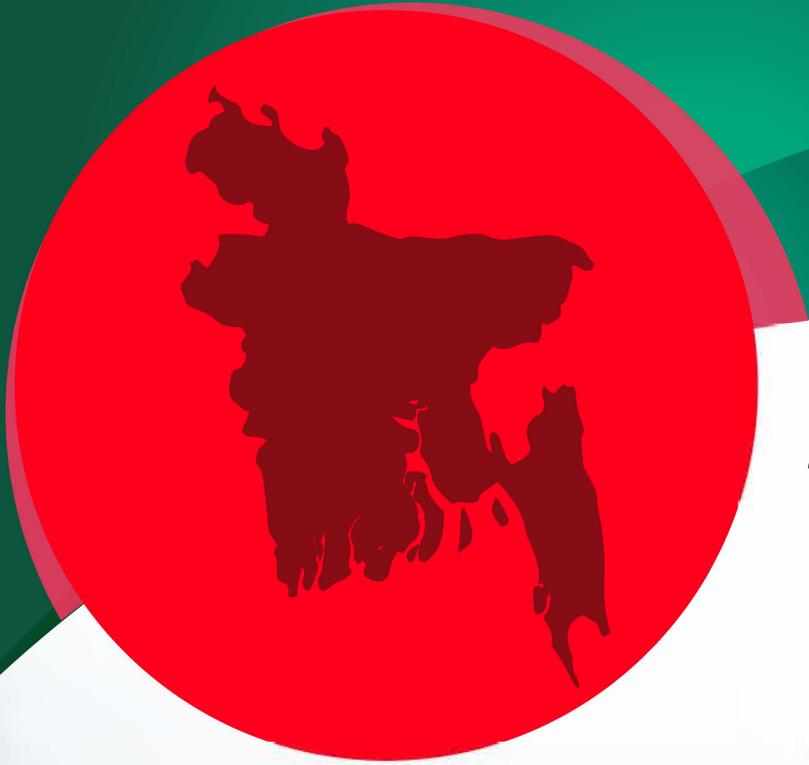


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FROM THE EDITOR

With this issue of the Journal of Bangladesh Studies (JBS), we are embarking on our seventeenth year of publication. When we began in 1999 our goal was to engage intellectuals to influence policy prerogatives in Bangladesh. Since then we have grown in the range and diversity of the contributions, as well as our recognition among the community of scholars involved with research on Bangladesh.

In my JBS editorial in 2003, I had noted a perplexing and worrisome situation in Bangladesh's academic institutions, both public and private, in promoting a research culture. I had written how averse the intellectual community was towards building a scholarly identity. Most of the "academic" journals published in Bangladesh also did not have any international standing, the libraries lacked current academic materials and had few products of local scholars, the universities had meager budgets to support academic research, and there was a plethora of related constraints that made research stand far afield from the true work of academics.

Not a great deal has really changed in the past thirteen years. One indicator that would support my contention is the absence of the country's elite academic institutions in the global rankings. Not a single one of them have found a prominent place even in the South Asian rankings. But there is an encouraging development. The National Education Policy 2010 (Bangladesh) has espoused the need to generate and innovate knowledge (p. 23) in higher education. Three of its larger set of aims and objectives focus on knowledge generation or research:

- To relate the realities of the country [through research] in all conceivable areas; to identify the problems of society and state and to find solutions.
- To expand the horizons of knowledge through its ceaseless cultivation and through multidimensional, original and practical research.
- To innovate in new areas of knowledge through cultivation, research and creativity.

The emphasis on research is a new shift in the policy pronouncements. This is perhaps an opportune time to start building "Research Universities" in the country that will have to play a leading role in fostering a new culture of research in academia and beyond. It is instructive to note that Asian universities are now being talked about as "the

next higher education superpowers." Japan, S. Korea, Taiwan, Singapore and Hong Kong have already begun the competition for research supremacy with policy drives designed to "promote world-class universities." India's Finance Minister also recently announced that an "enabling regulatory architecture will be provided to 10 public and 10 private institutions to emerge as world-class teaching and research institutions."

Similarly, the Malaysian government upgraded four institutions — University Malaya (UM), University Kebangsaan Malaysia, (UKM), University Teknologi Malaysia (UTM) and University Putra Malaysia (UPM)— into research universities, and Universiti Sains Malaysia (USM) into an Apex University. "These universities are being encouraged to participate in QS World University Ranking to be recognized as world-class universities." The question for Bangladesh is whether it is ready to follow suit or be left behind in a knowledge-driven world.

In this issue we present four papers, two notes, and a book review. We also present the reflections and reminiscences of Professor Nurul Islam — a renowned economist and the recipient of the *Lifetime Achievement Award* presented by Bangladesh Development Award (BDI).

In the lead article, Sujaul Islam Khan, Syed Monirul Islam, and Dibbendu Saha discuss spatial planning for sustainable development of Bangladesh. Bangladesh is one of the most densely populated countries in the world. Despite tremendous growth over the last three decades, unplanned urbanization and industrialization has adversely affected ecologically critical areas such as wetlands, rivers and forest ecosystems. Natural hydrology has been affected by increased extraction of groundwater and surface water for irrigation, coupled with flood control measures in the upper riparian and lower riparian regions. In this context, spatial planning to foster sustainable development of the country is seen by the authors as a useful tool that interlaces demographic trends, the economy, geography and existing policy of land use and urban planning.

Using household surveys from two selected villages in Bangladesh, Mousumi Mahapatra addressed whether the phenomenon of landlockedness (being tied to the land) and wealth are connected. A longitudinal analysis was used to determine changes in landholding and whether being tied

to the land promotes or constrains welfare outcomes. The paper argues that the relationship between land possession and welfare is a nuanced one: for instance, in one village, the extent of cultivable land possession still determines welfare outcomes; this is not so for the other surveyed village. The role of the non-farm sector and migration are discussed as factors and processes that intervene and shape the relationship between land possession and welfare.

Regarding shrimp export of Bangladesh to the EU, S. J. Emran, Q. N. Taslim and M. A. Taslim argue that lower tariffs on food products did not benefit the least developed countries because of the stringent food safety standards they face in the EU. These standards serve as additional 'barriers' to trade for the food exporters, especially from Bangladesh. The principal food export item of Bangladesh to the European Union (EU), shrimp, was especially affected by the application of tough sanitary and phytosanitary (SPS) measures and rejection of shrimp consignments which mostly affected the relatively small farmers and their enterprises. While they complied and coped with the SPS standards, costs increased, competitive strength of the exporters suffered, and shrimp exports stagnated.

In her article on the stock market bubble, Sayera Younus examines the characteristics and causes of the phenomenon and how it burst in Bangladesh during the 2004-2014 cycle. The paper specifically examines whether the stock market return has any relationship with macro and bank-specific variables in Bangladesh. Empirical results show that there is a two-way causality from excess liquidity and private sector credit to share price index. However, there is a one-way causality from inflation to share price index. Bank deposit rate had a significant negative impact on stock price index, implying that an increase in the deposit rate would decrease share price index as people shift their preference to relatively less risky bank savings schemes.

Wahiduddin Mahmud reviews the concept of social business popularized by the Nobel Peace Laureate, Mohammad Yunus. The author expresses some skepticism regarding the idea, especially its non-adoption by mainstream economics. Citing various examples, Mahmud attempts to draw parallels between the idea of social business and mainstream economic thinking that promises interesting reading. Mahmud suggests in the main that the case for social business as a distinct (albeit related) discipline is blurred.

On the term structure of credit in the banking industry of Bangladesh, Kazi Iqbal and M. G. Mortaza examine the effects of a significant structural shift from agriculture to manufacturing and service sector over the last twenty years as the economy shifted from shorter to longer cycles of production. The composition of the term structure of loan was also expected to shift from shorter to longer term. But the authors found that the shares of short and long term credit were surprisingly stable over the last thirteen years at around 80 and 20 percent respectively. Some combinations of both supply and demand side factors, as well as stringent government regulations were seen as responsible for the stable ratio.

Finally, the edited book "Financing for Overcoming Economic Insecurity" is reviewed by Munir Quddus to provide additional depth and dimension to new thinking on economic insecurity. The book, as well as the review provide insights aplenty.

I would like to thank Shahidul Islam of BRAC University for providing technical assistance and the staff at BRAC Institute of Languages for editorial assistance in bringing out this issue. The next issue is under preparation and ought to be available soon.

Syed S. Andaleeb
Editor in Chief

Experience of a Professional Economist

Selected Episodes

Nurul Islam

International Food Policy Research Institute (IFPRI)

I had a professional life—a rather chequered career—in which I had held a wide variety of positions over a span of six decades. The various stages in my professional life were as follows: Associate Professor (Reader) and then Professor of Economics (1955–1964); Director of Pakistan Development Economics, Bangladesh Institute of Development Studies (1964 to 1971–72) University of Dhaka; Deputy Chairman of the first Bangladesh Planning Commission (1972–75); Assistant Director General of the Economics and Social Policy Department, Food and Agricultural Organization of the United Nations, Rome, Italy (1977–87); Research Adviser/Emeritus Fellow, International Food Policy Research Institute, Washington, DC (1987 onwards).

1 Dhaka University

I joined the University of Dhaka in mid-1955 on my return from Harvard after obtaining a PhD in economics. There were two major challenges confronting the economics department at the time. One was a severe dearth of highly qualified teachers; the second was that of the outdated syllabus inherited from the past. My first task was to modernize it and I did it extensively, especially in the area of economic theory. This involved in the absence of senior teachers—a very heavy teaching load requiring at a stretch four or more hours of teaching a day in both BA honors and MA post-graduate classes. In those days, teaching responsibilities were taken very seriously; it was considered a solemn moral responsibility of a teacher to the students.

Similarly, it was considered a duty in those days of a university teacher to do research as their obligation. The *Pakistan Economic Journal* was a choice outlet for such research by the economics faculty. It was published by the Pakistan Economic Association and its editorial office was the Dhaka University Economics Department.

Even though my interest was in international trade and/or macroeconomics in the context of the then academic environment in the university without a peer group to interact with, I focused my research on national economic problems, especially of East Pakistan. The economy was overwhelmingly rural and I wanted to familiarize myself with the rural economy. I participated in the surveys of a few colleagues in course of which I met and interviewed farmers and traders in the villages. The subjects of research ranged from the production and marketing of jute to rural credit and rural employment. The questions examined included the structure of the marketing chain of raw jute, including the degree of

competition or otherwise in the various stages of the supply chain; analysis of the concept of disguised rural unemployment or underemployment; sources of credit for rural families and their uses; for example, I learned that the predominant sources of credit were friends and relations and own savings and not the rural money lenders as commonly believed.

Unlike today, there were no foreign donors, i.e. foreign foundations or international civil societies or think tanks to finance our research. The main sources of finance were the Central Bank and the different interested ministries of the Government of East Pakistan. These research projects were undertaken at our initiative and not that of the funding agencies.

During the latter part of the 1950s and early 1960s, I was a member of a few commissions appointed by the government of Pakistan on East-West economic relations. This was a very interesting experience for an academic in the political economy of interregional resource allocation.

In these committees, there were long debates about the absorptive capacity of the East Pakistan government to utilize additional resources. It was argued that the absorptive capacity was not independent of use of resources. The latter itself can be used to enhance the absorptive capacity, if such capacity is deemed inadequate.

Apart from lessons in political economy, I had valuable experience in gaining knowledge of the details of various tax and non-tax revenues of the central and provincial governments. The administrative problems of the tax system were within the terms of reference, including the estimation of the impact and incidence of taxation. Again, the distinction between capital

expenditures and current expenditures on the one hand, and that between development and non-development expenditures on the other, was discussed and agreement had to be reached on a uniform set of definitions which were to be used for the purposes of domestic budgetary allocation as well as for the allocation of foreign aid.

During this period, one of my research studies was on the estimation of a number of consumer demand functions for a variety of consumer goods, including prominently important food items. This was based on a very intensive analysis of the household income and expenditure surveys conducted by the East Pakistan Bureau of Statistics for a number of years.

As various research studies were being undertaken in the Departments of Economics and Commerce, we felt that there should be an institutional framework to support research conducted by the university teachers. The university administration was persuaded to provide the overhead facilities, including space and other physical facilities on a very limited scale. Professor Atwar Hossain was the first chairman of the Commerce Department and I was the second chairman.

After two or three years of teaching in Dhaka University, I felt the need to update myself with the latest developments in economics as I felt that I was falling behind in my research competencies far away from the centers of teaching and research in advanced countries.

There was an increasing use of mathematics and statistical methods in economic analysis during this period. Linear programming in economics by then was the rage of the time. I had no knowledge of matrix algebra. I requested a colleague in the Statistics Department to help me learn matrix algebra. My eagerness to keep abreast with the latest developments took me to England on a Nuffield Foundation Fellowship—first to the London School of Economics and then to the Department of Applied Economics at Cambridge University.

Following my stay in the United Kingdom, I moved to the Netherlands Economic Institute to spend a few months. The subject which was very intensely discussed in those days in the research seminar conducted by Jan Tinbergen—later on a Nobel Laureate in economics—who was the director of the Institute, was on the subject of theory of economic policy in which he had made pioneering contributions. I was one of a few visiting fellows debating all aspects of the relationship between targets and instruments of economic policy. The theory that policymaking requires an equal number of instruments (as targets) was in its heydays. For example, to use one instrument to achieve two targets was inefficient and would fail. During my stay at the Institute I completed my book on short-term econometric model for Pakistan's economy.

2 Pakistan Institute of Development Economics (PIDE)

After almost 10 years of teaching at Dhaka University, I moved to the Pakistan Institute of Development Economics in Karachi at the end of 1964, which until then was directed by foreign economists mainly from the United States under a Ford Foundation grant to the Government of Pakistan and Yale University.

As distinguished from academic life, my work at PIDE was all research and no teaching. I had adequate resources at my disposal to pursue research in my areas of interest, i.e. trade, foreign investment, and aid. This was a substantial improvement over my past academic environment since there were resident economists from well-known foreign universities visiting for a period of two to three years with whom I could interact and benefit from discussions and debates on a daily basis on subjects of our mutual research interests. Additionally, there were short-term visiting scholars. In addition, a foreign advisory group consisting a few internationally distinguished economists such as Jan Tinbergen (mentioned earlier), Austin Robinson of Cambridge University, Lloyd Reynolds of Yale University, and others would visit for a period up to two weeks at a time to review, comment, and advise on our research program and publications.

The assurance of academic independence was also the declared policy of the government even though the Governing Board was headed by the head of the Pakistan Planning Commission with members such as the finance secretary, etc.—i.e., all the economic czars of the Pakistan government. The policy of non-interference by the Board in the professional decisions of the Director was effective partly because that was the condition included in the agreement between the government and the Ford Foundation. This allowed us to undertake research on some of the important controversial and politically sensitive policy issues of the day—sometimes with very critical conclusions from the point of view of the policymakers of Pakistan. My tenure at the Institute was the most productive period of my professional life in respect of the quality and quantity of my research.

At the same time, a few research outputs of the Institute on Pakistan's economy were of a very controversial nature. For the first time, an estimate of per capita income of East and West Pakistan was separately published. Until this time, no authentic estimate of income of East and West Pakistan was available in the public domain. The income disparity was a highly explosive subject, politically, as East Pakistan was demanding an end to discriminatory policies on the part of the Pakistan government and a substantial redirection of investment resources and policy incentives towards

East Pakistan. At the same time, articles were written at the Institute on disparity between East and West Pakistan in respect of comparative performance of agriculture as well as industry. Research on these politically explosive issues from the point of the Pakistan establishment were naturally disliked. But the Institute was protected first by its link with the highly respectable academic community abroad which ensured the high analytical quality of our research. Secondly, the political and army leadership in Pakistan did not feel threatened by these articles since they rightly assumed that these articles published in academic journals such as the Institute's journal had no audience among the public. The members of the public or politicians were not aware of these research publications and did not read them even if they were aware. Moreover, the military-civilian leadership was secure in their power to be able to deal with any fallout effect of such research findings in case they found a way into the political discourse.

3 First Bangladesh Planning Commission

By the end of 1970, the PIDE had its headquarters shifted to Dhaka. I was involved closely with the political leadership of the independence movement from March 1969 onwards even when I was the Director of PIDE. By that time, I crossed the line of academic neutrality and became an active participant in politics. Consequently, after the crackdown of the Pakistan Military in East Pakistan, I was on exile until independence in December 1971. In early 1972, I was appointed the Deputy Chairman of the first Planning Commission which was headed by the Prime Minister. We prepared the first Five-Year Plan and constructed a macroeconomic model for the economy based on input-output framework and policymaking fell on the members of the commission.

The first lesson for me in the new job was to learn the techniques of how to explain to and dialogue with politicians in the language they could understand the economic issues and policy choices. It was a difficult task and I did my best. I felt I had improved over time in this task in relating my explanations to a specific policy choice.

The second lesson was for me to understand that in policymaking what appeared to be a logical and straightforward choice for an economist was not so straightforward for the politicians. An economist, while suggesting a solution for a problem or suggesting a policy, does not take into account the political feasibility of his policy prescriptions. However, an economist's advice provided without a clear understanding of the political feasibility, constraint was not likely to be

accepted. This was, for example, the case of fertilizer subsidy. It was a highly popular measure among the farmers and the party in power was dominated by middle farmers at that time who had been used to fertilizer subsidy for a long time. The demonstration that there was a substantial leakage in the government-controlled system of distribution through sales outside the public distribution and that the subsidy often went more to the bigger size farmers than to the smaller farmers—in whose name the policy was advocated because they had scarce resources of their own or very limited access to credit—did not dissuade the political leaders. Moreover, compared to the period when the subsidy was introduced, the food price was much higher to make food production profitable in the absence of low cost input policy such as fertilizer subsidy. At the same time, most of the traders in the supply chain were also the main supporters of the regime. The argument that large expenditures on subsidy reduced the available resources for other investments in agriculture such as irrigation or extension services did not sway the leadership; it was feared by them that any removal of subsidy might result in a fall in food supply. This was a risk that they were unwilling to take. They were willing to consider a gradual reduction in subsidy provided there was a substantial increase in supply of fertilizer along with an associated increase in other modern inputs such as high-yielding seeds as well as the supply of agricultural credit accessible by all farmers, including small farmers.

As the Deputy Chairman of the Commission, I was invited to cabinet meetings and committees on all subjects which had any implications for development programs or economic policy or resource allocation. Hence, I had to participate in cabinet deliberations on issues such as choice in the agricultural sector between low lift irrigation, deep tubewells and shallow tubewells, or appropriate balance between fertilizer and irrigation investment or allocation of resources between rural credit and supply of inputs. I had to familiarize myself with the criteria for an appropriate balance between various types of soil nutrients and chemicals or agricultural extension systems. For the first time, I learned the interrelationships between the various tiers of the educational pyramid—i.e. primary, secondary, and tertiary education—keeping in mind that output of one tier is input to another tier. For example, output from each lower stage provided input, i.e. students, to the next higher tier and similarly the outputs of the higher tier provided teachers for the next lower tier. The appropriate ratios and proportions between inputs and outputs at various tiers of the educational system to be used in these balancing exercises for the purposes of resource allocation were a part of my education. Yet another example was in the field of family planning. I recall the discussion on the family planning programs involving the workload of the family planning workers

and the most appropriate way of getting the best results out of their visits to the family to motivate the women who were the main focus of their visits. I still remember the dictum that the best time a woman was most receptive to the family planning message was immediately before, during, and after the birth of a child.

The above examples illustrate that in dealing with issues concerning various sectors of the economy as a policy coordinator in the Commission, I had to delve far away from traditional economics to other disciplines. I became a jack of all trades with a smattering of knowledge with various subjects.

The negotiation of foreign aid was the responsibility of the Planning Commission which had to negotiate the quantity and composition of aid required for the implementation of the annual development programs and the Five-Year Plan. While the details of the projects receiving foreign assistance were the responsibilities of the members of the Commission, along with the officials of the relevant ministries, I was involved with associated policy issues as well as macroeconomic policy issues which were the domain of the World Bank and the IMF. Apart from project aid, other forms of aid, i.e. commodity aid, and structural adjustment and balance of payments had strong policy components.

4 Food and Agriculture Organization of the United Nations (FAO)

While at the Planning Commission I was dealing with the overall and economy-wise policy issues of one country and gained a smattering of knowledge of social and non-economic/technical subjects. At FAO, as the head or the Assistant Director General of the Social and Economic Department, I had to deal only with one sector, i.e. food and agriculture sector, but with its various subsectors in great details. It included international aspects of the food and agriculture sector as well as inter-country comparisons of national food and agricultural policies. In addition, I had to deal with a wide variety of international and UN organizations for joint deliberations and cooperative projects with them. Moreover, I had to deal with the representatives of the member governments of the FAO located in Rome.

As far as the international aspects of agriculture were concerned, the most important analytical and conceptual issue which faced the international community in the mid-1970s was that of world food security. I was involved in the analysis of the global food and agricultural policy issues as well as cross-country comparisons of agricultural policy issues in this sector such as state intervention in the markets for outputs and

inputs. Each of the aspects of food security, i.e., stability of food supplies and access of all the people to nutritious and safe food had both national and international ramifications.

At the international level the policy issues to ensure adequate food supply related, firstly, to the flow of adequate external resources to the agriculture sector, i.e. development assistance and private capital, and secondly, to food aid. The analysis of the international trade and trade policy issues also assumed a critical importance in this context since access to world market for non-food exports as well as on assured supply of food in the world market for the food-deficit poor countries was critical for world food security.

All these issues led me and my colleagues to encounter the issues of the North-South divide since the interests of the two groups of countries did not necessarily coincide. In this context it is worth mentioning that since the inception of FAO, I was the only economist to be appointed from the developing countries. My immediate predecessor was an economist from New Zealand. However, the post of the Director General had changed hands between the developed and developing countries over the years. During my tenure, the Director General was from a developing country, i.e. Lebanon. The heads of the other technical departments such as agriculture, livestock, and fisheries, etc. however changed hands between the two groups of countries. Since economic policy issues in FAO were the responsibility of this department, the budget of this department was almost one-third of the entire organization. In this environment, my conduct and performance was under close observation especially from developed member countries. Fortunately, however, because of my background of higher education in the United States and subsequent several research related and other jobs in the United Kingdom and the United States, the citadels of the Western developed countries, the latter were willing to give me the benefit of doubt.

An important task was to monitor the flow of foreign aid to the agricultural sector. In the aftermath of the world food crisis of 1973–74, there was an understanding that the developed countries would commit to increase the flow of aid to the agricultural sector. We, in FAO, had to estimate investment requirements to increase agricultural output at the rate of 5 percent or more for the developing countries as a whole. The estimated requirements of foreign assistance for agriculture were scarcely met by the actual provision of assistance. Our periodic publications pointed to the shortfalls in expected performance. Naturally, the developed member countries did not like to be told that their generosity did not meet expectation. There was continuous debate regarding our estimates, on the one

hand; on the other, the inability of the recipients to absorb additional resources.

Food aid, on the other hand, raised a different set of problems. There was a Committee on Food Aid and Policies consisting of donor and recipient countries (1) to channel the multilateral aid through the World Food Aid program, and (2) to monitor the flow of bilateral aid. It was the responsibility of our department to undertake all the necessary analysis and related documentation. One important issue related to the adverse impact of food aid on the incentives for domestic food production was that of reducing domestic food prices. The challenge was to formulate rural development projects in such a way that food aid financed development projects, mainly rural infrastructure projects, should increase the demand for food to match the increase in food supply provided by food aid. However, in emergency situations of food shortage caused by wars or weather-related crop failures, food prices were higher causing deprivation. Under those circumstances, the disincentives for food production were unlikely to be a relevant issue. Our analysis and empirical case studies had to be designed and accomplished with a view to resolving these controversial issues. The food-surplus developed countries were anxious not to be accused of dumping food surplus on the food-deficit poor countries and thus discouraging domestic food production.

Insofar as the direction of aid was concerned, it was found that the poorest food-deficit countries did not always have priority in the allocation of food aid by the donor countries. After all, it was well known that aid flow was influenced by strategic and political considerations of the donor countries. To point out that the aid flow was not predominantly directed to the very low-income countries did not make me and my colleagues very popular to the donors.

The North-South divide was much more serious and controversial on the issue of trade because the most preponderant players in the world food export trade were the developed countries, i.e. North America and Australia, as exporters, while the importers were predominantly the poor countries. Moreover, the price support policy of the European Union (EU) countries hampered the export of those few developing agricultural exporting countries. The EU followed a price support and food stock policy which ensured adequate and stable domestic supply at a price above the world price. Moreover, export subsidy policy for agricultural exports such as cotton in the case of the United States discouraged the exports of developing countries. These policies and their adverse effects on the developing countries were analyzed by FAO.

The instability of food supplies and prices in the world food markets resulting in periodic high food prices

had adverse impact on the poor and vulnerable sectors of the population of the developing countries. To provide a stable supply of food to the poor countries was a priority issue in international deliberations in the FAO forums. I was involved in formulating proposals for international stocks to offset the impact of fluctuations on the world food supply.

The system of governance in FAO as in all the UN-specialized agencies was such that all countries had equal votes in the decision-making process, i.e. in budget and expenditure decisions. This, in effect, meant that the decision-making process was dominated by the developing countries where the financing of the budget was based on the assessed contributions of the member countries based on their per capita income. In other words, the rich countries like the United States carried the major burden of the budget while Papua New Guinea had the same vote as the United States or EU. The latter found this situation absurd and resented it seriously. Therefore, there was a constant struggle on their part to keep the budget as small as possible. Every year, the budget session was a tense and wrenching experience in the face of disagreements between the two sets of countries. We, in the Secretariat, had to tread a very delicate path in the midst of these controversies. There was great deal of pressure by the rich countries to keep the technical assistance projects at the country level to be financed by FAO from its budget as low as possible. They preferred that such assistance was bilaterally provided as they had the freedom to choose the recipient and the types of technical assistance. Moreover, bilateral technical assistance provided employment for their own nationals in technical assistance projects in lieu of the FAO-recruited international experts.

The Economic and Social Policy Department I was responsible for produced the annual flagship publication of FAO called the State of Food and Agriculture which reviewed the supply and demand situation of food in many countries, regions, and the world as a whole. It included an analysis of the various factors affecting supply and demand of food. At the same time, there were monthly and quarterly reports on the evolving food situation and estimates of impending shortages, if any, in specific countries and regions. This was published as a part of what was generally called the Food Information and Early Warning System established by FAO to enable countries and international agencies to deal with emerging food shortages. Also, for the first time, we undertook a long-term perspective study of world food and agriculture for 10 years and more. This was done under my direct supervision with a highly competent group of macroeconomists and econometrician as well as agricultural experts. Interacting and directly supervising this group was for me a highly satisfying intellectual exercise. In the process, I learned a lot about the projection techniques as well.

As far as subjects that I had to deal with at FAO, they ranged from the technical aspects of agriculture such as economics of irrigation and appropriate balance between different types of fertilizer and pesticide to such institutional issues as alternative systems of land tenure, including communal land rights and peasant or cooperative farming, different types of cooperative associations and farmer's organizations, and agricultural education and extension systems. Moreover, I had to deal most intensively with the causes, consequences of, and policies to combat under nutrition. Our department was responsible for a periodic publication called World Food Survey which estimated the extent of under-nutrition in individual countries, regions, and the world as a whole. This involved working very closely with technical experts who estimated the nutritional requirements of individuals, on the one hand, and the supply of nutrients, on the other. Based on such exercises, the gap between requirements and supplies of nutrients on a country basis was estimated. We had to work very closely with WHO and UNICEF. In those days, the emphasis was on calories and proteins, and the concept and measurement of micronutrient were still in their infancy. In cooperation with WHO, I had to chair the Codex Alimentarius Commission dealing with food safety issues and establishing food safety standards for various kinds of food which were adopted by national governments and which were also used in international trade negotiations on food trade.

While at the Planning Commission, I had been initiated into being a jack of all trades with a rudimentary knowledge of some of these non-economic issues; at FAO, my involvement with non-economic and technical issues relating to the agricultural sector had greatly expanded.

The task of coordinating programs of FAO in the social and economic field with UN organizations fell on me. This included the International Labor Organization (ILO) on rural labor market and employment in rural non-farm sector, UNESCO on rural education, and UNCTAD and WTO on trade in agricultural commodities.

5 International Food Policy Research Institute (IFPRI)

After my 10 years in working for FAO in Rome, I moved to the International Food Policy Research Institute (IFPRI) in Washington D.C. It was a significant transition from a job at the FAO where I had considerable administrative and supervisory responsibility for the largest department of the organization with five divisions and with about 150 or so employees in Rome and about 100 or so in the various countries as technical

assistance experts. However, I could not avoid spending long hours in meetings with various committees dealing with a large number of issues as discussed above.

I had no administrative responsibility at all at IFPRI and had all the time to do study and conduct my research. The basic mandate of such an international research organization is to undertake research on international policy issues without regard to political considerations either in the choice of research topics or conclusions reached. Moreover, it was also expected to undertake case studies of individual countries or comparative studies of several countries on selected policy issues. The independence of the Institute was facilitated by the fact that, in the early days, most of its funding came from private foundations and the grants from individual donor countries were largely unrestricted.

