and resilient in the face of a slowdown in the source country.[24] Remittances to Bangladesh weathered the global financial crisis period well initially. While global recession and the resulting decline in international oil prices contributed to weakening the demand for migrant labor, Bangladesh's problem was compounded by the moratorium on new work permits and their renewal imposed by the Saudi government. As a result, a large number of Bangladeshi workers lost their legal status, forcing many of them to return home. A similar problem arose in Malaysia where a large number of Bangladeshi workers

[22] Source: Department of Fisheries.
[23] World Bank (2012a). Migration and Development Brief 18, Development Prospects Group.
[24] Outlook for Remittance Flows 2008-2010, Development Prospects Group, World Bank

lost their legal status.[25] The Malaysian government also put an embargo on recruitment of Bangladeshi workers.

1.67 **Capital flight has persisted**. The national savings-to-GDP ratio increased from 25.7 percent in fiscal 2008 to 26 percent in fiscal 2011, and the investment-to-GDP ratio increased from 24.2 percent in fiscal 2008 to 25.2 percent in fiscal 2011. The national savings-investment gap as a percentage of GDP, increased from 1.5 percent in fiscal 2008 to 3.3 percent in fiscal 2010. One striking trend during last two decades has been the persistence of export of capital from Bangladesh. National savings have exceeded domestic investment in most years (except fiscal 2001 and 2005). While the excess of savings over investment had been relatively small during the 1990s and the first half of the decades of 2000s, it has increased significantly since fiscal 2005. This partly reflects a rise in gross national savings due to rapid growth in remittances, but it is also be a reflection of feeble growth in private investment and declining public investments.

1.68 **How then can the continued dependence of Bangladesh on foreign capital inflow be explained**? The Government budget has remained dependent on net foreign financing to the extent of 1.5 to 2 percent of GDP (including official grants) or about a third to half of public investments. In addition, the large NGO sector is heavily dependent on foreign grants. Part of the excess savings has gone into foreign reserve accumulation. During last five years the annual increase in foreign reserves amounted to around 1 percent of GDP. But this cannot explain it all. The only other avenue is private capital outflows. Official accounts do not fully capture all the outflows—payments extracted from public import procurements and investment contracts as well as under-invoicing of imports motivated by tax evasion and insurance against uncertainty. Aggregate capital flight suggests that overall investment in the country is not constrained by the supply of investible resources. Weak incentives to investment appear to be the more binding constraint. It follows that Bangladesh has not succeeded in improving the business environment/investment climate to an extent sufficient to absorb its entire national savings and, in addition, attract foreign savings.

Domestic conditions also pose key challenges to resilience.

1.69 **Current growth rates would be hard to maintain without addressing the weak incentives to invest.** The main challenges remain in the areas of energy, transport infrastructure, and governance.

1.70 **Infrastructure deficiencies constrain returns to investment**. This is reflected in inadequate infrastructure coverage, poor management and cost recovery, and low quality of the infrastructure services. Along with a large and growing fiscal burden, this has constrained the expansion of infrastructure services to meet the growing needs of the economy. The share of value-added of infrastructure services in total GDP has remained mostly unchanged at around 11 percent since the 1980s with very insignificant changes among different forms of infrastructure (Table 1.10). A comparison of World Bank's ICA in 2002 and 2007 revealed the following changes. The value lost due to electrical shortages increased from 2.9 percent of sales to 12.3 percent. While access to reliable source of electricity tops the list of concerns for the region as a whole, the losses that Bangladeshi firms suffer are much higher compared to 5.4 percent of sales lost in Pakistan and 5.5 percent in India.[26]

[25] According to CPD, more than 0.4 million workers are now residing illegally in Malaysia. See Center for Policy Dialogue (2011) p.48.

[26] A recent panel study of 12 Asian countries, including Bangladesh, concluded that electricity is a limiting factor to economic growth in these countries. See Jaruwan Chontanawat, *Modelling Causality between Electricity Consumption and Economic Growth in Asian Developing Countries*, Department of Social Sciences and Humanities, King Mongkut's University of Technology Thonburi, Bangkok 10140, Thailand.

1.71 **Doing more business is becoming increasingly difficult**. Access to land is a major impediment to new investments, particularly in manufacturing. Land availability is severely limited as large unused tracts are not available. What does exist is either owned by state-owned enterprises or the government, or used for agriculture, housing and roads. Smaller firms are cut off more severely from access to land and that access has worsened over time. In 2002, 29.2 percent of firms considered it a major problem, which had risen to 41.7 percent by 2007. Unavailability of serviced land is a prominent investment hurdle.[27] The property registration process is inordinately slow. According to the Bank's Doing Business Report 2012, Bangladesh ranks 173 out of 193 countries in this area, with property registration typically taking 245 days, compared with 44 days in India, 57 days in Vietnam, 22 days in Indonesia, and only 2 days in Thailand. Overall, Bangladesh is not moving fast enough to ease its business regime (Table 1.11).

Table 1.10: Value-Addition of Infrastructure Services
(percent of GDP)

	1981-90	1991-00	2001-05	2006	2007	2008	2009	2010	2011
Electricity, Gas & Water Supply	**1.08**	**1.44**	**1.33**	**1.30**	**1.18**	**1.11**	**1.06**	**1.04**	**0.98**
Electricity	0.95	1.22	1.11	1.07	0.97	0.91	0.86	0.84	0.80
Gas	0.08	0.16	0.15	0.14	0.14	0.13	0.13	0.13	0.12
Water Supply	0.05	0.06	0.07	0.08	0.08	0.07	0.07	0.07	0.07
Transport, Storage and Communication	**9.48**	**8.88**	**9.82**	**10.39**	**10.35**	**10.43**	**10.46**	**10.35**	**10.67**
Transport	8.92	7.94	8.52	8.77	8.61	8.62	8.60	8.50	8.77
Storage	0.26	0.32	0.34	0.30	0.30	0.29	0.29	0.28	0.26
Communication	0.30	0.61	0.96	1.32	1.44	1.52	1.57	1.57	1.64
Total Infrastructure	**10.56**	**10.31**	**11.14**	**11.69**	**11.53**	**11.54**	**11.52**	**11.39**	**11.65**

Source: Bangladesh Bureau of Statistics

Table 1.11: Ease of Doing Business in Bangladesh

	2006	2007	2008	2009	2010	2011	2012
Rank	65/(155)	88/(175)	104/(181)	110/(181)	111/(183)	118/(183)	122/(183)

Numbers in parentheses represent the total number of countries included in the ranking.
Source: Doing Business Indicators, The World Bank

1.72 **The doing business environment is further weakened by poor governance and tax administration, and poorly protected property rights**. These impose costs on doing business and hurt the country's chances to attract private investment and compete in global markets. Poor property rights protection magnifies risk perceptions; limits on user rights discourage private initiative and slow down the process of economic diversification, complex and time-consuming customs procedures result in high transport costs even after factoring in distance, while nontransparent tax administration processes open up space for rent seeking.

1.73 **Financing for investment is a binding constraint to maintaining growth in several segments of the economy**. Bangladesh compares favorably with its peers in terms of domestic credit to the private sector. However, long-term lending and lending to small firms in the rural non-farm sector is inadequate. Financial depth (measured as M2-to-GDP) is quite low and the range of financial services quite

[27] World Bank, 2008a, *Harnessing Competitiveness for Stronger Inclusive Growth.*

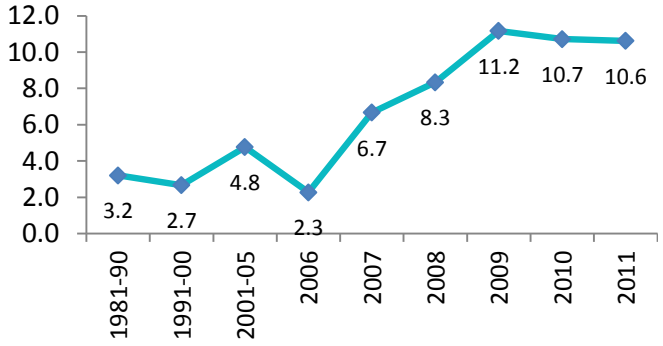
rudimentary.[28] Many of the important contractual savings institutions are absent while capital markets are extremely shallow. It is important for Bangladesh to identify alternative ways of financing investments, especially relatively long term and lumpy investments such as electricity, gas, and other infrastructure facilities. There is an increasing gap between the demand for and the supply of finances for such projects. This gap is unlikely to be met through public-sector efforts alone. Thus, there is both a scope and a need to develop financial instruments to tap the domestic and external sources to finance infrastructure and similar projects. Savings institutions that have typical long-term liabilities can become the prime source of financing long term projects. In this context, the development of an active market for securitized corporate debt, mutual funds, and other financial instruments is necessary where both banks and non bank financial institutions can play the role of large investors.

1.74 **Skills shortages are emerging as binding constraint**. While shortage of skills did not constrain growth in the past, it is becoming increasingly important. A World Bank survey of 1,000 garment firms in 2011 found that shortage of skills was the main disadvantage firms faced if they located outside Dhaka. This matched the World Bank's 2006 ICA survey, in which more than one-quarter of large firms and nearly one-quarter of small metropolitan firms reported an acute shortage of skills. Successful industries, such as garment-makers reported even more severe shortages (37 percent). The skills scarcity has driven up real wages by 30 percent. Inadequate access to professional and technical training, and poor quality education at all levels limit the ability of Bangladeshis to enhance their employability and income potential, and the ability of firms to improve productivity and the technological content of their products and services.

V. The Prospects of Achieving Middle-Income Status by 2021

1.75 **Would it take more than just maintaining recent growth rates to achieve MIC status**? It is important to be clear about how middle-income status is defined. Here we define as based on nominal Gross National Income measured in Atlas dollars, not real Gross Domestic Product. Economies are divided according to 2010 GNI per capita, calculated using the World Bank Atlas method.[29] The income thresholds are: low income—US$1,005 or less; lower middle income—US$1,006 to US$3,975; upper middle income—US$3,976 to US$12,275; and high income—US$12,276 or more.

Figure 1.13: Per Capita GNI Growth (%)



Source: World Development Indicators

[28] The size and composition of Bangladesh's financial sector is small relative to other South Asian countries. In June 2008, the share of outstanding volume of bonds (including government treasury bills) in the country's GDP was only 5.5 percent compared with 43.4 percent in India, 29.8 percent in Pakistan, and 39.5 percent in Sri Lanka. The share of Bangladesh bond market in South Asia was only 1.9 percent in 2006 which was 85.6 percent for India, 8.5 percent for Pakistan, 3.6 percent for Sri Lanka, and 0.3 percent for Nepal.

[29] In calculating GNI and GNI per capita in U.S. dollars for certain operational purposes, the World Bank uses the Atlas conversion factor. The purpose of the Atlas conversion factor is to reduce the impact of exchange rate fluctuations in the cross-country comparison of national incomes. The Atlas conversion factor for any year is the average of a country's exchange rate (or alternative conversion factor) for that year and its exchange rates for the two preceding years, adjusted for the difference between the rate of inflation in the country, and that in the Euro Zone, Japan, the United Kingdom, and the United States. A country's inflation rate is measured by the change in its GDP deflator.

1.76 **The income thresholds are revised to allow for international inflation**. At current prices, Bangladesh's per capita GNI would have to exceed US$1,006 to reach the lowest end of "low middle income" status. Nominal Atlas GNI per capita will need to grow at a sustained 2.5 percent and nominal Atlas total GDP will need to grow at 3.8 percent per annum from now onwards for Bangladesh to barely make it to the middle-income threshold by 2021 (Table 1.12, column 1). Given Bangladesh's past growth achievements, this may appear feasible. However, it may be misleading because the income thresholds are revised from time to time to allow for international inflation, using the SDR deflator expressed in US dollars. The SDR deflator on most occasions has increased and the thresholds have moved up. For instance, the lowest MIC threshold increased by 33.1 percent—from US$756 per capita in 2000 to US$1,006 per capita in 2011. If this is repeated in the next ten years then the minimum MIC threshold is likely to rise to US$1,310 Atlas GNI per capita by 2021. It is more reasonable to use this as a basis for assessing the prospect of reaching MIC status by 2021 than the prevailing threshold.

1.77 **Both GDP growth and remittances will play an important role in reaching MIC status**. Growing remittances have driven a wedge between GNI and GDP in Bangladesh. The difference between Atlas GNI per capita and Atlas GDP per capita in Bangladesh grew from US$22 in fiscal 2004 to US$60 in fiscal 2011, largely due to growth in remittances. Hence, both GDP growth and remittance growth will have to play a key role in achieving middle-income status. If the share of remittances in GNI remains constant at its current 9 percent level, GDP per capita will have to grow at 5.2 percent and total GDP at 6.6 percent (Table 1.12, column 2). This required GDP growth rate is sensitive to assumptions about the share of remittances in GNI. If the share of remittances declines to 5 percent, per capita GDP would have to growth by 5.6 percent and total GDP by 7.0 percent (Table 1.12, column 3).

Table 1.12: Required Growth Rate to Achieve Middle-Income Status by 2021

	When GNI per capita target is US$1,006	**When GNI per capita target is US$1,310**	**When GNI per capita target is US$1,310**	**When GNI per capita target is US$1,446**	**When GNI per capita target is US$1,446**
Required Per Capita GNI Growth Rate (%)	2.5	5.3	5.3	6.3	6.3
Share of Remittances in Atlas GNI	9.0	9.0	5.0	9.0	5.0
GDP per capita target for MIC Status	916	1192	1245	1316	1374
Required Per Capita GDP Growth Rate (%)	2.4	5.2	5.6	6.2	6.6
Required GDP Growth Rate (%)	**3.8**	**6.6**	**7.0**	**7.6**	**8.0**

Note: Figures are in nominal Atlas dollar terms unless otherwise stated. 1.4% population growth and constant Atlas real exchange rate is assumed in all scenarios.

Source: World Bank estimates

1.78 **If current growth rates fall short of the required rate, then the growth rates in future need to be higher to make up the difference**. How much Bangladesh will need to grow tomorrow to reach middle income status in 2021 depends on how much it is able to achieve today. It is a moving target. For instance, if GDP growth falls one percentage point short of the required 6.6 percent growth in fiscal 2012, then GDP will have to grow at 6.7 percent per annum in the remaining years. If again it falls short by 1 percentage point in fiscal 2013, then the required growth rate rises to 6.8 percent. If performance falls short of the target by 1 percentage point for five consecutive years, the required growth rate during the remaining years rises to 7.3 percent.

Surely just making it to the lowest MIC threshold cannot be a national objective.

1.79 **If Bangladesh aims to do better than reaching just the lowest MIC threshold, then GDP growth would need to accelerate further**. As noted above, the definition of a middle-income country straddles a wide range. Bangladesh could aim to do slightly better than just reaching the lowest MIC threshold if it is to reach around US$1,450 per capita from the existing US$784 per capita in fiscal 2011.[30] Is this achievable by 2021? That would require per capita Atlas GDP to grow by 6.3 percent. But the required total GDP growth rises to 7.6 percent if the share of remittances were to remain constant at 9 percent. The required GDP growth rate rises to 8.0 percent if the share of remittances decline to 5 percent.

1.80 **The calculations above assume a constant real exchange rate**. Going from the Atlas nominal GDP growth rate to GDP growth measured in constant taka requires projections on the Atlas nominal exchange rate, the share of domestic income in GNI, the population growth rate and the GDP deflator-based inflation rate. We calculate first the growth of nominal GDP in taka by adding together the growth of GDP in nominal Atlas dollars, the average projected rate of depreciation of the taka, the population growth rate, and change in the share of domestic income in total GNI. We then subtract the projected average GDP deflator-based inflation rate from the nominal rate of growth GDP in taka to obtain the real GDP growth in constant taka. This may be higher or lower than the required growth rate measured in Atlas dollars, depending on the difference between the projected average rate of depreciation of taka and projected average domestic inflation rate (Box 1.2). The required GDP growth in constant taka exceeds the required GDP growth in Atlas dollars if the Atlas exchange rate is assumed to depreciate in real terms. If the real Atlas exchange rate is assumed to remain constant then the difference between the two measures of growth disappears.

VI. The Challenge of Accelerating Growth

TFP growth and human capital accumulation necessary for sustained growth

1.81 **Much of the literature in economic growth emphasizes the key role of TFP** (Box 1.3). Researchers frequently model capital accumulation as endogenous, such that increases in TFP automatically induce the investment required to maintain the capital-output ratio (Easterly and Levine, 2001 and Klenow and Rodriguez-Clare, 1997).[31] Since both capital and TFP matter, a prudent policy stance should seek to foster both.

1.82 **To see what is required for accelerating growth, we make several assumptions**. Assume that Bangladesh maintains the investment-GDP ratio at the current 28.5 percent level throughout the next decade.[32] Sustainable output growth would then be given by the growth of the labor force (adjusted for labor quality), and the rate of TFP increase, scaled by labor's share of income. The Sixth Five-Year Plan projects Bangladesh's labor force will grow at 3.2 percent through 2015. These figures are augmented to reflect prospects for increased labor force participation of women, and reduced underemployment. Next suppose the feasible range for Bangladesh to increase average years of schooling from 0.5-1.5 over the next decade. The implied increases in labor quality add 3.4-3.8 percent per year to effective labor force

[30] This US$1,446 per capita target is arrived at by using the actual average annual per capita (Atlas) GDP growth (7.4 percent) achieved in the past decade.

[31] However, there is little evidence of this in data. Capital accumulation and TFP growth exhibit surprisingly little correlation, consistent with the view that investment decisions are influenced by a great many factors (such as availability of finance and tax consideration) in addition to changes in TFP.

[32] This 28.5 percent invest-GDP ratio in fiscal 2011 is based on the constant price series. This is used here to maintain consistency with historic growth accounting where the capital stock series is based on constant price GDP series.

growth. Suppose that Bangladesh can achieve TFP growth of at least 1-3 percent per year. Finally, assume labor share in total income is unchanged at 70 percent.

Box 1.2: Relationship between Atlas GDP growth and Real (constant taka) GDP Growth

GNI per capita in Atlas dollar $Y_t^{\$}$ is defined as

$Y_t^{\$} = (Y_t/N_t)/e_t^*$ …….. (1)

where e_t^* is the Atlas exchange rate computed as follows: $e_t^* = \frac{1}{3}\left[\left[e_{t-2}\left(\frac{p_t}{p_{t-2}}/\frac{p_t^{s\$}}{p_{t-2}^{s\$}}\right) + e_{t-1}\left(\frac{p_t}{p_{t-1}}/\frac{p_t^{s\$}}{p_{t-1}^{s\$}}\right) + e_t\right]\right.$ where e_t is the average annual exchange rate (national currency to the US$) for year *t*, p_t is the GDP deflator for year *t*, $p_t^{s\$}$ is the SDR deflator in U.S. dollar terms for year *t*, Y_t is current GNI (local currency) for year *t*, and N_t is the midyear population for year *t*.

Equation (1) can be rewritten as

$Y_t = Y_t^{\$}\, e_t^*\, N_t$ …… (2)

GDP in nominal Taka can be expressed as

$Y_t^{d,Tk} = \sigma_t\, Y_t^{\$}\, e_t^*\, N_t$ ……..…(3)

where $Y_t^{d,Tk}$ is nominal GDP in Taka and σ_t is the share of domestic income in total GNI

Taking log and totally differentiating equation (3) with respect to t, GDP growth in nominal Taka therefore is

$\dot{Y}_t^{d,Tk} = \dot{\sigma}_t + \dot{Y}_t^{\$} + \dot{e}_t^* + \dot{N}_t$ ……(4)

GDP growth in Atlas dollar can be defined as

$\dot{Y}_t^{d,\$} = \dot{\sigma}_t + \dot{Y}_t^{\$} + \dot{N}_t$ ……..(5)

GDP growth in constant Taka thus is

$\dot{Y}_t^{d,real} = \dot{\sigma}_t + \dot{Y}_t^{\$} + \dot{e}_t^* + \dot{N}_t - \pi_t$ ……(6)

where $\dot{Y}_t^{d,real}$ is real GDP growth in constant Taka, and π_t is the inflation rate

It follows from Equations (5) and (6) that

$\dot{Y}_t^{d,real} - \dot{Y}_t^{d,\$} = \dot{e}_t^* - \pi_t = 0$ ……..…(7)

if $\dot{e}_t^* = \pi_t$

Box 1.3: What Economists Know about the Long-Term Growth Process

Experience shows that economic growth is an evolutionary process rather than the result of conscious economic policy. The growth account, empirical counterpart of the neoclassical growth model, pioneered by Denison (1962, 1967) and Kendrick (1973, 1977) and continued most notably by Maddison (1987, 1995) have brought to attention a considerable number of sources of growth, of which the three most important are: accumulation of physical capital, technological progress, and enhancement of human skills. Other elements are economies of scale, structural change, and the relative availability of natural resources.

Until recently, modern quantitative studies, such as the growth accounting tradition, attributed the lion's share to technological progress. The importance of human capital, first stressed by Schultz (1961) as the key input to the research sector, generates new products or ideas that underlie technological progress. The effectiveness of these proximate elements of growth depends on the availability of appropriate social behavior, policy and institutions. Economic historians, in particular, have emphasized the role of these factors. Among others, Rostow (1960), Lewis (1955) and Hagen (1960) attach importance to socio-cultural values and institutions in economic performance. Douglas North has broadened the concept of institutions by defining them as humanly devised constraints that structure human interaction. They are made up of three essential elements: formal rules (constitutions, laws, and regulations), informal constraints (conventions, norms of behavior and code of conduct), and enforcement characteristics. Effective institutions reduce uncertainty in human exchange and provide a framework for low-cost transacting.

One of the debates on growth involves the relative contributions of TFP and capital accumulation (per worker) to overall GDP growth. It is contended that rapid growth has been proximately caused by rapid capital accumulation rather than rapid advances in TFP growth. In his most surprising and widely quoted result, Young found average annual TFP growth in Singapore of -0.003 percent for 1966-90. Such results do not invalidate earlier findings about the importance of economic policies or structure. Good economic policies and a favorable economic structure raise the returns to capital and thereby stimulate rapid investments in capital. At a minimum, Asia's policy stance and structural conditions allowed the countries of the region to accumulate capital more quickly than other regions, and thus grow faster. Both growth in TFP and growth in capital have contributed to rapid output growth in Asia. If most per capita growth is the result of capital accumulation, the growth will slow down as capital deepening takes place (that is, as the capital-labor ratio rises sharply in the economy), since capital deepening will be associated with a declining rate of return on new investments. This has in fact been the case in East Asia: as capital accumulation has progressed, rates of return on capital have declined.[33]

1.83 **With these assumptions, what are the feasible long-run growth scenarios in Bangladesh?** The result is GDP growth of about 5.6 per cent per annum when TFP grows by 1 percent per annum and average years of schooling rises from the current 5.8 years to 6.3 years by 2021 (Table 1.13). If instead, TFP grew by 3 percent per year and years of schooling rose by 1 year, GDP growth could be 7.6 percent at the current investment rate. A sustained 3 percent annual TFP growth throughout the next decade, however, is implausible. With the other variables all at the top of their ranges and TFP growing by 2 percent per year, Bangladesh could achieve output growth of 7.6 percent per annum.

[33] Paul Krugman (1994) has provocatively compared the pattern of large capital accumulation and relatively small TFP growth in East Asia to that of the former Soviet Union, implying that East Asia might face a collapse in growth similar to that experienced by the Soviet Union. As the capital-labor ratio rises, returns on new investment will tend to decline. This decline in profit rates is mitigated by two factors: (i) improvements in TFP (which thereby raise the marginal productivity of capital), and (ii) a high substitutability of capital for labor in the basic production function. The second condition means that capital deepening (rising K/L) can take place without sharply reducing the profitability of new investments. Thus, in thinking about the prospects for future profitable investment, TFP growth is not the only measure of the production function that should be examined. As important, perhaps, is the elasticity of substitution between capital and labor. High substitution elasticity signifies good prospects for continued profitable investments in future years.

1.84 These scenarios support the view that sustained increases in Bangladesh's growth will require significant increases in the investment rate to at least 33 percent of GDP, [34] as well as efforts to increase labor force participation and worker skills through schooling. TFP growth from upgrading production technologies in existing activities and investment in new products and processes is an unlikely source of growth when economic expansion is expected from relocation of labor-intensive production that is transferred from countries in which labor is becoming increasingly expensive.

Table 1.13: Feasible Long-Term Growth Rates in Bangladesh

Change in Average Years of Schooling	Total Factor Productivity Growth (%)					
	1.0		2.0		3.0	
	Investment Rates (% of GDP)					
	28.5	33.0	28.5	33.0	28.5	33.0
0.5	5.61	5.91	6.61	6.91	7.61	7.91
1.0	5.94	6.24	6.94	7.24	7.94	8.24
1.5	6.27	6.57	7.27	7.57	8.27	8.57

Note: Assumptions: Return on education = 10%; share of physical capital in output (alpha) = 0.3; constant return to scale.
Source: World Bank estimates

1.85 However, reallocation of resources from agriculture to industry would result in some increase in aggregate TFP (not firm-specific). Meanwhile, raising the level of investment in physical and human capital is Bangladesh's most feasible option, as this would also contribute to TFP growth. In the last decade, China managed to increase its investment rate by over 10 percentage points and average schooling by 1.1 years; India raised investment rate by 8 percentage points and average schooling by nearly 1 year; and Vietnam increased investment rate by almost 7 percentage points and schooling by 1.2 years (Table 1.14). While Bangladesh did not fare nearly as well on the investment front, it topped the list with Vietnam in improving average years of schooling by 1.3 years.

Table 1.14: Regional Comparison

	Gross fixed capital formation (% of GDP)		Average Years of Schooling	
	2000	2009	2000	2010
Bangladesh	23.0	24.4	4.5	5.8
Cambodia	18.3	20.0	5.8	6.0
China	34.1	45.6	7.1	8.2
India	22.7	30.8	4.2	5.1
Indonesia	19.9	31.1	5.2	6.2
Sri Lanka	28.0	23.8	8.1	8.4
Vietnam	27.7	34.5	5.1	6.4

Source: WDI and Barro-Lee Educational Attainment Dataset 2010

1.86 **Public investments need to rise in tandem with private investments**. The history of growth the world over suggests that public investment should be over 7 percent of GDP to have high and sustained growth.[35] Of this required increase in total investment, 1.8 percentage points would need to come from a rise in public investment from the current 6.3 percent of GDP to at least 8 percent in order to make up for past neglect of energy and infrastructure investments. If this were to materialize, it is not too ambitious to assume an increase of about 2.7 percentage points in the rate of private investment. This has happened in Bangladesh before (during fiscal 1991-1997, when the private investment rate increased by 5.5 percentage points of GDP). If this were to be repeated, 8 percent GDP growth would be achieved by fiscal 2018. Bangladesh needs a "flying start" in the next four years. If the critical power and infrastructure projects come to fruition on time and the regulatory environment for private investment improves, a launching pad for the journey towards a healthy middle-income status would be built. This launching pad

[34] To put this number in perspective, total investment in Bangladesh has increased by 6.8 percentage points in the last three decades up to fiscal 2010.

[35] Commission on Growth and Development (2008), p.35.

would provide the basis for a significant rise in the returns on private investment, and a decline in the perceived variability of returns, as supplies of power and gas became more reliable and the transaction costs of doing business fell. This will boost private investment.

Investment and productivity growth will have to be driven by external markets.

1.87 **Could growth come from Bangladesh's domestic market?** Any effort to rebalance the economy towards domestic demand in Bangladesh would face the "adding up" problem, since Bangladesh has a high consumption-to-GDP ratio (over 80 percent), low investment-to-GDP ratio (25.4 percent), low export-to-GDP ratio (around 25 percent) and net negative export-to-GDP ratio (-10 percent).

Box 1.4: Assessing Investment Climate Factors

1) Estimate Solow residual in levels with restricted cost shares

$$\log Y_{j,it} = \bar{s}_L \log L_{j,it} + \bar{s}_M \log M_{j,it} + \bar{s}_K \log K_{j,it} + \log P_{j,it}$$

2) Estimate performance variables

$$\log P_{j,it} = \alpha'_{IC} IC_i + \alpha'_C C_i + \alpha'_{Ds} D_j + \alpha'_{DT} D_t + \alpha_P + u_{j,it}$$

3) Evaluate the estimated performance variable regression at their sample means

$$\log \bar{P}_{jt} = \hat{\alpha}_P + \hat{\alpha}'_{\mathrm{IC}} \overline{\mathrm{IC}} + \hat{\alpha}'_C \bar{C} + \hat{\alpha}'_{Ds} \bar{D}_j + \hat{\alpha}'_{DT} \bar{D}_t$$

4) Divide the whole expression by the dependent variable

$$100 = \frac{\hat{\alpha}_P}{\log \bar{P}_{jt}} 100 + \frac{\hat{\alpha}'_{\mathrm{IC}} \overline{\mathrm{IC}}}{\log \bar{P}_{jt}} 100 + \frac{\hat{\alpha}'_C \bar{C}}{\log \bar{P}_{jt}} 100 + \frac{\hat{\alpha}'_{Ds} \bar{D}_j}{\log \bar{P}_{jt}} 100 + \frac{\hat{\alpha}'_{DT} \bar{D}_t}{\log \bar{P}_{jt}} 100$$

Where P = Multifactor productivity; Y = Output; L = Labor; K = Capital; M = Intermediate materials;

IC = Investment climate variables; C = Control variables; D = Industry dummies

Source: ICA 2006 survey

1.88 **To raise the investment-to-GDP ratio to at least 33 percent (for the above-mentioned economic growth of 7-8 percent by 2015),** the consumption-to-GDP ratio would have to decline in order to generate savings for financing investments, and the imports-to-GDP ratio would have to increase in view of the country's high dependence on imported capital goods and most raw materials and intermediate goods. This, in turn, would require greater reliance on exports. At the current level of high consumption, low exports, low investment and high import-dependence, Bangladesh has little option but to pursue an export-oriented growth strategy. The exact economic sectors where this growth would come from are difficult to foresee. It seems, however, that considerable potential remains in the RMG industry, as labor costs are rising rapidly in China and India. Beyond garments are several other promising sectors, such as

pharmaceuticals, electronics, ship building, jute, ceramics, leather, footwear, ITES-BPO (information technology and business processes), and agro-processing among others.

Prioritizing constraints to growth acceleration.

1.89 **Bangladesh needs to focus on improving competitiveness**. Having secured a reasonable level of macro-economic stability and completed the first generation reforms, Bangladesh is now set to focus on issues of competitiveness and productivity through micro-economic reform programs. An enabling investment climate is a significant factor in any country's competitiveness. Generally speaking, the investment climate is defined as "the set of location-specific factors shaping the opportunities and incentives for firms to invest productively, create jobs and expand."[36]

1.90 **Firm-level, survey-based investment climate assessments (ICA) are commonly used to identify the principal bottlenecks to competitiveness and productivity growth and evaluate the impact these have on economic performance at the micro level**. Such surveys collect data at firm level in the themes of (i) infrastructure, (ii) red tape, corruption and crime, (iii) finance and corporate governance, (iv) quality, innovation and labor skills, and (v) control variables such as capacity utilization, age, firm size, etc. An ICA was last conducted in Bangladesh in 2006, covering private firms in metropolitan areas and non-farm enterprises in peri-urban areas, small towns and rural areas.[37] The data collected in this survey provide the basic information for an econometric assessment of the impact or contribution of investment climate (IC) variables on productivity and other measures of economic performance such as exports, FDI, and employment. The methodology used here is based on Escribano et al., 2008.[38]

1.91 **The model was used to estimate the relative contribution of each of the IC variables on productivity, exports, employment and FDI**. The estimation begins with productivity analysis based on aggregate average cost shares to obtain Solow's residuals in levels (logs) and then proceeds to estimate IC elasticities and semi-elasticities using an extended production function by two steps OLS. This equation is then used to evaluate the impact of each IC variable on average log productivity at their sample means (Figures 1.14-1.17). The numbers in the figures are relative percentages computed with the absolute values of percentage contributions, that is, the relative weight of each group of IC variables on average log productivity, exports, employment and FDI.

Productivity: Age and capacity utilization contribute most to firm productivity (Figure 1.14).

- The variables with the largest contributions (28.9 percent) are the other control variables. Within this category, age and capacity utilization account for nearly 23 percentage points.
- Quality and innovation come next with 21.1 percent. The experience of managers (5.1 percent), dummy for R&D (4.6 percent) and dummy for new line of products (4.2 percent) are the most significant ones in this category.
- The infrastructure variables together contribute 18.2 percent. Within this group the largest contributions come from days to clear customs to export (6.9 percent), followed by dummy for webpage (6.2 percent), and water outages (2.2 percent). Power outages and electricity from a generator are significant, but the magnitudes of their impact (respectively 0.5 percent and 0.5 percent) are small.

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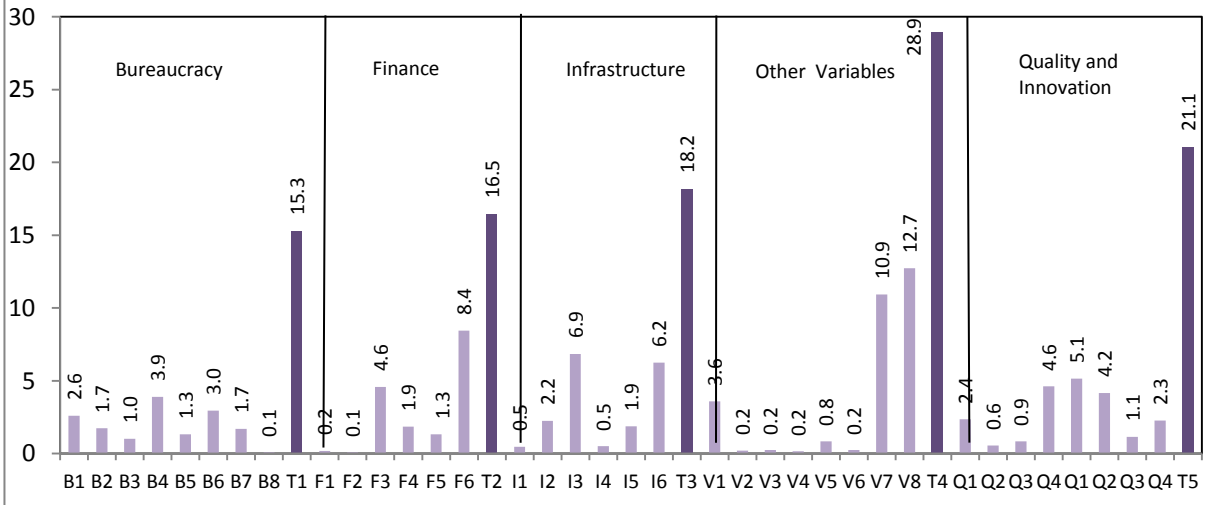
[36] World Bank, 2005c.

[37] For more detail on the methodologies used, see World Bank, 2008a, Harnessing Competitiveness for Stronger Inclusive Growth.

[38] Alvaro Escribano et al., *Investment Climate and Firm's Economic Performance: Econometric Methodology and Application to Turkey's Investment Climate Survey*, Universidad Carlos De Madrid, June 2008.

- External auditory (8.4 percent) and new fixed assets financed by internal funds (4.6 percent) are the most important factors in finance and corporate governance (16.5 percent). Number of tax inspections (3.9 percent), payment to deal with bureaucratic issues (2.9 percent), domestic shipment losses (2.5 percent), manager's time spent in bureaucratic issues (1.7 percent), and crime losses (1.7 percent) are the most important variables in bureaucracy (15.3 percent).

Figure 1.14: Absolute Percentage Contributions of IC Variables on Productivity



B1=Shipment losses, domestic
B2=Manager's time spent in bur. issues
B3=Days waiting for obtaining a permit
B4=Number of tax inspections
B5=Payment to obtain a contract w/ the govt.
B6=Payment to deal with bur. issues
B7=Crime losses
B8=Security expenses
T1=Bureaucracy
F1=Purchases paid after delivery
F2=Sales paid before delivery
F3=New fixed assets financed by internal funds
F4=New fixed assets financed by private banks
F5=Dummy for loan
F6=Dummy for external auditory
T2=Finance

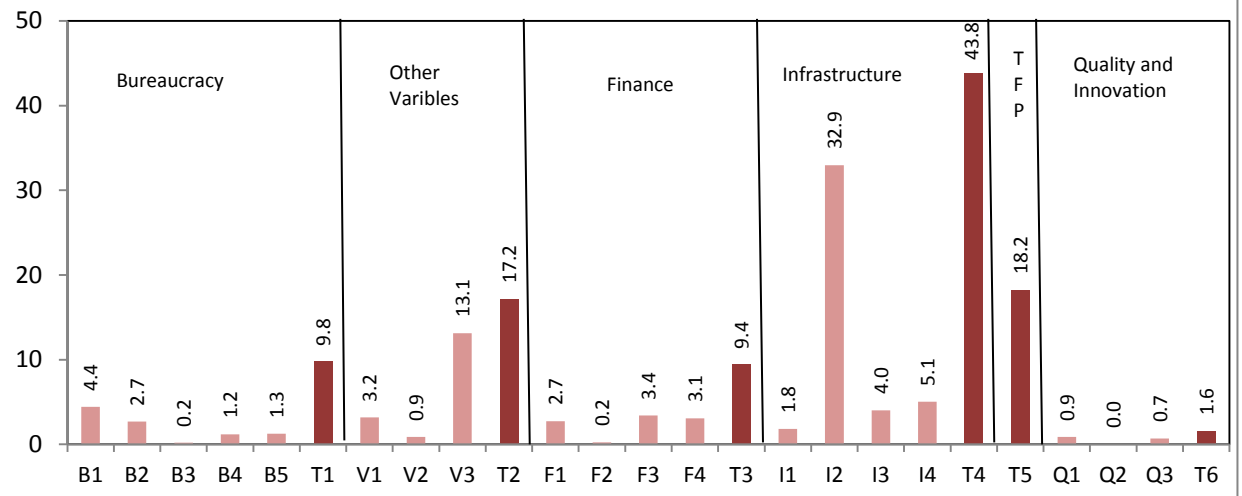
I1=Power outages
I2=Water outages
I3=Days to clear customs to export
I4=Electricity from a generator
I5=Days of inventory of main input
I6=Dummy for webpage
T3=Infrastructure
V1=Dummy for increased sale
V2=Dummy for decreased sale
V3=Dummy for increased prices
V4=Dummy for decreased prices
V5=Dummy for less than 5 competitors
V6=Dummy for more than 5 competitors
V7=Age
V8=Capacity utilization
T4=Other control variables

Q1=Dummy for quality certification
Q2=Dummy for foreign technology
Q3=Dummy for outsourcing
Q4=Staff with computer
T5=Quality & innovation

Exports: Infrastructure and productivity matter most for exports (Figure 1.15).

- Infrastructure is the key group of variables affecting the probability of exporting with its relative percentage contribution being 43.8 percent. Not surprisingly, days to clear customs to export dominates in this group with a contribution of 32.94 percent followed by water outages (5.1 percent) and dummy for webpage (5.1 percent).
- Productivity has a clear positive 18.2 percent impact on the probability of exporting. Capacity utilization (13.1 percent) and age (3.2 percent) matter most in the group of other control variables.
- In the bureaucracy group, crimes losses (4.4 percent) and manager's time spent on bureaucratic issues (2.7 percent) have the most impact on the probability of exporting.

Figure 1.15: Absolute Percentage Contribution of IC Variables in Export



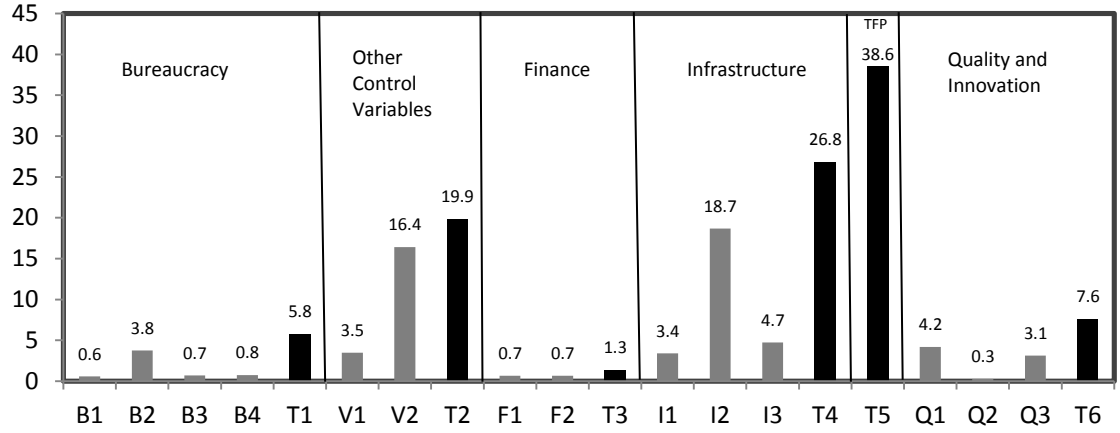
B1=Crime losses
B2=Manager's time spent in bur. Issues
B3=Payment to obtain a contract with the government
B4=Payment to deal with bur. Issues
B5=Number of tax inspections
T1=Bureaucracy
V1=Age of the firm
V2=Dummy for incorporated company
V3=Capacity Utilization
T2= Other control variables
F1=New fixed assets financed by internal funds
F2=New fixed assets financed by state owned banks
F3=Dummy for loan
F4=Dummy for external auditory
T3= Finance

I1=Power outages
I2=Days to clear customs to export
I3=Dummy for webpage
I4=Water outages
T4=Infrastructure
T5= Log(Productivity)
Q1=Dummy for quality certification
Q2=Dummy for upgrading an existing production line
Q3=Dummy for training
T6= Quality and Innovation

Foreign Direct Investment: Productivity outranks infrastructure in affecting foreign direct investment (Figure 1.16).

- Productivity, with a contribution of 38.6 percent, is the key variable affecting the probability of receiving FDI in Bangladesh.
- The next important group is infrastructure (26.8 percent). Within infrastructure, power outages dominate with a contribution of 18.7 percent.
- The contribution of finance and bureaucracy is surprisingly small, only 1.3 percent and 5.8 percent respectively.
- Capacity utilization also has a significant 16.4 percent impact.

Figure 1.16: Absolute Percentage Contribution of IC Variables on FDI

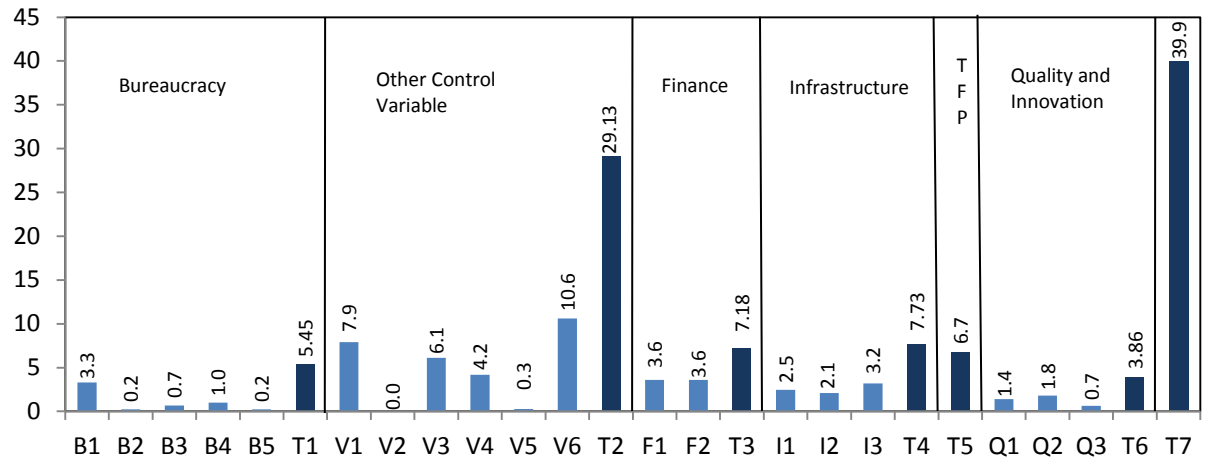


B1=Number of tax inspections
B2=Security expenses
B3=Payment to obtain a contract with the government
B4=Manager's time spent in bur. Iss ues
T1= Bureaucracy
V1=Dummy for importer
V2=Capacity utilization
T2=Other control variable
F1=New fixed assets financed by internal funds
F2=Dummy for external auditory
T3= Finance
I1= Water Outages
I2=Power Outages
I3=Days to clear customs for export
T4=Infrastructure
T5= Log(Productivity)
Q1=Dummy for foreign technology
Q2=Dummy for R&D
Q3=Dummy for training
T6=Quality and innovation

Employment: Wage dominates the contribution to employment (39.9 percent) followed by other control variables in which capacity utilization, new fixed assets financed by internal funds, and age are the most important factors (Figure 1.17). Infrastructure, finance, and productivity are next, with near-equal contributions (about 7 percent each).

1.92 **The above results help narrow the policy focus on key factors for enhancing productivity growth, exports, FDI and employment**. That the investment climate matter is only a restatement of what is well known already. The value addition is the estimation of the relative size of the impact of various investment climate variables that indicate where reforms should concentrate and what results can be expected from those reforms. Quality and innovation and infrastructure matter most for productivity. Infrastructure is also critical for export and FDI as is productivity. This suggests a potential virtuous cycle of growth—better infrastructure will improve productivity which in turn will make exports more competitive and attract FDI, thus leading to further improvements in productivity. The most important factor within the infrastructure groups for both FDI and exports is days to clear customs. Power outages have the largest effect on FDI. Wage and capacity utilization are critical for employment. Although these findings are based on data now six years old, more recent surveys confirm that they remain valid.

Figure 1.17: Absolute Percentage Contribution of IC Variables on Employment



B1=Crime losses
B2=Manager's time spent in bur. Issues
B3=Payment to obtain a contract with the government
B4=Payment to deal with bur. Issues
B5=Number of tax inspections
T1=Bureaucracy
V1=New fixed asstes financed by internal funds
V2=New fixed assets financed by state owned banks
V3=Age of the firm
V4=Dummy for exporter
V5=Dummy for incorporated company
V6=Capacity utilization
T2=Other control variable
F1=Dummy for loan
F2=Dummy for external auditory
T3=Finance
I1=Power outages
I2=Days to clear customs to export
I3=Dummy for webpage
T4=Infrastructure
T5= Log(Productivity)
Q1=Dummy for quality certification
Q2=Dummy for upgrading an existing production line
Q3=Dummy for training
T6=Quality & innovation
T7=Log(Wage)

1.93 **According to the World Economic Forum's 2010-2011 Global Competitiveness Report, infrastructure issues continue to be the most binding constraints on investment**. Notwithstanding the fact that only 45 percent of households have access to electricity, the daily shortage of electricity is estimated to be about 2,000 megawatt, except in winter.[39] Power outages of up to eight hours per day are common in summer. Bangladesh ranks last among its Asian competitors in terms of power outages.[40] Currently, 78 percent of the country's power plants use natural gas as the primary energy. Gas availability to run these plants as well as gas based captive generators in the private sector is a major problem. Power outage is one reason why manufacturing productivity in Bangladesh is much lower relative to Vietnam and China.[41]

1.94 **Transportation has emerged as another critical constraint**. Roads predominate as railways are inefficient and waterways and barge container transport are underutilized. The World Bank's Logistic Performance Index finds Bangladesh's transportation infrastructure and services to be of poor quality.[42] It

[39] Winter lasts no more than two months in Bangladesh.

[40] World Economic Forum, Global Competitiveness Report 2011.

[41] Asia Society, Enhancing Trade and Investment between the United States and Bangladesh, 2010.

[42] Logistics Performance Index overall score reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance. Data are from Logistics Performance Index surveys conducted by the World Bank in partnership with academic and international institutions and private companies and individuals engaged in international logistics. 2009 round of surveys

is a serious handicap on the flow of freight within the country and to overseas. Bangladesh ranked 79 in 2010, compared with China (27), Philippines (44), India (47) and Vietnam (53). Bangladesh is at a competitive disadvantage in terms of port infrastructure, paved roads, airport density, quality of air transport, and railroads. The share of paved roads in total roads in Bangladesh is some 20 percentage points below the norm after controlling for the stage of development. This is a big drawback for a country with one of the highest population densities in the world. It is a major constraint to a manufacturing led growth strategy which needs better roads for more efficient transportation of good and labor mobility.[43]

1.95 **The development of a vibrant capital market is critical for Bangladesh to finance the new generation of long term investments needed to promote higher growth**. This will also be the key to providing mechanisms of ensuring greater liquidity and minimizing risks in the financial markets. So far the equity market seems to have developed at a faster pace in terms of liquidity, regulatory framework, and other operational procedures along with turnover and market capitalization while the long term debt market has lagged behind. This calls for measures to develop the country's debt market since the primary role of the banking system should be to ensure liquidity to finance short term production. Undue reliance on banks as the source of long term investment capital creates liquidity mismatch and makes the banking system vulnerable. Bangladesh needs to ensure an expanding debt market that would permit greater reliance on bond financing thereby reducing macro-economic vulnerability and systemic risks through diversification of investment and credit risks.

Table 1.15: Bangladesh's Performance in Governance Indicators

	Voice and Accountability	Political Stability and Absence of Violence/ Terrorism	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
2001	-0.44	-0.55	-0.56	-0.70	-0.80	-0.98
2002	-0.45	-0.81	-0.71	-0.94	-0.81	-1.12
2003	-0.60	-1.04	-0.72	-0.90	-0.95	-1.42
2004	-0.66	-1.19	-0.86	-1.04	-0.99	-1.57
2005	-0.52	-1.63	-0.94	-0.95	-0.90	-1.43
2006	-0.45	-1.44	-0.80	-0.87	-0.84	-1.41
2007	-0.59	-1.41	-0.79	-0.85	-0.83	-1.17
2008	-0.55	-1.47	-0.89	-0.87	-0.72	-1.13
2009	-0.37	-1.55	-0.99	-0.79	-0.72	-0.96

Note: The score ranges from -2.5 to 2.5, with higher values corresponding to better governance outcomes
Source: World Governance Indicators, The World Bank

1.96 **Bangladesh's performance in World Governance Indicators has been mixed** (Table 1.15). While it has improved in voice and accountability and rule of law, there has been significant deterioration in political stability and absence of violence, government effectiveness, and regulatory quality. Bangladesh's ranking has worsened in Ease of Doing Business, from 65 out of 155 in 2006 to 107 out of 183 in 2011.

covered more than 5,000 country assessments by nearly 1,000 international freight forwarders. Respondents evaluate eight markets on six core dimensions on a scale from 1 (worst) to 5 (best). The markets are chosen based on the most important export and import markets of the respondent's country, random selection, and, for landlocked countries, neighboring countries that connect them with international markets. Scores for the six areas are averaged across all respondents and aggregated to a single score using principal components analysis. Details of the survey methodology and index construction methodology are in Arvis and others' Connecting to Compete 2010: Trade Logistics in the Global Economy (2010).

[43] Anand, Ghani, and May.

1.97 **Bangladesh has gradually improved its ranking in Transparency International's Corruption Perceptions Index** (CPI), from the very bottom of the list in 2005 (158th, jointly with Chad) to 134th out of 178 countries in 2010, placing it on a par with the Philippines, and higher than Pakistan (143), but lower than Vietnam (116) and Indonesia (110). Bangladesh's CPI score improved from 0.4 in 2001 to 2.4 in 2010. Despite these improvements, corruption remains a serious problem.

1.98 **The links between governance and growth are complex**. The question of governance pervades a wide range of issues ranging from the process through which the state acquires the authority to manage public resources to the accountable and transparent use of state power as well as participation in decision-making processes. Efficient management of public resources and clarity on the use of these resources has been a key focus of the debate on good governance. However, the links between governance and growth are complex. Bangladesh continues to grow despite weak governance—often referred to as the Bangladesh paradox.

High transaction costs and uncertain private returns result in myopic investments.

1.99 **High transaction costs and uncertain private returns could result in myopic investments**.[44] Policy uncertainty may also translate into increased transaction costs facing some types of vital long-term contracts to the detriment of growth. This has indirect effects on long-term investments, particularly where Government contracts are involved. For instance, it has proved to be very difficult to get private investors to make long-term commitments in the power sector. This is an area where future income streams depend on contracts being honored by successive governments. In the presence of investor perception of such uncertainty, investors could be wary of making long-term investments. Other types of investments and contracts can operate reasonably well even with political instability, as long as the future income streams in question do not depend directly or indirectly on the government exchequer. Since infrastructure and power sector investments require government guarantees for future payments, a vital set of contracts could be adversely affected.

1.100 **What hope can one hold for Bangladesh given such a deeply entrenched non-cooperative political context?** Observers on East Asia often point to the way governments' forged partnership with the private sector through informal and formal networks. There is need for an agenda of action to institute innovative rules of the game that will enhance the policy-making capacity of elected governments and hold them accountable for maintaining policy continuity. While the governance environment may have been just adequate to enable the economy break out of weak growth in the past, it may retard further growth acceleration needed to put the economy on a path of global integration and modernization.[45]

[44] See Khan, Mushtaq, 2010b. *Political Settlements and the Governance of Growth-Enhancing Institutions*. This is a hypothesis based on anecdotal evidence. Research hopefully will subject it to more rigorous testing.

[45] Mahmud, W. et al., 2008. *Governance and Growth: Is Bangladesh an outlier?* Research Brief, International Growth Center.

VII. The Way Forward

1.101 **Bangladesh is one of Asia's youngest countries**. It is poised to exploit the long-awaited "demographic dividend" with a higher share of working-age population and a declining dependency ratio. Labor is Bangladesh's strongest source of comparative advantage (Table 1.16 and Table 1.17). Bangladesh's abundant and growing labor force is currently underutilized.

Table 1.16: Apparel Manufacturing Labor Costs in 2008

US$ per Hour, including social charges (Bangladesh = 100)	
Cambodia	150
Pakistan	168
Vietnam	173
Sri Lanka	195
Indonesia	200
India	232
China (Inland)	305
China (Coastal 1)	491
China (Coastal 2)	409
Philippines	486
Malaysia	536
Thailand	600

Source: Jassin-O'Rourke Group, LLC, EmergingTextiles.com (1998-2008)

1.102 **Bangladesh's competitors are becoming expensive places in which to do business**. In the next three-to-four years China's exports of labor-intensive manufactures is projected to decline. It will no longer have one-third of the world market in garments, textiles, shoes, furniture, toys, electrical goods, car parts, plastic and kitchen wares. Chinese wages are rising above US$150-250 per month; shortages of labor are becoming serious in the Chinese coastal areas; costly labor regulations are increasing; and the government has made it difficult for some foreign investors which have frightened others. Capturing just 1 percent of China's manufacturing export markets would almost double Bangladesh's manufactured exports. The Bangladesh wage is half India's, and less than one-third that of China or Indonesia. According to a survey by consultants Jassin O'Rourke, the lowest labor costs in Q1 '08 were Bangladesh, at 22 US cents per hour, or five-times lower than in China's richest coastal areas.[46] In addition to Bangladesh, Cambodia, Pakistan and Vietnam are other apparel exporters taking advantage of extremely low labor costs, at 33 cents, 37 cents and 38 cents per hour. By contrast, China's lowest labor costs are, at 55 cents, in the country's inland and remote areas while labor costs may now reach US$1.08 in certain parts of the coastal provinces. A recent Credit Suisse report predicted labor costs in China could rise by over 20-30 percent in the next 3-5 years.[47]

Table 1.17: Wages in the Garment Industry

(Approximate monthly wage in US$ in 2010)	
Bangladesh	43*
Cambodia	61*
China	150*-250
India	87*
Indonesia	140*- 155
Vietnam	63*-90

* Minimum wage

Source: Presentation made to DCCI Annual Meeting in December 2010 by Gustav Papanek.

1.103 **Bangladesh can take advantage of this low-cost edge over its competitors**. Bangladesh can become the "next China", with its labor-intensive manufactured exports growing double digit rates a year, if it can break the infrastructure bottleneck and take advantage of its large pool of underemployed labor. A recent World Bank study shows that if Bangladesh can improve its business environment half-way to

[46] Labor costs include wages and bonuses.

[47] Chan, K., 2011. "Rising Labor Costs Erase Southern China's Manufacturing Edge," Associated Press.

India's level, it could increase its trade by about 38 percent.[48] If Bangladesh fails to act soon, others will take the markets China is vacating because of dynamic comparative disadvantage.

1.104 **Export-product and market diversification is crucial to insulate the economy from external shocks, such as the recent global financial turmoil and recession in the US and EU economies**. Experience from other countries suggests that export diversification is associated with generally strong economic performance.[49] Some progress has been achieved in this regard. In fiscal 2008 Bangladesh exported RMG products worth US$16.4 million to Brazil, US$ 60.6 million to Mexico, and US$29.9 million to South Africa. Japan continues to be a huge potential market which is so far untapped. Bangladesh can also look to other emerging RMG import markets such as Russia, Canada, UAE, South Korea and China itself.

1.105 **Diversification of the main migrant labor destination countries would provide the potential to increase the outflow of workers, which would result in higher remittances contributing to economic growth**. It would also reduce the vulnerability of Bangladesh's remittance inflows. Current instability in the Middle East and North Africa may have negative consequences on Bangladeshis living and working abroad, which would negatively impact their ability to remit money back home. However, the direct adverse impact seems to be negligible unless the unrest spreads across the Gulf region e.g., Saudi Arabia, the UAE, Bahrain, Qatar and Kuwait. Concerns over returnees would be less acute if Bangladesh could absorb them internally, by engaging them in large, medium and small industries helping the country's economy to remain on the higher growth path. Besides, alternative overseas market, particularly in the East Asia, Europe and Latin America and also African countries would help mitigate the problem.

1.106 **A new wave of reforms is needed to raise Bangladesh's growth path and mitigate the risk of a slowdown**. This growth path is achievable through a strategy that results in deepening and diversifying Bangladesh's labor-embedded exports to transform the country from a rural, agri-based economy into an urban, manufacturing economy. McKinsey & Company's interview-based survey of chief purchasing officers in European and US apparel companies in 2011 identified a number of challenges which, if not addressed, could cause Bangladesh to miss the opportunity of attracting garment buyers moving out of China. These include transport (congested roads, limited inland transport alternatives, absence of a deep-sea port) and utility supply, compliance with labor and social standards, productivity gap reflecting skill and technological deficiencies, soaring risks and long lead times, and political instability and corruption.[50]

[48] Quoted in Mr. Mahmoud Mohieldin, *Trade and Development in the LDCs: The Aid for Trade Facilitation Agenda*, Pre-Conference Workshop for UN LDC IV Conference, Geneva, December 13, 2010.

[49] Selected Issues, October 2008, IMF.

[50] McKinsey & Company, 2011, *Bangladesh's Ready-Made Garments Landscape: The Challenge of Growth*.

Appendix 1A: Methodology used in the Sources of Growth Analysis

Assume a Coub-Douglas production function:

Y = A [K^alpha x H^ (1-alpha)]^ r

where,

Y is the GDP at market prices (cons.1995/96 local pr.)

K is the total physical cap. stock (cons.1995/96 local pr.)

H is a human capital index

A is the index of Total Factor Productivity (TFP)

r measures the extent of returns to scale: if r = 1 (r > 1) (R < 1), there are constant (increasing) (decreasing) returns to scale.

alpha measures the share of physical capital in output.

H = L x exp(S x E)

where, L is the total labor force between the ages 15-64, S is the return to education, and E is the average stock of education in the economy, proxied by average number of school years per worker.

Then, the growth rate of TFP may be written as:

g(A) = g(Y) - r [alpha x g(K) + (1 - alpha) g(H)], where g(X) is the growth rate of variable X.

Data:

Y: Data on Real GDP are in constant 1995/96 prices. The data are from Bangladesh Bureau of Statistics (BBS).

K: The initial stock of capital is derived using an initial capital-output ratio = 1.08. The data are then extended using the perpetual inventory method. As per the perpetual inventory method, capital stocks are calculated as:

K(t) = (1 - geometric depreciation rate) K (t - 1) + gross capital formation (t - 1)

The data on gross capital formation are in constant 1995/96 prices and are from BBS.

L: Data are from the WB's SIMA database and BBS.

E: The data are from the updated Barro-Lee database on educational attainment. The database was last updated in 2010. The frequency of the Barro-Lee database is every 5 years. Here we fill in the five year periods using the assumption of a constant geometric growth rate within that period.

References:

Measuring Growth in Total Factor Productivity, (PREM note 42) by Swati R. Ghosh and Aart Kraay, 2000.

Economic Growth in East Asia: Accumulation versus Assimilation, Susan Collins and Barry Bosworth, 1996, Brookings.

Appendix 1B: Construction of the Variable ”Reform Period”

Before 1991	0	
1991	1	Industrial Policy 1991; Bank Company Act 1991
1992	2	Introduction of VAT; Credit Information Bureau set up at the Bangladesh Bank; Unification of exchange rate system by abolishing the "Secondary Exchange Market System"; free import of fertilizer from the international market
1993	3	Establishment of the Privatization Board; Privatization of 2 SOEs; Financial Institutions Act 1993; Securities and Exchange Commission Act 1993;
1994-1996	4	Current account convertibility; Privatization of 9 SOEs in 1994 and 1995, Power Sector Reform Program in 1994; Tariff rationalization with highest rate coming down to 60% for most items, the number of tariff rates reduced from 12 to 5, and average tariff rate lowered from 40% to 30% from fiscal 1994-1995; Passing of Companies Bill (1994) and amendment to the Negotiable Instruments Act of 1881. Merchant banker and Portfolio Manager Act 1996. Chittagong Stock Exchange established in 1995;
1997	5	Top CD rate reduced further from 50% to 45%, unweighted average customs duty reduced to 21.87% (compared to 57.23% in 1991-92)
1998-2001	6	Ganges Treaty in 1998, BB revised policy for loan classification and provisioning from Jan 1999; Bank Deposit Insurance Act 2000; PSI system introduced
2002	7	Money Laundering Prevention Act 2002; the auditing and accounting functions have been separated; Top CD rate reduced further to 37.5%; Adamjee Jute Mills closure;
2003	8	Amendments to the Bank Company Act 1991; enactment of Financial (Money) Loan Court Act 2003; floating exchange rate; Amendments to Civil Procedure Code in 2003; Energy Regulatory Commission Act 2003;
2004	9	Anti-corruption Commission established; Top CD rate reduced further to 25%, unweighted average customs duty reduced to 15.7% (compared to 21.87% in 1997)
2005-2006	10	Customs duty structure was simplified to 3 rates with the top rate reduced by 5 percentage points to 25 percent in 2005, quantitative restrictions on imports were lifted; restrictions on FDI in the garment sector outside EPZ were abolished; Large Taxpayers Unit (LTU) for income tax and VAT were set up; MTBF rolled out to 6 ministries; Public Procurement Act 2006; Land Registration Act 2005; Introduction of Automated System for Customs Data (ASYCUDA++); Microcredit Regulatory Authority Act 2006
2007	11	MTBF rolled out to 4 more line ministries bringing the total to 10; 2.2 percentage point reduction in average nominal protection; Separation of Judiciary from the Executive;
2008-2010	12	Average nominal protection rate 21.9%; Corporatization of BTTB to BTCL; Corporatization of 3 nationalized commercial banks; BERC made operational; reorganization of ACC;

Chapter 2: The Economics of Labor Migration and Remittances in Bangladesh

Summary

Significance and Drivers of Remittances

2.1 **The direct contribution of remittances to Bangladesh's national income (GNI) has grown rapidly in the past decade.** Remittances reached 10.5 percent of GDP in fiscal 2011, compared with 4 percent at the beginning of the decade. Remittance growth peaked at 32.4 percent in fiscal 2008 after which growth declined as rapidly as it had risen. Migrant remittances to Bangladesh have accounted for a much larger share of external inflows than it has for LDCs as a group, reaching 87 percent of total external inflows by fiscal 2011.

2.2 **Growth in remittances has been driven largely by the number of migrants abroad rather than remittances per capita.** The number, or stock, of Bangladeshi migrants was the dominant source of remittance growth in all recent years, except fiscal 2006. Growth in remittance per worker has been somewhat volatile. Labor outflows from Bangladesh seem largely a response to the lack of gainful employment opportunities domestically as well as a rising demand for unskilled labor for the non-traded services sector in the labor-importing economies. Growth in the stock of migrant Bangladeshis abroad cannot be a sustainable source of long run growth in remittances for the simple reason that the entire labor force will not emigrate. However, in the short and medium run, there is considerable room for sustained positive net migration because of rising unemployment rate and high underemployment domestically and strong demand for migrant labor internationally in normal times.

2.3 **Most Bangladeshis migrate for short-term employment.** Migration to the Middle East and Southeast Asia has been characterized by short-term employment with specific job contracts. Migrants tend to be young, married males with moderate education. Females are largely excluded from migration due to socio-cultural norms and the regulatory regime that makes migration for women difficult. Including unofficial migration the total share of female migrants from Bangladesh may be as high as 15 percent. There are geographical disparities in access to migration with over 82 percent of migrants coming from the Eastern part of the country. External demand conditions, network effects and domestic liberalization appear to explain the changes in the aggregate stock and flow of migrants over time. Econometric analysis of micro data sets suggests that both demographic and economic factors affect the likelihood of migration. Age and education bear a nonlinear relationship while the pre-remittance income of migrant households bears an inverse relationship with the probability of migration.

2.4 **Migration is constrained by the complexity of the process, high direct upfront out-of-pocket costs, and reliance on informal sources of finance.** The labor migration process from Bangladesh is complex with a multitude of actors involved both at home and in the destination countries. Individual migrants usually procure their employment visas through social networks. Persons already located in the destination country, very often former migrant workers themselves, organize visas for their family members, relatives, friends or members of the same community in the home country. In most cases these persons are not able to procure the visas directly from the employer, but have to go through a layer of other contacts and intermediaries in the destination country. Consequently, private cost of migration is high and variable in the range of Tk 200,000-3,00,000 per migrant. Payments to intermediaries and other helpers account for around three-quarters of upfront cost. Migration is financed mostly by informal borrowing and asset sale/mortgages.

2.5 **A consequence of these constraints is that access to migration opportunities is highly skewed in favor of upper-income groups**. In the HIES 2010 data set, the proportion of migrants rises continuously (with the eighth decile being the sole exception) from 0.5 percent in the lowest decile to 6.8 percent in the ninth and tenth deciles. It appears that at low levels of income, while the incentives to leave

are very strong, most are unable to do so due to fixed costs of migration and their exclusion from credit markets, as poverty constraints do not allow them to self-finance migration. However, the tiny proportions of low-income people who somehow manage to migrate do end up significantly augmenting the income of the family left behind. As a percentage of income before remittance of the recipients, average remittance-per-recipient household declines dramatically as it moves up the income ladder. Average remittance-per-household in the lowest decile is over three times the average remittance per household in the highest decile. This shows that remittances would have contributed much more to poverty reduction than it has if the migration process had been more inclusive.

2.6 **Macro-economic correlates of the amount remitted comprise of the stock of migrants and economic conditions in both home and destination countries.** There is a fairly robust relationship between the stock of Bangladeshi migrants abroad and the level of remittances received. GDP per capita, exchange rate and international oil prices also matter at the aggregate level. 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. Survey evidence shows that the savings rate out of current income is high (over 60 percent). Migrants remit half of their savings on average. The amount remitted rises sharply with increase in the level of remuneration. It also has high and positive correlation to migrants' level of education and varies according to types of occupation.

2.7 **There is strong and robust micro evidence that the capacity to remit and motivations other than altruism are important determinants of remittance behavior.** Powerful evidence in this respect is the positive and highly significant coefficient on the pre-remittance income of the receiving households. This is completely unsupportive of the altruism hypothesis and quite consistent, though not the only possibility, under the self interest hypothesis. The coefficient itself is also economically significant. A one taka increase in the pre-remittance income of the household crowds in remittance by Tk 0.16. There is also no evidence supporting remittance decay. If remittance decay were present, the migrant's length of stay variable (time) will need to have a significant negative coefficient allowing also for nonlinear relationships. The results show that the coefficient on Time is positive and highly significant while the coefficient on Time-square is negative and significant. This suggests that the level of remittance increases at a decreasing rate with the migrants' length of absence, controlling for other variables.

2.8 **None of the demand side variables—the existence of a surviving parent or spouse—seem to matter, although the coefficients have the right sign.** Among the supply-side variables, education and skills matter most. A migrant with secondary education is likely to remit Tk 30,000 more on average per annum than a migrant without secondary education; a migrant with higher education is likely to remit on average Tk 40,000 per annum more than a migrant without secondary education; and a migrant who is unskilled is likely to remit on average Tk 29,000 per annum. The destination country does not seem to matter, however it is modeled (whether dummy is used only for KSA or for GCC as a group).

Impact of Remittances

2.9 **Remittances substantially augment a recipient household's income, consumption and savings.** Surveys have found that average remittance per household per annum is over 1.5 times their pre-remittance income. Remittances account for 63 percent of total household expenditures, and are mostly spent on its intended purpose. Recent household survey data reaffirms that remittances significantly boost income, consumption and savings at the household level; income, consumption, and savings per month are on average 82 percent, 37.7 percent, and 107 percent higher for the remittance-receiving households relative to households who do not receive it. While there seems to be an agreement on the positive impact of remittances on household consumption and savings, results so far are less clear regarding expenditure

decisions and outcomes on human development. Most micro-level surveys and studies conducted in Bangladesh conclude that a large proportion is spent on current consumption.