While at IFPRI, I published a few research studies which I had conceived while at FAO but could not pursue in view of my heavy responsibilities. One of the studies dealt with the non-traditional agricultural exports of developing countries—a subject which until then did not draw much attention since the focus was on cereals and major agricultural raw materials. It was a comprehensive study over the last several years of the pattern, composition, and direction of horticultural exports of developing countries as well as their determinants. Other topics included the analysis of the rural non-farm sector and the gaps in the existing empirical studies of the sector including the formulation of frameworks for future case studies of the non-farm sector and evaluation of the objectives, policies, and their consequences for the stabilization of food prices in a number of countries. Also, I supervised a prospective study of food demand and supply balance in the light of increasing population and income growth, especially in the developing countries. I also worked on foreign aid to the agriculture sector, including the evolution of its sub-sectoral composition over the years.

In recent years, the resources available to the research centers have been increasingly tied to the preferences of the donors in general or in particular donor assistance projects and programs in individual countries. This had the consequence of restricting not only freedom of choice on the part of the leadership of the Institute of research projects but also constraints on the countries on which research could be done.

I retired as Research Adviser/Fellow in mid-1990s and stayed on as Emeritus Fellow. In this period I have paid increased attention to the problems of governance and political economy of policymaking in developing countries. This included a study of governance and development in Bangladesh as well as one on corruption.

In the early stages of development, there are sectors which are not seriously affected by poor governance. To

illustrate, informal methods of contract enforcement based on social capital and trust work quite well. As economic transactions and supply chains get complicated, formal methods of contract enforcement assume greater importance. Again, corruption results in the high costs of projects involving the transfer of public funds to private hands. Corruption has serious adverse effects on income distribution and confidence of both foreign aid and private foreign investment, adversely affecting its flow.

As I look at my long professional career some random lessons come to my mind. For example, intellectual curiosity has, for me, been the basis of a satisfying professional life and stimulated research. A successful professor has to keep abreast of the latest developments in the subject of his specialization. In these days of globalization of information and knowledge, very soon it becomes evident when a professor becomes outdated and thereafter loses respect.

The best research is done in an environment in which there are members of a peer group with whom to

interact, debate, and discuss. This is especially true of social sciences if not in mathematics or similar natural sciences.

In economics, there is no final answer to a question or a final solution to a problem. In development economics, for example, we do not as yet fully and finally understand which factors generate and sustain economic growth. We may, however, broadly know the range of factors which cause growth.

In quantitative economics, the answer to a question or confirmation of a hypothesis depends on what kind of data and what methods of analysis or estimation techniques are used. Great caution should be exercised in drawing policy conclusions on the basis of quantitative analysis. It is necessary to test the hypothesis using different data sets as well as using different estimation techniques. If the results of multiple analyses lead to the same conclusion, there is a prima facie case for making the policy conclusion. Even then the final decision should be based on common sense and experience.

Spatial Planning: A Prerequisite for Sustainable Development of Bangladesh

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Abstract

Among nations with populations above 100 million, Bangladesh is the most densely populated country. It is located on the most active delta in the world and quite vulnerable to natural calamities. Despite tremendous growth over the last three decades in the service, industrial and remittance sector, agriculture remains the largest single source of the GDP and employment. It also provides the nation with food security, a crucial component of sustainability. Over the past three decades unplanned urbanization and industrialization has adversely affected ecologically critical areas such as wetlands, rivers and forest ecosystems. Natural hydrology has been affected by increased extraction of groundwater and surface water for irrigation, coupled with flood control measures in the upper riparian and lower riparian regions. In this context, spatial planning could be considered as a useful tool to foster sustainable development of the country. Therefore, this paper recommends spatial planning as a tool for the sustainable development of Bangladesh considering the demographic trends, economy, geographic context and existing policy of land use and urban planning.

1 Introduction

According to the World Bank (2015b), Bangladesh has emerged from a lower income nation to embark on the path to become a middle income nation within coming decade. Compared to its neighbors its performance has been noteworthy in many sectors. However, the demographic patterns, geographic context and economic trends all point towards unprecedented complexities arising from various issues such as overcrowding in urban settlements, unplanned urbanization, climate change, water resources management issues, shrinking farmland, infrastructure deficit etc. (World Bank, 2014). The prevailing practice of land use and urban management, as well as weak governance further exacerbate the situation. In such a scenario, this paper highlights the demographic, economic and geographic context of Bangladesh and advocates the necessity of spatial planning on a nationwide basis to ensure its sustainable development.

2 A Brief Overview of Bangladesh's Demographic Trends

Bangladesh is one of the most densely populated territories in the world, particularly which have high dependence on agricultural sector, as we can see in Table 1 and 2. The territories which have higher or

similar density are essentially city states with much lower aggregate population. The land area of Bangladesh excluding the water bodies, rivers and lakes is 130,170 sq-km. At present, in 2015, the population is estimated to be 160 million making a density of 1200 persons per sq-km or 5 persons per acre and in 2050, population is projected to be 200 million that will make a density of 1500 persons per sq-km or 6.25 persons per acre, as seen in Figure 1 (UN, 2015).

UN (2015) predicts that the population will taper off at around 200 million, but Streatfield and Karar (2008) provide an explanation of population distribution which reveals that the rural population will stop growing by 2025 while the urban population will absorb the additional growth.

Therefore, along with this mammoth population density issue, the distribution of the population over the country is also very significant. The primacy of the capital city Dhaka and its adjacent urban agglomerations is shown in Table 3.

While development of human resources has been given due importance in the sectoral policies, little attention has been given on how to manage such an overwhelming population spatially in this tiny land mass. Many economists have recognized scarcity of land as the key hurdle for economic development (Rashid, 2013).

Table 1: Population statistics of major nations of the world

		Country Name: ↕	Population ▼	Area (Sq. Km.) ↕	Population Density (Sq. Km.) ↕	Area (Sq. Mi.) ↕	Population Density (Sq. Mi.) ↕
1		China	1,339,190,000	9,596,960.00	139.54	3,705,405.45	361.42
2		India	1,184,639,000	3,287,590.00	360.34	1,269,345.07	933.27
3		United States of America	309,975,000	9,629,091.00	32.19	3,717,811.29	83.38
4		Indonesia	234,181,400	1,919,440.00	122.01	741,099.62	315.99
5		Brazil	193,364,000	8,511,965.00	22.72	3,286,486.71	58.84
6		Pakistan	170,260,000	803,940.00	211.78	310,402.84	548.51
7		Nigeria	170,123,000	923,768.00	171.32	356,668.67	443.71
8		Bangladesh	164,425,000	144,000.00	1,141.84	55,598.69	2,957.35
9		Russia	141,927,297	17,075,200.00	8.31	6,592,768.87	21.53
10		Japan	127,380,000	377,835.00	337.13	145,882.85	873.17
11		Mexico	108,396,211	1,972,550.00	54.95	761,605.50	142.33
12		Philippines	94,013,200	300,000.00	313.38	115,830.60	811.64
13		Vietnam	85,789,573	329,560.00	260.32	127,243.78	674.21
14		Germany	81,757,600	357,021.00	229.00	137,846.52	593.11
15		Ethiopia	79,221,000	1,127,127.00	70.29	435,185.99	182.04
16		Egypt	78,848,000	1,001,450.00	78.73	386,661.85	203.92
17		Iran	75,078,000	1,648,000.00	45.56	636,296.10	117.99
18		Turkey	72,561,312	780,580.00	92.96	301,383.50	240.76
19		Congo (Dem. Rep. of)	67,827,000	2,345,410.00	28.92	905,567.49	74.90
20		France	65,447,374	547,030.00	119.64	211,209.38	309.87

Source: (World Bank, 2015a).

Table 2. Population Densities of countries and territories.

Netherlands	493	495	497	498	
Korea, Rep.	508	512	514	516	
San Marino	514	517	521	524	
St. Martin (French part)	556	563	569	575	
Aruba	564	566	569	572	
Mauritius	616	617	619	620	
West Bank and Gaza	633	652	672	693	
Barbados	652	655	659	662	
Maldives	1,086	1,107	1,128	1,150	
Sint Maarten (Dutch part)	1,113	1,132	1,150	1,167	
Bangladesh	1,161	1,174	1,188	1,203	
Malta	1,295	1,301	1,311	1,323	
Bermuda	1,302	1,291	1,296	1,300	
Bahrain	1,647	1,701	1,734	1,753	
Hong Kong SAR, China	6,690	6,735	6,814	6,845	
Singapore	7,252	7,405	7,589	7,713	
Macao SAR, China	18,001	18,270	18,622	18,942	
Monaco	18,423	18,631	18,790	18,916	
South Sudan					

1980-1984 1985-1989 1990-1994 1995-1999 2000-2004 2005-2009 **2010-2014**

Source: (World Bank, 2015a).

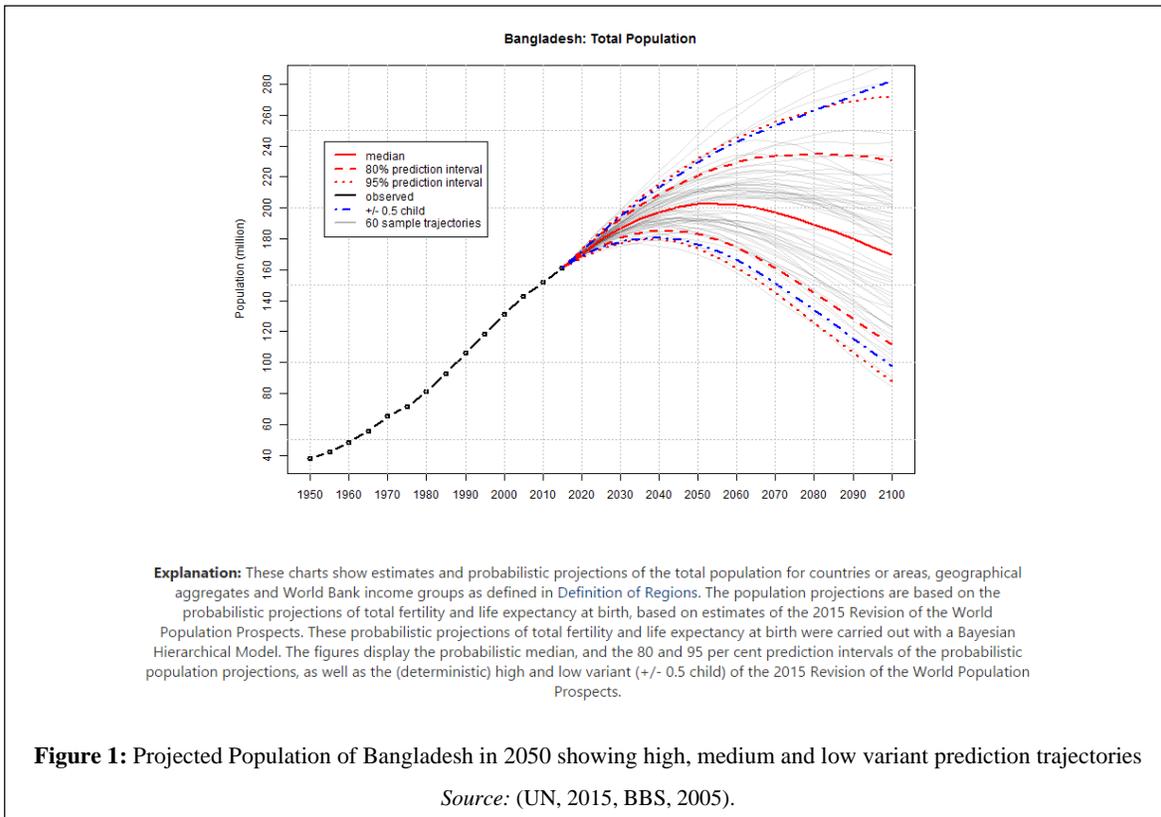


Table 3: The population density of the districts of Bangladesh.

Statistical Region	2001 Population (in thousand)	Area (sq.km)	Population Density (per sq.km)	Area (sq.mile)	Population Density (per sq.mile)
Dhaka	18,404	7,439	2,474	2,880	6,390
Mymensingh	9,401	9,862	953	3,808	2,469
Jamalpur	3,531	3,394	1,040	1,310	2,695
Faridpur	6,336	7,008	904	2,669	2,374
Tangail	3,413	3,414	1,000	1,309	2,607
Chittagong	8,780	7,775	1,129	2,786	3,151
Cgt. Hill Tract	1,403	13,295	106	5,089	276
Noakhali	5,505	5,985	920	2,033	2,708
Comilla	9,635	6,716	1,435	2,592	3,717
Sylhet	8,262	12,596	656	4,783	1,727
Rajshahi	7,971	9,441	844	3,653	2,182
Dinajpur	4,909	6,652	738	2,609	1,882
Rangpur	9,506	9,666	983	3,701	2,568
Bogra	4,051	3,885	1,043	1,501	2,699
Pabna	5,063	4,869	1,040	1,906	2,656
Khulna	6,020	12,212	493	4,631	1,300
Barisal	6,114	8,260	740	2,792	2,190
Patuakhali	2,416	5,037	480	1,675	1,442
Jessore	5,814	6,567	885	2,584	2,250
Kushtia	3,483	3,495	997	1,342	2,595

Source: (Rashid, 2005, BBS, 2005) Page 42.

Table 4: Trend of Structural Transformation of Broad Sectoral Shares in GDP and Growth Rate at Constant Price.

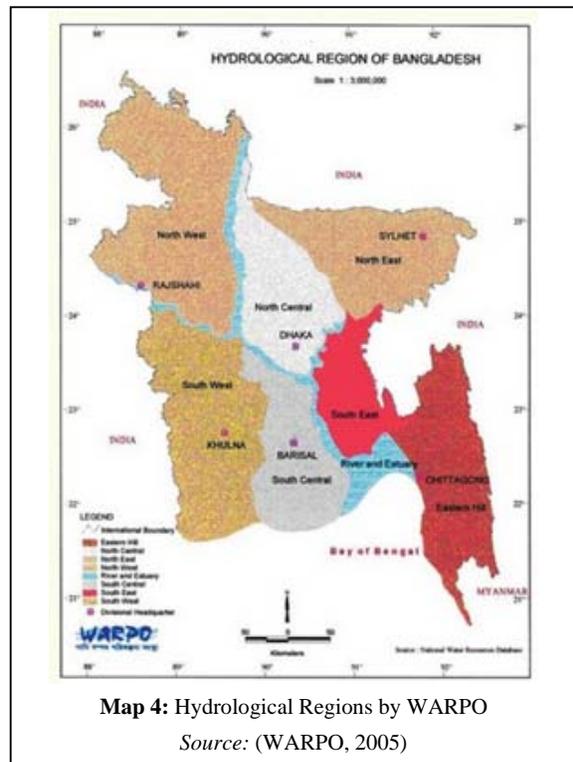
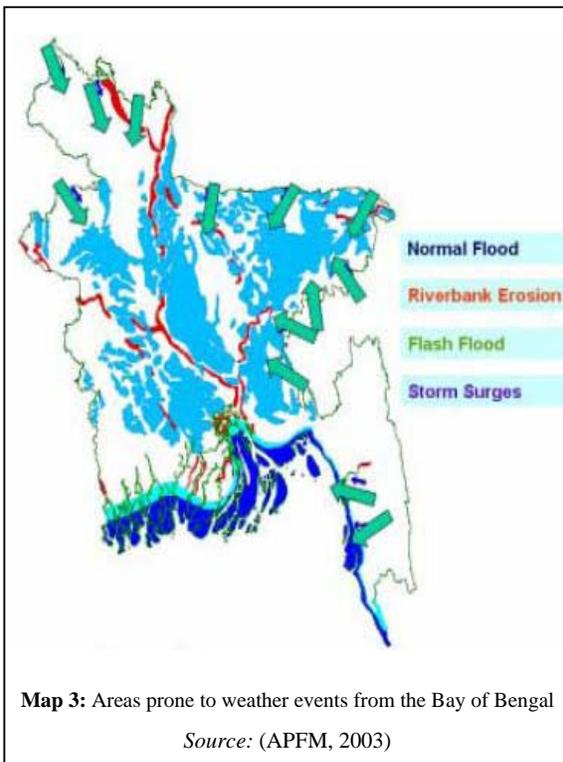
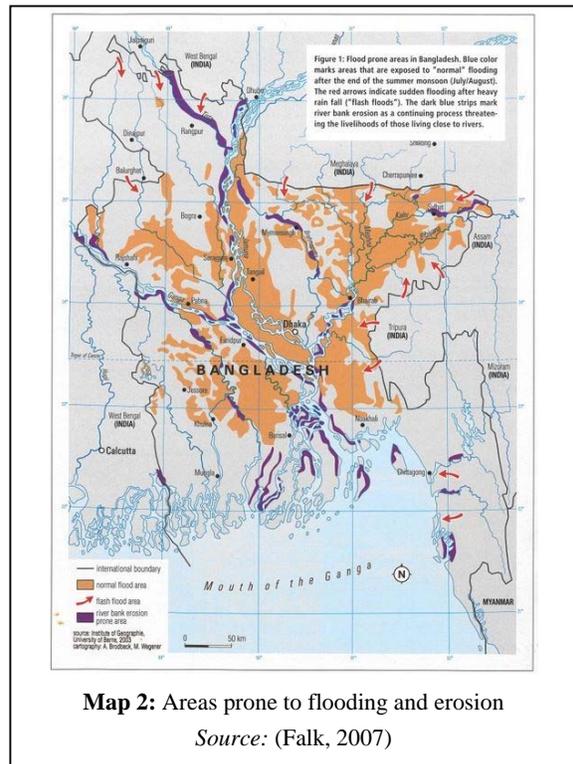
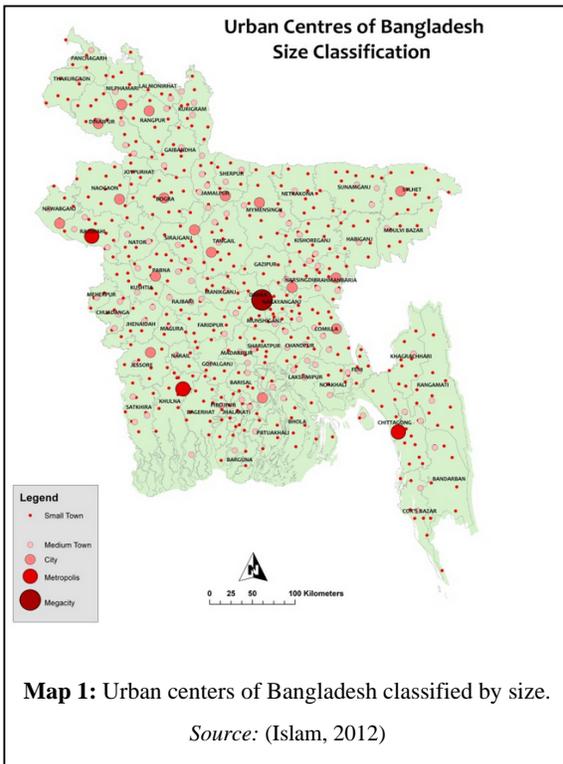
Share (in percent)										
Sector	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	2010-11	2011-12	2012-13	2013-14*
Agriculture	33.07	31.15	29.23	25.68	25.03	19.01	18.01	17.38	16.78	16.33
Industry	17.31	19.13	21.04	24.87	26.20	25.40	27.38	28.08	29.00	29.61
Service	49.62	49.73	49.73	49.45	48.77	55.59	54.61	54.54	54.22	54.05
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average growth rate (in percent)										
Agriculture	3.31	3.31	2.23	3.10	3.14	5.50	4.46	3.01	2.46	3.35
Industry	5.13	6.72	4.57	6.98	7.45	9.80	9.02	9.44	9.64	8.39
Service	3.55	4.10	3.28	3.96	5.53	6.60	6.22	6.58	5.51	5.83
GDP (At producer prices)	3.74	3.34	3.24	4.47	5.41	7.18	6.64	6.72	6.14	6.16

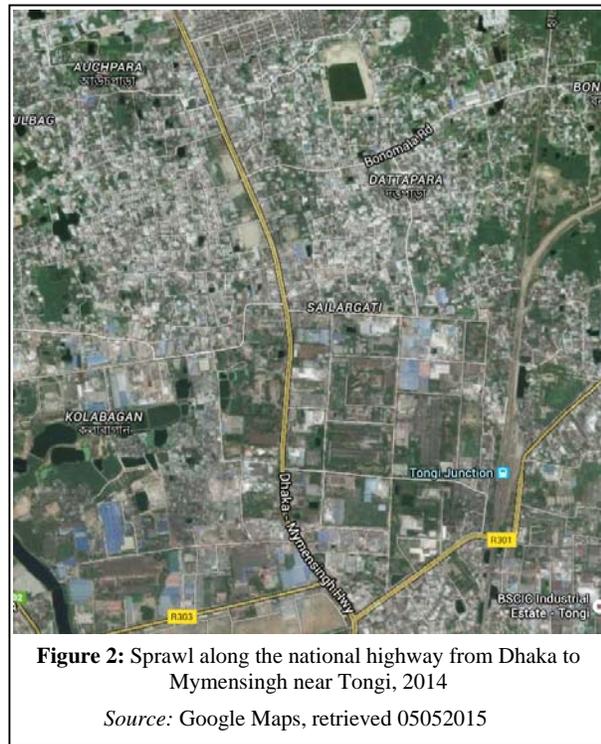
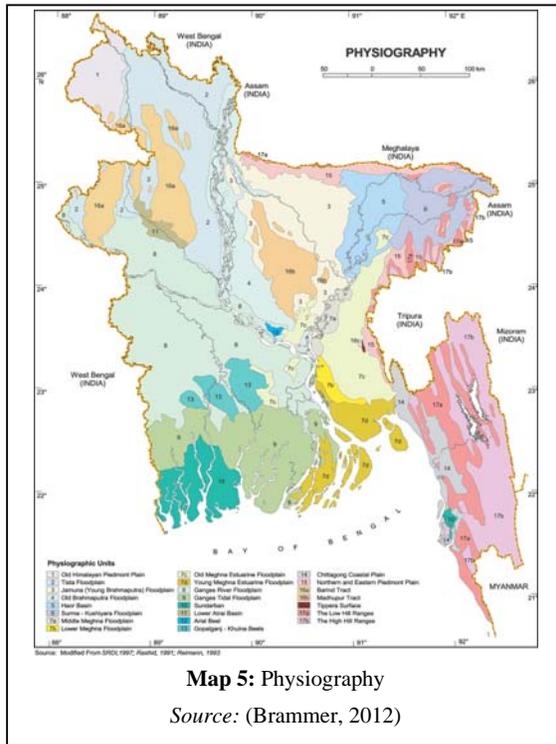
Source: (BBS, 1993, BBS, 2006)

Table 5: Growth of Urban Population in Bangladesh 1901-2001

Census year	Total national population (million)	Annual growth rate of national population (%)	Total urban population (million)	Urban population as % of total population (level of urbanization)	Decadal increase of urban population (%)	Annual (exponential) growth rate of urban population, (%)
1901	28.2	-	0.70	2.43	-	-
1911	31.65	0.94	0.80	2.54	14.96	1.39
1922	33.25	0.60	0.87	2.61	8.85	0.84
1931	35.60	0.74	1.07	3.01	22.20	2.00
1941	41.99	1.70	1.54	3.66	43.20	3.59
1951	44.17	0.50	1.83	4.34	18.38	1.58
1961	55.22	2.26	2.64	5.19	45.11	3.72
1974	76.37	2.48	6.00	8.87	137.57	6.62
1981	89.91	2.32	13.56	15.54	110.68	10.03
1991	111.45	2.17	22.45	20.15	69.75	5.43
2001	123.1	1.47	28.61	23.10	37.05	3.25

Source: (BBS, 1993, BBS, 2005, BBS, 2006)





3 Trends of Economic Growth of Bangladesh and the Urbanization Scenario

In the post liberation decades, the economy of Bangladesh was primarily based on agriculture and at the same time heavily dependent on the support from the development partners. Since 1990s, the economic trend has been shifted with a clear inclination towards non-agricultural sector. This shift is mainly fueled by the growth of various non-agricultural sectors such as the export-oriented ready-made garments (RMG) industry, service sector, remittance from the expatriate Bangladeshis etc. besides improved agricultural system (Lewis, 2011). The distribution of different economic sectors and broad shares in GDP since the 80's are shown in Table 4. All these factors have accelerated the rate of urbanization, directly and indirectly, in various ways since the 1990's as seen in Table 5.

Urbanization of Bangladesh is heavily directed by factors such as distress migration, limited employment opportunities in the rural areas and growth of the new urban economy since the 1990's. According to the 2011 census, at present the total urban population of Bangladesh is estimated to be roughly 28% of the total population of 150.4 million. Although it has been predicted that the rate of urban population growth will fall over the coming years, it is projected by the UN that

the urban population will be 86.5 million in 2030, it will cross the 50% mark by 2040 and become 60% in 2050 to 100 million (Islam, 2012). The contribution of agriculture to the GDP is 15.1% and it employs 47% of the labor force (CIA, 2015) though the Government of Bangladesh projects the contribution to 16.33% (FDB-GOB, 2014). Food security plays a key role in the stability of this populous lower middle income nation.

Dhaka and Chittagong are the key centers of economic activity with existing population of 14 million and 4 million respectively. The contribution to the GDP of the urban areas is 45%. Islam (2012) has shown that, with the massive improvement of road network over the last two decades, urbanization has followed clustered patterns with smaller urban settlements growing in tandem surrounding the larger cities, as depicted in Map 1. Large scale development of the road network and poor land-use administration and planning have resulted in almost endless sprawl along the key arterial highways, as seen in Figure 2, over the last decades. Sprawl has an adverse impact on the vulnerable natural hydrology and natural resources degradation.

4 The Physical Geography and Environment of Bangladesh

Formed by the mighty Ganges and Brahmaputra river system, the Bengal Delta is the most dynamic on the

planet. The silt carried by the rivers form the major land masses and creates a plethora of variation with regard to soil characteristics, ecology, flooding patterns and consequently agro-ecology as described by Brammer (2012) and Rashid (2005). The key issues related to physiological features and correspondent natural phenomenon can be categorized into the following categories.

4.1 Hydrological Issues

Bangladesh has been classified into eight different zones based on its hydrological characteristics by Water Resources Planning Organization, GoB (WARPO). Zones for planning purposes are water stress zone, drought prone zone, four types of flood management zones and river channels used for navigation. The main threats to water security are as follows.

- a. Annual natural flooding, flash floods, impact of river control measures upstream and river erosion in upper riparian areas.
- b. Massive Sedimentation, Saline intrusion, tidal surge and storms associated with the Bay of Bengal in the coastal belt.
- c. Water management issues: Scarcity of water caused by unplanned use of underground aquifers for irrigation, potable water supply to urban areas, water pollution and unplanned diversion of water from rivers for agriculture and other uses. Some of these issues are shown in Maps 2, 3 and 4.

The National Water Policy, 1999 describes the main challenges of water resource management in the following way.

“Water resources management in Bangladesh faces immense challenge for resolving many diverse problems and issues. The most critical of these are alternating flood and water scarcity during the wet and the dry seasons, ever-expanding water needs of a growing economy and population, and massive river sedimentation and bank erosion. There is a growing need for providing total water quality management (checking salinity, deterioration of surface water and groundwater quality, and water pollution), and maintenance of the eco-system. There is also an urgency to satisfy multi-sector water needs with limited resources, promote efficient and socially responsible water use, delineate public and private responsibilities, and decentralize state activities where appropriate. All of these have to be accomplished under severe constraints, such as the lack of control over rivers originating outside the country's borders, the difficulty of managing the deltaic plain, and the virtual absence of unsettled land for building water structures.” (GOB, 1999)

4.2 Soil Types, Bio-ecology and Agro-ecology Issues

Ali Reza et al. (2002) has divided the Bio Ecology of Bangladesh into 12 zones as shown in Map 6. The biodiversity of this relatively small land mass which includes rainforests, mangrove forests, protected forests, floodplains, wetlands and coastal zones with their ecotones, in terms of number and richness of floral and faunal species is critical for the ecological services required for the agro-ecology. The Food and Agricultural Organization classified 31 eco-agricultural zones. These vary widely in terms of agricultural productivity (Brammer, 2012).