2.10 **Remittances have developmental impact in Bangladesh.** The development impact of remittances extends beyond the narrow definitions of poverty. Poverty headcount rates of remittance-receiving households in Bangladesh are 61 percent lower than the poverty headcount rate of households who do not receive remittances, according to HIES 2010. Only 13.1 percent of the remittance receiving households was below the poverty line in 2010, compared with 33.6 percent for non-receiving households and 31.5 percent national average poverty incidence. Earlier, HIES 2005 revealed that the poverty amongst remittance receivers was 17 percent compared with 42 percent for households not receiving remittances (World Bank, 2008). These statistics are consistent with the possibility that remittance-receiving households may be non-poor to begin with. Several econometric studies also show that remittances have a pro-poor effect in Bangladesh. A significant number (14 percent) of the short-term Bangladeshi migrant workers are from the low-income (bottom 40 percent) families in rural areas. Remittances constitute a significant part of their income enabling greater access to nutrition, housing, education, health care, and protection against vulnerability.

2.11 **Analysis of international panel data suggests that the impact of remittances on per capita GDP growth is economically significant.** The magnitude of the impact of remittances on per capita growth ranges from 0.12-0.74 percentage points. When the remittance variable is used as an explanatory variable without controlling for the political and economic risk and institutional quality, it has no significant impact on growth. However, when the variables to control for the stability in the political and economic environment and institutional quality are employed, the coefficient on remittances becomes highly significant. This implies that stability in the political and economic environment and quality of the institutions is a critical condition for remittances to be conducive for economic growth.

2.12 **These impact estimates are larger than usually found in the related empirical literature,** which is mostly based on data sets that do not cover the second-half of the last decade when migration and remittance growth surpassed all historical records. The findings are consistent with other studies that have investigated the impact of worker remittances to economic growth. They are also reliable because they are based on a superior dataset covering a larger group of countries and a longer time series, and employ generally accepted estimation methodologies.

Potentials and Policies

2.13 **Given its large and rapidly growing labor force, Bangladesh will do well to deepen its presence in the global migrant labor market to promote growth and inclusion.** High oil prices and expansion of economic activity in the source regions bode well for migration and remittance prospects, although the ongoing protests and internal conflict across North Africa and parts of the Middle East have caused some disruptions in the employment of migrant labor. Globalization of labor markets provides an opportunity to improve the lives of potential Bangladeshi migrants and their families. For the poor and unskilled in Bangladesh, globalization of labor markets provides an opportunity to improve their lives. The steady demand for low-skill labor mainly from the Middle East and other countries in South East Asia means that increasing number of Bangladeshis will continue to migrate abroad and send money back home. The global economic downturn temporarily slowed the growth of new migrants going abroad but the flow of remittances to Bangladesh remained remarkably resilient. There is a clear expectation that remittances will remain important for Bangladeshis in the years ahead. However, political and economic factors have turned the dynamics of migration into a more complex phenomenon. Migration is no longer limited with the movement of people from one place to another within a national boundary. It has both national and international implications.

2.14 **Initiatives from both the government and NGOs ought to be taken to improve the efficiency, safety and inclusiveness of the migration process**. Migrant workers often face difficulties both at home and abroad during the migration process. There are several cases where the potential migrants pay a large amount as fees to the recruiting agencies and do not get the promised jobs. Deportation of migrants back to the home country often arises due to legal problems. Female migrant workers suffer because of limited types of works available for them and they are usually pushed into unsafe activities. The global recession is another major cloud for the migrant workers. In such circumstances new opportunities needs to be explored and ways for reintegrating them need to be worked out.

2.15 **Financing migration for the poor is a significant constraint and risk.** There are large upfront costs in gaining access to foreign labor markets which lead to a higher level of indebtedness for migrant families and pose significant risks in the event that the migrant is out of a job. Innovative policy action is much needed to mitigate these risks. Loans for poorer households to finance migration costs are required. These services may be better provided by micro-finance institutions because they are used to banking with the poor. But they may need to adjust their weekly repayment model, and loan sizes, to match the cash-flow needs of migrants. Better regulation of manpower agencies and information campaign on the costs of migration, the risks, overseas job conditions and migrant rights can also help the poor make more informed choices at each step of the migration process.

2.16 **Overall, the evidence provided here go against the argument that there is little scope for policy intervention from the perspective of the remittance-receiving economies.** Appropriateness of policy depends on our understanding of the factors that most affect migrants' remittance behavior and the motivational characteristics policy makers should consider in their choice of policy instruments to stimulate greater remittance inflows. If individual remittance rates decline over the earlier years of migration, it will be necessary to maintain the rate of new migration to prevent a decline in aggregate remittance levels. On the other hand, if migrant's remittance levels are positively related to the length of stay, as appears to be the case with the Bangladeshi migrants, aggregate remittance levels may not decline over time even if the rate of new migration is insufficient to offset the stock losses from attrition due to death or return migration. Also, the extent to which remittances are responsive to variables other than the needs of dependents left behind determines the space for government policy interventions to induce higher remittance levels. The evidence provided here show that investment in human capital and the export of such capital is a rational strategy for Bangladesh because the returns are much higher relative to what they would have made and contributed staying home.

2.17 **This evidence also show that remittances are not driven exclusively by the need for family support but also by the migrants' skill and educational level and motivations to transfer their savings to invest in their home country.** Contrary to the assertions of many, remittances play a vital role not only in supporting consumption levels but also as a major source of funds for investment. The extent to which remittance go into the latter depends on supportive government policies and a conducive economic environment for investment activities. Efforts to channel remittances to investment through government intermediation have met with little success.

The Economics of Labor Migration and Remittances

2.18 International remittance sent by migrant workers has emerged as a key driver of poverty reduction in many developing countries (World Bank 2006). Recorded remittance flows to developing countries are estimated to have exceeded US$350 billion in 2011, and are projected to increase to US$441 billion by 2014. Remittance has proven resilient to shocks in host countries. The decline in international remittance flows was modest during the global financial crisis compared to a 40 percent decline in foreign direct investment between 2008 and 2009, and an 80 percent decline in private debt and portfolio equity flows from their peak in 2007 (World Bank 2011a).

2.19 The international migration of workers alleviates pressure from the domestic labor market and enhances the economic well-being of the families left behind by the migrants. Remittances contribute to the growth of output in the economy by augmenting consumption and investment demand as well as savings. When the remittance-receiving families spend a significant amount of these transfers on education and health – two important elements of human capital - it contributes further to long-run growth of the economy. By augmenting bank deposits, remittances contribute to financial deepening. Last but not the least, by alleviating foreign exchange constraint, remittances facilitate imports of capital goods and other raw materials used in the domestic production processes.

2.20 Bangladesh has caught up with growing migration trends since the mid-70s when only 6,000 Bangladeshis were working abroad. Migration has now become a major source of gainful employment for Bangladesh's growing number of unemployed and under-employed labor force. The sharpest increase in the level of manpower exports occurred during 2006--2009. As a result, remittances surged. Bangladesh is now among the top six recipients of migrant remittances among developing countries.[1]

Table 2.1: Composition of External Inflows

	Remittances	Grants	FDI & Portfolio Investment	ODA	Total	Remittance GDP Ratio(%)
			US$ Million			
FY01	1882	373	169	543	2967	4.0
FY02	2501	479	385	298	3663	5.2
FY03	3062	510	378	466	4416	5.9
FY04	3369	257	282	147	4055	6.0
FY05	3848	200	800	491	5339	6.4
FY06	4802	500	775	535	6612	7.8
FY07	5979	587	899	512	7977	8.7
FY08	7915	703	795	758	10171	9.9
FY09	9689	523	802	563	11577	10.8
FY10	10987	564	519	914	12984	11.0
FY11	11650	727	740	312	13429	10.5

Source: Bangladesh Bank

2.21 How significant are remittances to the Bangladesh economy? What are the micro and macro-economic determinants of remittance inflows? What are the key constraints to augmenting migration of Bangladeshi labor and thus remittances from abroad? Do remittances contribute to growth of GDP per capita? What is the evidence?

[1] World Bank, *Outlook for Remittance Flows 2012-14*, Migration and Development Brief 17, December 1, 2011.

I. Trends and Significance

2.22 **Remittances have emerged as a large and growing source of national income and the largest single source of foreign exchange.** Remittances to Bangladesh have become a significant source of national income and foreign exchange. It accounted for 9.9 percent of GNI and 10.5 percent of GDP in fiscal 2011. Remittances are the largest single source of external financial inflows for Bangladesh. It has been more than ten-times larger than average annual medium and long-term official loans in the past decade. Migrant remittances were five-and-a-half times larger than the total medium and long term capital flows received by Bangladesh in fiscal 2011 (Table 2.1). Compared to all developing countries as a group, migrant remittances to Bangladesh have accounted for a much larger share of external inflows. Bangladesh along with India, Pakistan, and Sri Lanka were all significant positive outliers compared to the norm (the ratio predicted by remittance-GDP relation based on cross country regression) when the share of remittances in GDP is compared with more than 100 countries in 2005.[2] Remittance inflows to Bangladesh have increased nearly six times in the last decade from US$1.9 billion in fiscal 2000 to around US$11.6 billion in fiscal 2011. Remittances per capita increased from US$24.3 in fiscal 2004 to US$77.4 in fiscal 2011. This increase reflects increase in remittance per migrant from US$1107.3 in fiscal 2004 to US$1671 in fiscal 2011 as well as increase in the stock of migrant workers from 2.2 percent of population to 4.6 percent during the same period.

2.23 **Remittance flows have been more volatile than the other forms of external inflows to Bangladesh in the past decade.** The coefficient of variation of remittance flows relative to official grants, official MLT borrowing and FDI was much higher. Evidence shows that remittances from migrants in oil rich countries tend to be more volatile because of sensitivity to oil price shocks which induce large movements of migrants between host and home countries. The increase in oil prices in 2006-08 spiked up manpower exports and remittances making it appear to be more volatile.

2.24 **Remittances contribute directly to Bangladesh's national income (GNI).** It also contributes indirectly by influencing real GDP growth through a variety of channels. The rest of this chapter presents a detailed analysis of the direct and indirect contribution of remittances.

II. Determinants of Remittances

2.25 **Remittances have grown at a rapid pace, particularly since fiscal 2004.** Remittance growth peaked at 32.4 percent in fiscal 2008 after which growth declined as rapidly as it rose prior to fiscal 2008 (Table 2.2). Remittance growth can be approximately broken into growth in remittance per worker and growth in the stock of Bangladeshi migrant population abroad. The latter has been the dominant source of remittance growth in recent years except in fiscal 2006. Growth in remittance per worker has been somewhat volatile. Growth in the stock of migrant Bangladeshis abroad cannot be a sustainable source of long run growth in remittances for the simple reason that the entire labor force will not

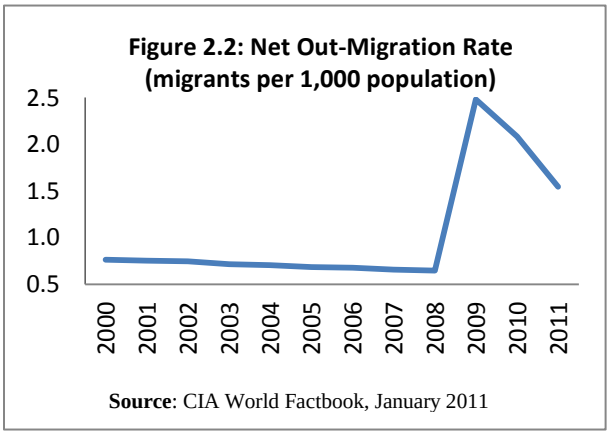
Table 2.2: Decomposition of Remittance Growth

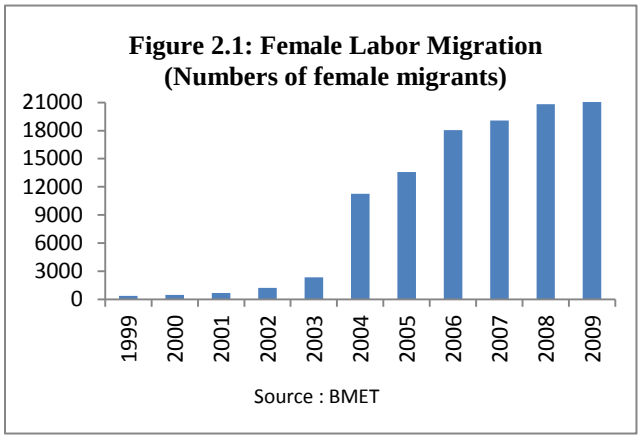
	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Remittance Growth (%)	14.2	24.8	24.5	32.4	22.4	13.4	6.0
Growth in stock of migrants (%)	10	9.1	13.9	21.9	12	17.9	5.6
Growth in remittance per worker (%)	4.2	15.7	10.6	10.5	10.4	-4.5	0.4

Source: Based on BMET and BB data.

[2] Anand, Ghani and May, *What Should South Asia Do to Accelerate Recovery?*

emigrate. However, in the short and medium term, there is still considerable room for sustained positive net migration. The probability of future migration is best judged from the characteristics of the migrant population, the supply side constraints to migration and developments in overseas labor markets. Growth in remittance per worker in turn is a product of the workers' earnings, the propensity to save, and the propensity to remit.





Migration Pattern

2.26 **Over the last three decades Bangladesh has consistently undergone net out-migration.** Relative to population, this exodus peaked at 2.53 per thousand in 2009 (Figure 2.2), compared with an average of 0.71 during 2000-2008. Among the 82 countries with net out-migration in 2010, only 38 had higher net out-migration than Bangladesh.[3] Bangladeshis generally migrate to the Middle East, the United Kingdom, the United States, and Southeast Asia. Migration to the industrialized countries tends to be long-term or permanent while migration to the Middle East and Southeast Asia is usually for a short period. International migration to Middle East, North Africa, and Southeast Asia took place mainly after the independence of Bangladesh in 1971. The rise in oil prices in the 1970s increased the demand for low-skilled workers to work in the infrastructure development projects in the Middle Eastern countries. Later, there were similar demands from the newly industrialized countries of the Southeast Asia.

Table 2.3: Top 10 Destination Countries of Bangladeshi Migrants

Country	Stock*	% of Total
Saudi Arabia	2,046,736	31.1
U.A.E	1,542,376	23.5
Malaysia	553,789	8.4
UK	379,716	5.8
U.S.A	298,067	4.5
Oman	281,105	4.3
Kuwait	260,013	4.0
Singapore	223,677	3.4
Qatar	154,309	2.3
Bahrain	149,698	2.3

* Stock up to June 2010
Source: Calculated from BMET data.

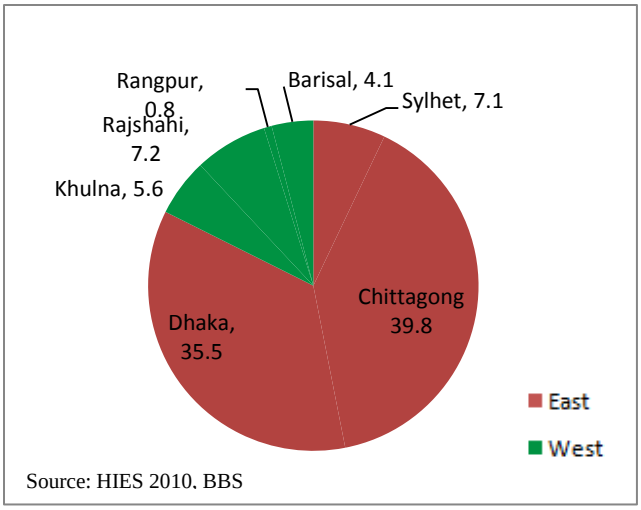
2.27 **Migration to the Middle East and Southeast Asia has been characterized by short-term employment with specific job contracts.** Migrants return home after completion of the contract period. After steadily fluctuating back and forth from roughly 200,000 workers to 300,000 workers between 1993 and 2006, around 560,000 workers left the country every year on average during 2005-09. The outflow of workers peaked at over 980,000 in 2007-08 before declining subsequently to about half a million per annum during fiscal 2009-2011. About 7.3 million Bangladeshi migrants were working abroad as of end-December, 2011. Bangladeshi migrant workers are located in over 100 countries. However,

[3] CIA World Factbook, January 1, 2011.

around two thirds of all migrants work in the Gulf Cooperation Council Countries (GCC): Saudi Arabia, UAE, Bahrain, Kuwait, Oman, and Qatar. About 90 percent of the current stock of migrant workers is located in just 10 countries, 7 of which are either in the Middle East or in South-East Asia (Table 2.3).

2.28 **Females are largely excluded from migration.** Female migration from Bangladesh is limited compared to global and regional levels. Women constitute around half of the estimated 214 million migrants worldwide. In Asian labor exporting countries such as the Philippines and Indonesia, women make up more than two thirds of migrant workers. In South Asia, more than half of migrant workers in Sri Lanka are women, and Nepal is now globally the country with the most feminized migrant stock (IOM, 2010). According to BMET data, female migrants from Bangladesh constituted around 4.7 percent of the total outflow in 2009. Until 2003, the share of female migrants was less than 1 percent due to a government ban. The trend has been sharply increasing since (Figure 2.1). Including unofficial migration, it is estimated that the total share of female migrants from Bangladesh may be as high as 15 percent (Blanchet et al., 2008).

Figure 2.3: Migration (% of total, number)



Source: HIES 2010, BBS

2.29 **Increasing demand for female migrants in the service-sector industries in developed countries and emerging markets has encouraged increasing migration of women, including from Bangladesh.** Currently most female migrants from Bangladesh are involved in domestic work followed by manufacturing such as in garments. A small number is involved in nursing. Destination countries of female migrants are mostly very similar as for male migrants with the exception of Lebanon, where 13,000 Bangladeshi women migrated in 2009. Historically, Sri Lanka has been the only country in South Asia encouraging female labor migration. Bangladesh, India and Pakistan have in the past tried to restrict or to ban female migration. The Middle East, which is the major destination area for Bangladeshi migrant workers, is also globally the region with the lowest share of female migrants (38 percent) in relation to the total migrant population (IOM, 2010).

2.30 **There are geographical disparities in access to migration.** Over 82 percent of migrants abroad come from Dhaka, Chittagong and Sylhet (East); and another 7 percent from Rajshahi (Figure 2.3). Barisal, Rangpur and Khulna's share in total migrants is very small. The East-West divide has changed very little relative to 2005. The explanation for such geographical disparities can perhaps be found in the "new economics of migration" which postulates that household, families, or other groups of related people operate collectively to maximize income and minimize risks by sending one or more family members abroad to increase overall family income while others remain behind earning lower but more stable incomes. These "network effects" suggest that migration will tend to be high from regions from where the stock of migrants is already high. Survey evidence suggests that transnational migration networks provide prospective migrants with information about economic conditions in destination countries, support in managing the immigration process, and help in obtaining housing and finding a job.[4]

Drivers of Migration

[4] Hanson, G.H. 2010. *International Migration and the Developing World*, Chapter 66, in Dani Rodrik and Mark Rosenzweig, editors: *Handbook of Development Economics*, Vol. 5, The Netherlands: North-Holland, 2010, pages 4363-4414.

2.31 **Labor outflows from Bangladesh seem largely a response to the lack of gainful employment opportunities domestically as well as rising demand for unskilled labor in the non-traded services sectors of labor-importing economies.** The forces driving Bangladeshis to migrate appear to fit the Harris-Todaro explanation quite well—that push factors such as poverty, underemployment and low wages at home combine with pull factors such as prospects of higher wages and full employment to primarily drive the supply of migrants. "Diaspora" migration may have dominated trends in the decades prior to the 1990s, but in the last two decades economic motives have become the major factor influencing migration. This is evident from the surge in temporary migration to countries, where Bangladeshis are not quite attracted by political stability, the human rights situation, or more generally "quality of life" considerations.

2.32 **Temporary migration is arguably more beneficial for the sending country than permanent migration.** Firstly, both savings and remittances are likely to be high if the migrants plan to return home. Secondly, the sending country benefits from the skills and experience acquired abroad. Thirdly, migrants tend to be intrinsically prone to take risks and alter their economic situation through expenditures on education and investment.

Table 2.4: Correlates of Migration

	Dependent Variable **Migrant Flow**				Dependent Variable **Migrant Stock**	
	I	**II**	**III**	**IV**	**I**	**II**
GDP Growth	12.37 (0.78)	8.4 (0.5)			8.66 (0.52)	
Inflation	-3.29 (0.8)	-3.62 (-0.82)	-2.42 (-0.61)		-3.46 (-0.82)	
Investment	1.21 (0.12)	-1.8 (-0.16)	0.37 (0.04)			
Economic Reform	8.49 (0.6)	45.32** (2.26)	13.51 (1.09)	16.24** (2.3)	43.76** (2.52)	48.22*** (3.0)
Lag of Migrant Flow (-1)	0.38** (2.4)		0.37** (2.35)	0.36** (2.42)		
Lag of Migrant Stock (-1)		-0.05 (-1.34)			0.94*** (24.23)	0.95*** (24.88)
Oil Price	3.4** (2.49)	4.83*** (3.02)	3.17** (2.4)	2.78** (2.44)	4.86*** (3.12)	4.21*** (3.16)
R^2	0.82	0.8	0.82	0.82	0.99	0.99
Adjusted R^2	0.79	0.76	0.79	0.8	0.99	0.99
N	35	35	35	35	35	35
F-Statistic	22.08	18.95	26.74	46.81	3503.67	6082.85
Durbin Watson Statistic	1.45	1.06	1.39	1.35	1.06	0.99

t-statistics are given in the parentheses,*** Significant at 1% level,** Significant at 5% level,*Significant at 10% level
Note: Migrant stock and flow are in thousands ('000), inflation is calculated from GDP deflator, investment is given as % of GDP, reform dummy is the same as in Appendix 1B, oil price is the average of nominal US domestic crude oil prices, given in US$/Barrel.
Source: Bureau of Manpower, Employment and Training (BMET), WDI, www.inflationdata.com

2.33 **External demand conditions, network effects, and domestic liberalization appear to explain the changes in the aggregate stock and flow of migrants.** In theory, a host of factors can influence the decision to migrate temporarily and return. These include demographic factors such as age, marital status,

number of children; economic factors such as net earning possibilities and employment conditions, cost of migration, access to finance; social factors such as network effects; and factors such as political and social stability at home and destination countries. Data scarcity is a serious constraint in being able to take all these factors into account to explain the historic stocks and flows of migrants. Results of some ad-hoc OLS regressions using the migrant stocks and flows as dependent variables are reported in Table 2.4. In all the specifications, inflation, GDP growth and the investment rate are statistically insignificant. However, lagged migrant stock/flow, reforms and oil price have the right sign and are significant in all specifications.

2.34 **The importance of differential economic advantage is well-established in the literature as is that of network effects.** Differential economic advantage has driven migration during the Nineteenth and Twentieth century and it is a prime driver of contemporary international migration.[5] It is true for highly skilled groups as well as for groups with lesser skills. More evidence on the magnitude or extent of differential economic advantage gained by Bangladeshi migrants is provided in the next section. The positive sign and significance of oil price in all the equations is consistent with this thesis. Oil driven economic activities have made GCC countries potentially advantageous destinations for migrants from Bangladesh. Presence of past migrants helps current migrants turn the potential advantage into actual advantage. It is therefore not at all surprising that past migrants, measured in terms of a one year lagged migrant stock as well as flow, appears as a key explanatory variable in the results reported in Table 2.4. International research shows that the migration flow can gain a life of its own independent of the initial conditions that caused the flow because a sufficient pool of past migrants at a destination reduces the cost of current migration. Economic liberalization, particularly convertibility of the current account, allowing migrants to hold foreign currency deposits, and exchange rate de-control have also encouraged migration as captured by economic reform variable modeled as an ordinal dummy variable.

2.35 **Both demographic and economic factors affect the likelihood of migration at the micro level.** Most surveys of Bangladeshi migrants find that migrants tend to be young, married males with moderate education. According to the IOM 2009 survey, which is the most recent survey available, the migrants are predominantly males (98 percent) with an average age of 32 years. Three-quarters had at least completed primary schooling, while 10 percent of all migrants never attended school. Only 13 percent of migrants had completed secondary education, and even fewer had obtained a degree or above (5 percent). Other micro-surveys have found the levels of education of Bangladeshi migrant workers to be even lower (e.g., World Bank, 2007; Afsar, 2009; Maxwell Stamp, 2010).

2.36 **A probit equation relating migration status to individual migrant and their household characteristics is estimated using the 2010 Household Income and Expenditure Survey data to assess the relative importance of various factors affecting migration.** The dependent variable is specified as a binary variable taking the value of 1 in case of households with migrants and zero otherwise (results are reported in Appendix 2A, Table 2.14). The table also reports results of a similar equation estimated on a different data set by Sharma and Zaman (2009). Their results are strikingly similar to the results found in this study. The probability of migrating is higher for males and Muslims. Age and education bear a non-linear relationship with the probability of migrating. In both cases, migration probability first increases and then declines after reaching a threshold value of 43.3 years in case of age and 10.5 years in case of education. Sharma and Zaman's thresholds were respectively 44 and 9 years. This confirms the anecdotal impression that most people migrate temporarily and they do so at a young age. The decline in the probability of migrating at higher levels of education reflects the fact that most of the migrants are unskilled or semi-skilled. Unlike Sharma and Zaman, this study does not find a significant positive relationship between land ownership and the probability to migrate. However, it finds

[5] Greenwood and McDowell (1992) The Macro Determinants of International Migration, Arizona State University, March.

an inverse relationship between the pre-remittance income and the probability of migrating, suggesting the dominance of the economic factors in the decision to migrate.

2.37 **Given Bangladesh's vast young population (over 62 percent of the labor force is 15-39 years old) and the demographic transition, the number of potential migrants in the near- and medium-term will increase.** Whether they will succeed in migrating depends on how they are able to cope with the constraints to migration to take advantage of the differential economic advantage of migration.

Constraints on Migration

2.38 **Migration is constrained by the complexity of the process, high direct upfront out-of-pocket costs, and reliance on informal sources of finance.** The labor migration process from Bangladesh is complex with many actors involved, both at home and in destination countries. According to government data, around 60 percent of migrant workers leave independently, 39 percent with the help of recruitment agencies, and about 1 percent migrate using government or other channels.[6] Individual migrants usually procure their employment visas through social networks. Persons already located in the destination country, very often former migrant workers themselves, organize visas for their family members, relatives, friends or members of the same community in the home country. In most cases these persons are not able to procure the visas directly from the employer, but have to go through a layer of other contacts and intermediaries in the destination country.

Table 2.5: Costs of Migration

Migration Costs (in Taka)	Male (%)*	Female (%)*	All (%)
< 50000	2.9	13.2	3.1
50,001-100,000	9.2	44.1	9.8
100,001-200,000	33.4	23.5	33.3
200,001-300,000	42.3	9.3	41.8
300,001-400,000	6.7	2.5	6.6
400,001+	3.8	3.9	3.8
Cost borne by others	1.6	3.4	1.6
N1	12,114	205	12,319
Mean cost of migration	220,843	133,564	219,394

Source: IOM 2010
N1 is the number of migrants included in the sample, excluding those whose costs of migration the respondents were unable to report.
* Percentages do not add-up to 100 percent due to rounding errors.

2.39 **Private out-of-pocket cost of migration is high.** The actual average upfront cost of migration from Bangladesh is nearly three times higher than the official maximum charge and almost five times higher than the country's per capita income. The IOM (2010) survey found that three quarters of migrants spent anywhere from Tk 100,001- 300,000, with the average migration cost being Tk 219,394 (Table 2.5). This contrasts with the government's legal maximum charge for migration to the Middle East, which is Tk 84,000. Male migrants spent substantially more to migrate (Tk 220,844 on average) than females (Tk 133,564). The cost of migrating from Bangladesh

Table 2.6: Break-down of the Costs of Migration

Items of costs	Mean Expenses (in Taka)	Percentage
Government fee	1,763.33	0.80
Agency	22,569.90	10.29
Visa	20,460.29	9.33
Ticket fare	5,417.02	2.47
Intermediary	130,518.93	59.49
Other helpers	38,665.50	17.62
Mean expenses	219,394.98	100.00

Source: IOM 2010
Total number of migrants included in this sample is 12,319.

[6] The key government agency involved in the labor migration process is the Bureau of Manpower Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment (MoEWOE). Regardless of the channel of migration used, each individual job seeker needs to be registered in the BMET, which provides workers with an emigration clearance.

is also higher than in other South Asian countries. A survey of recruitment agency fees in the mid-1990s showed the cost of migration from Bangladesh to be nearly twice that from India (World Bank, 2006). This earlier finding was confirmed by a more recent study which showed the cost of migration from Bangladesh to be higher than Nepal's, Pakistan's and Sri Lanka's (Kathri, 2007). IGS (2010) asserts that Bangladeshi migrants often pay double what their counterparts in neighboring countries pay for migration.

2.40 **Payments to intermediaries and other helpers accounted for around three quarters of upfront cost.** Intermediaries and helpers were paid 59.5 percent and 17.6 percent of migration costs on average respectively. Payments for the visa and recruiting agencies accounted for around 10 percent of costs each, while the share of payments for government fees and the ticket fare were reported to be relatively minor (Table 2.5).

2.41 **Studies have shown that the cost of procuring a work visa from a foreign employer constitutes the bulk of the costs paid to intermediaries** (e.g., Afsar, 2009). In the past, employers or recruiting agencies in the destination countries had to pay a commission to their Bangladeshi counterparts for recruiting suitable migrant workers. With increased competition from other labor exporting countries, the cost of obtaining a work visa has shifted from employer to recruiting agencies in the source countries. It is eventually passed on to the potential migrant workers (Siddiqui, 2009).

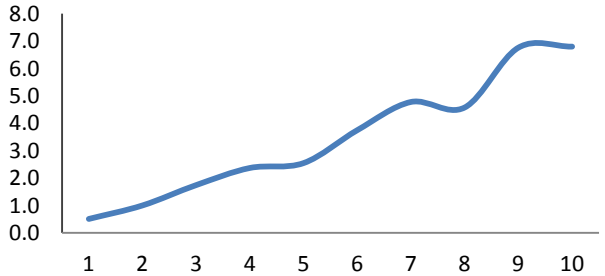
Table 2.7: Sources of Financing for Migration

Sources	Percentage*
Taking Loan	67.4
Family	40.9
Selling land	24.4
Mortgaging Land	23.1
Selling assets such as jewelry, cattle, trees, homes	20.1
Personal savings	8.9
In-laws	4.2
Provided by NGO	3.0
Dowry	0.5

Source: IOM 2010
Note: Total number of migrants included in the sample is 12,893.
* Percentages add to more than 100 percent due to multiple answers provided by respondents

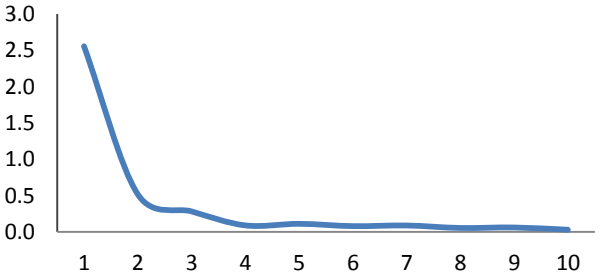
2.42 **Migration is financed mostly by informal borrowing.** There is practically no financial intermediation to provide Bangladeshi migrant workers with affordable loans to cover their pre-departure costs. Migrants may end up paying interest of 10 percent per month on loans to go abroad, which doubles a debt of US$2,000 within a year if repayment is delayed (Martin, 2009). The IOM (2010) survey confirmed that a majority of respondents did indeed have to take out a loan to cover partial or full costs related to their migration (Table 2.7).

Figure 2.5: Ratio of Migrants to Total Population by Decile Groups



Source: Based on HIES 2010

Figure 2.4: Ratio of Remittance to Pre-remittance Income, by decile groups



Source: Based on HIES 2010

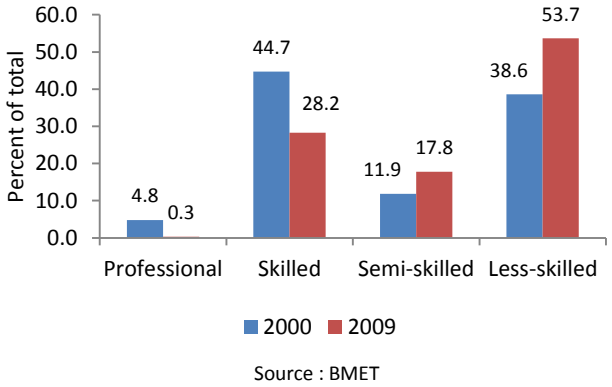
2.43 **Publicly sponsored pre-departure loan programs have not worked.** In 1995, the BMET guaranteed bank loans extended to 100 migrants. Most were not repaid even though the migrants' contracts required their employers to deposit migrant earnings in a bank affiliate abroad (Martin, 2009). Several banks have tried pre-departure loan programs, which have either been abandoned or become largely inactive. Banks reported that there was little guarantee that these loans would be repaid, as complex and nontransparent recruitment processes increase the risk of non-repayment (Siddiqui, 2003). MFIs have also not developed any pre-departure loan programs, which would have to be different from the dominant microfinance model which is targeted at women staying in the villages. International experience with pre-departure loans is also mixed. The Philippine Overseas Workers Welfare Administration (OWWA) suspended its pre-departure loan program in 2008 due to a 30 percent repayment rate (Martin, 2009). Sri Lanka's banks offer relatively small pre-departure loans, but only if an applicant can produce a foreign employment contract (Del Rosario, 2008).

2.44 **A consequence of these constraints is that access to migration opportunities is highly skewed in favor of upper-income groups.** In the HIES 2010 data set, the proportion of migrants rises continuously (with the eighth decile being the sole exception) from 0.5 percent in the lowest decile to 6.8 percent in the ninth and tenth deciles (Figure 2.5). It appears that at low levels of income, while the incentives to leave are very strong, most are unable to do so due to fixed costs of migration, and their exclusion from credit markets as poverty constraints does not allow them to self-finance migration. However, the tiny proportion of low-income people who somehow manage to migrate do significantly augment the income of the family left behind. As a percentage of income before remittance of the recipient, average remittance per recipient household constituted 255 percent of the pre-remittance household income in the lowest decile, 52 percent in the second lowest decile and 28 percent in the third lowest decile. This ratio declines dramatically as it moves up the income ladder (Figure 2.4). Average remittance per household in the lowest decile is over three times the average remittance per household in the highest decile. This shows that remittance would have contributed much more to poverty reduction than it actually did in the past if the migration process were more inclusive.

The Differential Economic Advantage of Migration

2.45 **Economic gains from migration accrue mainly to migrants and their families.** These gains are often large. Purchasing power adjusted wage levels in high-income countries are approximately five times those of low-income countries for similar occupations, generating an enormous incentive to emigrate. The gains are even greater because migrants can earn salaries that reflect richer-country prices and a portion of these salaries are remitted for spending in developing countries, where the prices of non-traded goods are much lower. Migrants, however, incur substantial costs, including psychological costs. Immigrants (particularly irregular and female migrants) sometimes run high risks of exploitation and abuse. The decision to migrate is often made with inaccurate information. Given the high costs of migration—including the risks of exploitation and the exorbitant fees paid to intermediaries—the net benefit in some cases may be low or even negative. There are costs, too, for family members left behind—particularly children—although these costs must be balanced against the benefits of the extra income that migrants send back home to their families.

Figure 2.6: Comparison of Migrant Worker Skills between 2009 & 2000



Source : BMET

2.46 **Bangladesh's unskilled labor abundance**

manifests well in the composition of its migrants. Further evidence in this respect is the fact that most migrant workers are low skilled and increasingly so. According to BMET data, more than two thirds of migrant workers going abroad in 2009 were either classified as less skilled or semi-skilled. The share of low skilled workers from Bangladesh has always been high, and increasing over the past decade (Figure 2.6). In 2000, skilled and professional migrant workers constituted almost half of the total, while currently they represent less than one third. Other important labor exporting countries such as the Philippines have a much higher share of skilled workers going abroad than Bangladesh (IOM 2003). Temporary migrants care mostly about wage and employment conditions. These matter as well from the perspective of the sending country, but what matters most is the amount of money they remit. This depends not just on how much they earn but also how much they save and remit from those earnings.

2.47 **The unskilled Bangladeshi migrants make more money per month abroad than do their counterparts at home.** Low skilled workers are usually placed at the bottom of the salary ranges in destination countries. The IOM survey (2010) found that more than half the migrant workers from Bangladesh earned between Tk. 10,000 - Tk. 20,000 per month, and that around one fifth earned even less than that. Overall average income was Taka 21,363 (US$309) per month.

2.48 **A typical semi-skilled or less skilled Bangladeshi migrant will occupy a low-paid job with wages up to Tk 13,000 per month.**[7] Similarly, Afsar's (2009) qualitative study found that workers in low-skill jobs do not earn more than Tk 13,000 per month on average. The rise in the share of unskilled workers reflects Bangladesh's competitiveness in this category, since domestic wages are much lower than the equivalents abroad. The highest average monthly earnings for Bangladeshi males in 2007 was Tk 7,741 for drivers in road transport, followed by Tk 5,920 for auditors and Tk 5,561 for medical assistants.[8]

Table 2.8: Top 10 Remittance-Receiving Countries, 2010

	Remittances	**Stock of Migrants**	**Remittance per Migrant per Year**
	US$ Billion	*Million*	*US$*
Bangladesh	11.0	6.6	1,672
India	55.0	11.4	4,843
China	51.0	8.3	6,112
Mexico	22.6	11.9	1,906
Philippines	21.3	4.3	4,982
France	15.9	1.7	9,127
Germany	11.6	3.5	3,276
Belgium	10.4	0.5	22,857
Spain	10.2	1.4	7,428
Nigeria	10.0	1.0	10,000

Source: Migration and Remittance Factbook 2011, Bangladesh Bank and BMET

2.49 **An overwhelming majority of the migrants are employed in factories, agricultural sites, and construction sites.**[9] The highest proportion of migrants—nearly one-quarter (24 percent)—was employed as welding machine operators, followed by general labor, which accounted for 17 percent. The other commonly-held jobs were agricultural labor (7 percent), construction worker (6 percent), waiter/cook (5 percent), with motor vehicle driver, and gardener making up 4 percent each. Approximately 2 percent of the migrants were reported to be currently unemployed. Only 13 percent of the migrants were reported as being employed in private companies.

Determinants of Amounts Remitted

2.50 There is a fairly robust relationship between the stock of Bangladeshi migrants abroad and the level of remittances received. However, remittances per migrant are low. Among the top ten remittance-

7 Stamp, 2010. survey of 889 outgoing migrants.
8 BBS, *Wage Rate and Earnings of Non-Farm Workers*, Quarterly Wage Rate Survey, April, 2008.
9 IOM Survey, 2010.

receiving countries in 2010, remittances per migrant were the lowest in Bangladesh (Table-8). This reflects the dominance of low skilled employment among Bangladeshi migrants. 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. Countries' earnings-per-migrant may differ because of differences in the skills and migrant compositions. The propensity to remit may differ because of differences in their motivation to remit and factors such as duration of migration, family situation (single, married, with or without children), cost of money transfer, and network effects (keeping attachments to those left behind).[10]

2.51 **The savings rate out of current income is high.** An average migrant was saving Tk 13,210 per month with 38 percent saving between Tk 5001-10,000 a month and 26 percent, Tk 10,001-20,000 a month. A significant minority (16 percent) could save Tk 5,000 or less. Average savings was Tk 13,210, constituting nearly 62 percent of average income. This is three times the average saving rates of developing countries.[11] The high savings rate is attributable to the limited prospect of remaining in the host country for migrants on temporary or undocumented status.

2.52 **Migrants remit half of their savings on average.** The average size of annual remittance per migrant, based on IOM survey, is about Tk 81,710. This constitutes 32 percent of their income and 52 percent of their savings. Remittances sent by migrants correlate with their individual remuneration, as expected. Migrants who had a monthly remuneration of Tk 10,000 or less, each sent on average between Tk 48,242 and Tk 53,168 in the year before the survey. The amount remitted rises sharply with every increase in the level of remuneration, ranging from Tk 48,242 for those earning below Tk 500,000 and Tk 201,939 for those earning above Tk 500,000.

2.53 **The literature distinguishes between micro- and macro-economic determinants of remittances** (Box 2.1). Among the micro-economic determinants, caring for the family left behind by the migrants in the home country, investment in home country by "self-interested" migrants, insurance against risks those migrants are exposed to in the host country, and repayment to the family for the investment it made on the migrant, have been extensively investigated for various remittance receiving countries around the world. At the macro level, exchange rate, differences in interest rates between host and home country, and business cycle fluctuations in host and home country have been found to be important correlates.

2.54 **Macro Evidence:** What are the key correlates of aggregate remittance inflows in Bangladesh? Many researchers have used aggregate data to analyze the macro-economic factors affecting the behavior of remitters. For example, Barua et al (2007) show that income differentials between host and home country and devaluation of home country currency positively and high inflation rate in home country negatively affect workers' remittances.[12] Hasan (2008) finds remittance respond positively to home interest rate and incomes in host countries.[13] OLS estimation is frequently used.[14] Various versions of simple regression estimates are presented in Table-9. The key finding is that a limited number of macroeconomic factors are important in predicting the behavior of aggregate remittances.

- The most robust predictor of total remittances received is the stock of migrants which remains highly significant in all the five equations estimated. Except for equation-1, the size of the coefficient is very robust ranging from 3.65 to 1.54 across the remaining models. This means that for every thousand

[10] Consistent international data on earnings per migrant, their propensity to save and the propensity to remit are not available.
[11] World Bank, Migration and Development Brief, February 1, 2011.
[12] Barua, et al (2007), *Determinants of Workers' Remittances: An Empirical Study,* Policy Analysis Unit, Bangladesh Bank.
[13] Hasan (2008), *The Macroeconomic Determinants of Remittances in Bangladesh*, MPRA Paper No. 27744, February, 2008.
[14] This assumes that all the right hand variables in the model are exogenous to the receipt of remittances, thus ruling out reverse causality. Unfortunately, data limitation does not allow use of more sophisticated techniques other than OLS.

increase in the stock of migrants abroad, annual remittance increases by US$1.54 million to US$3.65 million, other correlates remaining same. In other words, each additional migrant increases annual remittances by US$1540 to US$3650.

Box 2.1: The Decision to Remit

Most of the current literature on the determinants of remittances is concentrated on the individual motives to remit, rather than on macro-economic variables. One of the motivations for remitting money back home is the migrants' concern (altruism) about relatives left in the home country. The migrant derives satisfaction from the welfare of his/her relatives. The altruistic model derives a number of testable predictions – the amount of remittances should increase with the migrant's income; decrease with the domestic income of the family; and remittances should decrease over time as the attachment to the family gradually weakens. The same should happen when the migrant settles permanently in the host country and family members follow. Another motive for remitting money to family members in the home country may be pure self-interest. A migrant may remit money to parents driven by the aspiration to inherit, if it is assumed that bequests are conditioned by behavior. The ownership of assets in the home area may motivate the migrant to remit money to those left behind, in order to make sure that they are taking care of those assets. Also, the intention to return home may induce remittances for investment in real estate, in financial assets, in public assets to enhance prestige and political influence in the local community, and/or in social capital.

Temporary migrants' are most likely to have a goal to return home with a certain amount of savings. Thus, remittance flows during the migrants' stay abroad may result from a bargaining process between the migrant and his/her family. The claim of the family left at home on the migrant's income is considered as the demand side and the ability of the migrant to remit, i.e. income and the savings from income, as the supply side for remittance. The migrant has an interest in reaching the savings target and to minimize the drains from the income (i.e. consumption expenses in the host country and the money remitted to the family). Therefore the expectations of future income are continuously being revised and a nexus of inter-related factors are adjusted, including the length of stay, the intensity of work, and the flow of remittances for the family's consumption. On the other hand, the family has as its goal an income (including remittances) larger than that of the neighbors, in order to justify the decision to send some family members abroad. Thus, the amount of remittances depends on the migrant's income, the per capita income in the home country and the bargaining power of the two parties.

Aggregate remittance flows certainly reflect the underlying micro-economic considerations determining individual decisions about remittances. However, there are some macroeconomic factors, both in the host and home country, which may also affect the flow of remittances. Migrants' savings that are not needed for personal or family consumption may be remitted for reasons of relative profitability of savings in the home and host country, and can be explained in the framework of a portfolio management choice. In contrast to remittances for consumption purposes, the remittance of these kinds of savings have an exogenous character and are expected to depend on relative macro-economic factors in the host and home country, i.e. interest rates, exchange rates, inflation, and relative rates of return on different financial and real assets.

These numerous hypotheses explaining migration decisions and remittances are not mutually exclusive. In fact, it may be the case that remittances are driven by all of these motives at the same time, each one explaining a part of the remittance amount or period of remitting practice. One of the elements can predominate over the others for a period or for a sample of migrant workers, and their roles can be later interchanged. This implies the complexity of the remittance phenomenon and its determinants, and explains the challenges of developing a universal theory.

- Another robust predictor is GDP per capita. There exists a strong nonlinear relationship in all five equations. The negative sign on GDP per capita suggests remittances increase when per capita income declines. The size of the coefficient is robust across all equations except equation-1 which does not allow for nonlinearity. However, the sign on the squared GDP per capita is significantly positive. Evaluated at the current (fiscal 2011) level of GDP per capita, the overall marginal impact of GDP per capita is positive. The GDP per capita threshold beyond which the marginal impact is positive is US$700—a level of per capita GDP that Bangladesh crossed just in fiscal 2011. This means that

further increases in Bangladesh's GDP per capita can be expected to associate with higher level of remittance, other things equal.

Table 2.9: Macro Correlates of Remittances

	I	II	III	IV	V	VI	VII
Migrant Stock	3.65*** (10.6)	3.03*** (9.34)	3.07*** (9.25)	1.54*** (3.88)	2.54*** (5.63)	1.65*** (4.18)	2.77*** (6.22)
Lag of Remittance (-1)				0.59*** (6.13)		0.6*** (6.02)	
Lag of Remittance (-2)					0.45*** (2.82)		0.4** (2.38)
GDP per Capita	-130.76*** (-6.33)	-82.44*** (-4.65)	-75.64*** (-4.28)	-48.5** (-2.5)	-56.68** (-2.25)	-60.76*** 3.09)	-72.19*** (2.63)
GDP per Capita^2	0.09*** (6.61)	0.06*** (5.03)	0.06*** (4.69)	0.04** (2.46)	0.04* (1.98)	0.04*** (3.03)	0.05** (2.63)
Inflation	42.11*** (3.43)			-9.32 (-0.39)	-70.48 (-1.63)		
Real Interest Rate						-2.52 (-0.11)	56.42 (1.47)
Exchange Rate	142.49*** (3.34)			70.83** (2.17)	87.23** (2.13)	99.21*** (3.12)	126.93*** (3.24)
Inflation*Exchange Rate		1.79*** (2.9)	2.31*** (4.28)	1.45 (1.44)	3.11* (2.25)		
Real Interest Rate * Exchange Rate						-0.94 (1.01)	-2.63** (-2.07)
Oil Price	14.01* (1.89)	13.38 (1.58)		10.16* (1.89)	0.5 (0.06)	11.71** (2.16)	1.25 (0.16)
T	-258.62*** (-4.1)	-87.53*** (-2.79)	-114.5*** (-4.25)	-145.69*** (-3.17)	-297.29*** (-4.28)	-159.41*** (-3.41)	-317.85*** (-4.66)
R^2	0.98	0.98	0.98	0.99	0.99	0.99	0.99
Adjusted R^2	0.98	0.98	0.98	0.99	0.99	0.99	0.99
N	36	36	36	35	34	35	34
F Statistic	382.93	383.29	437.27	705.21	431.75	671.2	418.41
Durbin-Watson	1.57	1.39	1.17	2.31	1.89	2.38	1.94

t-statistics are given in the parentheses,*** Significant at 1% level,** Significant at 5% level,*Significant at 10% level

Note: Remittances are given in million US$, Migrants are given in thousands ('000),GDP per capita is in constant 2000 US$ inflation is calculated from GDP deflator, exchange rate is given in BDT per US$, oil price is the average of nominal US domestic crude oil prices given in US$/barrel, T=1,2,3…36

Data Source: Bureau of Manpower, Employment and Training (BMET), Bangladesh Bank, WDI, www.inflationdata.com

- The exchange rate matters as well. It is positively and significantly associated with the level of remittance in all three equations where it is included. A one taka increase in the exchange rate increases remittances by US$142 million when exchange rate is not interacted with inflation. The significance of the coefficient of the interaction term is not robust across models, although the (positive) sign is. Where it is significant (equation-V), it means the marginal impact of exchange rate

on remittance depends positively on the level of the inflation rate. A taka increase in the exchange rate induces more remittances if inflation is higher.

- Real deposit rate does not seem to matter. The sign is not robust across equations. However, in equation-VII, the interaction of real deposit rate with exchange rate has significant negative sign while the real deposit rate itself has a weakly significant positive sign. A plausible interpretation is that the impact of real interest rate on remittance depends on the exchange rate. Remittance tends to rise with increase in real deposit rate, but the rise is smaller the higher the exchange rate.
- Oil price is used to capture economic conditions in host countries. Its expected positive sign is robust across all equations, but significance is not. In equations where it is significant, a dollar increase in oil price can induce US$10 to US$14 million increase in the level of annual remittances.
- Lagged values of remittances are used in equation VI and VII even though it causes downward bias in the coefficients of the exogenous variables.[15] This holds in the results reported in Table 2.9. The coefficient for the lagged remittances is not of substantive interest. The only goal of the reported exercises is to show a connection between the group of included independent variables and remittances. Finding such a connection even in equations which include lagged remittances is strong evidence that such a connection exists.
- There is a significant negative time trend in remittances received. This is true in all equations except equation-1. This may be reflecting the impact of tighter regulation of international money transfer since 9/11.

2.55 **Micro Evidence**: Drawing conclusions about individual motivational characteristics of migrants from analysis of aggregate data is hazardous. The observed time profile of aggregate remittances need not bear any relation to the profile of a typical migrant's remittance function. Distinguishing the different motives behind remittances illuminates understanding of the role these transfers play in influencing the behavior of households. Remittances are not just an additional source of income for the recipient households, they can be payments for services rendered to the migrant, payoffs of an insurance scheme that shields recipients from income shocks, returns on households' investment in the migrant's human capital and mobility, migrant's investment in inheritable assets or some combination of all these. The policy implications of alternative motives can be very different.

2.56 **A common belief in Bangladesh is that migrants are unlikely to remit for purpose other than altruistic family consumption support.** However, several researchers have argued there may be elements of self interest as well. One manifestation of this is the positive relationship of remittances to the migrants' education level if remittances are effectively a repayment of past expenditure by family in the migrant's education. There is an element of self interest in the migrant honoring the contract. On their eventual return home, migrant may expect to become a beneficiary of family inheritance. Furthermore, apart from the fact that they earn more, skilled migrants with higher level of education are expected to remit more than unskilled migrants with lower levels of education, other things equal, because of an altruistic desire to "repay" their families for past educational expenses.[16] Self interest can also play a part in the migrants' decision-making process either in terms of inheritance-seeking behavior or as rational investors. Empirical studies have also found that migrants are often target savers.

2.57 **International evidence on the relationship between skills and level of remittances sent is not conclusive.** Several international studies (e.g. Niimi et al. 2008) conclude that remittance level is inversely related to skills level: the higher the level of skills, the lower the level of remittance. A study by Faini (2006) using data from European households between 1994 and 2001 also demonstrated that skilled

[15] Nathan J. Kelly, *The Nature and Degree of Bias in Lagged Dependent Variable Models,* Department of Political Science, University of Carolina at Chapel Hill, undated.

[16] Richard H. Adams, Jr., *The Demographic, Economic and Financial Determinants of International Remittances in Developing Countries*, Development Research Group, the World Bank, October 22, 2006.

migrants may have a lower propensity to remit. Skilled migrants tend to come from better off households that have less demand for remittance. They are more likely to take their families along or reunite with them in the destination country. There are arguments and evidence to the contrary as well. Skilled migrants also tend to earn much more than unskilled migrants. A survey of African-born members of the American Economic Association found that they typically remit much more money than it cost to train them, especially to the poorest countries.[17]

2.58 **The IOM survey (2010) shows that remittances sent by Bangladeshi migrants have a high positive correlation to their level of education.** In addition, the survey also revealed that remittances vary according to types of occupation. The highest remittances were sent by migrants doing business or working as doctors, engineers or teachers (Table 2.10).[18] A very recent assessment of evidence by the World Bank concludes that "empirical evidence…does support the idea that high-skilled migrants remit, particularly back to lower-income countries, and that the level of these remittances can be sizeable relative to per capita income in their home countries."[19]

2.59 **Micro evidence on motivation underlying remittance is mixed.** Some results in the literature suggest that remittances are motivated more by an altruistic motive than investment (self interest); remittances are higher under adverse circumstances in the receiving country; and they do not respond much to relative rates of return on investments in the receiving country.[20] Alternative hypotheses of remittance motivations should not be considered as mutually exclusive. An eclectic theoretical model which allows for the total amount remitted to be disaggregated into separate parts, each driven by a different motivational characteristic, can be estimated from micro survey data.

The following are results from estimations of remittance functions for Bangladeshi migrants, taking account of all possible motivational characteristics in a multivariate regression model.

2.60 **The Estimation Model:** Estimating the determinants of remittances using OLS is problematic because of restrictions on the values taken by the dependent variable (remittances) given that the sample consists of households of both remitters and non-remitters. The dependent variable is a mixture of both discrete (zero remittances) and continuous (positive remittances) and is thus truncated at zero. It is now well

Table 2.10: Remittances by Education Level

Levels of Education	Number of Migrants	Average amount per annum [Thousand Taka]
No schooling (No education)	1,305	69.1
Class* I-IV (Incomplete primary education)	1,645	70.4
Class V (Complete primary education)	1,858	74.2
Class VI-IX (Incomplete secondary education)	4,780	79.0
SSC (Complete secondary education)	1,712	88.6
HSC (Complete higher secondary education)	882	102.1
Honors degree or Pass Course Degree	450	122.5
Masters Degree	151	134.6
Other professional degrees (such as in medicine, engineering).	19	178.5
Others	85	116.4
Total	**12,887**	**81.7**

Source: IOM, 2010

* In Bangladesh the word "class" is more commonly used than "grade".

[17] Michael A Clemens and David McKenzie, "Think Again: Brain Drain," Foreign Policy, October 22, 2009.

[18] The latter information needs to be assessed with caution, however, as the data was based on a very small number of migrants found to be exercising professional occupations.

[19] John Gibson and David McKenzie, *Eight Questions about Brain Drain*, Policy Research Working Paper 5668, The World Bank, May 2011.

[20] Poonam Gupta, *Macroeconomic Determinants of Remittances: Evidence from India*, IMF Working Paper, WP/05/224, December 2005.

established that the use of linear OLS in this context leads to biased and inconsistent estimates. Using only the subsample of remitting migrants does not address this problem. We use the one-stage decision process model which models remittance in a single equation estimated by Tobit analysis using data on both remitting and non-remitting migrants. This approach enables identifying one set of variables that are most significant in influencing remittance behavior.

2.61 **The dependent variable in the regression model is the value of remittances in Bangladeshi taka in all forms over the 12 months preceding the survey.**[21] Categories of characteristics affecting a migrant's remittance behavior is distinguished: demand side pressures on a migrant from the receiving end, family ties in particular; supply side factors that affect the migrant's capacity to remit such as education, skill and the destination country; motivational characteristics that affect the migrant's motivation to remit such as altruism and self interest; and the duration of the migrant's absence.

2.62 **The Results:** The results are presented in Appendix 2A (Table 2.15). It is evident from the results that remittance behavior is determined by a combination of supply side and motivational variables. The likelihood ratio tests indicate that the overall model is significant at the 1 percent level. None of the demand side variables—the existence of a surviving parent or spouse—seem to matter, although the coefficients have the right sign. Among the supply side variables, education and skill matter most. A migrant with secondary education is likely to remit Tk 30,000 more on average per annum than a migrant without secondary education; a migrant with higher education is likely to remit on average Tk 40,000 per annum more than a migrant without secondary education; and a migrant who is unskilled is likely to remit on average Tk 29,000 per annum. The destination country does not seem to matter no matter how it is modeled, that is, whether we use dummy only for KSA or for GCC as a group.

2.63 **There is fairly strong and robust evidence that motivations other than altruism are important determinants of remittance behavior.** The positive coefficient on land owned by the recipient household indicates that remittances are motivated by continued maintenance of land assets at home or perhaps the aspiration to inherit the land. More powerful evidence is the positive and highly significant coefficient on the pre-remittance income of the receiving households. This is completely unsupportive of the altruism hypothesis and quite consistent, though not the only possibility, under the self interest hypothesis. The coefficient itself is also economically significant. A one taka increase in the pre-remittance income of the household crowds in remittance by Tk 0.16.

2.64 **There is no evidence supporting remittance decay.** If remittance decay were present, the migrant's length of stay variable (Time) will need to have a significant negative coefficient allowing also for nonlinear relationships. The results show that the coefficient on Time is positive and highly significant while the coefficient on Time-square is negative and significant. This suggests that the level of remittance increases at a decreasing rate with the migrants' length of stay, controlling for other variables. There is therefore no evidence in this dataset that the remittance function of migrants is downward sloping.

Implications of the Analysis

2.65 **Overall, the evidence above contradicts the argument that remittance-receiving countries have little scope for policy intervention.** The regression analysis shows that remittances are not driven exclusively by the need for family support but also by the migrants' skill and education level and motivation to transfer their savings as investment in their home country. Thus, contrary to conventional wisdom, remittances play a vital role in not only supporting consumption but also in serving as an important source of investment funding. The extent to which remittances contribute to investment

[21] The estimation model used here follows closely the methodology used in Richard P. C. Brown, *Estimating Remittance Functions for Pacific Island Migrants*, World Development, Vol. 25, No. 4, pp. 613-626, 1997.

depends on the supportiveness of government policies and whether the economic environment is conducive to investment activity.

2.66 **Future trends in remittance levels are of great significance from an economic policy perspective.** Appropriate policy depends on our understanding of the factors that most affect migrants' remittance behavior and the motivational characteristics policy makers should consider in their choice of policy instruments to stimulate greater remittance inflows. If individual remittance rates decline over the early years of migration, then aggregate remittance levels can be expected to respond almost immediately to changes in the average length of absence of the migrant community. In that case it will be necessary to

2.67 maintain the rate of new migration to prevent a decline in aggregate remittance levels. On the other hand, if migrant's remittance levels are positively related to the length of stay, as in this case, aggregate remittance levels may not decline, even if the rate of new migration is insufficient to offset the stock losses from attrition due to death or return migration. From the migrant sending country's perspective, the extent to which remittance is responsive to variables other than the needs of dependents left behind determines the space for government policy interventions to induce higher remittance levels. The evidence provided here shows that investment in human capital and the export of such capital is a rational strategy for Bangladesh.

III. Impact of Remittances at Household Level: From Direct to Indirect Contribution

The first order impact of remittances on the domestic economy occurs through its impact on decisions made by the recipient households.

Remittances boost households' income, consumption and savings.

2.68 **Remittances substantially augment a recipient household's income, expenditures, and savings.** The average income per household per annum before remittances in the IOM (2010) survey was Tk 64,454. Average remittance per household per annum was Tk 98,708, or more than 1.5 times its pre-remittance income. Remittances constitute 63 percent of total household expenditures. Comparing the actual use of remittances by the households with the purpose intended by the sender, the IOM survey found that remittances were mostly spent for their intended purposes. Analyzing the expenditure of the additional income provided to households by remittances, most micro-level surveys and studies conducted in Bangladesh conclude that a large proportion is used for current consumption.

Table 2.11: Use of Remittances by Households

Use	Percentage*
For family expenses	81.1
Celebration of Eid festival	47.8
Paying off debt	42.6
Medical treatment	34.2
Education of children	29.8
Construction/repairing of house	7.3
Mortgaging of land	7.2
Savings	7.1
Purchase of land / property	5.1

Source: IOM 2010

*Sample size of migrants was 12,893. Percentages add to more than 100 percent due to multiple answers.

2.69 **The IOM (2010) survey confirms the conclusions of earlier studies that households use a large part of their remittances for consumption.** Family expenses were the main use for most respondents (Table 2.11). A considerable amount was also used for paying off debts and celebration of the Eid festival. Property-related expenses such as construction or house repairs, mortgage or purchase of land and property were reported as important uses of remittances by some

20 percent of respondents. Medical treatment and education of children also emerged as important uses of remittances.

2.70 **Recently released national level survey data reaffirms that remittance significantly boosts income, consumption and savings at the household level.** The latest Household Income and Expenditure Survey (2010) data show that the income, consumption and savings-per-household of remittance-receivers far exceeded those of households who do not receive remittances (Table 2.12). For the remittance-receiving households, income-per-month was on average 82 percent higher, consumption-per-month 37.7 percent higher, and savings-per-month 107 percent higher than households without remittances.

Table 2.12: Impact of Remittances on Households (Taka per month)

	Remittance Receiving Household	Household not Receiving Remittances	National Average
Income	19387	10641	11480
Consumption	14623	10618	11003
Savings	4764	23	477
Savings Ratio (%)	24.6	0.2	4.2

Source: HIES 2010

Evidence on the impact of remittance on the composition of expenditures is mixed.

2.71 **Findings of recent surveys and quantitative studies on the impact of remittance at the micro level in Bangladesh are varied and limited.** The surveys and studies differed in their methodologies and sometimes reached quite divergent conclusions. While there seemed to be agreement on the positive impact of remittances on household consumption and savings, results are less clear regarding education- and health-related expenditure decisions and outcomes. Most of the surveys and studies present evidence of positive remittance impact on human development, but some point to no significant contribution.

2.72 **The IOM survey (2010) found that remittances have a significant impact on households' abilities to improve educational opportunities and procure proper medical services.** Nearly 90 percent of surveyed households believed that their educational opportunities were enhanced by having access to remittances. A significant amount of remittance was used for buying books and other learning materials, or paying tuition and exam fees or transportation costs. Most migrant households reported using part of their remittances for procuring medical treatment and medicines. Before having access to remittances, around one third of households mentioned having to take loans from relatives to pay for their treatment and medicines. This shows that remittances improved the households' ability for investing in better health outcomes of its members.

2.73 **A survey of 20 migration prone villages in 10 districts of Bangladesh by Sharma and Zaman (2009) also found that remittances have a significant impact on consumption.** Expenditures that would have most likely been cut had remittances not been received were food expenditures (43 percent) followed by cash savings (19.2 percent). About 10 percent of respondents reported that housing-related expenditures would have been cut, and 8.1 percent and 3.4 percent mentioned education and health related expenditures respectively.

2.74 **Sharma and Zaman (2009) used Propensity Score Matching (PSM) estimates to show that migrant households spent significantly more on per capita total consumption, per capita food expenditure, and per capita non-food expenditure than non-migrant households.** The study found positive and significant impacts of remittance on food and non-food consumption, household appliances, credit volumes, use of modern inputs in agriculture and savings. It did not find any significant impacts on health and education expenditures or consumer durables such as vehicles or jewelry.

2.75 **A micro-econometric analysis by Raihan et al. (2009), using the 2005 Household Income and Expenditure Survey (HIES) data, revealed positive and significant impacts of remittances on the household's food and housing-related expenditures.** However, the analysis also found that remittances did not significantly boost household demand for durable goods, education, and health.

2.76 **A recent essay by Naeem (2010) demonstrated a positive impact of remittances on education.** Using the 2005 HIES data, and controlling for the endogeneity of remittance receipt by adopting an instrument variable (IV) approach, results showed that remittances raised the school attendance and education expenditures of children in school. The study estimated that an annual per capita remittance receipt by Tk 1,000 (US$16)[22] raised the probability of sending a child to school by 4.4 percentage points, and increased education expenditure on a child attending school by 32 percentage points. The impact of remittances appeared to be larger in magnitude than traditionally important determinants of schooling established in the empirical literatures such as the mother's educational attainment.

Remittances have a developmental impact.

2.77 **The development impact of remittances can be assessed by the effects remittances have on various socioeconomic dimensions of the recipient households.** Recent cross-national evidence on the relationships between remittances and the share of individuals working for less than US$ 2 per day suggest that remittances lead to a decrease in the prevalence of working poor in receiving economies. This effect is stronger in a context of high macro-economic volatility but is mitigated by the unpredictability of remittances: remittances are more effective to decreasing the share of working poor when they are easily predictable. Moreover, domestic finance and remittances appear as substitutes: remittances are less efficient in reducing the prevalence of working poor whenever finance is available.[23]

2.78 The development impact of remittances extends beyond the narrow definitions of poverty. Poverty headcount rates of remittance receiving households in Bangladesh are 61 percent lower than the poverty headcount rate of households who do not receive remittances, according to HIES 2010. Only 13.1 percent of the remittance receiving households was below the poverty line in 2010, compared with 33.6 percent for non-receiving households and 31.5 percent national average poverty incidence. Earlier, the HIES 2005 revealed that the poverty amongst remittance receivers was 17 percent compared with 42 percent for households not receiving remittances. These statistics are consistent with the possibility that remittance receiving households may be non-poor to begin with. Several econometric studies also show that remittance has a pro-poor effect in Bangladesh.[24] Most of the short-term Bangladeshi migrant workers are from low-income families in rural areas. Remittance constitutes a significant part of their income and allows them to get better nutrition, housing, education, health care, and protection against vulnerability.

IV. Remittance-Growth Nexus

Transmission Mechanisms Link Remittances to Economic Growth

2.79 **The survey evidence above shows that remittances are an important source of income for many low- and middle-income households in Bangladesh.** In addition, remittances provide the foreign exchange needed for importing scarce inputs and also provide additional savings. The magnitude of the

[22] Using period average exchange rate for fiscal year 2004 (61.4 Taka/US$) and 2005 (67.1 Taka/US$)

[23] Combes, Jean-Lewis, et al, Remittances and the Prevalence of Working Poor, CERDI, Etudes et Documents, March 2011.

[24] World Bank showed that remittance in Bangladesh contributed to 6 percentage points decline in poverty headcount ratio during 1990 to 2006. See Global Economic Prospects 2006.

developmental impact of remittances on the receiving countries is often assumed to depend on how this money is spent. This motivated many researchers to study the use of remittances for consumption, housing, land purchase, financial saving and "productive" investment. However, even the disposition of remittances on consumption and real estate may produce various indirect growth effects on the economy. These include the release of other resources to investment and the generation of multiplier effects. Whether from remittances or other sources, income is spent in a way which responds to the hierarchy of needs. Thus, it is reasonable to suppose that until the developing countries reach a certain level of welfare, households will continue to exhibit the same spending patterns. It is therefore hardly surprising to find that remittance-receiving households have consumption patterns similar to households not receiving remittances. Recent economic research shows that remittances, even when not invested directly, can have an important multiplier effect. Remittance dollars spent on basic needs stimulate retail sales, which stimulates further demand for goods and services, which then stimulates output and employment. Remittance can also contribute to growth through financial development by increasing the depth and breadth of banking—number of branches, accounts per capita and the ratio of deposits-to-GDP.[25] There can be brain gain, too, as migrants return with skills and experience.

2.80 **Potentially negative impacts of remittances on growth include the constant migration of working-age people and recipients' dependence on remittance funds.** Because remittances take place under asymmetric information and economic uncertainty, there may be a significant moral hazard leading to a negative effect of remittances on economic growth. Given the income effect of remittances, people can afford to work less. Further, remittances may result in "Dutch Disease"[26] through real exchange-rate appreciation which adversely affects domestic production of tradable goods and services. There are also concerns about a "brain drain" from poorer sending countries which could imply a net transfer of human capital and scarce resources in the form of fiscal costs incurred for educating these workers and foregone tax revenues.

Table 2.13: Aggregate Demand Effects of Remittance

	Consumption		**Investment**	**Import**
	I	**II**		
Constant	435639.4*** (26.32)	87821.85 (1.45)	-267054.2*** (-3.37)	-22504.15 (-0.78)
Y_t	0.53*** (64.52)	0.16** (2.59)	0.42*** (3.35)	0.69*** (6.31)
C_{t-1}		0.75*** (5.88)		
K_{t-1}			-0.03 (-0.64)	
$Y_{t-1} - M_{t-1}$				-0.64*** (-4.15)
R^2	0.99	0.99	0.99	0.98
N	30	29	29	29
Multipliers				
	Short Run		**Long Run**	
MPC	0.53	0.16	0.53	0.64
MPI	0.42	0.42	0.41	0.41
MPM	0.69	0.69	0.42	0.42
RM	1.35	0.90	2.07	2.68

Note: t-statistic are presented in parenthesis, *** significant at 1% level, ** significant at 5% level, * significant at 10% level
Source: Based on BBS and Bangladesh Bank data

2.81 **The upshot of the above is that the impact of remittances on growth is an empirical question.** In order to examine the effect of

[25] Aggarwal et al., 2006, *Do Workers' Remittances Promote Financial Development?* The World Bank.

[26] This broadly refers to the negative economic consequences of large increases in a country's income. Dutch Disease is primarily associated with natural resource discoveries, but it can result from any large increase in foreign currency inflows.

remittances on boosting domestic demand in Bangladesh, we calculate the traditional Keynesian multiplier effect following the approach adopted by Glytsos (2001)[27] by estimating a consumption function, an investment function, and an imports function. To estimate the parameters we use data from the Bangladesh Bureau of Statistics national accounts covering the period 1981-2010. We run simple OLS regressions to estimate the structural parameters. Results are presented in Table 2.13. In the consumption regression, the sign of the regression coefficient on disposable income (Y) is positive, implying that remittance (which is part of Y) contributes to consumption. The regression coefficient is significant at 1 percent. Also the coefficient on Y shows the value of the marginal propensity to consume is 0.53. This means that doubling of workers' remittances and national income increase consumption by approximately 53 percent.