5 Existing Spatial Planning and Implementation

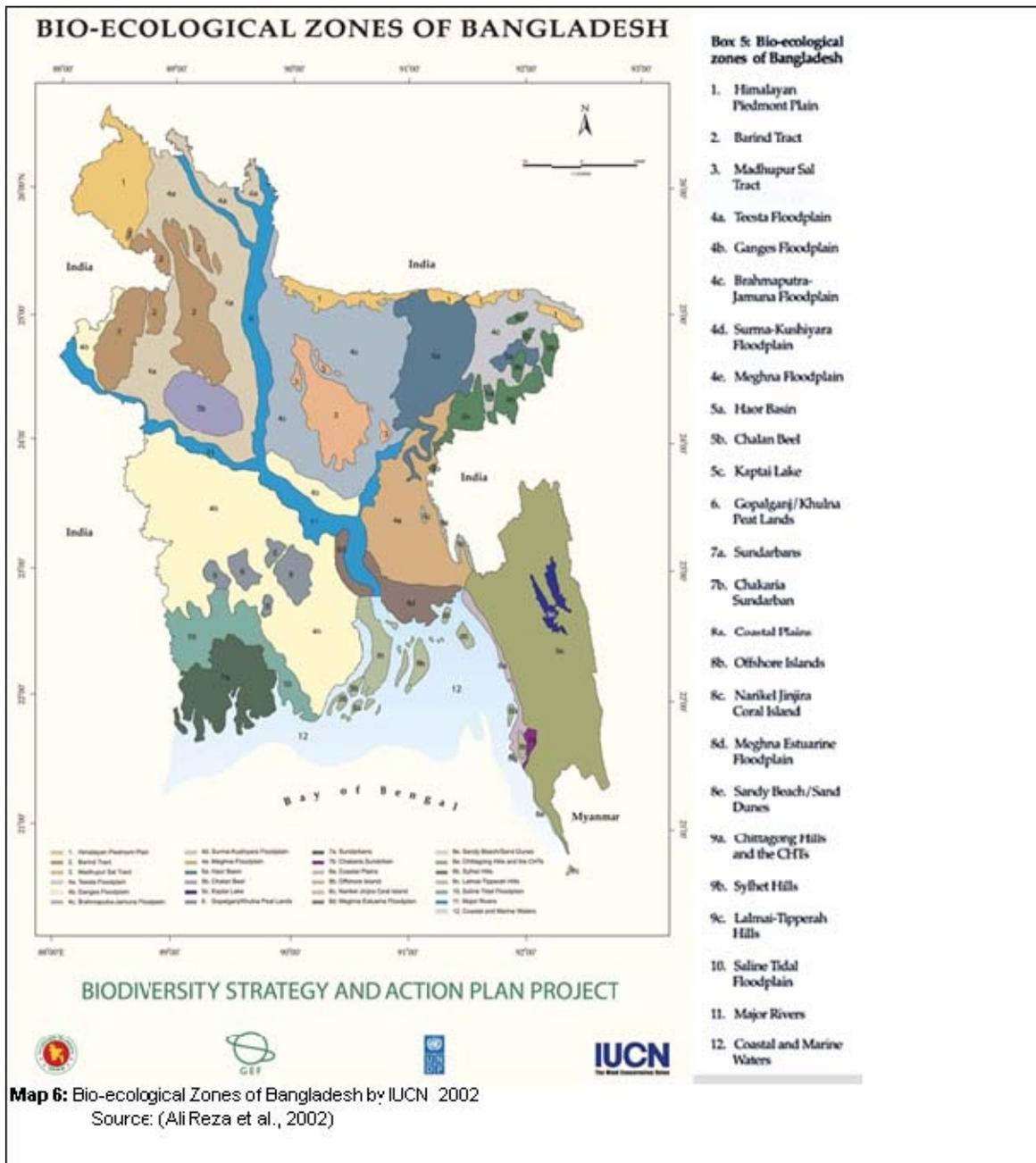
5.1 Planning Agencies of Bangladesh

The National Planning Commission of Bangladesh functions as the apex body of the government for planning. The Prime Minister chairs the commission with the Minister of Planning as the Vice Chairman. Its key functions are to prepare, review, monitor and evaluate the national plans, both annual and five-year. The functions also includes revising the perspective for the economic and social development of the country in accordance with the socio-economic objectives of the Government of Bangladesh. Its key departments are:

- i. Programming
- ii. General Economics
- iii. Socio-Economics
- iv. Physical Infrastructure
- v. Industry and Energy
- vi. Agriculture, Water & Rural Institutions

The planning division of the Ministry of planning plays the secretarial role to the key bodies for implementation of economic policies and projects known as the National Economic Council (NEC) and the Executive Committee of the National Economic Council (ECNEC).

The key function of the physical infrastructure division includes the preparation of short, medium and long-term plans for sectors under this Division, involving roads and highways, railway, civil aviation and tourism, post and telecommunication, statistics, water distribution, local and municipal infrastructure development, public works, housing sectors etc. (PCB-GOB, 2011). The National Planning Commission entrusts the concerned ministries with the task of implementing the policies.



5.2 Current Government Policies Related to Spatial Planning:

5.2.1 Sectoral and spatial policies of the Sixth Five Year Plan FY2011-FY2015:

The current Sixth Five Year Plan contains the broad policy goals of the government. Bangladesh aims to become a middle income country by 2021 if the current rate of economic growth prevails. The government is

pursuing Vision 2021 to consolidate economic growth, improve service delivery, alleviate poverty, ensure environmental sustainability, manage human resource development, create planned urbanization, reduce regional disparity, address climate change adaption, enhance disaster resilience among other measures to ensure sustainable development (PCB-GOB, 2011).

Managing urbanization is given due emphasis in this document. However, it does not address some key issues

that are critical in this regard. These issues can be viewed from three perspectives. The first one is the integration of sectoral policies with spatial strategies in both urban and rural context. The second one is the inadequacy of existing urban planning policies and implementation systems to cope with the massive scale of urbanization. The third issue is how to ensure integration of planning strategies of different government agencies involved in land management, water management and infrastructure development, providing utility services, agriculture, environmental protection, climate change adaption and disaster resilience.

There is a very clear bias in the Sixth Five Year Plan about how to use existing planning framework as well as legal instruments related to town-planning, area zoning and local government for developing urban centers. However, it does not provide any consideration to adopt a spatial planning strategy to accommodate the massive population, check environmental degradation and create resilience to climate change in the coming decades spanning the urban and rural areas on a national scale.

Agriculture is considered crucial for the sustenance of the country. Nevertheless, the decrease in arable land due to unplanned non-agrarian land use such as urbanization and industrialization is addressed by enhancing food production using modern technology. Taking steps to contain the footprint of settlements, spatial trends of urbanization and industrialization to protect arable land is not given due consideration.

The Sixth Five Year Plan also looks at population growth as an issue which has to be tackled with population control only. The population will stabilize by

most estimates at 250 million. The cities and regions need to be designed as such. The Draft National Urban Policy 2011 attempts to focus on building networks of urban centers but does not take into account the territorial issues which must be addressed to contain environmental issues.

5.2.2 National land use policy 2001, Government of Bangladesh:

This document, prepared by the Ministry of Land, takes the key issues concerning depletion of agricultural land, misuse of land by various government and private agencies, land scarcity, unplanned urbanization, obsolete land management systems into cognizance and recommends for a national scale land zoning project. The local government will be responsible for preparing zoning maps. This project has produced digital land use maps for most of the parts of most of Bangladesh. The maps indicate basic land use but lacks the coordination with environment, infrastructure and urban planning.

5.2.3 Coastal zone policy (2005) Ministry of Water Resources:

This document takes the special needs of the coastal zones into careful consideration and layout the broad policy directions. The coastal zone has tremendous variations, with mangrove forests, estuarine ecological belts, delta zone, sea coast, agricultural land, non-agricultural land, shoals, embankment areas which have diverse requirements. Such a policy would only be effective if it had a spatial planning component with clear delegation of authority to a coastal land management authority which would monitor, plan, finance, evaluate and implement it.

Table 6: Key agencies involved in urban planning and infrastructure.

Agency	Parent Ministry	Key Responsibilities
Urban Development Directorate	Ministry of Housing and Public Works	Developing Master Plan/Land Use Plan for small, medium and large town and cities
Local Government and Engineering Department (LGED)	Ministry of Local Government, Rural Development and Cooperatives	Transportation, water supply and drainage and infrastructure planning and implementation, focusing on small urban centers outside the boundaries of Dhaka, Chittagong, Rajshahi, and Khulna.
National Housing Authority (NHA)	Ministry of Housing and Public Works	Addressing the housing needs of the country, particularly for the poor, the low and the middle-income group of people.
City Corporations of major cities	Ministry of Local Government, Rural Development and Cooperatives	Urban Management, Governance and planning
Rajdhani Unnayan Katripakkha (RAJUK), Chittagong Development Authority, Khulna Development Authority, Rajshahi Development Authority	Ministry of Housing and Public Works	Land use planning and transport planning. Implementation of land use planning of Dhaka, Chittagong, Rajshahi and Khulna.
Ministry of Communication	Ministry of Communication	Planning, design, construction and maintenance of road networks outside the city corporation boundaries

5.3 Policy Framework Related to Physical Planning

There is a huge policy gap between spatial and sectoral planning in Bangladesh. The spatial aspect of planning is seldom addressed when sectoral policies are framed. The Ministry of Planning is responsible for both sectoral planning and physical planning. The physical planning unit does not have the capacity to coordinate the planning activities undertaken by the various ministries involved. The prevailing spatial planning culture is essentially top down, based on very old euro-centric models and barely cognizant of environmental and socio-economic issues on a regional scale. There is little of effective legislative mechanism to control land-use changes in the rural areas. The major cities (Dhaka, Chittagong, Khulna, Rajshahi, Sylhet) are planned by government agencies such as Rajdhani Unnayan Kartripakkha (RAJUK) – Capital Development Authority for Dhaka, Chittagong Development Authority (CDA) for Chittagong etc. Such agencies have very little accountability to the public.

Such agencies primarily act as state-sponsored land development agencies to supply serviced land to the upper income group. Figure 3 shows an area of almost 9 square miles on a floodplain adjacent to the International Airport which was acquired by RAJUK and developed as serviced urban land. The entire drainage and eco-system was destroyed. The elected local government representatives of the major City Corporations are barely involved in planning. There is an overlap of jurisdiction of urban planning and management between the key ministries involved, the Ministry of Housing and Public Works and the Ministry

Figure 3: Aerial views taken chronologically since 2005 from Google Earth showing how a vast floodplain and designated water retention pond and canals was acquired and filled by the government to supply serviced urban land over an area of approximately 9 square miles. This project is known as the Uttara 3rd Phase.

Source: Retrieved from Google Earth in June 2015

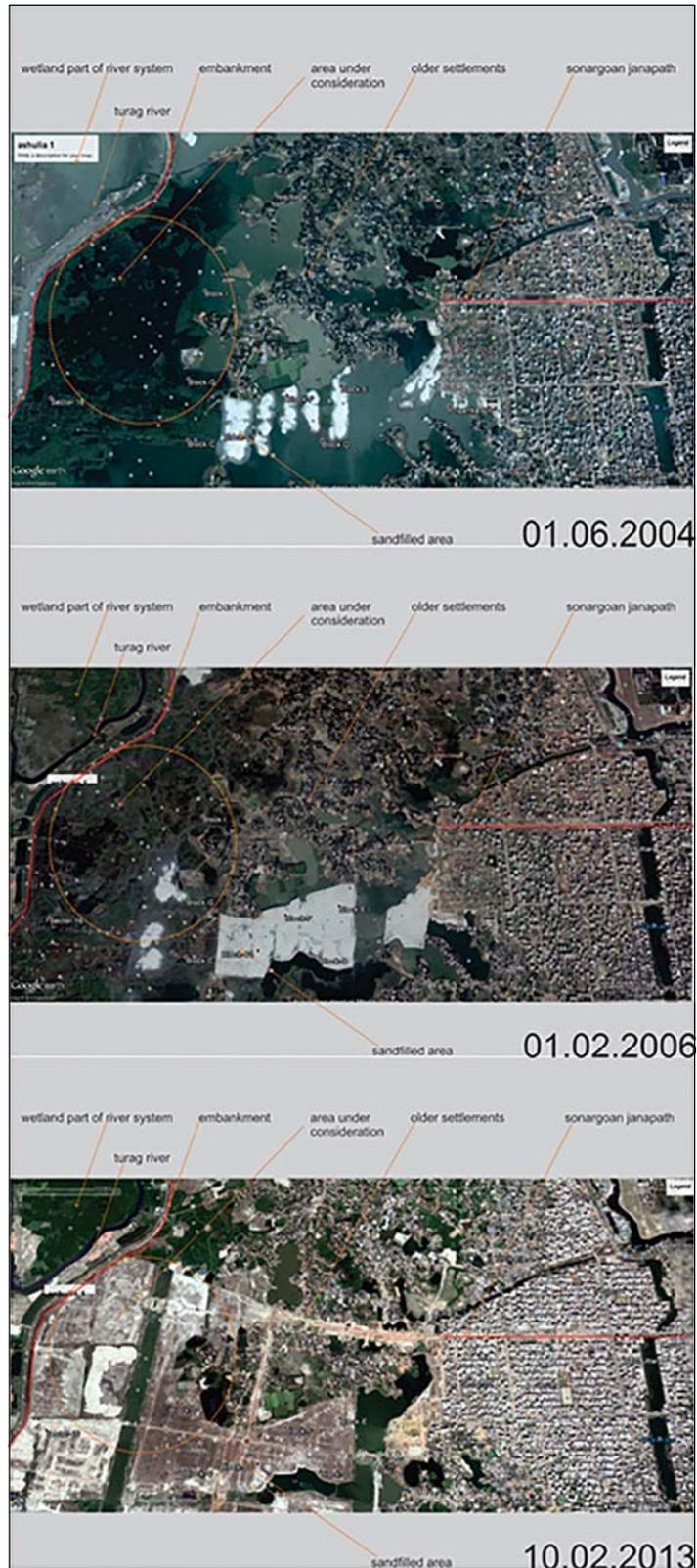




Figure 4: Aerial Map showing Hazaribagh Tannery area 2016. Red Areas show the Tanneries.

Source: Retrieved from Google Earth in August 2016

of Local Government namely as shown in Table 6. Extremely poor land management and governance issues further exacerbate the magnitude and impact of unplanned urbanization.

The impact of unplanned urbanization on the environment and the citizens can be epitomized by the Hazaribagh Tannery industries. Almost 200 industrial leather processing industries are located on 25 Ha on the banks of the river Buriganga in a densely populated neighborhood (Huq, 2000) (Figure 4). This area has been named as the 5th most polluted place in the world by Zurich-based Green Cross Switzerland and New York-based Blacksmith Institute. Every day, the tanneries collectively dump 22,000 cubic liters of toxic waste, including cancer-causing hexavalent chromium, into the Buriganga, Dhaka's main river and a key water source (Chandan, 2015). The industry developed on this area since the 1960's. Scant attention was paid to its extremely hazardous nature till the 1990's. The population of the surrounding residential areas grew rapidly and the government ordered the industry to move to a new site located in Savar in 2003. In Savar, 200 acres of prime farmland was designated to become a 'Leather City', with state-of-the-art waste treatment facilities (Figure 5). Work has been in progress, yet a single factory has not shifted to that location till now. Bhowmik (2013) has stated that the choice of the relocation site at Savar on a fertile floodplain that is connected to the major rivers including the Buriganga is in direct violation of the Dhaka Structure Plan 1995-2015. The existence of Hazaribagh Tannery industry

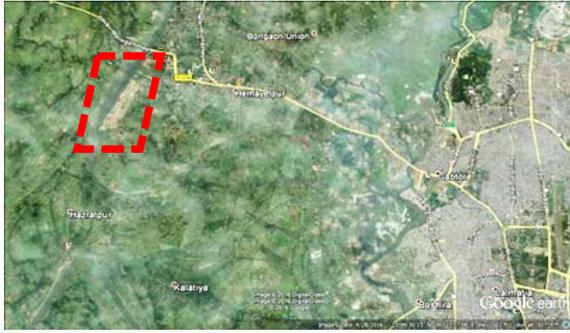
right in the middle of the city for almost six decades is an example of the failure of urban and environmental planning and poor coordination between spatial and sectoral policy.

On the other hand, even in the face of extreme scarcity of serviced land, the Government mulls huge exclusive export processing zones, military installations, government institutions through acquiring huge amounts of agricultural land and even protected areas. Whereas proper use of underutilized public land is neglected (Nazem, 2013, Khan and Siddiqua, 2015, Rahman, 2008).

6 The Impact of Unplanned Urbanization, and Lack of Regional Planning Strategies:

6.1 Non-Agricultural Land Use and Unsustainable Practices in Agriculture:

The direct impact of unplanned industrialization and urbanization has been the loss of agricultural land to non-farming uses. According to the Bangladesh Environment and Climate Change Outlook (ECCO) report, it has been estimated that 1% of farmland is lost every year to non-farming uses. At this rate it is predicted that in 30 years, there will be no farmland (DOE-GOB, 2012).

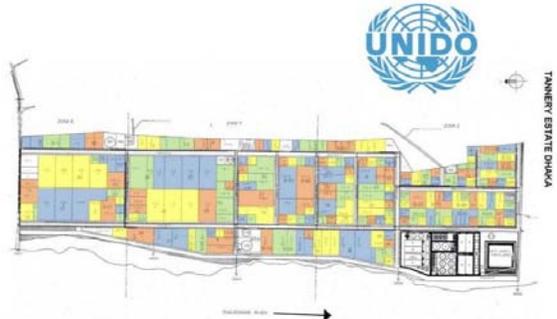


The loss of agricultural land at such an alarming rate is threatening to the hard won food security gained over the last decades. Food security is an asset that forms the backbone of self-reliance.

Wetlands and forests are being rapidly converted to create settlements and industries which adversely affect ecosystem services. Over-farming, use of agrochemicals and over utilization of land are leading to land degradation and reduction of soil productivity. Regarding this issue it is important to particularly mention about the adverse impact of unsustainable cultivation in the sloped terrain in Chittagong Hill Tracts, which is a tropical rainforest.

Unplanned infrastructural development is affecting natural terrestrial and aquatic ecosystems. This leads to degradation of indispensable natural services. Unplanned industrial development is causing pollution from industrial waste. Brick kilns, mining of riverbeds, shipbreaking etc. are causing irreversible damage to the land.

The ECCO report points out to the inadequacies in the policies. There is a gap in the spatial implications of the policies which makes them difficult to be implemented.



6.2 Impact of Unplanned Urbanization, other Factors on Water Resources:

The demand for food production has propelled the over extraction of groundwater and surface water for irrigation. This has adversely impacted the fragile natural hydrological systems. Pollution from urban and industrial waste, filling up of lowlands, low floodplains and wetlands, upstream measures to control the flow of rivers using dams and intrusion of saline water from the estuarine system have further worsened the threats to water security. The temporal fluctuations of the water table and contamination of aquifers and pollution of surface water have led to the degradation of aquatic ecosystems, increase in waterborne diseases and scarcity of potable water. Reduced water flow in the Ganges, diverting rivers for irrigation and uncoordinated embankment systems have led to massive siltation of the river channels. Proper river basin management and water resources management is crucial for the ecosystem services they provide (DOE-GOB, 2012).

Figure 5:
 a. Site of new Leather Town at Savar, further upstream of the Buriganga adjacent to the river. Source Google Earth Images retrieved Aug.2016
 b. Aerial view showing the site in relationship with the city. Soon this area will also be within urban development.
 c. Site plan of the Leather city. The Effluent Treatment Plant is adjacent to the flood prone river. Source: Sheltech Consultants.
 d. Photograph showing proximity of Leather City with the river. The objectives of sustainable development.

Source: (5a) & (5b): Google Earth Images retrieved Aug.2016. (5c): Sheltech Consultants. (5d): Author

6.3 Impact of Degradation of Land and Water Resources and Loss of Habitat on Biodiversity:

Agriculture, fishery and forestry are inter-related with the rich bio-diversity of Bangladesh. It boasts of about 5000 species of flora and 1600 species of fauna, a fact which proves the diversity of ecosystems in a relatively

small geographic area. Degradation of land and water resources coupled with habitat loss has led to adverse conditions for the biodiversity to thrive (DOE-GOB, 2012).

6.4 Other Impacts of Unplanned Urbanization and Industrialization:

Industrial growth and lack of a regional vision based on the growth of hierarchical networks of cities have led to urban sprawl as mentioned previously. Urban growth along the national arterial highways stretching outward from the major cities has become the norm. Poor quality of urban amenities and housing crisis go hand in hand in the newer urban areas. Primacy of Dhaka and Chittagong has led to over-congestion and consequently a breakdown in transportation systems. Development of surface road network is given a much higher priority than water transport and railway systems. The pattern and extent of urbanization could be shaped if policies would be based on a regional system with a transportation network using surface transport, railroads and water transport.

The quality of life in the urban areas is much lower as described by the quantitative indicators. The less tangible but probably more important issue is the loss of social cohesion (Islam, 2012).

7 Policymaking, Urbanization and Sustainable Development in Developing Nations

Defined in the Brundtland Report titled, “Our Common Future” as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs”, sustainable development has become the key objective across the globe with varying measures of success (UN, 1987, UN, 2008).

Elliott (2012) states that a widely acceptable definition of sustainable development is:

‘In principle, such an optimal (sustainable growth) policy would seek to maintain an “acceptable” rate of growth in per-capita real incomes without depleting the national capital asset stock or the natural environmental asset stock.’ (Turner, 1988)

‘The net productivity of biomass (positive mass balance per unit area per unit time) maintained over decades to centuries.’ (Conway, 1987)

‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ (Development, 1987)

Most definitions of sustainable development encompass the idea that there are three interdependent pillars: environmental, economic and social. Barbier (1987) presented these as three interlocking circles as seen in Figure 6.

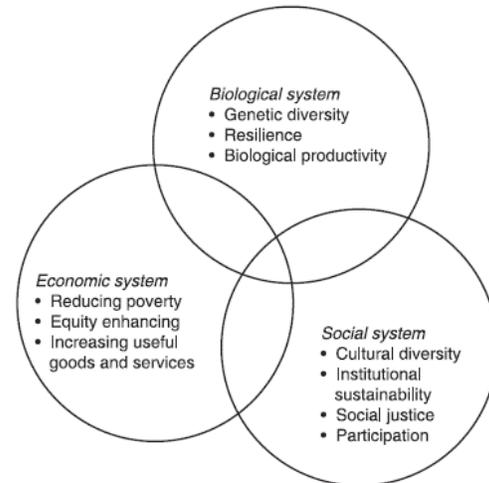


Figure 6: The objectives of sustainable development.

Source: Compiled from Barbier (Elliott, 2012)

Critical objectives and necessary conditions for sustainable development as identified by the World Commission on Environment and Development (Development, 1987) are as follows:

- Reviving growth
- Changing the quality of growth
- Meeting essential needs for jobs, food, energy, water and sanitation
- Ensuring a sustainable level of population
- Conserving and enhancing the resource base
- Re orientating technology and managing risk
- Merging environment and economics in decision-making

Pursuit of sustainable development requires:

- A political system that secures effective citizen participation in decision-making
- An economic system that provides solutions for the tensions arising from disharmonious development
- A production system that respects the obligation to preserve the ecological base for development
- A technological system that fosters sustainable patterns of trade and finance
- An international system that fosters sustainable patterns of trade and finance
- An administrative system that is flexible and has the capacity for self-correction

As in most developing countries, 'The reigning orientation of development is purely economic growth', which puts the environment in danger.

Bangladesh is not above the general institutional setbacks which the Brundtland Report further elaborates on the challenges of ensuring sustainability. Generally institutions and agencies responsible for managing economic development are not open to the integrated approaches required to ensure sustainability. It states that to ensure sustainability government must take a much broader view of urban policy, recognize explicit spatial biases of economic policy and must go beyond physical and spatial planning than has been traditional.

8 The Sustainable Development Strategy of GoB 2010-21

The General Economics Division, Planning Commission of the government has prepared the National Sustainable Development Strategy 2010-21 (NSDS) to address sustainable development of the nation. It duly emphasizes the need to take measures ensuring high economic growth rate to reduce unemployment and poverty. It is cognizant of the fact that "achieving high growth is so urgent that it is easy to downplay the right of the next generation to natural resources. But a large and growing population living in a relatively small geographical area which is increasingly pressurizing our environment – air, water and soil-dictates the urgency of sustainable development in the country." The document falls short on providing policy guidance to ensure proper coordination between sectoral and spatial policy, the crucial ingredient to ensure convergence of various agencies involved. Existing administrative and policy framework is deemed adequate barring some emphasis on improving urban housing and urban amenities.

9 Contemporary Spatial Planning Practices in Bangladesh

9.1 The Search for Appropriate Planning Strategies and Techniques for Bangladesh:

From the preceding discussion, it is evident that Bangladesh faces challenges to gain sustainable development that are quite unprecedented from a spatial point of view such as high population density, unplanned urbanization, dependence on agriculture and hydro-ecological threats.

Master planning, land-use planning, environment planning, urban planning, project planning, sectoral planning, regional planning, transportation planning etc.

are among the tools used by planners to strike a balance between present and future needs and resources. Such efforts often ended in essentially top-down, 'fixed' blueprints/masterplans/strategies which did not work simply because of the unpredictable character of development in the developing world and lack of coordination between implementing agencies.

Since the post second world war era, the role of urban and regional planners have evolved from the 'designer town planner' to the more 'rational/scientific process analyst manager/ strategist' who are open to the demands of a dynamic world and becoming more and more interconnected, urbanized as well as cognizant of the environmental issues (Taylor, 1999, Friedmann, 2005). Planning culture, strategies and mechanisms and tools vary greatly across the globe with response to local socio-political exigencies of nation states.

Any planning effort which takes demographics, economics, environment and nature of governance into cognizance with sustainability as performance criteria must ensure integration with the policies and actions of the key agencies, participatory methods, flexibility and adaptability. Such efforts initiate the necessity of new institutional frameworks (UN, 1987, Davidson, 1996). Conflicts arise when one type of plan aims to provide the performance required in all areas. Some sensitive areas require statutory measures for control, whereas others may require a flexible framework in order to adapt to changing conditions (Davidson, 1996). In such a demanding context, spatial planning aims to address the complex issues faced by planners in the contemporary world (Cullingworth and Nadin, 2006). In 1983, the Council of Europe declared The European regional/ Spatial Planning Charter, also known as the Torremolinos Charter, which defines spatial planning: "Regional/ spatial planning gives geographical expression to the economic, social, cultural and ecological policies of society" (Europe, 1983). It is at the same time a scientific discipline, an administrative technique, and a policy developed as an interdisciplinary and comprehensive approach directed towards a balanced regional development and the physical organization of space according to an overall strategy."

Spatial planning is a multi-sectoral public sector activity at all levels, encompassing activity from planning, monitoring, analysis and implementation with the necessary flexibility to adopt statutory actions and strategic planning techniques as deemed appropriate. The new context of spatial development occurring in the developing countries demands a reappraisal of both planning techniques and legislation. Short term action plans may be combined with long term visions. Government agencies with rigidly defined departments (UN, 2008).

Faludi (2000) describes the nature of the Dutch planning system, which applies the principles of spatial planning at local, municipal, provincial and national levels both for strategic and project planning. A dynamic process is initiated from continuous evaluation of the combination of both indicative spatial planning and strategic planning. A pragmatic, well-coordinated, action oriented system ensures a continuous process among the agencies. Faludi (2000) also characterized the application of spatial planning techniques at two broad levels, project plans and strategic plans. He also suggests a form of rigorous evaluation criteria based on the planning doctrine which “requires a form of macro-analysis whereby the interaction between plans and the decisions and actions shaping the environment are put in a wider context. Between them the micro-analysis of the performance of strategic, indicative plans and the macro-analysis of these broader patterns can give a better understanding of how spatial planning performs in our society.”

9.2 Application of Spatial Planning for Bangladesh

Application of contemporary spatial planning practices on a national scale for Bangladesh has the potential to coordinate the activities of seemingly disparate sectors such as industry, agriculture and service to ensure sustainable development. Unsustainable development feeds environmental destruction and social injustice and in turn social unrest. The present and future needs of the tremendous density of population in Bangladesh can be addressed if sectoral planning activities are combined with spatial planning. Planners must respond to the unique issues of Bangladesh and formulate planning systems with adequate machinery to respond to this unique task.

The key goals may be as follows:

- i. Creating a spatial planning authority with necessary statutory powers and capacity to consolidate all sectoral planning activities with spatial implications by various agencies. This authority which will work both centrally and at the local government level spanning its activities from the rural areas to the urban settlements.
- ii. Formulating a national policy framework to combine water resources, river basin management with land use planning and agricultural zoning.
- iii. Establishing a guideline for land-use considering the carrying capacity of water resources and suitability for farming based on productivity of eco-agriculture zones.
- iv. Consolidation of non-farming land use to such as industry, commerce, housing etc. by using appropriate zoning codes and density indices with an intention to develop networks of small, medium and large cities integrated with riverine, railroads and surface transportation systems. Such urban zones can be established on lands with low agricultural productivity.
- v. Devising policies and spatial planning techniques for special areas such as coastal zones, ecologically critical areas, flood and disaster prone areas etc. to ensure resilience and adaption to climate change.

10 Conclusion

The demographic, economic and environmental trends of Bangladesh demand a holistic approach to address the gap between sectoral policy and spatial policy. Since the 1980's the quest for sustainable development has initiated a paradigm shift in policy making across the globe. So far spatial planning has not been given due emphasis by policymakers in Bangladesh. The adverse impact of the present demographic, urbanization and economic trends on the environment and quality of life will become detrimental to progress if the policymakers fail to consider spatial planning as an essential component of governance.