2.82 **The estimated investment equation has a highly significant coefficient of the income variable, which reflects profits.** The value of the coefficient indicates the propensity to invest and it confirms the notion that remittances do lead to an increase in investment (the coefficient on Y is 0.42 indicating that doubling of workers' remittances and national income increase investments by approximately 42 percent). The investment restraining factor of the capital stock has the right (negative) sign and is statistically significant. The estimated coefficients of the import equation are positive and significant. This coefficient shows the value of the marginal propensity to import.

2.83 **These results suggest that remittances do augment consumption, investment and imports and thereby have an important role in stimulating the economy.** We use these coefficients to compute the multiplier effects of remittances. A cumulative multiplier of income for the open economy can be defined as:

Multiplier = 1 / (1 - MPC - MPI + MPM).
Where MPC is the coefficient on Y in the consumption equation
MPI is the coefficient on Y in the investment equation
MPM is the coefficient on Y in the import equation.

2.84 **This multiplier can be used to determine the change in aggregate output resulting from a change in any autonomous expenditure, including consumption, investment, and net exports.** This multiplier naturally gives the unit potential impact of remittances, but the magnitudes of overall effects on growth depend on the size of remittances and their annual changes. The short run multiplier is 1.35 and the long run multiplier is 2.07. It means that a US$100 increase in remittances increases income by US$135 in the short run and by US$207 in the long run when the lagged effects fully work their way through the economy.[28]

2.85 **International evidence indicates that multiplier effects can substantially increase GNP.** For example, every "migradollar" spent in Mexico induced a GNP increase of US$2.69 for the remittances received by urban households and US$3.17 for the remittances received by rural households (Ratha, 2003). In Greece, remittances generated at the beginning of the 1970s had a multiplier of 1.77 in gross outputs, accounting for more than half of the GDP growth rate.[29] Bangladesh's remittance multiplier is the

[27] Glytsos, Nicholas P., 2001 *Dynamic Effects of Migrant Remittances on Growth: An Econometric Model with an Application to Mediterranean Countries*, Athens, Greece: Center of Planning and Economic Research and; and Emigrant Remittances: Impact on economic development of Kyrgyzstan 2006.

[28] Our multiplier is significantly lower than the one estimated by IOM in 2002. Their estimate was 3.33; higher because of higher marginal propensity to consume and much lower marginal propensity to import. See IOM, *A Study on Remittance Inflows and Utilization*, November, 2002, p. 8.

[29] A note of caution is in order: If the economy lacks the capacity to meet the additional demand generated by remittances through the multiplier process, and this demand falls on non-tradable goods, remittances can be inflationary.

lowest in the region; compared with 4.08 in India, 3.56 in Pakistan, 2.62 in Sri Lanka, and 1.9 in Nepal.[30] This is because the marginal propensity to import is high in Bangladesh relative to these countries.

Evidence of the Remittance-Growth Linkage

2.86 **Considerable debate remains regarding how much the expansion in aggregate demand translates into higher GDP growth.** One other effect remittances may have in any given recipient economy is associated with an increase in prices. The more money recipient families get from remittances, the more they will spend. The resulting increase in aggregate demand may cause the price level to increase. It is widely accepted that inflation is caused by increases in the money supply in the long run. However, there is no consensus on how inflation in the short run is determined. Here we focus on the long-run macroeconomic effects of remittances which centers on growth. Empirical studies have not yet found consensus on the magnitude and direction of the impact of remittances on growth in the short and long term. However, the weight of recent evidence appears to favor a positive conditional impact of remittances on growth (Box 2.2).

2.87 **Here we discuss regression results based on an international panel data set that captures the surge in migration and remittances observed during 2006-09.** Appendix 2B details the methodology and data used. Different models were used to calculate the impact of remittances on growth.

The Impact of Remittances on per capita GDP Growth is Economically Significant

2.88 **The OLS estimates of the impact of remittances on growth show that when the remittance variable is added simply as an explanatory variable without controlling for the political and economic risk and institutional quality, it has no significant impact on growth** (Appendix 2C, Table 2.16, eq 1). However, when the variables to control for the political and economic environment and institutional quality are employed, the coefficient on remittances tends towards significance (eq2). This implies that stability in the political and economic environment and quality of the institutions is a critical condition for remittances to promote economic growth. In order to view to what extent the political and economic stability affects the impact of remittances on growth, the interaction between remittances and some control variables are used in the model. The interaction between inflation and exchange rate shows the effectiveness of remittances during macro-economic volatilities, interaction with domestic credit examines the link between remittances and financial depth and interaction between the different risk indexes test how risk perception and institutional quality affect the impact of remittances on growth.

2.89 **The results show that the interaction terms per se are almost always insignificant** (eq.3, eq.4, eq.5). Nevertheless, including these interaction terms seems to significantly boost the effect that remittances have on economic growth. The coefficient of remittances rises to as high as 0.74 when the interactions are used compared to 0.12 when no interaction terms are incorporated. An increase of 1 percentage point in the remittance share of GDP increases per capita GDP growth by 0.12 percent at the lower end and 0.74 percent at the higher end. All conditioning variables display expected results. The results support the convergence hypothesis—-countries starting from low level of income grow faster as indicated by the significant negative impact of initial per capita GDP in almost all the models. The results also suggest that economic risk is most significant from a country growth perspective.

The Impact Estimates are Robust

2.90 **The initial level of per capita income could not be included because of multi-collinearity, but the remittance variable is always significant** (Appendix 2C, Table 2.17). The impact of remittance gets

[30] Anand Ghani, and May, *What Should South Asia Do To Accelerate Economic Recovery?*

stronger when the risk indices and the interaction terms are added. However, the magnitude of the impact is less than the OLS based estimates. A 1 percent increase in the share of remittances in GDP can lead to an increase in per capita GDP growth that varies from 0.26 percent to 0.55 percent. From the different specifications, it appears that remittances have a larger impact when the impact of remittance on growth is conditioned by the risk variables and interaction terms. A basic model without controlling for political and institutional environment and interaction terms yields a coefficient of 0.28 (eq.1) while controlling for all the risk and the interaction between risk and macro stability variables gives a higher value of 0.49.

2.91 **The set of conditioning variables mostly show expected signs except domestic credit to private sector that gives significant negative impact.** FDI and government consumption respectively show positive and negative impact on growth but they are statistically insignificant. Inflation demonstrates very small but significant negative impact on growth while impact of trade openness and exchange rate are insignificant in this model. Gross capital formation exhibits fairly robust impact on economic growth. A 1 percent increase in investment as a share of GDP increases per capita GDP growth by 0.22 percent. As in Table 1, country's sound economic environment consistently comes out as the most important factor to harness growth.

2.92 **The estimates in the IV estimation technique seem to magnify the impact of remittances on growth even more** (Appendix 2C, Table 2.18). It can be concluded that remittances have positive impact on growth consistently in all methods of estimation.

2.93 **The control variables in the IV estimation illustrate results similar to the previous two tables with gross capital formation showing robust significant impact on growth.** Domestic credit still shows unexpected negative impact on growth. Interaction terms with risk indicators have significant negative impact. Interaction with inflation and exchange rate also gives negative impact which might imply that remittance has stronger impact on growth when macro-economic stability is weak.

2.94 **The magnitude of the impact of remittances estimated in this study is relatively larger than the previous estimates.** The coefficient ranges from 0.12 to 0.74.[31] Another key observation is that remittances tend to have larger impact when controlled for political and economic environment. The results of this study also reflect the increase in the importance of remittances to the developing countries in recent years.

V. Migration Outlook and Policy Agenda

2.95 **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. This bodes well for growth in domestic income, as the preceding evidence has shown.

Global Outlook

2.96 **The number of international migrants has increased rapidly in the last few decades, although it has not outpaced the growth of world population.** While the global economic crisis slowed emigration in many parts of the world, it did not spark significant return migration. Most experts project the scale of migration to soon exceed prior levels because of emerging structural features in the global economy. Rapid growth in labor force in developing countries, their inability to absorb them entirely in the domestic economy, and the social and economic consequences of aging in the developed world will underpin the prospective rise in migration. The differences in demographic trends between the rich and

[31] The main reason appears to be that this data set includes more recent years when remittance inflows became very sizable. If these years are excluded (2003-2009), size and significance of the coefficient decline dramatically.

poor countries will generate pressure for de-regulating international migration and increasing international labor mobility.[32]

2.97 **Bangladesh is well positioned to benefit from the globalization of service as well as human mobility.** If the migrant population continues to increase at the same pace as the last 20 years, the stock of international migrants globally is projected to rise to 405 million by 2050, compared with the present stock of about 200 million (excluding refugees).[33] Push for emigration from Bangladesh is also likely to come from the adverse effects of climate change to which Bangladesh is considered to be most vulnerable. If Bangladesh can maintain its current 3.25 percent share in the stock of international migrants, the numbers of Bangladeshi workers abroad will more than double by 2050 if the increase in international stock of migrants projected above materializes.

2.98 **In Bangladesh's major migrant labor destination region, the Middle East, large planned infrastructure projects will continue to drive future demand for foreign workers.** Much of the demand will continue to be for low skilled workers. However, it is estimated that significant demand will also be created for professional and skilled workers in countries such as the U.A.E, Saudi Arabia, Kuwait, Bahrain and Libya (Maxwell Stamp 2010).[34] In addition, significant demand for foreign workers of all skill categories is also expected in Qatar ahead of the 2022 Football World Cup.

2.99 **There is some concern about the adverse impact of the current crisis in MENA, Japan, and Eurozone on the continued employment of Bangladeshi workers and their future migration prospects.** Libya, Japan and Eurozone respectively account for only 1.35 percent, 0.01 percent and 1 percent of total migrants, and 0.1 percent, 0.01 percent, and 10 percent of remittance. The direct adverse impact, therefore, seems to be negligible unless the unrest was to spread to Saudi Arabia, the UAE, Bahrain, Qatar and Kuwait. Alternative overseas markets, particularly in the East Asia, Europe and Latin America and also African countries would help mitigate the problem. In this respect the recent contract with KSA to export large number of low-skilled household workers help. Thus, the possibility of significant direct impact on Bangladesh due to internal conflict in MENA and the recession in Japan and Eurozone is rather slim unless the conflict spreads across other Arab and Asian economies due to close integration of these countries with the world economy.

2.100 **Globalization of labor markets provides an opportunity to improve the lives of potential Bangladeshi migrants and their families.** The steady demand for low-skill labor from the Middle East and other countries in South East Asia means that increasing number of Bangladeshis will continue to migrate abroad and send money to support families back home. There are costs, risks and challenges associated with migration, particularly for the poor.

2.101 **Migration has economic implications for Bangladesh beyond remittances.** The small size of migration flows relative to the labor force suggests that the effects of migration on working conditions for low-skilled workers in the domestic economy as a whole must be small as well. However, the dominance of low-skilled emigration may have raised demand for the remaining low-skilled workers (including poor workers) at the margin, leading to some combination of higher wages, lower unemployment, less underemployment, and greater labor force participation. Low-skilled emigration offers a valuable safety valve for insufficient employment at home.

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32 Syed Ejaz Ghani, *Reshaping Tomorrow*, The World Bank, 2011.

33 IOM, World Migration Report, 2010.

34 These projections have yet to be reassessed in the aftermath of the current political turbulence in Afro-Arab countries.

Box 2.2: Empirical Literature on Remittance-Growth Relationship

Glytsos et al. (2005) analyzed exogenous shocks of remittances in five Mediterranean countries. The finding was that rising remittances both boost and dampen growth, but concluded that the favorable cases are more prevalent than the unfavorable ones. Pradhan et al.(2008) examined the effect of workers' remittances on economic growth in a sample of 39 developing countries from 1980-2004 using both fixed effect and random effect approaches. The authors argue that since official estimates of remittances used in the analysis tend to understate actual numbers considerably, more accurate data on remittances is likely to reveal an even more pronounced effect of remittances on growth. They found that remittances have a positive impact on growth.

IMF (2005) used cross sectional data of 50 remittance dependent countries (exceeding 1 percent of GDP) covering the period 1970-2003. Although they found no statistically significant effect of remittances on growth, the positive impact of remittances in reducing poverty was clearly visible. Chami et al. (2005) used the data of 113 countries for the period of 1970-1998 to find that remittances in fact are negatively correlated with per capita GDP growth. Terming this finding as "intriguing" they suggested that remittances are compensatory in nature and differ greatly from private capital flows in terms of their motivation. Remittances do not appear to be intended to serve as capital for economic development, but as compensation for poor economic performance.

Catrinescu et al. (2009) scrutinized the works of Chami et al. (2005) and argued that the "intriguing" finding was a result of an omitted variable bias. According to their estimation, remittances contribute to longer term growth in countries with higher quality political and economic policies and institutions. Evidence at the specific country level tends to support the view that remittances have their biggest impact on economic growth when financial markets are under-developed (Dustmann and Kirchamp, 2001). Similar results have also been found by Guiliano and Ruiz-Arranz (2009). Their analysis of a cross country database consisting of 100 countries for the period of 1975-2002 conclude that remittances have promoted growth in less financially developed countries by providing an alternative way to finance investment. Fayissa and Nsiah (2008) explore the aggregate impact of remittances on economic growth within the conventional neoclassical growth framework using an unbalanced panel data spanning from1980 to 2004 for 37 African countries. They too find that remittances boost growth in countries where the financial systems are less developed by providing an alternative way to finance investment and helping overcome liquidity constraints.

Barajas et al (2009) find that remittances have contributed little to economic growth in remittance receiving countries and may have even retarded growth in some. They conclude that remittances at best have no impact on growth. The World Bank (2006) did a cross section growth study with 67 countries covering the period 1991-2005. The results consistently showed positive relation between remittance and growth but when investment was excluded from the model, remittance lost its significance. However, with a later exercise in the same study, remittances yielded a negative and significant sign when it was interacted with education, financial depth and institutional quality in the same model specification. With positive and significant coefficient on the remittance interaction terms, the study claimed a net positive impact of total remittances on GDP growth.

Jonganwich (2007) examined the impact of workers' remittances on growth and poverty in developing countries of Asia-Pacific using a panel data over the period 1993-2003. The results suggested that while remittances do have a significant impact on poverty reduction through increasing income, smoothing consumption and easing capital constraints of the poor, they have only a marginal impact on growth operating through domestic investment and human capital development. Garcia-Fuentes and Kennedy (2009) investigated the impact of remittances on growth through human capital for 14 Latin American and Caribbean countries during the period 1975-2000. Using pooled OLS and random effect method, they concluded that remittances do have a positive impact on growth of the recipient country, but a minimum threshold of human capital stock has to hold for the realization of this impact. Faini (2002) also found remittances to be positively impacting growth. To fully realize this effect a sound policy environment is essential. Ahortor and Adenutsi (2009) provide empirical evidence on the long-run significance of international remittance inflows as a source of economic growth in small-open developing economies of Sub-Sahara Africa, Latin America and the Caribbean. They find that remittance inflows had a positive contemporaneous effect on per capita income growth across the Latin American and the Caribbean as well as Sub-Saharan Africa over the period 1986-2006.

Policy Agenda

2.102 ***Migration policies:*** Greater emigration of low-skilled workers to richer countries could make a significant contribution to growth and poverty reduction in Bangladesh. One feasible option for increasing such emigration is to combine temporary migration of low-skilled workers with incentives for return through managed migration programs with destination countries. From Bangladesh's perspective, managed, temporary migration is the only means of securing deliberate increases in low-skilled emigration to raise remittances and improve the skills of returning workers. However, managed migration programs do not guarantee future access to labor markets (and thus to remittances), because it is easier for host governments to suspend temporary programs than to expel immigrants.

2.103 **There is a need also to facilitate the provision of skills training, including proficiency in English and ICT literacy,** that are in demand in different markets and arrange finance for migration particularly for the poor. Through partnership with NGOs, government can provide key information about prospects of foreign employment as well as the rules and regulations in host countries. Bangladesh government has been entering into bilateral agreements with host countries and the Palli Karma Sahayak Foundation (PKSF) has an ongoing program to finance the cost of migration of workers from *monga* (impoverished, famine) areas.

2.104 **Financing migration for the poor is a significant constraint and risk.** There are large upfront costs in gaining access to foreign labor markets which lead to a higher level of indebtedness for migrant families and pose significant risks in the event that the migrant is cheated out of a job. Innovative policy action is much needed to mitigate these risks. Loans for poorer households to finance migration costs are required. These services may be better provided by micro-finance institutions because they are used to banking with the poor. But they may need to adjust their weekly repayment model, and loan sizes, to match the cash-flow needs of migrants. Better regulation of manpower agencies and an information campaign on the costs of migration, the risks, overseas job conditions and migrant rights can also help the poor make more informed choices at each step of the migration process.

2.105 **The government can help avoid unfortunate, costly-to reverse migration mistakes and limit abuse of the vulnerable by providing credible information on migration opportunities and risks.** Labor recruiters play a valuable role in promoting migration, but emigrants' lack of information often enables recruiters to capture the lion's share of the rents generated by constraints on immigration and imperfect information. Various migrants' rights groups demand regulation of recruitment agents to limit rents and improve transparency. This deserves consideration bearing in mind the capacity limitations of the public sector institutions in Bangladesh.

2.106 ***Remittance policies:*** Government can sharpen the developmental impact of remittances through the application of appropriate policies to facilitate and enhance remittances. Access of poor migrants and their families to formal financial services for receiving remittances needs to be improved through public policies that encourage expansion of modern banking networks, allow domestic banks to operate overseas, provide identification cards to migrants, and facilitate the participation of microfinance institutions and credit cooperatives in providing low-cost remittance services. Banking services can be computerized to develop an electronic money transfer system. Banks can also forge partnerships with MFIs, post offices and mobile phone companies for speedy transfer of remittances.

2.107 **Improving competition in the remittance transfer market in order to lower fees is a second set of promising policies.** Reducing transaction charges increases the incentives to remit because the net receipts of recipients increase. The overall result is likely to be larger remittance flows. Competition among providers of remittance services can be increased by expanding postal, banking, and retail networks to cover remittance services. Government can help reduce costs by supporting the introduction

of modern technology in payment systems. Reducing macro-economic distortions could also lower the cost of remittance transactions. Finally, regulatory regimes need to strike a proper balance between preventing financial abuse and facilitating the flow of funds through formal channels.

2.108 **Policies should aim to expand people's access to financial services and reduce transaction costs in order to improve the developmental impact of remittances, rather than install and try to channel problematic incentives.** The incentive route contains risks: tax incentives to attract remittance inflows, for example, may encourage tax evasion; matching-fund programs to attract remittances from migrant associations may divert funds from other local funding priorities; and efforts to channel remittances to investment have met with little success.

Appendix 2A

Table 2.14: Probit Estimates of Remittance Correlates

	WB	Sharma and Zaman
Age	0.26*** (13.39)	0.19** (27.56)
Age^2	-0.003*** (-11.34)	-0.002** (26.48)
Education	0.21*** (11.32)	0.15** (14.17)
$Education^2$	-0.01*** (-9.05)	-0.01** (11.67)
Sibling of household head	-0.09 (-0.6)	-0.31** (4.04)
Son/daughter of household head	-0.18 (-1.38)	-0.45** (7.32)
Spouse of household head	0.99*** (5.57)	-0.38** (6.09)
Household head	-2.58*** (-16.87)	-1.57** (23.61)
Married		-0.002 (0.04)
Male	3.47*** (18.49)	1.69** (30.95)
Muslim	0.72*** (7.16)	0.82** (7.07)
Land owned	0.00 (0.86)	0.00** (5.96)
Pre remittance income	-0.00*** (-6.31)	
Household owned nonfarm business		-0.32** (7.32)
N	56952	23305

*** Significant at 1% level , ** Significant at 5% level ,
* Significant at 10% level
t-statistic are given in the parentheses

Table 2.15: Tobit Estimates of Remittance Decisions

	I	II	III	IV	V
Demand Side Variables					
Parent	13147.98 (0.59)	12828.69 (0.58)	13315.95 (0.6)	13155.21 (0.59)	21864.64 (0.95)
Spouse	1625.09 (0.06)	1763.61 (0.07)	1938.55 (0.08)	2011.82 (0.08)	-4618.38 (-0.17)
Supply Side Variables					
Secondary Education	30833.42** (2.04)	30828.65** (2.03)	30877.33** (2.04)	30883.25** (2.04)	25741.63 (1.58)
Higher Education	40469.84* (1.65)	40514.09* (1.65)	41064.87* (1.67)	40634.41* (1.65)	48564.16* (1.9)
Unskilled worker	-29447.22** (-2.07)	-29099.7** (0.04)	-30330.6** (-2.15)	-30133.2** (-2.14)	-34447.2** (-2.27)
Country	7971.77 (0.54)	6064.78 (0.39)	6182.64 (0.4)		
Saudi Arabia					26108.84 (1.07)
UAE					1249.68 (0.05)
Malaysia					-5017.52 (-0.16)
UK					-14807.8 (-0.27)
USA					-3615.91 (-0.04)
Oman					27911.18 (0.67)
Kuwait					7584.30 (0.22)
Singapore					160291.5*** (3.27)
Qatar					11343.6 (0.26)
Italy					29094.78 (0.53)
Motivational Variables					
Age	485.63 (0.45)	484.6 (0.45)	459.22 (0.42)	475.62 (0.44)	932.17 (0.81)
Sex	45777.96 (0.83)	46691.41 (0.84)			40417.45 (0.75)
Land	69.82**	71.18**	71.98**	71.63**	60.84*

	(2.15)	(2.19)	(2.22)	(2.21)	(1.9)
Pre-remittance Income	0.16*** (2.82)	0.16*** (2.81)	0.16*** (2.79)	0.16*** (2.79)	0.12** (2.04)
Time Variables					
Time	674.26*** (3.56)	676.42*** (3.56)	677.72*** (3.57)	688.53*** (3.66)	437.38** (2.32)
$Time^2$	-0.84** (-2.09)	-0.85** (-2.11)	-0.85** (-2.11)	-0.87** (-2.16)	-0.5* (-1.74)
N	1371	1371	1371	1371	1372
Log likelihood (LR)	-17637.44*** (48.99)	-17637.5*** (48.85)	-17637.9*** (48.14)	-17637.9*** (47.98)	-17622.1*** (50.99)

*** Significant at 1% level , ** Significant at 5% level , * Significant at 10% level t-statistic are given in the parentheses

Country in estimate I stands for Saudi Arabia=1 and others=0, in estimate II and III stands for GCC countries=1, others=0.
Sex stands for male=1, Female=0

Appendix 2B: Methodology for Estimating Impact of Remittances on per capita GDP Growth

Empirical studies of remittances on growth generally use modified versions of conventional growth models. Other than including remittance as an explanatory variable, these models control for a variety of other factors influencing growth. There is no consensus on what controls should be included while conducting statistical inference on the relationship between remittance and growth (Levine and Renelt, 1992). While Sala-i-Martin (2002) concluded from vast cross country growth literatures that there is no simple determinants of growth, Barro and Sala-i-Martin (2004) introduced some control and environmental variables that have been repeatedly used in the growth literature. Among this international openness, government consumption, domestic investment, inflation and some subjective measures of political environment are worth mentioning. Borensztein et al. (1998) derived a model based on endogenous growth theory to claim that foreign direct investment (FDI) affects growth through transfer of new technology. Domestic credit growth also has been identified by past studies as a potentially important explanatory variable for growth (Levine and Renelt, 1992).

Based on the empirical literature, this study estimates a conventional growth model incorporating remittances as an explanatory variable by controlling for most of the growth determinants mentioned above. Formally:

$$\textbf{Per capita GDP growth}_{it} = \alpha + \beta_0 \textbf{ Per capita GDP}_{i0} + \beta_1 \textbf{ Remittance}_{it} + \beta_2 \textbf{ FDI}_{it} + \beta_3 \textbf{ Domestic Credit to Private Sector}_{it} + \beta_4 \textbf{Inflation}_{it} + \beta_5 \textbf{Government Consumption Expenditure}_{it} + \beta_6 \textbf{Trade}_{it} + \beta_7 \textbf{Gross Capital Formation}_{it} + \beta_8 \textbf{Exchange Rate}_{it} + \beta_9 \textbf{ Political Risk}_{it} + \beta_8 \textbf{ Economic Risk}_{it} + \beta_8 \textbf{ Financial risk}_{it} + \varepsilon_{it}$$

Where,
Remittance$_{it}$ = Remittance inflow as percentage of GDP of country i at period t.
Per capita GDP$_{i0}$= Per capita GDP of country i at the initial level.
FDI$_{it}$ = Foreign direct investment inflow as percentage of GDP of country i at period t.
Domestic Credit to Private Sector$_{it}$ = Domestic credit provided to private sector as percentage of GDP of country i at period t.
Inflation$_{it}$ = Rate of inflation of country i at period t.
Government Consumption Expenditure$_{it}$ = Government consumption expenditure as a percentage of GDP of country i at period t.
Trade$_{it}$ = Total trade as a percentage of GDP of country i at period t.
Gross Capital Formation$_{it}$ = Gross capital formation as a percentage of GDP of country i at period t.
Exchange Rate$_{it}$ = Annual average of local currency unit per US dollar of country i at period t
Political Risk$_{it}$ = Political risk index of country i at period t
Economic Risk$_{it}$ = Economic risk index of country i at period t
Financial Risk$_{it}$ = Financial risk index of country i at period t

The impact of remittances should be evident after controlling for the macro-economic, political and institutional environment. The volume of remittances recently has increased worldwide and its importance in developing countries has amplified. The rising influx of remittances in recent years should have a positive impact on growth by increasing domestic demand and boosting national savings. In line with the latest empirical works of Pradhan et al. (2008), Giuliano and Arranz (2009) and Catrinescu et al.(2009), this study posits remittances to be positively impacting growth.

Neoclassical growth models like Solow (1956) inversely relates the initial level of per capita GDP to per capita GDP growth. Barro (1991), Mankiw et al. (1992) also found evidence of convergence across countries over time. So the expected sign in the initial level of per capita GDP is negative. This implies that poor countries tend to grow faster than rich countries.

Borensztein et al. (1998), Makki and Somwaru (2004) found FDI positively impacting growth mainly through technology transfer. Hence the expected sign on FDI is also positive.

Domestic credit to private sector in this model indicates the financial depth of a country. Kormendi and Meguire (1985), Levine and Renelt, (1992) found domestic credit positively related to growth which is also the assumption of this study.

Inflation rate has been used in growth literature as a measure of macro-economic stability. Although Temple (1999) claims the association between growth and inflation is controversial, evidence found by Fischer (1993), Bruno and Easterly (1998), Fuentes and Kennedy (2009) weighs heavily on inflation having negative impact on growth. High inflation can create political instability and other adverse situation that can depress long term investment.

According to Barro and Sala-i- Martin (2004), investment in the neoclassical growth model is a proxy for the effect of savings rate. Barro (1992) showed positive correlation between investment and growth. Positive and robust correlation between investment and growth has also been observed by Levine and Renelt, (1992) and Temple (1999). This leads this study to assume a positive impact of investment on growth.

Grier and Tullock (1989) estimated significant negative correlation between government consumption and growth. In various cross country growth studies, Levine and Renelt, (1992) found that government consumption expenditures are very commonly used as a fiscal policy measure and influences growth negatively. Barro and Sala-i-Martin (2004) observed negative relationship between government consumption and growth. Their conclusion was that although government expenditures do not affect productivity directly, it brings about distortion in private decision and thus hampers growth. In addition, if government is too big, then higher spending undermines economic growth by transferring additional resources from the productive sector of the economy to government, which uses them less efficiently. This study expects a negative sign against government consumption expenditure.

The impact of trade openness on economic growth is not very clear though Pradhan et al. (2008) mentioned that its use has been justified both in theory and practice as an indicator of an economy's external orientation. Barro and Sala-i-Martin (2004) found weak statistical evidence of trade having positive influence on growth while Levine and Renelt, (1992) observed positive but not robust relation between trade and growth. The prior in this study is that openness would have a positive sign.

The relation between economic growth and exchange rate is ambiguous. Theoretically, the appreciation of local currency reduces export earning and hence reduces growth. However, the impact of currency appreciation and depreciation depends on the economic situation of particular country and it cannot be predicted accurately. For some countries, exchange rate is an important policy instrument. In this equation, exchange rate also controls for the macro-economic volatility.

Institutional quality and various environmental factors are captured by the political, economic and financial risk indicators. Well-functioning political and legal institutions help to sustain growth (Barro and Sala-i-Martin, 2004). Evidence indicates that growth enhancing policies are less effective when political environment is unstable and institutions are weak. Economic policies and strong institutions are

instrumental in shaping overall environment to foster growth. Thus countries showing less risk in terms of risk indicators should be able to grow more.

Data: The dataset includes 70 countries spanning from 1990 to 2009. This to our knowledge is the most recent data set that has been used in empirical remittance work. The recent effort of countries to decrease money laundering, use of improved technology and decrease in transaction cost is leading to a decrease in the unofficial portion of remittances. There has also been a surge in migration and remittances in the last half of the past decade. Thus this dataset should more comprehensively capture the growth impact of remittances compared to previous studies.

The dependent variable in this study is the growth rate of real per capita GDP in constant 2000 dollar from the WDI. The set of the macro-economic control variables as mentioned previously include: Initial per capita GDP is the per capita real GDP of the year 1990 for each country, foreign direct investment measured as the net inflows of investment from foreign investor divided by GDP. Government final consumption expenditure is defined as all government current expenditures for purchases of goods and services as a percentage of GDP. Domestic credit provided to private sector is measured as percent of GDP. Gross capital formation is measured as domestic investment divided by GDP. Trade is the sum of exports and imports of goods and non-factor services measured as a share of GDP. Inflation is measured as the annual percentage change in the GDP deflator. Exchange rate is given as the rate of local currency per US dollar. The data source of all these variables is the WDI.

To control for institutional quality and overall political and economic environment of a country, the political, economic and financial risk rating from the International Country Risk Guide (ICRG) has been included in the model. These composite indicators have also been used in other studies (Catrinescu et al. 2009, Barajas et al. 2009). Economic risk indicator comprises five economic factors - GDP per head of population, real annual GDP growth, annual inflation rate, budget balance as a percentage of GDP, and current account balance as a percentage of GDP. Political risk includes 12 institutional measures which are government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. And finally, the financial risk indicator is measured by the foreign debt as a percentage of GDP, foreign debt service as a percentage of exports of goods and services (XGS), current account balance as a percentage of XGS, net foreign exchange liquidity as months of import cover, and exchange rate stability. In all of the risk indicators, the higher the point the less risky is the country on the dimension considered. The monthly risk indicators were available in the ICRG database for each year. In this analysis, for convenience, the indicators of the last month of each year have been taken for each country. Higher values of the indicators imply less risk. Thus a positive sign is expected from the estimated equation for the risk indicator coefficients.

Estimation Method: To explore the relationship between remittance and economic growth, this paper constructed a panel data set containing 70 countries covering the period 1990-2009. There are some missing data for some countries which makes it an unbalanced panel. As a starting point, the impact of remittances on economic growth has been estimated by ordinary least squares (OLS). Next the model was estimated using panel techniques. Econometricians argue that the conventional cross sectional methods often widely used to estimate pooled data are inferior to panel techniques. In case of panel data set, OLS is not the correct technique to use. Most researchers suggest that in case of panel data the error term must be decomposed into two:

$$U_{it} = C_i + \varepsilon_{it}$$

Where,

Ci = unobserved individual effect

εit = combined time series and cross section error component uncorrelated with the regressors (Xs)

The two most commonly used estimators in this case are the fixed effects estimator and random effects estimator. When the Ci term is correlated with the X's fixed effects is used. Otherwise random effects are a better option. Statistically, fixed effects models produce "consistent" estimates. Dominance of fixed effect estimation in majority of the previous empirical remittances work also corresponds to this reasoning. Chami et al. (2005) explained providing heterogeneity and capturing dynamic effects as two key advantages to use fixed effect estimation. Pradhan et al. (2008) also preferred fixed effect over random effect in their analysis. The justification for this preference was that the random effects estimation requires that the omitted variables be uncorrelated with the included explanatory variables for the same country which did not seem plausible in the context of their growth model. Hausman (1978) devised a test to compare fixed and random effects estimator. This study also employed the test and found the superiority of the fixed effects model. Robust standard errors are used in all the estimation models to make asymptotically valid statistical inferences about the parameter values.

An issue that affects the empirical work on remittances is endogeneity. According to Barajas et al. (2009) two main reasons underpin the causality between remittances and economic growth. The first one is that low domestic growth in receiving countries leads to higher outbound migration and in turn higher remittances. The second is that remittances and growth both might be affected by non remittance driven causes like poor governance that stimulates higher migration and hampers growth. Catrinescu et al. (2009) agree with the first reasoning for the endogeneity of remittances while Giuliano and Ruiz-Arranz (2009) favor causality in the opposite direction, that is, higher growth rates induce higher remittances. Regardless of the nature of causality, the most comprehensive method used in the literatures to deal with endogeneity is the instrumental variable (IV) technique. For example Catrinescu et al. (2009), Giuliano and Ruiz-Arranz (2009) used internal instruments (lag of explanatory variables) while Chami et al. (2005), IMF (2005), World Bank (2006), Barajas et al. (2009) , Garcia-Fuentes and Kennedy (2009) used different set of external instruments. This study tackles the endogeneity problem by the fixed effect IV estimation method. A combination of internal and external instruments is used: first lag of remittances (Catrinescu et al. 2009), ratios of a country's income to U.S. income and real interest rate to the U.S. real interest rate (Chami et al. 2005). As the income variable, the countries' per capita GDP ratio to that of the U.S. was employed in this paper also.

Appendix 2C: Regression Results

Table 2.16: OLS Regression Results
Dependent Variable- Per Capita GDP Growth

	1	2	3	4	5	6	7
Initial level GDP Per Capita	0.000 (1.58)	-0.000* (-1.88)	-0.000*** (-4.04)	-0.000*** (-4.16)	-0.000*** (-4.11)	-0.000** (-2.1)	-0.000** (-2.53)
Remittances	0.099 (1.58)	0.12** (1.95)	0.554*** (3.04)	0.731*** (3.14)	0.741*** (3.24)	-0.05 (-0.61)	0.071 (1.44)
FDI	0.125*** (3.70)	0.123*** (3.94)	0.144*** (5.13)	0.147*** (5.23)	0.148*** (5.14)	0.123*** (4.07)	0.127*** (4.25)
Government Consumption Expenditure	-0.056*** (-2.65)	-0.075*** (-3.59)	-0.086*** (-4.08)	-0.083*** (-3.95)	-0.082*** (-3.76)	-0.089*** (-3.87)	-0.076*** (-3.59)
Gross Capital Formation	0.221*** (12.09)	0.183*** (10.86)	0.176*** (10.57)	0.174*** (10.37)	0.174*** (10.37)	0.179*** (10.53)	0.180*** (10.57)
Inflation	-0.001*** (4.36)	-0.001** (-2.39)	-0.001*** (-3.02)	-0.001 (-1.41)	-0.001 (-1.42)	-0.002 (-1.57)	-0.001 (1.47)
Domestic Credit provided to private sector	-0.005 (1.42)	-0.006** (-2.05)	-0.007** (2.40)	-0.007** (-2.35)	-0.007** (-2.06)	-0.009** (-2.53)	-0.006** (-2.03)
Total trade	0.000 (0.01)	-0.009*** (2.85)	-0.01*** (-3.21)	-0.01*** (-3.32)	-0.01*** (-3.32)	-0.009*** (-2.53)	-0.009*** (-2.94)
Exchange rate (LCU per dollar)	-0.000** (-1.85)	-0.000* (-1.82)	-0.000** (-2.16)	-0.000 (-0.73)	-0.000 (0.73)	-0.000* (-1.86)	-0.000* (-1.89)
Political Risk Index		0.004* (0.31)	0.022 (1.44)	0.023 (1.48)	0.023 (1.51)	0.006* (0.41)	0.007 (0.55)
Economic Risk Index		0.230*** (6.87)	0.193*** (5.69)	0.199*** (5.89)	0.198*** (5.75)	0.234*** (7.13)	0.229*** (7.01)
Financial Risk Index		0.003 (0.13)	0.069** (2.42)	0.071** (2.51)	0.071** (2.36)	0.012 (0.55)	0.011 (0.5)
Inflation*Remittances				0.000 (0.24)	0.000 (0.24)	0.003** (0.81)	0.002 (0.73)
Exchange rate* Remittances				-0.000 (-1.49)	-0.000 (-1.46)	0.000 (0.43)	0.000 (0.69)
Domestic Credit provided to private sector*Remittances					-0.000 (0.12)	0.002 (1.27)	
Political Risk* Remittances			-0.001 (-0.19)	-0.001 (-0.12)	-0.001 (-1.04)		
Economic Risk* Remittances			-0.004 (-0.51)	-0.001 (-0.08)	-0.001 (-0.07)		
Financial Risk* Remittances			-0.017** (-1.54)	-0.018* (-1.73)	-0.018 (-1.56)		
	N=1268 Country=70 R^2=0.18	N=1268 Country=70 R^2=0.25	N=1268 Country=70 R^2=0.31	N=1268 Country=70 R^2=0.31	N=1268 Country=70 R^2=0.31	N=1268 Country=70 R^2=0.27	N=1268 Country=70 R^2=0.26

t -Statistic calculated from robust standard errors are given in the parentheses
*** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level
Remittances, FDI, Government Consumption Expenditure, Gross Capital Formation, Domestic Credit Provided to Private Sector and Trade are given as a % of GDP

Table 2.17: Panel Fixed Effects Regression Results
Dependent Variable- Per Capita GDP Growth

	1	2	3	4	5	6	7
Remittances	0.284***	0.259**	0.467	0.554*	0.493**	0.012	0.266*
	(2.67)	(2.40)	(1.61)	(1.79)	(2.01)	(0.80)	(1.65)
FDI	0.082*	0.037	0.069	0.067	0.065	0.032	0.04
	(1.71)	(0.88)	(1.57)	(1.54)	(1.49)	(0.81)	(0.96)
Government Consumption Expenditure	-0.108	-0.081	-0.080	-0.086	-0.086	-0.084	-0.081
	(-1.33)	(-0.93)	(-0.88)	(-0.96)	(-0.96)	(-0.99)	(-0.95)
Gross Capital Formation	0.215***	0.181***	0.184***	0.184***	0.186***	0.195***	0.180***
	(5.68)	(6.14)	(6.90)	(7.01)	(6.86)	(7.44)	(6.18)
Inflation	-0.001***	-0.001***	-0.001***	-0.001**	-0.001*	-0.001***	-0.001***
	(-6.93)	(-2.87)	(-3.28)	(-2.18)	(-1.71)	(-3.35)	(-2.80)
Domestic Credit provided to private sector	-0.025**	-0.024***	-0.023***	-0.022***	-0.023**	-0.029***	-0.023***
	(-2.49)	(-2.63)	(2.65)	(-2.62)	(-2.49)	(-2.96)	(-2.62)
Total trade	0.028***	0.004	0.007	0.006	0.006	0.003	0.004
	(2.60)	(0.52)	(0.77)	(0.67)	(0.66)	(0.33)	(0.40)
Exchange rate (LCU per dollar)	-0.000***	-0.000*	-0.000	0.000	0.000	-0.000	-0.000
	(-2.68)	(-1.91)	(-1.30)	(0.08)	(0.12)	(-0.16)	(-0.58)
Political Risk Index		0.029*	0.032	0.03	0.03	0.032*	0.030*
		(1.63)	(1.48)	(1.36)	(1.41)	(1.82)	(1.67)
Economic Risk Index		0.275***	0.245***	0.248***	0.250***	0.279***	0.275***
		(5.05)	(4.35)	(4.32)	(4.37)	(5.25)	(4.97)
Financial Risk Index		-0.004	0.087**	0.087**	0.086**	0.000	-0.003
		(-0.10)	(2.32)	(2.33)	(2.21)	(0.00)	(-0.08)
Inflation*Remittance				-0.000	0.000	0.001**	0.001
				(-0.44)	(0.59)	(2.24)	(1.01)
Exchange rate* Remittance				-0.000	-0.000	-0.000	-0.000
				(-1.47)	(-0.25)	(-0.88)	(-0.67)
Domestic Credit provided to private sector*Remittance					0.001	0.005***	
					(0.31)	(3.68)	
Political Risk* Remittance			0.006	0.007	0.007		
			(0.89)	(0.90)	(1.02)		
Economic Risk* Remittance			0.004	0.003	0.003		
			(0.46)	(0.34)	(0.32)		
Financial Risk* Remittance			-0.026**	-0.028**	-0.028*		
			(-1.98)	(-1.99)	(-1.91)		
	N=1268 Country=70 R^2=0.33	N=1268 Country=70 R^2=0.40	N=1268 Country=70 R^2=0.43	N=1268 Country=70 R^2=0.43	N=1268 Country=70 R^2=0.43	N=1268 Country=70 R^2=0.41	N=1268 Country=70 R^2=0.40

t -Statistic calculated from robust standard errors are given in the parentheses

*** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level

Remittances, FDI, Government Consumption Expenditure, Gross Capital Formation, Domestic Credit Provided to Private Sector and Trade are given as a % of GDP

Table 2.18: Panel Fixed Effects-Instrumental Variable Regression Results
Dependent Variable- Per Capita GDP Growth

	1	2	3	4	5	6	7
Remittances	0.418***	0.303**	2.65***	3.46***	3.40***	0.597*	0.373
	(2.93)	(2.38)	(2.81)	(4.68)	(4.95)	(1.77)	(1.42)
FDI	0.066	0.066	0.071	0.061	0.070	0.084*	0.063
	(1.41)	(1.63)	(1.38)	(1.06)	(1.42)	(1.79)	(1.46)
Government Consumption Expenditure	-0.136	0.025	0.076	0.058	0.057	0.013	0.013
	(-1.13)	(0.24)	(0.63)	(0.5)	(0.49)	(0.12)	(0.12)
Gross Capital Formation	0.243***	0.195***	0.199***	0.205***	0.199***	0.180***	0.196***
	(6.29)	(6.35)	(6.34)	(6.3)	(7.00)	(4.86)	(6.46)
Inflation	-0.026*	-0.003	-0.004	0.008	0.008	-0.001	-0.002
	(-1.7)	(-0.25)	(-0.3)	(1.22)	(1.19)	(-0.13)	(-0.19)
Domestic Credit provided to private sector	-0.025**	-0.027***	-0.026***	-0.025***	-0.023***	-0.022***	-0.027***
	(-2.21)	(-3.2)	(-3.4)	(-3.32)	(-2.83)	(-2.63)	(-3.13)
Total trade	0.022*	0.003	0.004	0.000	0.001	0.001	0.000
	(1.71)	(0.27)	(0.41)	(0.03)	(0.10)	(0.12)	(0.00)
Exchange rate (LCU per dollar)	-0.000***	-0.000*	-0.000	0.000	0.000	-0.000	0.000
	(-2.65)	(-1.83)	(-1.24)	(0.94)	(0.89)	(-0.254)	(0.12)
Political Risk Index		0.016	0.052**	0.078***	0.076***	0.019	0.016
		(0.87)	(2.47)	(2.99)	(3.28)	(1.01)	(0.82)
Economic Risk Index		0..39***	0.438***	0.429***	0.43***	0.392***	0.397***
		(6.48)	(6.53)	(6.35)	(6.36)	(6.18)	(6.22)
Financial Risk Index		-0.025	0.076*	0.078**	0.08**	-0.025	-0.034
		(-0.63)	(1.73)	(2.08)	(2.13)	(-0.49)	(-0.64)
Inflation*Remittances				-0.006***	-0.006***	-0.001	-0.000
				(-3.81)	(-3.87)	(-0.44)	(-0.06)
Exchange rate* Remittances				-0.000**	-0.000**	-0.000	-0.000
				(-2.24)	(-2.27)	(-0.76)	(-0.85)
Domestic Credit provided to private sector*Remittances					-0.002	-0.006**	
					(-0.61)	(-2.04)	
Political Risk* Remittances			-0.009*	-0.021**	-0.019***		
			(-1.75)	(2.48)	(3.87)		
Economic Risk* Remittances			-0.036*	-0.29**	-0.027**		
			(-1.88)	(-2.39)	(-2.36)		
Financial Risk* Remittances			-0.021***	-0.026***	-0.026***		
			(-2.79)	(-6.24)	(-6.14)		
	N=968	N=968	N=968	N=968	N=968	N=968	N=968
	Country=65	Country=65	Country=65	Country=65	Country=65	Country=65	Country=65
	R^2=0.34	R^2=0.45	R^2=0.46	R^2=0.47	R^2=0.47	R^2=0.44	R^2=0.44

t -Statistic calculated from robust standard errors are given in the parentheses

*** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level

Remittances, FDI, Government Consumption Expenditure, Gross Capital Formation, Domestic Credit Provided to Private Sector and Trade are given as a % of GDP

Chapter 3: Inclusiveness of Growth in Bangladesh

Summary

Has growth in Bangladesh benefited the poor in absolute terms? What happened to the distribution of income and expenditure in the growth process? What happened to the distribution of economic opportunities? Has growth created enough jobs? What policies are needed to make growth more inclusive?

Poverty and Vulnerability

3.1 **Economic growth in the last two decades in Bangladesh has been pro-poor.** Poverty has declined significantly from 56.8 percent to 31.5 percent through fiscal 1992-2010. The number of poor declined by around 15 million as the pace of poverty reduction accelerated during 2000-2010, the latter half of which also saw regional convergence in poverty patterns. Poverty reduction in the lagging divisions (Rajshahi, Khulna, and Barisal) was larger than in the eastern divisions. The poor have become more urbanized. A number of other indicators of welfare also show notable improvements between 2000 and 2010 for the general population and the poor alike. At an aggregate level, growth in real GDP per capita, increase in foreign remittance per capita and increased access to services, particularly education, micro-credit and safety net, appear to have contributed to the observed decline in poverty. Increased returns to the endowments of the poor contributed more to poverty reduction at the micro level.

3.2 **Bangladesh's ability to reduce vulnerability has not matched its achievements in poverty reduction.** The size of the vulnerable non-poor remains very large. Simply moving from the national poverty line of US$1.09 a day to the international US$1.25 a day line increases the headcount ratio from 31.5 percent to 43.25 percent. The pace of poverty reduction in the last two decades slows considerably with the raising of the poverty line. Thus, while cost-of-basic-needs (CBN)-based poverty headcount rate has declined rapidly in the last three decades, vulnerability has not. Large numbers are at the margin, indicating potential vulnerability to idiosyncratic or covariate shocks to income and/or expenditures. Bangladesh has around 80 million people in this range. Vulnerability varies by regions and household characteristics. Vulnerability in the coastal division (Chittagong) is much higher than in the rest of the country. Vulnerability tends to be highest among households headed by illiterate persons. Households headed by persons with more than secondary education are better placed to cope with risk and uncertainty. Also, agricultural households are more vulnerable than non-agricultural households.

Distribution of Income, Consumption and Opportunities

3.3 **Income distribution appears to have stabilized after deteriorating in the 1990s.** While comparisons based on consumption data have been used to argue that inequality in Bangladesh is low by international standards, when income rather than HIES consumption data are used, inequality appears to be much higher. The degree of income inequality was reasonably low and stable compared to countries such as Malaysia, Thailand and Philippines during the 1970s and 1980s. But there was a sharp increase between fiscal 1992 and 1996. Gini consumption concentration ratios based on HIES 2000, 2005, and 2010 data were almost unchanged, while Gini income concentration ratios increased by 3.5 percent during 2000-2005, followed by a 1.9 percent decrease during 2005-2010. Income inequality in Bangladesh is relatively high. Among Bangladesh's peer group of countries only Sri Lanka has a higher income Gini and Cambodia is close. The good news is it has been a race to the top in the past decade with consumption growing for the poor and non-poor alike.

3.4 **Unequal distribution of income is underpinned by unequal distribution of economic opportunities, but inclusivity of opportunities has largely improved.** Labor is the single most

important endowment of the poor. The good news is that average employment opportunity for Bangladeshis has increased over time, reflecting a surge in migration abroad in the last half of the past decade. Also the distribution of employment opportunities has remained pro-poor. The bad news is that domestic employment opportunities have become less inclusive over time due to decline in both average employment opportunities as well as the distribution of employment opportunities. The decline in the inclusiveness of domestic employment was exacerbated by decline in the inclusiveness of access to land. Access to education, health and electricity continue to remain inequitable—electricity highly so—but inclusivity has improved in all three indicators due to both increases in average opportunity as well as distribution of opportunities.

3.5 **Catching up on inclusion requires stimulating both employment growth and productivity growth**. Labor markets are the main channels through which economic growth is distributed across people. However, employment expansion may be hindered by a negative relationship between the growth of labor productivity and job growth. Empirically the trade off varies across countries and depends on different income groups and regions. There is extensive empirical evidence showing that the long run trend has been towards simultaneous growth in per capita income, productivity and employment. In addition to sound macro-economic policies, a sensible role for market forces in allocating resources to their most productive uses is important. However, the key challenge is to create an institutional environment that can alleviate some of the negative effects in the short and medium run while not hampering the realization of the long run growth potential. Employment elasticity of growth in Bangladesh has declined over the years from 0.8 in the early 1980s to 0.4 in the late 2000s. Bangladesh is not unique in experiencing decline in employment elasticity. Productivity growth accounts for the decline in employment elasticity. In economies with positive GDP growth such as Bangladesh, employment elasticity between 0 and 1 correspond with positive employment and productivity growth and lower elasticity within this range correspond to more productivity driven growth. This was particularly the case in the latter half of the last decade. Low productivity growth and high employment growth were associated with an employment elasticity of 0.9 during 2000-03. This was followed by high productivity and low employment growth which drove employment elasticity down to 0.3 during 2003-2006, but this rose again to 0.4 during 2006-2010 with a higher pickup in employment growth relative to productivity growth.

The Inclusion Challenge

3.6 **Bangladesh's fast-growing labor force presents both growth possibilities and development challenges.** Bangladesh has a young population and the lowest female participation rate in the labor force. The demographic transition will result in more workers entering the labor force in the future. Nearly 21 million people will enter the prime working-age population over the next decade. Labor supply growth is 4.6 percent per annum in Bangladesh, above the 2.3 percent South Asian average as well as the global average of 1.8 percent. The increased bulge within the labor force and increased female participation can contribute to additional growth if they can be gainfully employed while using more fully the existing underemployed. The annual 2.1 million increases in labor force adds to a backlog of 2.7 million openly unemployed and 11 million underemployed most of whom are self-employed with earnings below the poverty line. Even 7 percent annual GDP growth would add only 1.5 million jobs if the employment elasticity of growth does not decline any further. This is well short of the number added to the labor force every year. Creation of productive employment for at least 25 percent of the existing underemployed adds another 2.75 million jobs needed. Thus, the employment challenge ahead for Bangladesh is to absorb higher numbers of new labor force entrants at rising levels of productivity. The demographic dividend can enable the factor accumulation needed for faster inter and intra-sectoral reallocation of labor. Creating more and better jobs for a growing labor force calls for a new wave of reforms, including reforms needed to further boost migration abroad, to augment human capacity and raise productivity.

3.7 **Apart from adopting policies to create economic opportunities, to promote social inclusion public interventions must invest in education, health, and other social services to expand human capacities.** This is especially true for the disadvantaged, strengthening social safety nets to prevent extreme deprivation, and promoting good policy and sound institutions to produce level playing fields. For instance:

- In education, Bangladesh has made remarkable progress in increasing equitable access, closing the gender gap, reducing dropouts, improving the completion cycle, and implementing a number of quality enhancement measures. However, there is still a long way to go. In 2010, out of the 56.7 million in the labor force, 22.7 million had no education and only 2.2 million had graduate-level or equivalent technical education.
- Bangladesh's health policy emphasizes reducing severe malnutrition, high mortality and fertility, promoting healthy lifestyles, and reducing risk factors to human health from environmental, economic, social and behavioral causes with a focus on improving the health of the poor. However, there exist significant variations in mortality and nutritional status by gender and socio-economic status of households.
- The coverage of social safety nets has expanded. In 2010, 24.6 percent of the households reported to have received benefits during the last 12 months from at least one type of program, compared with 13 percent of such households in 2005. However, there are too many programs run by too many government departments resulting in large administrative overhead costs, too many layers of decision-making in beneficiary selection, and there is hardly any SSNP for the urban poor.

3.8 **The expansion of human capacities would not ensure equal opportunity for all if some people do not have access to employment opportunities because of their circumstances, face low returns on those capacities and have unequal access to complementary factors of production.** Such social and economic differentiation often reflects bad policies, weak governance mechanisms, faulty legal/institutional arrangements, or market failures. The central role of the government in promoting social and economic justice is to address all these market, institutional, and policy failures.

Poverty, Inequality and Opportunity

3.9 **Bangladesh has made significant progress in reducing poverty, improved social indicators even faster, and eliminated famines and severe epidemics.** Bangladesh's growth in recent decades has been remarkable. Yet, there is widespread concern that the opportunities and benefits may not have been equitably shared. Poverty remains high despite the recent decline and income inequality is perceived to be increasing. Recognizing the potentially negative social, economic, and political consequences of these trends, more and more countries are adopting inclusive growth as the goal of development policy.

3.10 **Inclusive growth is not about balanced growth but shared opportunities.** Spatial disparities in growth are inevitable when growth accelerates and countries make the transition from an agricultural to an industrialized economy.[1] This chapter attempts to answer three questions pertaining to the distributive aspects of economic growth: (i) Has growth been pro-poor? (ii) How has growth been distributed across the population over time? (iii) How have economic opportunities been distributed across population over time? The chapter concludes discussing a key policy pillar of an inclusive growth strategy—more and better jobs.

I. Has Growth Been Pro-Poor?

Growth is considered to be pro-poor if, and only if, poor people benefit in absolute terms, as reflected in some agreed measure of poverty (Ravallion and Chen, 2003; Kraay, 2003). The extent to which growth is pro-poor depends solely on the rate of change in poverty, which is determined by both the rate of growth and its distributional pattern.

3.11 **Poverty declined significantly in Bangladesh during the last two decades.** Poverty has long proved difficult to define. Official poverty estimates are based on the widely accepted cost-of–basic-needs (CBN) method.[2] Several rounds of Household Income and Expenditure Surveys (HIES) conducted by the BBS show that CBN-based poverty headcount rates have declined significantly in the last two decades as has the size of the poor population (Table 3.1). The proportion of poor declined from 56.8 percent to 31.5 percent through fiscal 1992-2010—a near-45 percent reduction. The pace of poverty reduction accelerated from 1.7 percent per year in the 1990s to 3.6 percent per year during 2000-2005, and to 4.25 percent per year during 2005-2010. The rural areas improved faster in 2000-2010 than the urban areas which had improved faster during the 1990s.[3] The depth of poverty (as measured by poverty gap) also declined in both rural and urban areas.

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1 Economic imperatives cause economic activity to concentrate in some regions and not in others. Government efforts, based on tax breaks and subsidies to capital and labor, to alter the location of economic activity are likely to be ineffective or very expensive. See 0 on urbanization and growth.

2 CBN poverty lines represent the level of per capita expenditure at which a household can be expected to meet their basic needs (food and non-food). This is measured by (i) estimating a food poverty line as the cost of a fixed food bundle (in case of Bangladesh, consisting of 11 key items), providing minimal nutritional requirements corresponding to 2,122 kcal/day/person, and (ii) adding an "allowance" for non-food consumption to the food poverty line. For the *lower poverty line*, the non-food allowance is the average non-food expenditure of households whose *total* consumption is equal to the food poverty line, whereas for the *upper poverty line*, the non-food allowance is the average nonfood expenditure of households whose *food* consumption was equal to the food poverty line.[2] As prices and consumption patterns vary between different geographical areas, poverty lines are estimated for each of 16 geographical areas. For more details on methodology, please see World Bank (2008a). *Poverty Assessment for Bangladesh,* Bangladesh Development Series, Paper No. 26, October, 2008.

3 No matter how it is measured, the conclusion that poverty in Bangladesh has been declining is inescapable. DCI poverty decreased from 47.7 percent in fiscal 1989 to 40.4 percent in 2005. Based on US$1.25 per day, poverty

3.12 **The decrease in the size of the poor population has been the distinguishing feature of poverty reduction in Bangladesh** (Table 3.2). The proportion of poor declined by almost 8 percentage points in the 1990s, but the total number of poor remained unchanged at around 62 million. The pace of poverty reduction was not fast enough to reduce the number of poor in that decade. In contrast, the number of poor declined by around 15 million as the pace of poverty reduction accelerated during 2000-2010. But there is no room for complacency, with some 47 million people still mired in poverty and another 12.4 million non-poor remaining highly vulnerable to poverty in 2010.[4] However, there was a reversion in the regional poverty patterns during 2005-2010. Poverty reduction in the lagging divisions (Rajshahi, Khulna, and Barisal) was larger than in the eastern divisions, leading to a significant convergence in poverty levels between east and the west. Despite this convergence, poverty rates in Barisal and Rangpur remain much higher (39.4 percent and 42.3 percent) than the national average, and these regions continue to suffer disproportionately from flooding, river erosion, mono-cropping and similar disadvantages.

Table 3.1: Poverty Headcount Rate and Gap (Percent)

	1991-92	2000	2005	2010
Poverty Headcount				
National	56.8	48.9	40.0	31.5
Rural	59.0	52.3	43.8	35.2
Urban	42.6	35.1	28.4	21.3
Poverty Gap				
National	17.2	12.8	9.0	6.5
Rural	18.1	13.7	9.8	7.4
Urban	12.0	9.0	6.5	4.3

Source: Household Income and Expenditure Survey, BBS

Table 3.2: Number of Poor (Millions)

	1991-92	2000	2005	2010
National	61.7	61.7	55.5	46.8
Rural	55.5	52.7	45.8	38.5
(% of National)	(89.9)	(85.5)	(82.4)	(82.4)
Urban	6.2	8.9	9.7	8.3
(% of National)	(10.1)	(14.4)	(17.6)	(17.8)
Total Population (Millions)	108.7	126.1	138.8	148.5

Source: Calculated from HIES Survey 2005 and HES Survey 1995-96

3.13 **The poor have become more urbanized.** The proportion of the poor living in the urban areas has increased from 10.1 percent in fiscal 1992 to 17.8 percent in 2010. In fact, the number of poor living in urban areas increased from 6.2 million in fiscal 1992 to 9.7 million in 2005 before decreasing to 8.3 million in 2010. The number of poor in rural areas decreased by 17 million—from 55.5 million in fiscal 1992 to 38.5 million in 2010—in the past two decades whereas the total number of poor in the country decreased by about 15 million. Thus a part of the arithmetic on the decline in rural poverty in the last two decades is that about 2 million moved to urban locations. This is consistent with the view that poverty will increasingly be an urban phenomenon. Internationally, the pace in urban poverty reduction has been slower than the pace in rural poverty reduction reflecting an overall urbanization of poverty.[5]

declined from 66.8 percent in 1991 to 49.6 percent in 2005. HDI has improved from 0.29 on average in the 1980s to 0.47 in 2010—a 62 percent increase in two decades. Bangladesh's MPI ranking in 2007 was 73 out of 104 countries. India's was 74, Vietnam's 50, Sri Lanka's 32, and Thailand's 16.

4 The total number of poor in Bangladesh nearly equals the combined population of Sri Lanka (20.3 million), Australia (21.9 million), and Switzerland (7 million).

5 Baker, *Urban Poverty: A Global View*, Urban Papers, The World Bank.2008.

3.14 **A number of other indicators of welfare also show notable improvements between 2000 and 2010 for the general population and the poor alike** (Table 3.3).

Table 3.3: Trends in Basic Assets and Amenities

	All Households			Bottom 3 Deciles		
	2000	**2005**	**2010**	**2000**	**2005**	**2010**
Average real value of livestock (Tk)	4280	5281	8192	2623	3919	6699
Livestock ownership (%)	35.2	40.3	39.8	31.6	42.5	42.9
Wall of dwelling (% with cement/CI sheet)	37.7	55.2	63.6	17.4	33.9	47.5
Roof of dwelling (% with cement/CI sheet)	76.4	89.9	91.9	64.5	81.6	86.4
Safe latrine use (%)	52	69.3	75.1	29.4	50	59.1
Electricity connection (%)	31.2	44.2	55.2	10	20.2	28.5
TV ownership (%)	15.8	26.5	35.8	1.8	6.7	10.8
Phone ownership (%)	1.5	12.2	63.9	0	0.9	36.3

Source: Based on HIES 2000, 2005, 2010.

- **Housing conditions improved remarkably between 2000 and 2005, with a larger percentage of households living in houses that are more resilient to adverse weather conditions.** The percentage of households with access to a safe toilet increased from 30 percent in 2000 to 58.3 percent in 2009. At the same time, the differences between poor and non-poor remain significant.
- **There has been a significant increase in the share of households with electricity connections,** from 31 to 55.3 percent during 2000-2010. There has also been a sharp rise in the percentage of households with access to a phone (landline and /or mobile)—from 1.5 percent of the population in 2000 to 63.9 percent in 2010—due mainly to expansion of the mobile phone network. Among the poorest 30 percent of the population, phone ownership has increased from almost none in 2000 to 36.3 percent in 2010.
- **Between 2000 and 2010, the average livestock asset value in real terms increased by about 91.4 percent for all households.** For poorer households the increase was 155.4 percent. The increase came both from existing owners increasing their livestock holdings and from a higher number of households owning livestock.

3.15 **At an aggregate level, growth in real GDP per capita, increase in foreign remittance per capita, and increased access to services—particularly education, micro-credit and safety nets—appear to have contributed to the observed decline in poverty** (Table 3.4).

- **Real per capita GDP growth increased**, from about 4 percent per annum during 2000-2005 to 5.1 percent during 2005-2010.
- **A sharp fall in household size** appears to have played an important role in increasing per capita expenditures and reducing poverty. The national average household size fell from 5.2 in 2000 to 4.5 in 2010 and the dependency ratio fell from 0.77 to 0.69. Household size declined because of a fall in the number of children in a household, indicating a fundamental demographic shift rather than household splitting or migration.
- **There was an overall improvement in education levels** among household heads. The literacy rate of male household heads increased from 44.3 percent in 2000 to 55.8 percent in 2010, while that of female heads increased from 33.4 percent to 48.1 percent.

- **The proportion of households receiving foreign remittance as well as remittance per capita increased.** There is a strong positive correlation between the receipt of foreign remittance and household expenditures. The poverty rate (in 2010) among receivers of foreign remittance is 13.1 percent compared to 33.6 percent among the non-receiving households.
- **Access to microfinance increased significantly in recent years,** with membership increasing by 62 percent between 2003 and 2005. Active membership nearly doubled during 2005-10. On the average, microfinance membership expanded faster in areas that were poor in 2000. While there are differing views among studies about whether microfinance has significant impact on poverty of member households, there is a broad consensus that microcredit improves welfare by reducing the *variability* of consumption of borrowers and cushioning the impact of income shocks on households. There now is very good evidence suggesting that the rates of return on micro-credit funded enterprises are generally higher than the interest rate paid on micro-credit.[6]
- **The coverage of social safety nets has expanded.** The proportion of people benefitting from at least one safety net program has increased in Bangladesh. In 2010, 24.57 percent of the households reported to have received benefits during the last twelve months from at least one type of program, compared with 13 percent such households in 2005. HIES 2010 findings further indicate that SSNP has been widened substantially both in coverage and amount during 2005-2010 and that they do reach the poor but not all the poor everywhere.

Increased Returns on Endowments of the Poor Helped Reduce Poverty at the Micro Level[7]

3.16 **Among rural households, increasing returns have had a strong impact on observed consumption growth as have changes in household and location characteristics,** according to a decomposition of the regression results from HIES datasets of 2000 and 2005. Among urban households, changes in characteristics such as the number of dependents and education played a larger role than did returns or coefficients on the aggregate. Changes in returns on household size, other demographic variables, land ownership and geographic location contributed more to the consumption growth of rural than urban households. The fact that a rise in returns on endowments played a significant role in rural poverty reduction

Table 3.4: Factors Contributing to the Poverty Decline

	1991-92	2000	2005	2010
Real GDP per Capita (BDT)	11,541	14,558	17,435	21,897
Remittances per Capita(US$)	7	14	25	67
Average Household Size	5.4	5.2	4.9	4.5
Average Earner per Household	1.38	1.45	1.40	1.31
Number of active MFI members (millions)	..	..	18.79	35.71 (2009)
Microfinance as % of private sector credit	..	4.9	5.1	5.3

Sources: HIES survey report 1995-96, 2000, 2005. Poverty Assessment 2008, 2003,1998; Bangladesh Microfinance Statistics 2009, Welfare Monitoring Survey 2009.

[6] Institute of Microfinance (InM), Impact of Microfinance Program on Poverty in Bangladesh, Policy Brief, 2011. A more recent InM study based on a longitudinal study of 6300 rural households finds that a conservative estimate of the contribution of microcredit to rural poverty reduction is 5 percent and to extreme poverty reduction is 9 percent. See S. R. Osmani, Asset Accumulation and Poverty Dynamics in Rural Bangladesh: The Role of Microcredit, Institute of Microfinance, January, 2012.

[7] For details see The World Bank (2008b), *Poverty Assessment for Bangladesh*, and Kotikula, Narayan and Zaman, *To What Extent are Bangladesh's Recent Gains in Poverty Reduction Different from the Past?,* undated.

suggests an improvement in the economic environment in rural areas. The effect of an increase in education endowments was particularly strong for urban households but the returns to education declined in both rural and urban areas.

Bangladesh's Ability to Reduce Vulnerability has Not Matched its Achievements in Poverty Reduction

3.17 **The size of the vulnerable non-poor remains very large.** Poverty is not the same as vulnerability. Consumption of 8.2 percent population (12.4 million) above the poverty line in 2010 was within 10 percent of the poverty line. Simply moving from the national poverty line of US$1.09 per day to the international US$1.25 per day line increases the headcount ratio from 31.5 percent to 43.25 percent (Table 3.5). The number of poor rises by 37.7 percent when poverty line is increased by just 16 cents. Raising the poverty line to a more generous US$2.5 per day increases the headcount ratio to nearly 86 percent. The pace of poverty reduction in the last three decades slows considerably with the raising of the poverty line. Thus, while the CBN based poverty headcount rate declined rapidly in the last three decades, vulnerability has not. Staggeringly large numbers are at the margin, indicating potential vulnerability to myriad idiosyncratic or covariate shocks to income and/or expenditures. Bangladesh has almost 81 million people in this range. Rather than artificially forcing the population into "poor" and "non-poor", the range of poverty lines used in Table 3.5 suggests that in 2010 Bangladesh had 46.9 million "destitute" (below the national poverty line of US$1.09 per day), another 17.4 million in "extreme poverty" (below US$1.25 per day), and another 63.2 million in "global poverty" (below US$2.5 per day).[8]

3.18 **Vulnerability varies by region and household characteristics.** Vulnerability is seen as the probability of falling into poverty in near future. This can result from increasing climate risks[9] such as floods, cyclone, draught, salinity that are fairly common in Bangladesh. Or it could result from idiosyncratic shocks such as illness or loss of employment and earnings. In addition, poor economic and social infrastructure contributes to the prevalence of risks that households need to cope with. Studies find that poor are not just a simple homogeneous population that can be clearly categorized into one or two groups. There are considerable variations and mobility among the poor.[10] Vulnerability in coastal division (Chittagong) is much higher than the rest of the country. Vulnerability tends to be highest among households headed by illiterate persons. Households headed by persons with more than secondary education are better placed to cope with risk and uncertainty. Also, agricultural households are more vulnerable than non-agricultural households.[11]

Table 3.5: Sensitivity of HCR to Poverty Lines

	Poverty Lines - US$ per day			
	US$1.09	**US$1.25**	**US$2**	**US$2.50**
2010	31.5	43.3	75.8	85.7
2005	38.5	50.5	79.7	87.9
2000	47.1	58.6	83.9	90.5
1995	49.6	60.9	85.1	91.2
1991	57.9	70.2	92.7	96.6
	Number of Poor (Million)			
2010	46.9	64.3	112.7	127.5
2005	54.2	71.0	112.0	123.6
2000	61.1	75.9	108.7	117.2
1995	58.3	71.6	99.9	107.1
1991	62.4	75.7	99.9	104.1

Source: Povcal.net and WB staff estimate

8 Categorization from Lant Pritchett, *Who is Not Poor? Dreaming of a World Truly Free of Poverty*, Oxford University Press, 2006.

9 See 0 on Climate change and growth.

10 Quisumbing, A. *Poverty Transitions, Shocks, and Consumption in Rural Bangladesh: Preliminary Results from a Longitudinal Household Survey*, CPRC Working Paper No. 105, Manchester, 2007.

11 M. Shafiul Azam and Katsushi S. Imai, *Vulnerability and Poverty in Bangladesh*, Chronic Poverty Research Centre, Working Paper No. 141, April, 2009.

II. How Has Growth Been Distributed Across the Population?

Recent global economic upheavals carry one clear message: inequality matters. Below we present the patterns and trends in income and expenditure distribution in Bangladesh.

3.19 **Income inequality is higher than consumption inequality.** Comparisons based on consumption data have been used to argue that inequality in Bangladesh is low by international standards. When income rather than HIES consumption data are used, inequality appears to be much higher (Table 3.6).[12] The degree of income inequality was reasonably low and stable compared to countries such as Malaysia, Thailand and Philippines during the 1970s and 1980s. But there was a sharp increase between fiscal 1992 and 1996. What happened to inequality in the subsequent periods is a matter of which inequality index we take as focal (Box 3.1). Gini consumption concentration ratios based on HIES 2000, 2005, and 2010 data were almost unchanged while income concentration ratios increased by 3.5 percent during 2000-2005 followed by a 1.9 percent decrease during 2005-2010 (Table 3.6).[13] The decrease in the latter period came from 9 percent decline in urban income Gini while rural income Gini increased by 0.7 percent.