For Bangladesh, a framework of spatial planning must be developed that is responsive to the specific exigencies of the demographic, economic, environmental, social and political context of Bangladesh. This paper does not aim to delineate a spatial planning system for Bangladesh. It recommends that comprehensive spatial planning is necessary for sustainable development.

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Landlockedness: Boon or Bane?

Findings from a Household Survey in Two Selected Villages in Bangladesh

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Abstract

Using household surveys from two selected villages in Bangladesh, this paper focuses on the phenomenon of landlockedness or being tied to the land. A longitudinal analysis is used to determine changes in landholding and whether being tied to the land promotes or constrains welfare outcomes. The paper argues that the relationship between land possession and welfare is a nuanced one - for instance, in one village, the extent of cultivable land possession still has bearing on welfare outcomes though this is not the case for the other surveyed village. The role of the non-farm sector and, in particular, migration are also discussed as factors and processes that shape the relationship between land possession and welfare.

1 Introduction

Poverty reduction interventions and policies, both within the context of Bangladesh and elsewhere, have become tightly linked to neopopulist¹ policies that emphasize the smallholding farmer, despite evidence that cogently refutes the claim that small farms are more productive than large farms (Dyer, 2000; Byres, 2004; Patnaik, 1999; Johnston and Le Roux, 2007). The unrelenting focus on the small farmer also undermines the very complex reality of peasant differentiation that includes not only the small farmer, but also rich and middle peasants, agricultural laborers and the phenomenon of classes of labor (Bernstein, 2010) who straddle a wide range of livelihoods and are increasingly engaging in labor markets, both local and global.

This paper explores this reification of the small farmer and argues in turn that the preoccupation within policy circles on the small farmer does not adequately reflect the reality. This is due to wholesale livelihood diversification and thus, a weakened relationship between both cultivable land possession and poverty. The paper examines in turn whether being tied to the land, what I will refer to as landlockedness², may restrict households from more viable and lucrative non-farm opportunities, migration being one such option.

I begin by providing a selective review of the literature on the relationship between land and poverty within a rural setting and what the empirical evidence suggests, both globally and for the specific context of Bangladesh. The results of the household surveys are then presented followed by an analysis of what these findings imply.

2 Whither the Elusive Small Farmer?

An observable change has been occurring in agrarian economies in the South: the emergence of non-farm work as an increasingly important avenue for the poor in their search for livelihoods. The key trends that mark this transition are a more heightened diversity of livelihoods, a greater share of income from non-farm as opposed to farm³ sources and thus, weaker nexus between land and livelihoods and, consequently, levels of poverty. As such, the non-farm sector which is argued to account for anywhere from 30 to 50 percent of household income in sub-Saharan Africa, 80 to 90 percent in southern Africa and roughly 60 percent in South Asia is certainly not one to gloss over (Ellis, 2000). Such an argument based directly on evidence from the Global South is clearly in line with the agrarian political economy of Bernstein (2010) for instance who has argued in a similar vein about the increasing prevalence of 'classes of labor'. More specifically, these classes of labor, Bernstein argues, have to "pursue their reproduction through insecure, oppressive and typically increasingly scarce wage employment and/or a range of likewise precarious small-scale and 'informal economy' survival activity, including marginal farming" (Bernstein, 2010, p. 111). The growth of the non-farm economy and its significant contribution to rural income is well-established in the global literature (Haggblade et al, 2009; Barrett et al, 2001; Rigg, 2006; Ellis, 2000; Bryceson, 2002). Both Barrett et al (2001) and Bryceson (2002) discuss the importance of livelihood diversification and the non-farm sector in rural Africa.

Bryceson (2002) for instance focuses specifically on the role of structural adjustment as part of a wider process of de-agrarianisation that in turn has led to what she terms a 'scramble' for alternative livelihoods and thus, de-peasantisation.

Rigg (2006) offers a useful summary of generalized trends in the Global South drawing from in-country surveys as well as a number of case studies including Bangladesh, Philippines, and Laos. In the case of the village of East Laguna in the Philippines, Rigg uses secondary data to describe a region where the contribution of farming to household income has fallen from 90% to 36% while the share of non-farm income increased from a mere 13% to 64% over a period spanning three decades commencing in the 1970s (p.183). For Laos, considered to be one of the most agrarian economies as Rigg discusses, due to increasing marketization and a greater integration into the greater Mekong sub-region, transformations are once more said to be occurring wherein peasants in some regions have become *post-peasants* (Rigg, p.185-186). In tandem with global trends, a number of studies in Bangladesh also reveal that the non-farm sector is of growing importance in terms of the income composition of rural households (Hossain, 2002; Hossain, 2004; Towfique and Turton, 2003). Rural incomes now bear a growing non-agricultural component, more prominent in economically advanced areas in comparison to backward regions. For instance, 27 percent of households were engaged in non-agricultural activities in 1984 in comparison to a 34 percent in 1996 (Towfique, 2003).

Nevertheless, and as Rigg argues, the rhetoric of NGOs and government agencies has sought to glorify rural life and all that is associated with it including

farming (Rigg, p.187). Rigg cites the examples of Thailand and Malaysia to illustrate how farming has become so inextricably linked with national identity and a steadfast, immutable image of the rural ethos that is predominantly agricultural or land-based despite evidence to the contrary (ibid, p.188). The 'yeoman farmer fallacy' as Farrington refers to, in consonance with Rigg's arguments, is based on what is considered to be the falsely contrived ideas amongst NGOs that they can employ technical change to make farming a successful enterprise (Farrington, 1998, p.4). Farrington (1998) goes on to argue that NGOs ignore the livelihood diversification of rural households and falsely view them through the singular occupational lens of farming.

The fetish with the small farmer is also supported by the school of neopopulist thought that proposes a radical egalitarianism, particularly in the area of land reform. The message of the neopopulist school is appealing: egalitarianism does not have to come at a cost; equity and efficiency can be achieved simultaneously, this being a minor point of departure from the neoclassical school's rigid theoretical backing of trade-offs. As Rizzo (2009) maintains, some NGOs still retain the neopopulist logic of smallholder efficiency, only to state that structural adjustment has dismantled the once utopian small farm. This proclivity to target the small farmer may arise from a moral appeal and a belief, for instance, that growth and egalitarianism can occur simultaneously without the existence of an unhappy trade-off. Further to this end, there is an implicit assumption of the monolithic, representative small farmer who bears the brunt of poverty, but somehow holds the engine for agricultural growth and productivity.

Table 1: Incidence of Poverty by CBN method, 2010

Size of landholding (acres)	% of people below poverty line (CBN), 2010		
	National	Rural	Urban
1. Using lower poverty line			
No land	19.8	33.8	9.9
< .05	27.8	35.9	12.3
.05 - .49	17.7	22.1	5.4
0.5-1.49	13.3	15.2	2.4
1.5-2.49	7.6	8.6	1.8
2.5-7.49	4.1	4.3	2.7
7.50+	3.7	4.2	0
2. Using upper poverty line			
No land	35.4	47.5	26.9
< .05	45.1	53.1	29.9
.05 - .49	33.3	38.8	17.4
0.5-1.49	25.3	27.7	12.1
1.5-2.49	14.4	15.7	6.6
2.5-7.49	10.8	11.6	5.5
7.50+	8.0	7.1	14.6

Source: HIES, 2010

However, it has in fact been demonstrated that large farms do possess scale advantages, and can, in turn, generate higher yields in comparison to smaller sized holdings. For instance, Helfand (2002) and Towfique (2001) have both shown that the inverse relationship breaks down either due to consolidated landholdings of beyond 200 hectares as in the case of Brazil or in advanced geographic regions as in the case of Bangladesh.

Thus, the logic that poverty reduction will come about through increases in production on small parcels of land owned by the poor sidesteps the possibility that large-scale farms can produce more in a situation of scale economies.

3 The Nexus between Land and Poverty in the Context of Livelihood Diversification

The rise of the non-farm sector has also translated into changes in the relationship between landholding size and poverty. Ravallion and van de Walle (2008) have shown in the case of Vietnam that rising landlessness is not associated with higher levels of poverty, but in fact is reflective of a process of increased wage employment. In fact, Ravallion (1989) has argued in the case of Bangladesh that landholding is far from precise in poverty targeting, considering that a proportion of rural households with little or no land are not poor and vice versa. Nevertheless, the Household Income and Expenditure Surveys (HIES) still display an inverse relationship between land ownership and poverty as the table below indicates. In fact, a mere surface look at the data does seem to indicate that land ownership is positively related with welfare. However, if we focus on households who own less than 0.05 acres, but are not landless, it is striking that the incidence of poverty is in fact higher than that of the landless.

The aforementioned data, in turn, is consistent with Rigg who asserts that maintaining a presence on the land in conjunction with non-farm work may not necessarily be the best route out of poverty and in fact confine the poor to poverty (2006, p. 195). Thus being tied to the land or being landlocked may restrict households from more viable and lucrative non-farm opportunities, migration being one such option. As such, the transformation of farmers into non-farmers altogether may be what is required in the pursuit of poverty reduction as Rigg argues in the following passage:

...it may be that policies should be aimed at oiling and assisting the process of transformation of

farmers into non-farmers...rather than shoring up the livelihoods of smallholders through agricultural subsidies, land reforms and piecemeal employment schemes... (Rigg, p.195).

In the context of Bangladesh, a World Bank study in fact has demonstrated that between the period 2005 to 2010, greater poverty reductions occurred for households with smaller landholdings, largely fueled by engagement with the non-farm sector. This was in stark contrast for the period spanning 2000 to 2005 where decline in poverty was more correlated with land size (World Bank, 2013, p. 26). Ahmed (2016) also emphasized the importance of employment opportunities in the non-farm sector to generate more equitable growth within the context of Bangladesh.

Nevertheless, and as the table below suggests, there exists a longstanding preoccupation with agriculture and the need to support smallholder farming though what may be required is a move towards non-farm activities. In a similar vein, Sender (1990) also provides ample evidence from surveys conducted in South Africa which indicate that wage labor in large-scale state or agribusiness farms provides a far greater and more secure source of wage earnings than smallholder farming. In fact, as Sender maintains, wage employment is generally a strategy for upward mobility, not self-employment. Furthermore, Rigg argues that the poor are not necessarily those who are land poor, but may also be inclusive of those with land. Rigg makes a distinction between "old" poverty versus "new" poverty, where given the rise of non-farm employment as a new trend, the claim that the rural rich are landed (as would be made in the old analysis) can no longer be made (ibid, 2006). Thus, in a new analysis of poverty, the rural rich can bear the profile of either the landed rich, the landless or land poor.

Lipton (2006) and Griffin et. al (2002) provide a contrasting view to the conception of landlockedness, championing in turn, the smallholding farmer. For instance, Griffin et. al argue that the focus on small landholdings and in turn, agriculture, will in fact raise the reservation wage in other sectors such as industry and the non-farm sector, thus having a dampening effect on overall levels of poverty (2002, p. 20). The underlying rationale is that if the minimum floor of income streams from land and agriculture rises, and hence the opportunity cost of labor, the minimum wage at which the poor will be willing to service their labor in other sectors outside of agriculture will also rise. Such a viewpoint, however, negates the complex ways in which labor markets function and the incentives that shape labor market decisions which go far beyond just the reservation wage. As Johnston and Sender have pointed out, the contention that access to land will increase the bargaining power of those seeking wage employment

and in turn, enhance reservation wages, has not been empirically proven (2004, p.148).

4 Methodology

The findings have been generated from a resurvey that has explored 25 years of land transactions, using a sample of 120 households across two selected villages in Feni and Laxshmipur districts of Bangladesh⁴. The methodology centers on a resurvey of households in the same two villages enumerated in the late 1980s, thus providing a longitudinal lens in analyzing changes in livelihoods and land possession. This is extremely important in light of the research questions that delve into land's changing role in livelihoods and poverty.

Hasanpur and Purbalach, the two villages selected for the study are part of the Greater Noakhali district. Hasanpur which is part of Feni district is located in a flash flood region, while Purbalach which is part of the Laxshmipur district has come under the auspices of the Chandpur Irrigation Project (Ullah, 1996). This area is generally characterised by a large proportion of small farms both in terms of percentage of area owned and area operated in comparison to medium and large farms (Ullah, 1996, Mahapatro and Ullah, 2014). In addition, both the villages surveyed are reported to have a high incidence of overseas migration as discussed in Mahapatro (2015).

Data on cultivable landholdings and longitudinal changes based on land transactions was obtained along with a measure of poverty using the asset index. An asset index was used as a proxy for wealth due to the

cumbersome and problematic nature of collecting income data particularly for rural households⁵. Apart from the practical benefits of such an index, assets have been considered to be a better proxy for long run underlying welfare in comparison to income or expenditure which can fluctuate far more (Howe et al, 2012; Wall and Johnston, 2008). In order to construct the asset index, data on selected households were collected, which included consumer durables as well as dwelling characteristics (tin roof, number of rooms, etc.) and these assets were in turn assigned weights based on the statistical covariance of these variables.

5 Findings

The survey findings indicate that households are increasingly dependent upon nonagricultural sources of income including migration, both domestic and overseas, for their livelihoods. Even the purchase of land is generated through nonagricultural income and through migrant remittances, not agricultural surplus. As the tables below indicate, the majority of the households sampled in both the surveyed villages are engaged in a multiplicity of livelihoods though they may own marginal landholdings. Although the proportionate share of these multiple sources of income were not identified due to some of the methodological problems in collecting income data, the results still corroborate the existing literature on livelihood diversification and the increasing share of non-farm income sources in rural livelihoods. Such multiplicity only belies the existence of the small farmer as rural households increasingly rely upon multiple sources of income.

Table 2: Rural Poverty and rural production: questions, answers and associations

Questions/Issues	“Old” or established answers	“New” or revisionist answers	Broken links/associations
Who are the rural rich?	The land rich	Both land rich and land poor	Livelihoods have become progressively delinked from farming and therefore from land
What is best way to assist rural poor?	To redistribute land To invest in agriculture	To reskill the poor (investment in agriculture is inequality widening)	Poverty and inequality have become delinked from activity and occupation
How do we build sustainable futures in rural South?	Through supporting smallholder farming	Through supporting people's efforts to leave farming by permitting the amalgamation of landholdings and the emergence of large landowners and agrarian entrepreneurs	The association of pro-poor policies with smallholder farming has been broken

Source: Rigg (2006)

Table 3: Livelihoods Profile of Top 20% of Households According to Asset Index, Purbalach Sample

	Landholding (acres)	Migrant	Economic activities
1	0.57	No migrant	Mortgages out land, motor parts store
2	0	Migrant abroad	Non-farm salary work
3	0	No migrant	Real estate “dalal” or trader
4	0	No migrant	Village doctor plus has pharmacy
5	0.38	Migrant abroad	Non-farm business, self-cultivation and mortgaging out land
6	0	No migrant	Non-farm business
7	0.10	Migrant abroad	Non-farm business
8	0.23	No migrant	Former bank official currently retired, mortgages out cultivable land
9	0.57	Migrant abroad	Non-farm business, self-cultivation
10	Not reported	No migrant	Land “dalal”
11	0.67	Migrant abroad	Betel nut and soya business
12	0.32	No migrant	Non-farm business, self-cultivation and mortgaging out land

Table 4: Livelihoods Profile of Bottom 20% of households according to asset index, Purbalach sample

	Landholding (acres)	Migrant	Economic activities
1	0.07	No migrant	self-cultivation
2	0	No migrant	Day laborer
3	1.20	No migrant	Non-farm business, mortgaging out land
4	0	Migrant abroad	Tailoring
5	0	Migrant abroad	Carpenter, non-farm business
6	0	No migrant	Rickshaw, sharecropping
7	0	No migrant	Carpenter
8	0	No migrant	Non-farm vendor
9	0.28	No migrant	self-cultivation, day laborer
10	0	Migrant abroad	Renting land, construction work
11	0	Migrant abroad	Construction, sharecropping, non-farm business
12	0	Migrant abroad	Rickshaw/van, construction, tailoring

Table 5: Profile of Top 20% of Households According to Asset Index, Hasanpur sample

	Landholding (in acres)	Migrant	Nature of economic activities
1	0.06	Migrant overseas	Construction laborer, non-farm salaried work
2	0.13	Migrant overseas and domestic migrant	Non-farm business, electrician
3	3.00	No migrant	Currently retired army official
4	1.23	Migrant overseas	Works for Coca Cola company overseas; mortgages out land
5	0.40	Migrant overseas	Non-farm salary work
6	2.81	Domestic migrant	Non-farm salary work plus mortgaging out land
7	0.25	No migrant	Non-farm grocery shop plus mortgaging out land
8	0.48	No migrant	Non-farm salary work and mortgaging out land
9	0.90	Migrant overseas	Non-farm salary work, fishing and agriculture
10	0.80	No migrant	Teachers; mortgage out land
11	1.00	Domestic migrant	Non-farm salary work
12	0.13	Return migrant from overseas	Non-farm business, mortgaging out land

Table 6: Profile of Bottom 20% of households according to asset index, Hasanpur sample

	Landholding (in acres)	Migrant	Nature of economic activities
1	0.12	Domestic migrant	Self-cultivation, day labor, sharecropping
2	0.11	Migrant overseas and domestic	self-cultivation, construction labor, mortgaging in land
3	.05	No migrant	Day labor, sharecropping
4	0	Domestic migrant	Day labor, sharecropping
5	0.32	No migrant	Sharecropping from time to time, construction, day labor
6	0.21	No migrant	Self-owned cultivation, sharecropping, day labor
7	0.11	Migrant abroad	self-cultivation
8	0.38	No migrant	Construction, self-cultivation
9	0.50	Domestic migrant	Drives a rented jeep, self-cultivation
10	0	No migrant	Fishing
11	0	No migrant	Drives rickshaw
12	0	No migrant	Construction, sharecropping

Table 7: Mean Asset Scores According to Land Size: Hasanpur sample⁷

Land category	Land size	Number of households	Mean asset index
1	Less than .05 acres	8	.8419*
2	.05 to .49	32	1.44
3	.50 to .99	10	1.66
4	1.00 to 1.49	7	2.39
5	1.5 to 2.49	1	1.74**
6	2.5 to 7.50+ acres	3	2.03*

Between categories 1 and 5, $p = .004$; between 1 and 6, $p = .010$

Table 8: Mean Asset Scores According to Land Size, Purbalach sample

Land category	Land size (in acres)	Number of households	Mean Asset Index
1	Less than .05	29	1.3327
2	.05 to .49	13	1.5537
3	.50 to .99	8	1.7809
4	1.00 to 1.49	5	1.3020
5	1.5 to 2.49	2	1.5720
6	2.5 to 7.5+	2	1.1335

$p > .05$

The study also compared asset scores of households based on both their current level of cultivable land holding and longitudinal changes in landholdings. As the evidence suggests, for Hasanpur village, there is still a distinct difference in wealth between households with landholdings below 0.05 acres to those greater than 1.5 acres.⁶

Although an inverse relationship was not seen across all land size categories, there remains a statistically significant difference in wealth between the highest and lowest landholding categories. Such a distinction in wealth does indicate that the accumulation of landholding above a specific size category is conducive to higher levels of wealth. As far as longitudinal change in landholdings, households were categorised as being either growing, declining, or stable depending on

whether their landholdings increased, decreased or remained stable.⁸ Although the long-term longitudinal trend is one of decline in landholdings in both the surveyed villages, households within the Hasanpur sample were still found to cling to whatever land they did possess as reflected in the dearth of household land transactions and the near lack of complete landlessness within the sample (see Table 9).

Purbalach, on the other hand, exhibited a far higher rate of landlessness within the sample⁹. In Purbalach, the majority of households that belonged to the land category of less than .05 acres were landless whereas in Hasanpur, these households held minimal landholdings and were thus, tied to the land. Moreover, in the Purbalach sample, the amount of land owned had no bearing on levels of wealth.

When households were compared based on the longitudinal change of landholdings, growing households were found to be significantly better off than both declining and stable households only for Hasanpur as Table 8 demonstrates.

Nonetheless, these growing households, for the most part had either local or overseas migrants or financed the purchase of land through gifts, not through income obtained from agricultural cultivation as discussed earlier. As such, it cannot be argued that growing households are better off due to the accumulation of land; rather these growing households utilized the wealth obtained from elsewhere (migration remittances mostly) to finance the purchase of land. However, it is equally important to note that land ownership does enable higher income in the non-agricultural sector as evidenced by households in both the survey villages who sold land to finance migration¹⁰. In Purbalach, some of the households had gradually become landless through the sale of land to finance migration whereas in Hasanpur, landlockedness was still common.

I used two different definitions of landlocked and compared the results. In the first case, when I used current landholding position only, landlocked households were defined as those households who currently held in their possession less than half an acre of cultivable land. Under this definition, there was a

clear, statistically significant difference in wealth between landlocked and landless households in Hasanpur only as the table above illustrates. Clinging to the land was prevalent within the sample in Hasanpur. In Purbalach, however, no statistically significant difference could be found in wealth between landlocked and landless households. Interestingly, however, close to 40 percent (12 out of the 32 landlocked households) of these households in Hasanpur under this definition had migrants overseas. Thus, it cannot be argued in the case of Hasanpur that by engaging in small farming and clinging to the land, these households are better off. Rather, it is the access to global labor markets that may have provided the greater impetus in generating their current wealth status.

The second definition of landlocked was based solely on stable households whose cultivable landholding was less than half an acre and whose longitudinal position had not changed over time. There was only one stable household in Purbalach who did not fall under the landlocked category so no comparison could be made between landlocked and landless under this definition. In Hasanpur, the stable households who fell under the definition of landlocked were compared once more to landless households. Table 10 clearly indicates that when using this definition, these landlocked households cannot be considered to be significantly better off than their landless counterparts.

Table 9: Comparing asset index based on households' longitudinal land position

	Purbalach	Hasanpur
Category	Mean Asset score	
Growing	1.5066	2.2294**
Declining	1.4205	1.4603**
Stable	.9700	1.3930**
P value	p>.05	p<.05

Table 10: Wealth Status of Landlocked Households in Comparison to Landless

	Hasanpur		Purbalach	
	number of households	Asset score	number of households	Asset Score
Landlocked (owning less than half an acre)	32	1.4287 *	13	1.5795
Landless	6	.7595 *	30	1.3308
p value	.015		.742	

Table 11: Wealth Status of Stable Landlocked Households in Comparison to Landless, Hasanpur sample

Land position	Number of households	Asset score
Landlocked (stable households with less than half an acre)	11	1.192
Landless	6	.7595

p value: .143

A consistent picture emerges: Firstly, land possession does enable better economic outcomes in Hasanpur though not in Purbalach; secondly, land accumulation once again enables better economic outcomes for only Hasanpur; and finally, landlocked households appear to be better off than landless households in Hasanpur, but upon closer inspection, these higher levels of wealth may be a manifestation of links to global labor markets and not due to small-scale farming and the returns therein. In Purbalach, due in part to a greater incidence of migration and other non-farm opportunities, land plays a far more diminished role in determining economic outcomes as reflected in land possession and land accumulation and the fact that no significant difference could be found between landlocked and landless households.

6 Conclusions

This paper has demonstrated using household surveys from two selected villages in Bangladesh how various factors such as migration shape the relationship between land and poverty. As discussed, in one of the villages, land possession and accumulation still have bearing on wealth creation while in the other village, evidence of the same was not found. At the lower end of landholdings in both the villages, it was also found that clinging to the land provides no economic boon as landless households are achieving similar economic outcomes. Nevertheless, the contention that the possession of a marginal landholding *constrains* wealth accumulation cannot be made considering that landless households were not significantly better off than those clinging to the land.

This paper has also argued that owing to the multiplicity of livelihoods existent within rural spaces, the term 'small farmer' may provide only a hollow account of households' actual economic status. In fact, it may be more reflective of identities or perceptions of rural life than the actual livelihoods taken on by the rural poor. Although households do engage in farming on ever declining plots of land, they also engage in a host of other economic activity that the term 'small farmer' does not encapsulate. Rather, Bernstein's 'classes of labor' provides a far more inclusive understanding of rural livelihoods. The use of classes of labor as the analytical basis for assessing rural livelihoods also means that labor markets, both domestic and international and wage employment as pathways out of poverty must be given greater attention. Thusfar, the emphasis particularly from NGOs in Bangladesh, as discussed in this paper, is focused primarily on small-scale agriculture, thus presupposing the existence of the small farmer.

The survey findings also reflect the need for a more nuanced understanding of the relationship between land accumulation and poverty reduction as opposed to making wholesale generalisations. The nexus between land and poverty cannot be generalized to reflect an inverse relationship, but depends on the specific context of migration and the nature of the non-farm sector. For instance, in Hasanpur, the extent of cultivable land possession still remains a determining factor in economic outcomes as measured through an asset index. Moreover, in Hasanpur, those who accumulated land over time were in fact better off than stable households. Although clinging to the land was prevalent in Hasanpur, it did not translate into far greater material wellbeing as compared to landless households. Purbalach tells a different story. Here, the amount of cultivable land possession had no bearing on levels of welfare as no significant difference in asset scores could be found across the different land size categories. Furthermore, even land accumulation does not lead to higher levels of welfare: growing, declining and stable households had levels of welfare that were not significantly different from one another. Finally, the landless households in the sample had asset scores that were also not significantly different from landlocked households.

It is important not to make wholesale statements about land's waning role in rural livelihoods. Such a position is far more in line with a World Bank centric position that emphasizes the pro-poor nature of involvement in the non-farm sector without taking into account significant barriers to entry and the inequalities that persist despite entry into this sector (Lanjouw and Lanjouw, 2001). Nevertheless, it is also important to note that the preoccupation with a land-centric smallholder agriculture as a key pathway for poverty reduction is not wholly justified and as Byres cogently argues, profoundly ahistorical, bypassing the historical role of capitalist industrialization in the removal of mass poverty (Byres, 2004, p.41).

The unevenness of rural change driven by local and regional context has been pointed out by Shah and Harriss-White (2011). Bernstein (2003, p.14) has also argued that processes of rural change can also be reversible and in some instances, repeasantisation can occur just as much as the oft-mentioned process of deagrarianisation¹¹. In one village, land possession and accumulation were key signifiers of improvements in welfare. Furthermore, land ownership also enables higher income in the non-agricultural sector as evidenced by households in both the survey villages who sold land to finance migration (Mahapatro and Ullah, 2014). In Purbalach, some of the households had gradually become landless through the sale of land to finance migration whereas in Hasanpur, landlockedness was still common. As such, the household surveys

demonstrate that the use of overarching statements that highlight the 'delinking of land from livelihoods' must be used in caution.

Finally, in keeping with the research findings, a number of policy implications emerge. Firstly, the neopopulist logic of focusing on the smallholder farmer requires a rethinking, particularly considering the importance of non-farm work and migration. Bernstein's 'classes of labor' for instance calls for a greater attention to be given to labor markets. Secondly, in order to make the most out of opportunities from migration overseas and even within the country, re-skilling is important so as to ensure that households can reap the most benefits out of non-farm activities.

Endnotes

1. Neoclassical neopopulism centers on a development ideology that argues for redistributive land reform based on both efficiency and equity objectives. The argument is that stagnant agriculture can be made more productive by way of redistributive land reform that leads to an agrarian structure dominated by small peasant owners/cultivators (Byres, 2004, p.18).
2. M. Ullah's study claimed that this phenomenon of clinging to the land occurred amongst the lower land size groups who were near landless and wanted to hold on to whatever remained of their existing landholdings (Ullah, 1996). Landlockedness was a term first used in Ullah's work in reference to households clinging to the land.
3. Farm income, to use Barrett et al's definition, consists of 1) the value of retained output from own land; 2) the value of food and cash crop sales; and 3) unskilled agricultural labor on other farms (2001). Non-farm, in turn, will refer to a diverse range of activity from petty trading and commerce, agroprocessing, non-agricultural wage labor and service sector work.
4. The first survey was conducted by M. Ullah in the late 1980s. The resurvey was conducted between 2010 to 2011. Repeat visits also took place in 2012.
5. Principal component analysis was used to generate an asset index based on a list of 14 rural assets that were also used by the Demographic Health Surveys (DHS). PCA is a statistical procedure that undertakes orthogonal transformation of a highly correlated dataset in order to generate principal components which are linearly uncorrelated. The first principal component accounts for as much of the variability in the data as possible. The PCA method generated the weights for the asset index based on the statistical covariance of each of the household assets.
6. The land size categories that were used were the same used for the Bangladesh Agricultural Census.
7. A series of t-tests and ANOVA tests were run to determine if the mean asset indices significantly differed across selected categories of households based on their land position.
8. The index of variation is the ratio of land currently owned with the land owned at the time of inception of the households and was used by M. Ullah (1996) and Mahapatro and Ullah (2014) to categorise households into growing, declining and stable households.
9. Note that here the term landless is referring only to cultivable landholding and not homestead land.
10. In Hasanpur, approximately 20 percent of households sold land to finance migration in comparison to approximately 33 percent in Purbalach. There was also an overall greater incidence of overseas migration in Purbalach. See Mahapatro and Ullah (2014).
11. Deagrarianization is defined as a long-term process of occupational adjustment, income earning reorientation, social identification and spatial relocation of rural dwellers away from strictly agricultural-based modes of livelihood (Bryceson, 2002). Some of the causes of such deagrarianization that have been discussed in the literature include structural adjustment, urbanization and climate change (Yaro, 2006). Depeasantization is considered to be a specific form of deagrarianization in which peasantries lose their economic capacity and social coherence and shrink in demographic size relative to the nonpeasant populations (Bryceson, 2002, p.727).