3.20 **Income inequality in Bangladesh is relatively high.** Among Bangladesh's peer group of countries only Sri Lanka has a higher income Gini (0.49) and Cambodia is close (0.43).[14] Some researchers report increased inequality in urban and rural areas based even on consumption Gini and conclude that Bangladesh is now at a stage of relatively high and increasing income inequality.[15] Panel data-based studies find that the bottom 40 percent of households suffered a decline in income share between 1988 and 2000, while the top ten percent increased their share. However, the bottom 40 percent regained some of their lost share by 2004 and the top 10 percent lost some.[16] Based on HIES data, the ratio of average income of the top 25 percent to bottom 25 percent decreased slightly, from 8.3 in fiscal 1982 to 8.1 in 2010.[17] However, the same ratio of top 5 percent to bottom 5 percent increased from 16.9 in fiscal 1982 to 31.6 in 2010, although the latter is lower compared with 2005, when it was 35.

Table 3.6: Inequality (Gini Coefficient)

	1991-92	2000	2005	2010
	Expenditure Gini			
National	0.260	0.306	0.310	0.320
Rural	0.250	0.271	0.280	0.275
Urban	0.310	0.368	0.350	0.338
	Income Gini			
National	0.388	0.451	0.467	0.458
Rural	0.364	0.393	0.428	0.431
Urban	0.398	0.497	0.497	0.452

Source: Household Income and Expenditure Survey, BBS

12 It is also a useful reminder of the difficulty of making international inequality comparisons, a difficulty too often overlooked when cross-country comparisons and regressions are undertaken.

13 Rizwanul Islam, *What kind of Economic Growth is Bangladesh Attaining?* Shahabuddin and Rahman (Editors), Development Experience and Emerging Challenges in Bangladesh, BIDS and The University Press Limited, 2009.

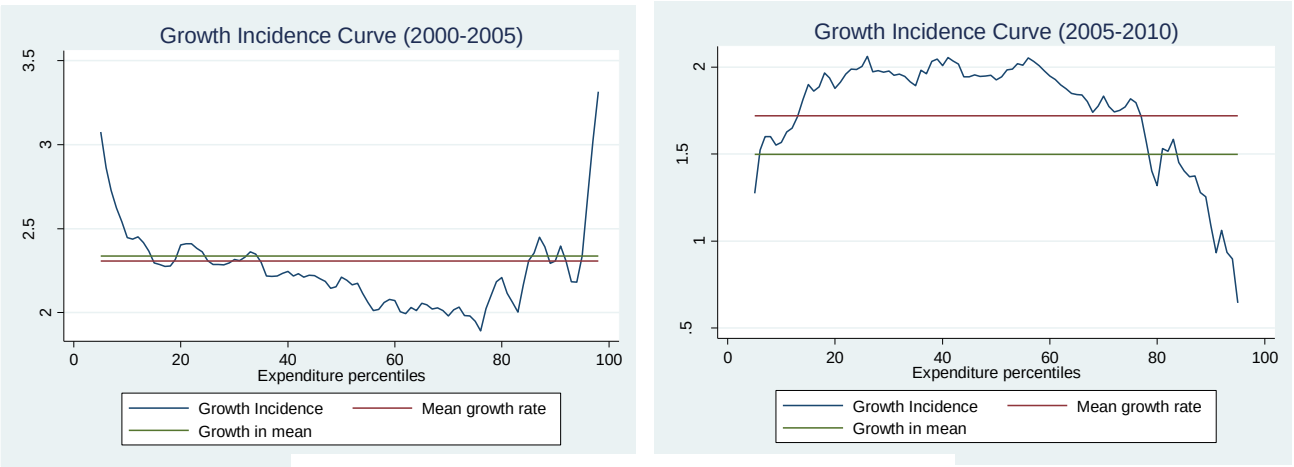
14 The reference year is 2007 for Sri Lanka and Cambodia.

15 Binayak Sen and David Hulme, *Chronic Poverty in Bangladesh: Tales of Ascent, Descent, Marginality and Persistence*, BIDS and CPRC, 2006, p.45.

16 Mahabub Hossain and Abul Bayes, *Rural Economy & Livelihoods: Insights from Bangladesh*, A H Development Publishing House, 2009, p. 409.

17 It is likely that the household surveys miss increases in top-end incomes. Increases in wealth holdings are also driving perceptions of increased inequality. There is certainly a popular perception that inequality has increased sharply, very likely driven by the observation that rich Bangladeshis have done extraordinarily well since the 1990s when market oriented reforms gained significant grounds. Wealth inequalities are also perceived to be on the rise.

Figure 3.1: Growth Incidence Curves 2000-10



Source: Based on Bangladesh Bureau of Statistics Data

3.21 **Growth in consumption occurred for both the poor and non-poor** (Figure 3.1). There is a major difference between the growth incidence curves during 2000 and 2005 and that during 2005 and 2010. Annual average growth of per capita consumption during 2000-2005 was highest for the bottom 20 percent and top 10 percent of the population while growth in mean consumption exceeded the mean of growth rates. GICs based on HIES 2010 data indicate that annual average growth of per capita consumption was lowest for the top 20 percent and the bottom 10 percent of the population while the growth in mean was less than the mean growth rate. This suggests that growth has been more equitable in the last half of the past decade compared with its first half. The patterns of consumption growth shown in Figure-3.1 imply the smallest gain among the top quintile and the highest gain among the bottom second and third quintile. Many of the prospective non-poor in the bottom second quintile may have graduated out of poverty because of such high consumption growth. East-West convergence in poverty resulted from high consumption growth in Rajshahi and Barisal while per capita consumption declined in Dhaka and grew very slowly in Sylhet.

Box 3.1: Choosing a focal variable for measuring economic inequality

Sen (1992, p. 20) has argued that the relative advantages and disadvantages that people have can be judged on the basis of many different variables—their respective incomes, wealth, utilities, resources, liberties, rights, quality of life, and so on.[18] The plurality of variables on which one can possibly focus (the focal variables) to evaluate interpersonal inequality makes it necessary to make a hard decision regarding the perspective to be adopted. Pareto saw the distribution of income as a reflection of the natural distribution of abilities among persons, while Kuznets regarded its evolution as one of the characteristics of the process of economic growth. They both agreed that the focal variable be income. However, other dimensions of economic inequality are relevant in international comparisons. Earnings dispersion and differences in employment rates capture inequality in the labor market. Wealth may be seen as an indicator of the capacity to face adverse events or of the power to control the resources of the society. The standard of living is much influenced by non-monetary aspects, such as health status or human capital—as stressed by the "capability approach" advocated by Sen (1992). In the text in this report, the focal variable is taken to be income, the most common indicator of (current) economic resources in rich countries. Expenditure is an alternative variable often used, especially in less developed countries. Mixing income-based and consumption-based statistics confounds international comparisons, as income tends to be more unequally distributed than expenditure and to an extent that varies from country to country.

[18] A. K. Sen, *Inequality Reexamined*. Oxford: Clarendon Press, 1992.

3.22 **Inequality affects poor and rich communities alike.** The World Bank's poverty mapping exercise shows that consumption inequality is as high among poorer rural communities as among better-off ones.[19] In this exercise both poverty headcount rates and Gini coefficients are estimated for Statistical Metropolitan Area (SMA), urban areas, and rural areas separately. Although it is easy to aggregate poverty headcount rates across regions, doing the same for Gini coefficients is far more challenging. Consequently, poverty incidence is compared with inequality for each region separately. The results show that higher poverty headcount rates correspond with lower inequality. There is thus a tendency that many people are equally poor in areas with high poverty rates. It is nevertheless also true that there is large heterogeneity within a region and the observations based on the linear projection should be viewed with caveats in mind. For example, some SMA *upazila* exhibit among the lowest inequalities and poverty rates in the country. This comparison across regions suggests that urban areas tend to have higher inequality than the other two types of regions. If local inequality of consumption is an indication also of concentration of power and influence, then resources allocated to poor communities—for example, under "community-driven development" approaches—will not necessarily reach the poor and might instead be at risk of elite capture.

3.23 **For most countries, growth in inequality across leading and lagging regions is rising faster than growth in inequality across individuals**. Regional inequality is rising at a much faster pace than pure between-individual inequality in all countries in South Asia except Nepal and, to some extent, India. Regional inequality generally increases as an economy shifts from agriculture to manufacturing. There are some signs of regional convergence in Nepal and India, as the extremely poor areas in Nepal and India have achieved faster growth rates in consumption. Poorer parts of Nepal and India have benefited from remittance flows as workers have moved to areas of higher economic density either at home or abroad. The East-West convergence in poverty incidence reported earlier suggests that this may have been happening in Bangladesh as well.

3.24 **Not all types of inequality are harmful for growth and economic development.** The link between inequality and poverty is far from straightforward. Other things equal, a rise in inequality dampens the poverty-reducing impact of an increase in mean incomes. But everything else is never equal, and some growth accelerations might not be possible without an increase in inequality. The recent experience of Bangladesh might fall into such a category. However, rising inequality can be of concern for other reasons. Some inequalities may be more structural in nature, and exclude groups from the development process.

3.25 **A common empirical finding in the international literature on poverty and inequality is that changes in inequality at the country level have virtually no correlation with rates of economic growth** (Ravallion and Chen,1997; Ravallion, 2001; Dollar and Kraay, 2002). Amongst growing economies, inequality tends to fall about as often as it rises, i.e., growth tends to be distribution neutral on average.[20] It is therefore not at all surprising that the literature has also found that absolute poverty measures tend to fall with growth. The elasticity of the "US$/day" poverty rate to growth in the survey mean is around -2, though somewhat lower (in absolute value) if one measures growth rates from national accounts (Ravallion, 2001). The significant negative correlation between poverty reduction and growth in the mean from surveys is found to be robust to correcting for the likely correlation of measurement errors in the poverty measures and those in the mean, using growth rate in the national accounts as the instrumental variable (Ravallion, 2001).

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[19] World Bank (2010e), Updating Poverty Maps: Bangladesh Poverty Map for 2005.

[20] For example, across 117 spells between successive household surveys for 47 developing countries Ravallion finds a correlation coefficient of only 0.06 between annualized changes in the Gini index and annualized rates of growth in mean household income or consumption as estimated from the same surveys (Ravallion, 2003).

3.26 **While poverty is more often seen as a consequence of low average income, there are reasons for thinking that there is a feedback effect whereby high initial inequality also impedes future growth.** This can happen because of the existence of credit market failures as a result of which some people are unable to exploit growth-promoting opportunities for investment. Generally, these constraints tend to be more binding for the poor. With declining marginal products of capital, the output loss from the market failure is greater for the poor. Thus, the higher the proportion of poor people in the economy the lower the rate of growth. Poverty then becomes self-perpetuating. There are other ways in which high inequality can impede growth prospects. In the presence of capital market failures due to moral hazard, high inequality can dull incentives for wealth accumulation. It has also been argued that high inequality can foster macro-economic instability and impede efficiency-promoting reforms that require cooperation and trust.

III. What Has Happened to the Distribution of Economic Opportunities?

Developing countries in general are embracing inclusive growth as a key development goal in response to rising inequalities and increasing concern that these could undermine the very sustainability of their growth. Unequal opportunities arise from social exclusion associated with market, institutional, and policy failures.

There is as yet no widely agreed formal definition for inclusive growth, but a consensus on what it entails is emerging from discussions on development policies at international and regional forums, and studies of academic and policy researchers. Simply put, inclusive growth means growth with equal opportunities; it focuses, therefore, on both creating opportunities and making opportunities accessible to all. Growth is inclusive when it allows all members of a society to participate in and contribute to the growth process regardless of their individual circumstances. More precisely, growth is inclusive when the economic opportunities created by the growth are available to all, the poor in particular.

3.27 **The importance of equal opportunities for all lies in its intrinsic value as well as instrumental role.** The intrinsic value is based on the assumption that equal access to opportunity is a basic right of a human being. The instrumental role comes from the recognition that equal access to opportunities increases growth potential, while inequality in opportunities diminishes it and makes growth unsustainable. It leads to inefficient utilization of human and physical resources, lowers the quality of institutions and policies, erodes social cohesion, and increases social conflict. Inclusive growth based on equal opportunity differentiates inequalities due to individual circumstances from those due to individual efforts. An individual's circumstances such as religious background, parental education, geographical location, and caste or creed are exogenous to and outside the control of the individual. Inequalities due to differences in circumstances often reflect social exclusion arising from weaknesses of the existing systems of property and civil rights, and thus should be addressed through public policy interventions. On the other hand, an individual's efforts represent actions that are under the control of the individual, for which he or she should be held responsible. Inequalities due to differences in efforts reflect and reinforce market-based incentives needed to foster innovation, entrepreneurship, and growth. Incentives should not be disregarded.

3.28 **The distinction between inequalities arising from efforts and those arising from circumstances leads to an important differentiation between "inequalities of outcomes" and "inequalities of opportunities."** Inequalities of opportunities are mostly due to differences in individual circumstances, while inequalities of outcomes such as incomes and wealth reflect some combination of differences in efforts as well as circumstances. If policy interventions succeed in ensuring equality of access to opportunities, inequalities in outcomes would then only reflect differences in efforts. This could be viewed as "acceptable inequalities" that are inherent for any growth process. On the other hand, if all

individuals exert the same level of efforts while policy interventions cannot fully compensate for the disadvantages of circumstances, the resulting inequalities in outcomes are "unacceptable inequalities." While these two extreme cases are useful for analytical purposes, in reality, inequalities in outcomes consist of both acceptable and unacceptable inequalities. Equalities in opportunities, which emphasizes eliminating circumstance-related inequalities so as to reduce inequalities in outcomes, is at the core of inclusiveness that anchors an inclusive growth strategy.

3.29 ***Measuring Inclusiveness:*** The inclusive growth analytics framework focuses on the individual rather than the firm, and the main instrument for a sustainable and inclusive growth is assumed to be productive employment.[21] The focus on individuals makes it easy to factor in the presence of a substantial fraction of the labor force working outside the firm, as self-employed, non-wage workers. This is important for the analysis of constraints to growth in Bangladesh since about 41 percent of its employed labor works as self-employed. It makes it also conceptually easy to incorporate international labor migration into the analysis as it is done with attention to different groups of economic actors and their activities rather than where these activities are performed.

3.30 **Inclusiveness is measured using the idea of a social opportunity function.** Increase in the social opportunity function depends on the average opportunities available to the population and how the opportunities are distributed among the population. The social opportunity function gives greater weight to the opportunities enjoyed by the poor: the poorer a person is, the greater the weight. (See Appendix 3A for details). Opportunity can be defined in terms of various services, e.g., access to a health or education service, access to job opportunity in the labor market, etc.

3.31 **Methodology** outlined in Appendix 3A was applied to the Bangladesh Household Income and Expenditure Survey (HIES) 2000, 2005 and 2010 datasets to see how inclusiveness has changed over time on six dimensions, namely, employment, ownership of cultivable land, access to primary and secondary education, access to electricity, and access to health services.

3.32 **The HIES** is a nationwide survey that provides detailed information on demographic and economic characteristics; health status and education of family members; housing, water, and sanitation conditions of families; availability of credit to finance family business or enterprise; land ownership; and family income and expenditures. The HIES 2000 and 2010 collected these information from 7,440 and 12,240 households across Bangladesh respectively.

The results, summarized in Appendix 3B tables and charts, are discussed below:

3.33 ***Employment:*** Percentage of employed population has declined from 44.2 percent in 2000 to 44 percent in 2010.[22] Access to employment is equitable, but has become less inclusive during 2000-2010 due mainly to decline in average opportunity. During this period, however, Bangladesh's economy grew by 5.8 percent per year on average and labor force grew by 4.6 percent per year. It is fair to assume that economic growth from 2000-2010 created job opportunities. However, it did not translate into increase in average opportunity because demand for labor during this period did not grow as fast as supply of labor. The economy added 15.1 million new jobs in the domestic economy during 2000-2010; a sizeable number but fell short of the 20.1 million new entrants into the domestic labor force. Underemployment rate also increased from 16.6 percent to 20.3 percent during this period.[23]

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[21] See Ianchovichina and Lundstrom (2009) for a detailed discussion on inclusive growth analysis. Firms are also economic agents in the inclusive growth framework.

[22] HIES Report, 2005, and HIES Preliminary Report, 2010.

[23] Based on data from Report on Labor Force Survey 2005-2006 and Report on Labour Force Survey, 2010.

3.34 Migration abroad is a major reason why average employment opportunity appears to have declined so much. HIES employment and population data exclude migrant population. This understates the employment rate. It understates even more the change in the employment rate when migration is rising rapidly as it did in Bangladesh during 2006-2009. When migrant population is included in the numerator and the denominator of the average employment opportunity index then the latter rises to 45.4 percent in 2000 (compared with 44.2 percent) and 46.5 percent in 2010 (compared with 44 percent). Thus, overall employment opportunity for Bangladeshis on average increased in the last decade.

3.35 The domestic employment opportunity curve (Box 3.2) is downward sloping and has shifted down from 2000 to 2010 indicating that distribution of opportunities is equitable but equity, as measured by the equity index of opportunity, has declined over time. The shift is more pronounced at the second and third deciles meaning opportunity declined more for people belonging to these bands compared to others while opportunity remained unchanged for the richest 10 percent.

3.36 One possible reason why the domestic employment opportunity index declined may be that contribution of manufacturing-to-GDP growth on average was the highest during this period (1.2 percentage point), but manufacturing is not very labor intensive. Agriculture is the most labor intensive sector as are transport, storage & communication. Manufacturing, construction, finance & business services and electricity, gas and water sectors are sectors that have higher than average capital-output ratios.[24] The high manufacturing growth probably translated more into higher real wages, than higher employment. Indeed, increase in real manufacturing wages (67 percent) surpassed increase in real general wages (55 percent) during 2000-2010. Real wages increased in other sectors as well, by 66.5 percent in the agriculture sector and by 30 percent in construction.[25]

3.37 ***Cultivable Land Ownership:*** Access to land is inequitable and has become even more so during 2000-2010 due mainly to decline in average opportunity. This does not come as a surprise. Land is scarce in Bangladesh and cultivable land is becoming scarcer because of industrialization, urbanization, erosion, and pollution. The opportunity curve has shifted downward over time implying that average opportunity for the entire population has declined. The slope was steeper at bottom 20 percent than the rest in 2000, but in 2010 the slope has become more uniform (and flatter) for this part of the distribution, indicating more pro-poor distribution.

3.38 Indeed, landlessness has increased over time. The number of rural households having no land has increased from 10.2 percent in 1996 to 12.8 percent in 2008.[26] In rural areas households having no land remained unchanged from 2000 to 2005. Percentage of households having 1 acre of land declined from 69.5 percent to 67.6 percent while percentage of households with land ownership of 7.5 acre and over increased from 1.3 percent to 1.6 percent during this period.[27]

3.39 ***Electricity*****:** Access to electricity is inequitable but inclusiveness has improved significantly from 2000 to 2010 due to increase in average opportunity as well as increase in equity index. The opportunity curve is upward sloping and has shifted up over time which implies that while distribution is inequitable, inclusiveness is improving. The improvement is more pronounced for those at the upper end of the distribution. In rural areas the top 50 percent enjoyed greater increase while in urban areas the bottom 50 percent enjoyed greater increase. Other evidence show that the percentage of households with access to

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[24] Rahman, Rushidan et al, Employment and the Labour Market: Recent Changes and Policy Options for Bangladesh, Sixth Five Year Plan of Bangladesh 2011-2015, Background Papers, Volume 3, BIDS, September, 2011.

[25] Statistical Bulletin Bangladesh, BBS

[26] Agricultural Census 2008.

[27] HIES Report 2005.

[28] HIES Preliminary Report, 2010.

electricity has increased from 31.2 percent in 2000 to 55.3 percent in 2010[28] and per capita electricity consumption has more than doubled from 95 kWh per capita to 208 kWh per capita during 2000-2008. [29]

3.40 ***Primary and Secondary Education:*** Education promotes social mobility and thereby equity. Access to both primary and secondary education is inequitable, but inclusiveness has improved over time due to increase in average opportunity as well as increase in equity index. The opportunity curves for both primary and secondary education are upward sloping, indicating that opportunities are distributed inequitably. Both curves, however, have shifted upward over time, implying that there has been an increase in opportunity from 2000 to 2010. The shifts in the curves are not uniform. In case of primary enrolment, the curve shifted up more for the bottom 30 percent. Education opportunity increased more for the poor at the bottom end of the distribution. In case of secondary enrolment the curve shifted up more at the middle 40 percent, indicating that opportunity increased more for the people at the middle of the distribution compared to those at the lower and upper end.

3.41 The expansion in education opportunity indicated by HIES data is consistent with administrative data which show that enrolment rate for children aged 6 to 10 years has increased from 75.1 percent in 2000 to 84.75 percent in 2010. The gross primary enrolment ratio has increased from 102 percent in 2000 to 108.8 percent in 2010.[30] The gross enrolment ratio at the secondary level has increased from 42.2 percent in 2000 to 53.9 percent in 2009 and secondary completion rate has increased from 17.2 percent in 2001 to 44.7 percent in 2008.[31]

3.42 ***Health Services*****:** Access to health services is slightly inequitable but inclusiveness has improved due to an increase in average opportunity and equity index. The percentage of people seeking health care service has increased from 73.7 percent to 91.6 percent from 2000-2010. Access to health care services is the most equitable of all six dimensions explored here as evidenced from the almost horizontal opportunity curves. The curves became flatter over the period 2000-2010 implying more equitable access during this period. The inclusiveness has improved especially for those at the bottom 20 to 30 percent, as seen from the uneven upward shift of the curve.

3.43 Data from other sources also indicate that access to health care services has improved over time. For instance, between 2000 and 2010, percentage of birth attended by skilled personnel has doubled from 13 percent to 26 percent. During the same period, vaccination coverage has increased from 60.4 percent to 82.1 percent.[32]

3.44 ***Conclusions:*** Unequal distribution of economic outcomes is underpinned by unequal distribution of economic opportunities. But the upshot from the analysis above is that no sweeping generalizations can be made about the inclusiveness of growth in Bangladesh during the decade ending in 2010. Labor is the single most important endowment of the poor. The good news is that average employment opportunity to Bangladeshis has increased over time reflecting a surge in migration abroad in the last half of the past decade. Also the distribution of employment opportunities has remained pro-poor. The bad news is that domestic employment opportunities have become less inclusive over time due to decline in both average employment opportunities as well as the distribution of employment opportunities. The decline in the inclusiveness of domestic employment was exacerbated by decline in the inclusiveness of access to land. Access to education, health and electricity continue to remain inequitable—electricity highly so; but

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28 HIES Preliminary Report, 2010.

29 World Development Indicators.

30 Based on HIES data. *Education for All in Bangladesh*, 2008.

31 Bangladesh Bureau of Educational Information and Statistics (BANBEIS).

32 Bangladesh Demographic and Health Survey (BDHS) 2000 and Utilization of Essential Service Delivery Survey (UESD), 2010.

inclusivity has improved over time on all the three indicators due to both increase in average opportunity as well as the distribution of opportunities.

IV. Labor Market Dynamics and Challenges

Labor markets are the main channels through which economic growth is distributed across people. Employment of a family member is the biggest safety net for families in Bangladesh because of the absence of unemployment and pension benefits.

3.45 **Employment is the primary source of income for most households in Bangladesh.** This is especially true for the poor households whose only abundant productive resource is their own labor. Increasing employment opportunities and raising the returns to labor is therefore the most direct way to meeting the livelihood requirements. However, simply having access to employment is not enough to lift the poor households out of poverty. The government's development strategy recognizes the need to orient growth policies toward creating productive employment opportunities. It emphasizes several options such as adopting policies for making growth more employment-friendly, increasing overseas migration of workers, and undertaking special employment creation programs through micro credit, employment based safety nets and public works programs.[33]

3.46 **The labor force in Bangladesh has expanded rapidly over the last two decades.** The total labor force was 63.8 million (including temporary migrants abroad) in 2010 compared with 43.7 million in 2000. Given the present demographic trend, the growth of the labor force is unlikely to taper off during the coming decade. The rural-urban variation in the labor force growth is also significant. Between 2000 and 2010, the rural labor force grew by 15.5 percent to 43.2 million; while the urban labor force increased from 9.3 million to 13.9 million (49.5 percent growth). This reflects the impact of significant urbanization that is taking place. In urban areas, females accounted for 40.4 percent of the labor force in 2010 compared with 23.7 percent in 2000. The size of the female labor force in the rural areas increased from 6.4 million to 13.2 million over the same period. While the total labor force participation rate increased from 54.9 percent to 59.3 percent between 2000 and 2010, the male participation rate remained unchanged at around 83 percent but the female participation rate increased sharply from 23.9 percent to 36 percent.

3.47 **Most employed labor is in the informal sector.** The vast majority (87 percent) of the total employed labor, females in particular, are engaged in informal activities.[34] Of the total female employed labor, 92 percent were employed in the informal sector, compared with 85 percent for male labor. Self-employed/own account workers constitute the largest group accounting for 41 percent of total working labor in 2010 followed by unpaid family helpers (22 percent). The movement across different categories over time indicates increasing commercialization of the economy and higher mobility of the labor force across various activities. There exists, however, significant gender difference in terms of status of employment. More than 60 percent of the female labor (compared with less than 10 percent of male labor) worked as unpaid family workers in 2010. The majority of the poor women work as unpaid family

[33] GoB, Bangladesh Sixth Five-Year Plan, March 2011.

[34] Enterprises or activities are considered informal in Bangladesh if they are not registered with the relevant authority. Thus employment in the informal sector comprises of self employed/own account workers, unpaid family helpers, day laborers, paid employees in informal enterprises, informal employers, and similar other categories. The concept captures forms of employment that lack regulatory, legal, and/or social protections. Informal employment is defined in terms of the nature of enterprise in which the work takes place (e.g., the informal sector) and the relationships in employment.

workers or for daily wages in agriculture or in non-farm and family enterprises. The formal-informal divide in employment has significant consequences for return to labor and security of employment.

Table 3.7: Trends in Employment and Productivity Growth

	Employment Elasticity (ε)	GDP Growth (g)	Employment Growth (ε)*(g)	Productivity Growth (1-ε)*g
1981-84	0.8	12.0	9.6	2.4
1984-85	1.1	3.2	3.6	-0.3
1985-86	1.2	4.2	5.0	-0.7
1986-89	0.9	8.7	7.7	1.1
1989-91	0.8	9.5	7.5	2.0
1991-96	0.4	25.5	9.8	15.7
1996-00	0.5	23.2	12.1	11.1
2000-03	0.9	15.7	13.6	2.1
2003-06	0.3	20.1	7.0	13.1
2006-10	0.4	35.2	14.1	21.1

Source: Calculated from BBS

3.48 **Women are increasingly visible in manufacturing and agriculture**. The share of women employed in agriculture is now 41 percent and 28.3 percent in manufacturing. A noteworthy development in the case of female employment is the boom in the readymade garments (RMGs) sector in which nearly 90 percent of the employees are women. In 2010, about 35 percent of the employed women worked in non-agricultural sectors of which more than a third was engaged in the RMG sector. Garment industry jobs that tend to be concentrated in big metropolitan cities (Dhaka and Chittagong), have attracted many young women migrant workers from the rural areas, often from the poorer households. Factory work means not only higher earnings for these women, but also better status relative to other work available in the rural areas including a sense of pride and empowerment at being able to support their families. Due to their salaries the women workers gain more financial independence from their parents, relatives and husbands.[35]

3.49 **Under-employment is high.** As is typical in low income countries, the unemployment rate is low but increasing—4.6 percent in 2010, compared with 4.3 percent in 2006 and 4.2 percent in 2000. Poor and low income people have to engage in some work—even for few hours and at low wages in the informal sector—in order to subsist. The most recent BBS estimate suggest that the underemployment rate (defined as those who worked less than 35 hours during the reference week of the survey) decreased from 24.5 percent in 2006 to 20.3 percent in 2010. The unemployment and under-employment rates are generally higher among the youth and educated labor force. The underemployment rate is higher for females (34.1 percent) than males (14.4 percent). Underemployment can manifest itself in forms other than work time as measured in Bangladesh.[36]

3.50 **Bangladesh has a young population and the lowest female participation rate in the labor force.** The demographic transition will result in more workers entering the labor force in the future.

[35] Suse Bachmann, *Women in the Industrial Labour Force in Bangladesh.*

[36] For example, in the case of a self-employed person (say a street vendor), if earnings are low due to inadequate demand, the person will have to work longer hours to generate required income for survival. In such cases, low demand in the economy leads to longer working hours but, in reality, the self employed person should be considered underemployed due to low productivity and inadequate demand for his/her labor.

Nearly 21 million people will enter the prime working-age population over the next decade. Labor supply growth is 4.6 percent per annum in Bangladesh, above the 2.3 percent South Asian average as well as the global average of 1.8 percent. The increased bulge within the labor force and increased female participation can contribute to additional growth if they can be gainfully employed while using more fully the existing underemployed.

3.51 **Employment elasticity of growth has declined over the years from 0.8 in the early 1980s to 0.4 in the late 2000s** (Table 3.7). Bangladesh is not unique in experiencing a decline in employment elasticity. Kapsos (2005) estimated global employment elasticity and found that it declined from 0.34 during 1991-1995 to 0.3 during 1991-2003 (Table 3.8).[37] The study also finds a wide variation in the employment intensity of growth in regions throughout the world. The most employment-intensive growth was registered in Africa and the Middle-East during 1991-2003. In South Asia, on the other hand, the employment elasticity declined from 0.49 during 1995-1999 to 0.36 during 1999-2003.

Table 3.8: Comparative Perspective on Employment Elasticity

	1991-1995	1995-1999	1999-2003
China	0.14	0.14	0.17
Korea	0.30	0.17	0.38
Indonesia	0.37	-0.08	0.43
Malaysia	0.31	0.51	0.67
Philippines	0.99	0.69	0.76
Thailand	0.09	0.14	0.38
Viet Nam	0.24	0.26	0.35
India	0.40	0.43	0.36
Nepal	0.35	0.46	0.64
Pakistan	0.49	0.96	0.63
Sri Lanka	0.14	0.82	0.19

Source: Kapsos, S.(2005) " The employment intensity of growth: Trends and macro-economic determinants" Employment Strategy Department, International Labor Office

3.52 **Productivity growth accounts for the decline in employment intensity.** In economies with positive GDP growth such as Bangladesh, employment elasticity between 0 and 1 correspond to positive employment and productivity growth and lower elasticity within this range correspond to more productivity driven growth. This was particularly the case in the latter half of the past decade (Table 3.7). Low productivity growth and high employment growth were associated with an employment elasticity of 0.9 during 2000-2003. This was followed by high productivity and low employment growth which drove employment elasticity down to 0.3 during 2003-2006. With a higher pickup in employment growth relative to productivity growth, the employment elasticity rose back to 0.4 during 2006-2010.

3.53 **Bangladesh needs many more, and better, jobs.** The magnitude of the employment challenge facing Bangladesh is daunting. Its labor force is increasing by 2.1 million a year. This adds to a backlog of 2.7 million openly unemployed and 11 million underemployed most of whom are likely to be self-employed with earnings below the poverty line. A sustained 7 percent annual GDP growth would add only 1.5 million jobs every year if the employment elasticity of growth does not decline any further. Even this is well short of the number added to the labor force every year. Creation of productive employment for at least 25 percent of the existing underemployed adds another 2.75 million jobs needed. Thus, the employment challenge ahead for Bangladesh is to absorb higher numbers of new labor force entrants at rising levels of productivity. The demographic dividend can enable the factor accumulation needed for faster inter and intra-sectoral reallocation of labor. Creating more and better jobs in the domestic economy for a growing labor force calls for a new wave of reforms encompassing multiple sectors. Migration abroad will also have to be a critical part of the solution.

[37] Steven Kapsos, *The Employment Intensity of Growth: Trends and Macro-Economic Determinants,* ILO, 2005/12.

3.54 **Employment and productivity should grow hand in hand**. Growth in labor productivity affects employment, although the sign of the impact is ambiguous in theory. Technological progress enables producing the same amount of output with fewer workers. The direct effect of this is to reduce the demand for labor. Higher productivity on the other hand causes a decline in unit labor costs, which leads to a higher demand for output, which triggers a higher demand for labor. Whereas the direct effect implies a negative relationship between labor productivity and employment, the second effect implies a positive relationship. The positive effect is likely to be important at the industry level, but much less so at the aggregate (national) level because the wage rate reflects productivity developments at the national level. Most studies assume that the employment effect of growth is determined mainly by labor demand. Labor-saving technology reduces employment elasticity as the economy grows. Mechanization of agriculture and shift in the composition of output towards relatively more capital intensive manufacturing and services contribute to such outcomes. However, labor supply is also important. The elasticity of employment with respect to changes in the size of the labor force is close to one in Bangladesh, meaning that most increases in labor get absorbed into employment. Thus, although employment elasticity is an important macro-economic indicator, it is limited in that it says nothing about overall changes in the quality of jobs. While there is a debate on whether employment-intensive or productivity-intensive growth is more desirable, Bangladesh clearly needs to pursue employment growth and productivity growth jointly. Empirical studies show that across the developing countries over the three decades spanning 1980-2000 productivity growth played a substantial role in reducing poverty and that productivity growth better account for changes in poverty than the more commonly used economic growth.[38]

3.55 **The productivity-employment trade off vary across countries and depend on different income groups and regions.** For example, Africa has been a victim of low productivity trap because of unproductive employment growth, whereas Southeast Asian region and to some extent South Asian region showed positive growth both in employment and productivity. Cross country empirical analysis shows that in developed high income economies this trade off fades away within seven years. In case of developing and low income countries this tradeoff can last even for more than ten years. The various trade-offs can be explained by differences in structural transformation phases and differences in labor market institutions between developed and emerging countries. There is extensive empirical evidence showing that the long run trend has been towards simultaneous growth in per capita income, productivity and employment.[39] However, depending on the type of indicator and the time frame adopted, there are legitimate concerns about the distribution of the productivity and welfare gains from growth both within as well as between countries. In addition to sound macro-economic policies, a sensible role for market forces in allocating resources to their most productive uses is important. However, the key challenge is to create an institutional environment that can alleviate some of the negative effects in the short and medium run while not hampering the realization of the long run growth potential. Support to the creation of social capabilities and national innovation systems are important policy areas to achieve this goal. While strengthening an economy's fundamentals in the short and medium run, these also contribute to the virtuous circle of productivity growth, employment creation and poverty alleviation.

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[38] Centre for the Study of Living Standards, Productivity Growth and Poverty Reduction in Developing Countries, Final Report, September 29, 2003.

[39] Bart van Ark, Ewout Frankema and Hedwig Duteweerd, *Productivity and Employment Growth: An Empirical Review of Long and Medium Run Evidence,* Research Memorandum GD-71, Groningen Growth and Development Centre, May 2004.

V. Policy Implications

An effective inclusive growth strategy needs two anchors: (i) high and sustainable growth to create productive employment opportunities, and (ii) social inclusion to ensure equal access to opportunities by all. The transformations associated with sustained 7-plus percent growth would entail a shift of output from agriculture to industry and services. No economy in developing Asia has been able to sustain an economic catch-up without industrialization. Industry is the sector where opportunities for productivity growth have been concentrated. In the process, Bangladesh would have to transform its rural and agriculture dominated economy into one with higher agriculture productivity and industrial and services sectors playing a much larger role in both output and employment. Currently, job creation is constrained by weakness in basic infrastructure, financial systems, the property rights regime, and regulatory barriers to business.

The actions outlined in the preceding chapters that Bangladesh needs to take in the near and medium term to accelerate and sustain growth, while necessary, may not be sufficient for making growth more inclusive. Promoting social inclusion also would require an additional three public interventions: (i) investment in education, health, and other social services to expand human capacities, especially of the disadvantaged; (ii) strengthening social safety nets to prevent extreme deprivation and to help cope with vulnerability to poverty, and (iii) promotion of good policy and sound institutions to advance social and economic justice and level the playing fields.

Expanding human capacities: Growth provides resources to permit sustained improvements in human capacities, while expanded human capacities enable people to make greater contributions to growth. As education becomes more broadly based and equally accessible by all, people with low incomes are better able to seek out economic opportunities, and their children are less likely to be disadvantaged, leading to improved income distribution over time. Education is one of the most prominent determinants of movements out of poverty. Improved health and nutrition have also been shown to have direct effects on labor productivity and individuals' earning capacities, especially among the poor.

3.56 Despite making remarkable progress in several social fields, Bangladesh still has a long way to go to achieve an equitable, inclusive society. The country has performed admirably in increasing equitable access, closing the gender gap, reducing dropouts, improving completion cycles, and implementing a number of quality enhancement measures in education. However, in 2010, 22.7 million of the 56.7 million in the labor force still had no education, and only 2.2 million had graduate-level or equivalent technical education.[40] One in ten children of primary school age still was not enrolled in school and almost half of those enrolled did not complete the full primary cycle. One-third of children were reportedly without functional skills of literacy and numeracy after completing primary schooling. The poor and groups such as those living in ecologically disadvantaged areas, ethnic and linguistic minorities are the ones left out and the under-achievers. Children with disabilities of varying degrees are another large deprived group. The policies for quality improvement have not been directed at addressing the specific circumstances faced by various deprived segments of the population.

3.57 Nearly half of all children of secondary-school age (11-17 years) are out of school. An average of 14 percent drop out of each grade in junior secondary level (grades 5-8), 37 percent in each grade of secondary level (grades 9 and 10), and 17 percent in each grade of higher secondary level (grades 11 and 12). Roughly one in five students who enroll in grade 6 pass the Secondary School Certificate Examination and one in ten obtains the Higher Secondary Certificate. A major boost to female

[40] Manzoor Ahmed, *A Study on Education and HRD: Quality and Management Issues in Bangladesh*, Sixth Five-Year Plan of Bangladesh 2011-2015, Background Papers, Volume 3, BIDS and General Economics Division, September, 2011.

participation in secondary education was given through various cash stipends for girls. Currently, stipends are provided to over 4 million girls in more than 21,000 institutions in all rural *upazilas* in Bangladesh. The completion ratio in secondary education is very low if one considers all those who do not complete primary education, do not qualify for or seek a place in secondary school, and the poor transition rate from primary to secondary level and failure rates in SSC and HSC examinations. In 2010, only 14 percent of the labor force had either SSC or HSC education qualification. A system that rules out entry to a high proportion of potential participants and allows a small minority to reach the apex is inherently inequitable.

3.58 Technical education in Bangladesh suffers from some serious mismatches. While there is a short supply of people with vocational skills, there is also evidence of a mismatch of jobs and skills. Employers' perception is that the products from the vocational system are not meeting their needs; that the system continues to produce graduates for old and marginal trades, which have little market demand, while skill needs for new trades remain unmet. Stated government policy is to increase substantially the proportion of post-primary students enrolling in vocational and training education. The equity effect of this expansion will depend on the extent the clientele of the programs is disadvantaged and poor segments of the population; how effective the programs are in imparting marketable skills; and whether there is an impact of the training program on increasing employment opportunities and raising income of the poor.

3.59 Bangladesh's health policy emphasizes reducing severe malnutrition, high mortality and fertility, promoting healthy lifestyles, and reducing risk factors to human health from environmental, economic, social and behavioral causes with a focus on improving the health of the poor. Evidence from Bangladesh and elsewhere suggests that the pattern of diseases experienced by the poor differs greatly from that of the rich.[41] Poverty leads to malnutrition and resultant diseases common in developing countries. Lack of access to food grains, nutrition knowledge, safe drinking water and reasonable sanitation facilities also lead to malnutrition. Child malnutrition rates in Bangladesh are very high by international standards and the risk of malnutrition is higher in rural than in urban areas. There has been significant progress in health indicators in the last three decades. Death rates, especially under-five mortality rates, have declined substantially. Bangladesh has achieved remarkable success in immunization, vitamin A coverage and improvement in maternal nutrition. However, there exist significant variations in mortality and nutritional status by gender and socio-economic status of households.

3.60 ***Social safety nets:*** Promoting social inclusion also requires the government to provide social safety nets to mitigate the effects of external and transitory livelihood shocks as well as to meet the minimum needs of the poor. The majority of Bangladesh's population is either poor or vulnerable non-poor. Poor households have limited human and physical capital. Shocks (illness, loss of jobs) to individual members or the community (floods, cyclone) force them into ineffective risk coping strategies (child labor, sale of productive assets, informal lenders).

3.61 Developing and improving social safety nets through public actions is particularly important as markets for insuring such risks in Bangladesh cover a tiny segment of population. Social safety nets serve two main purposes. First, by providing a floor for consumption, they are a coping mechanism for the very poor and the unfortunate. Second, they could provide insurance against risk to enable vulnerable people to invest in potentially high-return activities to lift themselves up. Social safety nets serve as springboards to enable vulnerable people to break out of poverty. By encouraging efforts, safety nets could contribute toward greater equality in outcomes. A strong social safety net is also required for ensuring that the adjustment costs that come with productivity increases do not fall disproportionately on the poor.

[41] M. A. Mannan, M. Sohail and A. T. M. Shafiullah Mehedi, *A Study on Health, Nutrition and Population, Sixth Five Year Plan of Bangladesh 2011-2015*, Background Papers, Volume 3, BIDS and GED, September, 2011.

3.62 Social safety net programs (SSNPs) in Bangladesh have limited coverage of about 10 million people which is well below the needs of the 26.4 million people who belong to the "extremely poor" category. SSNPs in Bangladesh are perceived as helpful, especially by the poorest, but there is relatively high leakage from food-based programs in particular. There are also too many programs run by too many government departments resulting in large administrative overhead costs, too many layers of decision making in beneficiary selection, and there is hardly any SSNP for the urban poor.

3.63 ***Sound policies and institutions:*** The expansion of human capacities would not ensure equal opportunity for all if some people do not have access to employment opportunities because of their circumstances, face low returns on those capacities and have unequal access to complementary factors of production. Such social and economic differentiation is often reflective of bad policies, weak governance mechanisms, faulty legal/institutional arrangements, or market failures. The central role of the government in promoting social and economic justice is to address all these market, institutional, and policy failures.

3.64 Government has a critical role to play in investing in education, health, and other social services, because of their public goods nature and strong externalities, and in making these services equally accessible by all. The role of government is to ensure that these social sectors have adequate funding, good physical infrastructure, strong institutional capacities, sound policy frameworks, and good governance. Although there are instances of effective public provision, more often than not, there is abundant anecdotal evidence on the failure of public services. This is often attributed to a host of factors, including budgetary constraints, corruption and governance problems, human resource problems, or a plethora of other forms of institutional weakness. Equally worrying, countries where public provision fails are often also the ones that are unlikely to effectively regulate and monitor alternatives, such as private provision of health and education services. Therefore, equal access to social services needs to be complemented by supply side policies to ensure efficiency and quality of public services and demand-side policies to avoid moral hazard behavior and wastages.

Appendix 3A: Measuring Inclusiveness of Growth[42]

Generally speaking, growth is inclusive when the economic opportunities created by the growth are available to all, poor in particular. However, there is no consensus on how to measure inclusive growth. The issue has generated a certain amount of policy and academic debate. The growth process creates new economic opportunities that are rarely evenly distributed. The poor are generally constrained by circumstances or market failures from availing these opportunities. As a result, the poor generally benefit less from growth than the non-poor. The government can formulate policies and programs that facilitate the full participation of those less well off in the new economic opportunities. We may thus define inclusive growth as growth that not only creates new economic opportunities, but also one that ensures equal access to the opportunities created for all segments of society, particularly for the poor.

Inclusive growth is measured using the idea of a social opportunity function. Increase in the social opportunity function depends on the average opportunities available to the population and how opportunities are distributed among the population. The social opportunity function gives greater weight to the opportunities enjoyed by the poor: the poorer a person is, the greater the weight. Opportunity can be defined in terms of various services, e.g., access to a health or education service, access to job opportunity in the labor market, etc. The average opportunity for the population can be defined as:

$$\bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i \qquad (1)$$

y_i is the opportunity enjoyed by the *i*th person with income x_i. It is a binary variable taking the value 0 if the *i*th person is deprived of a certain opportunity and 1 when the *i*th person has that opportunity.

Economic growth must expand the average opportunities available to the population. But this is not sufficient for inclusive growth, which must also improve the distribution of opportunities across the population.

To make the idea operational, suppose we arrange the population in ascending order of their incomes. Suppose further that $\overline{y_p}$ is the average opportunity enjoyed by the bottom p percent of the population, where p varies from zero to 100 and $\bar{y}$ is the mean opportunity available to the whole population. We can draw a curve $\overline{y_p}$ for different values of p since $\overline{y_p}$ varies with p. This opportunity curve is a generalized concentration curve of opportunity when individuals are arranged in ascending order of their incomes.

Growth is inclusive if it shifts the opportunity curve upward at all points. The degree of inclusiveness depends on (i) how much the curve is shifting upward and (ii) in which part of the income distribution the shift is taking place. This social opportunity function gives greater weight to the opportunities enjoyed by the poor: the poorer a person is, the greater the weight. Such a weighting scheme ensures that opportunities created for the poor are more important than those created for the non-poor, i.e., if the opportunity enjoyed by a person is transferred to a poorer person in society, then social opportunity must increase, thus making growth more inclusive.

A downward sloping opportunity curve means that opportunities available to the poor are more than those available to non-poor. An upward sloping opportunity curve implies inequitable distribution of opportunities.

The opportunity curve is useful for assessing the pattern of growth defined in terms of access to and equity of opportunities available to the population. But it is unable to quantify the precise magnitude of

[42] Based on Ifzal Ali and Hyun Hwa Son, *Measuring Inclusive Growth,* Asian Development Bank, 2007.

the change. The magnitude of the change in opportunity distributions can be obtained by calculating an index from the area under the opportunity curve, called the Opportunity Index (OI).

$$\overline{y^*} = \int_0^1 \overline{y_p}\ dp \qquad (2)$$

The greater $\overline{y^*}$ is, the greater are the opportunities available to the population. If everyone enjoys the exactly the same opportunity, then $\overline{y^*} = \bar{y}$. Thus, deviation of $\overline{y^*}$ from $\bar{y}$ provides an indication of how opportunities are distributed across the population. If $\overline{y^*}$ is greater than $\bar{y}$, then opportunities are pro-poor. The ratio of the two describes an equity index of opportunity:

$$\varphi = \frac{\overline{y^*}}{\bar{y}} \qquad (3)$$

It follows that

$$\overline{y^*} = \varphi\bar{y} \qquad (4)$$

To achieve inclusive growth, we need to increase $\overline{y^*}$, which can be accomplished by (i) increasing the average level of opportunities, (ii) increasing the equity index of opportunities, or (iii) both. To understand the dynamics of inclusive growth, differentiate both sides of (4) to get:

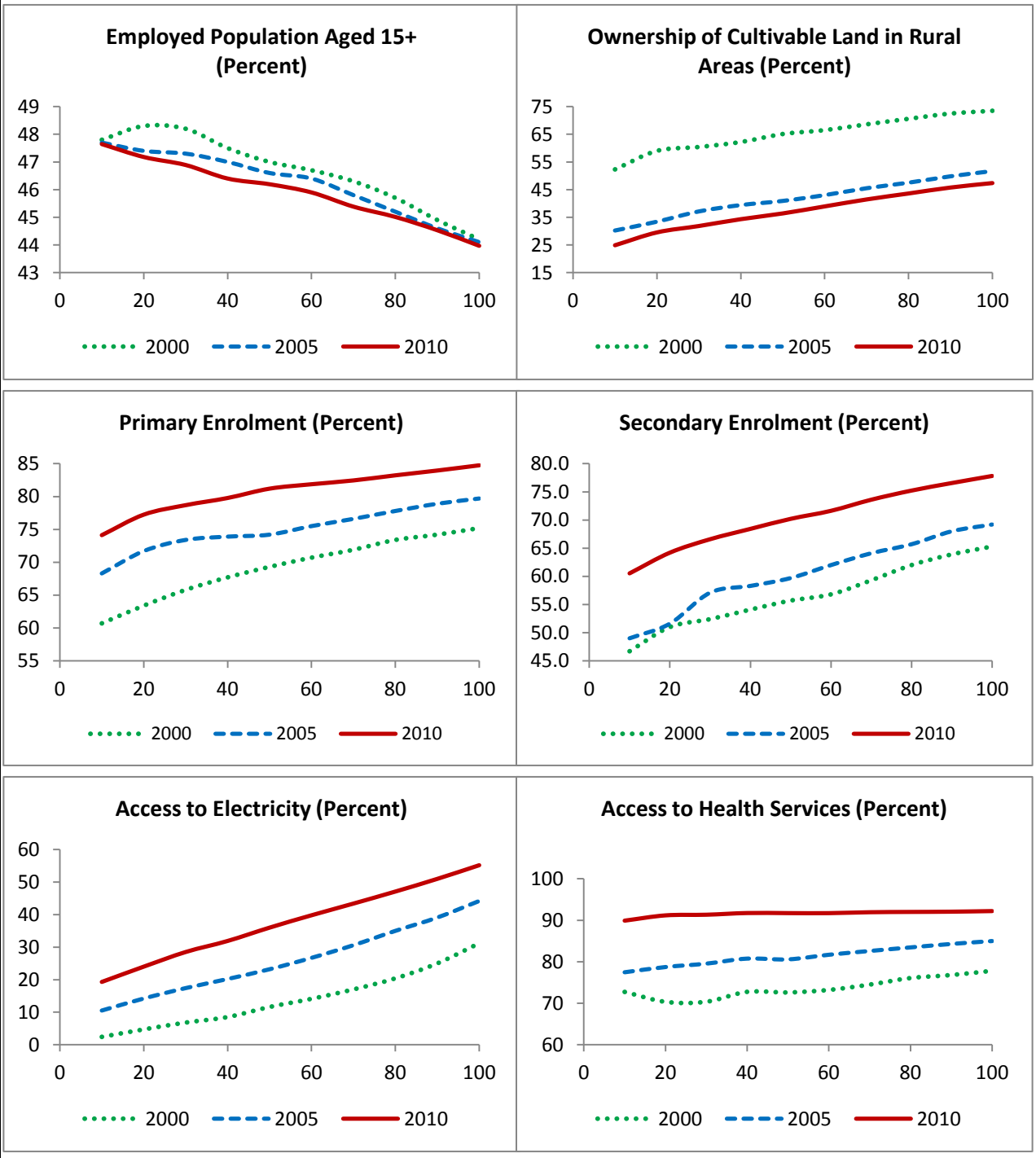
$$d\overline{y^*} = \varphi d\bar{y} + \bar{y}d\varphi \qquad (5)$$

Where $d\overline{y^*}$ measures the change in the degree of growth inclusiveness. Growth becomes more inclusive if $d\overline{y^*}>0$. If both $d\overline{y^*}>0$ and $d\varphi >0$, then growth will always be inclusive, and if both $d\overline{y^*}<0$ and $d\varphi <0$ then growth will not be inclusive. The first term is the contribution to inclusiveness of growth by increasing the average opportunity in society when the relative distribution of the opportunity does not change; the second term shows the contribution of changes in the distribution when the average opportunity does not change. The initial distribution of opportunity plays an important role in determining inclusive growth: the more equitable the initial distribution, the greater the impact will be on growth inclusiveness by expanding the average opportunity for all.

Table 3.9: Inclusiveness in Bangladesh												
Inclusiveness indicators	**Employment**		**Ownership of Cultivable Land**		**Primary Education**		**Secondary Education**		**Access to Electricity**		**Access to Health Services**	
	2000	**2010**	**2000**	**2010**	**2000**	**2010**	**2000**	**2010**	**2000**	**2010**	**2000**	**2010**
Opportunity Index (percent)	46.7	45.9	65.1	37.4	69.2	80.7	56.7	70.5	14.2	37.6	73.7	91.6
Average Opportunity (percent)	44.2	44.0	73.5	47.4	75.2	84.8	65.3	77.8	31.2	55.2	77.8	92.2
Equity Index of Opportunity	1.056	1.043	0.885	0.789	0.921	0.952	0.869	0.906	0.455	0.681	0.947	0.993
Change in average opportunity index (percentage point)	-0.2		-26.1		9.6		12.5		24.0		14.4	
Change in equity index of opportunity (percentage point)	-0.012		-0.096		0.031		0.037		0.226		0.046	
Change in inclusiveness (percentage point)	-0.8		-27.7		11.5		13.8		23.4		17.9	
Comments	Access to employment is equitable, but has become less inclusive over time due mainly to decline in average opportunity		Access to land is inequitable and has become even more so over time due mainly to decline in average opportunity		Access to primary education is inequitable, but inclusiveness has improved due to increase in average opportunity as well as increase in equity index		Access to secondary education is inequitable, but inclusiveness has improved due mainly to increase in average opportunity		Access to electricity is inequitable but inclusiveness has improved due to increase in average opportunity as well as increase in equity index		Access to health services is inequitable but inclusiveness has improved significantly due to increase in average opportunity and equity index	

Source: WB staff estimates based on the 2000 and 2010 HIES.

Box 3.2: Opportunity Curves



Chapter 4: How Does Climate Change Affect Growth?

Summary

Bangladesh is extremely vulnerable to climate change. Climate change affects growth through ex-post and ex-ante impacts. Ex-post impacts include the direct impacts of climate phenomena such as sea-level rise, changes in crop yields, and floods after they occur. Bangladesh's decadal growth could be 2-6 percentage points lower over 2011-2021, depending on the frequency of climate-related disasters. Ex-ante effects would include households diversifying their employment and occupational choices as adaptation to climate variability: anticipatory behavior that ultimately leads to lower productivity and income growth. When households' choices of diversity in economic activities are driven by climate-change related "push factors," households attain income stability by sacrificing higher returns. Less productive occupations and savings as self-insurance thus lower investments in both physical and human capital, leading to lower growth.

4.1 **Bangladesh is one of the most climate-vulnerable countries in the world**. Climate change is expected to have an impact on its economy by affecting the average (mean) temperature and rainfall and also increasing their variability. It is associated with more frequent and more extreme weather events. In its 2009 Climate Change Strategy and Action Plan,[1] the government recognized these likely effects of the climate change on the country: heavy and more erratic rainfall on the Ganges-Brahmaputra-Meghna river catchment area, lower and more erratic rainfall in northern and western parts of the country, melting of the Himalayan glaciers, increasing and frequent tropical cyclones, and sea level rise. Bangladesh is already flood-prone, and as climate variability increases, major floods like those of 1998, 2004, and 2007 are also expected to become more frequent.

4.2 **Climate change can affect Bangladesh's growth through ex-post impacts of climate and weather**. Ex-post impacts include the direct impacts of climate phenomena like sea-level rise, changes in crop yields, and floods after they occur. As the sea-level rises, the land available for agriculture will be adversely affected, putting pressure on the prices of land, crops, and the output of downstream industries. At the same time, higher atmospheric CO_2 might benefit the yields of some crops, as long as there is sufficient precipitation and no major flooding. Bangladesh experiences floods on an annual basis and the agricultural sector has often benefitted from these. However, major floods that exceed the scale of the expected annual floods will hurt agricultural production, and damage the capital stock in multiple sectors of the economy. The direct damage to agricultural production would have implications for food supply and food prices. As sectors experience faster depreciation of capital in years with major floods, their production will decline, with subsequent impacts on output, employment, prices, consumption, and trade. Since floods in Bangladesh are expected to become more frequent and intense, they can be expected to progressively reduce the rate of economic growth. Detrimental climate change impacts in Bangladesh's trading partners can also be transmitted to Bangladesh through the trade and investment channels.

4.3 **In addition, climate change can affect growth when households take ex-ante actions to reduce their exposure to climatic variability**. The ex-ante effects would include households diversifying their occupational choices as adaptation to climate variability: anticipatory behavior that could lead to lower productivity and income growth. If households face a large risk of weather shocks and anticipate a significant reduction in employment opportunities, they might try to reduce risk by diversifying employment among household members. With a diversity of income sources, a household's income might not be equally affected by any specific adverse climate shock. However, a household's decision to diversify occupations through quitting or changing jobs frequently in response to climatic shocks reduces the time invested in a skill or in task-specific knowledge. This undermines human capital

[1] MoEF (2009).

formation. If climate change worsens the severity and frequency of large-scale weather shocks, over-diversification and frequent switching of jobs may become more prevalent, thereby exacerbating potential productivity losses, and reducing the long-run growth potential.

4.4 Based on these factors by which climate change might affect growth in Bangladesh, this chapter is divided into two sections that focus on:

- The impact on GDP growth over 2011-2021 because of sea-level rise, climate-instrumented agricultural production, and more frequent major floods arising from climate change.
- Rural households' occupational choices as proactive adaptation responses to current climate variability, the implications for welfare, and their mitigation through policy interventions.

4.5 **Section I finds that climate change could reduce Bangladesh's real GDP over the decade by 2 to 6 percentage points, depending on the frequency of major flooding**. Without climate change, Bangladesh's economy is estimated to expand by 90 percent over the decade, at an average annual growth rate of 6.75 percent. However, the growth rate could be eroded by climate change, especially through major floods, which are expected to occur more frequently in future.[2] The agriculture sector is particularly sensitive to climate change. While this sector could grow by about 44 percent over the decade, climate change could reduce this growth by 3-10 percentage points, depending on the frequency of major floods.

4.6 **Climate change also depresses labor demand growth, with the demand for less-skilled workers being more adversely affected than for skilled workers, and the effects becoming more severe with more frequent floods.** Without climate change, the average sectoral demand for skilled labor is estimated to rise by 30 percent from 2011-2021, while the demand for less-skilled labor is estimated to rise by 45 percent. In the climate change scenario with two floods, the demand for skilled labor is estimated to decline by 0.36 percentage points while the demand for low-skilled labor is expected to decline by 0.42 percentage points. These estimated declines in demand are greater when the three-flood scenario is considered, with skilled labor demand declining by 2.4 percentage points and low-skilled labor demand declining by 4.3 percentage points. The lower demands for labor due to floods reflect the lower output of most sectors due to the damage to capital stocks, or dampened land supply, in the case of agricultural production.

4.7 **Climate extremes in the rest of the world have only a small impact on Bangladesh's GDP, but clearly affect trade**. If the rest of the world experiences more high-impact climate extremes such as extreme heat, droughts, floods and storms, then Bangladesh's average annual GDP growth rate over the decade would be lower by less than 0.01 percentage points, the average annual export growth rate would be dampened by between 0.13 and 0.28 percentage points, and the import growth rate would rise by between 0.22 and 0.56 percentage points. The disparity in the export and import growth rates may exacerbate Bangladesh's balance of payments challenges.

4.8 **Section II explores how rural households throughout Bangladesh cope with two major climate risks—flood and local rainfall variability—through ex ante occupational choices that may result in a lower income, a lower consumption and possibly higher savings for self-insurance as opposed to savings for investment purposes.** The national growth estimates in Section 1 captured the effect of labor moving from one industry to another after a climate shock—such as a flood—had occurred. However, a household is likely to be able to take proactive adaptive actions based on its current knowledge of historic climate volatility, which cannot be captured by the ex-post impact analyses of Section I. Section II thus studies the anticipatory behavior at the household level in the micro-economic context.

[2] Yu et al., 2010. World Bank, 2010i.

4.9 **When households' choices of diversity in economic activities are driven by "push factors" such as local rainfall variability, households attain income stability by sacrificing higher returns.** The evidence of low consumption suggests households have low productivity or may be combining diversifying occupation with savings as self-insurance. In case of an adverse weather outcome, liquid savings can be used for consumption. Savings for self-insurance blocks a part of the savings in liquid assets and prevents investment in physical or human capital. Less productive occupations and savings as self-insurance thus lower investments in both physical and human capital, leading to lower growth.

4.10 **In historically flood-prone *upazilas*, local rainfall variability plays a less significant role in households' occupational choice.** On the other hand in non-flood-prone *upazilas*, local rainfall variability plays a significant role in household occupational and employment diversity choices. In particular, households living in *upazilas* with high rainfall variability are more likely to be diversified between sectors, such as agriculture versus non-agriculture, as well as between self employment and wage employment choices.

4.11 **Access to markets may provide alternate coping opportunities that preserve consumption welfare and occupational focus when households are faced with local rainfall variability risks and eliminate the need to choose a lower welfare providing diverse portfolio of occupations among household members.** Households in non-flood-prone *upazilas* who face higher rainfall variability but have access to market are as likely to have both members self employed in agriculture and have higher consumption welfare as compared with households who face less variable rainfall in non-flood-prone *upazilas*.

I. Ex-Post Impacts of Climate Change on Growth

4.12 **Growth in Bangladesh is extremely vulnerable to climate risks arising from both existing variability and future climate change**.[1] If the current climate variability persists, Yu et al estimate that the average annual GDP growth rates would be 0.27 percentage points lower during 2005-25, compared to the GDP growth rates under the counterfactual optimal climate.[2] Future climate change would further depress growth rates. Yu et al find that under the Intergovernmental Panel on Climate Change's (IPCC) most pessimistic scenario in terms of future emissions,[3] the average annual GDP growth rate in Bangladesh might be 0.1 percentage points lower than under historical variability over 2005-25. Even under the Panel's optimistic future emissions scenario,[4] the average annual GDP growth rate is expected to be lower than under historical climate variability.

Table 4.1: Historical Economic Damages as Share of GDP due to Droughts, Extreme Heat, Floods, and Storms by Economy (Percent)

Economy	High Global Damage (75th percentile)	Median	Low Global Damage (25th percentile)
China & Hong Kong	0.89	0.66	0.40
Eastern Europe & the Former USSR	0.11	0.06	0.01
European Union (minus UK)	0.13	0.04	0.02
India	0.39	0.20	0.07
Indonesia	0.03	0.01	0.00
Japan	0.09	0.02	0.00
Latin America & the Caribbean	0.25	0.11	0.05
Malaysia	0.00	0.00	0.00
Middle East & North Africa	0.11	0.04	0.01
Oceania	0.20	0.10	0.04
Pakistan	0.07	0.00	0.00
Rest of East Asia	0.35	0.14	0.09
Rest of Europe	0.11	0.00	0.00
Rest of South Asia	0.10	0.00	0.00
Sri Lanka	0.01	0.00	0.00
Sub-Saharan Africa	0.16	0.07	0.03
UK	0.06	0.02	0.00
USA	0.23	0.12	0.06

Source: Estimates based on data from EM-DAT (2012) for 1980-2010

4.13 **Growth prospects are affected both by direct climate effects as well as indirect effects where climate extremes in trading partners are transmitted through trade and investments channels**. Climate extremes, like natural disasters, can slow growth in other countries, and could affect growth in Bangladesh through shocks to trade and investment. There is evidence that natural disasters can detrimentally affect a country's trade by affecting relative prices, production costs, and demand for imports and exports.[5] Considering that India and China are Bangladesh's main sources of capital goods

1 Ahmed et al., 2009. World Bank, 2011g; Yu et al., 2010.

2 Yu et al., 2010, also provide estimates of discounted cumulative GDP losses, which are often greater in magnitude than the declines in average annual growth rates. For example, for the 2005-2050 period, the average annual GDP growth rate is expected to be lower by 0.06 percentage points, down from the 4.44 percent average annual growth rate if current climate persists. However, when cumulative damages have been considered, Yu et al. calculate the loss to be equivalent to 1.15 percent of GDP per year.

3 A2 Scenario, see Nakicenovic and Swart, 2000.

4 The B1 scenario.

5 Gassebner et al., 2006.

and textiles – two imports with the largest import value shares – natural disasters in these countries leading to contractions in their exports could adversely affect Bangladesh's output. Historically, these countries have experienced intense climate extremes and natural disasters. During 1989-2009, the median annual economic damage from droughts, extreme heat, floods, and storms was equivalent to almost 0.7 percent of GDP in China, and 0.2 percent of GDP for India (Table 4.1). Given that climate extremes such as these are expected to become more frequent and more intense in many countries,[6] the potential for climate change impacts being transmitted to Bangladesh through the trade and investment channels could be higher in future.

4.14 **This section uses a simulation approach to estimate the sensitivity of Bangladesh's growth to climate change over 2011-2021**.[7] Box 4.1 explains the choice of the time period. The approach has three stages. In the *first* stage, a baseline of Bangladesh's growth in the decade is determined absent any economic impacts from climate change. In the *second* stage, the impacts of climate change are simulated in addition to the baseline economic growth effects. These effects include sea-level rise, changes in rice yields (the most important crop from both agricultural income and consumption perspectives), and more

Box 4.1: Why Focus on the 2011-2021 Timeframe?

The literature on climate change and its impacts often focuses on a long time horizon. Many of the analyses documented in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2007) discuss the impact of climate change that are decades into the future, some in the 2030s to the 2080s, and even as far as 2100. The practical reason for such a long time horizon is that the major global impacts of climate change will be more severely felt later. Recognizing this, many studies have focused on analyzing the economic impacts of climate change at distant future points in time (e.g., Stern (2007) and Nordhaus and Boyer (2000) for global impacts, Garnaut (2008) on Australia). Yu et al. (2010) focused on Bangladesh, and examined the economic impacts of climate risks from 2005 to 2050. The study found that economic damages from climate change steadily increased, from losses of US$13 billion (2005 US$) in 2005-2025 to US$72 billion in 2040-2050.

A long-term perspective, while appropriate for a complete analysis of the long-term impacts of climate change, is sometimes difficult to incorporate into policy discussions that often focus on shorter-term objectives. At the same time, even the most sophisticated analyses have to deal with potentially large uncertainty in the various climate predictions that is compounded by the potential economic impacts being influenced by unaccounted interventions, such as adaptation and technological improvements. Indeed, many economic analyses struggle to capture the fiscal implications of investments for adaptation, which can represent substantial amounts of funding. The World Bank (2011b) recently found that the cost to totally adapt Bangladesh to inland monsoon floods and storms would require USD 5.7 billion by 2050.

The analysis in Section 1 of this chapter thus chooses to focus on the coming decade for two main reasons:

(i) The long-term effects of climate change are often highlighted in the literature. However, there may be substantial impacts even in the short-term as is shown in this report. The shorter time horizon sharpens the focus to impacts that will be experienced very soon, highlighting the immediacy of the challenges, with the results being less subject to the uncertainties and challenges of a longer-term analysis; and

(ii) The government of Bangladesh has made it an objective to reach MIC status by 2021, on which this growth report is based. Focusing on the 2011-2021 timeframe takes advantage of the opportunity to inform policies to help the government reach its stated goal.

[6] IPCC, 2007, 2012; Ahmed et al. (2009).

[7] Briefly, the study uses a recursive-dynamic economic simulation model that assumes that agents make decisions within a given period based only on current period variables. It is able to capture adaptive expectations in investment demand, but does not extend this adaptive behavior to other components of the economy. For example, the distribution of the labor force across sectors depends only on shocks that occur in a given period, with the new labor force distribution appearing at the beginning of the next period. Workers in the agricultural sector would thus only move out of agriculture once an agriculture-specific detrimental shock affects the sector, and not before.

frequent major floods. This allows for an examination of the additional economic effects of these climate change effects. The *third* stage considers additional scenarios where climate extremes in the rest of the world are simulated in addition to the baseline economic growth and the direct climate change effects on Bangladesh's economy. This final stage allows for an examination of how the economic impacts of climate extremes—expected to become more intense and frequent—in other countries might affect Bangladesh's growth.

4.15 **This section finds the following:** The growth rate can be eroded by climate change, especially through major floods, which are expected to occur more frequently in the future.[8] Bangladesh's decadal growth could be 2 percentage points lower when two major floods are assumed to occur during 2011-2021. Growth could be 6 percentage points lower if three major floods are assumed. Additionally, the section finds that skilled labor demand is more robust to climate shocks than unskilled labor, with climate change decreasing low-skilled labor demand growth more than skilled labor demand growth. By sector, this study finds that the agriculture sector is particularly sensitive to climate change, which could lower growth over the decade by 3 to 10 percentage points, depending on how frequently major floods occur. On the other hand, the services sector seems resilient, with climate change reducing its decadal growth by only 1 to 3 percentage points. Finally, the section finds that climate change will dampen the overall export growth rate, raising the possibility of balance of payments challenges and climate extremes in the rest of the world have little to no impact on Bangladesh's GDP, although they have a negative impact on export growth, and a positive impact on import growth.

Baseline Growth and Climate Impacts

4.16 **Bangladesh's economy is estimated to almost double during 2011-2021, not counting climate change**. Real GDP is expected to increase by 90 percent over the course of the decade, at an average annual rate of 6.65 percent (Table 4.2 and 4.3). The magnitude of the increase is similar to the expected expansion of China, Indonesia, India, and Sri Lanka, barring major unexpected shocks to the global economy. This is much faster growth than is expected for some of Bangladesh's major export destinations like the European Union (19 percent) and the USA (26 percent). Bangladesh's private consumption and investment are estimated to grow at average rates of 6.3 and 10.0 percent per year, respectively. Average annual export growth is also expected to be higher than import growth.

4.17 **The agricultural sector is estimated to grow at 3.7 percent a year on average.** This can be seen in Table 4.4. At these rates, the broad agricultural sector will expand by 44 percent over the course of the decade. Output of paddy rice is estimated to grow at an average rate of 4.8 percent per year, leading to a similar expansion in the downstream industry of rice processing. Among services, most of the output expansion is due to growth in transportation, trade, and other services (which include public services, entertainment, education, and healthcare). Major manufacturing sector industries, like textiles and wearing apparel are also estimated to have robust output growth. The average annual growth rate of the textiles sector is estimated to be about 3.7 percent, while the average annual growth rate of the wearing apparel sector is estimated to be about 5.2 percent a year (Table 4.6).

4.18 **A range of sectors, including rice and textiles, benefit from Bangladesh's labor force growth**. The number of people in Bangladesh aged 15 or older is expected to grow at an average rate of 1.75 percent a year over 2011-2021, and is a reasonable proxy for the employment growth rate.[9] The labor-intensive agriculture and food-related sectors thus benefit from the additional low-skilled labor that is made available. Industries like textiles, transportation, trade (retail as well as wholesale), and other services are major employers, and will similarly benefit from the abundant labor entering the market and

[8] Yu et al., 2010; World Bank, 2010i.
[9] ILO, 2011; World Bank (2011e).

keeping wages internationally competitive. For example, low-skilled labor accounts for about half of the transportation sector's value added, employing about a fifth (in value terms) of all low-skilled labor in the economy. As the transportation sector expands due to investment and productivity growth, its demand for inputs expands, and it benefits from the abundant, relatively low-cost labor.