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Standards as Trade Barriers: The Case of Shrimp Export of Bangladesh to EU

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Abstract

The gains of the least developed countries from lower tariffs on food products in the wake of the creation of World Trade Organisation (WTO) were much less than anticipated because of the stringent food safety standards of EU and other countries. These standards have *in effect* become additional ‘barriers’ to trade for the food exporters of the least developed world, such as Bangladesh. The principal food export item of Bangladesh to the European Union (EU), shrimp, was adversely affected by the application of the tough sanitary and phytosanitary (SPS) measures by EU. The economic and social costs of the rejection and detention of shrimp consignments because of allegations of not meeting these standards were considerable in view of the fact that the industry was dominated by relatively small farmers and enterprises. Since SPS measures are consistent with WTO laws, the shrimp industry had little choice but to comply with the SPS and other standards of EU. It has coped with the emerging hurdles or barriers to trade with some effort; but costs increased, competitive strength of the exporters suffered and the quantity of shrimp export stagnated.

1 Introduction

Global shrimp production is dominated by developing countries with China alone contributing nearly 38 per cent of the total output (see Table A1 in Appendix). Another 35 per cent comes from Indonesia, Vietnam, India and Thailand. There are only two developed countries, viz. Canada and USA, among the top-ten producers, and they account for less than 4 percent of the total supply. The output of developed countries is gathered from the wild, while the developing countries depend mostly on aquaculture for their output. In Bangladesh, nearly three-fifths of the total domestic production comes from aquaculture and this share is increasing (see Table A2).

The shrimp export industry of Bangladesh, based almost exclusively on aquaculture, ran into a problem that they had either not foreseen or simply ignored. Shrimp being a food item, its import was subject to stringent SPS standards of the European Union. The nascent shrimp sector, dominated by small farmers, petty traders and relatively small processors, did not have adequate knowledge of these food standard requirements nor the means to address them quickly. Shipments of shrimp frequently ran into embargoes and outright bans that caused substantial damage to the financial health and viability of the shrimp farms and processors. The EU food standards *in effect* became non-tariff trade

barriers, no less severe than tariffs, which posed a serious challenge to the growth of the sector. There were of course other factors also influencing shrimp trade; but these are not the focus of the following analysis.

This paper narrates the growth of shrimp aquaculture and shrimp trade of Bangladesh and the evolution of the SPS standard issues in shrimp export trade with EU countries, and their impact on the export of shrimp in a descriptive manner. The EU standards issues did not slow down shrimp export of the country greatly or in a sustained way because the sector, despite many limitations, responded in a responsible manner in order to assuage the concerns of the importing countries such that a major damage was averted.

2 Shrimp Aquaculture in Bangladesh

Commercial shrimp aquaculture is of relatively recent origin in Bangladesh. It was initiated only in late 1970s, but really took off in the late 1980s. The growth of this sector was essentially driven by shrimp export opportunities. Hence, shrimp aquaculture in Bangladesh is devoted largely to shrimp export. A buoyant international market demand promised potentially high

returns from shrimp culture. Large areas of low lying tidal land in the coastal belt provided excellent opportunities for brackish water shrimp cultivation, while further up fresh water shrimp could be cultivated. Nearly 700,000 hectares of mangroves also provided a favourable environment. The potential for large foreign exchange earnings from exports and substantial employment in shrimp farming in the coastal areas where there are few such opportunities made it an attractive proposition for both the policy makers and the private sector.

Most of the shrimp cultivation is concentrated in Khulna, Bagerhat and Satkhira in Khulna division that has large areas under mangroves, and Cox's Bazar and Chittagong in Chittagong division. The total area under shrimp cultivation increased rapidly in these districts from 55,500 hectares in 1980 to nearly 200,000 hectares by the beginning of the new millennium. Shrimp area increased further to over 275,000 hectares by 2010-11. There are more than 150 shrimp processing factories mostly in Chittagong and Khulna, and about 60 hatcheries mostly in Cox's Bazar.

Aquaculture has grown rapidly in importance as a supply source of shrimps. It now provides about 58 per cent of the total shrimp catch of the country (Table A2 in Appendix). Another 20 per cent is provided by marine catch while the remaining 22 per cent comes from catches in the myriad of inland water bodies.

Several varieties of shrimp are produced in the country. However, the main farmed species is *Peneus monodon* (tiger shrimp), locally known as *Bagda*. About 85 per cent of the shrimp farm area in 2001 was devoted to the cultivation of *Bagda*, but it fell gradually to 76 per cent by 2012-13. The yield rate of *Bagda* shrimp was quite low in the last century, in the range of 100-200 kilograms per hectare. This was much less than one-tenth of the yield rate achieved by such countries as Thailand and Taiwan. However, by 2012-13 the yield rate of shrimp farms had risen to 486 kg/ha.

Fresh water *Golda* farming increased rapidly from only 3500 hectares in 1980 to 30,000 hectares by the beginning of this century. There were about 105,000 farms engaged in *Golda* farming. The yield rate was much higher compared to *Bagda*; it averaged about 336 kilograms per hectare. Despite the higher yield, the profit rate per unit of land was lower in *Golda* production due to higher input costs.

3 International Trade in Shrimps

In recent years, shrimp has emerged as an important export earner for Bangladesh. Total export of shrimp

stood at US\$151 million in 1990; it rose gradually to its peak value of US\$564 million in 2007. The financial crisis of 2007-08 in the West and the subsequent global recession of 2008-09 and more importantly industry related problems had an adverse impact on shrimp export from Bangladesh. It declined during the next 3 years by 30 percent. The decline was caused by a fall in both quantity and the unit price of shrimp. Although export earnings increased thereafter, it is yet to attain the previous peak value. Most of the exported shrimp is produced by aquaculture in the coastal belt of the country. Sea trawling also provides a small quantity of exported shrimps. More than nine-tenths of the total frozen food exports of the country comprise shrimps.

The rapid increase in shrimp export from Bangladesh was made possible by a very buoyant world trade in shrimp from the mid-1970s to the beginning of the new millennium. The value of world export of shrimps multiplied nearly 9 times between 1976 and 1995. The increase in export value was due to an increase in both supply and unit prices. The quantity of export increased during the period by about 4 times. The rest of the increase in value was due to an increase in the unit price. Export value remained stagnant during the rest of the millennium. It increased by about 50 percent during the next decade. The major exporters of shrimps in value terms are Thailand, Vietnam, China, India, Indonesia and Ecuador (see Table 3 in Appendix). Bangladesh is the fourteenth largest exporter of shrimp in the world in both value and quantity terms.

Much of the increase in the export of shrimp from Bangladesh was achieved during 1981-87 period when shrimp export increased more than four times. But export quantity stagnated after that. There was no increase till 2001 despite the fact that during this period world export increased by 127 percent. Bangladesh accounted for about 4 percent of world export of shrimp in 1987, but 14 years later in 2001 its share halved to 2 percent. By 2011 its share dwindled further to only 1.8 percent. The dwindling share of Bangladesh in the global shrimp export market might be indicative of domestic industry-related problems of increasing production in excess of domestic consumption.

Most of the shrimp export of the world is destined for the OECD countries. There are no developing countries among the top-ten importers of the world. This is in sharp contrast to export supply where there are only two developed countries among the top-ten exporters. The single largest importer of shrimp is the USA followed by Japan, Spain and France. These four countries together accounted for 56 percent of the global import in value terms and over 42 per cent in quantity terms in 2011 (see Table 4 in Appendix).

4 Standards as Trade Barriers

In the early years Bangladesh showed excellent prospect of rapid expansion of production and export of shrimp. However, the export performance of the country has been rather lacklustre since the mid-1990s due to a host of internal and external factors.

EU has emerged as the most important export market of Bangladesh. Over the years the export market of shrimp has become more concentrated. In 2008-09, export of shrimp to EU constituted 58.5 percent of the total shrimp export. Actually only five of the EU countries, viz. Belgium, Netherlands, UK, Germany and France, accounted for more than 95 percent of the export to EU. By 2014-15, shrimp export to EU comprised 81.3 percent of the total shrimp export. Shrimp export to USA fell off sharply from 29.6 percent of the total export in 2008-09 to only 6.9 percent in 2014-15. Given the dominance of EU market, the fortunes of shrimp export industry depend much on the conditions under which shrimp is exported to EU.

The export of shrimp from the least developed countries does not attract tariffs or para-tariffs in the major markets such as EU, USA and Japan, and hence these are no longer significant barriers to the expansion of export of shrimp from Bangladesh. But the international shrimp market has become highly competitive with a large number of producers and exporters permitting buyers to be choosy about the product. Not only do they want cheaper prices, they are also imposing increasingly rigorous specifications for the imported shrimp and requiring the exporting countries to comply with tough health, social and environmental standards. These standards are set by law of the importing countries which all consignments, brought in by private (and any public) importers, must adhere to strictly. Private importers may sometimes impose additional specifications in respect of size, homogeneity and colour of the products negotiated with individual exporters. In view of the recent trend it can be reasonably assumed that in the near to medium term an important hurdle or trade barrier to export of shrimp from Bangladesh (and other developing countries) to EU and the rest of the developed world will be the SPS standards. It is worth emphasising that the SPS standards are WTO-legal and applied uniformly to imports of all countries as well as domestic production; consequently there is no scope of negotiating a reduction in these standards for an individual country. Although it may appear so, these standards are not necessarily meant to restrict trade; indeed shrimp trade of Europe has experienced a robust growth during the new millennium except when the economy was in a downturn. But if an exporter fails to maintain these standards properly, they become effective trade barriers leading to a reduction or loss of the export market.

5 Sanitary and Phytosanitary Standards

As a result of the agreements at WTO, developed countries have fairly low bound tariffs on most industrial and many agricultural products. The simple average bound tariff rates on industrial products in USA, EU and Japan are only 3.9, 4.1 and 3.5 per cent respectively while for fish and fish products these are 1.1, 11.8 and 6.2 per cent respectively. It is no longer possible to provide protection to domestic competing industries through border measures beyond the bound rates. However, developed countries are at liberty to impose rules or other measures that are permissible under WTO rules. Some of the rules or measures that may effectively discourage exports from developing countries are the stringent health (sanitary and phytosanitary) and technical standards.

Sanitary or phytosanitary measure - Any measure applied:

- (a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;
- (b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;
- (c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or
- (d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.” (WTO. *The Legal Texts*)

Article XX of GATT 1994 also permitted such health measures:

“Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

... necessary to protect human, animal or plant life or health; ...”

Seafood (including shrimp) industry in Bangladesh has a poor perceived record of health safety standards and quality assurance in the developed countries. This is reflected in the generally low prices received by shrimps exported from Bangladesh, relative to, say, Thai shrimps which get substantially higher price. As early as late 1970s, US Food and Drug Administration placed seafood imports from Bangladesh under ‘automatic detention’. Since then a number of initiatives have been taken by the government and international organisations for better safety standards and quality control. The government enacted Fish and Fish Product Ordinance (Inspection and Quality control) in 1983 and upgraded the inspection laboratory in 1985. FAO organised a seafood safety and quality control program based on Hazard Analysis Critical Control Point (HACCP) approach. However, the initiatives could not fully address the concerns and the industry continued to be plagued by real problems for many years.

6 EU Enforcement of Standards and Shrimp Export

The seafood industry took a battering, not altogether unexpected, when on July 30, 1997 the European Union banned imports of fishery products from Bangladesh after an inspection of seafood processing plants, which discovered serious deficiencies in the infrastructure and sanitary standards of the plants and unsatisfactory quality control by government officials. The ban caused serious dislocation in the industry and it suffered heavily in lost revenues in 1997. The ban, while causing short-term losses, did goad the industry and the government to take measures to raise product quality and ensure compliance with international standards. These measures persuaded the EU to lift the ban for six enterprises, subject to some provisions, for products processed after the end of 1997. By July 1998, another five farms were exempted from the ban. Continued efforts of the stakeholders to improve health and safety standards bore

fruit, and by 2002, 48 of the 65 plants licensed by the government for export had EU approval for export to its territories.

The procedures for checking quality are complex and done at various stages after a consignment is delivered from the home country. For instance, European Union has established border inspection check posts for these purposes. Three main types of veterinary checks are required for all consignments. These are documentary evidence, identity check and physical verification.

As noted earlier the export destination of Bangladeshi shrimp is not much diversified in the European market. Belgium continues to be the top importer of Bangladeshi shrimp by a large margin despite its notifications in 2009 regarding the presence of semicarbazide, a metabolite of nitrofurantoin antibiotic. Introduced in 1979, Rapid Alert System for Food and Feed (RASFF) facilitates cross-border flow of information within EU to swiftly react when risks to public health are detected in the food chain. The legal basis of the RASFF is now given by Regulation (EC) N° 178/2002.

An analysis of the data for Bangladesh for the period 2000–2014 in RASFF portal database of the European Commission under the heading “crustaceans and products thereof” reveals the following: a total of 162 notifications (40 alerts; 48 border rejection and 74 cases of information for follow up or information for attention) were issued against Bangladesh out of 1673 notifications against all countries. Thus Bangladesh received 9.68 percent of the total notifications issued under “crustaceans and products thereof” from EU. EU issued a worldwide total of 4980 notifications on fish and fish products during this period. As a consequence of the notifications issued by the EU countries, 48 consignments were re-despatched to Bangladesh while 11 consignments were destroyed at the EU border. Overall, this has been a regular picture for most countries that export shrimp to EU countries.

Importing countries face a number of food safety problems with respect to fish and fish products, which include microbiological contaminants due to a lack of hygiene in the production process, poor packaging and transportation, residues from the use of prohibited antibiotics, metal contaminants, parasites and poor cold storage facilities (Willems, Roth and Roedel 2005). Residue detection by national authorities is quite common. As a result the frequency of rejections has grown over the years. It has become a major concern for both importing and exporting countries. The importing countries are increasingly worried about the potential health risks. On the other hand the exporting countries, mainly developing, are concerned about loss of export revenue and livelihood. Table 3 below shows the trend

of notifications by EU on fish and fish products for all countries over the years.

Table 3: Notifications by EU on all imported fish and fish products

Year	Alerts	Border Rejection	Information	Total
2000	32	0	133	165
2001	87	0	145	232
2002	112	0	368	480
2003	54	0	139	193
2004	113	0	184	297
2005	143	0	169	312
2006	111	0	180	291
2007	139	93	119	351
2008	61	89	107	257
2009	88	228	137	453
2010	111	183	157	451
2011	95	217	179	491
2012	63	166	144	373
2013	77	86	148	311
2014	118	82	123	323

Source: RASFF Yearbook, various issues

Bangladesh had more than its fair share of the rejections, and this was a cause for worry. The food safety rules were in fact working as a constraint on its export to the developed world market. EU issued notifications to Bangladesh through RASFF after their inspections of shrimp consignments returned negative results. A sharp increase in RASFF notifications in the early part of 2009 forced Bangladesh to voluntarily impose a temporary self-ban on the export of fresh water prawn to EU fearing a possible ban on shrimp import from Bangladesh by EU. The ban lasted for six months and was withdrawn only after it was discovered that the higher incidence of rejections was the outcome of incorrect EU laboratory test procedures. The large losses suffered by Bangladeshi exporters, for no fault of their own, made them acutely aware that these health standards were in fact more stringent barriers to export than tariffs or para tariffs.

Bangladesh received notifications from EU member countries since the inception of RASFF network of inspection. Belgium was at the top of the list in issuing notifications against Bangladesh (Table 4). Great Britain and Norway were also prominent in issuing notifications. There were fewer notifications from the rest of the countries. The first three countries accounted for 90 percent of the notifications. Belgium also led the list of border rejection notifications with 36 rejections, followed by Great Britain with 9 and Netherlands with 2 rejections.

Table 4: Number of EU notifications issued against Bangladesh by country 2000-14

Country	Number of Notifications
Belgium	63
Great Britain	60
Norway	19
France	5
Italy	3
Germany	2
Netherlands	2
Denmark	2
Finland	2
Luxembourg	1
Austria	1
Sweden	1
Greece	1

Source: [https:// webgate.ec.europa.eu/rasff-window/portal](https://webgate.ec.europa.eu/rasff-window/portal)

Table 5: Types of EU notifications against Bangladesh by year

Year	Alerts	Information	Border Rejection
2000	0	5	0
2001	7	2	0
2002	3	0	0
2003	0	2	0
2004	3	10	0
2005	8	13	0
2006	5	22	0
2007	0	6	0
2008	4	2	8
2009	9	8	33
2010	1	2	4
2011	0	0	2
2012	0	2	0
2013	0	0	0
2014	0	0	1

Source: [https:// webgate.ec.europa.eu/rasff-window/portal](https://webgate.ec.europa.eu/rasff-window/portal)

The lack of appropriate SPS measures can also cause serious damage to the domestic industry. This was amply demonstrated in Bangladesh in 1994 and 1995 when there was an abnormal increase in the prices of shrimp fries. Encouraged by the high prices, some irresponsible traders imported 500-750 million shrimp fries from some Asian countries with a history of shrimp

diseases and large scale destruction of the crop. The indiscriminate import of fries without any SPS restrictions was followed by a severe outbreak of the white spot viral disease in many shrimp farms causing substantial losses. Many also believe that imported *Golda* fries were responsible for its poor growth quality.

To meet the SPS standards it is necessary to test for the presence of pathogens such as E.coli, salmonella and cholera that might contaminate shrimps. But reliable testing facilities are scarce in the country and exporters are sometimes forced to send specimen to Singapore for testing. These facilities need to be developed to ensure that their certifications are universally accepted and shrimp exports do not suffer because of a suspicion of the presence of microbial organisms.

Traces of mercury are sometimes found to contaminate shrimp crop. Improper discharge of effluents from the shrimp farms is believed to cause such contamination. The presence of mercury makes consumption of shrimps a health hazard; import of such shrimps will almost certainly be restricted. To avoid such an eventuality it is essential that farmers are educated and trained to adopt appropriate methods of effluent discharge that do not cause environmental damage or contaminate shrimps.

Another worrying development was the reported discovery of prohibited antibiotics in shrimps imported from several developing countries. EU, USA, Canada and Japan have all complained about traces of the antibiotic chloramphenicol in the shrimps from China,

Vietnam, Thailand and several other countries. Another banned substance nitrofurans has been discovered in shrimps imported from some countries including Bangladesh, India and Thailand. EU banned the import of shrimp from China early in 2002. It then required inspection of all consignments from China for chloramphenicol. Japan requires tests on 10 per cent of the shrimps imported from China, Myanmar, Thailand and Vietnam while 5 per cent of the imports from Bangladesh, India and Indonesia are tested for the presence of chloramphenicol. Even the possibility of the presence of the substance in shrimps can have disastrous consequence for exports. Many of the countries including Thailand, Vietnam, India and Indonesia have taken stringent measures; including banning the use of the substance in aquaculture, to ensure that it does not show up in the final product. Bangladesh lags behind in taking effective steps. Its testing facilities are outmoded and unreliable. Given that Bangladeshi shrimps are suspect in the export markets, and that the country has a reputation for producing seafood that sometimes does not meet minimum international standards as specified by Codex Alimentarius Commission, it is imperative that stringent measures are taken to assure the consumers of the purity of the exported shrimps.

During 2005-2009 about 100 shipments from Bangladesh were rejected by EU. The crisis was triggered by the presence of Nitrofurans, a harmful chemical in the exported shrimp. The following table presents the number of consignments rejected by EU and the cause of their rejection by year.

Table 6: EU Alert notifications against import of 'Crustaceans and Products thereof' from Bangladesh

Year	Total export to EU (MT)	No. of notifications against Bangladesh	Total no. of notifications against all countries	Ratio of Notifications against Bangladesh to notifications against all countries (ratio)	Causes of Notification
2005	23790.5	21	159	0.13	Nitrofurans
2006	26379.3	27	142	0.19	Nitrofurans
2007	26992.6	6	124	0.05	CAP, Nitrofurans & Decomposition
2008	27917.3	14	126	0.11	Nitrofurans
2009	32366.4	50	176	0.28	Nitrofurans
2010	34300.7	7	78	0.09	Nitrofurans, Veterinary Drug Residue, Semicarbazide(SEM), Fraudulent Health Certificate
2011	35616.9	2	75	0.03	Poor Hygienic State, Nitrofurans(Metabolite) Furazolidone(AOZ)
2012	35224.3	2	60	0.03	Vibrio Cholerae, Residue
2013	35441.1	0	53	0.00	NA
2014	34198.3	1	71	0.01	Nitrofurans(Metabolite), Nitrofurazone(Sem)

Source: RASFF and Eurostat portals

There was an increasing trend of notifications against Bangladesh up to 2009, but it declined after the self imposed ban by Bangladesh in 2009. During 2010 to 2015 Bangladesh received 18 notifications against export consignments of shrimp. Following table summarises the reasons of receiving notifications.

Table 7: Reasons of notifications against Bangladesh

Reason of Notification	Frequency
Nitrofurantoin (Metabolite) Nitrofurazone (SEM)	3
Nitrofurantoin (Metabolite) Furazolidone (AOZ)	1
Semicarbazide (SEM)	3
Fraudulent Health Certificate	2
Veterinary Drug Residues	1
Salmonella Bareilly	1
Residue Level Above MRL for Oxytetracycline	1
Vibrio Parapaemolyticus	1
Salmonella Brunei	1
Poor hygienic State and Poor Temperature control	2
Unsuitable organoleptic Characteristics of and Sulphite reducing anaerobes in and high aerobic plate count	1
Vibrio Cholerae	1
Total	18

Ref: Compiled from information received from the EU Delegation, Dhaka

Shrimp is a fragile and high-risk food export item that is vulnerable to weather condition, natural disaster, salinity of water and viruses. White Spot Syndrome Virus affects the *bagda* species, and bacterial infections affect the *golda* species. Moreover, both species are prone to contamination, improper handling and improper freezing temperature. The EU banned shrimp imports from Bangladesh in 1997 and again in 2001, and USA in 2004 because of the failure of Bangladeshi exporters to comply with quality regulations. Following alerts by EU countries about shrimp contamination from banned antibiotics, Bangladesh decided on a self-imposed ban on fresh water shrimp exports to EU countries in 2009 for six months. In June 2011, the USA announced mandatory stringent testing requirements under its new Food Safety Modernization Act (FSMA) that is harsher in terms of quality requirement.

Not all countries are suffering a loss of export market due to the SPS standards. Some countries have adopted modern technology of shrimp production and processing which enabled them to avoid contamination and disease related problems. This has helped them to increase shrimp export despite standards. Countries that have not done well, such as Bangladesh, are still continuing with

traditional methods that do not fully ensure safe products since they are more prone to various health and environmental risks. Hence, concerns regarding SPS standards of imports from these countries remain. Importers in developed countries switch to other countries which can more reliably deliver products meeting the food safety requirements. These countries gain at the expense of countries which fail to deliver shrimp in accordance with the specifications of the importers.

The strict application of SPS standards by EU had a negative impact on shrimp export from Bangladesh. The voluntary export ban reduced shrimp export. The quantity of shrimp exported to EU stagnated after 2010. The total export of shrimp to EU in 2014 (34.2 thousand tons) was less than the total export in 2010. Shrimp export to USA suffered a massive blow in the new millennium. Bangladesh exported 19 thousand tons of shrimp to USA in 2006, but export declined to only a thousand tons by 2014. USA also had serious reservation about the SPS standards of shrimp imported from Bangladesh. A thorough study of the reasons of the decline of US import from Bangladesh should be interesting, but it is not the focus of this study. The situation is unlikely to improve in the near future. The promise of shrimp cultivation for a better future for the farmers is yet to materialise.

7 Conclusion

Bangladesh exports shrimp mostly to rich countries. In the post-GATT world trade order tariffs and para-tariffs have ceased to be important trade barriers in the developed countries for most products including shrimp. Consequently, the least developed countries including Bangladesh do not face much price-based trade barriers in exporting such products. However, these countries are applying increasingly tougher health standards for their imported items, particularly foodstuff. The food industry has to comply with stringent SPS standards, in order to be able to export. These standards have been applied on more than one occasion by EU which resulted in the restriction of shrimp export from Bangladesh. This caused significant losses to the industry dominated by firms of relatively modest size and poor farmers.

Tracing the source of a health hazard and taking appropriate measures are expensive which no doubt increase the costs of raising the crop and exporting the final product, and hence reduce the profit margin and competitive edge of the industry. It is not entirely coincidental that the quantity of shrimp export, which more than trebled during the ten year period prior to large scale rejections of consignments, stagnated thereafter.

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Appendix

Table A1: Shrimp production of major producing countries 1991-2000

(Thousand metric tons)

Country	1990	2000	2010	2013
China	532154	1070973	2582662	2955765
Indonesia	257953	390937	603539.5	863632
Viet Nam	65264	186689	642220	806661
India	251041	440575	404471	680519
Thailand	224357	394487	619583	376339
Ecuador	84723	52371	230977	310958
Mexico	62299	95077	167017	187932
Malaysia	106732	111870	203181	157967
Canada	39980	139494	164784	148816
United States of America	160142	153760	118817	134015
World Total	2 637304	4 081134	6 892128	7 873996

Source: FAO. *Globefish*. (Data include all types of shrimp, namely farm-raised shrimp and wild shrimp)

Table A2: Shrimp Production of Bangladesh, 2012-13

Source	Metric ton
Inland	185,274
of which Shrimp farm	133,818
Other	51,456
Marine	46,568
Total	231,842

Source: Fisheries Statistical Yearbook of Bangladesh 2012-13

Table A3: Export of Shrimp of the Major Exporters of the World

Country	Value ('000 US\$)			Quantity (metric ton)		
	1990	2000	2011	1990	2000	2011
Thailand	1,003,192	2,698,077	3,627,382	116,404	249,638	394,370
Viet Nam	112,290	656,760	2,412,742	30,059	67,341	362,028
China	698,526	375,452	2,188,082	117,294	93,881	305,205
India	346,518	899,632	1,752,172	61,910	128,827	262,011
Indonesia	653,238	948,877	1,285,893	88,557	104,793	152,155
Ecuador	372,783	274,518	1,183,803	58,050	34,502	188,097
Netherlands	164 215	279 817	684,189	22,031	57,362	83,905
Denmark	399,352	411,633	600,732	59 610	98 389	97,979
Argentina	53 470	247 342	515,520	9,094	32,821	77,752
Malaysia	119,239	102,217	482,819	24,312	19,029	85,493
Belgium	71,539	159,433	467,714	9 333	21 148	55,327
Bangladesh	151,079	311,294	423,034	25,996	28,664	48,027
World Total	6,778,760	11,010,762	19,497,932	985,183	1,496,852	2,726,637

Source: FAO, Fishery Commodities Global Production and Trade (online)

Table A4: Import of Shrimp of the Major Importers of the World

Country	Import Value ('000 US\$)			Import Quantity (Metric ton)		
	1990	2000	2011	1990	2000	2011
United States of America	1,624,321	3,142,649	4,025,476	215,798	283,288	432,557
Japan	2,545,884	2,800,661	2,230,085	288,235	250,295	208,548
Spain	455,366	765,304	1,238,388	71,159	113,980	175,405
France	310,659	431,915	769,384	43,967	56,143	95,762
Belgium	87,298	199,297	513,491	13,375	24,845	60,336
Italy	197,628	275,729	488,042	23,531	39,950	66,476
United Kingdom	151,671	292,188	435,141	25,490	36,590	44,125
Canada	150,364	329,324	344,480	17,522	60,211	39,056
Korea, Republic of	10,450	78,465	327,637	2,565	28,564	65,862
Germany	89,373	134,976	321,217	10,167	14,731	34,458
Total	6,578,359	10,017,189	14,160,106	956,659	1,319,310	1,903,101

Source: FAO, Fishery Commodities Global Production and Trade (online)

Stock Market Bubble-Burst Cycle in Bangladesh: Policy Implications

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Abstract

The objective of this study is to examine the characteristics and causes of the stock market bubble burst cycle in Bangladesh for the sample period from 2004-2014. This paper also examines whether the stock market return has any relationship with macro and bank-specific variables in Bangladesh. Pair-wise Granger Causality tests, Cointegration and Vector Error Correction Models (VECM) are used to examine the relationship. Empirical results derived from Granger Causality test, Cointegration and Vector Error Correction Model (VECM) show that there is a two-way causality from excess liquidity and private sector credit to share price index. However, there is a one-way causality from inflation to share price index. Bank deposit rate has significant negative impact on stock price index implying that an increase in the deposit rate would decrease share price index as people shift their preference to relatively less risky bank savings schemes.

1 Introduction

The stock prices of the country's main bourse, the Dhaka Stock Exchange (DSE) witnessed the steepest ever single day fall of 551 points or 6.71 percent and stood at 7654.41 on December 19, 2010, after reaching its highest level ever at 8918.51 on December 05, 2010. The decelerated trends of DSE general index continued, and the index came down to 5203.08 on February 28, 2011, a 41 percent decline from its peak.

In order to have a dynamic, vibrant, sustainable, efficient, and sound capital market for financing long-term funds of the corporate sector, the share markets of Bangladesh were at a bull run since January 06, 2009. The DSE general price index was 2756.65 on January, 09 went up to 4535.53 on December 31, 2009, with the active participation of both institutional and public investors. After the price correction in December 2010, the stock price index stood at 3738.70 on April 10, 2013.

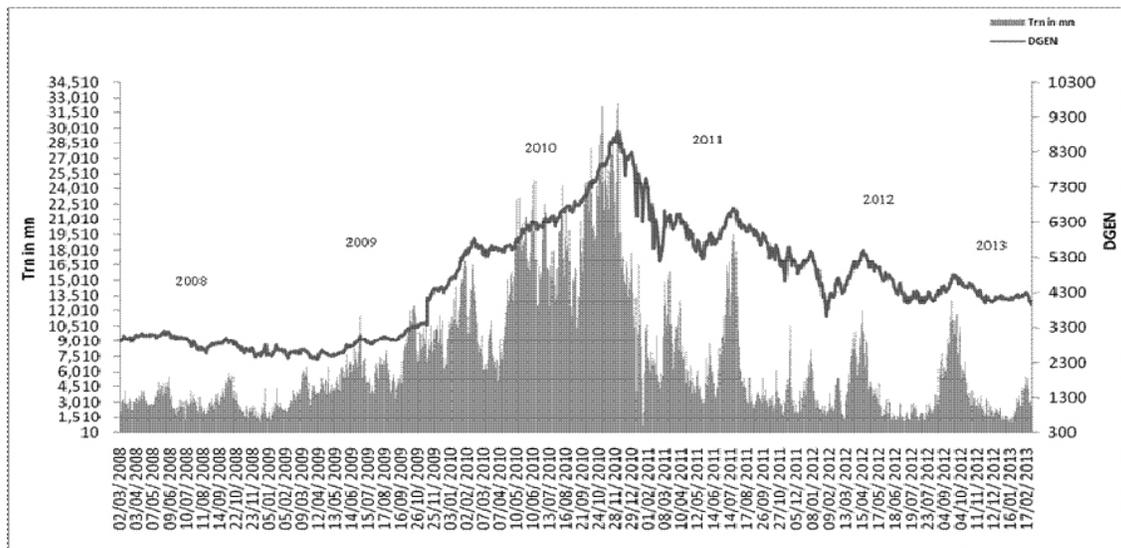


Figure 1: DSE Performance from March 2008 to February 2013

Therefore, the objective of this study is to examine whether there is any relationship between the episodes of the bubble-burst cycle and the bank's excess liquidity, money supply (M2), private sector credit (PSC), deposit rate and inflation in Bangladesh. This will guide us to find the causes of stock market volatility in Bangladesh and its policy implications. International experience of asset price bubble and burst cycles and the role of monetary policy in addressing the situation are analyzed in detail in this paper to draw some policy lessons.

Before collapsing the share market in December 2010, a sign of imbalance in various macroeconomic variables showed up. For example, companies' dividend yield, which is considered as a fundamental indicator to measure the strength of a business showed considerable divergence from the overall price-earnings ratio. Historical evidence (Germany in 1927 and Japan in 1990) show that the higher the gap between the Price/Earning (P/E) ratio and the dividend, the possibility of bursting a bubble is also more elevated. Figure 2 shows that in November and December 2010 before the stock market crash the gap between P/E and dividend yield was higher in Bangladesh.

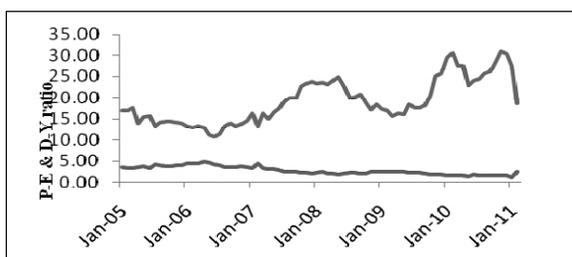


Figure 2: Price-Earning ratio and Dividend Yield

In 1996, Bangladesh experienced an episode of a stock market bubble burst. The DSE all share price index, float at around 1,000 in June 1996, reached at 3,627 on November, 05 of the same year. At the markets' peak, shares were trading at an average of over 80 times of relevant earnings. Trading data shows that during this period, market capitalization went up by 265 percent and the average daily turnover increased by over 1000 percent. The stock market prices dropped close to 70 percent at the end of April 1997 from the peaks on November 05, 1996. Investors lost their lifetime savings before taking any position against it.

The plan of the paper is as follows. In section-II, we review the literature with a particular focus on the economic bubble. Section-III discusses the monetary policy development, asset price, and inflation scenario in Bangladesh. In section-IV, we examine the issue with some empirics; in this regard, an appropriate methodology is specified, and the results are analyzed. The final section concludes the paper with some policy implications.

2. Literature Review

There are two major schools of thought on the role of monetary policy in addressing asset price inflation. The first one is outlined by former Federal Reserve Chairman Alan Greenspan and popularized by former US Fed Chairman Ben Bernanke (1999, 2000, and 2010). According to this school of thought, it is the regulatory and not the monetary response, that is needed in the face of asset price misalignment. Analyzing housing price data, Bernanke showed that only a small portion of the house price increased between 1977 and 2002, and this can be attributed to US monetary policy (2010). Presenting cross-sectional data for G20 nations for the same period, he remarked that there is little correlation between monetary policy and housing prices in those economies.

The second school of thought places greater emphasis on the informational aspect of asset price as it has a significant impact on future inflation. This school argues that a central bank concerned with stabilizing inflation about a particular target level is likely to achieve superior performance by adjusting its policy instruments not only in response to its forecast of future inflation and the output gap, but to housing prices as well (Cecchetti, 2000). They, however, said that it is better to ignore equity prices when deciding on monetary policy, as they are rather noisy (Cecchetti, 2000).

A large number of studies examined the relationships between the stock market and the macroeconomic variables. For Example, Nisha (2016) examined the influence of a set of global macroeconomic factors and a combination of both domestic and global macroeconomic variables, on the behavior of Dhaka Stock Exchange. To examine the impact of macroeconomic variables on the stock returns, monthly data series covering a period of 15 years from January 2000 to December 2014 have been used. Vector Auto Regression model is used to examine the long run and short run relationship between macroeconomic variables and the monthly stock returns of Dhaka Stock Exchange. The empirical result shows that money supply is the most important factor for Bangladesh followed by the industrial production index, consumer price index, interest rate, exchange rate, and gold price.

Ahmed and Imam (2007) also examined the relationship between stock market and selected macroeconomic variables in Bangladesh for the sample period from July 1997 to June 2005. The authors used share price index to represent the stock market and several macroeconomic variables namely broad money supply, treasury bill rate, interest rate, GDP and industrial production index. Using cointegration, vector error correction models (VECM) and Granger causality

tests, the study examined both the long-run and short-run relationships between the stock market index and the macroeconomic variables. The empirical results show a long run relationship when a change of interest rate is added to the model, the existence of significant long run relationship was observed with the money supply, GDP growth, and interest rate change. However, the test shows the presence of a unidirectional causality from interest rate change to the stock market return.

Sohail and Hossain (2012) investigated the responses of stock prices to macroeconomic variables i.e. industrial production index, consumer price index, money supply, real effective exchange rate, three months treasury bills rate, and on three stock indices i.e. ISE10 index, LSE25 index, and KSE100 index relating three stock exchanges namely Islamabad Stock Exchange, Lahore Stock Exchange, and Karachi Stock Exchange respectively. Johansen cointegration Technique was applied to examine the long-run relationships during the year from 1970 to 1992. The empirical results showed that industrial production has long run positive impact on stock prices in all three markets in Pakistan. The exchange rate was positively affecting all indices except Islamabad Stock Exchange10 index. Inflation was positively related to stock returns at Karachi Stock market, while it was negatively related to rest of the two markets. The money supply affected stock returns negatively, while treasury bills rate had mixed effect.

Ahmad (2008) investigates the nature of the causal relationships between stock prices and the key macroeconomic variables representing a real and financial sector of the Indian economy for the period March 1995 to March 2007 using quarterly data. The model variables are the index of industrial production, exports, foreign direct investment, money supply, exchange rate, interest rate, NSE Nifty and BSE Sensex. Johansen's approach of co-integration and Granger causality test have been applied to explore the long-run relationships while BVAR modeling for variance decomposition and impulse response functions has been applied to examine short-run relationships. The results of the study reveal differential causal links between aggregate macroeconomic variables and stock indices in the long run. However, causal pattern is similar in both markets in the short run. The study indicates that stock prices in India lead economic activity except for movement in the interest rate. Interest rate seems to lead the stock prices. The empirical results indicate that Indian stock is market driven not only by actual performance, but also by expected potential performances. The study also reveals that the movement of stock prices is not only the outcome of the behavior of key macroeconomic variables, but is also one of the causes of movement in another macro dimension in the economy.

2.1 Characteristics of Bubble Economy

The mathematical definition of an asset price bubble uses the fair price of a financial asset as its starting point. This theoretical price is the present value of the future cash flow of the asset. Charles Poor Kindleberger offers the most widely accepted definition of economic and financial bubble (Kindleberger, 1991, p.20) "*... a bubble may be defined loosely as a sharp rise in price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further increases and attracting new buyers—generally speculators interested in profits from trading in the asset rather than its use of earning capacity. The increase is usually followed by reverse expectations and a sharp decline in price often resulting in a financial crisis*".

Some economists argue that there is room for a more discretionary role for a central bank. For example, Gruen *et al.* (2007) focuses on the information availability on a bubble and provides suggestions on whether a central bank should deal with a bubble through an activist or nonactivist approach. According to them, where sufficient information is not available, the central bank should refrain from an activist approach and continue to make policy decisions based on simple rules such as the Taylor rule. However, if the central bank possesses sufficient information, it may take an activist approach to deal with it.

Komaromi (2006) argued that the formation of a bubble starts with a clear and continuous rise in share prices caused by an exogenous shock affecting the economy. This initial displacement influences outlook in a positive way, generating expectations of further growth. If stock prices distinctly begin to grow, uninformed investors, partly due to the deduction problem, take this as a positive signal. The share of particular industries and companies may become famous. New buyers appear on the market and the proportion of shares increases within portfolios, causing a surge in trading volume. Many investors are pursuing an active feedback strategy. This, coupled with the lack of relevant information, amplifies noise trading.

Okina *et al.* (2001) identified three major characteristics of the Japanese bubble economy in the late 1980s, namely, a substantial rise in asset prices, including both the stock prices and real estate; overheating of economic activity led by capital investment, and increase in money supply and credit based on the experiences of Japan in the late 1980s.

Chadha *et al.* (2003) found that while focused on inflation targeting, the central banks of the US, the UK, and Japan have reacted to asset prices when there were perceptions of large misalignment that posed a threat to the macroeconomic condition during the sample period of September 1979 to December 2000. In their

experiment, they used a forward-looking Taylor rule with asset price and exchange rate augmentation.

Goodhart (2000) explores the issue using data from G7 nations for the sample period of 1972 to 1998 with a simple structural model proposed by Rudebusch and Svensson (1998) and conclude that there is a role for an active response to asset price movements from a monetary policy perspective. He also agrees with most economists in the field that asset prices do contain significant information about future inflation.

Borio and Lowe (1992) point to the rapid domestic growth of credit as the principal instigator of financial instability, especially when accompanied by rapid increases in the asset price and (or) an investment boom. Their goal in this particular paper was to explore the usefulness of credit, asset price, and investment as predictors of the future instability of the financial system. They found that credit gap is the best single indicator of future economic instability; they also found that taking two signs together produces less noisy signals than when they are considered separately. However, they also conclude that the threshold values of these indicators are rather circumstantial. The paper also dedicates significant weight to the fact that asset price discrepancies and financial instability can arise in a small inflationary environment as well.

3 An Overview of the Development of Macroeconomic Variables in Bangladesh

Before the crash in December 2010, the stock markets in Bangladesh experienced a bull run for the past two years. The country's central index, DGEN, increased

from 2800 points in 2009 to 8781.24 points on November 25, 2010, showing an unprecedented rise within a year. The number of investors also increased significantly, and reflected in the growth of beneficiary owner (BO) accounts that stood at 2.92 million as of October 4, up by 38 percent from 2.12 million in June 2009. The number of investors increased significantly as the beneficiary owner's (BO) account stood at 3.2 million at the end of December 2010 up from 1.0 million recorded in January 2009.

The country's financial market, embracing banks, insurance companies, and non-banking institutions, together with massive small investors have so far had substantial investments in the capital market. A local newspaper reported a story of a rickshaw puller who opened a BO account to apply for an IPO of a company. This shows an involvement of a vast number of vulnerable uninformed ignorant investors all over the country who can trade by staying at Zilla Up-Zilla City or Town levels. The situation of the stock market went higher beyond any justified level and could not be explained by fundamentals. For example, there was no significant technological innovation, new information, or trade volumes, or economic activity of the company.

Figure 3 shows the share price index and GDP growth with their long-term trends as measured by the Hodrick–Prescott filter method.¹ From Figure 3, it is evident that during the period of the bull run of the share price the actual stock price index is much higher than its long-term trend, indicating an overheating of the market. According to the trend, the level should be at around 6,000 while it was running over 8,000, risking the fall of price as well as leading towards its long-term trends. Currently, it is running below the long-term trends indicating that there is some room to increase. The index may increase in the near future.

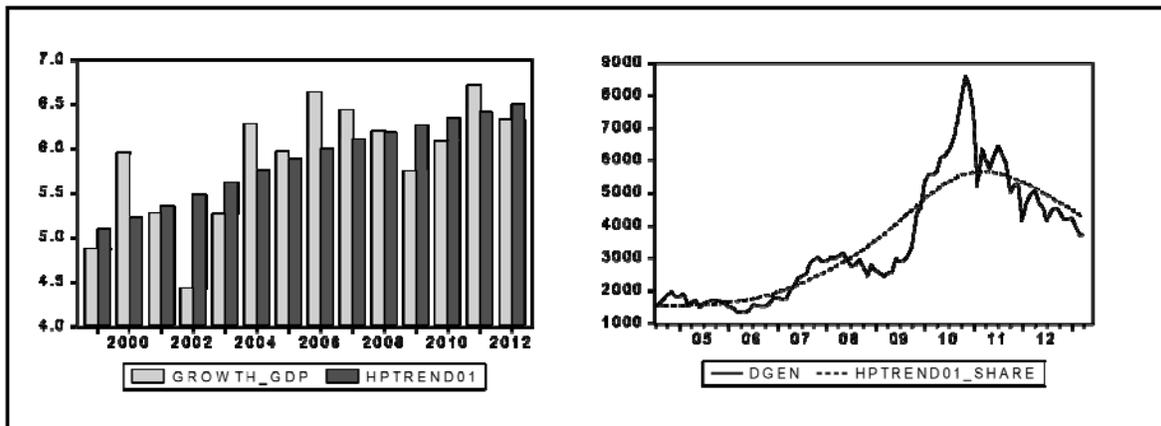


Figure 3: Actual and Potential Real GDP and Share Price Index

Source: Author's Calculation.

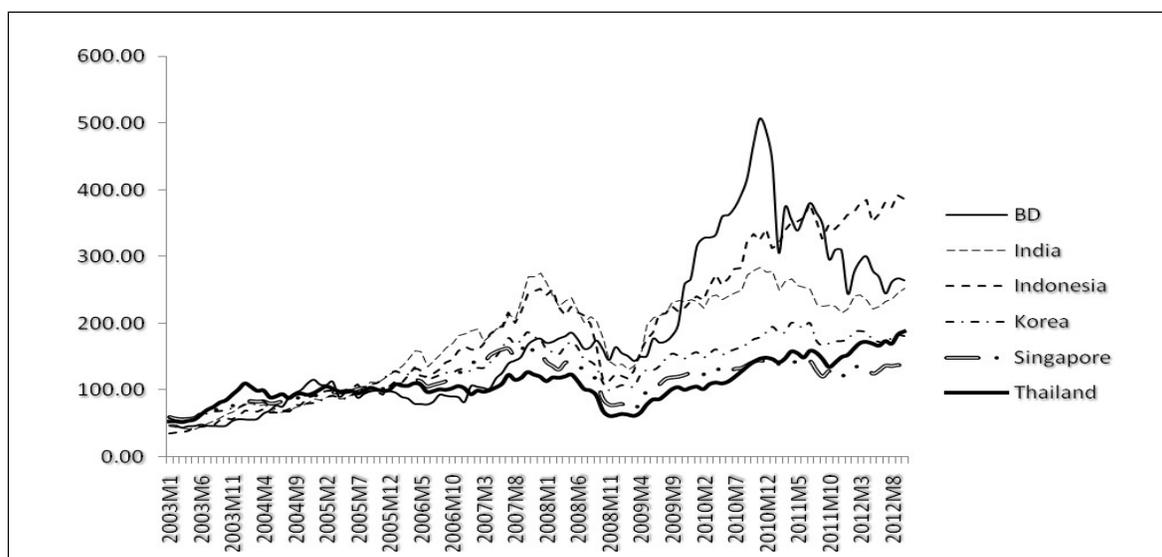


Figure 4: Comparison of Recent Trends in the Share Price Index of some Selected South and East Asian Countries

Table 1: Market Capitalization to GDP, Price Earnings Ratio and Dividend Yield as of January 2013

Exchange	No. of Listed Securities	Market Capitalisation n/ GDP	PE	Dividend Yield	Market Capitalisation/ GDP	PE	Dividend Yield	Interest Rate(%) Lending Rate
Asia - Pacific		2009-10			2012-13			
Bangladesh	517	43.92	24.08	1.70	25.53	11.54	4.75	13.73
BSE India	2 050	72.55	21.61	1.15	67.84	16.69	1.48	7.75
Bursa Malaysia	5 195	60.33	17.00	2.20	144.94	14.00	3.00	3.00
Colombo SE	919	6.67	28.21	1.10	29.59	15.23	2.35	7.50
Hong Kong Exchanges	287	5.64	18.00	2.90	1154.55	17.00	2.40	0.50
Singapore Exchange	914	94.68	15.00	3.00	297.24	12.00	3.10	0.04
Taiwan SE Corp.	1 540	147.54	24.00	3.80	158.88	22.00	3.40	1.88

Source: World Federation of Exchanges, IMF, World Economic Outlook.

The unusual rise of share prices in Bangladesh does not match most of the economies in Asia. The trends of the stock market in some selected South Asian economies show that after reaching a trough in January 2009, the share price indices of India, Pakistan, and Sri Lanka started to increase while the process began a year later in Bangladesh. The *Monthly Review* (September 2010) of the Dhaka Stock Exchange shows that during July 2010, there was some inflow of funds of about USD 12 million, while domestic money and the credit market also remained buoyant with ample liquidity. Figure 4

shows that the equity prices in South and East Asian markets have shown signs of an uptrend since January 2010 following the better than expected global recovery and a low inflation situation. Among the seven countries, the Bangladesh share price index was the highest followed by the Indonesian and Indian indices, though the comparison with regards to the list of stocks and market capitalization varies significantly.

Table-1 demonstrates a comparison of market capitalization to GDP, PE and dividend yield of some selected Asia-Pacific countries. Bangladesh's performance regarding PE ratio and dividend yield are much better than other Asia-Pacific countries.

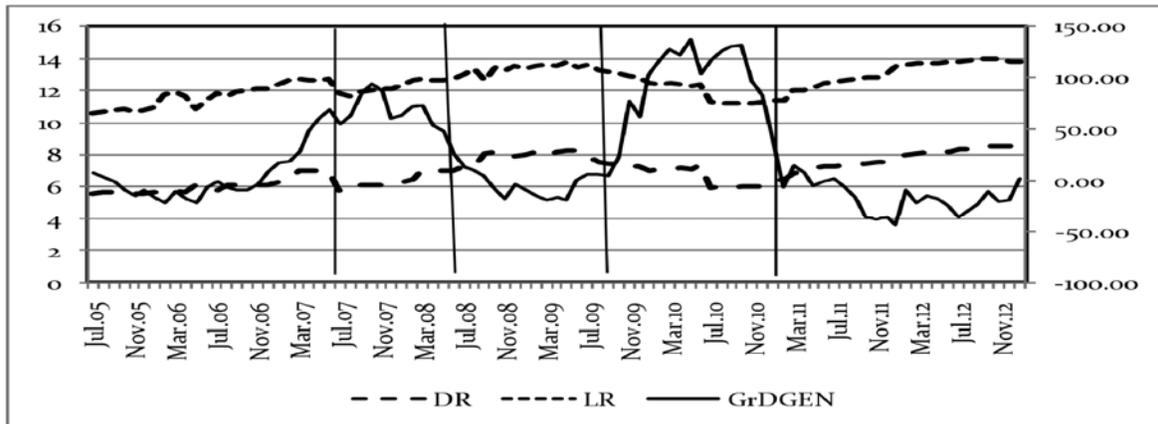


Figure 5: Trends in Deposit and Lending Rates with the Growth of Share Price Index

Source: Economic Trend, BB

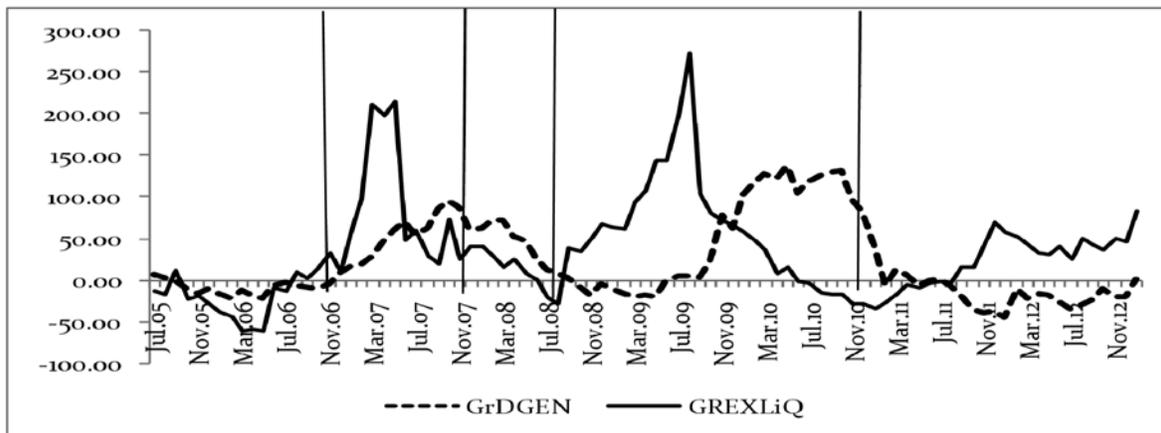


Figure 6: Growth in Excess Liquidity and Share Price Index

Source: Research Department, Dhaka Stock Exchange, BB

Figure 5 shows that during 2009-10, the deposits and lending rate were decelerating due to the easy monetary policy stance of the central bank following the global financial crisis in 2007-08. The banking system was kept liquid deliberately to avoid a liquidity crisis. Historical evidence, including recent recession, proves that easy monetary and credit policies for a long time create a liquidity glut in economies that help to form bubbles.

From Figure 6, it is evident that excess liquidity in the banking system piled up during the stock market uptrend in 2007-08 and 2009-10. The uptrend in the share market, and the unused excess liquidity in the banking system went to the stock exchange due to profit motive stance of commercial banks and lack of scope for alternative investment.

Besides, during this period, margin loan providing institutions such as banks, non-bank financial institutions (NBFIs), alliance financial institutions and

permitted brokerage houses were providing margin loan to retail investors for buying securities from the secondary market. In December 2009, the total amount of margin loan provided by banks and NBFIs substantially increased by 164.41 percent to Taka 77.82 billion from Taka 4.21 billion in 2006. The excess liquidity of banks recorded a growth of 57.17 percent from Taka 86.10 billion in December 2006 and stood at Taka 334.27 billion in December 2009. The total investment by banks and NBFIs jumped by 87.30 percent to Taka 43.58 billion in 2009 from Taka 6.63 billion in 2006. The investments by banks increased significantly by 97.55 percent to Taka 36.91 billion in 2009 from Taka 4.79 billion in 2006. Investments by NBFIs were up to Taka 6.66 billion- a growth of 53.46 percent from Taka 1.84 billion in 2006. Also, the Government of Bangladesh took some steps to encourage foreign and domestic investors to invest in the securities market.

Therefore, in a situation of low deposits and savings rates together with a lack of alternative investment opportunities, funds rushed to the stock market where returns were apparently much higher than in other investments. Figures-7 and 8 show the trends in money supply (M2) and private sector credit and share price index growth. During the period between October 2007 and March 2009 and again May 2010 to October 2011, both private sector credit and M2 growth were higher than the projected monetary expansion of the central bank. Figure 7 shows that private sector credit is more closely related to the stock market price than the M2. It is also revealed from Figure 7 that though initially the

share price index and the private sector credit moved together, later share price index was the reason that increased more private sector credit. Figure 7 shows that private sector credit peaked after the stock market index peaked during 2007-08 and 2009-2010, implying that the higher share price index induced private sector credit to increase.

There is also a close link between the share price index and inflation during 2004 to 2011, as evident from Figure 9. However, it shows considerable divergence from each other in recent period implying that higher inflation is not responsible for increasing the share price index.

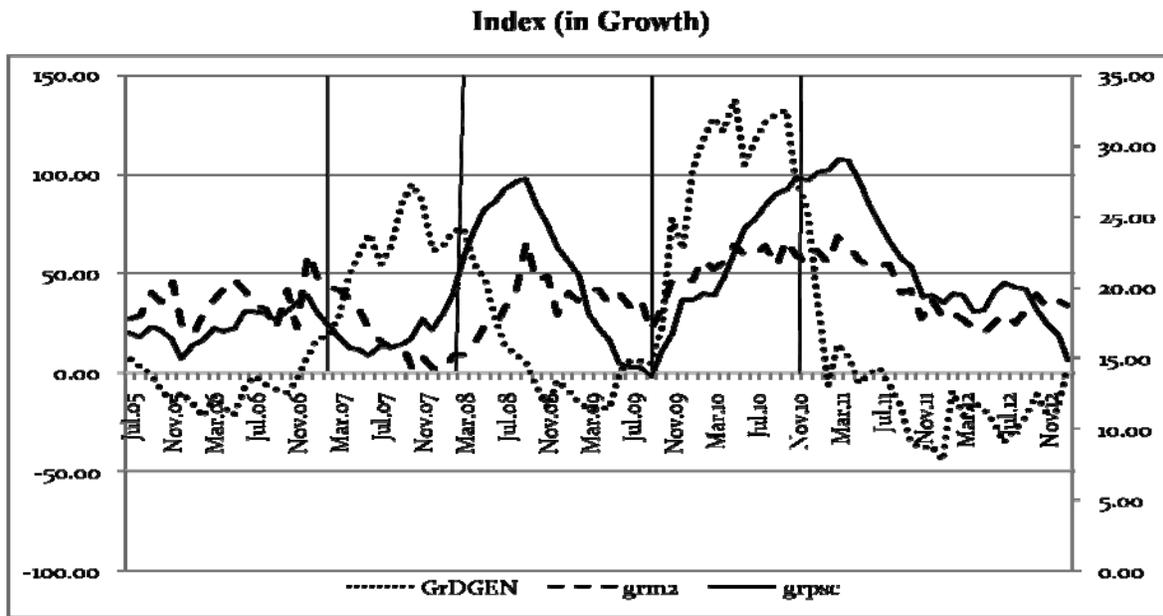


Figure 7: Trends in Money Supply (M2), Private Sector Credit (PSC) and Share Price

Source: Economic Trends (various issues), a Bangladesh Bank Publication.

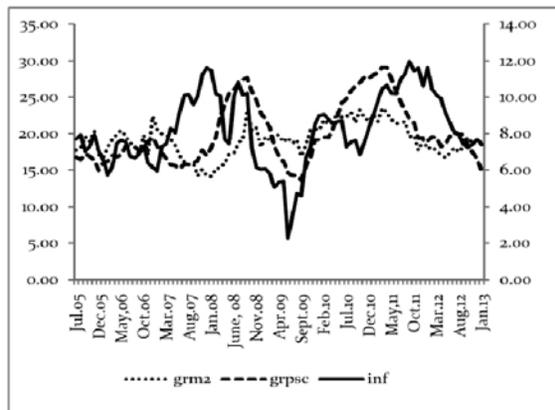


Figure 8: Trends of growth in M2, PSC and CPI Inflation

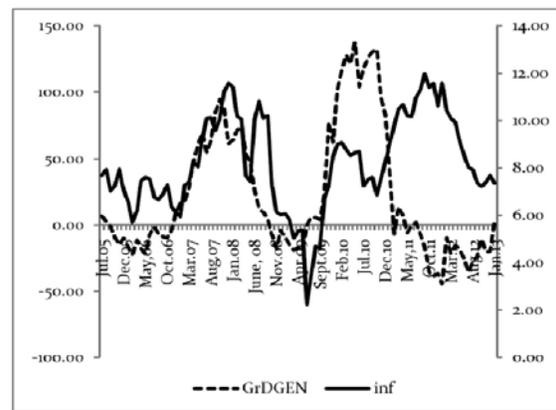


Figure 9: Trends of growth in Share price Index and CPI Inflation

Data Source: Economic Trends, Statistics Department, Bangladesh Bank, Various Issues.