4.19 **The labor force is estimated to expand by about 19 percent by 2021, with labor expansion comparable to that experienced by other countries in the region**. This expansion will be smaller than what is expected for Pakistan and Sub-Saharan Africa (in excess of 30 percent), but greater than the 17-18 percent that India, Indonesia, and Malaysia are expected to experience. In contrast, some of Bangladesh's major trading partners have sluggish or negative growth. For example, the average labor force growth rate is 0.71 percent a year in the USA, 0.17 percent a year in China, and negative 0.2 percent for the EU. The EU and Japanese labor forces are expected to contract by two to five percent by 2021.

4.20 **Meanwhile, sea-level rise due to climate change can reduce the rate of agricultural land expansion**. Yu et al report that Bangladesh could experience sea-level-rise of up to 15 cm by the 2030s, and a rise of up to 27 cm by the 2050s. However, these authors find that not all parts of the country are likely to be inundated due to the rising waters, and there is estimated to be additions to the land area as well. Based on that study's data, the total arable land area loss is estimated to be about 0.9 percent of current land by 2030, or 0.6 percent by 2021, with most of the land loss occurring in coastal areas. Sea-level rise reduces the supply of land available for agriculture, while pushing up its price.

4.21 Climate change is also expected to affect the yields of important crops. Crop yields are affected by multiple factors, including CO_2 increases, temperature changes, precipitation changes, coastal inundation, and floods. Estimates of future crop yields also depend on the climate model output and future emissions scenario under consideration. These are all taken into account in the crop modeling analysis conducted in Yu et al. The crop modeling considers yields under five General Circulation Models (GCM) and under the A2 and the B1 emissions scenarios. The IPCC's A1 and B1 emissions scenarios represent pessimistic (high CO_2 – equivalent emissions) and optimistic (low CO_2 – equivalent emissions) scenarios respectively. Considering the median cases, all rice yield estimates show declining production, with boro yields showing the greatest losses in the future.

Table 4.2: Average Annual Growth Rates of Macro Indicators for Bangladesh, Without Climate Change and under Alternative Climate Change Scenarios (2011-21)

Scenario	GDP	C	I	G	X	M
Percent						
Additional Effects on due to Climate Change (Percentage Points)						
Sea-Level Rise, Median Rice Yield Impacts, and Two Floods	-0.09	0.07	0.09	0.42	0.00	0.05
Sea-Level Rise, Median Rice Yield Impacts, and Three Floods	-0.30	-0.13	0.19	0.28	-0.30	0.01
Additional Effects on due to Climate Extremes in Other Countries (Percentage Points)						
Median Global Damage	0.00	0.15	0.20	0.33	-0.20	0.36
High Global Damage	-0.01	0.20	0.39	0.44	-0.28	0.56
Low Global Damage	0.00	0.10	0.10	0.22	-0.13	0.22

Source: Simulation results

Table 4.3: Cumulative Growth of Macro-Economic Indicators for Bangladesh, Without Climate Change and under Alternative Climate Change Scenarios (2010-21)

Scenario	GDP	C	I	G	X	M
			Percent			
Additional Effects on due to Climate Change (Percentage Points)						
Sea-Level Rise, Median Rice Yield Impacts, and Two Floods	-1.67	0.67	0.92	20.79	-0.94	0.25
Sea-Level Rise, Median Rice Yield Impacts, and Three Floods	-5.53	-3.16	3.15	12.24	-12.53	-0.70[10]
Additional Effects on due to Climate Extremes in Other Countries (Percentage Points)						
Median Global Damage	0.00	2.68	4.52	19.27	-8.11	11.96
High Global Damage	-0.20	3.45	9.07	26.28	-11.96	18.70
Low Global Damage	0.04	1.80	2.32	12.84	-5.29	7.24

Source: Simulation results

Table 4.4: Average Annual Growth Rate for Broad Sectors, Without Climate Change and under Alternative Climate Change Scenarios (2010-21)

Scenario	Agriculture	Industry	Manufacturing	Services
		Percent		
Additional Effects on due to Climate Change (Percentage Points)				
Sea-Level Rise, Median Rice Yield Impacts, and Two Floods	-0.1	0.3	-0.1	0
Sea-Level Rise, Median Rice Yield Impacts, and Three Floods	-0.6	0.3	-0.4	-0.1
Additional Effects on due to Climate Extremes in Other Countries (Percentage Points)				
Median Global Damage	0.0	0.1	0.3	0.0
High Global Damage	0.0	0.2	0.6	-0.1
Low Global Damage	0.0	0.1	0.1	0.0

Source: Simulation results

Table 4.5: Cumulative Growth for Broad Sectors, Without Climate Change and under Alternative Climate Change Scenarios (2010-21)

Scenario	Agriculture	Industry	Manufacturing	Services
		Percent		
Additional Effects on due to Climate Change (Percentage Points)				
Sea-Level Rise, Median Rice Yield Impacts, and Two Floods	-2.5	3.4	-2.6	-1.0
Sea-Level Rise, Median Rice Yield Impacts, and Three Floods	-9.5	4.5	-5.8	-3.4
Additional Effects on due to Climate Extremes in Other Countries (Percentage Points)				
Median Global Damage	0.3	2.4	4.1	-1.4
High Global Damage	0.4	4.7	8.0	-3.4
Low Global Damage	0.2	1.3	2.0	-0.5

Source: Simulation results

[10] The imports are slightly lower due to contraction in demand for intermediate inputs. Flood damages reduce capital stock in all sectors. Due to the complementary nature of intermediate inputs and value added (including capital) in the production structure, the reduction in capital stock leads to a contraction in the demand for intermediate inputs, including imported inputs.

Table 4.6: Average Annual Growth Rates of Important Sectors, under Baseline and Alternative Climate Change Scenarios of Direct Impacts on Bangladesh (2010-21)

	Baseline Scenario (%)	Additional Effects of Climate Change (% Points)	
		Sea-Level Rise, Median Rice Yield Impacts, & Two Floods	Sea-Level Rise, Median Rice Yield Impacts, & Three Floods
Communications	19.6	-0.5	-0.6
Fruits & Vegetables	3.7	-0.3	-0.8
Manufacturing	-0.9	-0.1	0.2
Paddy Rice	4.8	-0.2	-0.9
Plant-Based Fiber	2.5	-0.4	-1.4
Processed Rice	4.6	-0.2	-1.0
Textiles	3.7	-0.2	-0.8
Trade	9.6	-0.1	-0.1
Transportation	15.4	-0.1	-0.2
Wearing Apparel	5.2	-0.3	-0.5

Source: Simulation results

Table 4.7 Cumulative Growth of Select Sectors, under Baseline and Alternative Climate Change Scenarios of Direct Impacts on Bangladesh (2010-21)

	Baseline Scenario (%)	Additional Effects of Climate Change (% Points)	
		Sea-Level Rise, Median Rice Yield Impacts, & Two Floods	Sea-Level Rise, Median Rice Yield Impacts, & Three Floods
Communications	476.1	-21.8	-25.0
Fruits & Vegetables	43.3	-7.6	-11.9
Manufacturing	-10.2	-2.2	-1.6
Paddy Rice	59.7	-14.7	-14.7
Plant-Based Fiber	28.1	-11.6	-18.4
Processed Rice	56.9	-9.8	-16.2
Textiles	43.3	-5.6	-10.9
Trade	150.3	-1.7	-2.5
Transportation	312.5	-5.8	-8.9
Wearing Apparel	65.3	-6.6	-9.3

Source: Simulation results

Direct Macro-Economic Impacts of Climate Change

4.22 **When climate change is considered, Bangladesh's average annual GDP growth rate over 2011-2021 is estimated to be lower than in the baseline case by 0.1-0.3 percentage points, depending on the number of major floods.**[11] This means that the Bangladeshi economy will grow by 2-6 percentage lower than in the baseline case, where there was 90 percent decadal growth (Table 4.2 and Table 4.3). The impact of a flood in the analysis is to reduce land expansion, temporarily reduce land available for agriculture, damage rice yields, and double the depreciation rate of capital in all sectors of the economy. Two scenarios were considered to illustrate this. In the first scenario, the probability of floods occurring was assumed to occur at the same frequency as during 1970-99. This case study scenario then considers floods occurring in 2015 and 2016, randomly drawing from the historical probability distribution for major floods. In the second scenario, the probability of floods occurring was assumed to

[11] The climate change scenarios consider the effects of sea-level rise and median case changes in rice yield due to carbon-fertilization, temperature changes, and precipitation changes estimated in Yu et al. Sensitivity analysis shows that under the most pessimistic of possible time paths, this decline in the average annual growth rate could be as great as one percentage point. .

be double in frequency, due to climate change. In this case study scenario, the 2015 and 2016 floods were preceded by another flood in 2013.

4.23 **Paddy rice is the most important contributor to the overall reduction in agricultural output growth**. Rice production is affected by slower land supply expansion due to sea-level rise and by damage to capital stock and lower productivity due to water-logging when floods occur. When the climate change case with two floods is considered, the average annual rice yield growth rate in during 2011-2021 is found to be negative 1.1 percent. When the climate change case with three floods is considered, the average annual yield growth rate is found to be negative 2.4 percent. The lower rice yields, in turn, lead to lower processed rice production—the major downstream industry. The average annual growth rate in the processed rice sector is found to be lower by 0.2 to 1.0 percentage points, relative to the baseline (Table 4.6). In the baseline case of no climate change, the average annual inflation rate for paddy rice and processed rice prices was 1.2 percent. However, in the scenario with climate change and two floods, the average paddy rice price inflation rate rises by a further 4.3 percentage points, while the inflation rate of processed rice price rises by 3.1 percentage points.

4.24 **Climate change is also estimated to depress the growth in manufacturing and services**. The lower growth (Table 4.3,Table 4.4 and Table 4.5) is primarily due to the damage to capital stocks from floods. Capital, which depreciate at a faster rate in a flood-year, account for a substantial share of value added costs in the production of manufactured goods and services.

4.25 **While some sectors experience lower output because of the direct impacts of lower yield, less land, and damage to capital stock, other sectors have lower output because of the transmission of effects through the intermediate inputs markets.** In the agriculture sector, the contraction in processed rice production due to lower paddy rice output is the most obvious, as discussed earlier. However, other sectors like that of plant-based fibers also depend substantially on domestic sources of input crops. When the production of these input crops decline under climate change, contracting their supply in the intermediate inputs markets, the production of plant-based fibers also declines. In the baseline, this sector grew at 28 percent over the decade. However, when the climate change scenario with two floods was considered, sectoral growth was 12 percentage points lower (Table 4.7). Another example would be that of the wearing apparel sector, which experiences lower supply of key inputs like textiles, which accounts for a quarter of the former sector's intermediate input costs. Since the textiles sector experiences sluggish growth, the supply of this input to the wearing apparel sector also suffers. As a result, growth in the wearing apparel sector is 6.6-9.3 percentage points lower when climate change and flooding is considered, relative to the baseline case which had 65 percent decadal growth (Table 4.7). The services sectors' intermediate inputs are mostly other services, so they experience sluggish growth primarily due to the faster capital depreciation, but are more resilient to effects transmitted through the markets for intermediate inputs (Table 4.4 and Table 4.5).

4.26 **Climate change has direct impacts on export and import growth, and an indirect impact on investment growth**. Due to the indirect effects of climate change on the factor and intermediate input markets, major export sectors (e.g., textiles and wearing apparel) have sluggish output growth and greater price inflation. These lead to a slower export growth rate and a slightly more rapid import growth rate through substitution towards imported goods and services.

4.27 **Climate change also reduces the growth in labor demand, with the demand for less skilled workers being more adversely affected than skilled workers, and the effects become more severe with more frequent floods**. In the baseline case, the average sectoral demand for skilled labor rises by 30 percent over the course of the decade, while the demand for less skilled labor rises by 45 percent. In the climate change scenario with two floods, the demand for skilled labor is estimated to decline by 0.36 percentage points while the demand for low skilled labor is expected to decline by 0.42 percentage points.

These estimated declines in demand are greater when the three-flood scenario is considered, with skilled labor demand declining by 2.4 percentage points and low skilled labor demand declining by 4.3 percentage points. The lower demands for labor due to floods reflect the lower output of most sectors due to the damage to capital stocks, or dampened land supply, in the case of agricultural production.[12]

4.28 **The cumulative effects of climate change on the economy can be substantial, as seen by how damages to Bangladesh's future growth increase non-linearly with the number of floods**. Comparing the macro-economic or sectoral impacts of climate change across the two-flood and three-flood scenarios (Table 4.2-Table **4.7**), it can be seen that the average damage per flood is greater in the three-flood scenario. For example, in Table 4.2, the average annual GDP growth rate is 0.1 percentage point lower than in the baseline when the two-flood scenario is considered, but 0.3 percentage points lower when the three-flood scenario is considered.

Indirect Macro-Economic Impacts: International Linkages

4.29 **The estimated impact of climate extremes in the rest of the world on Bangladesh's growth are based on three scenarios of global damage: low, median, and high**. Table 4.8 illustrates the historical economic damages due to climate extremes for the rest of the world. The low global damage scenario describes one in which the other countries of the world experience climate extremes equivalent to just 25 percent of their historic damage; the median scenario describes a scenario in which the other countries experience climate extremes that would have occurred 50 percent of the time; while the high damage global scenario describes damages that would have occurred through 75 percent of their historic damage. For example, for a given year, China's economic damage was estimated to be equivalent to 0.7 percent of GDP in the low-damage (25^{th} percentile) scenario, 0.4 percent in the median scenario, and 0.9 percent in the high-damage (75^{th} percentile) scenario. In contrast, major importers of Bangladeshi products, such as the USA and EU, seem to be more resilient to extreme climatic damage.

4.30 **Climate extremes in the rest of the world will likely have only a small impact on Bangladesh's GDP growth**. If the other countries of the world are assumed to experience the 25^{th} percentile and median probability extremes, based on historic probability distributions of economic damages due to climate, then there is almost no discernible impact on Bangladesh's overall GDP growth rate (Table 4.2). It is only under the high-damage scenario that Bangladesh's GDP growth rate experiences a minor slowdown, of 0.01 percentage points.

4.31 **At the same time, however, damages to other countries through climate extremes have clear effects on Bangladesh's export and import growth**. The global climate extreme scenarios show Bangladesh's average annual export growth rate is dampened by 0.13-0.28 percentage points, while the import growth rises by 0.22-0.56 percentage points (Table 4.2). Some of Bangladesh's major exports—textiles and wearing apparel, for instance—become more competitive due to changes in relative international prices. The average export growth rates of textiles and wearing apparel are higher by a full percentage point in the high-damage scenario (Table 4.8). At the same time, exports of most other products and services are lower due to contracting international demand. There is also an improvement in the import growth rate for almost every product, used for both intermediate inputs (e.g., textiles) as well

[12] These estimates assume that the unemployment rate does not change over the course of the decade. Sensitivity analysis was conducted to examine the robustness of the growth impacts to a flexible employment rate. There is little to no change in the average annual growth impact of climate change under alternative assumptions about the labor market. However, when focusing on individual years, the growth rate can be much lower in a flood year, relative to the baseline if flexible employment is assumed. For example, when a flood was simulated in 2015, the growth rate was 7 percent in the baseline case, 4 percent in the climate change case with a fixed unemployment rate, and 3 percent in the climate change case with a flexible unemployment rate.

as for private consumption (e.g., rice and other food products). Lower export and higher import growth rates may lead to future balance-of-payments complications.

Policy Considerations

4.32 **Bangladesh can undertake a few "no regrets" policies to help make growth robust to climate change**. These policies would be no-regrets in that they would be beneficial under various climate change scenarios as well under the no-climate-change baseline. Two main policy considerations that arise from the estimates in Section 1 are as follows:

4.33 **Firstly, the skills of the labor force need to be developed to take advantage of the more climate change-resilient sectors**. Output growth of both the agriculture and manufacturing sectors was found to be sensitive to damages from floods, which can be expected to become more frequent and intense under climate change. The services sector, in contrast, was found to be much less sensitive. Skilled labor demand is thus less adversely affected by extreme climate shocks than the demand for less skilled labor. This study assumed that the unskilled to skilled labor ratio remains constant as the labor force grows, with the resulting pattern of labor force growth potentially benefitting agriculture and some manufacturing sectors (such as textiles) that are intensive in low- and un-skilled workers. However, they will not help in the expansion of sectors such as heavy and light manufacturing, communications, transportation services, other business services, or even public services. As the World Bank (2011c) points out, Bangladesh is currently in a position when it can reap a demographic dividend, having a large labor force and relatively low dependency ratio. This demographic dividend can be maximized by investing in education to transform the mostly low-skilled labor force used in labor intensive low-value sectors into a higher-skilled labor force that can benefit industries higher up the value chain. Even if the full benefits of this investment are not reaped within the 2011-2021 timeframe, it would place Bangladesh in a better position in the post-2021 future, when climate change impacts will become more noticeable and when the labor forces of many trading partners will be declining or leveling off.

Table 4.8: Average Annual Export Growth Rates for Select Goods and Services, under Baseline and Additional Effects of Climate Extremes in the Rest of the World (2011-2021)

	Baseline Scenario (%)	Additional Effects due to Climate Extremes (% Points)		
		Median-Damage	High-Damage	Low-Damage
Communications	36.1	0.30	1.02	0.13
Plant-Based Fibers	7.5	-1.72	-3.54	-0.79
Financial Services	27.8	-0.19	-0.09	-0.15
Forestry	-53.4	-0.98	-1.72	-0.61
Fisheries	-26.6	-2.41	-4.12	-1.34
Leather	-11.7	-0.94	-0.96	-0.86
Livestock	0.8	-4.06	-5.67	-1.80
Lumber & Paper	-21.8	-0.37	-0.58	-0.22
Manufactures	-17.7	0.41	0.72	0.23
Other Business Services	26.9	0.07	0.32	0.00
Textiles	0.9	0.49	1.08	0.22
Transportation	44.6	0.03	0.22	-0.01
Trade	13.4	-1.05	-1.97	-0.61
Wearing Apparel	5.0	0.45	0.80	0.23

Source: Simulation results

4.34 **Secondly, export growth needs to be enhanced to reduce potential current account deficit expansion, through mechanisms like export diversification**. Export growth had been dampened under most of the climate change scenarios, while import growth had been heightened. The estimates have shown that the occurrence of climate extremes in major trading partners does not have a negative effect on the production and exports of textiles and wearing apparel. However, export growth of these two goods alone is shown to be insufficient to improve the current account. Export intensification from higher value sectors like manufactures, transportation, or even business services may be helpful, especially if there are higher skilled workers available to aid in this expansion.

II. A Micro Study of Household Adaptation to Climate

4.35 This section explains how rural households proactively adapt to two major climate risks: floods and local rainfall variability. Faced with these risks, households may cope by making occupational choices that could result in a lower income, lower consumption, and possibly savings for self-insurance. These coping mechanisms are likely to reduce productivity and accumulation of physical and human capital at the household level. This section looks at proactive, anticipatory behavior at the household level that is not captured in the growth estimates in Section I of this chapter.

4.36 **Occupational choices of rural households have an impact on economic growth**. Traditional growth and development theories identify a rural economy as consisting of activities mainly in the agricultural sector and an urban economy as one with activities mainly in industrial and service sectors. In this context, sectoral diversification goes hand in hand with rural to urban migration. However, the view that rural economies are purely agricultural has recently been questioned. Reardon et al (2006) reviews survey evidence from a large number of developing economies and shows that on average rural-nonfarm income constitutes about 40 percent of household incomes. In Bangladesh, the share of nonfarm household income grew from 42 percent in 1987 to 54 percent by 2000.[13]

4.37 **Two factors, "pull" and "push", induce households to diversify between farm and non-farm activities**. The pull factors include increasing demand, higher wage rates, and higher returns from nonfarm activities. High returns allow households to accumulate capital and invest in farm and nonfarm activities with high returns. This type of diversification requires access to credit, as well as physical, human and social capital and leads to increased growth.

4.38 **However, push factors driving diversification between farm and nonfarm activities are not necessarily associated with higher growth**. The presence of risks may "push" rural households from focusing on a specific sector into diversified activities. When members of a household focus on a single occupation or sector, they can increase productivity and growth by learning from each other's experience. For example, two members of a household, say a father and his son, jointly decide on a sector to enter to maximize household welfare. If the son enters the same sector as the father, he will be able to pick up the necessary skills faster as he learns from his father's experience.[14] However, idiosyncratic risks may push rural households from focusing on a specific sector into diversified activities. For example, households face year-to-year variability in local rainfall and associated variability in farm-income. Households may engage in nonfarm activities with low risks even if they have low returns. In areas with poor agro-climatic conditions and no insurance markets, nonfarm activities allow households to cope with severe downturns in agricultural productivity and serve as hedging mechanisms.[15] Households pushed to diversify may thus have lower returns and experience lower consumption growth compared to households that diversify due

[13] Reardon et al (2006); Hossain (2004).
[14] Menon and Subramanian (2008).
[15] Reardon et al. (2006); Ellis (2004)

to pull factors. At the household level, diversification due to push factors may result in more income security but at the cost of a lower welfare.

4.39 **Households may also cope with such risks by using savings as self insurance in rural areas**. In the absence of insurance markets, households may self-insure thus saving more and retaining a bigger part of their savings in liquid form. In case of an adverse weather outcome, liquid savings could then be used for consumption. Saving for self-insurance prevents investment in physical or human capital and is not good for growth.

4.40 **Here we examine two types of climate risks—floods and local rainfall variability—on occupational and sector diversification and lower welfare in rural households**.

- **Floods.** Bangladesh is one of the most flood-prone countries in the world.[16] Floods[17] in Bangladesh depend on the precipitation outside as well as inside its borders. It is situated at the confluence of three major rivers – the Ganges, the Brahmaputra, and the Meghna – and is intersected by more than 200 minor rivers. There are 54 rivers that enter Bangladesh from India. The Ganges-Brahmaputra-Meghna river catchment areas include parts of the Himalayas and other upstream areas in the neighboring countries. Over 90 percent of the Ganges-Brahmaputra-Meghna basin lies outside the boundaries of the country. Heavy rainfall in these areas combined with the melting of the Himalayan glaciers, would lead to higher river flows and increased floods in Bangladesh. Flooding in Bangladesh is common and considered "normal." In an average year approximately one quarter of the country is inundated.[18] Thus, regional rainfall variability may have common effects on the probability of river-bank flooding.
- **Local Rainfall**. Climate models predict Bangladesh will be warmer and wetter in the future. Yu et al. (2010) note that historical rainfall variability is substantial and greater uncertainty exists with the estimated magnitude of rainfall changes than temperature changes.

4.41 **Historical local rainfall variability and historically flood-affected areas are used to investigate the extent to which these push factors are associated with occupational diversification and lower welfare in rural Bangladesh.** The focus is on *historical* local rainfall variability and *historically* flood affected areas as *measures of ex-ante risks* faced by rural households. How historical climatic patterns such as long-term coefficients of variation in local rainfall and historically flood affected areas affects the choices of occupations and consumption decisions in rural households are examined.

4.42 **The analysis separates flood-prone areas from non-flood prone areas**. Normal floods may reduce the farmers' dependence on local rainfall and partially protect crop cultivation from local rainfall variability risks. Normal floods in the flood-prone areas substitute for monsoon rain during the planting season. As a result, households in flood prone areas are not as dependent on rain for their crop cultivation as compared with households in non-flood prone areas. The timing of normal flood may increase or depress agricultural labor demand.[19] River-bank floods may mask the effects of local rainfall variability in the flood-prone areas and households may make occupational choices differently. It is important to note, however, that while normal floods may increase agricultural productivity and wage employment opportunities, heavy floods such as those in 1998, 2004, and 2007 have devastating effects on the households. Thus separate analysis of historically flood-prone and non-flood prone areas is needed to

[16] Yu et al., 2010.

[17] The effects of flooding on crop cultivation and associated demand for labor depend on the intensity and timing of the flood. For example, flooding in May-June or September-October may destroy dry or wet season crops respectively before harvest and thus reduce the wage employment opportunities (Banerjee, 2007). Floods in July assist the sowing of wet season rice by watering the fields (Islam et al., 2004, Quasem, 1992). Floods in August may wash away transplanted seedlings and increase the demand for labor when the water recedes and farmers replant their fields (Ahmad et al., 2001).

[18] Ahmed and Mirza, 2000; MoEF, 2009; Yu et al., 2010.

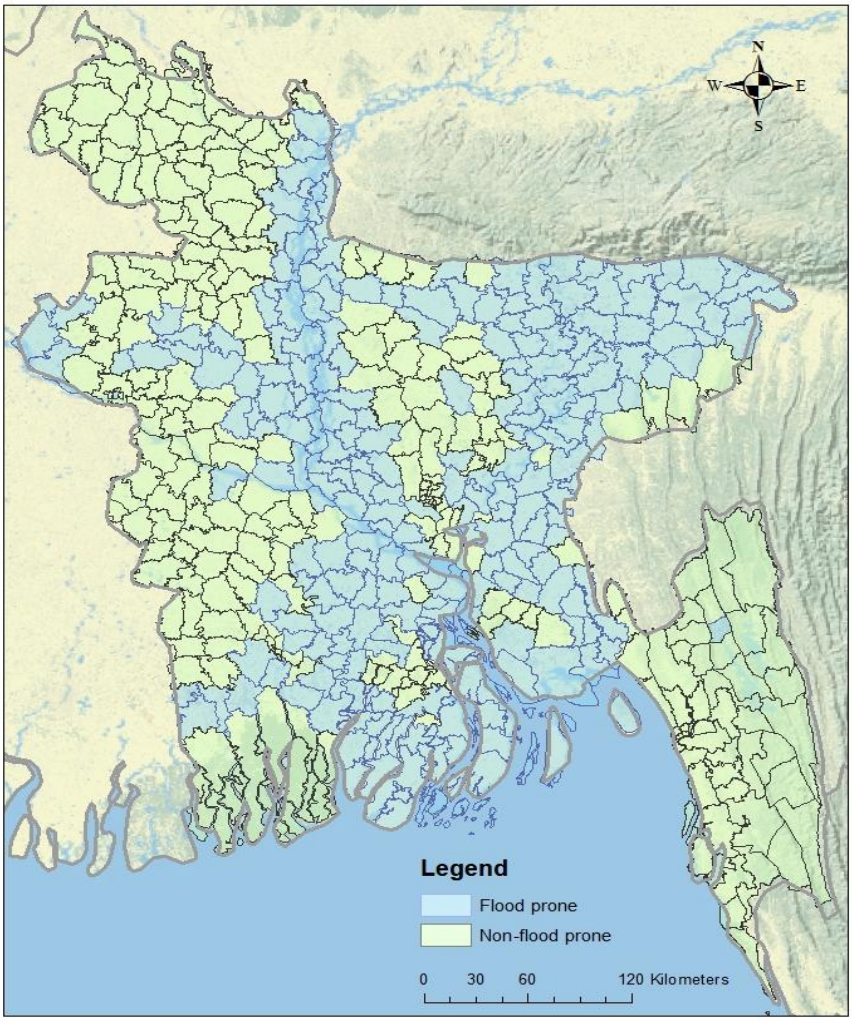
[19] Banerjee (2007) finds long-run wages are higher in the flood-prone areas.

show the extent to which local rainfall variability is an important factor in household occupational selections and consumption expenditure.

4.43 To identify flood-prone areas in Bangladesh, the definition set by the Bangladesh Water Development Board for the 1998 flood is used here.[20] Thus, the 1998 flood indicator identifies historically flood-prone areas for the whole nation. An *upazila* is said to be historically flood prone if 50 percent or more of the area in the *upazila* were flooded during any of the three periods of August 26, September 10, and September 17 of 1998 for which the percent of *upazila* flooded information is available. By this measure about 51 percent of the 333 *upazilas* in the survey are historically flood prone. Historically flood-prone and non-flood-prone *upazilas* are shown in Figure 4.1. The map shows that the flood-prone *upazilas* are concentrated around the Ganges-Brahmaputra-Meghna river-basins.

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4.44 **Apart from impact of push factors on occupational diversification, this section also looks at**



the ex-post realization of consumption welfare associated with these choices. Looking at consumption expenditure, this section gauges the extent to which occupational and employment choices are effective in

[20] The Bangladesh Water Development Board characterizes the 1998 flood as: "one of the catastrophic deluge on record. River water levels exceeded danger levels for country's all of the major rivers. It was combined with local rainfall in catchment areas of small rivers. All these influences including overbank flow and drainage congestion resulted in a flood that extended over most of the country with duration of weeks to months."

mitigating flood and local rainfall variability risks and preserving welfare. For example, if a household's strategy of occupational diversification is effective against flood risks, then we expect the ex-ante flood risk indicator to have no effect on ex-post household welfare. On the other hand, if households are unable to mitigate risks ex-ante, then those living in areas with higher climate variability will have lower consumption expenditure.

4.45 **We further examine how various policy measures are useful in mitigating climate risks**. The section looks at whether access to credit, presence of safety nets, or access to markets help mitigate ex-ante climate risks.

Climate Risks and Occupational Choices

4.46 **Two types of occupational choices are examined**. Firstly, household members may choose the economic sector in which to work, such as agriculture, construction, services, etc. Secondly, members may also choose between wage employment and self employment. Sectoral diversification may be ideal when risks are sector-specific; diversifying between wage- and self-employment may reduce the entrepreneurial risks of self employment.

4.47 Flood and local rainfall variability push households to diversify occupations and attain income stability by sacrificing higher returns. Households cope with flood and local rainfall variability in different ways. For instance, two members of a household are less likely to be in the same occupation, in the same sector, or both in agriculture if the household is located in a flood-prone *upazila* (Table 4.9 Part A). This means households are likely to use sectoral diversification to cope with flood risks. On the other hand, households are more likely to diversify between self- and wage-employment to cope with local rainfall variability. A possible explanation for the insignificant relationships between sectoral focus and local rainfall variability may be heterogeneity. For example, in flood-prone areas, households may use normal flood water as a substitute for rain and irrigation water. If this is correct, households in flood-prone *upazilas* would face different sets of risks as compared with the households in non-flood-prone *upazilas*.

Table 4.9: Occupational focus and flood and local rainfall variability, summary results

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
A. Pooled sample, CRU based CV of Rain						
Flooded areas 1998	**-0.331*** **	**-0.263** **	**-0.273***	0.0717	-0.0252	-0.180
	(-3.028)	(-2.455)	(-1.833)	(0.485)	(-0.178)	(-1.049)
Local rainfall Variability	-1.439	-1.237	1.076	**-8.948*** **	**-6.434*** **	**-6.330** **
	(-0.695)	(-0.601)	(0.376)	(-3.133)	(-2.602)	(-2.322)
B. *Upazilas* not flooded in 1998, CRU based CV of Rain						
Local rainfall Variability	**-4.365***	**-4.569***	**-4.906***	**-12.06*** **	**-9.030*** **	**-11.87*** **
	(-1.739)	(-1.818)	(-1.669)	(-3.468)	(-2.648)	(-3.209)
C. *Upazilas* flooded in 1998, CRU based CV of Rain						
Local rainfall Variability	4.733	4.906	**12.25*** **	-3.293	-1.062	3.710
	(1.486)	(1.511)	(2.683)	(-0.754)	(-0.332)	(1.064)

Robust z-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

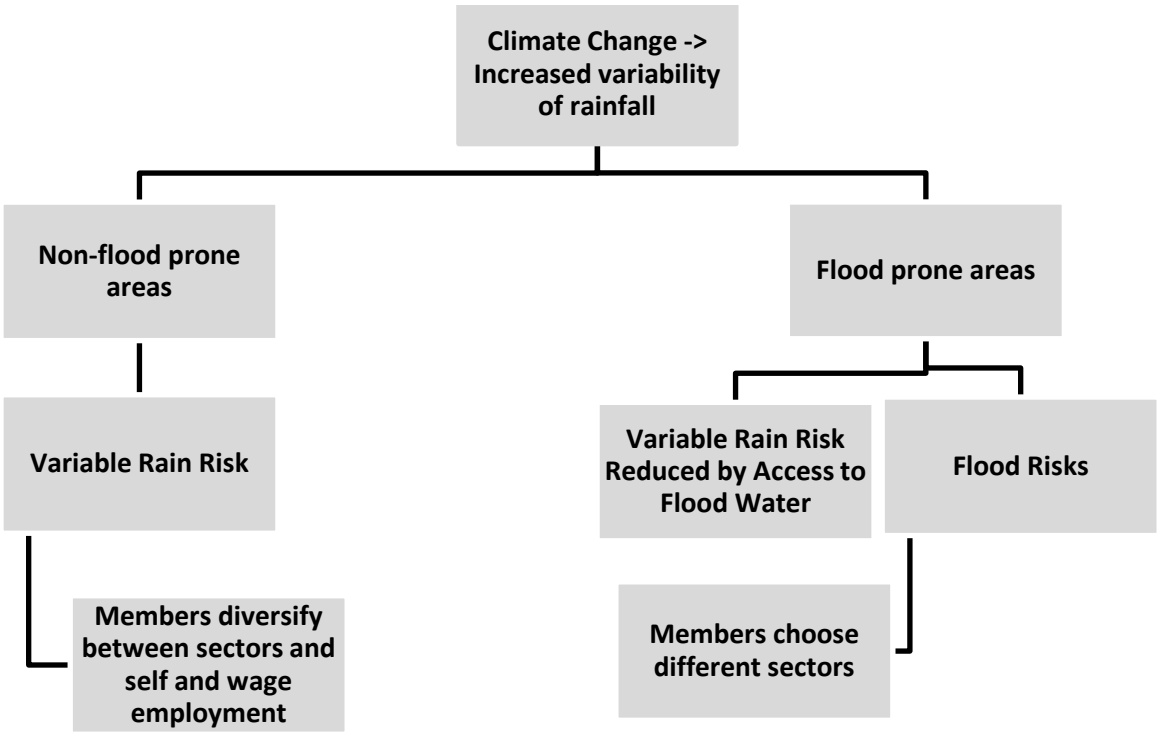
Note: The dependent variables for each column are (1) "Same Occupation as Head;" (2) "Same Sector as Head;" (3) "Both in Agriculture;" (4) "Both self-employed;" (5) "Both in the same sector and self employed;" and (6) "Both self employed in agriculture" respectively.

4.48 **To take account of possible heterogeneity, separate models were estimated for non-flood-prone *upazilas* and flood-prone *upazilas***. The analysis found that households in non-flood prone *upazilas* diversified across sectors as well as between self- and wage-employment to cope with local rainfall variability (Table 4.9 Part B). On the other hand, in flood-prone *upazilas* where "normal" flood

reduces the dependence of households to the level of local rainfall and its variability, households do not need to diversify across sectors or employment to cope with local rainfall variability (Table 4.9 Part C).

4.49 Thus, the results presented in Table 4.9 reveal that the push factors for occupational diversification, such as the historic variability in local rainfall, are only at work in the non-flood-prone areas. In the flood-prone areas, the availability of water from "normal" floods seems to reduce the ex-ante risks inherent in the variability of local rainfall. In contrast, in the non-flood-prone areas, that are more dependent on the local rainfall, the push factors for diversification of occupations and type of employment are at work. Households diversify to avoid the risks stemming from local rainfall variability and this may be a factor associated with lower productivity and growth. These results are summarized in Figure 4.1.

Figure 4.1: A Summary of Adaptive Occupational choice because of Climate Risks



Policy Considerations

4.50 **When households have access to credit, or safety nets, and/or markets, the influence of push factors for occupational and sectoral diversification is likely to be weaker.** That is, if households have access to credit, safety nets, or markets, households are more likely to make occupational and sectoral choices due to pull rather than push factors. In this case, the role of local rainfall variability in the decision to diversify should be weaker if not insignificant. Table 4.10 presents the estimates of the coefficients of these three policy variables, their interactions with the coefficient of variation, as well as tests of whether the sum total of these estimated coefficients is equal to zero.

4.51 **The estimates based on the full sample suggest that access to credit and safety nets tend to weaken the role of push factors for diversification within households**. For example, in the flood-prone *upazilas*, members of households with access to credit or safety nets are more likely to be in the same occupation as compared with households in flood-prone *upazilas* with no access to credit or safety nets

(Table 4.10, columns 1 and 2). Thus, access to credit or safety nets is helpful to some extent to the households in the flood-prone *upazilas* in reducing the need to diversify occupations.

4.52 **Access to markets may completely eliminate a household's need to diversify into different occupations if the members live in flood-prone *upazilas*** (Table 4.10, column 3). The interaction between access to market and flood-prone *upazilas* is positive and significant and almost as important as the coefficient of the flood-prone *upazila* by itself. This implies strong positive effects of the interaction between market and flood completely cancels out the negative effects of flood on need to diversify occupations.

4.53 **The effects of the policy action variables are similar when local rainfall variability in the non-flood-prone *upazilas* are considered**. It has been already established that local rainfall variability is only important to the households who live in non-flood-prone *upazilas*. Thus, the analysis of policy interaction with local rainfall variability is only relevant for households in non-flood-prone *upazilas*.

4.54 In the *upazilas* with high local rainfall variability, members of households with access to credit or safety nets are more likely to be self-employed in agriculture than households in *upazilas* with high local rainfall variability and no access to credit or safety nets (Table 4.10, columns 16 and 17). However, the coefficients of the interaction between local rainfall variability and access to credit and safety nets are small compared to the coefficients of local rainfall variability by itself. Thus, access to credit and safety nets is unable to completely negate the need to diversify from self-employed agriculture to other economic activities when households are faced with higher local rainfall variability.

4.55 **As with flood risk, access to market may completely eliminate a household's need to diversify from self-employment in agriculture if the members live in *upazilas* with high local rainfall variability** (Table 4.10, column 18). Thus, access to market may prevent households from being pushed to occupational and employment diversification, while access to credit or safety nets in their present form does not completely prevent such push from flood and local rainfall variability.

Welfare and Consumption Effects

4.56 **Do proactive occupational choices pushed by climate change lower consumption welfare**? Households living in high rainfall variability areas are expected to have lower per capita consumption welfare for two reasons. Firstly, pushed diversification within households may mean accepting occupations with low productivity to reduce risks. Low productivity and income would result in low consumption at the household level and low growth in the aggregate. Secondly, households may cope with high rainfall variability by self-insurance through liquid assets accumulation. The need to save for the so called "rainy day" may require higher levels of liquid assets and slow productive capital accumulation. A similar argument can be made about flood risks and low productivity leading to low consumption. However, others have shown that a "normal" flood may increase productivity and wage rates.[21] Thus, productivity loss from diversification may be partly or fully compensated by the productivity gains from "normal" flooding. Therefore, welfare effects of occupational choices in flood-prone areas may not be significant.

Table 4.10: Interaction Between Flood or Local Rainfall Variability and Policy Action Variables

	Interaction with flood-prone *upazilas*					
	(1)	(2)	(3)	(4)	(5)	(6)

[21] Islam et al (2004), Quasem (1992), Banerjee (2007).

Dependent variables	Both in the same occupation			Both the same sector		
Policy interaction term:	Credit	Safety Net	Market	Credit	Safety Net	Market
Flood prone *Upazilas* (b_4)	**-0.353*** **	**-0.372*** **	**-0.623*** **	**-0.318** **	**-0.322*** **	**-0.450** **
	(-2.702)	(-2.906)	(-3.419)	(-2.461)	(-2.581)	(-2.406)
Policy X Flood (b_6)	0.0505	0.105	**0.729***	0.129	0.151	0.472
	(0.280)	(0.562)	(1.717)	(0.768)	(0.828)	(1.047)
Test $b_4+b_6 = 0$	**-0.303** **	**-0.267***	0.107	-0.189	-0.170	0.0223
χ^2 (1)	3.879	2.746	0.127	1.745	1.158	0.00494
$\chi 2$ > Prob	0.0489	0.0975	0.721	0.187	0.282	0.944

Local rainfall variability in non-flood-prone *upazilas*

	(7)	(8)	9)	(10)	(1)	12
endent variables	B th in the same sector			oth self employed		
Policy int act on term:	Cre it	Safety N	Market	Credit	Safety Net	Market
CV Rain CRU (b_4)	**-5.404***	**-5.537** **	-3.787	**-11.90*** **	**-16.57*** **	-7.575
	(-1.898)	(-2.058)	(-0.794)	(-2.712)	(-3.703)	(-0.981)
Policy X CV Rain CRU (b_6)	2.286	1.709	-2.062	-0.938	**12.83** **	-16.26
	(0.569)	(0.508)	(-0.145)	(-0.135)	(2.130)	(-0.701)
Test $b_4+b_6 = 0$	-3.118	-3.828	-5.849	**-12.84** **	-3.737	-23.83
χ^2 (1)	0.736	1.289	0.314	5.231	0.615	2.051
$\chi 2$ > Prob	0.391	0.256	0.575	0.0222	0.433	0.152

Local rainfall variability in non-flood-prone *upazilas* (Continued)

	(13)	(14)	(15)	(16)	(17)	(18)
Dependent variables	Both self employed in the same sector			Both self employed in agriculture		
Policy interaction term:	Credit	Safety Net	Market	Credit	Safety Net	Market
CV Rain CRU (b_4)	**-11.19** **	**-10.10** **	**-15.20** **	**-12.37** **	**-12.22*** **	**-14.79***
	(-2.436)	(-2.411)	(-2.225)	(-2.411)	(-2.678)	(-1.887)
Credit X CV Rain CRU (b_6)	4.837	1.947	23.05	1.144	0.521	11.79
	(0.786)	(0.397)	(1.082)	(0.163)	(0.0947)	(0.492)
Test $b_4+b_6 = 0$	-6.350	**-8.150***	7.853	**-11.22** **	**-11.70** **	-2.998
χ^2 (1)	1.928	3.685	0.249	5.391	6.305	0.0297
$\chi 2$ > Prob	0.165	0.0549	0.618	0.0202	0.0120	0.863

Robust z-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

4.57 **Households in non-flood-prone areas experience lower consumption welfare due to occupational diversification due to push factors**. Key results of the relationship between consumption and flood-prone *upazilas* on one hand and local rainfall variability on the other are presented in Table 4.11. Columns 1, 2, and 3 show the estimation coefficients for the household consumption equation for the pooled sample, historically non-flood-prone and flood-prone *upazilas*. Households in non-flood-prone areas that diversify occupations to cope with local rainfall variability experience loss in household welfare and productivity. This could be true for the most vulnerable households too (Box 4.2) On the other hand, the insignificant effects of the flood-prone *upazilas* on consumption may be explained by the beneficial effects of normal floods that may partially mitigate the high flood risks.

4.58 **Access to credit, safety nets, or markets are associated with smaller negative impacts of local rainfall variability on household consumption in the non-flood-prone *upazilas***. The net effect of rainfall variability and access to credit or safety nets on consumption is negative and significant (Table 4.11, columns 4 and 5). That is, access to credit or safety nets appears to reduce, though not completely eliminate, the negative effects of rainfall variability on consumption welfare. However, access to markets seems to eliminate completely the negative effects of rainfall variability on consumption welfare.

Table 4.11: Effects of Flood, Local Rainfall Variability, and Policy Action Variables on Consumption Welfare

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Overall	Non-flood prone *upazilas*	Flood prone *upazilas*	Non-flood-prone *upazilas*		
Policy interactions variables				Credit	Safety-Net	Market
Flood prone *upazilas*	0.0141					
	(0.734)					
Local Rainfall Variability (β_4)	**-1.109*** **	**-1.642*** **	-0.432	**-1.794*** **	**-1.638*** **	-1.242
	(-2.891)	(-4.020)	(-0.625)	(-3.775)	(-3.799)	(-1.247)
Policy Action X Rainfall Variability (β_6)				0.449	-0.0903	-1.306
				(0.894)	(-0.214)	(-0.433)
Test $\beta_4 + \beta_6 = 0$				**-1.345*** **	**-1.729*** **	-2.548
F Statistic				8.066	12.66	1.407
F > Prob				0.00498	0.000467	0.237

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Box 4.2: Employment Diversification and Welfare in Monga Areas

Every year, between September and November, the north-western part of Bangladesh experiences a seasonal phenomenon of poverty and hunger (monga) *just before the* aman *harvest. In the spirit of the analysis presented in Section II, this section looked at how* monga-*vulnerable households coped through employment diversification. The findings show that households tend to diversify their employment during the* monga *season, with the diversification being lower in other times in the year. Since households in the* monga *region face a large risk of weather shocks, they might diversify jobs of household members so that one shock cannot eliminate all income sources simultaneously. The analysis also found that the more severe the economic adversity faced by a household during the* monga *season, the greater the probability of the household members switching employment status.*

Focusing on the welfare implications, this section undertook a regression analysis of logs of per capita household expenditure on various indicators of employment diversity and a variable of switching employment status along with other typical poverty correlates. The authors found that three (out of six) diversity indicators, suggested that households with higher employment diversity tended to be poorer. Also, households that changed the number of employees tended to be poorer.

The impact of the monga *is often perceived to be exacerbated by the floods that occur in the preceding months (Khandker, 2009). So, climate change can exacerbate circumstances that contribute to the* monga, *thereby increasing the incentives to diversify employment within households. Not only could climate change increase the frequency and the magnitude of flood or river erosion, but it could cause changing seasonal patterns, and changing frequencies of extreme weather events such as droughts or low temperature. Incomes, whether through agriculture or non-farm sources, may be affected by these, and this is especially true for households in* monga *areas that are already highly vulnerable.*

Source: Mahadevan et al., 2012.

Chapter 5: The Path to Middle-Income Status from an Urban Perspective

Summary

Bangladesh needs a globally competitive urban space to accelerate economic growth. This chapter discusses how Bangladesh can address the competitiveness constraints and leverage the assets of its urban areas to reach MIC status. The chapter assesses the drivers and obstacles of urban competitiveness from the perspective of the garment sector—a thriving, export-oriented, urban-based industry—presenting new and original empirical evidence based on the results of a survey of 1,000 garment firms.

Bangladesh's Urban Space Today

5.1 **Bangladesh's urban space has exceptionally high population density, but relatively low economic density**. Bangladesh has the highest level of population density of any country.[1] High population density, combined with rapid urbanization, implies management of a large and fast-growing urban population. Dhaka City—the largest urban conurbation in Bangladesh—despite being one of the world's most densely-populated urban areas has, like all of Bangladesh's urban areas, relatively low economic density from an international perspective, and its output falls short of what would be expected of a city of comparable population density.

5.2 **Dhaka's and Chittagong's outputs dominate Bangladesh's economic landscape**. Bangladesh's economic geography is characterized by concentration of economic production in Dhaka metro and Chittagong City. About 9 percent of the Bangladesh population lives in the Dhaka metropolitan area, which contributes to 36 percent of the country's GDP.[2] An additional 11 percent of the Bangladesh GDP is generated by Chittagong, the second largest city and home to 3 percent of the Bangladesh population. The gap between Dhaka and Chittagong and medium and small size cities is large and widening, as most medium and small size cities have a narrow economic base and have yet to find their competitive advantages.

5.3 **The garment industry—Bangladesh's major economic success story—was born and has thrived in Bangladesh's two largest cities, but the pace of growth has stretched urban infrastructure to its limit**. Bangladesh's manufacturing sector specializes in export-oriented, low-value garments. The garment industry is concentrated in Dhaka metro and Chittagong city, and both urban agglomerations are highly specialized in garment production. While garment production has thrived in Bangladesh's labor-abundant urban areas, urban infrastructure and services have lagged. Dhaka is ranked among the bottom 10 cities in the world for quality of infrastructure, services and amenities,[3] and the other cities also face severe delivery challenges in this regard.

5.4 **A Dhaka metro region is emerging as garment employment peri-urbanizes**. Garment production, while still concentrated in Dhaka city proper, is sprawling into the peri-urban areas, which are rapidly turning into manufacturing production centers. Garment employment has started growing beyond the Dhaka metro boundaries, leading to the emergence of a greater Dhaka metro region. Despite the growing economic importance of peri-urban areas, there is no institutional mechanism for core-periphery coordination at the metropolitan level.

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1 Excluding city states and small islands.

2 The Dhaka metropolitan area is defined by the boundaries of the Statistical Metropolitan Area (SMA).

3 Based on to The Economist Intelligence Unit (EUI)'s annual ranking of 140 cities worldwide.

Envisioning the Future: A Competitive Urban Space for Growth

5.5 **Bangladesh needs a globally competitive urban space to accelerate growth**. High population density commands equally high economic density (GDP or value added per km^2) for economic growth. Given Bangladesh's exceptionally high population density, Bangladesh needs to substantially increase its economic density to accelerate growth. Only a highly competitive urban space—an urban space that has the capacity to innovate, is well connected internally and to external markets and livable—can sustain such a high level of economic density.

5.6 **As the country's growth engine, Dhaka metro is an asset in Bangladesh's bid to reach MIC status**. While Bangladesh should aim to strengthen the competitiveness of its entire urban space, Bangladesh needs a competitive Dhaka metropolitan area to reach MIC status. Although the specialization in low-value garment products has served the country well to date, Dhaka metro needs to diversify its economic base from low to a high-value products and services to become a globally competitive urban economy.

Urban Competitiveness: Drivers and Obstacles from the Perspective of the Garment Sector

5.7 **Dhaka city is still the most productive location for garment firms in Bangladesh…** Dhaka city has a Total Factor Productivity (TFP) premium relative to both Chittagong city and Dhaka peri-urban areas in garment production. Access to markets and a relatively better quality of power supply are Dhaka city's main comparative advantages. Dhaka is the best performing city locations for access to skill labor and power supply – the two factors garment firms value the most when deciding their locations – proximity to suppliers, sub-contractors, machine repair technicians and support businesses.

5.8 **…but is falling behind other locations in accessibility, and for some firms, Dhaka city's costs have started outweighing opportunities**. Dhaka city is the worst-performing location for urban mobility and access to the highway. Firms in Dhaka city have also a disadvantage in accessing the port and the airport, compared to those located in Chittagong city. Firms and workers alike located in Dhaka also suffer from limited availability and high prices of land and housing.

5.9 **The high productivity of the garment workforce in Dhaka city has not led to better living conditions for production workers**. Garment workers in Dhaka city live in a deteriorating urban environment, characterized by over-crowding and lack of amenities, and have significantly lower access to housing and services than the average Dhaka urban dweller and garment workers in Chittagong and Dhaka peri-urban areas. Dhaka city is the location with the highest share of urban-related inefficient worker turnover (defined as the separations caused by un-healthy urban environment, rather than by more competitive job offers). Housing availability is cited by workers as the main reason for "urban-related" separations in Dhaka city, followed by high costs of living.

5.10 **Inadequate access to land and transport infrastructure in Dhaka city is the leading cause of firm relocation to peri-urban areas…** The birth of new garment firms, rather than relocation, is driving peri-urbanization. Nevertheless, understanding the causes of relocation can shed light on the main drivers of peri-urbanization. About half of the firms that relocated from Dhaka city to peri-urban areas cited a desire to gain better access to transport infrastructure and avoid Dhaka's congestion as the primary reason for de-concentration. Another 25 percent of firms relocated because of high costs and limited availability of land, buildings and housing in Dhaka city.

5.11 **…and peri-urbanization is associated with the growth of a more competitive, vertically-integrated business model in the garment sector**. Peri-urban garment firms are more land-intensive and more likely to be vertically integrated than garment firms in Dhaka city. This suggests that younger firms

are opting for a consolidated, vertically-integrated business model, which has significant advantages for international competitiveness. Vertically-integrated firms have statistically significantly lower lead time than the average garment firms, and are therefore best-equipped to compete internationally.

5.12 **Peri-urban areas benefit from proximity to Dhaka city, have a comparative advantage in accessibility and land and housing, but suffer from Dhaka city's congestion, and have lower access to infrastructure**. Peripheral municipalities are performing as well as Dhaka city in access to skilled labor, suggesting that they benefit from proximity to Dhaka city. Peripheral rural areas are however less competitive than Dhaka city in access to markets—in particular proximity to buyers, suppliers, sub-contractors, competitors and support businesses. Peri-urban areas have a significant advantage in land and housing, urban mobility and access to highway, compared to Dhaka city. However, firms located in peri-urban areas suffer indirectly from the high congestion of Dhaka city, and from lower access and quality of infrastructure and services.

5.13 **Chittagong city has a disadvantage in access to markets, but an advantage in accessibility, land and housing**. Chittagong is a low-productivity, low-cost garment production center compared to Dhaka city. Chittagong is less competitive than Dhaka in access to markets, in particular access to skilled labor – the factor garment firms value the most—proximity to suppliers and support businesses. Chittagong city's lower productivity is compensated by its cost advantage in land and housing. Chittagong city is ranked by garment firms as the best performing location for availability and cost of land, buildings and housing for workers. Chittagong city has also a marked comparative advantage in accessibility, being the top location for access to port, airport, highway and urban mobility.

5.14 **In spite of its accessibility advantage, Chittagong has not been able to capitalize on its comparative advantage as the largest seaport city in Bangladesh**. Port cities play an important role in fast urbanizing economies, and Bangladesh is no exception. The Chittagong port handles 80-85 percent of Bangladesh foreign trade, including the bulk of Bangladesh's main exports, garments. However, Chittagong is one of the most inefficient ports in Asia, and the slow turnaround times seriously affect exports, in particular garments. The Chittagong Port is identified as the main factors negatively affecting lead time in the industry—lead time is on average estimated at 88 days among the surveyed firms, against 40-60 days of China and 50-70 days of India. Half of the firms cited the time it takes to unload at port as the main bottleneck. The time required to obtain port clearance is the main constraint for another 30 percent of firms.

5.15 **EPZs are higher productivity, higher cost locations, and are partially shielded from Dhaka and Chittagong's inefficiencies**. EPZs are more productive garment locations, with higher TFP than non-EPZ garment firms, even when controlling for firms' characteristics. From a productivity viewpoint, therefore, EPZs are attractive locations. However, wages and building rent levels are also higher for EPZ firms than for non-EPZ firms. The cost differential suggests that the attractiveness of the EPZs is interacting with constraints on the supply-side to bid-up wages and rent levels. Chittagong EPZ is the best performing location among all the surveyed locations, and the only one with satisfactory performance across all locations factors, including access to electricity.

5.16 **Medium- and small-size cities are uncompetitive "distant places" from the perspective of the garment sector, and need to foster local entrepreneurship to find their comparative advantages, as opposed to attracting existing firms from elsewhere through relocation incentives**. Access to markets, in particular skilled labor, is cited by garment firms as main disadvantage in medium and small cities. Contrary to the very successful EPZs in Dhaka and Chittagong, the EPZs located in "distant locations" have not succeeded in attracting garment firms. The failures of EPZ outside Dhaka and Chittagong is partially explained by the "path dependency" of garment firms' location choices. Only 10

percent of the sampled firms relocated to a different location. Of those firms that relocated, no firms moved to another city.

Building a Competitive Urban Space in a Global Economy: Strategic Directions

5.17 **Bangladesh needs to build an urban space that is capable of innovating, is better connected and more livable in order to reach MIC status**. Bangladesh's urban space is falling behind in all three drivers of competitiveness - innovation, livability and connectivity. The Dhaka metro area needs to evolve into a diversified economy with highly skilled human resources and an innovation capacity fueled by the cross-fertilization of ideas characterizing large metropolitan areas. Dhaka metro area also needs to be better connected internally and with its peri-urban areas, and both Dhaka and Chittagong have to strengthen their connection to the global economy. Improved connectivity within the Bangladesh's system of cities—in particular the Dhaka-Chittagong corridor—is also important for productivity and export competitiveness. The development of an economically dynamic urban space, in particular in the Dhaka metro region, has occurred at the expense of livability. The livability of the urban space will become an even more binding constraint to growth as Bangladesh transitions to a new business model based on higher value added industries and services, requiring a highly skilled and internationally mobile workforce. This is a tall order for Bangladesh– but planning needs to start today for Bangladesh's cities to become more competitive in future.

5.18 **Bangladesh's cities have to take proactive measures to improve and sustain their competitiveness**. Strengthening competitiveness across the entire spectrum of Bangladesh's cities calls for coordinated and multi-pronged interventions encompassing infrastructure, institutions and incentives, and in line with the following strategic directions:

- **Transform Dhaka into a globally competitive metro region**, by (i) developing appropriate institutional mechanisms for core-periphery coordination in the emerging Dhaka metro region, (ii) improving infrastructure to leverage Dhaka city's productivity advantage, while (iii) enhancing accessibility to manage the growing diseconomies of agglomeration in Dhaka city, (iv) upgrading peripheral infrastructure in a bid to transform peri-urban areas into globally competitive manufacturing centers, (v) strengthening institutions for a more efficient and integrated land and housing market, (vii) strengthening the coordinating role of local authorities to foster a business environment that reward entrepreneurship and innovation, and (viii) improve livability and amenities and make urban growth more environmentally and socially sustainable.
- **Leverage Chittagong city's natural comparative advantage as a port city**, by (i) expanding the capacity and improving the operational effectiveness of Chittagong city's port and (ii) investing in institutions and infrastructure to sustain Chittagong's advantage as lower cost location, relative to Dhaka, as the city expands.
- **Create an enabling environment for local economic development in medium- and small-size cities** by (i) connecting medium- and small-size cities to markets, and (ii) creating a level playing field in the provision of basic services across locations to improve livability and foster local entrepreneurship in medium- and small-size cities.
- **Promote strategically located EPZs to foster industry competitiveness and spearhead urban reforms,** by (i) developing EPZs in proximity to markets and in line with locations' comparative advantages to enhance the international competitiveness of Bangladesh's industries, and (ii) building support for urban change through EPZ demonstration effects.

I. Introduction

5.19 **The urban agenda is an essential part of Bangladesh's growth agenda**. Bangladesh needs to accelerate growth to reach Middle-Income Country (MIC) status by 2021 to mark its 50th year of independence. Accelerating growth will set in motion a structural transformation that will change the country's geography of economic production and urbanization. Experience shows that countries reach MIC status after undergoing significant spatial transformation.[4] Countries that succeed in joining the ranks of MIC status undergo a structural shift from an agrarian-based to a manufacturing and service-led economy. Manufacturing and services often locate close to urban areas to capture the productivity advantages generated by agglomeration economies – i.e. access to markets, knowledge spillover and the proximity to a large pool of labor. The productivity advantages of cities are often magnified in developing countries, where transportation and communication costs are the highest.

5.20 **Bangladesh needs a globally competitive urban space to reach MIC status**. Urbanization and economic growth have been correlated in Bangladesh. Urban areas now produce about 60 percent of the country's GDP,[5] and Dhaka metropolitan area alone generates 36 percent of Bangladesh's GDP. Despite the strong contribution of urban areas to growth, Bangladesh's economic output is relatively low from an international perspective, affecting its prospects for long-term growth. Improving the competitiveness of Bangladesh's urban areas in a global economy is therefore of paramount importance to support the country's transition to MIC status.

5.21 **This chapter focuses on the competitiveness of Bangladesh's urban areas from a private sector perspective**. Section I presents the main features of Bangladesh's urban space today and its implications for the growth agenda. Section II assesses the drivers and obstacles of urban competitiveness through the lens of the garment sector - the prime mover of Bangladesh's socio-economic development, and a symbol of Bangladesh's dynamism in the world economy. Section III sheds light on how Bangladesh's cities can address their competitiveness constraints and leverage their assets to reach MIC status. While the study looks at the urban agenda through the lens of the garment sector, it recognizes the important role played by other private sector and public administration as drivers of job creation.

5.22 **This chapter presents new empirical evidence on urban competitiveness based on the results of a survey of 1,000 garment firms carried out in 2011** (the "2011 garment firm survey"). The survey presents a number of unique features. First, it has a spatial focus, which allows a comparison of performance across locations. Second, the survey instrument has been customized to Bangladesh's urban characteristics, taking into account opportunities and challenges of urbanization across locations. While the study looks at the urban agenda through the lens of the garment sector, it recognizes the important role played by other private and public sectors as drivers of job creation.

5.23 **The agglomeration of economic activities, rather than agglomeration of people, is the focus of this Chapter**. The study adopts an economic definition of urbanization, based on economic density (GDP or value added per km^2), since it is the agglomeration of economic activities, rather than of population, that allow for the productivity gains of urbanization to materialize. While agglomeration of people and economic activities are correlated, they are distinct trends – increasing economic density does not necessarily imply an increase in population density, and concentration of people is not sufficient to generate economic vibrancy.

5.24 **The chapter focuses on the urban dimension of the growth agenda**. The study does not tell the entire growth story, since the rural dimension is equally important. An assessment of the role of rural

[4] Urbanization explains 55 percent of regional variation in GDP per capita, although the relation does not imply causality.
[5] UNICEF (2010).

areas for economic growth is however beyond the scope of this study. The study also does not discuss the welfare implications associated with high and sustained economic growth in urban areas, and need to be complemented by an assessment of the redistributive policies to promote reduction of disparities in welfare between leading and lagging regions, and between urban and rural areas.

5.25 **This chapter is structured in three sections**. *Section I* is organized in two parts. The first part analyzes the main features of Bangladesh's urban space in light of international experience to examine what is "typical" about its process of urbanization. The second part discusses the implications of Bangladesh's distinct urban features for its path to MIC status based on a scenario analysis. *Section II* assesses the competitiveness of Bangladesh's urban space through the lens of the garment sector, based on the findings of the 2011 garment firm survey. This section is organized in seven parts. The first part explains the rationale for choosing the garment sector as the focus of the competitiveness analysis, and provides background information on the Bangladesh's garment market. The second part explores the competitiveness factors driving garment firms' location choices. It emphasizes the tension between agglomeration forces that incite firms to cluster (centrifugal forces) and forces that favor dispersion (centripetal forces). Parts 3-7 compare garment firms' productivity and competitiveness across urban locations, and discuss how and to what extent the urban environment affects firms' productivity. *Section III* outlines policy options for improving competitiveness of Bangladesh's urban space in a global economy, in line with Bangladesh's objective to reach MIC status by 2021.

II. Bangladesh's Urban Space: Features and Implications of the Urban Growth Agenda

Bangladesh needs a globally competitive urban space to accelerate growth. Dhaka metro region is Bangladesh's main asset to reach MIC status. While specialization in low-value garments has served the country well to date, Dhaka needs to gain a competitive edge in high value products and services to support its transition to a MIC. This section describes the main features of Bangladesh's urban space today and their implications for the growth agenda.

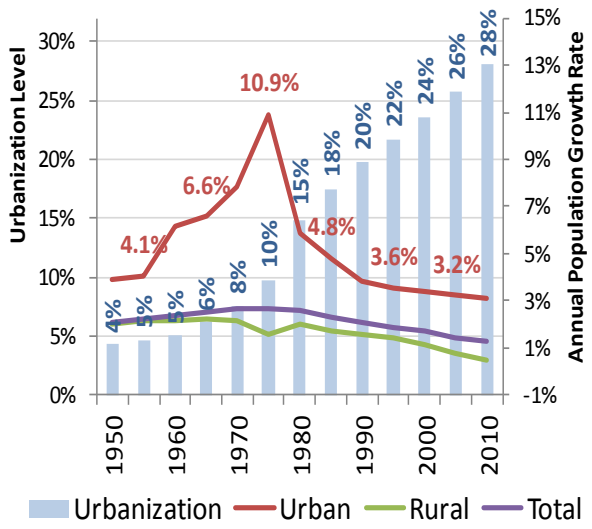
Bangladesh's Urban Space Today

5.26 **Bangladesh's urban space is characterized by:** (i) rapid urbanization accompanied by strong economic growth, (ii) exceptionally high population density, (iii) the primacy of Dhaka's metropolitan area, (iv) highly concentrated economic production but relatively low economic density, (v) specialization of the urban economy in low-value-added, labor-intensive garment production, (vi) the emergence of a Dhaka metro region as garment production peri-urbanizes, (vii) an urban environment characterized by poor infrastructure, low level of services and lack of amenities, and (viii) persistent, though declining, regional disparities in welfare. Each of these features are described in detail and benchmarked against international experience in the following paragraphs, to single out what is unique about Bangladesh's urban space. The main characteristics of Bangladesh's urban transition are summarized in Table 5.2.

5.27 **Bangladesh is one of the fastest-urbanizing countries in South Asia, and since the 1980s urbanization has accompanied economic growth**. Bangladesh has experienced the steepest increase in urbanization among South Asian countries over the last 50 years, and is now the third most urbanized country in South Asia, after Pakistan and India (Figure 5.3). Since independence, the urban population grew at an average of 5 percent per annum and the share of urban population almost doubled (from 15 to 28 percent, Figure 5.1). While Bangladesh's urban transition has been momentous, its urbanization is broadly in line with the urbanization level of countries at a similar stage of economic development (Figure 5.4). Since the 1980s Bangladesh's urbanization has also been sustained and fuelled by strong economic growth, and has been accompanied by structural transformation of the economy – the contribution of agriculture to GDP has decreased from 30 percent in 1990 to 20 percent in 2010. The

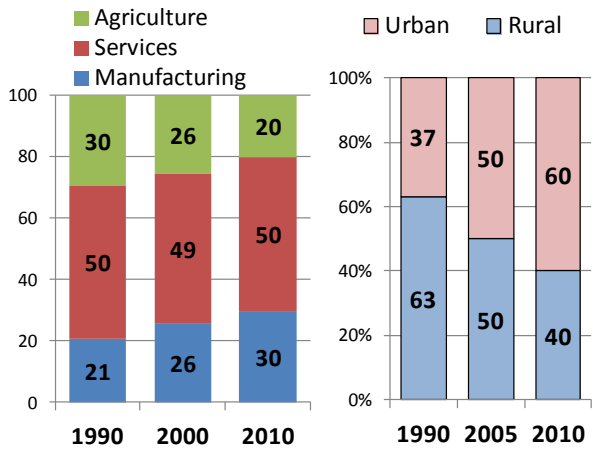
contribution of the urban sector to GDP has increased rapidly, from 37 per cent in the 1990s to an estimated 60 percent in 2010 (Figure 5.2).[6]

Figure 5.1: Urban Population Trends (1950-2010)



Source: World Urbanization Prospects.

Figure 5.2: GDP Composition (1990-2010)



Source: BBS and authors' estimates based on UNICEF (2010)

5.28 **Bangladesh has the highest population density in the world…** Based on preliminary 2011 census data, the population density in Bangladesh is about 964 people per km^2, and its urban population density is on average 1,800 people per km^2.[7] Bangladesh has the highest levels of population density amongst low-income countries (3 times higher than India) and, excluding city states and small islands, in the world. High population density implies a large urban population to manage. With an urban population of 46 million (2010 estimates), Bangladesh is among the 20 countries with the largest urban population in the world (Map 1 and

5.29 Figure **5.5**). Dhaka City is one of the most densely populated urban areas in the world, with a density of 26,000 residents per km^2. When the entire metropolitan area is considered, Dhaka metro's population density, at 13,500 persons per km^2, is still above the density of the largest megacities in the world, such as Manila (10,550 persons per km^2) and Jakarta (10,500 persons per km^2).[8]

5.30 **…and Dhaka metro is among the ten largest megacities in the world, with a population of about 13 million**. Dhaka is also a primate city, with roughly three times the population living in Chittagong metro (3.9 million).[9] Is Dhaka too big? Researchers have been debating this question for decades. Evidence indicates that the concentration of population in Dhaka metro, at 32 percent, is broadly in line with comparable countries at similar level of economic development (Figure 5.6). International experience also shows that concentration of population tends to increase, rather than decrease, as countries develop and urbanize. For example, in South Korea, the percentage of population living in

6 Bank estimates based on UNICEF (2010).

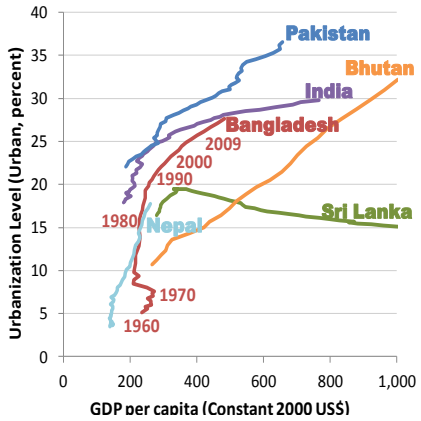
7 Population density has increased from 834 people per km^2 in 2001 to 964 people per km^2 in 2011, based on 2011 preliminary census estimates. Urban population density was computed from a preliminary census population count of 142 million and an estimated urban population share of 28 percent (World Urbanization Prospects).

8 www.citymayor.com.

9 A primate city is defined as being at least twice as large as the country's second largest city (www.citymayor.com).

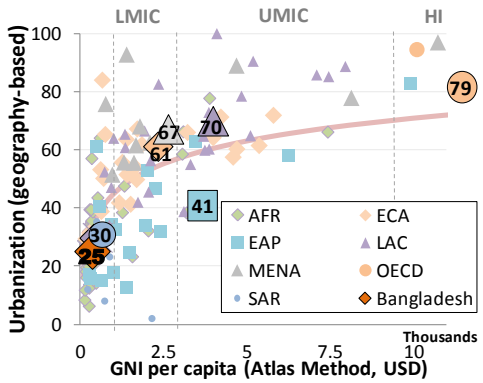
urban areas increased from 37 percent to 96 percent between 1960 and 2005. At the same time, the share of population living in cities above 1 million increased from 39 to 51 percent, and the Seoul's population share increased from 21 to 48 percent over the same time (Figure 5.7). The relevant question for policy making is therefore not whether a primate city is too large, but how to effectively manage a primate city and avoid creating policy biases that may indirectly favor the capital city. Even when a city becomes exceptionally large, history shows that managing effectively a mega-city is a challenging, but achievable task (e.g., Tokyo). While primacy can in many cases be explained by economic fundamentals alone, in some instances political economy factors play a role (Box 4.1).

Figure 5.3: South Asia Region Urbanization and Development (1960-2009)



Source: WDI.[10]

Figure 5.4: Urbanization and GNI Per Capita (2000)



Source: GRUMP and WDI.[11]

[10] The decline Sri Lanka's urban level is associated with a change in the national definition of urban, which led to an inverted process of urbanization, with the reclassification of urban centers back to rural areas.

[11] LMIC = Lower Middle Income Country; UMIC = Upper Middle Income Country and HI = High Income.

Box 4.1: The Drivers of Urban Primacy

***Is Dhaka City too big*? Researchers and policy-makers alike have been debating over the primacy of Dhaka city for decades.** Urban primacy is often mistaken as a problem, and primate cities are considered "too large" relative to the country's system of cities. The debate is however misplaced. The issue is not whether the primate city is too big but rather how well a primate city is managed. Tokyo is a primate city, but manageable in size, and remains a model for many of South Asian's growing megacities. However, primate cities pose management and planning challenges, which governments, particularly in low-income countries, are often ill-equipped to tackle. Dhaka's primacy is relative to the country's urban hierarchy, as one in three urban Bangladeshis lives in Dhaka.

***What are the reasons for urban primacy?* The reasons primate cities arise are varied.** While primacy can in many cases be explained by economic fundamentals alone, in some instances political economy factors play a role. A review of global experience suggests that a highly centralized government may create a bias in favor of the capital city. The more centralized the nation's government, the larger its capital city. In many Middle East and North African (MENA) countries, political history has left behind a spatial bias in favor of the capital region. Many MENA states inherited from the colonial past highly centralized bureaucracies which inevitably favored the capital city, and the development of metropolis-oriented economies, at the expenses of the periphery.[12] Tokyo, which rose to prominence as an imperial city, is another example of a primate city whose growth has been favored by a politically centralized government structure, which has nevertheless succeeded in creating a well-planned and manageable megacity.[13] The spatial bias in favor of the capital city can also indirectly create a non-level playing field among cities. In MENA, many peripheral cities have historic disadvantages that cripple their ability to compete with the largest cities.

How can the government structure play a role in creating a level playing field among cities? Empirical evidence suggests that accountable, democratic governments, by giving political voice to the peripheral cities, limit the ability of the capital city to favor itself. Fiscal decentralization also helps to level the playing field across cities, by empowering peripheral cities to compete with the primate city. Ades and Glaeser (1995) based on cross-section analyses found that, if the primate city in a country is the national capital, it is on average 45 percent larger. If the country is a dictatorship, or at the extreme of non-democracy, the primate city is 40-45 percent larger. (Henderson, 2004).

Could political economy factors have contributed to Dhaka's primacy? Bangladesh is one of the most centralized countries in the world. Sub-national expenditures as a percentage of total consolidated government expenditures are estimated to be in the range of 3-4 percent.[14] The comparable figures for Indonesia or South Africa, two unitary countries that decentralized in the last 15 years or less, are 34 percent and 52 percent respectively. On the revenue side, less than 2 percent of total Bangladesh government revenue is collected at sub-national levels, placing Bangladesh at the lowest end internationally.[15] In addition, the strong infrastructural advantage of Dhaka vis-à-vis other cities is indicative of a non-level playing field among Bangladesh's cities. Many cities could benefit from improvements in the business climate. Let's consider Chittagong metropolitan area, for example, the second largest city and the main coastal city in the country. The city has natural competitive advantages due its strategic location, and was the site of the first privately-owned EPZ in the country. However, after more than 10 years of negotiations the privately-owned EPZ has yet to take off. Youngone group, the private investor, acquired the land in 1999, and only received the operating license in 2007. However, the EPZ is still in limbo because the site has poor access to gas and electricity. While there is no hard core empirical evidence linking Dhaka primacy to the country' political-economic structure, Bangladesh's cities would be better able to capitalize on their economic advantages and improve productivity if the authorities moved more toward decentralized governance and, more broadly, toward the creation of a level playing field among cities. Such measures might also bring additional advantages in the form of a more balanced pattern of urban growth.

Source: Henderson (2004). Glaeser, Ed (2011). Ades and Glaeser (1995). World Bank (2010b).

[12] World Bank, 2010e and 2010c.
[13] Glaeser, 2011.
[14] This is based on a randomized but non-representative sample of 30 UPs and CCs.
[15] World Bank, 2010b.

Map 1: Population Density (2011)

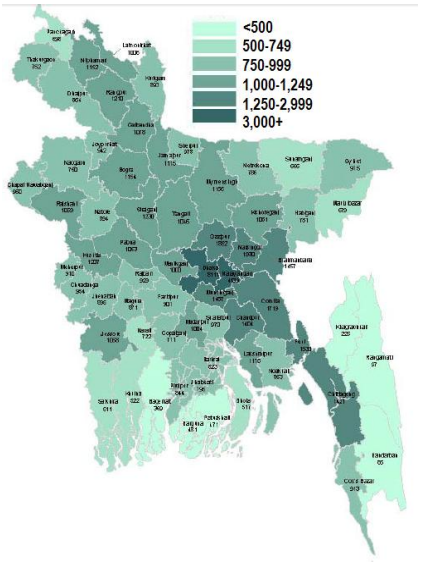
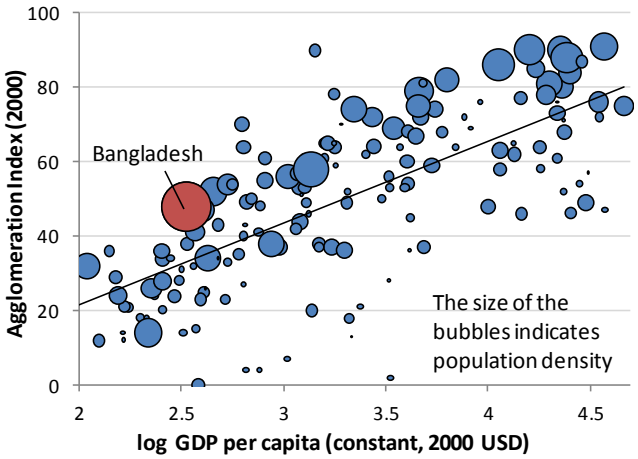


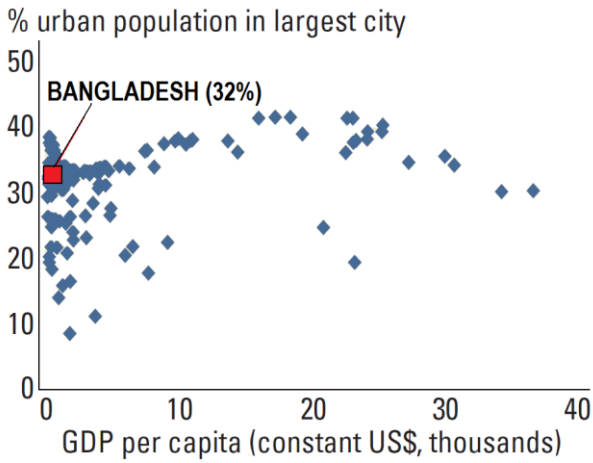
Figure 5.5: Population Density, Urbanization and GDP (2000)



Sources: BBS (2011), World Bank (2009) and WDI. Note: City states and small islands excluded. Urbanization proxied by Agglomeration Index to enable valid cross-country comparability.[16]

5.31 **Dhaka's and Chittagong's outputs dominate Bangladesh's economic landscape…** Agglomeration forces have led to concentration of economic production in Dhaka metro and Chittagong city.[18] About 9 percent of the Bangladesh population lives in the Dhaka metropolitan area, which contributes to 36 percent of the country's GDP. An additional 11 percent of the Bangladesh GDP is generated by Chittagong city, the second largest city and home to 3 percent of the Bangladesh population.[19] Formal employment density is as high as 4,000 employees per km^2 in Dhaka city. The gap between Dhaka and Chittagong cities has slightly reduced over time. Chittagong city, whose employment density was only half of Dhaka's density in 2001, has begun to catch up with Dhaka city, with an average formal employment density of 2,800 employees per km^2.

Figure 5.6: Urban Primacy and GDP Per Capita, Selected Countries [17]



Source: World Bank (2009).

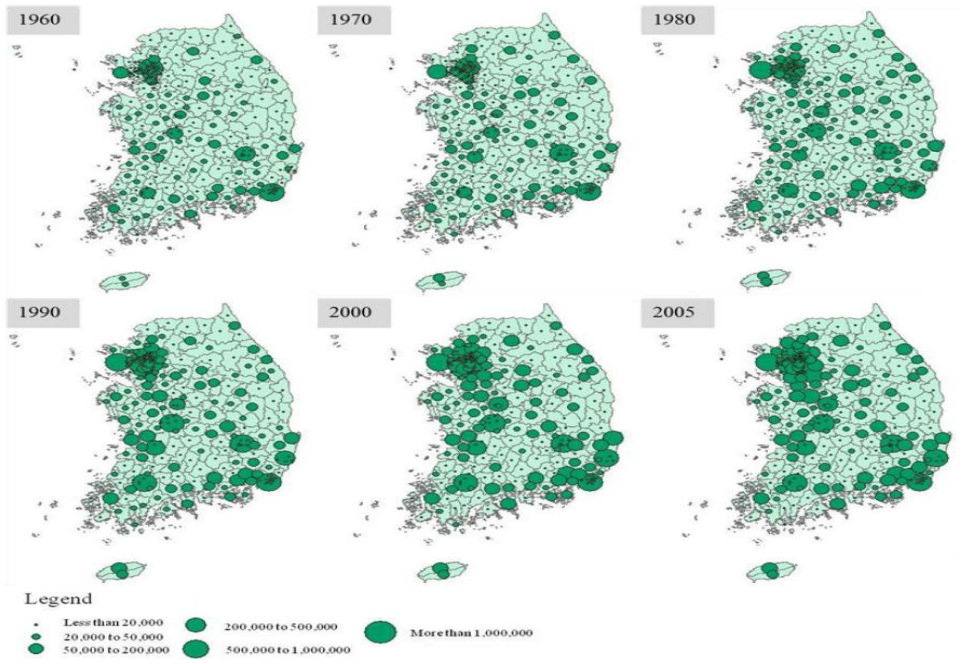
[16] The Agglomeration Index classifies as urban areas localities that satisfy three criteria: (i) minimum population size (50,000), (ii) minimum population density (150 per km^2), and (iii) maximum travel time, by road, to the closest sizeable settlement (60 min.). See World Bank, 2009.

[17] Year varies by country, ranging from late 1990's to 2000's.

[18] Dhaka metro includes Dhaka city and the peri-urban areas.

[19] Dhaka metro and Chittagong city GDPs were estimated to be US$78 million and US$24 million in 2008. The real GDP growth rate for 2008-2025 is forecast at 6.5 percent per annum for Dhaka metro and 6.3 percent per annum for Chittagong metro (PricewaterhouseCoopers, 2009).

Figure 5.7: South Korea's Concentration of Urban Population (1960-2005)



Source: World Bank (2011a).

On the other hand, the gap between Dhaka and Chittagong cities and the second-tier city corporations is widening. Secondary city corporations' employment density has increased only modestly over 2001-2009, and is now only one-fourth of the density of Chittagong city (Table 5.1). Economic concentration in Bangladesh, measured as the gross product in densest area as a percent of country's total GDP, is slightly above the level expected for countries at similar level of economic development (Figure 5.8).

5.32 **…but overall economic density is relatively low**. From a regional perspective, Bangladesh's tallest peak almost vanishes. Dhaka metropolitan area is one of the largest megacities in the world, with an estimated population of about 13 million, surpassed only by Kolkata. Mumbai and Delhi metropolitan areas in South Asia. However, Dhaka metro's annual output falls short of what would be expected for a metro area of a comparable population density (Figure 5.9). From a regional perspective, Bangladesh's tallest peak with an economic density of US$55 million per square kilometer looks like a hill when compared to the Asia's economic peaks, like Bangkok (US$88 million per km^2) and Singapore (US$269 million per km^2). Map 3 shows a view of South Asia at night, with higher concentrations of light indicating higher energy use and stronger economic production in relief. Dhaka metro barely registers in the map. Since outputs and economic density are a proxy for productivity and city competitiveness, the regional perspective shows that Dhaka has still a long way to go to fully exploit the benefits of agglomeration economies (Figure 5.9 and Map 2 and Map 3).

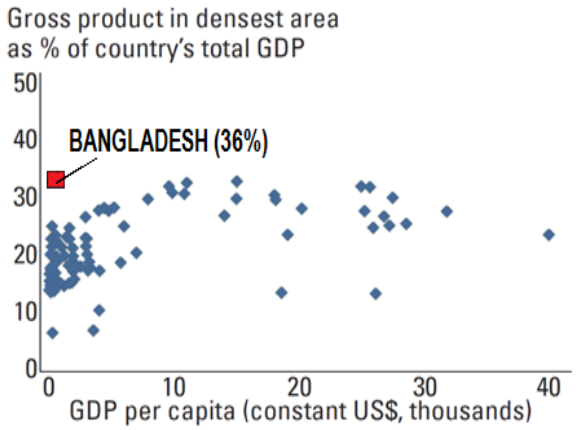
Table 5.1: Employment Density (Formal, 10+), 2001-2009 (Workers/km^2)

	2001	2009
Dhaka Metro	764	940
Dhaka CC	3,242	4,241
Chittagong Metro	408	756
Chittagong CC	1,649	2,835
Secondary CCs	618	712

Source: Economic Census data.
CC = City Corporations

5.33 **Bangladesh's manufacturing sector specializes in export-oriented, low value-added garment production...** The garment share of manufacturing employment has increased, from 44 percent to 51 percent, over 2001-2009 (Box 5.2). Garment production accounts for about half (51 percent) of formal manufacturing employment,[20] and almost four-fifths of total Bangladesh's export earnings.[21] Ready-made (woven) garments and knitwear are the two main product lines, accounting for 79 and 21 percent of formal garment employment. Concentration of industrial production and exports earning is not unusual for low income countries, and Bangladesh's export sophistication is in line with its economic development (Figure 5.10 and Figure 5.11). The Herfindahl-Hirschmann Index (HHI) of export concentration for Bangladesh is below 0.1 while the average for low-income countries is 0.3. However, MIC countries are more diversified and produce more sophisticated products. In Bangladesh, the value-added component of each garment piece is especially low for readymade (woven) garments where the bulk of the inputs are imported. For instance, in 2005 the unit value of Bangladesh's exports to the European Union was 7.8 euros per kg, compared to 11.0 and 15.5 euros per kg for China and Sri Lanka.[22]

Figure 5.8: Economic Concentration, Cross-Country Evidence, late 1990s and 2000s

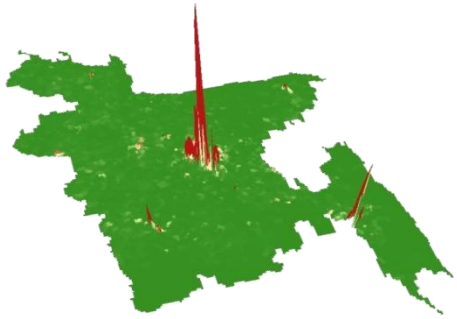
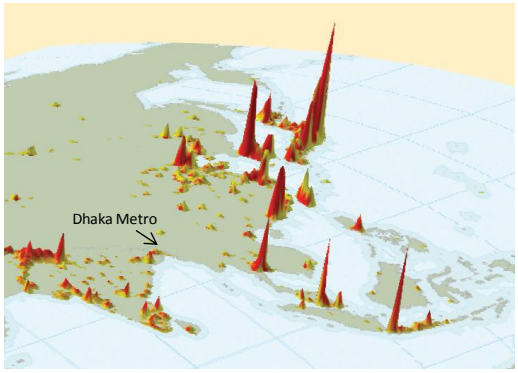


Source: World Bank, 2009, and PricewaterhouseCoopers, 2009.

5.34 **…and the garment sector has thrived in Dhaka and Chittagong's labor-abundant urban agglomerations**. The garment industry is concentrated in Dhaka metro and Chittagong city, and both urban agglomerations are highly specialized in garment production. Garment accounts for half of total formal employment in Dhaka city, 65 percent of formal non-farm jobs in peri-urban areas, and 67 percent of jobs in Chittagong city. While concentration of industrial production in the largest cities is common at the initial stages of the urban transition, as a country's urban structure matures, the largest cities become more diversified. In Brazil, for example, middle-size cities tend to be fairly specialized (in food and beverage production, textiles, shoes, or pulp and paper products), while bigger cities have a more diverse industrial base and specialize in high-tech and complex business services requiring an educated, highly skilled workforce.[23]

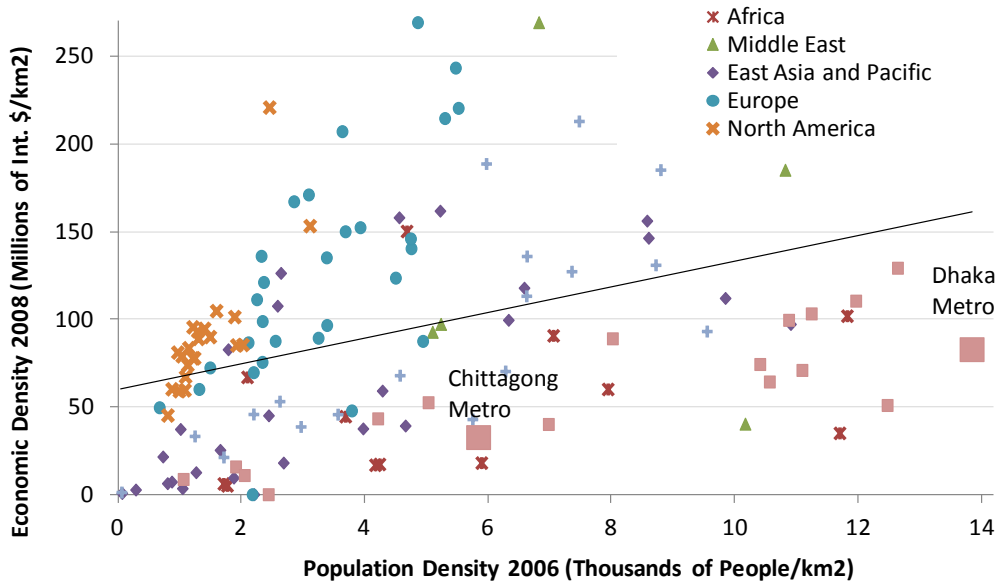
5.35 **Garment production, while still concentrated in the Dhaka city, is sprawling to less densely populated peri-urban areas**. Now, only 30 percent of garment jobs are located in Dhaka city, compared to more than half of total jobs in 2001. Factories located in Dhaka peri-urban areas employ 38 percent of total garment workers, compared to only 20 percent in 2001. A garment cluster is emerging at a distance of about 15 km from Dhaka core center. This cluster experienced an extraordinary increase in employment in only three years, from 175 to 356 employees per km^2 (Figure 5.12). Garment employment has also started sprawling outside the boundaries of the Dhaka metropolitan area—in two *pourashavas* adjacent to Dhaka metro, Sreepur and to a lesser extent Kaliakair (Map 2).

[20] 2009 data. Statistics refer to 10+ employment.
[21] The textile sector is the second-largest source of manufacturing employment (24 percent of formal employment), followed by agri-processing (9 percent).
[22] World Bank, 2011d.
[23] Da Mata et al., 2005.

Map 2: Bangladesh's Economic Density (2009)	Map 3: Asia at Night: Economic Density Proxied by Light Emission Data
	
Source: Economic Census, 2009.	Source: Florida, 2005.

5.36 **A Dhaka metro region is emerging as garment employment peri-urbanizes…** In spite of the growing economic functions of peri-urban areas, there is no coordination mechanism to ensure integrated planning and management, provision of services, and real estate development at the metropolitan level. For the purpose of the study, the Dhaka metropolitan area is defined based on the boundaries of the Statistical Metropolitan Area (SMA) set by the Bangladesh Bureau of Statistics (BBS). From a politico-administrative perspective, Dhaka SMA's peri-urban areas include both urban local governments—peri-urban (urban)—and rural local governments—peri-urban (rural). Evidence based on recent employment patterns suggests that the economic boundaries of the Dhaka metropolitan area are expanding beyond the Dhaka metropolitan area, as defined by BBS, and a greater Dhaka metro region is emerging.

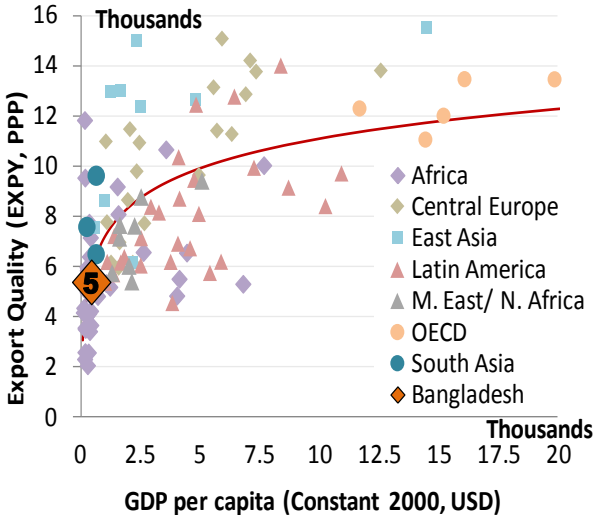
Figure 5.9: Population Density vs. Economic Density of Urban Agglomerations (2006)



Notes: Output is measured in constant 2008 international $, PPP method. Source: PricewaterhouseCoopers, 2009, and UN World Urbanization Prospects.

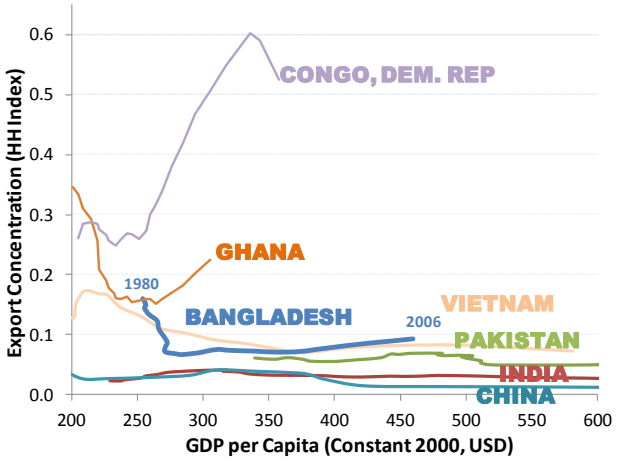
5.37 **…in line with the international experience from fast-urbanizing countries like Brazil, Indonesia and South Korea** (Box 5.3). As urbanization advances, the cost of carrying on industrial production in core urban areas increases, from land rent to labor. In parallel, improvements in connective infrastructure induce a reduction in transport costs. As a result, urban factories and workshops are overshadowed by services and move to peri-urban areas, where they can still benefit from proximity to markets while taking advantages of lower production costs. International experience shows that peri-urbanization continues as a country reaches MIC status or higher. In Korea, manufacturing activities agglomerated over 1960-85, but de-concentrated as the country become more developed over 1980-06 (Figure 5.13).

Figure 5.10: Export Sophistication & GDP per capita (2006)



Source: Hausmann Hwang and Rodrik, 2005.[24]

Figure 5.11: Export Concentration (1980-06)



Source: World Bank's Economic Diversification Toolkit.[25]

[24] Following Hausmann, Hwang and Rodrik (2005), an index called PRODY is constructed. This index is a weighted average of the per capita GDPs of countries exporting a given product, and thus represents the income level associated with that product, while the weights correspond to the revealed comparative advantage of each country in the given product. Let countries be indexed by j and goods be indexed by l. Total exports of country j is equal to $X_j = \sum_l x_{jl}$. Let the per-capita GDP of country j be denoted Yj. Then the productivity level associated with product k, $PRODY_k$, equals $PRODY_k = \sum_j \frac{x_{jk}/X_j}{\sum_j (x_{jk}/X_j)} Y_j$. The numerator of the weight, x_{jk}/X_j, is the value-share of the commodity in the country's overall export basket. The denominator of the weight, $\sum_j (x_{jk}/X_j)$, aggregates the value-shares across all countries exporting the good. Finally, the Export Sophistication associated with a country's export basket, $EXPY_i$, is in turn defined by $EXPY_i = \sum_l (x_{il}/X_i)\, PRODY_l$, which is a weighted average of the PRODY for that country, where the weights are the value shares of the products in the country's total exports.

[25] The Herfindahl-Hirschmann Index (HHI) is calculated by taking the square of export value shares of all export categories in the market ($HHI = \sum_i^n S_i^2$). This index gives greater weight to the larger export categories and reaches a value of unity when the country exports only one commodity or service (highest concentration).

Box 5.2: The Garment Industry: From Humble Beginning to Global Success Story

When Bangladesh came into being as a nation, jute and tea were the most export-oriented industries in the country. Jute was Bangladesh's main export for decades—during the 1950s and the 1960s, almost 80 percent of the world's jute was produced in Bangladesh. However, from the 1970s, the global jute industry faced a long period of decline as a result of the development of synthetic substitutes. With the loss of many jobs in the jute sector, the government of Bangladesh took steps to establish a more liberalized environment for trade and investment. The garment sector offered an opportunity for large-scale job creation.

Bangladesh's global competitive presence in the garment industry was helped by a set of fortuitous events that followed the creation of the Multi-Fiber Agreement (MFA) in 1973 by the General Agreement on Tariffs and Trade (GATT). The MFA set bilaterally negotiated quotas on developing countries for textiles and clothing exports. As a concession, the MFA did not set quotas on least developed countries that had no garment employment at that time, including Bangladesh. In essence, the MFA created quota rents for quota-free countries, allowing them to export even thought its costs of production were initially higher than its competitors.

As suppliers started relocating to quota-free countries, the first garment firm was established in Bangladesh. By the mid '70s, established suppliers of garments in the world markets—i.e., Hong Kong, South Korea, Singapore, Taiwan, Thailand, Malaysia, Indonesia, Sri Lanka and India—were severely constrained by the quota and, to maintain their competitiveness in the world market, they followed a strategy of relocation of garment factories in quota-free countries. They found Bangladesh as one of the most suitable countries. Desh Garment located in Chittagong was the first biggest garment factory established in Bangladesh in 1977, as a joint venture with the South Korean multinational Daewoo. This was the humble beginning of a global success story. The learning-by-doing that the quota rents allowed, combined with the abundance of low-cost labor force, the emergence of a potential investor class in Bangladesh and a number of investor friendly government interventions, were the main agents of changes that allowed the garment sector to gain a quick foothold in the international markets and to stand its ground even after the quota system was removed.

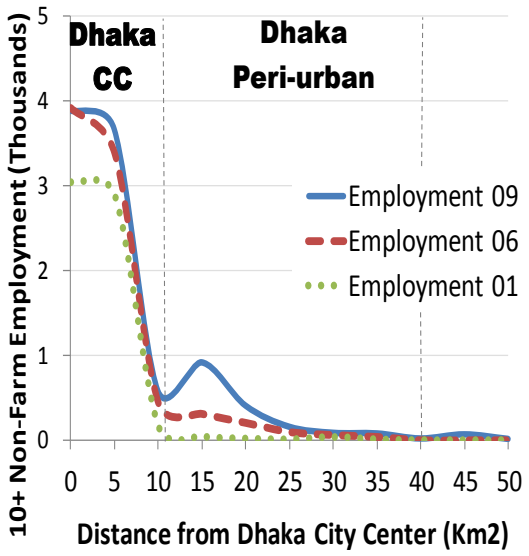
The garment sector is now the prime mover of Bangladesh's socio-economic development, and a symbol of Bangladesh's dynamism in the world economy. The garment sector has continued to grow after the end of the MFA in 2005, and now accounts for almost four fifth of total Bangladesh's export earnings. Almost 2.5 million people, 90 percent of them women, are employed in the readymade (woven) garment sector alone, while a large number of people are involved in various ancillary and support services to this sector. Yet, the garment sector faces a host of new challenges to stay competitive in the current evolving global economy: improving the productivity of its workforce, increasing its value addition through backward integration, diversifying its product mix and expanding to new export markets are among the priorities for future planning.

Sources: Khan, 2010. Uddin et al., 2007.

5.38 **The pace of urban growth has stretched infrastructure to its limit.** Bangladesh's cities are characterized by poor infrastructure and low level of services. Dhaka is among the 10 bottom-ranked large cities in the world for the provision of services, including infrastructure, healthcare, education culture and environment, according to the EIU annual ranking for 140 cities worldwide.[26] The city has a significant infrastructure gap vis-à-vis cities in low income countries, across all sectors with the exception of water supply, and about half of its population lives in slums (Figure 5.14 and Figure 5.15). The other cities also face severe challenges in this regard. Only 11 percent of solid waste management is collected in Chittagong city, compared to about 56 percent in Dhaka metro. *Pourashavas* have relatively good health coverage, but virtually no solid waste collection, and very low access to piped water supply (14 percent).

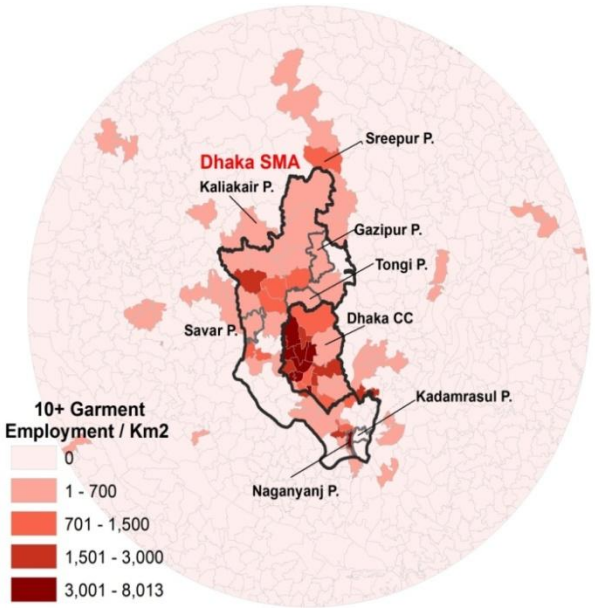
[26]. For qualitative indicators, a rating is awarded based on the judgment of in-house analysts and in-city contributors. For quantitative indicators, a rating is calculated based on the relative performance of a number of external data points. The scores are then compiled and weighted to provide a score of 1–100, where 1 is considered intolerable and 100 is considered ideal.

Map 4: Gradient of Formal Garment Employment (2001-09) – Dhaka metro



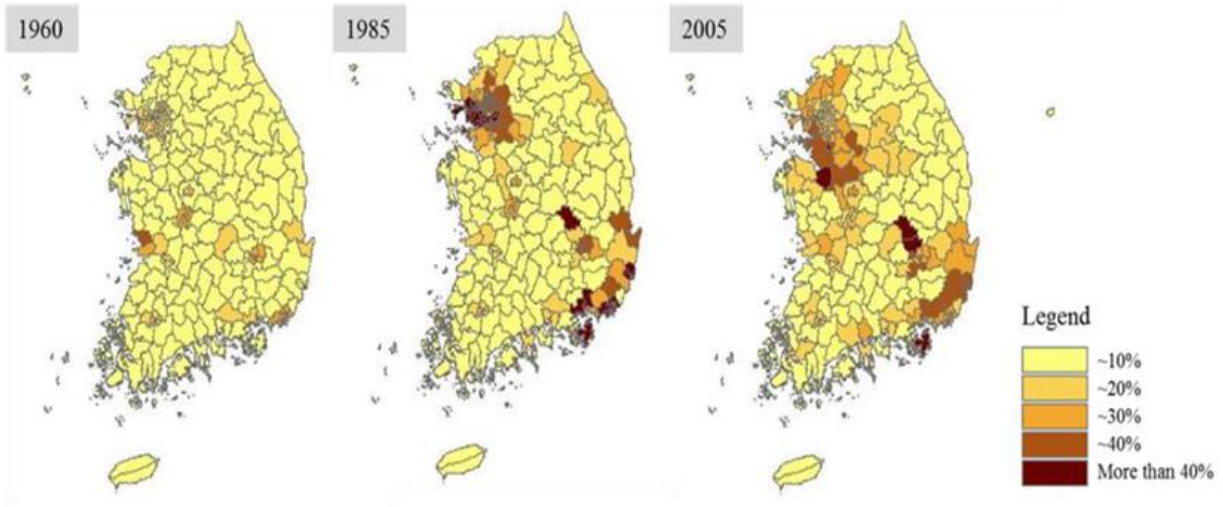
Source: Economic Census 2009.

Figure 5.12: Dhaka Metro Garment Employment Density (2009)



Source: Economic Census 2009.

Figure 5.13: South Korea's Spatial Evolution of Manufacturing Activities (1960-2005)



Note: Change of manufacturing employment share, at city-county level, 1960, 1985, 2005

Source: World Bank, 2011a.

Box 5.3: Manufacturing De-concentration: The Brazilian and Indonesian Experiences

As urbanization increases, manufacturing employment tends to de-concentrate out of core urban centers to peri-urban areas. "As the urban system develops, typically manufacturing decentralizes out of the biggest cities first into their suburbs and nearby ex-urban transport corridors and then into smaller cities, with their lower cost of living, lower wages, and lower rents."[27] There is substantial evidence that many developing countries are experiencing manufacturing decentralization from the biggest cities to peri-urban areas. However, further levels of decentralization, towards secondary cities, are still quite uncommon in developing countries.

Suburbanization of manufacturing has characterized Brazil's industrialization process from 1970-2000. In those 30 years, as cities grew larger, Brazil experienced manufacturing decentralization, with manufacturing moving away from the core urban areas towards the suburbs. The share of manufacturing production located in the core urban areas, relative to the total manufacturing industry employment in the urban areas, decreased from 64 percent in 1970 to 47 percent in 2000. The suburbanization of the Brazilian service industry shows a similar pattern to that of manufacturing, although to a lesser extent. By 2000 the service industry was still more concentrated in core urban areas (66 percent) than in peri-urban areas (55 percent), and suburbanization is most evident in the largest cities.

In Indonesia, manufacturing employment has de-concentrated from central Jakarta to adjacent districts. Indonesian economic census data for 1975 and 2001 suggest that despite congestion and high factor prices, Jakarta (with more 13 million people) continues to attract residents and businesses.[28] However, Indonesia also experienced de-concentration of manufacturing employment from Jakarta's core city to the outlying region, called Jabotabek, a composite name derived from the capital and its surrounding cities and districts. Jakarta city lost much of its garment sector, with its share of the entire industry falling from a high of 25 percent in the 1980s to about 5 percent by 2000. De-concentration coincided with an increase in the share of garment establishments in Jabotabek and neighboring areas, probably as a result of the establishment of new rather than relocated firms. The strongest increase in the share of the garment sector was registered in neighboring cities with at least 1 million residents. Similar patterns are also noticeable in other large industries, such as chemicals, rubber, and plastics, and more modern manufacturing sectors such as machinery and equipment.

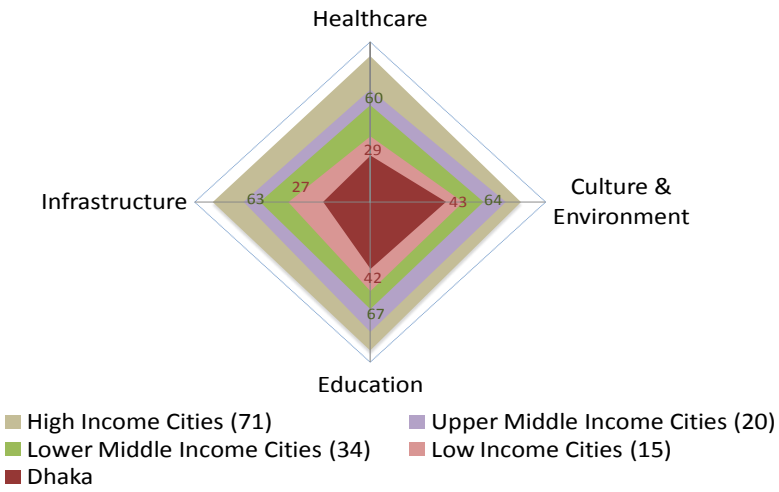
Connective infrastructure facilitated de-concentration of manufacturing. The suburbanization of manufacturing production from the core of Jakarta to peri-urban areas was facilitated by the construction of toll-ring roads around the city, which allowed firms to retain most of the agglomeration benefits of the region while avoiding the rising production costs associated with congestion and higher land rents. Aggregate transport costs per unit of sales revenue dropped, because a larger market could be accessed by a better road network.

In both Brazil and Indonesia de-concentration has not led to relocation of economic activities to secondary cities. Instead, firms relocated to districts close to major markets and export or transport hubs in order to continue benefitting from agglomeration economies and reducing production costs. Only manufacturing sectors that are closely tied to the natural resource base maintained relatively high establishment shares in the districts neighboring small cities and far from urban centers. These include tobacco, wood products including furniture, and to a lesser extent, food processing.

Source: Da Mata et. al., 2005 and Henderson et. al., 1996.

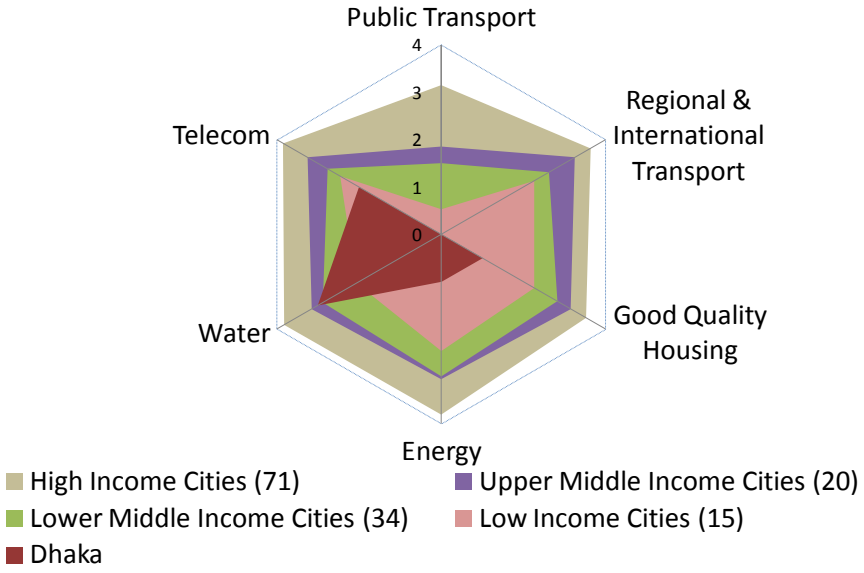
[27] Henderson et al., 1996.
[28] The census covers establishments with at least 20 employees.

Figure 5.14: Dhaka's Access to Services and Amenities International Benchmarking (2010)



Rating from 1 (lowest) to 100 (highest). Source: EIU (2010).

Figure 5.15: Dhaka's Access to Infrastructure International Benchmarking (2010)



Rating from 0 to 4. 0 = Intolerable; 1= Undesirable ; 2 = Uncomfortable; 3 = Tolerable; 4= Acceptable. Source: EIU, 2010.

5.39 **Although declining, the welfare divide between the east and the west persists**. Bangladesh's intricate river system is a barrier to regional integration. The road network is sufficiently widespread to connect major urban centers. The main transport network within Bangladesh is the Dhaka-Chittagong corridor. The corridor is served by three modes of transportation—road, rail, and inland waterways—which together carry about 20 million tons of freight annually.[29] There are major bridge crossings over the Brahmaputra (or Jamuna) and Ganges river. The bridge over the Jamuna River has contributed to open market access in the Rajshahi Division in the north-west region, and better market access has encouraged farmers to diversify into high-value crops. There are however parts of Bangladesh that are not integrated with the rest of the country. In particular, the south-west region is cut off from the Dhaka and Chittagong growth poles by the Padma River. Transit across the Padma river still relies on ferries, significantly increasing travel time to Dhaka.

5.40 **The benefits of agglomeration economies have not spread equally across the country, leading to an unbalanced geography of living standards.** Bangladesh has increased its real per capita income by more than 130 percent and cut the poverty rate by 60 percent over the past 40 years. Poverty incidence, which was as high as 57 percent at the beginning of the 1990s, had declined to 49 percent in 2000, 40 percent in 2005 and about 30 percent in 2010.[30] The difference in living standards between Dhaka and the rest of the country that persisted through the 1990s has evolved into a regional East-West divide. The poverty incidence in the Eastern part of the country fell from 46 to 33 percent over the period 2000-2005, and declined to 29 percent in 2010. However, in the South-West part of the country poverty reduction gains were nonexistent over 2000-2005. Similarly, in the North-West poverty reduction gains were very significantly smaller than in the East over 2000-05. However, preliminary poverty estimates for the year 2010 suggests a decline in poverty in the West region from 53 to 35 percent over 2005-2010, and a significant reduction in the welfare divide.[31] Thick pockets of poverty are also found in the proximity of economic density—almost 40 percent of the population of Dhaka metro is estimated to live in slums (Figure 5.16 and Map 5).[32]

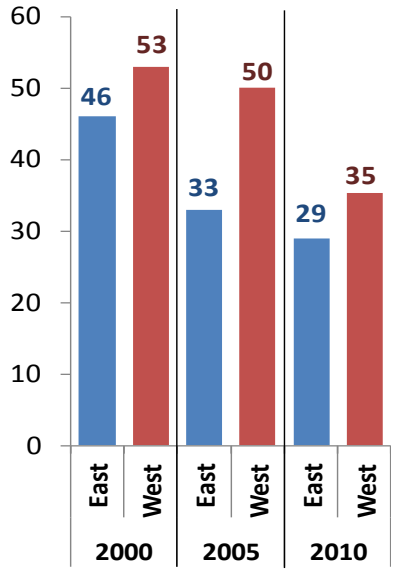
5.41 **Regional disparities in welfare are common in both low- and middle-income countries, but can be bridged with connective infrastructure and investments in human capital combined.** International evidence indicates that, in the early stages of economic development, geographic disparities in welfare (income, poverty and living standards) are large and widening. In US and European countries, spatial inequality rose and remained high before slowly declining as economies approached US$10,000 in GDP per capita. Based on the leading and lagging regions' welfare measures developed for the World Development Report 2009, Bangladesh's welfare gap is only slightly above the average gap for low-income countries over the period 1995-2006. Since poverty estimates for the year 2010 points to a decline in welfare over 2005-10, international comparison may over-estimate the welfare gap in today's Bangladesh (Figure 5.17 and Figure 5.18). Investing in connective infrastructure can help expand opportunities in lagging regions and reduce disparities in living standards. Map 6 to Map **8** show a simulated impact of the construction of the Padma Bridge. The benefits of connectivity between the South-west and the rest of the country that would result from the construction of the Padma Bridge, are expected to be significant, and will enhance access to markets. Whether enhanced connectivity will lead to industrialization of the South-west, and improvement in living standards, will however depend on local socio-economic conditions. A review of global experience suggests that improved market access contributes the most to regional economic development when it is accompanied by investments in human capital and innovation. The south-west region, with higher than average primary and secondary enrollment rates, is therefore well placed to capitalize on the economic benefits of enhanced connectivity.

[29] Asian Development Bank, 2004.
[30] World Bank, 2008b.
[31] BBS, 2011b.
[32] NIPORT, MEASURE Evaluation, ICDDR, B and ACPR, 2006.

Box 5.4 presents examples of lagging region policies based on lessons learnt from international experience.

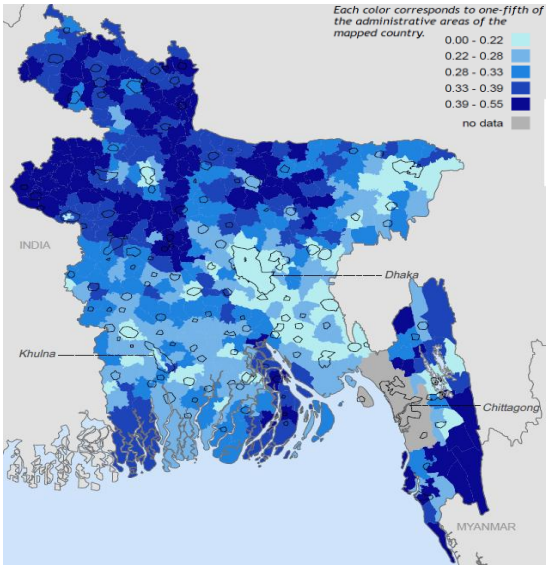
Figure 5.16: Regional Poverty Incidence

(2000-10)



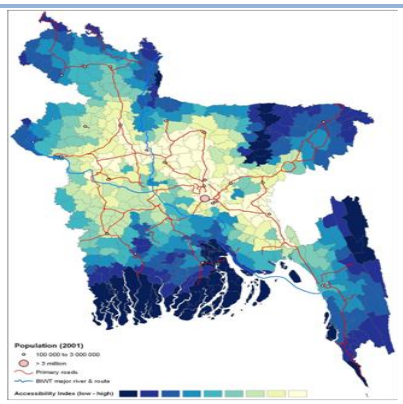
Source: World Bank, 2008b and 2010 preliminary poverty estimate

Map 5: Bangladesh's Poverty Incidence (2005)

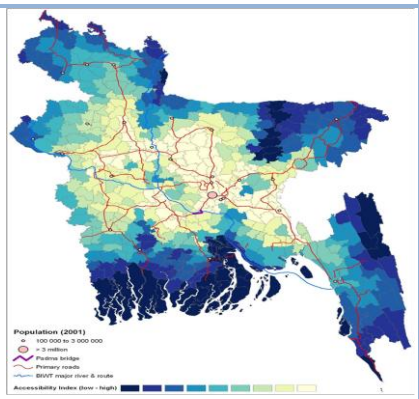


Source: Center for International Earth Science Information Network

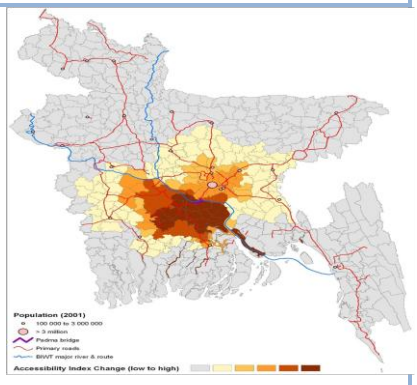
Map 6: Accessibility Map Current Scenario



Map 7: Accessibility Map Padma Bridge Scenario

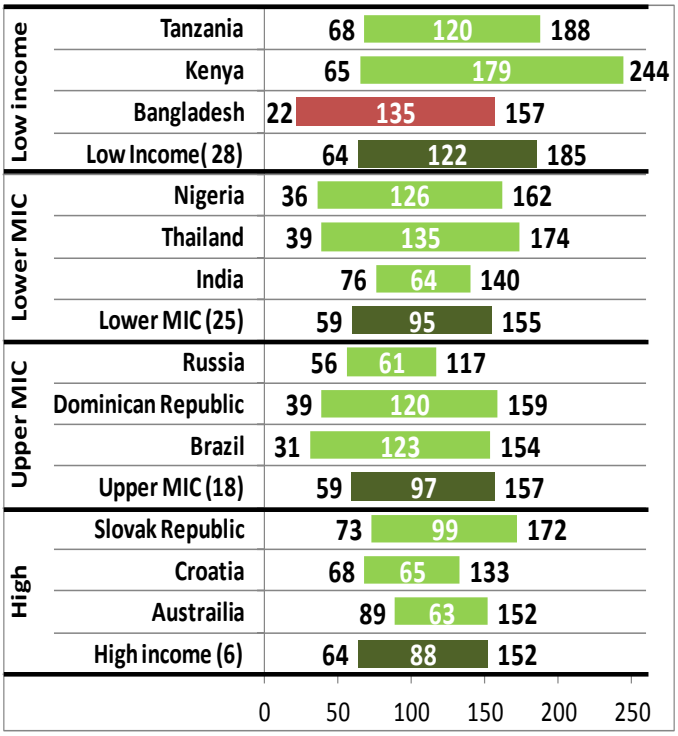


Map 8: Change in Accessibility



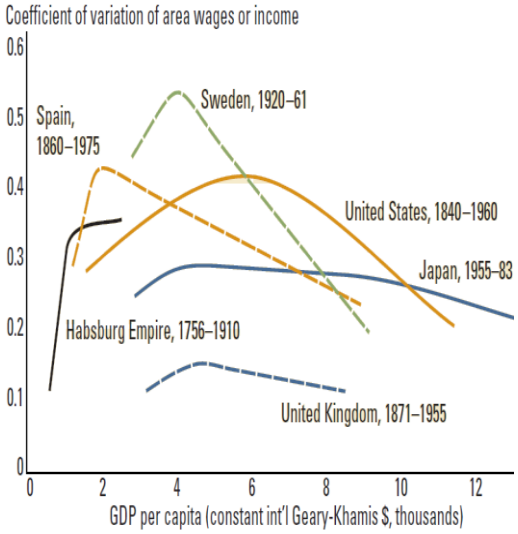
Source: Blankespoor, 2010

Figure 5.17: Regional Welfare Gap (1995-2006)



Source: World Bank, 2009. Area's welfare measure (income, consumption of GDP, as a percent of country's average welfare measure.

Figure 5.18: Regional Inequality, Historic Trends



Source: World Bank, 2009

Envisioning the Future: A Competitive Urban Space for Growth

5.42 **Bangladesh needs a highly competitive urban space to accelerate growth**. High population density commands equally high economic density (GDP or value added per square km^2) for economic growth. Given Bangladesh's high population density, it needs to significantly increase its economic density to reach MIC status. Only highly competitive urban areas can sustain such a high level of economic density. While there is an extensive literature on the factors affecting competitiveness, this study defines a competitive urban space as an environment capable to attract and retain mobile production factors—capital and a skilled workforce. Empirical evidence suggests that urban competitiveness in a global economy is measured by a city's capacity to innovate, its livability and internal and external connectivity as cities with a livable and high-quality environment, high innovation levels, and internally and globally connected are attractive location for firms and workers alike (Box 5.5).

5.43 **As the country's growth engine, Dhaka metro region is Bangladesh's main asset with which to reach MIC status**. Bangladesh needs a globally competitive Dhaka metro region to reach MIC status. While specialization in low-value-added garment products has served the country well, Dhaka needs a more diversified and higher value added economic base to increase its competitiveness in a global economy. Although the garment sector has grown by exploiting within-industry knowledge spillover—hundreds of firms were founded by people initially employed by one joint venture with a Korean firm,[33] empirical evidence suggests that city diversity and knowledge spillovers *across* industries, rather than

[33] International evidence indicates that within-industry knowledge spillovers are important for growth at an early stage of industry development, but less so as industries mature. Glaeser et al. (1992).

within them, matter for long-term growth.[34] International evidence shows that city diversity promotes innovation into higher-value-added products as knowledge spills over industries—specialized industrial cities such as Manchester and Detroit eventually declined, while broadly diversified cities such as New York eventually flourished.

5.44 **High- and middle-income countries are more urbanized, and their urban areas have higher economic densities, than low-income countries**. International experience suggests that economic density and urbanization are highly correlated with a country's GDP**,** and Bangladesh will have to follow same path as it transitions to MIC status. Figure 5.19 depicts the cross-country correlation between urbanization, urban economic density and GDP. To ensure comparability across countries, urbanization is proxied by a globally comparable geography-based measure, defined as the percentage of population living in urban extents identified based on satellite image of night-time lights.[35] The output of urban areas is proxied by non-farm (manufacturing and services) GDP.

Box 5.4: Help Poor People, not Poor Places

Countries often resort to spatially targeted policies to encourage firms to move to lagging regions. Fiscal incentives, transfers, and direct expenditures in the form of industrial serviced land and infrastructure are among the most widely adopted interventions to accelerate industrialization in backward regions. Special economic zones are often located in lagging regions as an instrument for regional development policy. However, interventions that attempt to "move jobs to people" are seldom successful in overriding the powerful agglomeration forces that "move people to jobs" and promote concentration of economic production. Bangladesh's EPZ program is a case in point (Box 9).

Yet, governments have a variety of effective policy options available to improve welfare in lagging regions. Governments can raise living standards in lagging regions without distorting market forces by investing in people, in particular in portable assets like health and education, and creating a level playing field for development. This will also involve removing disadvantages in the local investment climate, by providing adequate access to services and infrastructure. While investing in people and creating a level playing field should be the foundation of any lagging region strategy, governments can also expand opportunities in backward areas located near agglomerations by improving connectivity. Finally, when there is evidence of unrealized economic potential in lagging regions, government can play a more active role by coordinating private and public actors around emerging clusters and help lagging regions capitalize on natural competitive advantages.

Empirical evidence suggests that expanding market access through spatially connective policies, when combined with adequate investments in human capital and innovation, can increase the returns on education and unlock the natural competitive advantage of a lagging region. On the other hand, improving market access may de-industrialize backward regions when improvements in connectivity are not supported by adequate human capital and innovation (OECD 2009). In Italy, for example, regional interventions in the 1950s focused on increasing connectivity between the north and south of the country to stimulate economic activities in the South (the Mezzogiorno), the lagging south of Italy. The policies did not achieve the desired objectives. On the contrary, they deprived Southern firms of their previous protection and accelerated their deindustrialization (Faini 1983).

Expanding opportunities in the lagging south-western part of Bangladesh will require both investments in connectivity and human capital. The Khulna and Barisal divisions, in spite of being the poorest regions in Bangladesh[36], have higher primary enrollments rates among both boys and girls than Dhaka, Chittagong and Sylhet divisions. Khulna also has the highest enrolment rates at both primary and secondary level. The barriers to connectivity may explain in part why the important education achievements have not translated into poverty reduction outcomes. The opening up of market access which will result from the construction of the Padma Bridge can therefore go a long way to enhance the returns on education and expand opportunities in the south-west region.

Sources: World Bank, 2010; Faini, 1983.

[34] Jacobs, 1969; Glaeser et al., 1992.

[35] Estimates based on data from the Global Rural Urban Mapping Project (GRUMP) at the Center for International Earth Science Information Network (CIESIN), Colombia University. The GRUMP human settlements database is a global database of cities and towns of 1,000 persons or more. GRUMP provides a common geo-referenced framework of urban and rural areas by combining census data with satellite data based on the National Oceanic Atmospheric Administration (NOAA)'s night-time lights data.

[36] Based on 2005 poverty estimates, World Bank, 2008b.

Table 5.2: Bangladesh's Urban Space: Distinct Features from an International Perspective

Urban Characteristics	Evidence	Benchmarking
Rapid urbanization accompanied by strong economic growth.	Bangladesh is one of the fastest urbanizing countries in South Asia, and urbanization accompanied growth since the '80s	**Typical** – Urbanization in line with level of economic development
High population density,	Country-wide population density is about 900 people per km^2. Urban population density of 1,800 people per km^2 based on 2011 preliminary census data.	**Outlier** –The highest population density in the world (excluding city states and small islands).
Dhaka's population primacy	Dhaka metro is one of the 20 largest megacities in the world, and a primate city, with 3 times Chittagong metro's population.	**Typical** – as countries urbanize, they experience higher level of demographic concentration. The relevant policy question is how to effectively manage a primate city of the proportion of Dhaka.
Economic concentration in Dhaka and Chittagong	Dhaka metro accounts for 9 percent of Bangladesh's population, against 36 percent of GDP.	**Typical, but with important implications for the urban growth agenda**–economic activities agglomerate as a country develops.
Dhaka and Chittagong's specialization in low-value added garment production	Dhaka and Chittagong have a highly specialized industrial and export base in low value added garment production.	**Typical but a constraint** – countries do not reach MIC status until they diversify & increase export product sophistication
Emergence of Dhaka metro region as garment production peri-urbanizes.	Garment employment density is increasing fast in Dhaka peri-urban areas.	**Typical** – as manufacturing activities mature they sprawl to peri-urban areas. The relevant policy question is how to manage peri-urbanization.
Poor urban infrastructure, services and lack of amenities.	Bangladesh's cities are characterized by low level of services and lack of amenities.	**Outlier** – Dhaka City is among the bottom 10 cities in the world for provision of services and amenities.
Regional welfare disparities	The East-West welfare divide remains, although it is declining.	**Typical** – welfare disparities rise with income before they start to level off

Box 5.5: What is City Competitiveness and What Drives It?

City competitiveness is a dynamic concept, describing a city's comparative advantage in attracting mobile production factors and its ability to leverage these advantages to sustain growth in a fast-changing global environment. In line with the recent literature, this study defines competitiveness as a city's comparative advantage in attracting and retaining mobile production factors—capital and a skilled workforce. While city competitiveness can be measured at any given time by productivity and GDP per capita, it is a dynamic concept as it emphasizes the need for cities to leverage their comparative advantages to constantly transform themselves, innovate and adapt to a fast changing environment in a global economy to sustain growth and improve living standards.

Innovation, livability and connectivity are three important determinants of urban competitiveness in a global economy. The study focuses on urban-specific competitiveness, i.e. the localized assets shaping the urban space, rather than the national and international determinants of competitiveness. While there is an extensive literature on the factors affecting competitiveness, this study focuses on three main drivers of competitiveness – innovating, livability and connectivity. Empirical evidence suggests those cities with high innovation levels, a livable and high-quality environment, and internally and globally connected are more economically successful, as they are attractive location for firms and workers.

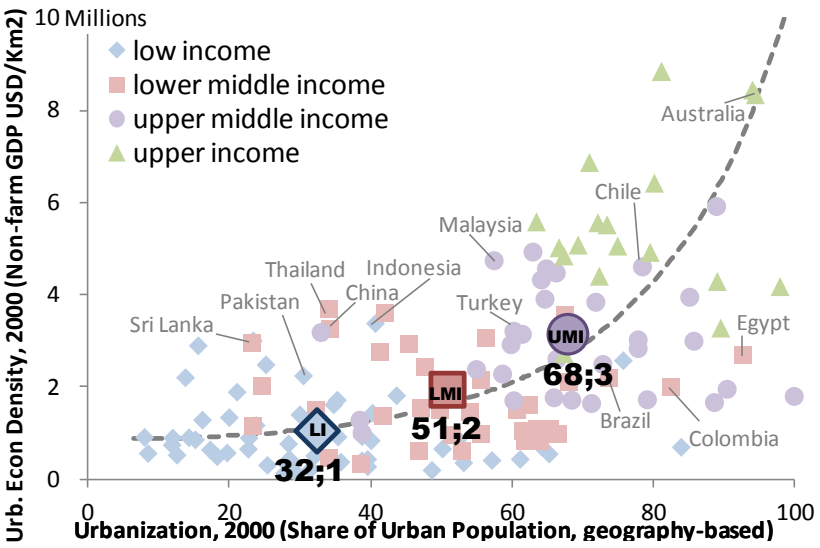
Innovation. Innovation emerges through market forces, and the knowledge spillovers that foster innovation are easier to capture within the urban space. More than 81 percent of OECD patents—an important indicator of innovation activities—are filed by applicants located in urban regions. The economic exploitation of innovative knowledge depends not only on the skill mix of the local workforce but also on the knowledge exchanges among universities, research centers and the business communities. Cities have a role to play in identifying educational needs, providing incentives to meet them and brokering exchanges between universities and the business community. Skill upgrading and knowledge exchanges are important for nurturing the competitiveness of existing specialized clusters but also for facilitating new business growth and product development. Metropolitan areas have a comparative advantage in innovation. In France and the United Kingdom, Paris and London account for more than 40 percent of the countries' total patent applications.

Livability. A livable city is a competitive city, especially in a fast-changing global economy characterized by increasing mobility of human resources. There is no trade-off between economic dynamism and livability. On the contrary, international evidence indicates a strong association between economically vibrant metropolitan areas and a high-quality environment. Firms in advanced sectors compete for high-skilled workers, who want to live in an attractive environment with good services and amenities. While economic dynamism is driven by market forces, public policy has to deal with the urban externalities that affect livability, such as congestion, slum formation, environmental degradation and crime. Livability calls therefore for proactive, rather than reactive public policies, as a high-quality city environment is very expensive to restore once the problems have surfaced. For example, slums are difficult to eradicate once they have formed without massive disruption in people's lives.

Connectivity. The advantage of proximity fosters competitiveness. Successful cities have better accessibility—they are connected internally through an efficient road network and public transport system, to the domestic network of cities through transportation links and to the global economy. Firms located in well connected cities find it easier to access network of resources, including labor, but also to elements of the supply chains. Transportation and communication networks multiply inter-firm linkages between cities—i.e., flows of goods, people and ideas—creating an integrated system of cities.

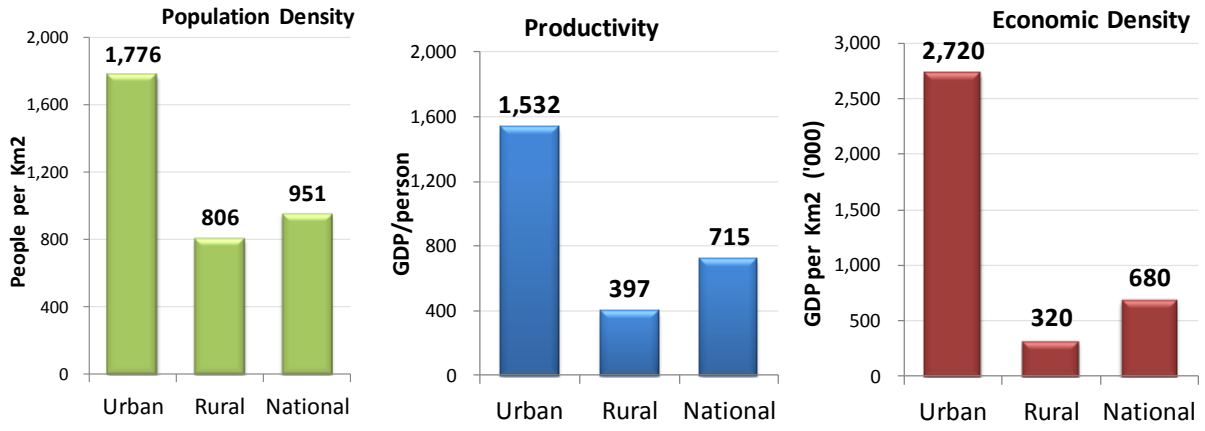
Source: OECD, 2006 and World Bank, 2010d.

Figure 5.19: Urbanization, Urban Economic Density and GDP: Cross-Country Correlations (2000)



Source: Authors' calculations based on GRUMP and WDI. LI = Low-Income; LMI =Lower Middle-Income and UMI = Upper Middle Income.

Figure 5.20: Urban-Rural Disparities (2010), US$



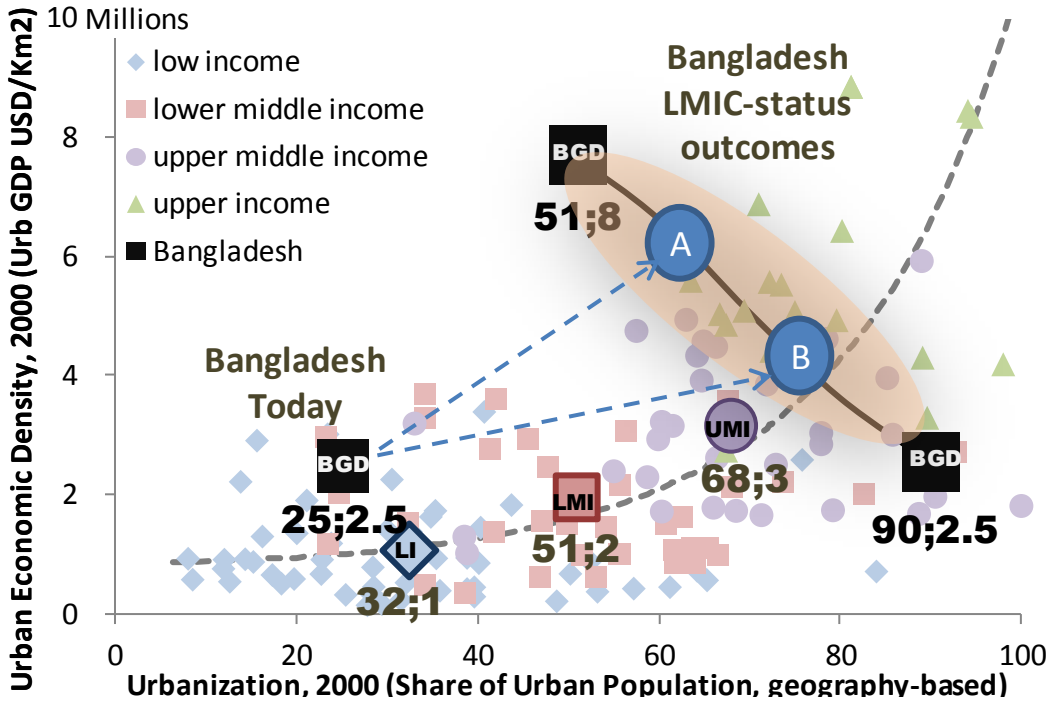
Source: World Bank calculations based on WDI, UN-World Urbanization Prospects and BBS, 2011.

5.45 **The correlation between urbanization and GDP is indicative of the productivity advantage of urban areas**. Bangladesh is no exception. In Bangladesh today, the urban-rural output and productivity differential is larger than the population density differential. Population density in urban areas (1,800 people per km^2) is twice as high as in rural areas (800 people per km^2), but urban economic density (US$2.7 million per km^2) is eight times as high as rural economic density (US$320,000 per km^2), and the average GDP per capita in urban areas (US$1,500) is almost four times as high as in rural areas (US$400). While the rural dimension of the growth agenda is outside the scope of this study, the analysis

also acknowledges the importance of improving rural productivity through agriculture modernization and non-farm diversification for the growth agenda, since it frees up manpower that can be employed in more productive activities (Figure 5.20).

5.46 **The economic geography of a middle-income Bangladesh would have taller "mountains" and more "hills"**. There are two complementary and inter-related spatial economic trajectories to MIC status for Bangladesh—a shift toward a higher-value-added products and services (an increase in the economic density of existing urban areas (i.e., taller "mountains") and higher diversification into non-farm employment (rural-urban transformation, i.e., more "hills"). Figure 5.21 outlines the two complementary trajectories from the current Bangladesh and a set of possible MIC-compatible outcomes.[37] Map 9 exemplifies two possible MIC-outcomes for Bangladesh—the first scenario emphasizes higher-value added production in Dhaka and Chittagong, the second non-farm diversification outside the two main cities.

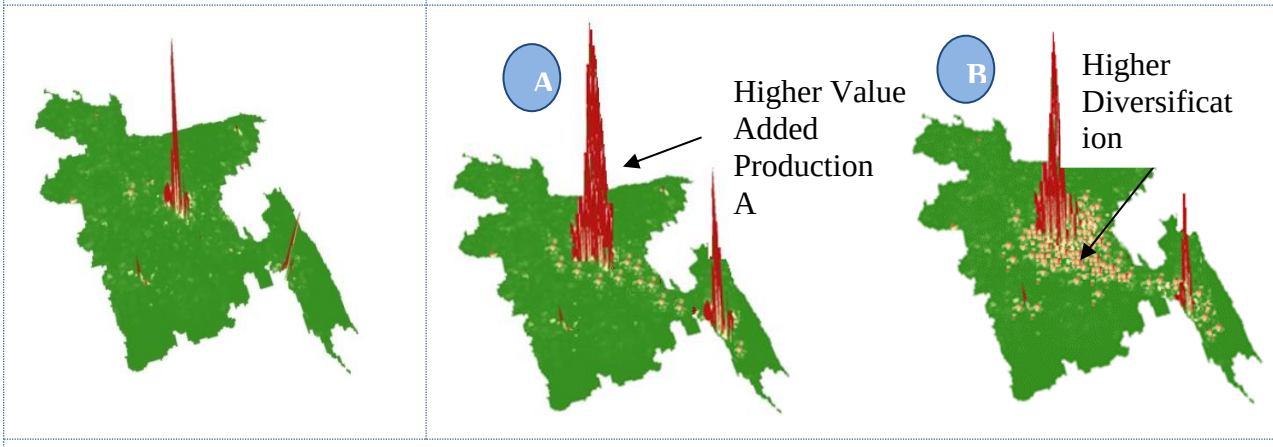
Figure 5.21: The Path to MIC Status from an Economic Geography Perspective – A 2021 Scenario Analysis



Source: World Bank Staff Analysis based on GRUMP and WDI data.

[37] Higher-value production would imply a shift in the vertical axis, and higher diversification into nonfarm economic activities would imply a shift in the horizontal axis.

Map 9: What Would A Middle-Income Bangladesh Look Like?
An Economic Geography Perspective



Source: Scenario analysis based on economic census data.

5.47 **The scenario analysis shows that, given its high population density, a lower middle-income Bangladesh would have economic density and urbanization of the magnitude of an upper MIC country…** The journey to MIC status implies a major structural shift for all countries. The scenario analysis show that, given Bangladesh's exceptionally high population density, Bangladesh needs to pursue the spatial shifts toward higher value added production and non-farm diversification even more forcefully than historic trends suggest based on international experience. To reach lower MIC status, Bangladesh would need economic density of the magnitude of an upper MIC country. Even if Bangladesh reaches a level of urbanization in line with a lower MIC (50 percent), it would still require urban economic density four times as high as the average lower MIC. Sensitivity analysis indicates that doubling rural productivity would reduce the minimum urban economic density associated with average LMIC level urbanization (50 percent) by only 15 percent.

5.48 **…and Bangladesh would find it difficult to reach MIC status without increasing Dhaka's competitiveness.** The simulation provides supportive evidence of the importance of Dhaka's growth agenda for Bangladesh's growth agenda. While Bangladesh should pursue both economic transformations—taller mountains and more hills—in parallel, the simulation also indicates that Bangladesh can't reach MIC status without making Dhaka's mountains taller. This in turn would require a fundamental shift in the economy of the metropolitan area—currently dominated by low-value added garment production—toward a more diversified economic base and a strong value added industrial and service mix.