4 Methodology, Model Specification, and Empirical Results

In this section, an attempt has been made to analyze the relationship between the share price index of the Dhaka Stock Exchange and some related macroeconomic variables.

To draw policy implications, a series of macro-economic and bank-specific variables are used in this study. Unlike other studies this study uses private sector credit which is considered to be one of the most important factors during the episodes of the bubble-burst cycle in Bangladesh. In doing so, Granger Causality test followed by the Cointegration and Vector Error Correction (VECM) models have been estimated. All data have been collected from the Economic Trends and Dhaka Stock Exchange website. The model uses the following variables:

DGEN= The log of Share Price Index (General) of the Dhaka Stock Exchange

IPI= The log of Industrial Production Index.

CPI= The log of the Consumer Price Index (2005=100)

EXR= The log of the Bilateral Nominal Exchange Rate

Deposits Rate= The Fixed Deposits rate on less than 3-month maturity

M2= The log of Broad Money Supply (in crore Taka)

PSC= The log of Private Sector Credit (in crore Taka)

4.1 Empirical Results:

The Pair-wise Granger Causality Test

The Pairwise Granger Causality tests between the share price index of Dhaka Stock Exchange (DGEN), broad money (M2), excess liquidity (EXLIQ) in the banking system, private sector credit (PSC), deposit rate (DR), inflation and the exchange rate for the sample period from 2004:07 to 2014:07 show that there is two way causality between the *private sector credit and DGEN* (Table-2). However, after four months, it is the higher share price index that increase private sector credit.

The pair-wise Granger Causality test between *stock price index and the excess liquidity* show that there is two way causality that runs from excess liquidity to share price index and stock price index to excess liquidity (Table-2). Though the evidence of the causality between M2 and DGEN did not appear during the full sample period of 2004:07 to 2014:07, an evidence of one-way causality from the share price index to M2 showed up during the period of stock market bubble. This implied that money supply does not directly cause share price index. However, during the particular time of 2008:07 to 2010:12, money supply is one of the factors that creates excess liquidity in the banking system, which in turn increased private sector credit.

Table-2: Pairwise Granger Causality Tests:

Variable: Growth rate of Broad Money (M2), Private Sector Credit (PSC), Excess Liquidity (EXLIQ), General share price index of Dhaka Stock Exchange (DGEN)

Null Hypothesis	No. of Observation	F-Statistic	Probability
<i>M2 does not Granger Cause DGEN</i> <i>DGEN does not Granger Cause M2</i>	90	0.79 0.46	0.38 0.50
<i>EXLIQ does not Granger Cause DGEN</i> <i>DGEN does not Granger Cause EXLIQ</i>	90	8.23 3.57	0.01*** 0.06*
<i>GRPSC does not Granger Cause GRDGEN</i> <i>GRDGEN does not Granger Cause GRPSC</i>	90	12.91 34.27	0.01** 0.00***
<i>Deposit does not Granger Cause DGEN</i> <i>DGEN does not Granger Cause DEPOSIT</i>	90	0.57 0.07	0.45 0.07*
<i>INFLATION does not Granger Cause DGEN</i> <i>DGEN does not Granger Cause INFLATION</i>	90	3.06 0.57	0.02** 0.69
<i>IPI does not Granger Cause DGEN</i> <i>DGEN does not Granger Cause IPI</i>	90	10.97 3.88	0.01** 0.06*

*, **, *** denote significant at 1%, 5% and 10% level.

Table-3: Augmented Dickey-Fuller (ADF, 1979) and Phillips-Perron (PP, 1998) Tests for Unit Root

<i>Variables</i>	ADF	Prob.	PP	Prob.	<i>Variables</i>	ADF	Prob.	PP	Prob.
<i>LCPI</i>	-0.16	0.93	-0.22	0.97	Δ <i>LCPI</i>	-6.57	0.00	-6.21	0.00
<i>LEXR</i>	-0.26	0.92	-0.21	0.93	Δ <i>LEXR</i>	-9.53	0.00	-9.53	0.00
<i>LM2</i>	-0.49	0.98	-0.59	0.98	Δ <i>LM2</i>	-3.38	0.00	-15.49	0.00
<i>LDGEN</i>	-1.32	0.61	-1.35	0.60	Δ <i>DGEN</i>	-10.01	0.00	-10.03	0.00
<i>LPSC</i>	-0.66	0.84	-0.17	0.96	Δ <i>PSC</i>	-3.42	0.00	-8.13	0.00
<i>LEXLIQ</i>	-1.43	0.56	-2.30	0.17	Δ <i>EXLIQ</i>	-13.94	0.00	-19.34	0.01
<i>DR</i>	-0.92	0.77	-0.87	0.79	<i>DR</i>	-10.75	0.00	-10.75	0.00
<i>IPI</i>	-1.33	0.62	-1.37	0.59	Δ <i>IPI</i>	-11.01	0.00	-12.03	0.00

Δ denote first difference. *LCPI*=log of consumer price index. *LEXR*=log of Exchange Rate. *LM2*= log of (*M2*), *LDGEN*=log of General Price Index of Dhaka Stock Exchange. *LPSC*=log of Private Sector Credit. *LEXLIQ*=log of Excess Liquidity. *DR*=Deposit Rate. *IPI*=log of Industrial Production Index. *** implies significant at the 1 percent level.

The pair-wise Granger causality test between inflation and *DGEN* for the sample period from 2004:07 to 2014:07 shows that though there is one-way causality between inflation and the share price index, the evidence of two way causality cannot be rejected during the period from 2004:07 to 2014:07. This implies that initially, higher share price index induces inflation to increase, and then higher inflation transmit induces an increase in the stock price index. In the long-run, inflation causes the stock price index to increase. A similar result is found for the deposit rate.

4.2 Empirical Results from Co-integration

Stationary of the Time Series Data

The empirical analysis involves some steps. Any regression result with non-stationary provides spurious relationships between variables and, therefore, provides misleading implications of the relationship. Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series is said to be co-integrated. The stationary linear combination is called the co-integrating equation and may be interpreted as a long-run equilibrium relationship between the variables. The purpose of the co-integration test is to determine whether a group of non-stationary series is co-integrated. If a series of non-stationary variables are co-integrated, they form the basis for Vector Error Correction Model (VEC).

Unit Root Test Results

To see whether the variables included in the model are non-stationary a series of Unit Root Tests are performed without trend and with the intercept.

The estimated results using Augmented Dickey-Fuller (ADF, 1979) and Phillips-Perron (PP, 1998) tests show that the null hypothesis, H_0 (has a unit root) cannot be rejected for any variable. According to the ADF and PP test *LCPI* *LEXR*, *LM2* *LDGEN* *LPSC*, *LEXLIQ*, *DR*, and *IPI* has a unit root in levels while they are stationary in the first differences. Therefore, these variables fit the basis to test for co-integration. The idea of co-integration is to determine if the stochastic trends in all the variables that contain unit roots have a long-run cointegrating relationship between them.

4.3 Estimation Results of Co-integration

In our empirical evaluation we have applied Johansen (1991 and 1995) and Johansen and Juselius (1990,1992) multivariate co-integrating methodology which jointly determine empirically the number of r (maximum $k-1$) co-integrating vectors from a vector of k endogenous variables in the model along with coefficients of the variables and the adjustment parameters to a 8th order VAR (with maximum lags eight) to test for co-integration. In our deterministic trend component specification in co-integrating equations, we choose case-3 (linear trend assumption) that is, we assumed that the level series of endogenous variables have linear deterministic trends, but the cointegrating equations have only intercepts (constants). Based on the literature and data analysis several models of cointegration and vector error correction have been estimated. The results using the variable of excess liquidity in the banking system, CPI inflation, and deposit rate with the share price index came out with the best results in terms of significance level and the expected signs. The estimated models using *M2* did not show any long run relationship with the share price index but did show short-term dynamics. Results are presented in Table-4.

Table 4: Johansen's Cointegration Tests

Null Hypothesis	Alternative Hypothesis	Trace Test		Maximal Eigen Value Test	
		Statistics	95% Critical Value	Statistics	95% Critical Value
r=0	r=1	136.45*	94.15	56.17*	39.37
r≤1	r=2	80.28*	68.52	43.08*	23.46
r≤2	r=3	57.20*	47.20	29.95*	27.07
r≤3	r=4	5.72	12.25	5.71	13.25

*(**) denotes rejection of the hypothesis at the 5 %(1%) level. Trace test indicates 3 co-integrating equation(s) Max-eigen value test indicates 3 co-integrating equation(s) at both 5% and 1% levels.

Source: Author’s Calculation

Table 5: Normalized Co-integrating Coefficients (or Eigenvectors)

Log DGEN	log of EXLIQ	log of CPI	Log of IPI	DR	@trend
1.00	0.49 (3.51)	3.60 (2.16)	0.36 (3.82)	-0.50 (-7.14)	-0.03 (0.001)

(t-value in parentheses). Source: Author’s Calculation

Several critical remarks could be developed from the results of co-integrating relations. The elasticity of share price index, excess liquidity, CPI and the deposit rates are 0.49, 3.60, 0.36 and -0.50 respectively. Furthermore, the adjustment coefficients or feedback parameter values of different cointegrating variables gives an indication of whether the feedback parameter values were sufficiently high to determine the variables of interest such as *LEXLIQ*, *LCPI*, *LIPI*, and *DR* in an endogenous fashion. In the Appendix, it can be seen that the dependent variable, i.e. the share price index, is likely to be endogenously determined by its direct determinants.

4.4 Vector Error Correction (VEC) Models

A vector error correction (VEC) model is performed to see the short-run dynamics since the variables are integrated one, (I(1)) and they are co-integrated. The co-integrating relationships reveal the factors that affect the long-run level of the share price index. However, in the short run, deviations from these relations could occur as a result of shocks to any of the relevant endogenous variables. Thus, after testing for co-integration, a VECM is estimated. The VECM is conditional on co-integrating vectors and thus, specified as to regress the first (time) difference of each non-stationary endogenous variable at time-t on one period lag (at time -1) of the cointegrating equation/vector (s) and the lagged (at time-t-i) first (time) differences of all of the endogenous variables in the system. In fact, when we impose number of co-integrating vectors as restrictions on the endogenous variables in the VAR, we move to VEC model whose general form is:

$$\Delta x_t = c_0 + \sum_{i=0}^{p-1} \gamma_i \Delta x_{t-i} + \delta_t ECT_{t-1} + \omega_t$$

In our case the model of the types of VECs will be as follows:

$$\Delta LDGEN = c_0 + \sum_{i=0}^{p-1} \gamma_1 \Delta (LEXLIQ)_{t-i} + \sum_{i=0}^{p-1} \gamma_2 \Delta (LCPI)_{t-i} + \sum_{i=0}^{p-1} \gamma_3 \Delta (IPI)_{t-i} + \sum_{i=0}^{p-1} \gamma_4 \Delta (DR)_{t-i} + \delta_t EC_{LDGEN} + \omega_t$$

Where EC is the error correction term (generated from the co-integrating equation) capturing the disequilibrium or deviation that arise at the level of the share price index, and the factors cause this imbalance. The parameter δ is the speed of adjustment (in the case of short run imbalances) in bringing about the equilibrium that is, removing the deviation. We can draw several important conclusions from the empirical results of the VEC model; first, the error correction term is significant (at the 1-percent error level) in our specification as implied by the Granger representation theorem. VEC performed using a lag of four which is confirmed by the Log-likelihood test, Akaike Information Criteria and also by Final Prediction Error. The error correction term was found negative and significant for D(LDGEN) with the speed of adjustment of -0.13, implying that the speed of adjustment to the equilibrium is moderate.

In the present context, Granger representation theorem would imply that if there was any short-run deviation of share price index (long-run equilibrium) it was automatically removed by appropriate change or adjustment of *excess liquidity*, *price level*, *industrial production index and the deposit rate*. However, there are several features to be analyzed. Most of the adjustment coefficients of lagged values of explanatory variables were not significant. The value of R² is reasonably good which is 0.50.

5 Conclusion

The objective of this study was to analyze the monetary policy response in the aftermath of the stock market bubble burst in Bangladesh. This paper also examines the relationship between the share price index and the macroeconomic variables in Bangladesh. The empirical results, as measured by the Granger Causality tests, Cointegration and Vector Error Correction Model (VECM) for the sample period from 2004:7-2014:7 show that there is two way causality from excess liquidity, private sector credit, and industrial production index to the share price index. An increase in the share price would increase the private sector credit if there is excess liquidity in the money market. An increase in the share price index would increase the industrial production index and also an increase in the industrial production index would increase the share price index. The empirical result also shows that there is a one-way causality from inflation to share price index. The deposit rate has significant negative impact on the share price index implying that an increase in the deposit rate decreases share price index as people would shift their preference to relatively less risky banks savings schemes rather than risky and volatile share market and vice versa. On the other hand, like other studies, this study does not find any direct causality between broad money (M2) to share price index for the sample period of 2004:7-2014:7. The empirical results from Co-integration and Vector Error Correction Model (VECM) and of the share price index and macroeconomic and bank-specific variables also support the above findings. Therefore, policy implications of this study would be monetary authority should keep an eye on the private sector credit disbursement as the market has substantial evidence of fund diversion from bank to share market, which may end up creating a bubble in the market.

Other Policy Recommendations

It has been argued that for the policy makers the more relevant issue is not whether an asset-price bubble exists, but rather what combination of events in the financial and real sectors exposes the financial system to a materially increased level of risk. However, on the role of assets prices there are extensive consensus as follows:

- Central Banks should not target asset prices
- Central Banks should not try to prick a bubble
- Central banks should not follow mop up strategy after the burst of a bubble, which means injecting enough liquidity to avoid a macroeconomic meltdown.

In this situation, following recommendations have been made to rescue the sinking share market:

Increase buying capacity of the Banks and Financial Institutions;

Increase the depth in the capital market, especially the supply side, and take prompt actions to float the Government shares in the market are required;

Monetary policy must remain tight despite calls by certain quarters. The more uncomfortable liquidity conditions in the banking sector will be required to contain inflation and remove inefficiencies in the financial market.

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Appendix

Table-III.4: Vector Error Correction (VEC) Model: Short-run Adjustments for the share price movement, by excess liquidity, deposit interest rate, and the price levelCo-integrating Terms and Determinants of $\Delta LDGEN_t$, the Share Price Behavior

$ECT(LDGEN)_{t-1}$	-0.14(-2.85)		
$\Delta LDGEN_{t-1}$	0.02(0.12)		
$\Delta LDGEN_{t-2}$	0.07(0.61)		
$\Delta LDGEN_{t-3}$	0.09(0.78)		
$\Delta LDGEN_{t-4}$	0.11(0.85)		
$\Delta LCPt-1$	-0.07(-0.06)		
$\Delta LCPt-2$	-1.03(-0.86)		
$\Delta LCPt-3$	-3.06(-2.59)		
$\Delta LCPt-4$	-2.14(-1.92)		
$\Delta LREMITT_{t-1}$	-0.01(-0.08)		
$\Delta LREMITT_{t-2}$	-0.10(-0.84)		
$\Delta LREMITT_{t-3}$	-0.18(-1.60)		
$\Delta LREMITT_{t-4}$	-0.10(-1.15)		
$\Delta LEXLIQt-1$	-0.01(-0.20)		
$\Delta LEXLIQt-2$	-0.04(-0.70)		
$\Delta LEXLIQt-4$	-0.01(-0.50)		
Δexr_{t-1}	-0.84(-0.47)		
Δexr_{t-2}	-3.32(-1.80)		
Δexr_{t-3}	-0.07(-0.03)		
Δexr_{t-4}	-1.74(-0.94)		
$\Delta DRt-1$	0.02(0.56)		
$\Delta DRt-2$	0.01(0.47)		
$\Delta DRt-3$	0.01(0.19)		
$\Delta DRt-4$	-0.01(-0.30)		
Constant	0.02(1.61)		
R ²	0.50		
S.E	0.01	F-Statistics	1.67

The Economics of Social Business

Wahiduddin Mahmud

The idea of socially-oriented business is not new, although Nobel Peace Laureate Muhammad Yunus has certainly given an enormous impetus to it by his articulate branding of it as “social business”. The reason his campaign has caught so much public attention is at least partly its timing. Global capitalism, driven by the singular pursuit of profit, has in recent times exposed some of the worst excesses of the system – repeated global financial meltdown, the increasing concentration of wealth and the unmitigated environmental damage associated with the looming threat of climate change. French economist Thomas Piketty’s (2014) convincing analysis in his recent best-selling book *Capital in the Twenty-First Century* as to why the current capitalist system will lead to an unabated process of wealth concentration has only helped to add fuel to the fire of public discontent. It is not surprising that the global business community is eager to embrace the idea of social business, at least in its public posture, almost as a penance for the sins that have been committed.

In the world of academia, while the business schools in many top universities worldwide are already offering dedicated courses on social business, the response from mainstream economics is at best lukewarm. Why? First, the idea of social business is still too fuzzy for an academic discipline that claims the status of a science. Muhammad Yunus describes it as a business which has a social mission rather than profit-seeking as its main purpose and the owners of which do not earn any dividend from profit (Yunus 2007). That definition may fit a wide range of non-profit business models so that it may be easier to say which business does not qualify than which one actually does so as a social business. For example, consider a business, say, owned by a trust, which is run entirely on the basis of profit maximisation but the profits are spent for philanthropic purposes; yet it will not qualify as a “social business” even though it does not generate private dividends. There needs to be some ‘social’ element other than profit-maximisation in the way the business itself is run.

Second, while admitting that many market distortions do exist, economists are accustomed to the elegant theorising of the efficiency of the market economy that is rooted in the premise of self-seeking behaviour and the “profit motive”; and this academic tradition has continued ever since Adam Smith famously remarked that we owed our breakfast not to the benevolence of the baker and the butcher but their attending to self-interest. Yet, this need not be so. According to a long-forgotten

strand of economic theorising, the success of a competitive free-enterprise economy can be shown to depend on people pursuing *self-chosen* interest, which can be altruistic or anything else (Winter, Jr 1969). These theoretical results are, however, derived under highly restrictive conditions; but one may argue that the assumptions underlying the welfare economics of competitive market economy are themselves far removed from reality and serve only as a point of departure. There are also economic arguments that point to incentives of economic agents other than self-interest underlying the efficiency of the market system. For example, it was once argued by some economists that the so-called “Japanese ethos” of loyalty of the Japanese workers to his firm and to his co-workers rather than individual self-seeking was the key to the success of the Japanese economy (Morishima 1982). The “Japanese ethos”, in contrast to the Western business culture, is in fact an example of a broader phenomenon analysed by Hirsch (1977) regarding how behavioural modification by breaking away from individual self-interest can help better achieve the fulfilment of those very interests. Incorporating motivations other than self-interest in the working of the market economy should not be therefore altogether new to economic theorising.

In the real world of the market economy, it is now the generally accepted view that private business must exercise some measure of social responsibility beyond looking after shareholder interests. The question is how to do it best. Modern-day smart CEOs worldwide know that strategic spending on corporate social responsibility (CSR) activities can be in the long-run business interest of their firms. However, the phenomenon is reversed in the case of a social business, which takes advantage of viable business models while pursuing its overriding social goals. Indeed, an advantage of social business over conventional corporate philanthropy, as argued by Muhammad Yunus, is that once an investment is made in a social business, its benefits will continue as long as that business remains in operation, while companies have to allocate funds annually for their CSR activities. This is similar to the advantage that a revolving fund for a microcredit programme may have over annual transfers to the poor under social safety net programmes. It is no coincidence that Yunus happens to be the pioneer of both microcredit and social business.

There seems to be, however, even a more promising way of reconciling the idea of social business with mainstream economic thinking. A social business is

expected to achieve its social objectives by producing some socially-oriented products or services that are not supplied by profit-oriented businesses. Examples may include marketing products that have public health benefits or promoting some environment-friendly or employment generating technology. These products and services are supposed to have what economists call “public good” characteristics with beneficial externalities; that is, their benefits extend beyond what would be otherwise reflected in the market demand and business profits. As a result, these goods and services will be under-supplied, or not be supplied at all, by profit-maximising businesses. Because of the absence of the compulsion of profit maximisation, an implicit subsidy is involved when such products or services are produced and supplied by social businesses; only the subsidies in this case come not from the public exchequer but from foregone business profits. Such subsidies can be justified in economic theory as a legitimate means of correcting market distortions and deficiencies arising from the so-called economic externalities.

The above line of reasoning can in fact be a more fruitful way of conceptualising social business instead of either trying to fit it in the grand scheme of the theory of competitive market equilibrium or attempting to reconstruct the entire logic of the efficiency (albeit with large-scale shortcomings) of the profit-oriented market economy. Furthermore, by adopting such an analytical approach, it is possible to show that, far from creating distortions in the market economy, social businesses can in fact be so designed as to address at least two major sources of shortcomings of the market economy: first, the inefficiencies resulting from the ‘externalities’ discussed above; and second, the fact that the market economy allocates resources ‘efficiently’ only in relation to the market demand resulting from a given distribution of income. Thus, producing and marketing consumer items at affordable prices targeted to the poor can be seen as a way of trying to redress the income distributional problem that is inherent even in an otherwise efficiently functioning market economy. The same is true for social businesses that may be set up for adopting production technologies or for marketing products that can create income-earning opportunities for the poor. By the same logic, the socially-oriented microfinance institutions which provide financial services to the poor and can cover their operating costs from interest earnings can qualify as social businesses.

Yet another way of interpreting the idea of social business in terms of conventional tools of economic analysis is to relate it to the problem of project selection for public sector investment based on social cost-benefit analysis. Such an analysis is designed to rank projects on the basis of net social benefit by accounting social costs and benefits as distinct from the private ones and by

taking into account both the problem of economic externalities and income distributional considerations. However, while the social cost-benefit analysis is applied to determine the priorities of public sector investment, the concept of social business belongs entirely to the domain of the market economy driven by private investment.

This brings us to a more serious concern about social businesses; and this has to do with the informational problem that may arise from their not being able to take full advantage of market signals in making decisions about prices and products. The informational deficiency may arise in perceiving what is good for society while not necessarily maximising profit as allowed by the market. Prices and profits, resulting from self-interested behaviour, serve a useful signalling function, since the interests of each person are best known by the person herself or himself. As Amartya Sen aptly puts it, “Doing good is not an easy matter with informational deficiency” (Sen 1984). One has to only recollect O Henry’s story ‘The Gift of the Magi’ to see how the pursuit of altruism can lead to frustration. Social businesses need to therefore tread between the Scylla of market failures from externalities and the Charybdis of informational deficiency. A safeguard against messing up the market mechanism is, however, provided by the stipulation of running social businesses at least on a no-loss basis, which provides a bottom line for using the market as a disciplining force. Overall, it may be more useful to judge the comparative merits of non-profit-maximising behaviour of social businesses in particular practical contexts rather than in terms of any given notion of efficiency or optimality of market mechanism.

The problem of informational deficiency is also linked to business risks. Private capitalists or their financiers take risks while investing in new business ventures. They are willing to undertake the risk of business failure because of the lure of earning profits; in fact, the riskier the investment, the higher are usually the expected returns from profits. Donors and philanthropists, however, may feel less comfortable with the idea that the social businesses they are investing in may, in some cases, fail to deliver the goods, and they may therefore like to see strict pre-project scrutiny in place. For example, can enough market segmentation be ensured so that the benefits from the products and services intended for the poor do not go to non-poor consumers? Or, given the “public good” characteristics of these products and services, will there be a need for social campaigns to create demand? Moreover, while profits and shareholder dividends are taken as performance yardsticks of profit-motivated businesses, it will be difficult to find one such single measure of success for a social business, so that the performance of each one has to be evaluated in terms of meeting its

particular avowed social objectives. A possible approach may be to examine the *social relevance* of the project that may appear obvious in a broader context rather than focusing on any narrowly interpreted impact assessment. How far the social business campaign can create an impact will perhaps depend to a large measure on the resolution of these issues. Motivating the institutions and individuals with enough capital to embrace the idea, of course, remains a more fundamental challenge.

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A Puzzling Stylized Fact about the Term Structure of Credit in the Banking Industry of Bangladesh

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Abstract

This short note identifies and explains a puzzling fact about the term structure of credit in the banking sector in Bangladesh. Over the last twenty years or so Bangladesh economy has experienced significant structural shift from agriculture to manufacturing and service sector. As the economy shifts from shorter to longer cycle of production, the composition of term structure of loan is also expected to shift from shorter to longer term. As the economy becomes more industrialized, the demand for longer term credit increases. But the reality is that the shares of short and long term credit have been surprisingly stable over the last thirteen years at around 80 and 20 percent respectively. We argue that some combinations of both supply and demand side factors as well as stringent government regulations are responsible for the stable ratio of long term to short term credit.

1 Introduction

Over the last 20 years, the Bangladesh economy has experienced sustained economic growth of about over 5.5 percent per year, on an average. We all know the driving forces of this growth: the astonishing growth of ready-made garments, remittances, and growth in the service sector has largely contributed to this sustained growth. However, we have very little knowledge about how this growth has been financed. What are the relative roles of financial intermediaries, debt-financing and equity financing? In fact, it is argued that the engines of growth have been fueled by the banking sector alone in the absence of a well-developed capital market and effective non-bank financial institutions¹. One of the driving forces of the growth of the real economy – the RMG sector – is largely bank-dependent.

It is important to note that credits are heterogeneous and they have differential impact on growth (Levine, 1997). The impact of credit on growth critically hinges on the use (e.g., industry, trade, agriculture, etc.) and term structure (short term vs. long term) of credit. There is a growing body of literature that shows the association between longer maturity of bank credit to the private sector and economic growth (Caprio and Demirgüç-Kunt, 1998). Generally, economic growth increases as

savings are invested in long-term assets. Credit products with longer maturity are essential for financing larger projects with higher returns. Investment in large projects such as heavy industry, infrastructure, etc. determines the course of long term growth of the economy (Kpodar and Gbenyo, 2010). While credit maturity varies substantially across countries, it is found that countries with higher credit maturity have strong institutions, low inflation, and large financial markets (Tasić and Valev, 2012). However, it is next to impossible to isolate the effect of term structure of credit on economic growth as the reverse effect is also strong.

Usually, short term credit is considered as a bank loan having maturity of less than a year. On the other hand, term lending or long term credit is defined as a loan repayable over a year. While long term loan is used for financing fixed capital for large projects, short term credit is used to finance working capital for a shorter period of time.

Short term finance is crucial for the sectors which have short production cycle such as agriculture and trade. In the developing countries which are predominantly agriculture based, short term credit overwhelmingly dominates the longer term ones. The composition of short and long term loan credit generally reflects the

structure of the economy. As the economy shifts from agriculture to service and manufacturing, the composition of term structure shifts from shorter to longer term. As the economy becomes more industrialized, the demand for longer term credit increases.

It is worth noting that short term and long term credit are not substitutes; rather they complement each other in financing the fixed capital and working capital. It is also argued that rollover of short-term loans enhances the firm-bank relationship and thus facilitates firms' access to long-term financing.

Therefore, one can envisage that as the economy of Bangladesh has experienced substantial structural shift from agriculture to manufacturing, the share of long term credit must have increased over time. It is worth noting that the share of industry in national income has increased from about 22% to about 29% in the last two decades (Bangladesh Economic Review, 2014). This shift implies that not only new industrial units have been set up, they have also become bigger and more capital intensive. This shift requires a proportional response from the financial side and it should be reflected in higher share of credit going to finance longer term large projects. But in reality, this is not the case.

2 The Puzzle

The shares of short and long term credit have not changed over the last one and a half decades despite significant structural shift in the economy as well as in the banking sector.

In fact, the share of long term loan in total loan has decreased slightly over the last one decade. In 2001, this share was about 20.44% and at end of 2013, the share dropped to about 18.72%². The shares of short and long term credit have been surprisingly very stable over the last thirteen years at around 80 and 20 percent respectively (Figure 1).

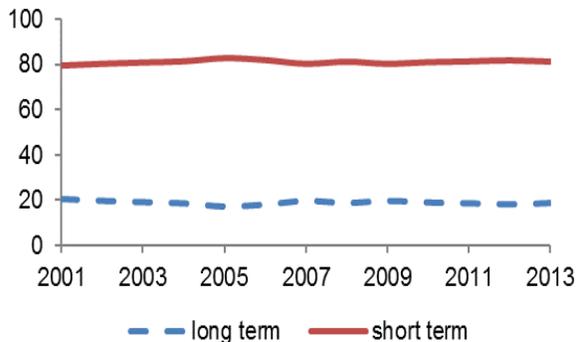


Figure 1: Share of long term and short term loan (%)

On the other hand, the Global Financial Report prepared by the World Bank documented a contrasting stylized fact - long-term credit was expanding substantially faster in emerging economies than short and medium-term credit (World Bank, 2016). This trend was also observed in the developed economies during the same period.