III. City Competitiveness: Drivers and Obstacles Through a Private Sector Lens

This section assesses the obstacles and drivers of competitiveness using the garment sector as a lens. Dhaka city is still the most productive location for garment firms in Bangladesh but is falling behind other locations in accessibility. Inadequate access to land and transport infrastructure in Dhaka city is the leading cause of firm relocation to peri-urban areas. Peri-urban areas are emerging as competitive centers, as they benefit from proximity to Dhaka city, have a comparative advantage in accessibility and land and housing. They, however, suffer from Dhaka city's congestion, and have lower access to infrastructure. Chittagong city has less access to markets than Dhaka city does, but has better accessibility, land and housing. Despite the accessibility advantage, Chittagong has not been able to

capitalize on its comparative advantage as the largest seaport in Bangladesh. EPZs are higher-productivity, higher-cost locations, and are partially shielded from Dhaka's and Chittagong's inefficiencies. Medium- and small-size cities are uncompetitive "distant places" from the perspective of the garment sector, and need to foster local entrepreneurship to find their comparative advantages.

5.49 **Section III looks at the competitiveness of the urban space from the perspective of the private sector**. Private sector investment is necessary to accelerate growth. Urban areas are attractive locations for firms because they provide access to markets, infrastructure, and proximity to services, but

Box 5.6: Economic Geography Analysis: Urbanization from an Economic Perspective

The study looks at urbanization from an economic perspective. The focus of the study is on economic density (defined as GDP or value addition per km^2) rather than population density (people per km^2). The two concepts of economic and population density are conceptually distinct. A large concentration of people is not enough to create economic density, and increasing economic density does not always imply creating larger concentration of people. In fact, Bangladesh has the highest population density in the world, but its economic density is relatively modest, compared to other Asian cities.

A country's economic geography results from the balance between concentration and dispersion forces. Economic geography is the study of the location, distribution and spatial organization of economic activities. When concentration forces prevail, firms have an economic advantage to cluster to benefit from proximity to markets, firms and businesses in the same industry (localization economies) or firms and businesses in different industries (urbanization economies), leading to the formation of economic agglomerations – i.e. the spatial concentration in the production of manufacturing goods and services. Economic "hills and "mountains are the geographical representation of urban agglomerations. Agglomeration economies drive spatial economic outcomes, and, if well manage, provides a comparative advantage to cities, which can tap on the economic diversity and the knowledge sharing arising from proximity.

While concentration of people and economic activities goes hand to hand at the early stage of a country's spatial transition, the two processes of demographic and economic transformation start to de-link as economies mature. For example, a shift in the economic structure of a metropolitan area from labor-intensive manufacturing toward high-tech manufacturing and knowledge-base services will lead to an increase in economic density (value added per km^2), geographically represented by "taller mountains" without necessarily implying any increase in the size of the labor pool. The shift in production process toward higher value added production requires, however, shifts in the workforce skill mix, from local and abundant cheap labor force to an internationally mobile specialized and experience workforce.

Growth is concentrated, but its benefits can be equitable if supported by redistributive policies. While the equity implications of the growth agenda are outside the scope of this report, they need to be carefully examined. Equitable development calls for re-distributive policies to ensure that economic growth brings higher living standards for the entire country. Countries often resort to spatially targeted redistributive policies to encourage firms to move to lagging regions. However, interventions that attempt to "move jobs to people" are seldom successful in overriding the powerful agglomeration forces that "move people to jobs." Yet, governments have a variety of effective policy options available to distribute the benefits of growth, and improve living standards outside the country's main growth poles. Reconciling national and metro region interests in a positive sum game requires a strategy that captures spillovers among regions and foster regional competitive advantages based on cross-regional complementarities and functional specialization. A competitive large metropolitan area may for example generate positive spillovers into other regions through fiscal transfers, foreign exchange earnings and exports, which pay for infrastructure and services across the entire country and investments in portable assets such as health and education.

also costly locations as agglomeration economies increase the value of land and wages, and if not properly managed, can lead to congestion, pollution and inefficiencies in service provision. The section uses the garment sector as a lens to assess the drivers and obstacles of urban competitiveness.

The Garment Sector: A Thriving, Export-Oriented, Urban-based Industry

5.50 **This section uses the garment sector as a lens to study urbanization**. This sector is the largest export-oriented industry and has been highly successful in increasing its economic density since Bangladesh's first garment firm was established in Chittagong in 1977. Mostly concentrated in urban areas, the garment sector provides a big enough sample to compare competitiveness across urban locations. The analysis is not meant to be a full competitiveness assessment of the garment sector, since industry-specific factors affecting garment competitiveness are outside the scope of the study. While the study looks at the urban agenda through the lens of the garment sector, it recognizes the important role played by other private sectors and public administration as drivers of job creation. The lessons learnt and policy directions emerging from the garment sector analysis can indeed shed light on how to create a better urban environment benefiting not only the garment sector but also other urban-based sectors.

5.51 **Dhaka city corporation, Dhaka peri-urban areas and Chittagong city corporation are the main garment production centers in Bangladesh**. Half of the formal manufacturing jobs in Bangladesh are in the garment sector, and its contribution to manufacturing employment is increasing over time – from 51 percent of total manufacturing jobs in 2009, compared to 44 percent in 2001. Garment production is predominantly in urban, with 93 percent of formal jobs located in urban areas (peri-urban areas included). In Dhaka city, garments account for 49 percent of formal jobs. In the peri-urban areas of Dhaka, garment manufacturing comprises 65 percent of total formal jobs, and the contribution of peri-urban areas is increasing fast – about half of formal garment jobs in the Dhaka metro are located in peri-urban areas as of 2009, compared to only 18 percent in 2001. In Chittagong too, garments are also the largest and most important growth sector. In contrast to Dhaka metro, where peri-urban areas play an increasingly important role, garment employment in Chittagong metro is still concentrated in the City Corporation, and virtually absent in the peri-urban areas, which specialize in textiles. The garment sector is absent in the second-tier cities, which are largely service-oriented, and garments still account for a relatively small share of formal jobs in non-metro *pourashavas*.

5.52 **The garment sector is characterized by firm-level specialization in four product lines – t-shirts, pants, shirts and sweaters**. On average, a firm's main piece of clothing accounts for 74 percent of a firm's sales. Eleven major clothing items represent the first main product for 98 percent of firms, and 75 percent of surveyed firms produced t-shirts, pants, shirts or sweaters as their main pieces of clothing in fiscal 2009. For a further 13 percent of firms, the first main piece produced was one of seven other products (trousers, jackets, undergarments, suits, shorts, pajamas and skirts).

5.53 **A closer look at the garment market shows regional specialization, clustering and market segmentation based on product lines and export markets**. The mapping of the sampled firms indicates a clustering of garment firms by product lines (Figure 5.22, Figure 5.23, and Figure 5.24). The clustering can also be seen by examining the firm location quotients (LQs).[38] Four of the 11 major clothing lines, (suits, t-shirts, pants and shirts) have LQs greater than unity for Dhaka city, with specialization in Dhaka city being most pronounced for the production of suits. Undergarment producers are the most heavily localized firms within Chittagong city followed by producers of trousers, shorts, skirts, jackets, sweaters and pajamas. There is also strong evidence of clustering of firms by export market. Products from Dhaka are more likely to be exported to European markets, and products from Chittagong to the US market.

[38] A firm's location quotient measures a location's share of the number of sampled firms which produce a particular product as their first main piece relative to its share of the overall number of sampled firms.

About 60 percent of products in Dhaka city are sold in European markets, and 30 percent in the US markets. The percentage of sales to Europe is even higher—at 70 percent—in peri-urban areas of Dhaka. On the other hand, 67 percent of sales from firms in Chittagong are shipped to United States.

Figure 5.22: Product Clustering Sampled Firms (Knitwear)

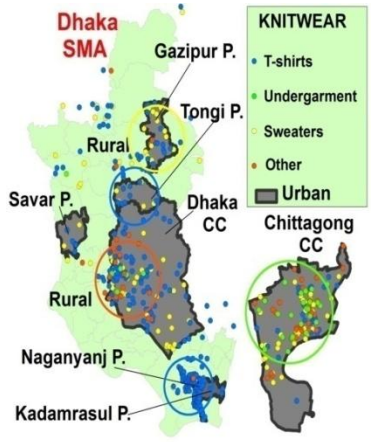


Figure 5.23: Product Clustering Sampled Firms (Woven)

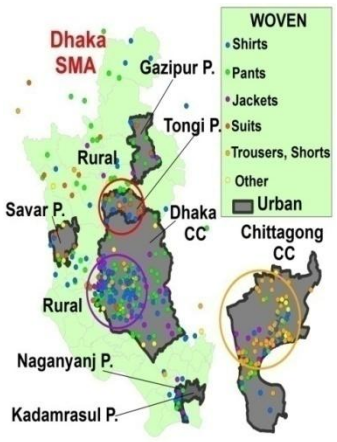
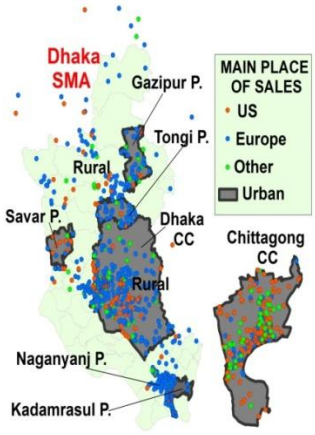


Figure 5.24: Export Market Segmentation Sampled Firms



Source: Garment Firm Survey (2011).

5.54 **The survey of garment firms has a spatial focus**. Since the objective of the survey is to compare the performance of garment firms across locations, and assess the impact of the local environment on competitiveness, the sample of firms is stratified by location. The survey of garment firms and workers is representative of the following six locations: (i) Dhaka city, (ii Dhaka (urban) peri-urban areas, (iii) Dhaka (rural) peri-urban areas, (iv) Dhaka EPZ, (v) Chittagong city and (vi) Chittagong EPZ. In developing the sampling frame, attention has been paid to ensure adequate coverage of garment firms of all sizes, as well as of knitwear and (woven) garment firms.

Location Competitiveness from Garment Firms' Perspective

5.55 **The balance between opposing forces promoting agglomeration and dispersion governs garment firms' location decisions**. There are two main opposing forces affecting firms' location decisions: *agglomeration (centripetal) forces*, i.e., localized positive externalities such as pooled labor markets, knowledge spillovers, and provision of infrastructure, and *dispersion (centrifugal) forces*, i.e., diseconomies associated with rising factor costs and negative externalities such as road congestion and pollution. The interplay between agglomeration and dispersion forces governs location decisions and shapes the economic landscape. The interaction between these forces is critical for urban policies.

5.56 **Forces promoting agglomeration still prevail in the garment sector**. Access to skilled labor, proximity to support businesses, infrastructure (electricity and telecoms) and accessibility (access to the port, airport and highway, and urban mobility) are the competitiveness factors garment firms value the most when deciding their production location. The survey results are consistent with the fact that the price of the final product and the lead time (i.e., the time it takes to deliver the order to the client) are the most important drivers of the international competitiveness of the garment sector. All these factors, with the exception of urban mobility, promote concentration of garment production in economically diversified

and well-connected urban centers. The ranking of location factors by garment firms is broadly consistent across the six surveyed locations (Figure 5.31 and Figure 5.32).

Figure 5.25: Dhaka City Corporation: cluster composition, 2001-2009

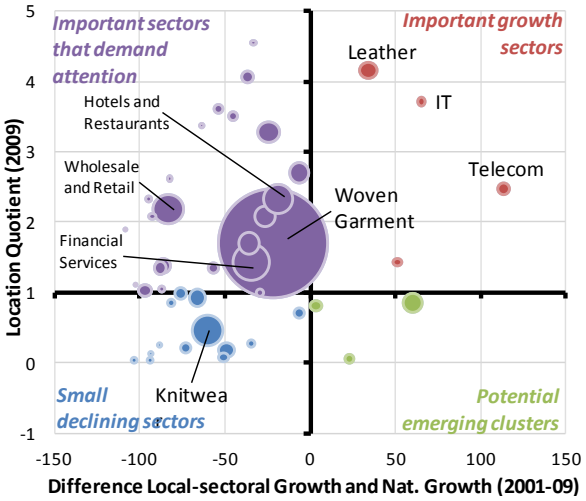


Figure 5.26: Dhaka Peri-Urban, cluster composition, 2001-2009

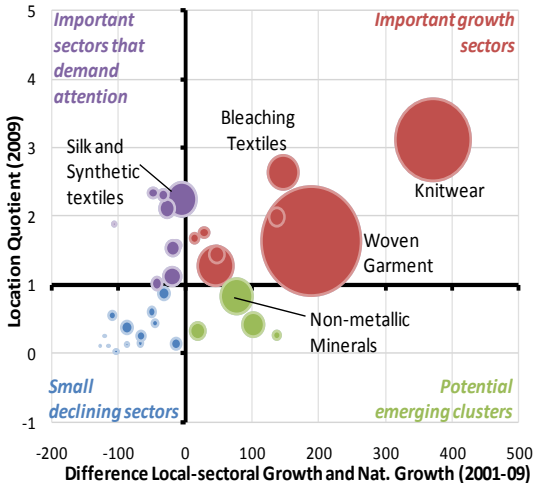
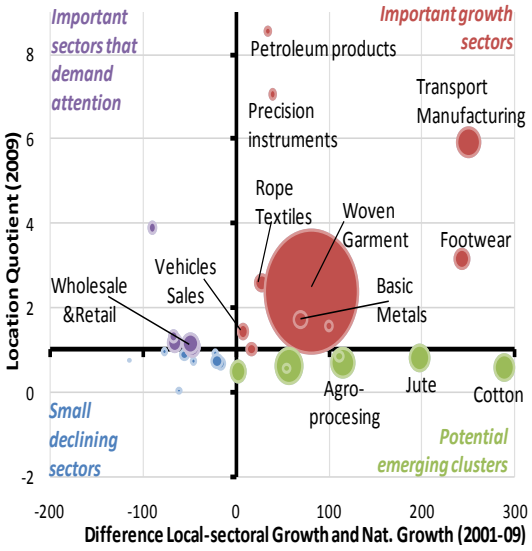
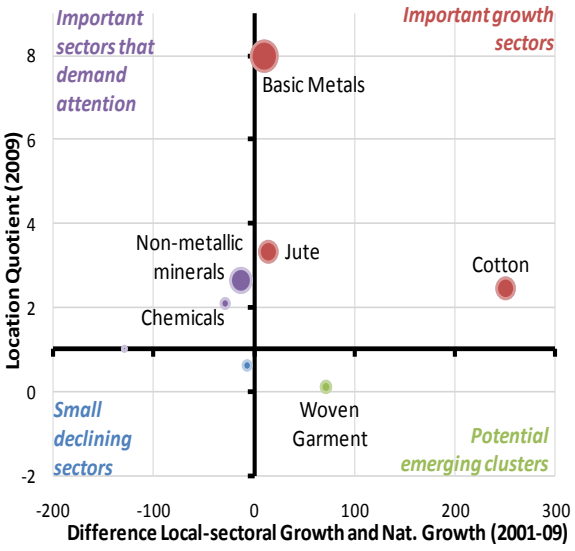


Figure 5.27: Chittagong City Corporation: cluster composition, 2001-2009



Source: Economic Census 2001 and 2009.

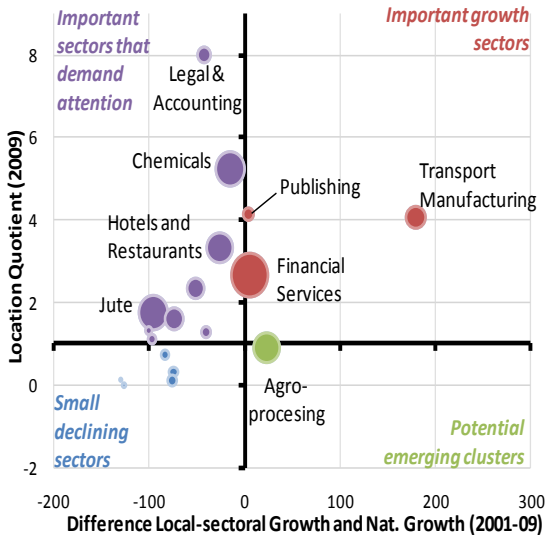
Figure 5.28: Chittagong Peri-Urban: cluster composition, 2001-2009



Source: Economic Census 2001 and 2009.

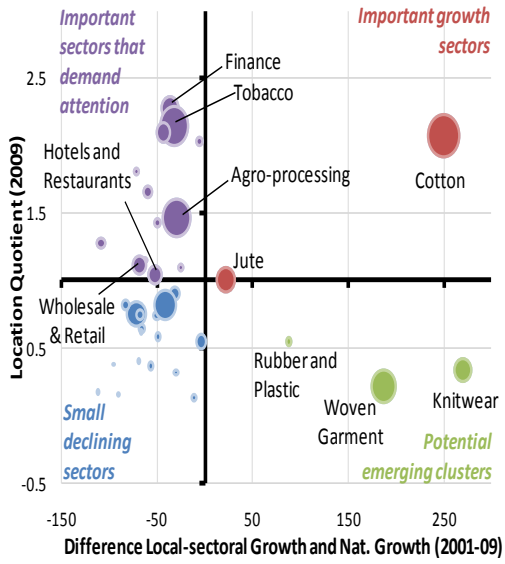
5.57 **In addition to urban mobility, availability and costs of land and housing are emerging forces promoting dispersion of garment production.** Urban mobility (i.e., lack of traffic congestion) is ranked as the third-most important location competitiveness factor, after access to power and skilled labor, by garment firms. Availability and cost of land and price of buildings are also highly valued by garment firms. These location factors work against agglomeration forces to promote dispersion of economic activities to lower cost locations. These location factors are particularly important for urban

Figure 5.29: Secondary Cities, cluster composition, 2001-2009



Source: Economic Census 2001 and 2009.

Figure 5.30: Non-metro Pourashava cluster composition, 2001-2009



Source: Economic Census 2001 and 2009.

policy formulation since cities can control the costs associated with urban mobility, land and housing through efficient management of urban agglomerations (Figure 5.31 and Figure **5.32**).

IV. Dhaka City Corporation

5.58 **As Dhaka loses competitiveness as a manufacturing growth center, the city is becoming a service-based economy**. Although woven garments continue to be by far the largest contributor to formal employment creation in Dhaka city, employment growth in the sector is declining. As garment firms de-concentrate to peri-urban areas, there is limited evidence of replacement industries emerging to ensure continued urban vitality in Dhaka city. Only ICT (telecommunications and IT) and R&D services are emerging as growth sectors. Annual formal ICT employment growth has been close to 11 percent, the highest of any sub-sector in Dhaka city, and the telecom industry has had a transformative impact on the economy as the largest contributor to Foreign Direct Investment (FDI) and tax revenues in the country. However, ICT still accounts for a relatively small share of service-led employment in the city (6 percent). Furthermore, industry growth, rather than local competitiveness, is the main driver of employment growth in telecom and other emerging clusters.

5.59 **Dhaka city corporation is the most productive location for garment firms in Bangladesh**. Dhaka city has a Total Factor Productivity (TFP) premium relative to both Chittagong city and Dhaka peri-urban areas in garment production.[39] The productivity premium persists when controlling for firms' characteristics, indicating that most of the premium is location specific. The average firm in the Dhaka city corporation is 7.9 and 5.6 percent more productive than the average firm in Chittagong city

[39] Total Factor Productivity is the portion of output not explained by the amount of inputs used in production.

corporation and Dhaka peri-urban areas respectively (Figure 5.33 to Figure 5.36).[40] The productivity premium makes Dhaka city "the most sought after location" for garment firms. Dhaka city has an equally strong labor productivity premium compared to other locations.

5.60 **Access to markets and labor, in particular skilled labor, is Dhaka city's main comparative advantage**. Dhaka city's high productivity premium is consistent with its ranking as the location with best access to markets and labor. Excluding Chittagong EPZ, Dhaka city has the best access to skilled labor, the factor that garment firms value the most, together with access to reliable power supply. Dhaka city has good access to buyers, and is the best performing city location for proximity to suppliers, sub-contractors, machine repair technicians and support businesses (Figure 5.37 and Table 5.3).[41]

5.61 **Dhaka city has the best access to power supply among the surveyed locations,** with the exception of EPZs. Access to reliable power supply is identified as the most important location factor for garment firms, together with access to skilled labor. Although the quality of power supply is considered highly inadequate in all city locations by garment firms, the duration of power outages experienced by garment firms in Dhaka city, at 4.2 hours per day is below the average for Chittagong city (4.9 hours per day) and Dhaka peri-urban areas (4.5-4.8 hours per day).

5.62 **The perception by private firms with regard to access to infrastructure, other than electricity, is mixed**. While access to public water and sewerage and social services in Dhaka city is considered broadly satisfactory, it is outperformed by Chittagong city. The results are in contrast with the latest available statistics, according to which Dhaka city is the location with best access to infrastructure (with the exception of drainage). The discrepancy between perceived and actual level of services could be explained by differences in firms' standards across locations, or high intra-urban variation in access to services not captured by the survey findings.

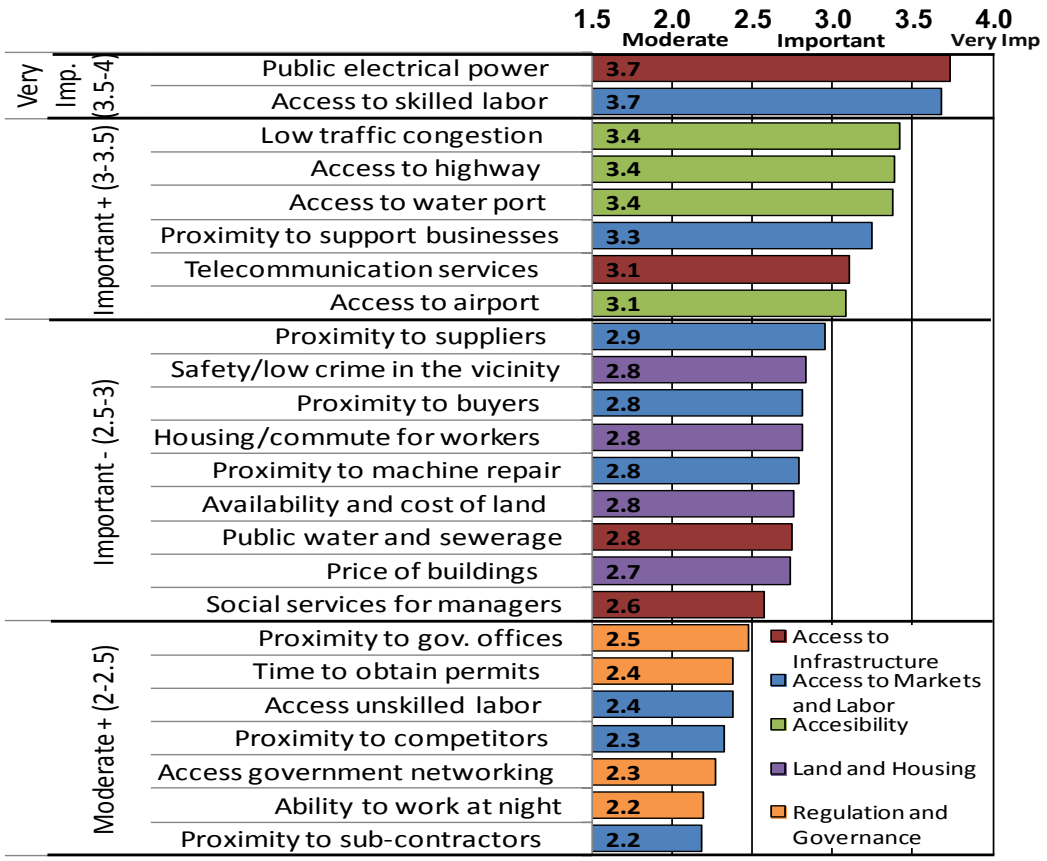
5.63 **Competitiveness of Dhaka city matters, regardless of firms' locations**. About 57 and 55 percent of firms in Dhaka peri-urban areas and Chittagong city respectively travel to Dhaka regularly. Firms in Dhaka peri-urban areas travel to Dhaka city at least 13 times a month; those in Chittagong city an average of three times per month. About 25 percent of firms not based in Dhaka have an office in Dhaka city to reduce travel time, and additional 25 percent would be willing to open one. Government paperwork and meeting with buyers are the main reason why firm managers in peri-urban areas and Chittagong respectively travel to Dhaka city on a regular basis. About 13 percent of Chittagong firms meet regularly with their main buyer in Dhaka city (Figure 5.38).

5.64 **Despite its advantages, Dhaka has started falling behind other city locations in accessibility and the growing costs are outweighing the opportunities**. Dhaka city performs worst in terms of urban mobility and access to the highway. The limited access to highways in Dhaka city may be related to the traffic congestion and the associated ban of commercial trucks during the day in the City center. Firms are also facing costs associated with traffic congestion, limited availability and high prices of land and housing and a deteriorating urban environment, characterized by over-crowding and lack of amenities.

[40] The productivity premium of Dhaka city, relative to Chittagong city, is present across the entire distribution of firms, from the least to the most productive. The productivity premium of Dhaka city, relative to Dhaka peri-urban areas, is evident for the average firm, but does not hold at the bottom and top end of the distribution.

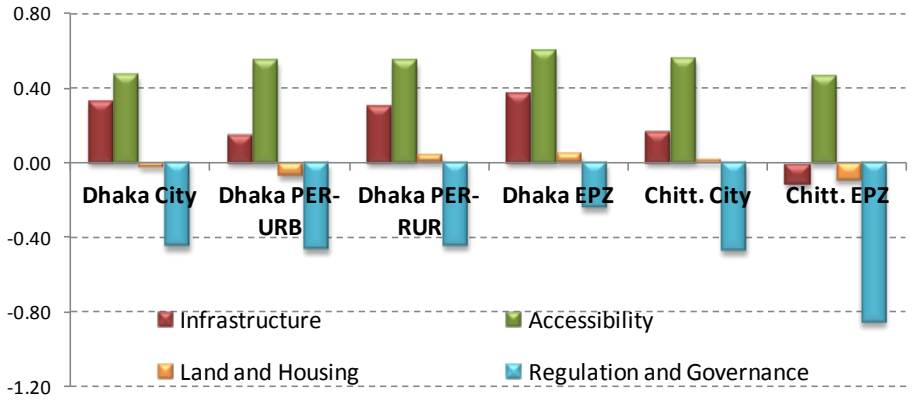
[41] EPZ locations excluded.

Figure 5.31: Location Competitiveness Factors from Garment Firms' Perspective



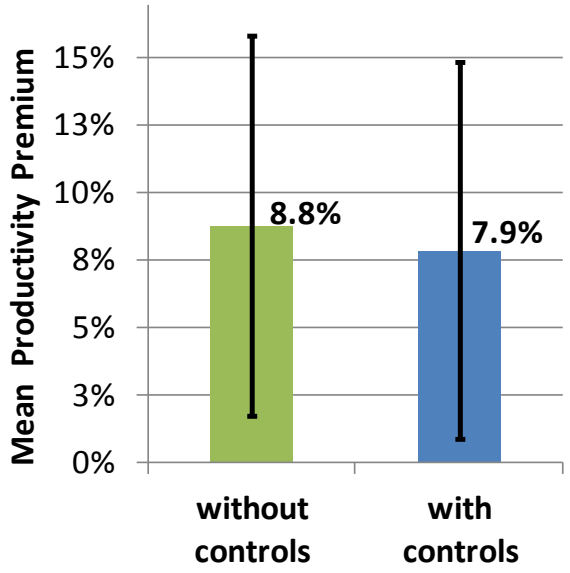
Source: Garment Firm Survey, 2011.

Figure 5.32: Factors Affecting Garment Firms' Location Choices, Relative Importance by Location (Base = Access to Markets)



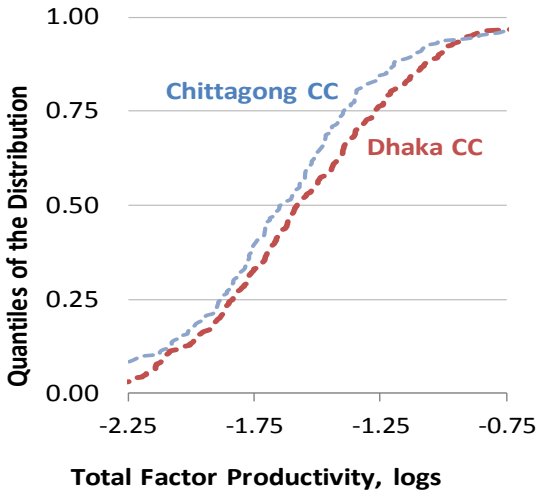
Source: Garment Firm Survey, 2011.

Figure 5.33: Productivity Premium of Dhaka City relative to Chittagong City



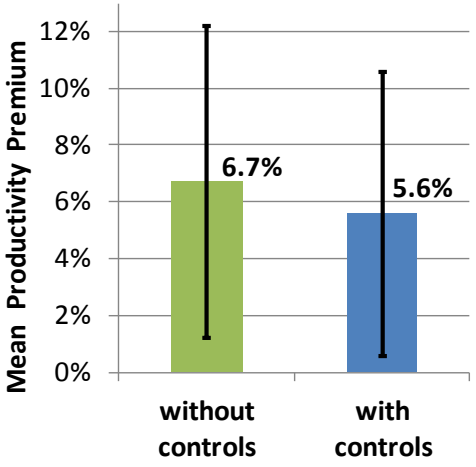
Source: Garment Firm Survey, 2011.

Figure 5.34: Productivity Distribution of Dhaka City relative to Chittagong City



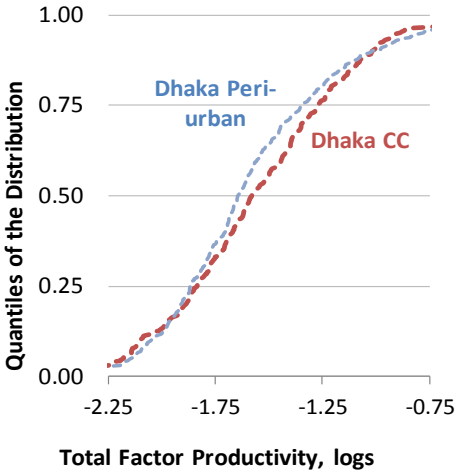
Source: Garment Firm Survey, 2011.

Figure 5.35: Productivity Premium of Dhaka CC compared to Dhaka Peri-Urban Areas



Source: Garment Firm Survey , 2011.

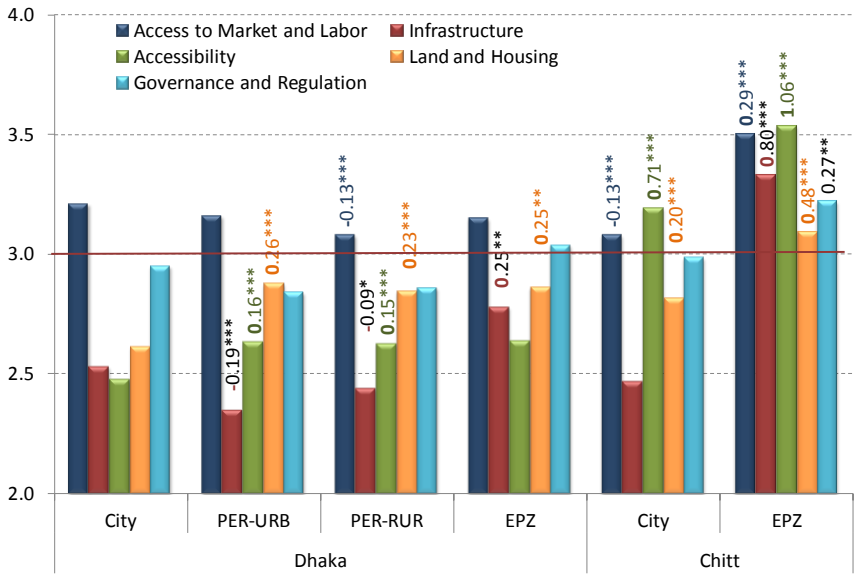
Figure 5.36: Productivity Premium of Dhaka CC relative to Peri-urban Areas



Source: Garment Firm Survey 2011.

Note: CC=city corporation

Figure 5.37: Location Performance Ranking from Garment Firms' Perspective



*Source: Garment Firm Survey (2011). 2 = Poor; 3 = Adequate. Note: Statistically significant differences relative to Dhaka city are reported together with the level of significance. *** denotes significance at 1% level; ** at 5% level; * at 10% level.*

5.65 **Despite being one of the least motorized megacities in Asia, Dhaka's economy is crippled by the high costs of congestion**. Compared to other Asian countries, in Dhaka, around 90 per cent of the daily travel trips are bus, walk and non-motorized trips, and close to 60 per cent of the trips are zero emissions trips (walk and cycle rickshaw). However, Dhaka is unable to capitalize on these strengths to manage urban mobility issues and air pollution. Although its vehicle fleet is not large, Dhaka has the highest congestion index[42] and one of the highest commuting times in South Asia. Average commuting time is 50 minutes and can reach two hours at peak time.[43] Long travel times are a major cost to both individuals and the economy, and air quality has now reached alarming levels. The Dhaka Metropolitan Chamber of Commerce and Industry has estimated that Dhaka traffic congestion costs about US$3 billion per year in 2010, equivalent to almost 3 percent of GDP.[44] Wasted time on the streets accounts for nearly 60 percent of total costs, as 3.2 million business hours are lost every day due to congestion, followed by environmental cost (11 percent) and business loss of passenger transport and freight industries (10 percent). Congestion has high costs for garment firms based in Dhaka city. Firm managers based in Dhaka city spend on average 2.5 hours per day traveling for business meetings, compared to an average of only 0.9 hours for managers based in Chittagong city, and travel time accounts for 35 percent of their total visiting time. Congestion has led to a ban of trucks during the day time in Dhaka city, raising shipping costs for firms located in Dhaka city. Almost two-third of garment firms reported to be affected

[42] The congestion index is composed of travel time, residential density, and city population, and provides a measure of crowding: Asian Development Bank (2001), "City Data Book Database".

[43] Centre for Science and Environment (CSE) and the Forum of Environmental Journalists of Bangladesh, 2011: *Challenge of Urban Air Quality and Mobility Management*. New Delhi.

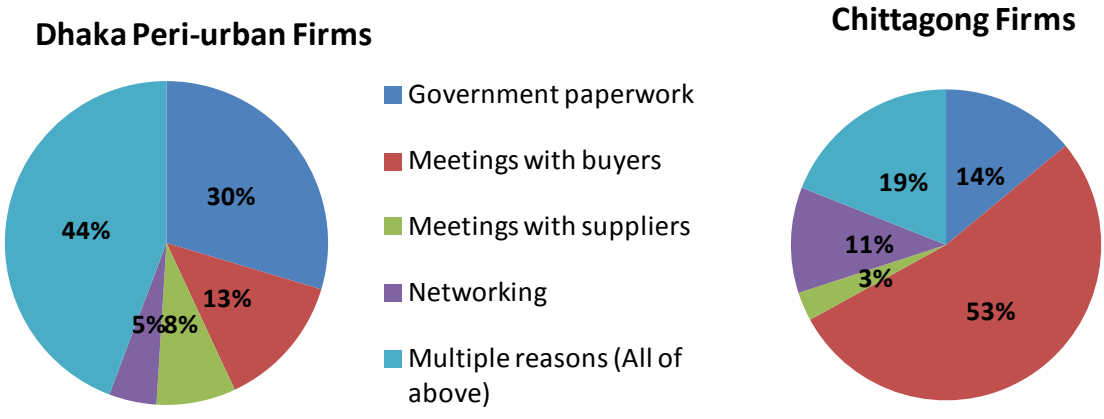
[44] Metropolitan Chamber of Commerce and Industry (MCCI) and Chartered Institute of Logistics and Transport (CMILT) (2010). "Traffic congestion in Dhaka city: Its impact on business and some remedial measures".

by the ban in Dhaka city—43 percent of firms reported an increase in delivery time (and therefore lead time) and 25 percent an increase in delivery costs (Figure 5.39, Figure 5., and Figure 5.43).

5.66 **Availability and costs of land and real estate development are a bottleneck for firms in Dhaka city**. For those firms which lease out their factory buildings, rent is statistically significantly higher in Dhaka city, compared to the other surveyed locations. Rent in Dhaka city is on average Tk 11 per ft^2 per month, compared to Tk 9 per ft^2 per month in Chittagong city.[45] Factories located in Dhaka peri-urban areas are on average more land intensive than firms located in Dhaka city (land intensity being defined as factory square-footage per production worker), as firms in peri-urban areas can take advantage of lower rents and more land availability than Dhaka city. Firms located in peripheral municipalities and those located in peripheral rural areas have 29 percent and 21 percent more land-intense production compared to firms located in Dhaka city (Figure 5.41 and Figure 5.42).

5.67 **The high productivity of the garment workforce in Dhaka city has not led to better living conditions for production workers**. While Dhaka-dwellers have on average access to better services and housing compared to other urban dwellers, the average statistics mask high intra-urban inequality, with about half of the Dhaka population living in slums and squatter settlements. The survey findings confirm the high inequality in access to services. Garment workers in Dhaka city have significantly lower access to housing and services than the average urban dweller in Dhaka city. For example, only 41 percent of garment workers in Dhaka city have access to piped water supply, significantly below the average for Dhaka metro, estimated at 74 percent. Garment workers in Dhaka city have also lower access to services than garment workers in Dhaka peri-urban areas and Chittagong city. About 36 percent of garment workers have regular access to electricity in Dhaka city, compared to 76 percent in Chittagong city. The over-crowding index for garment workers in Dhaka is 3.1 people per room, compared to 2.6 only 32 in peri-urban areas (Figures 60-63). On average, safety in Dhaka is the worst among the surveyed locations. The crime track record in Dhaka city is confirmed by recent statistics and study.[46] The high level of crime and violence in Dhaka area has considerable economic costs, including loss of productivity due to injuries and direct financial costs due to the collection of "tolls".

Figure 5.38: Reasons for Firms' Managers to go to Dhaka City



Source: Garment Firm Survey (2011).

[45] The comparison controls for the age of the rented buildings.
[46] World Bank, 2007b.

Table 5.3: City Location Performance from Garment Firms' Perspective—summary rankings				
	Dhaka City	**Dhaka Peri-Urban (Urban)**	**Dhaka Peri-Urban (Rural)**	**Chittagong City**
Access to labor				
Access to markets				
Accessibility				
Infrastructure				
Land and Housing				

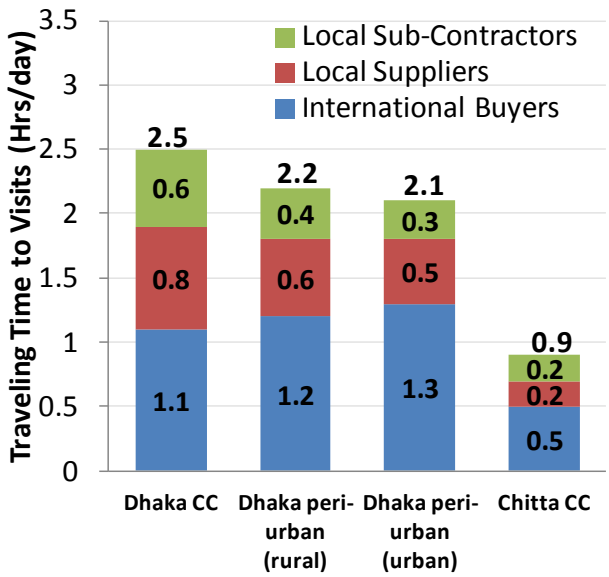
Note: Green = Satisfactory & best performance among city locations; Yellow = Satisfactory & worst performance or unsatisfactory & best performance among city locations; Red = Unsatisfactory & worst performance among city locations.

5.68 **The high productivity of the garment workforce in Dhaka city has not led to better living conditions for the workers**. Dhaka city has the highest share of urban-related inefficient turnover (defined as the separations caused by unhealthy urban environment, rather than by more-competitive job offers) largely because of lack of housing followed by high costs of living. The overall cost of urban-related, inefficient turnover to firms in Dhaka city is conservatively estimated at about 1 percent of the wage bill, or 0.2 percent of annual sales.[47] The results are consistent with the EIU livability ranking which places Dhaka among the bottom 10 cities for living conditions among 140 cities worldwide (Figure 5.46).

5.69 **Dhaka city has the highest share of urban-related inefficient garment workers' turnover**. Bangladesh's annual employee turnover in the garment industry (18 percent) is higher than manufacturing workers turnover in many other Asian countries. While a certain level of workers' turnover, when related to healthy competition among employers, is considered a sign of industry dynamism, it can lead to higher costs for a firm if excessively high. Garment firms are willing to pay an additional Taka 20,000 per year to production workers that have already acquired one year of experience. The incremental salary is a proxy for the costs of training newly recruited workers, and can be considered a lower bound estimate of the cost of workers' separation. Dhaka city is the location with the highest share of urban-related inefficient turnover (separations caused by a dysfunctional urban environment), although overall turnover is highest in Dhaka peri-urban areas. Housing availability is cited by garment workers as the main reason for "un-healthy" separations in Dhaka city, followed by high costs of living. The overall cost of urban-related inefficient turnover to firms in Dhaka city is conservatively estimated at about 1 percent of the wage-bill, or 0.2 percent of annual sales (Figure 5.44, Figure 5.45, and Figure 5.47).

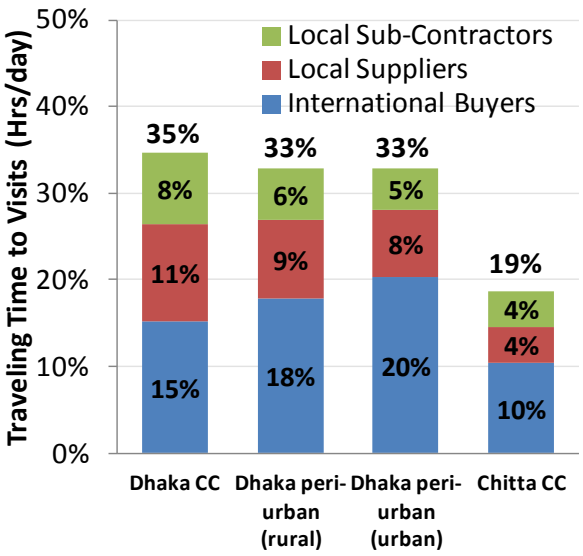
[47] The cost of turnover is estimate as the difference between the wage for experienced and new workers multiplied by turnover due to urban inefficiency.

Figure 5.39: Average Hours Spent Traveling for Business Meetings



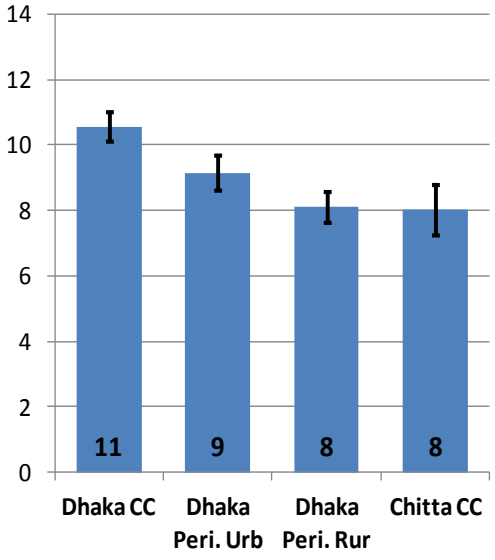
Source: Garment Firm Survey, 2011.

Figure 5.40: Share of Visiting Time Spent Traveling



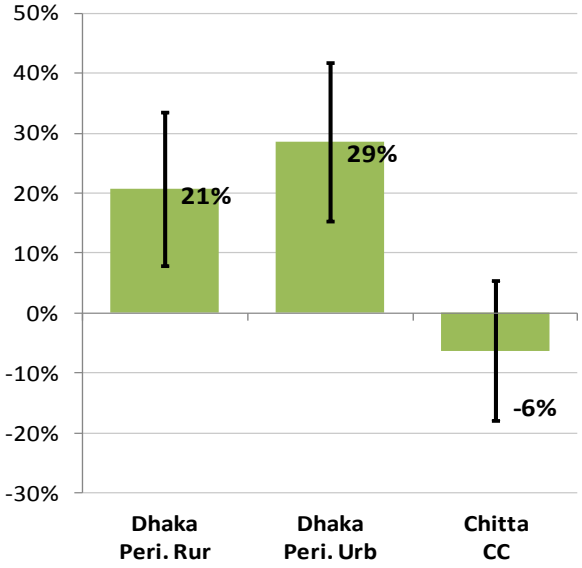
Source: Garment Firm Survey, 2011.

Figure 5.41: Rent by Location (Tk/ft^2/month)



Source: Garment Firm Survey, 2011.

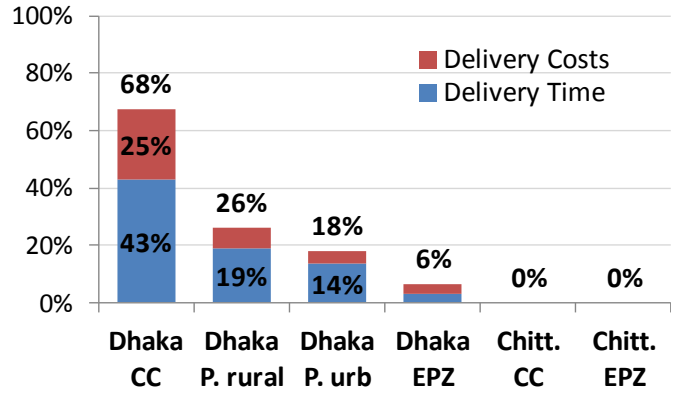
Figure 5.42: Land Intensity relative to Dhaka CC (Factory ft^2 per production workers)



Source: Garment Firm Survey, 2011.[48]

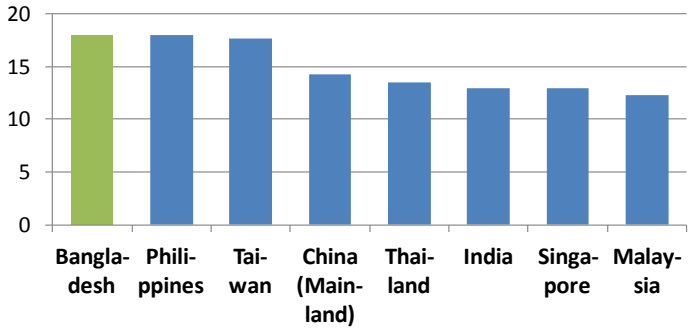
[48] The findings are based on the following OLS regression:
$log(density_i) = c + \beta_1 Dhaka_Urban + \beta_2 Dhaka_Rural + \beta_3 Dhaka_EPZ + \beta_4 C\text{-}ittagong_{CC} + \beta_5 C\text{-}ittagong_{EPZ} + \varepsilon_i$
β_k can be interpreted as the % difference of the density with respect to dummy K
β_k can be interpreted as the % difference of the density with respect to dummy K

Figure 5.43: Dhaka City Ban on Commercial Trucks during Day Time (percentage of firms affected, and main impact)



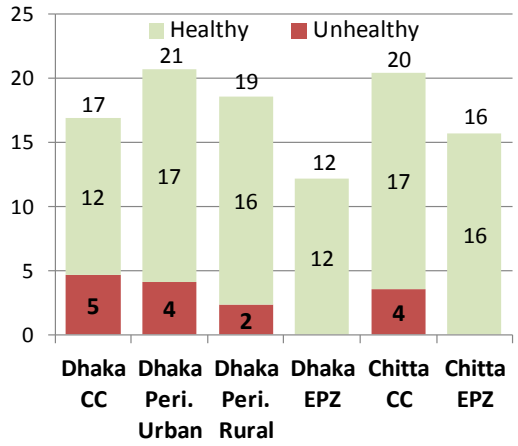
Source: Garment Firm Survey, 2011.

Figure 5.44: Manufacturing Workers Turnover, Asian Countries (2005)



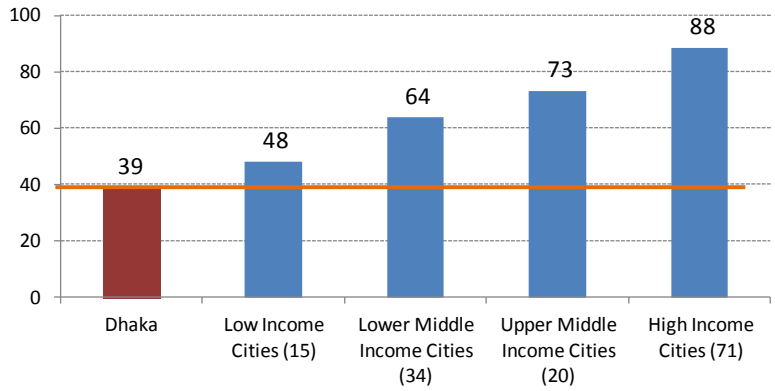
Source: Yang and Jiang, 2007.

Figure 5.45: Annual Turnover (Employee Separations/Total Employees), by Location



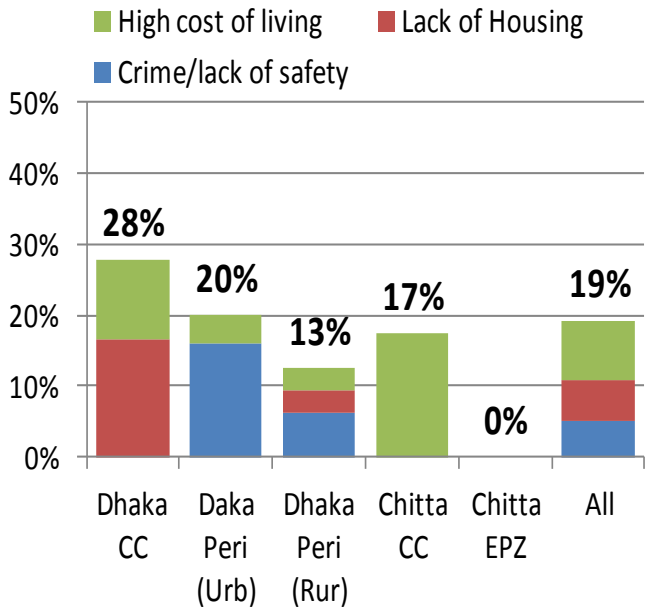
Source: Garment Firm Survey, 2011.

Figure 5.46: Dhaka Livability Index—International Benchmarking (2010)



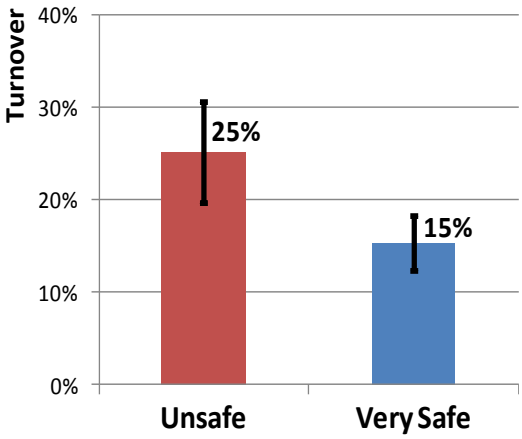
***Rating**: 80-100 = There are a few challenges to living standards; 70-80 = Day to day living is fine, but some aspects of life may entail problems; 60-70 = Negative factors have an impact on day-to-day living; 50-60 – Livability is substantially constrained; 50 or less = Most aspects of living are severely restricted. Source EIU*

Figure 5.47: Share of Urban-related Inefficient Employee Turnover, by Location



Source: Garment Firm Survey, 2011.

Figure 5.48: Lack of safety increases turnover



Source: Garment Firm Survey, 2011.

V. Dhaka Peri-Urban Areas

5.70 **Dhaka peri-urban areas are emerging as competitive garment production centers**. The most important and fastest-growing clusters in the Dhaka peri-urban area are knitwear and ready-made (woven) garments. These two sectors are not only the most important in terms of growth (20 and 15 percent annual employment growth, respectively), but also in terms of the size of their contribution to non-farm employment creation (close to 20,000 and 30,000 new annual jobs, respectively). Moreover, the shift-share analysis indicates that local competitiveness is an important driver of employment growth in these sub-sectors, accounting for 60 and 37 percent of growth in woven garment and knitwear, respectively. Cotton manufacturing and dyeing and bleaching also represent important growth sectors. While still small, the telecom industry is a potential emerging cluster in Dhaka peri-urban areas. With an employment growth rate of 24 percent per annum, telecom contributes to an average of over 120 new jobs per year; and 80 percent of the growth is driven by local competitiveness.

5.71 **The birth of new garment firms, rather than relocation, is driving the peri-urbanization of garment production**. The bulk of de-concentration from Dhaka city is not accounted for by relocations, but rather by higher levels of net firm birth within the Dhaka peri-urban areas compared to Dhaka city. Peri-urban firms are indeed younger than firms in Dhaka City. On average, firms located in Dhaka city corporation have been in operation for 10 years, compared to 7.6 in Dhaka (urban) peri-urban areas (urban) and 7 in Dhaka (rural) peri-urban areas. On the other hand, relocations account for a small part of the overall de-concentration story. Only 10 percent of the surveyed firms reported to have relocated, and 88 percent of all relocations took place within the same area.

5.72 **Transport and access to land are the two major forces driving relocation to peri-urban areas**. While on a small part of the sample relocated, understanding the reasons for this sheds light on the drivers of peri-urbanization. About half of the firms that relocated to peri-urban areas from Dhaka city cited a desire to gain better access to transport infrastructure and avoid Dhaka's congestion as the primary reason for de-concentration. Another 25 percent of firms mentioned the costs/availability of land, buildings and housing as the main driver of de-concentration. The results confirm that, while Dhaka city is still the most productive location for the garment sector, for a number of firms, the costs associated with congestion and the availability of land have started out-weighing the advantages of being located in Dhaka. This is in line with international experience of peri-urbanization in the manufacturing sector from comparable countries (Box 5.7). The relatively low number of responses citing land and buildings as relocation drivers can be partially explained by the heterogeneity of land/building costs within the Dhaka city itself – firms wishing to re-locate primarily to save on land and building costs could do so without necessarily having to leave the city limits. Of the 38 firms that re-located within the Dhaka city, around half cited land-related factor as their first main reason for relocating within Dhaka.

5.73 **Peri-urbanization is associated with the growth of a vertically integrated business model in the garment sector**. Peri-urban garment firms are more land intensive and more likely to be vertically integrated than garment firms in Dhaka city. In Dhaka city, 37 percent of the garment firms are vertically integrated (i.e. derive 100 percent of raw materials from internal production), compared to 46 percent of firms in Dhaka peri-urban areas, and the difference is statistically significant. This suggests that younger firms are opting for a consolidated, vertically integrated business model, which has advantages for international competitiveness. Vertically integrated firms have statistically significantly lower lead time than the average garment firm (with a time savings of four days), and are therefore best equipped to compete internationally. The findings are consistent with the stronger annual employment growth performance of the knitwear sector (9.1 percent over 2001-2009), where 77 percent of the firms are vertically integrated, relative to the woven garment sector (7.1 percent), where virtually no firm is virtually integrated in Dhaka metro .The vertically integrated business model is also developing in response to international buyers' preference to larger, "one-stop-shop" factories, which are easier to

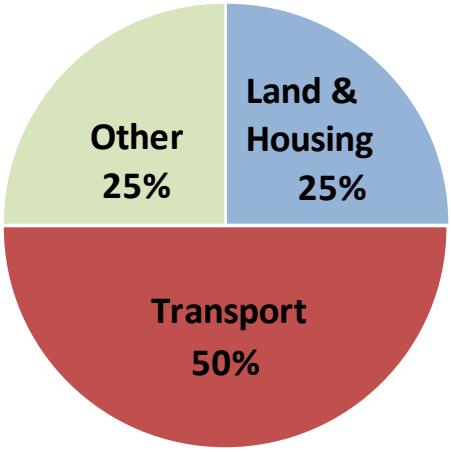
monitor for corporate social responsibility and compliance with environmental standards (e.g., treatment of effluents).

5.74 **Peri-urban areas have a comparative advantage in accessibility, and a cost advantage in land and housing…** Peri-urban areas perform better than Dhaka city in urban mobility and access to the highway—a critical advantage positioning peri-urban areas as competitive locations for the garment sector. Both peripheral urban and rural areas have a statistically significant advantage in access to land and buildings and they are a ranked as safer locations, based on firm managers' perceptions, compared to Dhaka city. The peripheral municipalities also have an advantage in access to housing for workers, relative to Dhaka city.

5.75 **…but they indirectly suffer from Dhaka city congestion and have lower access to infrastructure than Dhaka city**. Firms located in peri-urban areas suffer indirectly from the high congestion of Dhaka city, even if the costs are not as high as in Dhaka city. Almost 60 percents of firms' managers in Dhaka peri-urban areas travel to Dhaka regularly, on average 13 times per month, and they spend slightly above 2 hours per day traveling to business meetings, below the average for Dhaka city (2.5 hours per day), but significantly above the average for Chittagong city (0.9 hours per day). Travel time accounts for 33 percent of total visiting time, compared to 35 percent in Dhaka city and 19 percent in Chittagong city (Figure 5.39, Figure 5., and Figure 5.43). Access to power is also a constraint in peri-urban areas. Power outages range from 4.5 to 4.8 hours a day in peri-urban areas, compared to 4.2 hours per day in Dhaka city (Figure 5.). Access to public water and sewerage is considered inadequate in the peripheral municipalities, and the difference in performance relative to Dhaka city is statistically significant. Access to social services in peri-urban areas is ranked as less than adequate. Finally, peri-urban areas have a disadvantage in informal networking and proximity to government, relative to Dhaka city.

5.76 **Peri-urban areas have the highest percentage of worker turnover due to crime and violence**. Despite the fact that Dhaka peri-urban areas are ranked as safer city locations by firm managers than Dhaka city, the percentage of workers turnover associated with crime and violence is the highest in Dhaka peri-urban areas, in particular in the peripheral municipalities, where 18 percent of worker turnover is reported to be associated with crime and violence (Figure 5.47). The results indicate that firms' perceptions may not be in line with garment workers' perception of safety. Evidence also indicates that crime and violence increases workers turnover. Unsafe locations have statistically significant higher levels of worker turnover, with controls for firms' and location characteristics. In locations that are considered unsafe by workers, worker turnover is 25 percent, compared to 15 percent for locations that are perceived as very safe (Figure 5.48).

Figure 5.49: Reasons for Firms' Relocating from Dhaka City to Peri-Urban Areas



Source: Garment Firm Survey (2011).

Box 5.7: Agglomeration Forces and Peri-Urbanization in the Manufacturing Sector

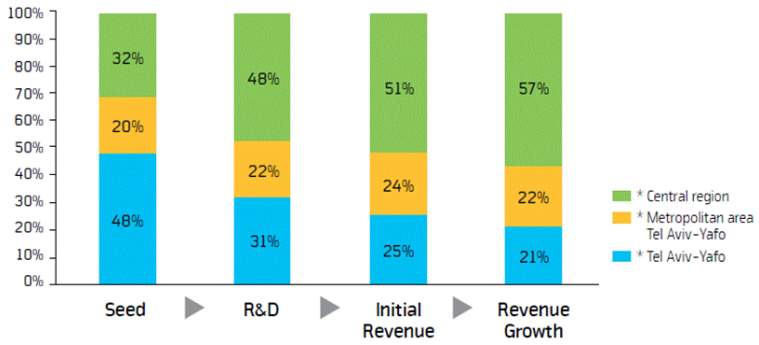
From firms' perspectives, location decisions are the outcome of a process involving two opposing forces promoting agglomeration and dispersion. When dispersion forces prevail, manufacturing sub-urbanizes. While the drivers of peri-urbanization in the manufacturing sector vary from country to country, and from city to city, they can be classified in the following four main categories.

Urban vibrancy: In highly competitive and vibrant cities, the productivity premium bids up costs, pushing less productive and/or maturing industries to peri-urban areas. For example, the city of Tel Aviv – Yafo attracts startups in their nascent stages (seed and R&D stages) due to its highly competitive eco-system. Once the companies move toward the initial revenue and revenue growth stages, they tend to leave the metropolitan area (Figure 5.).

Urban inefficiency: Peri-urbanization driven by inefficiency occurs when institutional and policy failures, rather than productivity premium, bid up costs of land and generate diseconomies such as road congestion. In early stages of economic development, inefficiencies in land and housing markets are the main factors pushing firms out of core urban areas. The garment sector in Dhaka City is a case in point.

Urban decline: In the case of urban decline, peri-urbanization is accompanied by a "shrinking" of the city in terms of urban population, as both economic activities and population relocate out of core city center. This pattern is common in cities highly dependent on one industry (e.g. mono-cities in the Russian Federation and the car industry in Detroit).

Figure 5.50: Firms' life-cycle and Location Choice– The Case of Tel-Aviv



VI. Chittagong City Corporation

5.77 **Chittagong City Corporation is becoming competitive as an industrial hub**. Chittagong is a highly specialized industry center, and has become more manufacturing oriented over the period 2001-2009. About 84 percent of 10+ employment in Chittagong city is in the manufacturing sector. The manufacturing of ready-made (woven) garments—with a contribution of over 20,000 new jobs per year and an annual growth rate of 10 percent—is the most important growth sector in Chittagong. The City Corporation also has an advantage in the manufacturing of basic metals, petroleum products, and precision and medical instruments; with local competitiveness accounting for an important share of job creation in these industries (between 15 and 60 percent). A number of sectors – agri-processing, textiles, and knitwear in particular—have the potential as emerging clusters. Manufacturing is concentrated in Chittagong City Corporation. The peri-urban areas have narrow, but growing industrial bases, with a competitive advantage in the manufacture of cotton textiles.

5.78 **Chittagong city has an advantage in accessibility, land and housing, but a disadvantage in access to markets**. Chittagong is a low-productivity, low-cost garment production center compared to Dhaka city. Garment firms in Chittagong are less productive than those in Dhaka, and the productivity

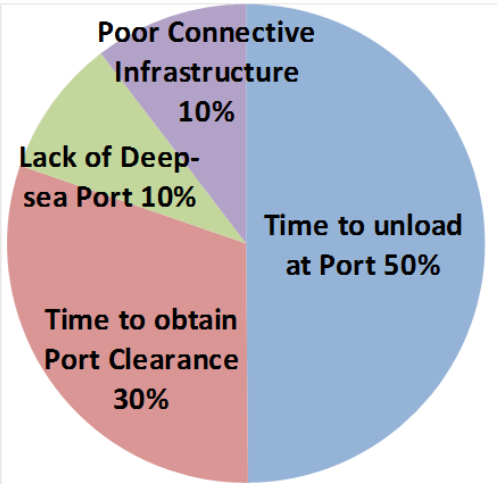
dividend of Dhaka firms is evident across the entire firm distribution. Dhaka city's productivity premium is associated with better access to market. Chittagong is a less competitive location than Dhaka in access to markets, in particular access to skilled labor—the factor garment firms value the most—and proximity to suppliers and support businesses. Chittagong city's lower productivity is compensated by its cost advantage. Chittagong has a strong advantage in land and housing compared to Dhaka city. Chittagong city is ranked by garment firms as the best performing location for availability and cost of land, buildings and housing for workers. Chittagong city has also a marked comparative advantage in accessibility to port, airport, highway and urban mobility. While Dhaka and Chittagong's performance on regulation and governance is similar and both broadly satisfactory, Chittagong city performs better than Dhaka city in the ability to obtaining permits (Figure 5.37).

5.79 **Chittagong's performance with respect to infrastructure access is mixed…** While Chittagong is considered to have adequate access to water, sewerage, telecom and social services, access to power supply – a critical input for garment firms – is considered highly inadequate, and reliability of power supply is worse in Chittagong City than in Dhaka City and peri-urban areas. For example, the average duration of outages in Chittagong City is about five hours a day compared to 4.2 in Dhaka City (Figure 5.).

5.80 **…but garment workers in Chittagong have significantly better living conditions than those in Dhaka city**. Garment firms in Chittagong city employ a workforce that has better access to basic services, compared to the garment workforce in Dhaka. Chittagong city has the highest percentage of garment workers that report to have regular access to piped water supply, electricity and garbage collection. For example, only 36 percent of the garment workers interviewed in Dhaka city have regular access to electricity, compared to 76 percent in Chittagong. About 40 percent of garment workers have regular access to water supply, compared to 66 percent in Chittagong city. Garment workers in Chittagong also live in least crowded housing units than workers in Dhaka (Figure 5. to Figure **5.63**).

5.81 **Chittagong has not been able to capitalize on its comparative advantage as the largest seaport city in Bangladesh**. Port cities play an important role in fast urbanizing economies, and Bangladesh is no exception (Box 5.8). The Chittagong port handles 80-85 percent of Bangladesh foreign trade, including the bulk of Bangladesh's main export – garments. However, Chittagong has not been able to leverage its natural comparative advantage and transform it into a true competitive advantage. Chittagong port is inefficient, and the slow turnaround time affects exports, in particular garments. For example, a ship of 800 twenty-foot equivalent units (TEUs) takes 8-12 hours to turn around in Singapore but at least six times as long (4.5 days) in Chittagong; discharge of freight rates for Calcutta are around 10 hours, compared to at least 18 in Chittagong.[49]

Figure 5.51: Factors Affecting Order Lead Time



Source: Garment Firm Survey, 2011.

5.82 **The Chittagong port is major bottleneck for the international competitiveness of the garment sector.** Lead time measures the number of days required to deliver an order from the time the order is received, and is the most important measure of international competitiveness in the garment

[49] World Bank, 2005d.

industry, together with price. Lead time is on average estimated at 88 days among the surveyed firms, against 40-60 of China and 50-70 of India.[50] Chittagong port is cited by 90 percent of firms as the main factor negatively affecting lead time in the industry. Half the firms cited the time it takes to unload at port as the main bottleneck. Regulatory constraint—the time required to obtain port clearance—was identified as the main obstacle for another 30 percent of firms. An additional 10 percent mention the poor connectivity, within the Dhaka-Chittagong corridor, as the main constraint.[51]

Box 5.8: The Competitive Advantages of Coastal Cities

Port cities played a key role in shaping the first stages of the urban transition in both Europe and the United States. Because roads and rail were costly, every large city in the United States in the 1900s was located on a waterway. New York was America's best port. The prominence of port cities, however, declined with the reduction in transportation costs for manufacturing goods. A few coastal cities, such as New York, managed to transform themselves and remained competitive, while others, such as Liverpool, lost their competitive edge.

In many developing countries, port cities still have strong competitive advantages. In China, urbanization is concentrated in coastal areas. China's dynamic coastal cities are growing faster than its inland cities, thanks to their natural competitive advantage of access to overseas markets. The government has proactively supported the development of coastal cities, and has taken measures to amplify their comparative advantages by investing in urban infrastructure ahead of demand, and proactively seeking to attract foreign investments by designating the areas "Special Economic Zones." In India, a city's proximity to international seaports and highways connecting large domestic markets is the most important factor affecting its competitiveness and attractiveness for private investment (Lall et al., 2010).
Source: Lall et. al., 2010.

Export Processing Zones (EPZs)

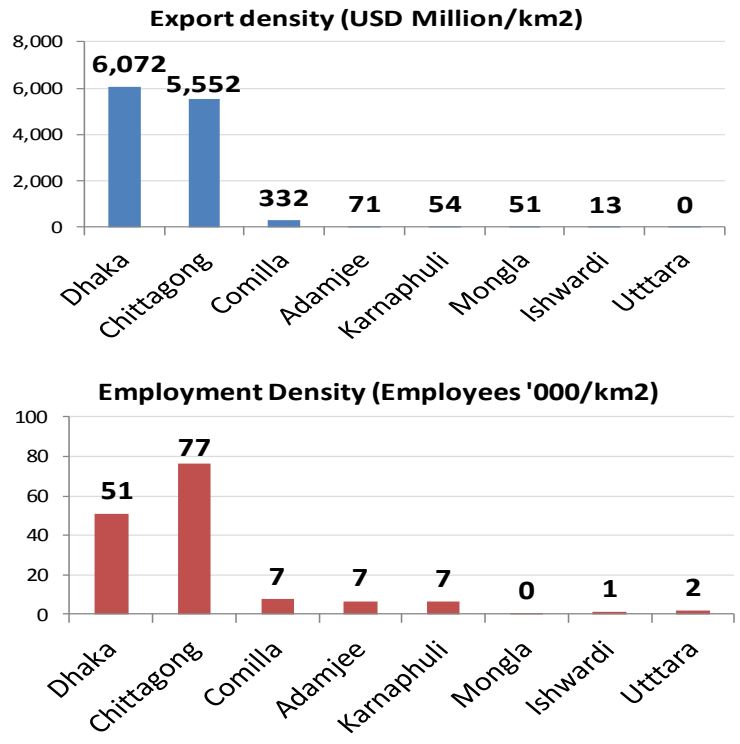
5.83 **EPZs are higher-productivity, higher-cost locations**. Firms located in EPZs are characterized by significantly higher foreign ownership than non-EPZ firms. About 65 percent of EPZ firms are fully foreign-owned compared to only one percent of non-EPZ firms. Evidence indicates that EPZs are more-productive garment locations, with higher TFP than non-EPZ garment firms, even when controlling for firms' characteristics. From a productivity viewpoint, therefore, EPZs are attractive to garment firms. However, wages and building-rent levels are also significantly higher statistically for EPZ firms than for non-EPZ firms. The cost differential suggests that the attractiveness of the EPZs from a productivity viewpoint is interacting with constraints on the supply-side to bid up wages and rent levels. Regulation and the quality of factory premises may also have a role to play in increasing costs. The results are consistent with the fact that both Dhaka and Chittagong EPZs are currently full and sought-after locations for garment firms.[52]

5.84 **EPZ firms are partially shielded from urban inefficiencies**. Chittagong EPZ is the best-performing location of all the surveyed locations, and the only one with satisfactory performance across all competitiveness factors, including access to electricity. No cases of urban-related turnover are reported by firms located in Dhaka and Chittagong EPZs. Firms located in both Dhaka and Chittagong EPZs also benefit from more reliable access to electricity than non-EPZ firms. The duration of power outages is 2.1 hours per day in Dhaka EPZ and 0.5 hours per day in Chittagong EPZ, compared to an average of more than 4 hours outside EPZs. In the Dhaka EPZ, the main bottlenecks identified by garment firms are access to the port, proximity to support businesses and difficulty obtaining permits (Figure 5.53, Figure **5.58**, and Figure **5.59**).