3 Evolution of Short-term and Long-term Loan

In order to set the tone of the context of the stylized fact, we first provide a brief overview of the evolution of short term and long term credit. The lion's share of the total banking system credit has been disbursed historically as short term loans and advances. Taka 3158 billion was disbursed as short term loan in 2012, which accounted for about 82% of the total credit. The outstanding long term lending amount of the overall banking sector in 2012 was only Taka 700.55 billion against the total bank credit of Taka 3,859.33 billion. Out of this amount, the PCBs provided Taka 469.07 billion (67%) for long term lending while Taka 174.73 billion (24.9%), Taka 39.62 billion (5.7%) and Taka 17.13 billion (2.4%) were given by the SCBs, SBs and FCBs respectively. The share of PCBs in total term credit was as large as the share of PCBs in total industry in 2012. In fact, the distribution of term loan across types of banks has changed over time in the similar fashion the industry-wide distribution has changed. PCBs' share of term loan surpassed SCBs' in 2005 (Figure 2 and Figure 3).

It is evident that banks prefer sectors which have comparatively shorter cycles of production. Hence they provide credit for trade, agriculture, working capital financing, etc. which have production cycle of 3 to 6 months. On an average, all banks made 34% of the total banking sector loans and advances for trade purpose. Working capital financing and agriculture have been accounted for 16% and 5% respectively of the total bank credits. Since short term lending involves lower risk of liquidity, banks rely on this type of credit for quick and higher return. Total short term loan outstanding was Taka 3,158.78 billion in 2012, of which about 66% was provided by Private Commercial Banks (PCBs) while about 20 percent by State owned Commercial Banks (SCBs). The rest was shared equally by Foreign Commercial Banks (FCBs) and Specialized Banks (SBs). The distribution of short term loan across types of banks is very similar to that of long term lending. In both cases, PCBs supplied two-thirds of the total loan (Figure 2 and Figure 3).

Among all types of banks, FCBs have been known for their inclination towards shorter term credit. On an

average, they made only 11.62% of their total credit for long term lending. FCBs' share in short term loan is twice as large as long term in 2012.

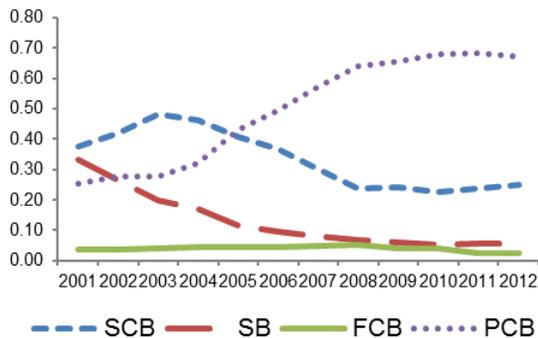


Figure 2: Share of long term credit by types of banks (%)

Data source: Bangladesh Bank

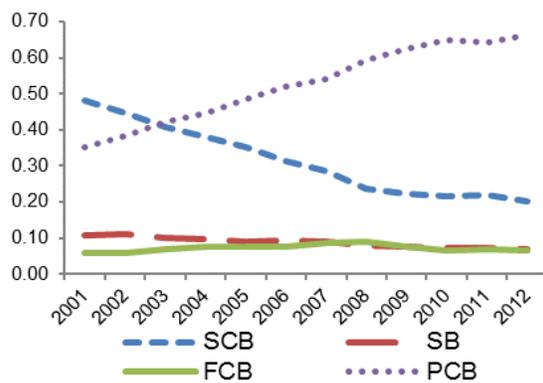


Figure 3: Share of short term credit by types of banks (%)

Data source: Bangladesh Bank

There are two Specialized Banks (SB)³ designed for supporting industrial projects. However, these banks have made around 23% of their total credit for term lending. Market share of SBs is slightly higher for long term lending.

4 The Constancy Ratio Despite Dominance of Private Sector Credit

Private sector banks arguably respond to the market demand more than the state owned banks. Therefore, one would expect that the composition of credit would reflect the structure of the economy more when the credit market is led by the private sector. This subsection will discuss when and why the transition of the composition of credit towards private sector occurred leaving the ratio of long term to short term credit constant.

The loans and advances of the banking industry, the lion's share of banks' asset, have experienced substantial structural changes over the last one decade or so with respect to the relative dominance of private vs. public banks. Market share of public banks has shrunk substantially over the period 2000-2012 (Table 1). In the year 2000, state owned commercial banks (SCBs) accounted for about 49 percent of the market while the state owned specialized banks (SBs) controlled about 17 percent. That is, about two-thirds of the total credit was disbursed by the public banks. The situation has reversed over time; the share of private banks started to grow fast and dominate the credit and deposit market.

On the other hand, private commercial banks (PCBs) and foreign commercial banks (FCBs) accounted for only about 34 percent of the total loans and advances in 2000. The amount of advances given by the PCBs increased from Taka 173.11 billion (29%) in 2000 to Taka 2,568.79 billion (67%) in 2012. About two-thirds of the total market share of advances has been captured by the PCBs in the recent years. The amount of advances by the PCBs has increased by about 1,380% in 2000-2012 as against 550% growth of the total market.

The share of privately owned banks started to pick up and share of public banks started to decline rapidly since 2000. In 2004, PCBs, for the first time in banking history, pumped more credit (Taka 403 billion) to the economy than the SCBs (Taka 377 billion). In this year, private banks (PCBs and FCBs) and public banks (SCBs and SBs) equally shared the total loans and advances. This is the period when this significant structural shift has occurred and since then private banks started to dominate the public banks in terms of market share. On June 30, 2012, the market shares of PCBs, SCBs, SBs and FCBs were 67%, 21%, 7% and 6%, respectively (Table 1).

Therefore, it indicates that the structural shift of the economy is closely associated with the changes in relative share of public and private credit, but not with the changes in the relative shares of long term and short term credit.

The reason behind the association between structural shift of the economy and the dominance of private sector credit is obvious. This private sector led growth has created huge demand for credit and private sector banks responded proportionately to this demand. The third generation banks which entered the market in the late 1990s also have contributed extensively in meeting the burgeoning demand. With the introduction of third generation banks, second and first generation private banks also aggressively expanded their coverage and products. While private sector banks came forward aggressively to meet the demand, public sector banks remained lazy and inefficient in capturing the growing market and gave rise to this shift in the banking sector in the mid-2000s.

Table 1: Total loans and advances (billion taka) and market share (%) by types of banks

Year	SCB	Market Share (%)	SB	Market Share (%)	FCB	Market Share (%)	PCB	Market Share (%)
2000	288.05	48.53	101.44	17.09	31.02	5.22	173.11	29.16
2001	315.84	45.92	106.14	15.43	37.37	5.43	228.42	33.21
2002	339.08	44.17	108.4	14.12	41.7	5.43	278.55	36.28
2003	358.49	42.31	100.98	11.92	54.4	6.42	333.47	39.35
2004	376.62	39.59	105.42	11.08	66.29	6.97	402.98	42.36
2005	402.46	36.02	106.37	9.52	78.2	7.00	530.29	47.46
2006	417.6	32.33	119.98	9.29	89.09	6.90	664.98	51.48
2007	422.18	28.80	128.66	8.78	114.05	7.78	800.85	54.64
2008	431.41	23.76	141.55	7.80	147.64	8.13	1,094.92	60.31
2009	475.72	22.76	153.15	7.33	145.65	6.97	1,315.96	62.95
2010	558.12	21.68	179.29	6.96	154.91	6.02	1,682.11	65.34
2011	710.34	22.11	222.78	6.93	190.95	5.94	2,088.79	65.01
2012	813.14	21.07	259.68	6.73	217.73	5.64	2,568.79	66.56

Data source: Bangladesh Bank

The structural shift of the economy that came with the constant ratio of long term to short term credit is apparently very puzzling.

5 What gave rise to the constant ratio of long term to short term credit? Plausible arguments

5.1 Supply Side Problems

One could argue that it is primarily due to the supply side problems. The lower share of long term deposits may determine the under supply of long term credit. It is often argued that the mismatch between short term deposit and long term credit is responsible for under supply of long term credit in the absence of markets for derivatives. That is, long term loans are highly illiquid and banks having higher share of assets in long term loans are more susceptible to liquidity risks. If there were instruments and secondary markets for trading loans (e.g., derivatives) the risk associated with long term loan would diminish. However, there is no such instruments in Bangladesh.

There are broadly 5 categories of deposit, namely, current and cash credit, saving deposit, special notice, pension scheme and fixed deposit. Fixed deposit accounted for about half of the total deposit whereas saving deposit was about 19% at the end of 2012. The

shares of other accounts varied between 7 and 8 percent (Figure 4). The composition of deposit has changed substantially over time. At the end of 2000, the share of fixed deposit was about 32% while the share of saving deposit was about 30%. That is, over time shares of fixed deposit has increased and saving deposit has decreased considerably. Share of current account has also decreased slightly from 12% in 2000 to 9% in 2012.

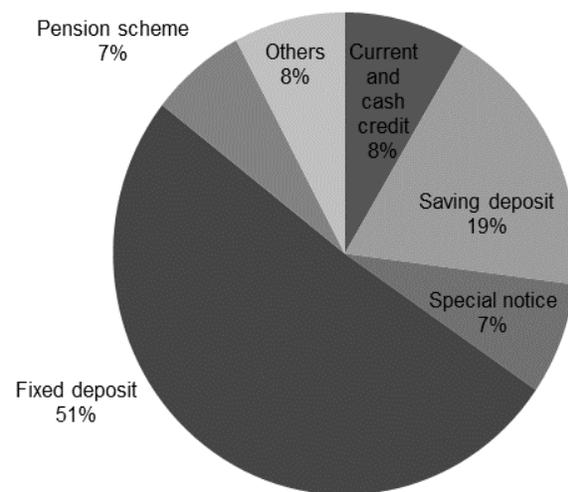


Figure 4: Types of deposit (31st December 2012)

Data source: Bangladesh Bank

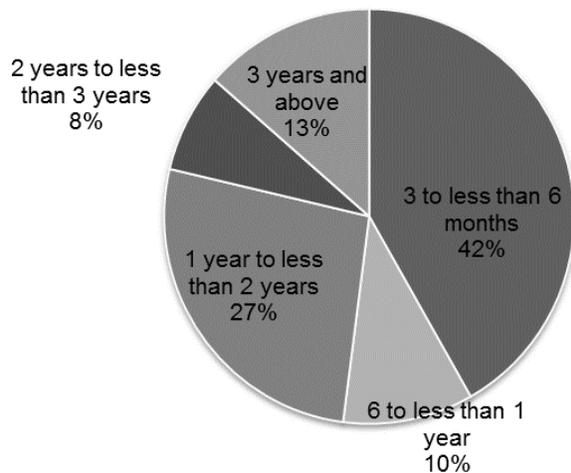


Figure 5: Term structure of fixed deposit (31st December, 2012)

Though the share of fixed deposit in total deposit has increased substantially over time, this increase is largely due to the increase in deposit with the lowest maturity of 3 to 6 months. The share of 3-6 month deposit has doubled from about 20% in 2000 to about 42% in 2012 (Figure 6). On the contrary, share of deposits with maturity 3 years and above has declined from 23% in 2000 to 14% in 2012. Deposit with 1-2 years of maturity saw a significant increase in mid-2000 but it dropped gradually from 2006. At the end of 2012, it constituted about 27 percent of total fixed deposit (Figure 5).

In short, the fixed deposit is about half of the total deposit and deposit with maturity of above 12 months is about half of the fixed deposit. That is, only about one-quarter of total deposit has maturity of 12 months and above. This partly explains why the share of long term credit is about 20 percent.

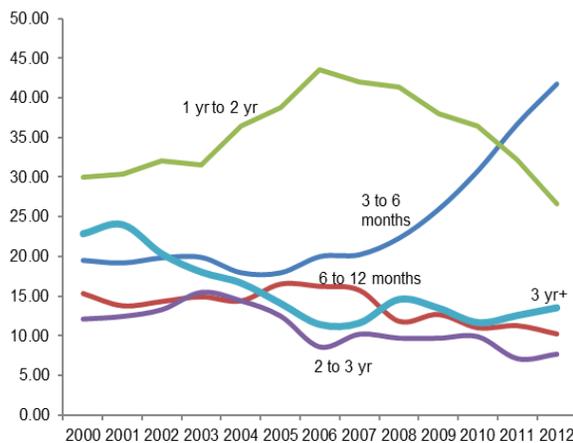


Figure 6: Trends in term structure of deposit (%)

Data source: Bangladesh Bank

Furthermore, the supply side problems also include banks' inadequate ability to assess different types of risks involved in term loan. It is also argued that private banks are making handsome amount of profit investing in short-term-low-risk assets. Hence, why would the banks take additional risks in investing in term loan? This indicates that there are still ample arbitrage opportunities to make profit relying largely on short term loan.

5.2 Demand Side Problems

The alleged 'under-supply' of long term credit can be attributed to demand side problems too. It is also argued that the lower supply of long term loan has been due to the lower demand. The economy of the country has not yet grown to the extent that requires greater investment of savings in longer term credit; large number of short term loans may be sufficient to support the growth of the real sector. That is, the current mix between short and long term loan may not be 'sub-optimal', given the current structure of the economy.

Sectoral composition of credit and how it has evolved over time provides us with some demand side explanation of this puzzle. The largest share of banking sector credit, which is about 39 percent, went to finance trade in 2012. Industry sector stood second which is about 21 percent. About 13 and 8 percent went to finance working capital and construction respectively. The shares of credit to finance trade and working capital have increased over time while the share of agriculture has decreased. Industrial credit has remained more or less stable over the last one decade. (Figure 7).

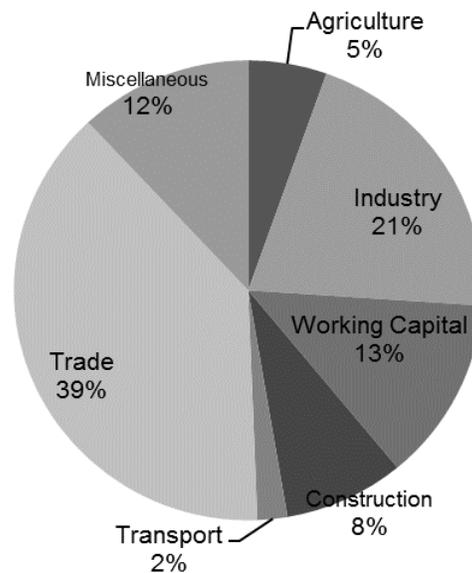


Figure 7: Sectoral composition of loans and advances (On June 30, 2012)

Data source: Bangladesh Bank

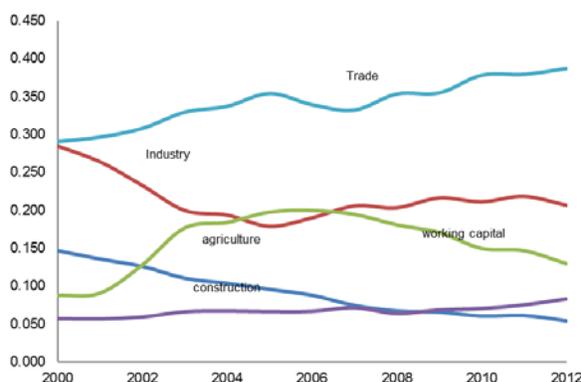


Figure 8: Trends in sectoral composition of loans and advances (%)

The composition of banks' credit portfolio has seen substantial changes over the period 2000-12 (Figure 8). While shares of agriculture and industry have gone down during this period, trade, working capital and construction have experienced a rise in share. The agriculture sector received about 15 percent of total credit in 2000 and this allocation went down drastically to about 5% in 2012. The banks provided about 26 percent of their credit to the industry sector in 2000 and this relative contribution has seen gradual decline over the study-period. In 2012 about 21 percent of banks' credit went to industry. Both working capital and construction sector saw about 1.5% increase of their share in this period. The share of total credit going to trading rose from 29 percent in 2000 to 39 percent in 2012. The rising share of working capital, trade, construction and others (include transportation, consumer finance, etc.) reflects that the economy has been on the path of becoming more commercialized and industrialized. However, the declining share of the long term loan to the industry sector reveals that the extent of industrialization is limited to manufacturing sectors where productions are characterized by short lived cycles and lower capital. However, it is important to note that state owned specialized banks such as Bangladesh Shilpa Bank (BSB) and Bangladesh Shilpa Rin Sangstha (BSRS) had gradually cut down their targeted industrial credit because of their recurrent loss.

The credit that goes to the industry and construction sector is largely the long term credit while all other credits, including trade and working capital are the short term ones. This composition sheds light on the fact that it is the growth of trade and working capital financing that contributed to the sustained increase in short term credit which matches well with the growth of the long term credit, leaving the ratio of the two constant. It indicates that the growth of the real sector is characterized by extensive commercialization of the economy as well as the burgeoning growth of the small and medium enterprises with short production cycles.

5.3 Stringent regulations

Apart from demand and supply side problems, stringent prudential regulations also hold back banks from investing in long term lending. Banks are restricted to take funded exposure on a single borrower up to 15% of their capital, and non-funded exposure up to 35% of their capital⁴. Bangladesh Bank further limits percentage of total credit portfolio that can be in the form of large loan (i.e. loan size exceeding 10% of Bank's capital) based on percentage of classified loan. For example, large loan can be maximum 56% of portfolio for non-performing loan (NPL) below 5%, maximum 52% for NPL exceeding 5% but less than 10%, etc. Moreover, minimum capital requirement based on risk-weighted asset also induces banks to shift from risky asset (e.g., large loan) to safer investment (e.g., government bond).

6 Conclusion

Some numbers – levels, ratios and elasticities – capture the structure of an economy. The constant ratio of long term to short term credit is such an important 'ratio' about which we lack knowledge. This note sheds light on this ratio in order to bring the issues of long term financing into forefront. While the constant ratio of long term to short term credit underscores the growth of trade and small and medium scale industries, it posits that the economy may be trapped in lower growth trajectory, for the given structure of finance. Since the growth of Bangladesh is largely self-financed, the economy may not achieve double-digit growth with the current supply of long term large credit⁵. If we want to lift the country to the middle income level in less than a decade, both supply and demand side problems in the credit markets should be addressed simultaneously. We need reorientation of the government regulations in the financial sector which will promote innovative tools to finance higher sustained growth, be it debt or equity financing, domestic or foreign. For example, a viable secondary market for mortgage securities backed by housing loans can increase liquidity of the primary lenders and broaden the asset bases of long-term funds providers such as pensions and insurance companies (ADB, 2009). In this context, it is worth quoting World Bank Group President Jim Yong Kim, "It would be a challenge to achieve high and sustainable rates of economic growth if countries fail to invest in schools, roads, power generation, electricity distribution, railways and other modes of transport, and communications. Private sector construction of plants and investment in machinery and equipment are also important. Without long-term financing, households face great hurdles in raising income during their lifetime—for example by investing in housing or education—and may not benefit from higher long-term returns on their savings."⁶

Endnotes

1. While the role of non-bank financial institution (NBFIs) has been increasing in supplying long term credit, this market is still in a nascent stage. The share of total assets of the NBFIs was only meager 4% of the banking sector's asset in 2012.
2. The data used in this note are largely collected from the Statistical Division of the Bangladesh Bank. Some of the aggregated data are taken from the Bangladesh Bank's website.
3. Now this number is one after the first quarter of 2010.
4. In case of funded facilities, the funds of the banks are directly used such as bank overdraft, cash finance, etc. On the other hand, non-funded facilities are those which do not involve any fund of banks directly such as letter of credit, letter of guarantee, etc.
5. The historical average of Foreign Direct Investment (FDI) over the last two decades is about 1 percent of GDP. Further, the share of Official Development Assistance (ODA) has also declined to about 1.5 percent of GDP (Bangladesh Economic Review, Ministry of Finance, 2015).

6. <http://www.worldbank.org/en/news/press-release/2015/09/14/long-term-finance-shortage-post-2008-crisis-blunts-progress-in-developing-countries>

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Financing for Overcoming Economic Insecurity; Bloomsbury Academics, 2015

Edited by Nazrul Islam and Rob Vos

This relatively short (edited) volume is part of the United Nations series on development, and packs an outsized punch on issues related to the latest theories and policy recommendations on poverty and economic insecurity. Over eight chapters and 248 pages, the fourteen authors analyze and discuss a wide range of theories and ideas pertaining to reduction of financial and economic insecurity faced by individuals, communities and nations across the world.

The editors are experts who have spent time both in academe and in international development agencies. Nazrul Islam is the Chief of the Global Economic Monitoring Unit of Development Policy Analysis Division (DPAD) of the Department of Economic and Social Affairs in the United Nations, and Rob Vos serves as the Director of the Gender, Equity and Rural Employment Division of the Food and Agriculture Organization (FAO) in Rome. In the introductory chapter they discuss the scope of the articles contained in the volume. The depth of academic and field experience that the authors as a group bring to the volume is impressive. The list of authors includes university professors in both Europe and the United States, center directors and those who work in the field.

There is little doubt that despite much positive news on poverty reduction and a plethora of ideas and real world experiments over recent decades, both poverty and economic insecurity remain very much a fact of life for vast number of the citizens of the world. Persistent and even increasing insecurity remains the fact of everyday life for billions of people who live in developed and developing nations.

In the introductory chapter, the editors rightly identify a paradox - the persistent co-existence of economic insecurity with reduction in global poverty. Since overall incomes have risen dramatically in recent decades lifting hundreds of millions from absolute poverty not just in China and India, but across the globe, one would normally expect an increase in economic security. However, this has not transpired. Economic insecurity has continued to persist and even risen for people across the globe for different reasons.

So the question of how to attack the twin problems of poverty and insecurity remains highly pertinent. The

unexpected episodic shocks such as the 2008 global financial meltdown and the resultant Great Recession in many industrialized nations have further reinforced the importance of better understanding these problems to find effective solutions. This book, as the editors explain, is “a contribution to the knowledge pool” that is necessary, if not sufficient, to address the question of pernicious and endemic economic insecurity.

In Chapter 2, “Globalization, Offshoring, and Economic Insecurity in Industrialized Countries,” Milbert and Winkler explain how the offshoring of jobs to low wage economies from the developed countries has increased the economic insecurity of workers in the developed nations. Part of the reason is that along with globalization there has been a marked shift of economic risk from the state and corporation to the individual worker and his family. The growth and high profits from globalization and outsourcing has come at the expense of the working and the middle class in the West. The authors identify several models - Anglo-Saxon, Mediterranean, Rhineland, and the hybrid model called “flexicurity” - which fall on a spectrum of varying combinations of “employment protection” and “public spending.” For example, the Anglo-Saxon model found in the United States combine low employment protection with low levels of public spending. They conclude, higher public spending as found in European countries is not as helpful in enhancing workers economic security as channeling profits to productive investment, as opposed to giving these to equity holders as dividends and stock buy backs.

In Chapter 3, “Managing Financial Instability in Developing Countries: Why Prudence is Not Enough,” Akyuz makes the case that greater mobility in capital inflows and outflows has contributed to increased volatility and income insecurity in the developing countries. He argues that such massive movements in capital, often speculative, greatly accentuates the boom-bust cycles. He notes that managing such capital flows is even more important than maintaining price stability. He discusses strategies for minimizing the negative impact of capital inflows - macroeconomic/monetary, regulating the flow of capital, and building up reserves to counter and stabilize these capital movements.

In Chapter 4, “Insurance, Credit, and Safety Nets for the Poor in a World of Risk,” Clarke and Dercon explore how insurance can be more effectively delivered to the poor. They make the case that the poor households in low-income economies face substantial risks in their lives. They identify two approaches to dealing with the problem - the traditional “asset-focus” approach which neglects risks, and the new “vulnerability” approach that gives appropriate weight to risk. The recent popularity and spread of micro-credit programs has enhanced the asset-focus approach. However, a more effective poverty reduction and income security approach will combine the asset-focus with the risk reduction approach. The micro-credit programs also play an insurance role, but that ameliorates only small shocks. Large catastrophic negative shocks are left unattended by such insurance. The authors discuss the synergies between formal and informal insurance programs that are organic to many poor societies.

In Chapter 5, “Assessing the Success of Micro-insurance Programs in Meeting the Insurance Needs of the Poor,” Mosley argues economic vulnerability is a basic threat for the poor, and creates a vicious cycle keeping them from breaking out of the poverty trap. The lack of insurance available to the poor is an important part of the problem. If the poor had access to more adequate insurance against negative income and asset shocks, the prevalence of poverty would have been much lower. Micro-insurance provides some relief. It is defined as, “the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and risk of cost control.” There has been an historic shift from thrift or savings as the foundations of finance (to over poverty) to debt. He believes that this is partly because of the common misconception that the poor cannot save. The literature is replete with evidence that the poor have sophisticated mechanisms for savings to smooth their consumption patterns and to reduce risks. They conclude that there is substantial evidence that micro-insurance, when properly designed and implemented, may become a powerful tool against poverty.

In Chapter 6, “Assessing the Insurance Role of Microsavings,” authors Hulme, Moore and Barrientos share empirical details about the existing micro-insurance programs, discusses their impact, and offers solutions to enhancing their impact. There is a vast demand for insurance among the poor households (particularly those that are female-led), which is currently unmet in the market. The past attempts failed largely due to poor configurations of the product (supply), which the micro-insurance programs are dealing with. However, these have focused mostly on health and life risks, as opposed to assets and weather related uncertainties. He offers various suggestions in which micro-insurance can expand in poor-friendly

manner. Given high levels of positive externalities of such insurance, there is a strong case of the state to fill the gap left open by the private sector in these markets. Indeed micro-credit, micro-saving and other poor-focused programs serve as “quasi-insurance” programs and they individually and collectively reduce risks for the poor households.

In Chapter 7, “Can Microfinance Reduce Economic Insecurity and Poverty? How Much and How,” Islam presents a good overview of the literature on micro-credit and micro-finance making the case that there are complementarities between credit, savings and insurance programs. Although the working class in the developed economies suffer from “episodic” insecurity, much more insidious is the “chronic” insecurity that exists when households are at or below absolute poverty. He discusses the vicious circle of poverty and economic insecurity using a diagram. The review of the global efforts in poverty reduction over the decades since World War II is instructive. He makes the case that such programs have vacillated between the “direct” or frontal attack on the causes of poverty and the more “indirect” approaches. In discussing the spread and effectiveness of micro-credit across the world, he makes the point that its rapid spread is *prima facie* evidence that the time was right for the idea of collateral free lending to the poor. This of course started with Muhammad Yunus and his Grameen Bank experiment in Bangladesh. His work and the Noble Prize (2006) helped spread the model rapidly in both the developing and developed nations. Islam goes on to discuss both the positive and negative evidence in support of micro-credit programs noting that it is not easy to quantify the gains. He makes the case that the “broader” positive impacts of micro-credit are much more obvious than the narrow income enhancing asset-building criteria used both by the supporters and detractors of micro-credit. The poverty and income security impact when narrowly measured may not be of the “first order” importance, given the evidence that the most dramatic reductions in the prevalence of poverty has happened not in nations such as Bangladesh with dynamic and numerous micro-credit programs, but in East Asian nations where such programs were absent.

In Chapter 8, authors Linnerooth-Bayer and Mechler argue in “Insurance against Losses from Natural Disasters in Developing Countries” that a major source of economic insecurity in low income countries are natural disasters. During the 1980-2004 decades, 95% of deaths from natural calamities were in developing nations. The resulting direct economic losses are estimated at \$54 billion. They argue that both in developing and developed nations, disasters are “under prevented.” Further insurance against such disasters is more difficult in poor countries because of covariance between the nature of risk, moral hazard and adverse

selection. They identify a number of insurance models - community-based model, full-service model, provider model, and partner-agent model. They note that unlike the rich countries, insurance against natural disasters in the poor countries is nearly nonexistent. It is noteworthy that for many small poor economies, a serious “natural” disaster is also a “national” disaster. There is a strong case for pooling risks across countries (donors or other developing countries) to more effectively deal with these risks. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is a good example.

Overall, this book provides an opportunity to catch up with the latest theories in poverty alleviation, reducing economic insecurity, and improving the welfare of the world’s nearly 3 billion poor people. The reader will benefit from incisive coverage of a wide range of theories and ideas that economists and development experts have put forward, and learned from many experiences from the field tried across the world in

recent decades. The author’s insights, analysis, discussions of best practices, and policy recommendations provide a wealth of resources for researchers, policy-makers, NGO experts, administrators, and even entrepreneurs (both social and for-profit) interested in questions pertaining to poverty alleviation. I highly recommend the book to the student as well as scholar of economic development, especially those who are interested in an inclusive model of development.

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