[50] Haider, 2007.
[51] World Bank, 2011b.
[52] Farole and Akinci (2011).

5.85 **The EPZ program has failed to make lagging regions competitive and attractive for garment firms**. Contrary to the very successful EPZs in Dhaka and Chittagong,[53] the EPZs located in the lagging western region (Uttara, Ishwardi and Mongla) have not succeeded in attracting garment firms. EPZs in Dhaka and Chittagong have higher export density and employment density than all other EPZs. The only EPZ that has managed to attract firms outside Dhaka and Chittagong, at a gradual but steady pace, is the Comilla EPZ, mostly due to its strategic location on the Dhaka-Chittagong corridor and its relatively good connectivity (Figure 5.52 and Box 5.9).

Figure 5.52: EPZ Performance – Export and Employment Densities (2008-09)



Source. BEPZA (www.epzbangladesh.org.bd)

[53] The Adamjee and Karnaphuli EPZs located 15 km and 10 km from Dhaka and Chittagong city have only recently become operational.

Box 5.9: "Moving Jobs to People": A review of Bangladesh EPZ Program as an Instrument for Regional Development Policy

Bangladesh's Export Processing Zone (EPZ) program was established in the early 1980s, before the phenomenal growth of garment exports, as a policy tool to catalyze industrial development, attract foreign private investment and generate employment. By locating a number of EPZs in the western region, the program was conceived as a spatially targeted policy to direct investments to lagging regions and to reduce regional equalities. While the EPZ program has been relatively successful in attracting investments, the strategy of using EPZs as an instrument for de-concentrating economic production outside the Dhaka and Chittagong growth poles has not worked.

The first EPZ at Chittagong was completed in 1983-1984. The Dhaka EPZ—Bangladesh's second zone—was established in 1993 and expanded in 1997. There are now eight EPZs operating under the Bangladesh Export Processing Zones Authority (BEPZA), with two new zones in the planning stage. In addition, the first privately-managed zone operated by the Youngone Corporation of South Korea is under construction in Chittagong. Of the companies operating in EPZs, nearly two-thirds are in the garment sector.

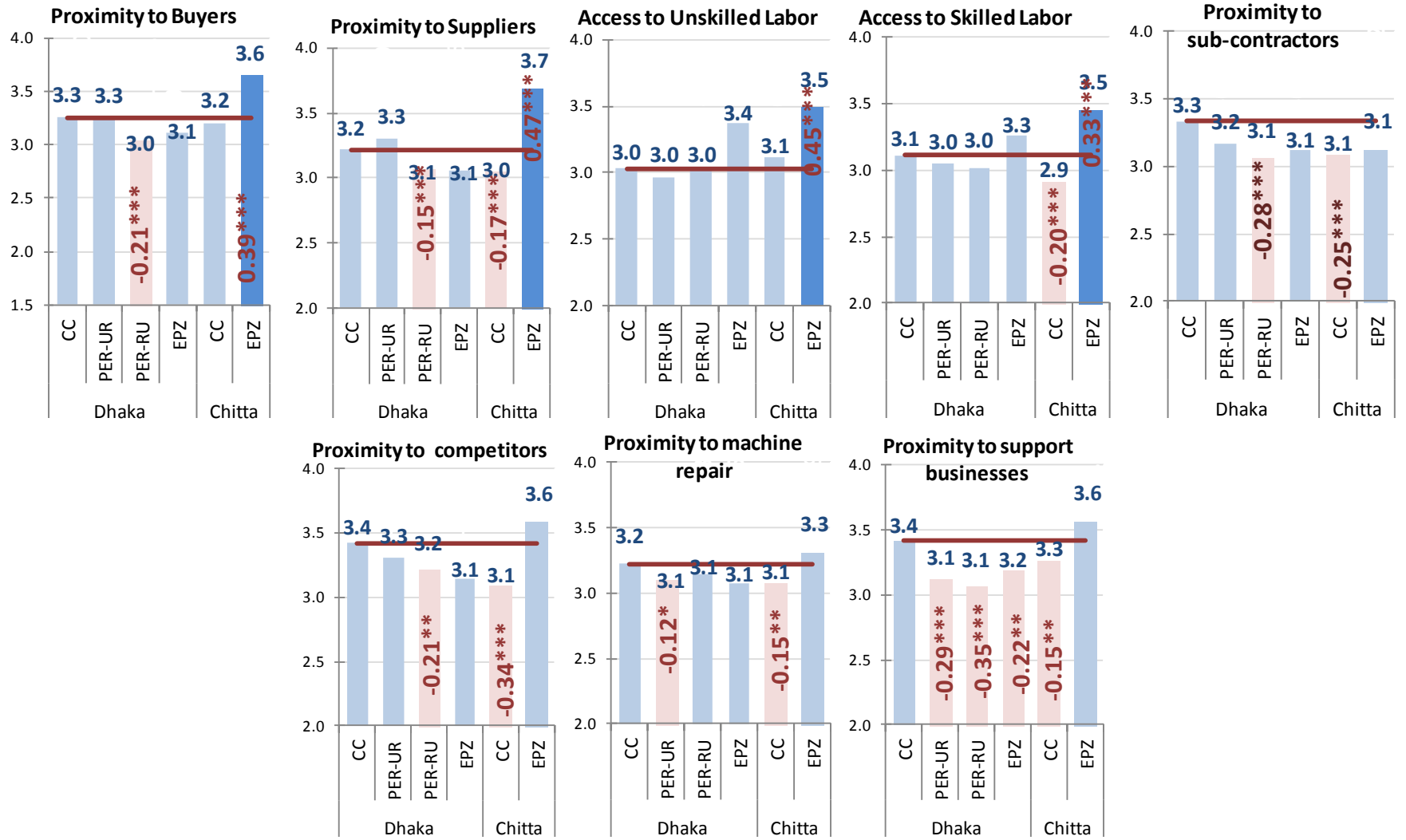
While the zones are spread around the country, economic activity in the EPZs is highly concentrated. Of the eight operating zones, just two of them—Chittagong EPZ and Dhaka EPZ—account for more than 80 percent of the companies operating in the EPZs and 90 percent of the jobs and exports. The Adamjee EPZ, located in Narayanganj, 15 km from Dhaka city center, is fully operational and has been attracting investment at a fairly rapid rate. Karnaphuli, in proximity to the Chittagong port, is still partly in project stage, but has already attracted some investment. Similarly, the Comilla zone—located on the Dhaka-Chittagong corridor—has grown gradually but steadily. However, the Uttara, Ishwardi, and Mongla EPZs, located in the western region, have performed poorly. These zones, located at great distance from the Chittagong port and Dhaka, have generated fewer than 3,000 jobs.



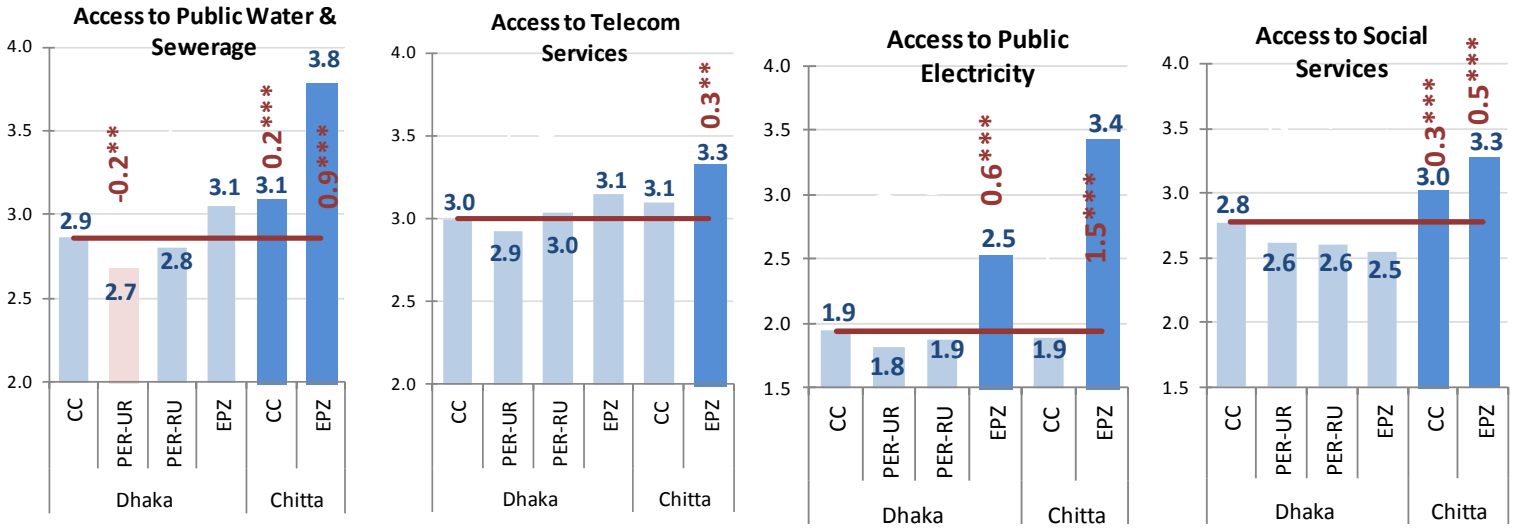
Source: Farole, 2010.

Figure 5.53: Location Performance Relative to Dhaka City, by Location Factor

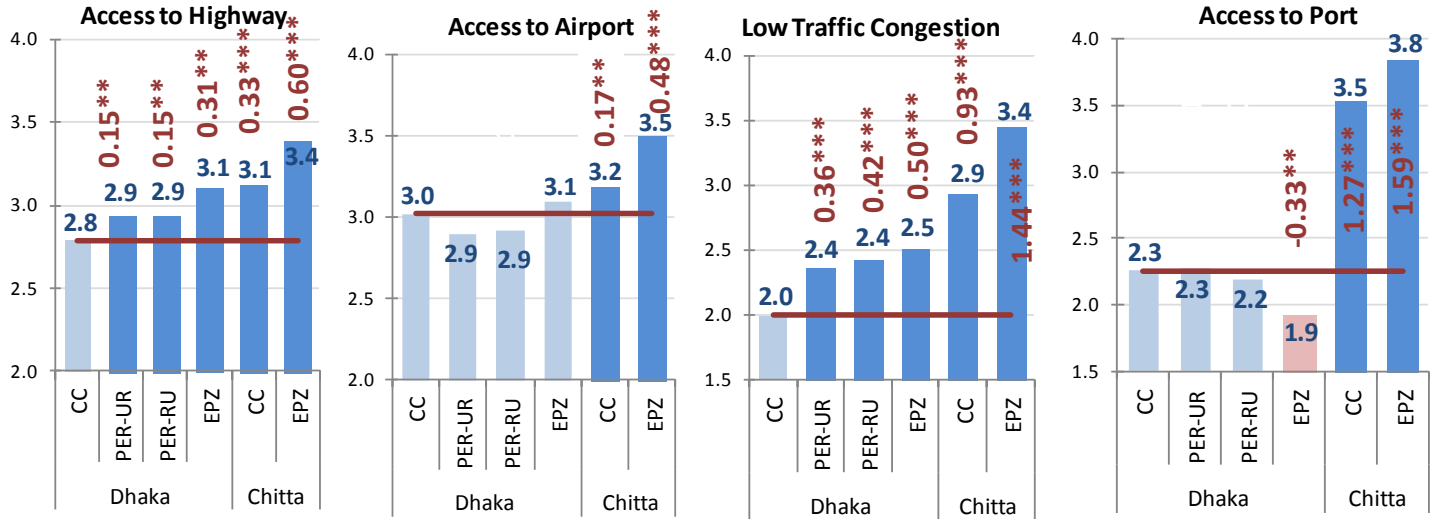
Access to Markets and Labor



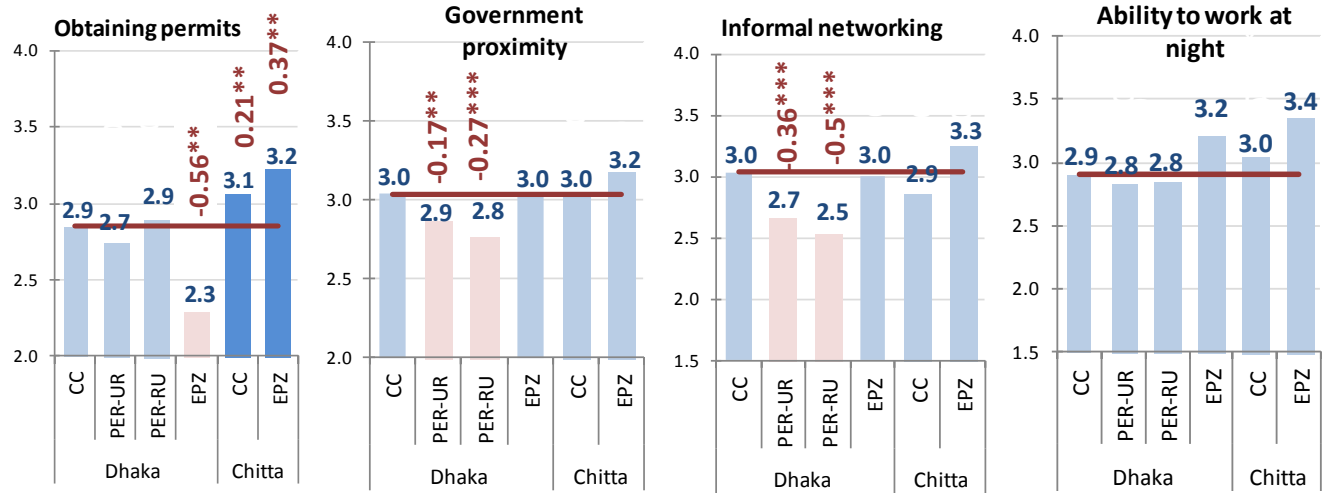
Infrastructure



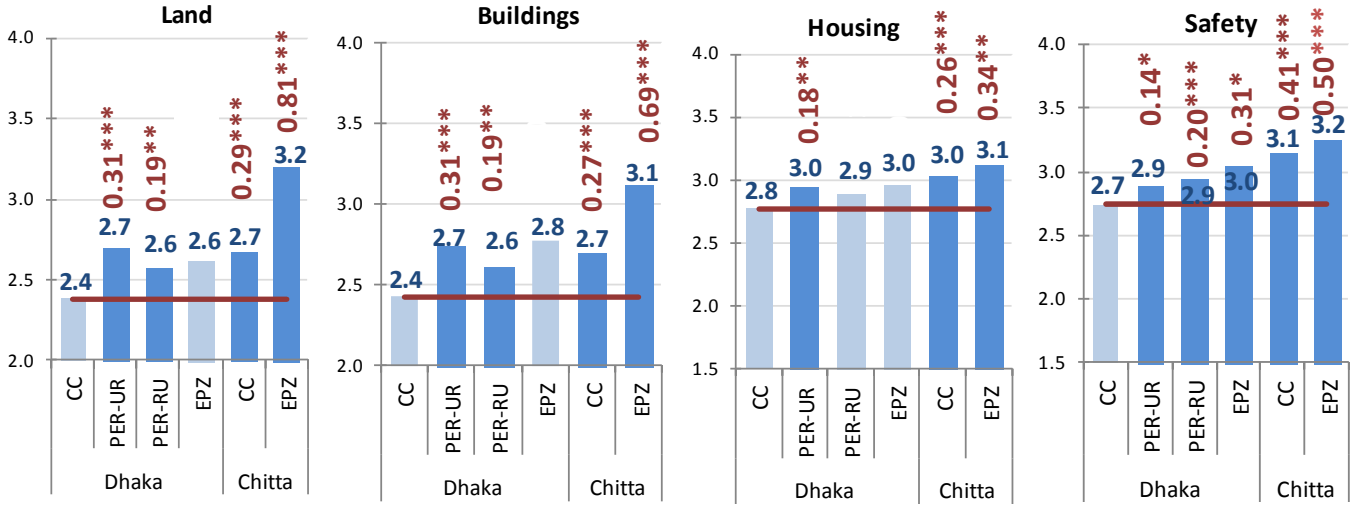
Accessibility



Governance

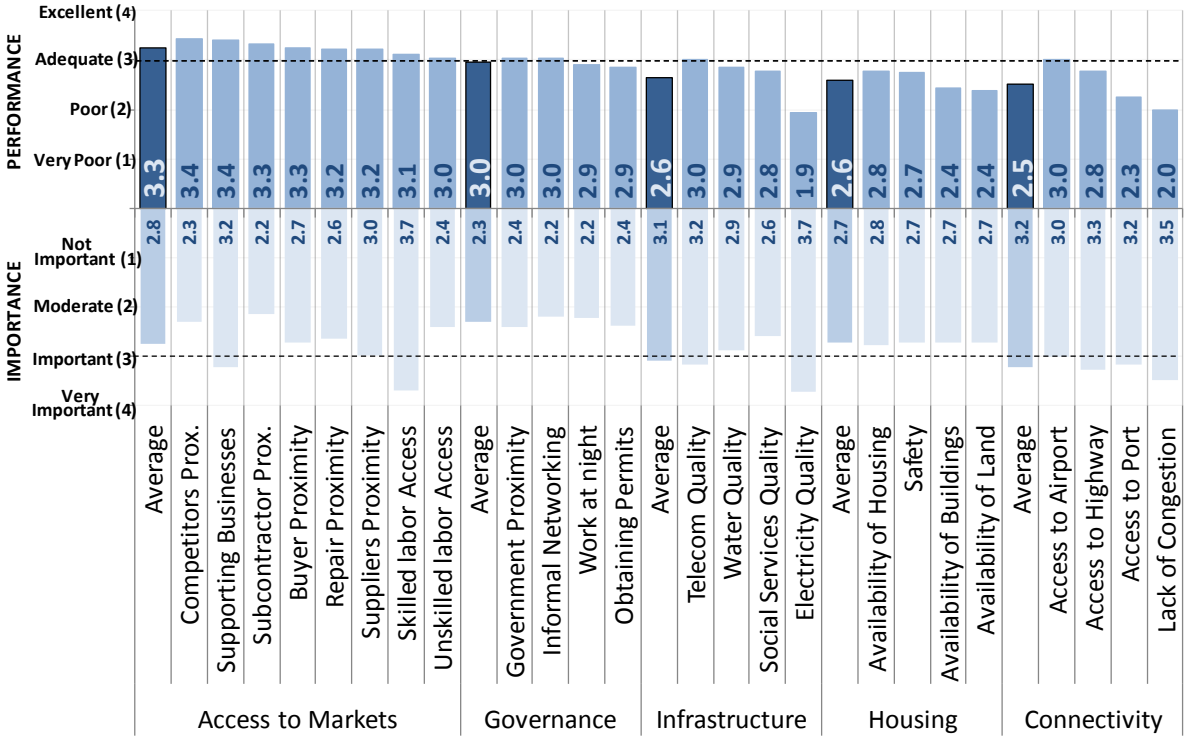


Land and Housing



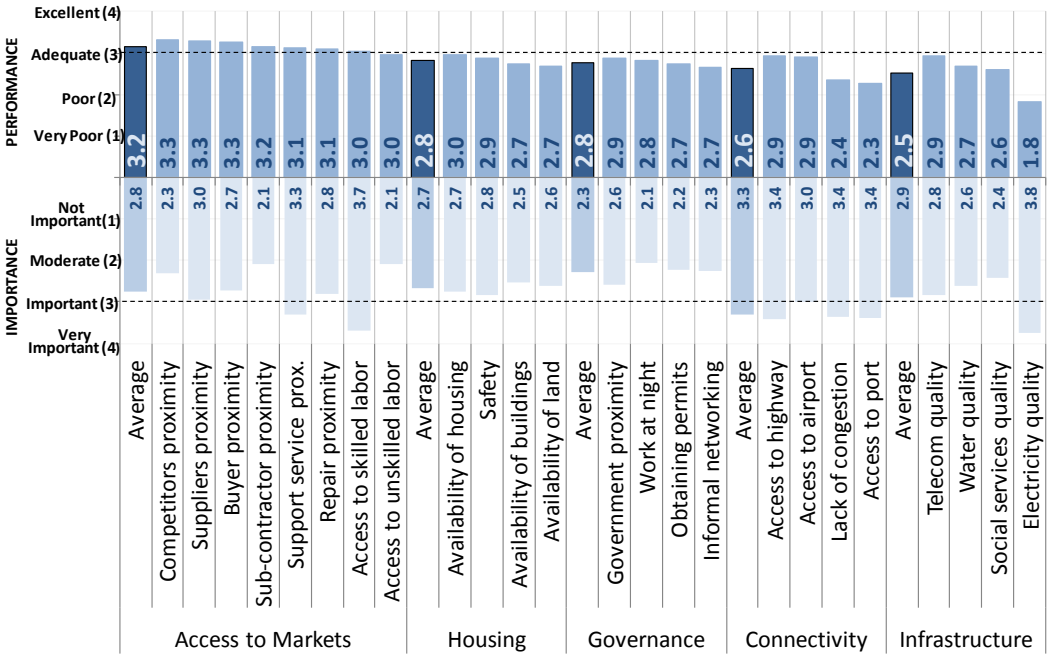
*Source: Garment Firms Survey, 2011. Performance ranking: (1) Very Poor; (2) Poor; (3) Adequate and (4) Excellent. Note: statistically significant under- performing (pink) and over-performing (blue) locations relative to Dhaka City are highlighted with * depending on significance level. *** denotes significance at 1% level; ** at 5% level; * at 10% level.*

Figure 5.54: Location Factors, Performance vs Importance, Dhaka City



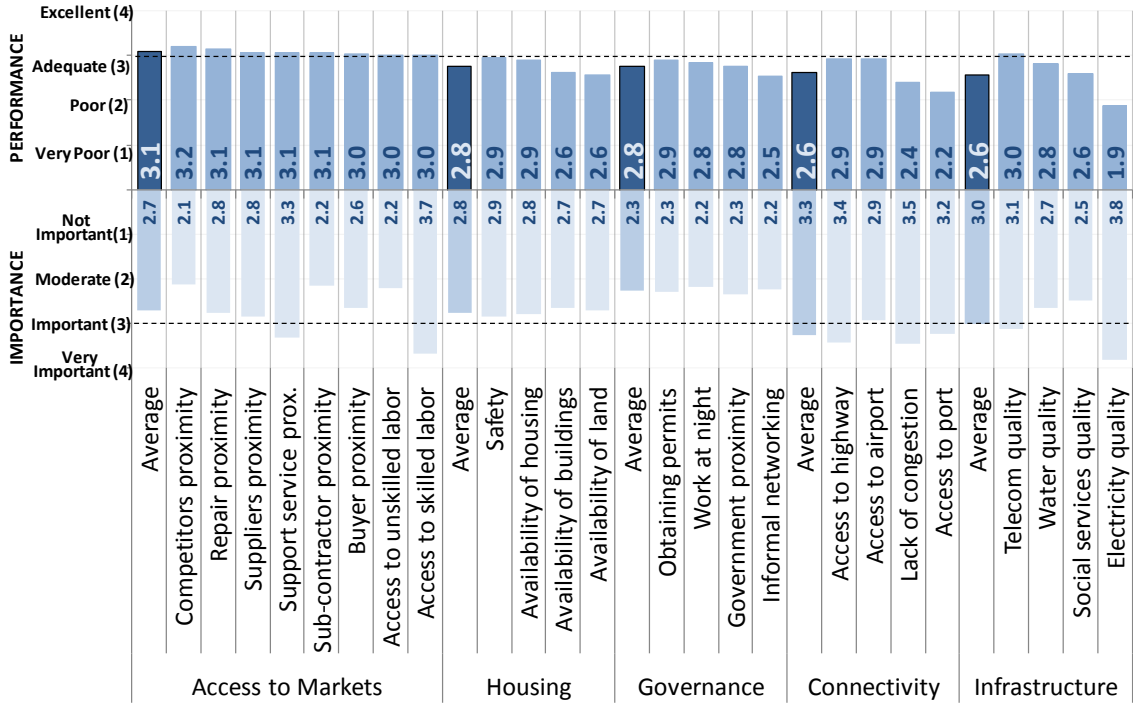
Source: Garment Firm Survey, 2011.

Figure 5.55: Location Factors, Performance vs Importance, Dhaka (Urban) Peri-Urban Areas



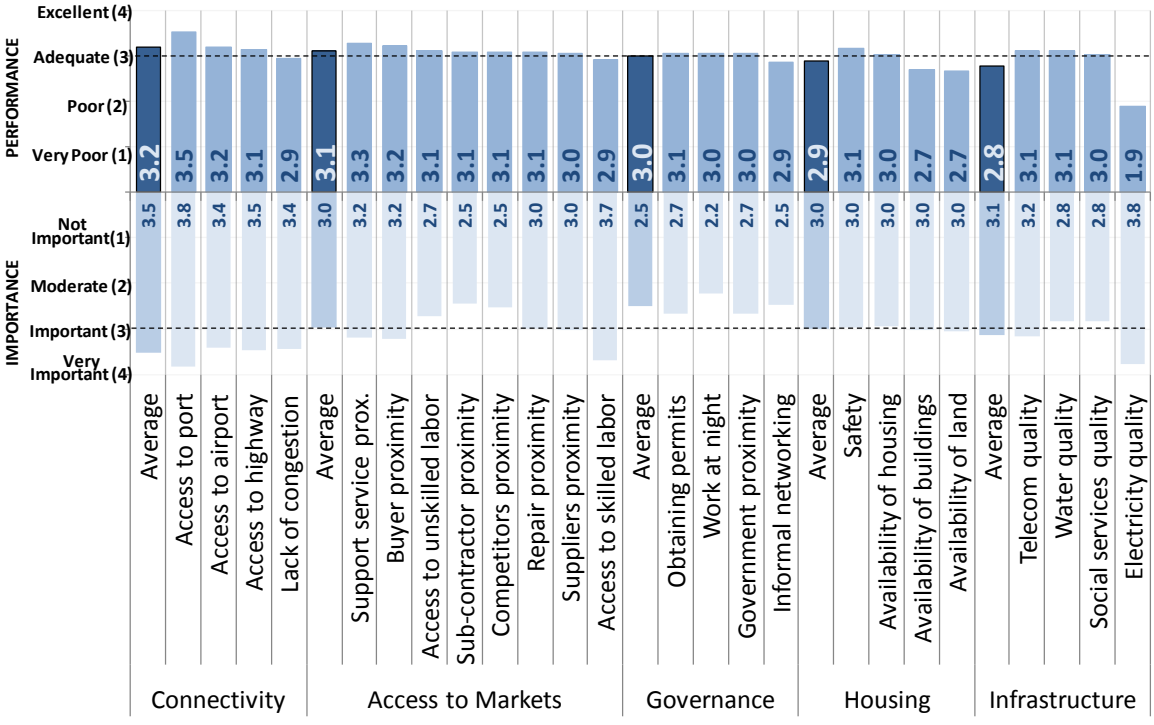
Source: Garment Firm Survey, 2011.

Figure 5.56: Location Factors, Performance vs. Importance, Dhaka (Rural) Peri-Urban Areas



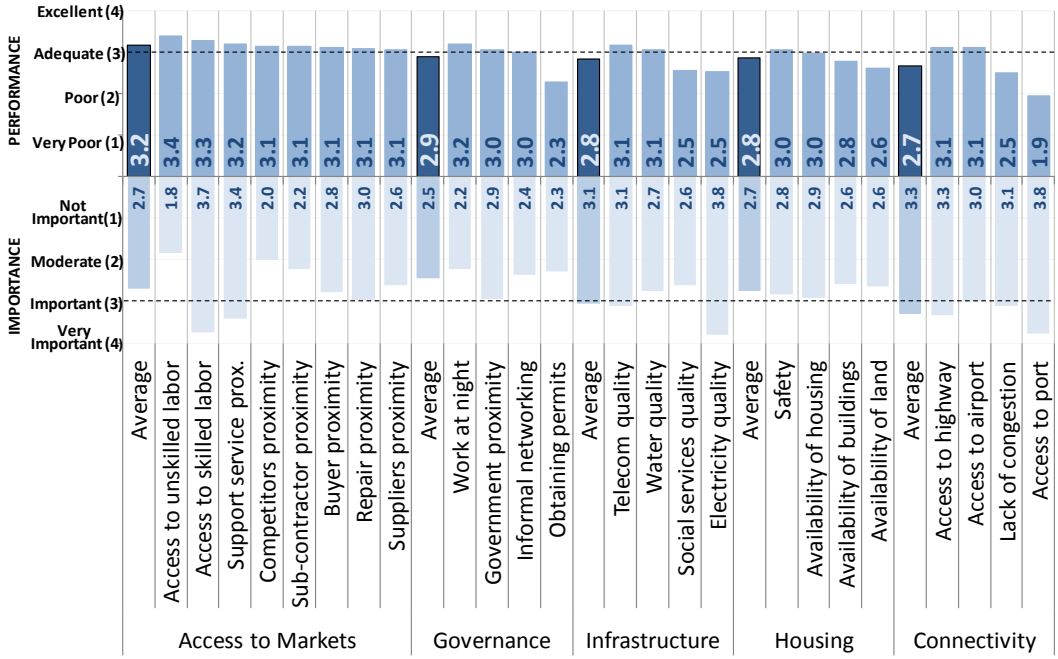
Source: Garment Firm Survey, 2011.

Figure 5.57: Location Factors, Performance vs. Importance, Chittagong City



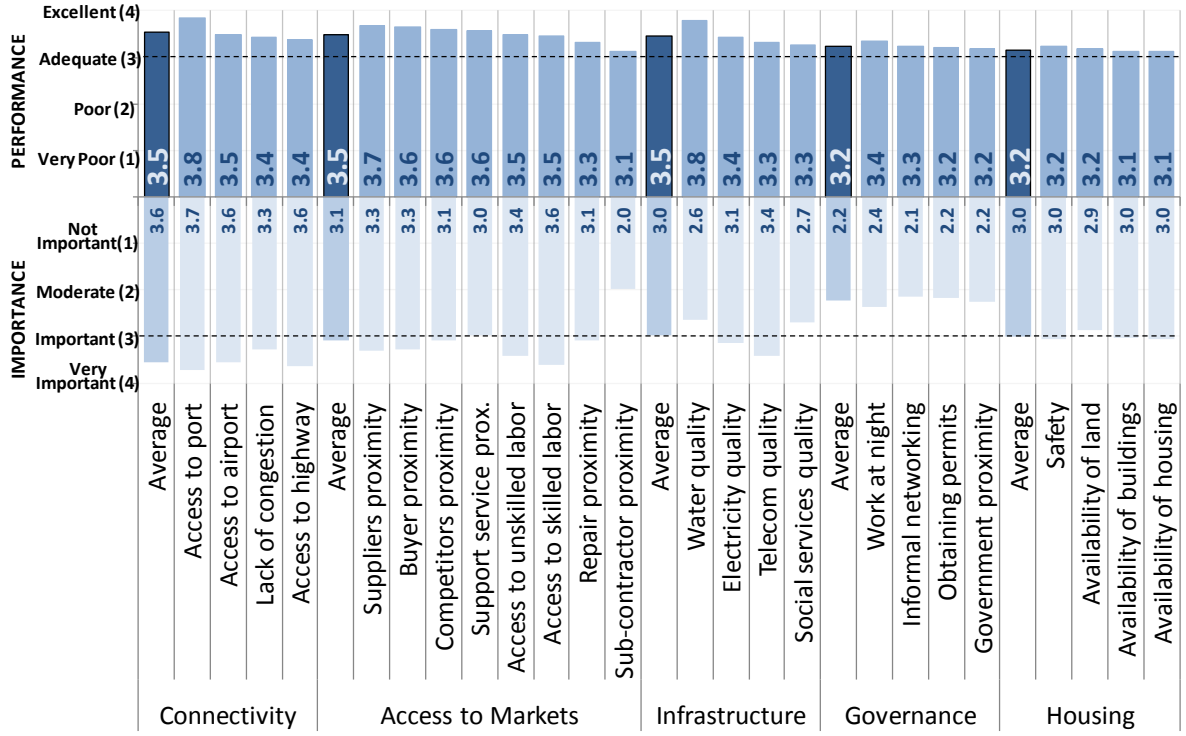
Source: Garment Firm Survey, 2011.

Figure 5.58: Location Factors, Performance vs Importance, Dhaka EPZ



Source: Garment Firm Survey (2011).

Figure 5.59: Location Factors, Performance vs. Importance, Chittagong EPZ



Source: Garment Firm Survey, 2011.

Figure 5. 60: Power and Water Outages, Hours/Day, by Location

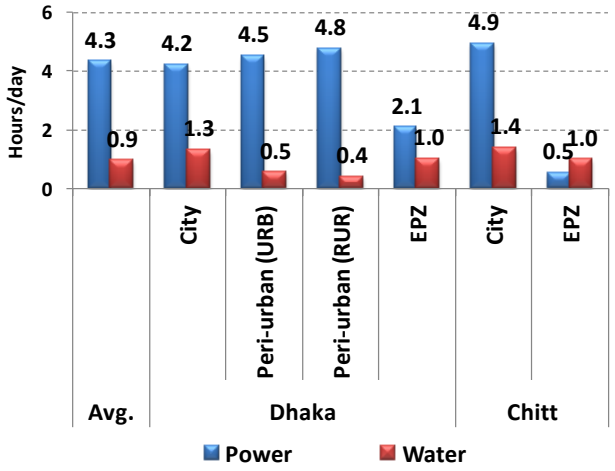
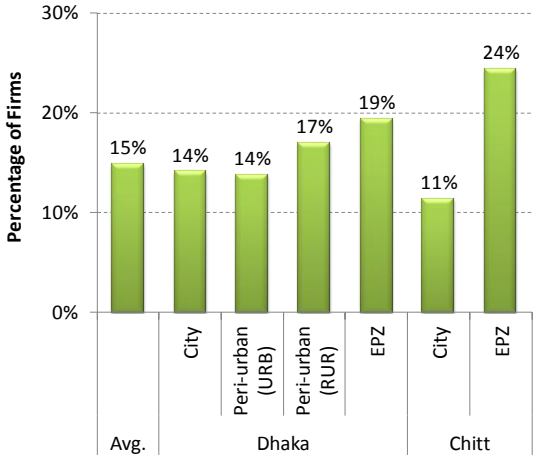


Figure 5. 61: Firms with Effluent Treatment Plants (percentage), by Location



Source: Garment Firm Survey, 2011.

Figure 5.62: Garment Workers- Regular Access to Electricity

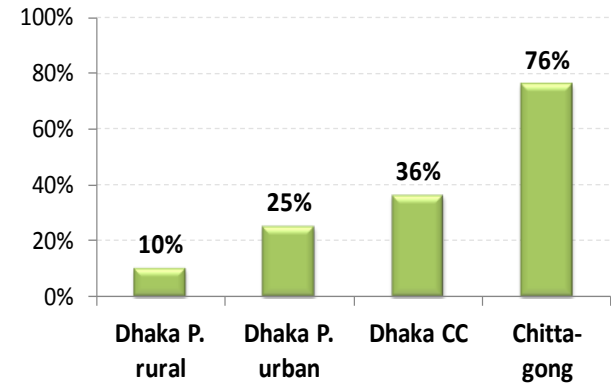
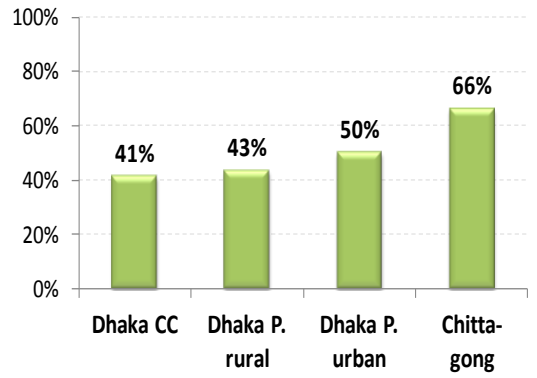


Figure 5.63: Garment Workers Regular Access to Piped Water Supply



Source: Garment Firm Survey, 2011, worker questionnaire.

Figure 5.64: Garment Workers Regular Access to Garbage Collection

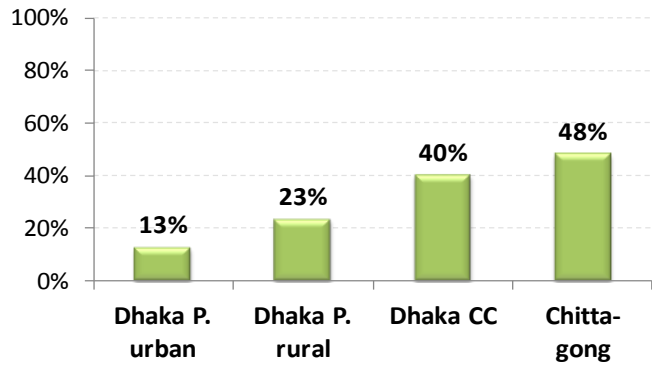
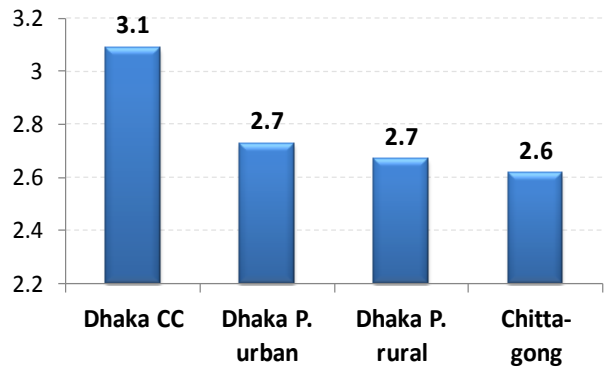


Figure 5.65:Garment Workers Over-crowding, People per Room



Source: Garment Firm Survey, 2011, worker questionnaire.

VII. Medium and Small Cities

5.86 **Second-tier cities are more service-based economies, and have not yet found their comparative advantages**. The four second-tier cities (metros and city corporations) have a different employment structure than the two main metro areas. About 65 percent of formal jobs are generated by the service sector, in particular public administration and social services. Secondary cities have a narrow and declining industrial base, and have yet to find their competitive advantages. The largest industrial clusters in secondary cities—jute, fabricated metals and chemicals—are growing less than the national average. A potential emerging cluster is agro-processing, which exhibited an annual growth rate of 6 percent, with 20 percent of that growth driven by local competitiveness.

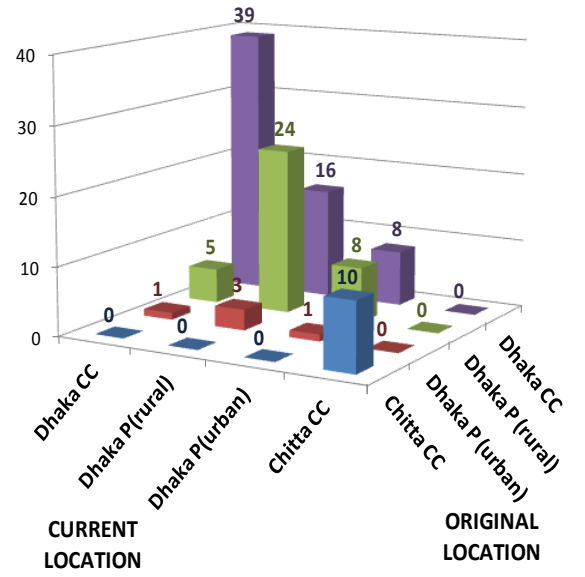
5.87 **Non-metro *pourashava* (municipalities) have a small but growing manufacturing base, with a competitive advantage in cotton textiles**. Textiles, particularly cotton and jute, are among the largest and fastest-growing industrial clusters in non-metro *pourashava* (i.e., municipalities located outside metropolitan regions). The growth in jute employment in *pourashava* is consistent with the recent evidence of a resurgence of the jute sector in the global market as a result of its environmentally-friendly nature. Comilla, located on the Dhaka-Chittagong corridor, is one of the *pourashava* with the most vibrant economic base. The municipality has a large cluster of footwear manufacturers, although the sector's contribution to local job creation has recently declined. Clusters of ceramic manufacturers are also found in a number of *pourashava*, such as Comilla, Bogra and Jessore. There are emerging garment clusters in *pourashava*, although they are mostly concentrated in the Eastern region. Two *pourashava* adjacent to Dhaka metro (Sreepur and Kaliakair) account for 70 percent of garment employment in non-metro *pourashava*.

5.88 **Medium- and small-size cities[203] are uncompetitive "distant places" from the perspective of the private sector**. Access to markets is cited by garment firms as main disadvantage in medium and small cities. The overwhelming majority of firms reported access to skilled labor as the main constraint, followed by distance to other garment firms, and access to transport infrastructure, including the port. Proximity to Dhaka makes a location more competitive and favors diversification out of agriculture, as

[203] Medium- and small-size cities are defined for the purpose of the study to include secondary city corporations and *pourashava* (municipalities).

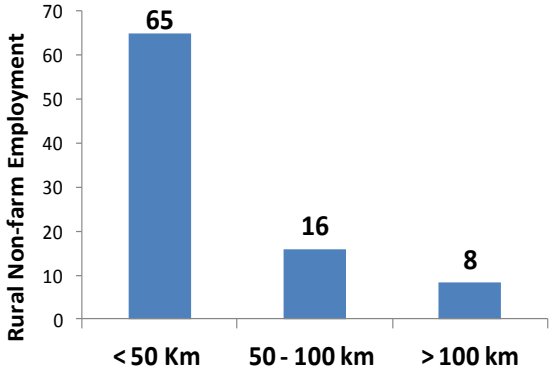
the rural (non-metro) density of non-farm employment is significantly higher in proximity to Dhaka metro (Figure 5.67).

Figure 5.66: Garment Firms' Relocations



Source: Garment Firm Survey, 2011.

Figure 5.67: Rural Non-Farm Employment Density: (non-metro employees/km^2)



Source: 2009 Economic Census data.

5.89 **Medium- and small-size cities need to find their competitive advantage by relying on local entrepreneurship,** as opposed to attracting existing firms from elsewhere through relocation incentives. Garment firms' location choices are characterized by path dependency. Only 10 percent of the sampled firms relocated to a different location, and another 10 percent reported that they would desire to relocate. Of those firms that did relocate, none moved between Dhaka and Chittagong. The path dependency reflects a tendency for re-locating firms to move only short distances, in line with previous findings for other countries (e.g., Brazil).[204] The path dependencies in firms' location choices suggest that cities distant from Dhaka and Chittagong will have limited success in attracting garment firms, and that medium- and small-size cities need to rely on local entrepreneurship to reap the benefits of private sector investments.

VIII. Building a Competitive Urban Space in a Global Economy: Strategic Directions

Bangladesh's cities have to take proactive measures to improve and sustain their competitiveness. Strengthening competitiveness across the spectrum of Bangladesh's cities calls for coordinated and multipronged interventions encompassing infrastructure, institutions and incentives to: (i) transform Dhaka into a globally competitive metro region; (ii) leverage Chittagong city's natural competitive advantage as a port city, (iii) create an enabling environment for local economic development in small medium size cities, and (iv) promote strategically located EPZs to foster industry competitiveness and spearhead urban reforms.

5.90 **To reach MIC status, Bangladesh needs to build an urban space that is capable of innovating and is better connected and more livable.** A competitive urban space in a global economy

[204] Hamer (2005).

is innovative, connected and livable. Promotion of local entrepreneurship and innovation, a high-quality environment with an effective supply of land and property, and efficient infrastructure with good internal and external connectivity are critical for city competitiveness. To support the country in its journey to MIC status by making its cities competitive, Bangladesh's urban space need to be transformed into:

(i) *An urban space with the capacity to innovate, within the context of a productive and diversified urban economy*. From an economic perspective, Dhaka metro region needs to evolve from an urban form based on the production of low-value manufacturing products to an economy based on a high-value industrial and service mix. The formation of new firms around high value products or technologies is a positive sum game, not just for the metropolitan area but also for the country as a whole. To move to high value products and services, Dhaka metro region needs highly skilled human resources and an innovation capacity fueled by the cross-fertilization of ideas characterizing large metropolitan areas. For example, high-performing metro regions such as Stockholm and Helsinki have developed high-value clusters in telecommunications, biopharmaceuticals, and to a lesser extent financial and business services, and transport and logistics, supported by a network of universities, by making use of the economic diversity that a metro region can provide.[205]

Table 5.4: Medium- and Small-size Cities' Location Disadvantages from Garment Firms' Perspective

City		Disadvantages		
		Main	**Second**	**Third**
Secondary City	**Khulna**	Skilled labor	Distance to garment firms	Limited access to suppliers
	Rajshahi	Skilled labor	Difficulty of loading and unloading of final product and raw-materials	Distance to garment firms
	Sylhet	Skilled labor	Distance to garment firms	Far away from port
	Barisal	Skilled labor	Limited accessibility	Distance to garment firms
Pourashava	**Comilla**	Skilled labor	Distance to garment firms	Far away from port
	Bogra	Far away from port	Distance to garment firms	Limited access to government
	Jessore	Skilled labor	Far away from port	Distance to garment firms

Source: Garment Firm Survey, 2011.

(ii) *A better-connected urban space, both internally and with the global economy.* The most successful cities have the infrastructure to move goods, services and people quickly and

[205] OECD, 2006.

efficiently. Dhaka's traffic congestion has high economic costs, and Chittagong City's port is a major bottleneck for the competitiveness of Bangladesh's industries. Medium- and small-size cities' main competitiveness constraint is their "distance" to markets. Dhaka metro region needs to be better-connected internally and with its peri-urban areas, and both Dhaka and Chittagong have to strengthen their connection to the global economy. Improved connectivity within the Bangladesh's system of cities—in particular the Dhaka-Chittagong corridor—is also important for productivity and export competitiveness.

(iii) *A more livable and attractive urban space for firms and workers alike.* The development of an economically dynamic urban space in the Dhaka metro region has occurred at the expense of livability. Dhaka is one of the 10 bottom-ranked cities with the worst living conditions in the world according to the Economist Intelligence Unit's global livability ranking report. Improving livability is a priority to support Bangladesh's transformation to MIC status. Dhaka's inadequate living conditions have already started eroding its comparative advantage in low-value-added, labor-intensive manufacturing, by increasing firms' operational costs due to high workers turnover and crime and violence. The livability of the urban space will become an even more binding constraint to economic growth as Bangladesh transitions to a new business model based on higher value added industries and services, requiring a highly skilled and internationally mobile workforce.

5.91 **Cities need to take proactive measures to improve and sustain their competitiveness**. Evidence indicates that Bangladesh's urban space is falling behind in all three drivers of competitiveness (innovation, livability and connectivity). Although market forces contribute to shape the development of the urban landscape, urban policies and actions are increasingly important for competitiveness as large cities compete globally in attracting mobile workforce and capital. Increasing competitiveness of the urban space requires therefore a shift from reactive and remedial measures to proactive urban policies. It also requires bringing local governments at the forefront of the local competitiveness agenda, in partnership with central agencies and research institutions, since it is the quality and the competitiveness of the local assets—a city's livability and capacity to innovate and connect—that ultimately determines the competitiveness of the urban space.

5.92 **The study identifies four broad strategic directions to improve innovation, connectivity and livability across the full spectrum of Bangladesh's cities**: (i) transform Dhaka into a globally competitive metro region, (ii) leverage Chittagong's natural comparative advantage as a port city, (iii) develop an enabling environment for local economic development in medium- and small-size cities, and (iv) promote strategically-located EPZs to strengthen competitiveness and spearhead urban reforms.

5.93 **Implementing these strategic directions require three policy tools: infrastructure, institutions, and incentives**. Empirical evidence reinforces the policy imperative for improving urban and connective infrastructure in Bangladesh's cities, a major determinant of a city's competitiveness. The results also point to the need to pay greater attention to building institutions and providing incentives for improved competitiveness. Most importantly, it suggests that all three policy tools—infrastructure, institutions and incentives— need to be pursued in a coordinated fashion, as each of them is necessary for urban competitiveness.

5.94 **The rest of this section identifies specific policies and actions related to each of the four broad strategic directions to improve innovation, connectivity and livability across the full spectrum of Bangladesh's cities.** Table 5.5 presents a matrix classifying the main policies and actions by goal (innovation, connectivity and livability) and policy tool (infrastructure, institutions and incentives).

The Four Strategic Directions and Actions

(i) Transform Dhaka into a Globally Competitive Metro Region

Policy message 1: Develop appropriate institutional mechanisms for core-periphery coordination in the emerging Dhaka metro region.

5.95 The development of a Dhaka metro region has gone ahead of planning and provision of services, and its economic boundaries are expanding. There is no institutional mechanism to ensure integrated economic and physical planning, provision of infrastructure and services at the metropolitan level. Peri-urban areas are growing under the radar, in spite of their important economic function as industrial centers, and have not been able to develop to their full potential, as their infrastructure requirements have largely been unmet. Successfully managing an expanding urban agglomeration of the size of Dhaka would require institutional mechanisms to support core-periphery coordination. This is particularly the case at this critical juncture of metropolitan development, with the emergence of peri-urban areas as prime manufacturing centers. The priority is to define the boundaries of the Dhaka metro region based on economic criteria such as self-contained labor markets and develop coordination mechanisms to integrate peri-urban areas into spatial planning and economic development at the appropriate geographical level. International experience suggests that there is no one size fits all model for metropolitan coordination and management, and that the solution needs to be tailored to the local context.

Policy message 2: Improve infrastructure to leverage Dhaka City's productivity advantage.

5.96 Power and telecoms are among the most important competitiveness factors identified by the garment firms. While Dhaka city has an advantage in the reliability of power supply compared to per-urban areas and Chittagong city, it is inadequate to support the growth of globally competitive and high-value-added industries and services. Strengthening the competitiveness of the telecoms industry is an important step to transform Dhaka into a globally competitive metro region. The priority is to prepare an integrated infrastructure investment and capital development plan for the entire metropolitan level, with strong stakeholder coordination to identify investment priorities and financing options.

Policy message 3: Enhance accessibility to manage the growing diseconomies of agglomeration in Dhaka city.

5.97 Accessibility is the main obstacle to competitiveness in Dhaka city, and the costs of traffic congestion are quickly spreading to the entire Dhaka metro area. Large-scale, coordinated and sustainable road and public transportation investments, including a mass rapid transport system, are needed to address the challenges of urban mobility in Dhaka. Particular attention should be paid to link Dhaka city with peripheral rural areas, which are playing an important economic function but have a connectivity disadvantage relative to the peripheral municipalities, and improve Dhaka connectivity with the global economy.

Policy message 4: Upgrade peripheral infrastructure in a bid to transform Dhaka peri-urban areas into globally competitive manufacturing centers.

5.98 The peri-urbanization of the garment industry is expected to accelerate, with the emergence of a new business model for garment production, characterized by high land intensity, and the garment sector will continue to be a prime contributor to Bangladesh's economic development for many years to come. A globally competitive garment sector, therefore, needs competitive Dhaka peri-urban areas. While peri-urban areas benefit from proximity to Dhaka and have a comparative advantage in accessibility, and a cost advantage in land and housing, their infrastructure is not on par with Dhaka city's, and is inadequate

to support a globally competitive industry. Policy interventions should focus on the improvement of productive infrastructure, in particular power and telecoms, and basic services, such as water and sewerage, to support the younger garment clusters at the periphery of the Dhaka metro region. This would require understanding the business model of the peri-urban garment clusters and the challenges they face to remain competitive in a global economy, as their characteristics are distinct from the old, consolidated garment clusters in Dhaka city. An action plan should be developed to strengthen their competitiveness.

Policy message 5: Strengthen institutions for a more efficient and integrated land and housing market in the Dhaka metro region.

5.99 Constraints in land availability and housing are a manifestation of inefficient management of Dhaka's agglomeration economies, and, if not addressed quickly, will stifle the long-standing tradition of local entrepreneurship and private-sector dynamism that characterizes Dhaka city. The main reason for "urban-related" separations cited by garment workers in Dhaka city is the availability of housing followed by high costs of living. Functioning land and real estate markets in the Dhaka metro region are particularly important to release land to the market and provide efficient price signals for firms locating in Dhaka's peri-urban areas, and in the longer-term to facilitate the re-use of urban assets in Dhaka's central business district. Developing a fully-functioning housing market would require building accountable and service-oriented institutions for efficient land and housing markets, in a partnership with the private sector. The priority is to carry out an assessment of the land and housing sector at the metropolitan level to identify the institutional and policy changes required to address demand and supply bottlenecks in the market.

Policy message 6: Strengthen the coordinating role of local authorities to foster a business environment that rewards entrepreneurship and innovation.

5.100 To reach MIC status, Bangladesh needs a vibrant and economically diverse Dhaka city. Dhaka currently lacks the economic diversity necessary for a metropolitan area of its size. As garment firms de-concentrate to peri-urban areas, there is little evidence of high-value replacement industries emerging to ensure continued urban vitality in Dhaka city. The City has still to find its competitive edge – growth in the emerging ICT sector has, for instance, been mostly driven by industry-specific competitiveness factors rather than local competitiveness. Dhaka City's main comparative advantages - its large pool of skilled labor and its tradition of local entrepreneurship – are the main assets the City has to "re-invent" itself at this critical juncture of the city's economic development. The entire value chain in the garment cluster – from production of raw material to marketing and innovation – also needs upgrading to enable the transition toward higher-value production.

5.101 Interventionist industrial policies aimed at "picking winners" often result in the opposite effect of discouraging innovation in the longer-term and stifling competition. However, local governments have an important role to play as coordinators, conveners and facilitators to foster a business environment that rewards entrepreneurship and innovation in close partnership with the private sector. Dhaka city and its peripheral local authorities could, for example, coordinate skills-upgrading and training initiatives at the metropolitan level to meet local skills shortages, in partnership with industry associations and universities. They could also facilitate the implementation of a cluster strategy for upgrading the garment sector's value chain, with a focus on capacity building and innovation initiatives. They could also support research & development (R&D) and innovation through business incubators, the creation of a knowledge network that links firms with universities and research centers. See Box 5.10 for examples of possible local policies and actions to foster entrepreneurship and innovation.

Policy message 7: Improve Dhaka's livability and the quality of urban amenities, and make Dhaka's urban growth more environmentally and socially sustainable.

5.102 A livable city with urban amenities is a globally competitive city. Dhaka's urban environment is below standard for comparable cities at the same level of economic development. Almost half of Dhaka city's population lives in slums. The city's highly productive workforce lives in an unsafe urban environment, characterized by limited access to services, crime and violence and overcrowding. Dhaka's congestion is rated as intolerable by the Economist Intelligence Unit's livability rating. While the garment sector thrived on Dhaka's abundant and cheap workforce, Dhaka needs to position itself as a "livable city" in a global context to attract the internationally mobile highly skilled workforce and capital required to make the leap forward to MIC status.

5.103 Addressing transport infrastructure bottlenecks and developing a fully-functioning housing market would go a long way toward improving livability, as these are two factors contributing the most to Dhaka's low livability ranking. Measures are also needed to make the urban transition more environmentally and socially sustainable. This would require upgrading environmental infrastructure, improving the quality of the urban amenities (e.g., open spaces and cultural events), and extending the basic services to under-served settlements to make Dhaka a more attractive location for workers and firms alike.

(ii) Leverage Chittagong's Natural Comparative Advantage as a Port City

Policy message 8: Improve the competitiveness of Chittagong city's port, as part of a modern logistic chain within the Dhaka-Chittagong corridor.

5.104 While agglomeration forces in Chittagong are not as strong as in Dhaka, the Chittagong metropolitan area has the potential to expand as a second industrial hub, given its comparative advantage in accessibility. Chittagong's favorable location as Bangladesh's largest port gives the city a resource-based comparative advantage for expansion of export-oriented manufacturing. However, the inefficiency of the Chittagong port is eroding Bangladesh's cost advantage in the garment sector. Leveraging the natural comparative advantage of Chittagong city would require expanding port capacity and improving port infrastructure, and streamlining regulations, to enhance trade competitiveness and improve access to market—the main location disadvantage of Chittagong city from the perspective of the garment firms. In order to enhance the overall connectivity in the country, port development should be combined with investments for improved logistic services and inter-modal connectivity to integrate the three modes of transportation (road, rail and inland waterway systems) within the Dhaka-Chittagong corridor.

Policy message 9: Invest in institutions and infrastructure to leverage Chittagong's cost advantage and improve livability as the city expands.

5.105 Chittagong has a growing and diversifying manufacturing base, and its peri-urban areas have strong economic potential to develop as industrial centers. Chittagong City should tap in its comparative advantage as a low-cost location relative to Dhaka, and take steps to sustain its advantages as the city expands by investing in productive infrastructure—power and telecommunication—and developing institutions to address land and housing bottlenecks before they become binding constraints for private-sector development. As in Dhaka, particular attention would need to ensure that economic dynamism does not occur at the expense of livability by investment in environmental infrastructure (sewerage and solid waste) and improving the quality and access of basic services.

(iii) Develop an Enabling Environment for Local Economic Development in Medium- and Small-size Cities

Policy message 10: Connect medium- and small-size cities to markets.

5.106 Medium- and small-size cities, not only those located in the lagging western region, but also those closer to Dhaka and Chittagong, such as Comilla, are unattractive "distant" locations, according to the garment firms interviewed. Policies aimed at "bringing jobs to people" based on company re-location incentives, such as the EPZ program, have not succeeded in overriding the powerful agglomeration forces that "move people to jobs" in the western regions. Connecting medium- and small-size cities to markets requires spatially-connective infrastructure combined with investments in portable assets, such as education and health. An example of spatially-connective intervention is the Padma Bridge, which is expected to improve connectivity and enhance market access in the south-western region.

Policy message 11: Create a level playing field in the provision of basic services to improve livability and foster local entrepreneurship in medium and small size cities.

5.107 Medium- and small-size cities still need to find their comparative advantages. Urban vibrancy and growth in medium- and small-size cities will be driven by local entrepreneurship, rather than by relocation of existing industries. Traditional sectors such as ceramics, for example, could become a lever for opening new "paths" of innovation. Policy interventions should focus on providing an enabling environment for building economic density by creating a level playing field for private-sector development. The priority is to provide adequate access to basic services—water and sanitation, solid waste management and electricity—to redress the current service delivery bias in favor of the largest cities. Since Bangladesh is very centralized, it could benefit by devolving responsibilities and fiscal powers to local governments so as to help create a level playing field for cities that will enable them to strengthen municipal management and service delivery, and thereby stimulate local economic development.

(iv) Develop Strategically-located EPZs to Strengthen Competitiveness and Spearhead Urban Reforms

Policy message 12: Develop EPZs in proximity to markets and in line with locations' comparative advantages in order to enhance the international competitiveness of Bangladesh's industries.

5.108 Evidence indicates that, when strategically located in proximity to markets, EPZs are highly attractive locations for businesses from a productivity viewpoint. However, investing in developing zones in "distant" locations is not an effective way to develop lagging regions, as EPZs need to be aligned with the comparative advantages of the country and the locations in which they are established if they are to be successful. As Bangladesh aims to accelerate growth to reach MIC status, developing a coherent EPZ policy based on transparent criteria for deciding location decisions, and with a focus on supporting, rather than opposing, agglomeration forces, should be integral to the country's growth strategy.

Policy message 13: Build support for urban change through EPZ demonstration effects.

5.109 Investing in EPZs will have high opportunity costs if they are used to avoid or delay critical reforms necessary to reduce the costs of doing business in cities, such as development of efficient land and housing markets and improving accessibility and infrastructure. On the contrary, Bangladesh should

use EPZs to create the environment and build support for urban change by "testing" the impact of reforms and reducing opposition by successful demonstration effects.[206]

[206] See, for example, Farole, 2010.

Box 5.10: Local Entrepreneurship and Innovation in the Urban Context

International experience indicates that the most successful cities are those capable of fostering innovation and entrepreneurship. New York city and Boston, for example, managed to reinvent themselves after their manufacturing industries died, while others, like Detroit, fell into a spiral of decline.

New York City: New York developed as a result of 19th Century advances in water-commerce, when cities sprang up along a "water-based" highway that created trading networks, and became a manufacturing hub thanks to its strategic location as a port and entry-way for immigration. Industries took advantage of the large and cheap pool of immigrant labor. Garments became the nation's largest manufacturing cluster, with 50 percent more workers than Detroit's auto industry. The garment industry in New York started shrinking in the 1950s as location advantages diminished. As inland transport costs dropped, manufacturing firms relocated to cheaper places (peri-urban areas, Southern states, China). New York city managed to "reinvent" itself thanks to its resilience and tradition of entrepreneurship and favorable city government environment. Explosion of entrepreneurship in financial services transformed New York city from a manufacturing hub to a global financial sector. The city government established a public-private partnership to support business incubators, and through its coordinating and convening power succeeded in creating an enabling environment for entrepreneurship to flourish,

Detroit: The city developed as a hub of water-commerce. The Detroit River was part of the path from Iowa's farmland to New York's tables. Three times more goods passed along the Detroit River than passed through the ports of New York or London. Detroit thrived as a hot-bed of small-scale innovation. Car manufacturers located in Detroit combined two industries that had long existed separately in Detroit: carriage manufacture and the ship-engine building. In the late 20th Century Detroit was dominated by a car industry that employed unskilled workers in the "Big Three" vertically-integrated firms. The city began to shrink, however, in the 1950's. The assembly line increased the efficiency of Detroit's factories, but reduced the need for human ingenuity. The very cars that Detroit was building allowed factories to leave the city and locate farther from rail lines and river nodes, and the city experienced a process of suburbanization of manufacturing. Strong unions contributed to industrial stagnation and urban decline. In contrast with New York, Detroit failed to reinvent itself. The scale of Detroit's decline has been dramatic—a city of 1.85 million residents in 1950 has fewer than 720,000 today.

What can local governments do to support local entrepreneurship and innovation? A city-wide entrepreneurial culture develops through extended formal and informal knowledge linkages between firms, universities, business support systems and city institutions, all of which foster new firm formation, new product development and retention of existing businesses. Governments play an important role as a broker to facilitate the development of clusters and local incubation centers, develop informal venture capital through "business angel" schemes, and specialist skills in education and technology based on priorities determined in partnership with local clusters. They also facilitate linkages between universities and businesses in the form of academic spin-offs, science and technology parks, university incubators, mentoring, and sector-specific skills training.

Sources: Glaeser, 2011; OECD, 2006.

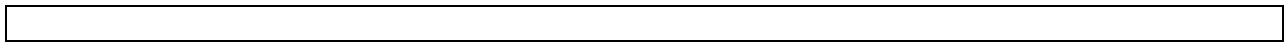


Table 5.5: Policies and Actions to Improve the Competitiveness of Bangladesh's Urban Space

Objectives	*Policy Tools*		
	Infrastructure	**Institutions**	**Incentives**
Innovation. An urban space with the capacity to innovate, within a context of a productive and diversified urban economy.	• Improve productive infrastructure (power and telecom) to leverage Dhaka city's productivity advantage, and Chittagong city's cost advantage. • Upgrade peripheral infrastructure in a bid to transform Dhaka peri-urban areas into globally competitive manufacturing centers. • Provide basic level of services in medium and small towns to create the enabling environment for local entrepreneurship.	• Strengthen the coordinating role and convening power of local authorities to foster a business environment that rewards entrepreneurship and innovation.	• Develop EPZs in proximity to markets and in line with locations' comparative advantages' to enhance the international competitiveness of Bangladesh's industries • Build support for urban change through EPZ demonstration effects.
Connectivity. A better connected urban space, both internally and with the global economy.	• Improve accessibility to manage the growing dis-economies of agglomeration in Dhaka city. • Leverage the natural comparative advantage of Chittagong as a port city, as part of a modern logistic chain within the Dhaka-Chittagong corridor • Connect medium and small cities to markets.	• Develop appropriate institutional mechanisms for Dhaka core-periphery coordination.	
Livability. An urban space that is more livable and attractive for firms and workers alike.	• Make Dhaka and Chittagong's urban growth more environmentally and socially sustainable to improve livability. • Create a level playing field in the provision of basic services across urban areas to improve livability.	• Strengthen institutions for a more efficient and integrated land and housing market in the Dhaka metro region and Chittagong. • Promote devolution of responsibilities and functions to local governments.	

Annex A

June 14, 2010

Country Economic Memorandum

Dr. Nazneen Ahmed, Senior Research Fellow, BIDS
Mr. Mahabub Hossain, Executive Director, Bangladesh Rural Advancement Committee (BRAC)
Dr. S.R. Osmani, Professor, Economics Department, BRAC University
Dr. Mustafizur Rahman, Executive Director, Center for Policy Dialogue
Dr. Fahmida Khatun, Additional Director, Research, Center for Policy Dialogue
Mr. Mamun Rashid, Managing Director & Citi Country Officer, Citibank. NA
Ms. Rabab Fatima, Regional Representative for South Asia, International Organization for Migration (IOM)
Professor Nazrul Islam, Chairman, University Grants Commission of Bangladesh
Dr. Zaidi Sattar, Chairman, Policy Research Institute (PRI)
Dr. Sadiq Ahmed, Vice Chairman, Policy Research Institute (PRI)
Dr. Ahsan Mansur, Executive Director, Policy Research Institute (PRI)
Ms. Tasneem Athar, Deputy Director, Campaign for Population Education (CAMPE)
Dr. Sayema Haque Bidisha, Assistant Professor, Department of Economics, University of Dhaka
Dr. A. B. Mirza Md. Azizul Islam, Former Adviser to the Ministry of Finance, Government of Bangladesh
Dr. S.M. Zulfiqar Ali, Senior Research Fellow, BIDS
Mr. Mainuddin Khondaker, Bangladesh Center for Advanced Studies (BCAS)

June 21, 2011

BD Labor-Embedded Growth

Dr. Wahiduddin Mahmud, Professor, Economics Department, Dhaka University
Dr. Mustafa Kamal Mujeri, Director General, BIDS
Dr. Nazneen Ahmed, Senior Research Fellow, BIDS
Dr. Hossain Zillur Rahman, Executive Chairman, Power and Participation Research Center
Dr. Mustafizur Rahman, Executive Director, Center for Policy Dialogue
Dr. Debapriya Bhattacharya, Distinguished Fellow, Center for Policy Dialogue
Mr. Mamun Rashid, Professor and Director, BRAC Business School
Ms. Rabab Fatima, Regional Representative for South Asia, International Organization for Migration (IOM)
Dr. Sadiq Ahmed, Vice Chairman, Policy Research Institute (PRI)
Dr. Sayema Haque Bidisha, Assistant Professor, Department of Economics, University of Dhaka
Professor Ainun Nishat, Vice Chancellor, BRAC University
Dr. Qazi Kholiquzzaman Ahmad, Chairman, Palli Karma Shahayak Foundation (PKSF)
Mr. Mohammad Helal Uddin Ahmed, Assistant Professor, Economics Department, Dhaka University
Dr. Atonu Rabbani, Assistant Professor, Department of Economics, University of Dhaka

Dr. A. Atiq Rahman, Executive Director, Bangladesh Center for Advanced Studies (BCAS)
Dr. M. Zahid Hossain, Senior Country Specialist, Asian Development Bank

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Bangladesh Growth Report Climate Change Chapter

Mr. Mesbah-Ul- Alam, Secretary, Ministry of Environment and Forests
Mr. S M Manjurul Hannan Khan, Deputy Secretary (Environment 1), Ministry of Environment & Forest
Dr. Mohammed Nasiruddin, Joint Secretary (Development), Ministry of Environment and Forests
Mr. Arastoo Khan, Additional Secretary, Economic Relations Division, Ministry of Finance
Mr. Fazle Rabbi Sadeq Ahmed, Director, (Climate Change and International Convention)
Professor Muzaffor Ahmed, President, Bangladesh Poribesh Andolon (BAPA)
Mr. Ahsan Jakir, Director General, Disaster Management Bureau, Ministry of Food and Disaster Management
Dr. M Aslam Alam, Secretary, Disaster Management and Relief Division, Ministry of Food and Disaster Management
Professor A.K. Enamul Haque, Professor, Department of Economics, United International University
Dr. Md. Mafizur Rahman, Professor, Bangladesh University of Engineering and Technology (BUET)
Dr. Fahmida Khatun, Additional Director, Research, Center for Policy Dialogue (CPD)
Dr. Kazi Ali Toufique, Senior Research Fellow, BIDS
Dr Atiq Rahman, Executive Director, Bangladesh Centre for Advanced Studies (BCAS)
Dr. Puji Pujiono, Project Manager, Comprehensive Disaster Management Programme (CDMP)
Dr. M A Matin, Professor and Head, Department of Water Resources Engineering, Bangladesh University of Engineering and Technology (BUET)
Dr. Md Asaduzzaman, Research Director, Bangladesh Institute of Development Studies, BIDS
Mr. Syed M. Hashemi, Research Director, BRAC Development Institute, BRAC University
Dr. Ainun Nishat, Vice Chancellor, Brac University
Mr. Zahir Dasu, Economic Advisor, DFID Bangladesh
Daniel Davis, Senior Program Manager, DFID
Richard Butterworth, Team Leader, DFID

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