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Qazi Kholiquzzaman Ahmad
Editor

This Regional Conference Volume has been edited by
Jyoti Prakash Dutta

Bangladesh Economic Association
4/C, Eskaton Garden Road, Dhaka 1000
Phone : 9345996, Fax : 880-2-9345996
E-mail : becoa@bdlink.com
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Preface

I am pleased that Volume 19, No. 2 of Bangladesh Journal of Political Economy (BJPE) is ready for printing.

This volume includes papers presented at the regional conference held at Chittagong University. The articles have been duly reviewed by experts and modified as required. This particular volume has been finally edited, as a special arrangement for the Chittagong regional conference approved by the BEA Executive Committee, by Jyoti Prakash Dutta, Professor, Department of Economics, Chittagong University. It gives me great pleasure to commend this volume of the Journal to BEA members and others interested.

I wish to thank the authorities of the Chittagong University for their goodwill and cooperation. Special thanks are due to the convenor and members of the conference organizing committee and all others who have helped one way or another in the organization of the conference. The efforts and cooperation of the editor of this volume and the authors of the articles are deeply appreciated.

Qazi Kholiquzzaman Ahmad
President, Bangladesh Economic Association
Editor, Bangladesh Journal of Political Economy
Editorial Note

I am thankful to Bangladesh Economic Association (BEA) for giving me the rare privilege of writing few words as the editor of present volume of Bangladesh Journal of Political Economy published by BEA. This volume of the Journal is the outgrowth of the papers presented in a regional seminar jointly organized by BEA and Department of Economics, University of Chittagong, held in Chittagong on December 24, 2003. The title of the daylong seminar was 'Regional Cooperation, Industrialization and Public Expenditure Reforms'. The seminar was divided into three working sessions in which four papers - two each in the first and the third sessions held respectively on regional cooperation and industrialization - were presented. The second session was on public expenditure reforms in which, however, no formal paper was presented but the speaker presented a keynote idea highlighting the issue which generated intense and lively discussion participated by eminent economists of the country. The major attraction of the seminar was Professor Mosharaff Hossain - a famous economist of Bangladesh who was present in the seminar as the chief guest and delivered an eloquent, articulate and persuasive lecture on the overall economic scenario of Bangladesh since independence. The seminar was also enriched by the participation of another renowned economist of the country - Dr. Saifuddin Khaled, a former faculty of Chittagong University, presently on teaching assignment in Victoria University, New Zealand. Being an expert on econometrics and research methodology, Dr. Khaled offered very fruitful discussions particularly on two papers on industrialization based on econometric models, which contributed in a big way in subsequent revision of the papers. The present volume contains the papers thoroughly revised by the authors in the light of the ideas that came up in the seminar.

Finally, are few words on acknowledgements. On behalf of the Department of Economics, Chittagong University, I must extend my gratitude to BEA as well as Chittagong University for financial help in organizing the seminar and again also to BEA for arranging the publication of the papers in a separate volume of Bangladesh Journal of Political Economy. It will be an act of ungratefulness if I do not admit the contribution made by the former students of Department of Economics, Chittagong University, amongst whom the name at least one deserves special mention. He is Mr. Khorshed Quaderi whose overall relentless effort really made the seminar a success. My gratitude is also due to my fellow office bearers of BEA who took the trouble of going all the way to Chittagong and
contributed substantially in making the seminar gorgeous and attractive. Finally, I express my gratitude to my colleagues of the Department of Economics, Chittagong University, for their all out cooperation in holding the seminar. However, for any lapses of the seminar and any errors and omissions of this volume, I am alone responsible.

Jyoti Prakash Dutta
Professor of Economics
University of Chittagong
and
Vice President,
Bangladesh Economic Association.
1. Initial screening

2. Subsequent reviewer: papers from the conference are reviewed by the editor and the editorial board. The papers are then sent to the reviewers. The reviewers, in turn, submit their comments to the author, and the author submits a revised version of the paper if necessary. The revised version is then sent back to the reviewers for a final review.

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আমিরুল ইসলাম*

বিগত ২৪-১২-২০০৩ ইং তারিখে বাংলাদেশ অর্থনীতি সমিতি এবং অর্থনীতি বিভাগ, চট্টগ্রাম, বিশ্ববিদ্যালয়ের সূচনা উদ্বোধনে আধ্যালিক সেমিনার ২০০৩ চট্টগ্রাম বিশ্ববিদ্যালয় সমাজ বিভাগ অনুষদের অধিষ্ঠাত্রী অনুষ্ঠানে অনুষ্ঠিত হয়। দিনব্যাপী এ সমিতার উদ্বোধনী অধিবেশন, প্রথম, দ্বিতীয় ও
তৃতীয় কর্ম অধিবেশন-এ কয়েকটি পর্বে বিভক্ত ছিল।

উদ্বোধনী অধিবেশনে প্রধান অধিনির্দেশী হিসেবে উপস্থিত ছিলেন প্রফেসর মুক্তিরাম শ্যামলাল মোস্তফা, প্রফেসর মোকাফাতুল লুলু। উদ্বোধনী অধিবেশনের তৃতীয় পর্যায়ে সমিতির সভাপতি ডঃ কাজল কুমারী কলেজ বাংলাদেশের অধ্যাদেশ হয়।

প্রধান অধিনির্দেশী প্রফেসর মোকাফাতুল লুলু দ্বারা উদ্বোধনী অধিবেশনের প্রথম পর্যায়ে ব্যাপ্তিপ্রাপ্ত বিভিন্ন বিষয়ে ব্যাপক অভিমত ছিল। ক্যাপার্টের উদ্বোধনী অধিবেশন অনুষদের অধ্যাদেশ হয়।

প্রধান অধিনির্দেশী প্রফেসর মোকাফাতুল লুলু দ্বারা উদ্বোধনী অধিবেশনের প্রথম পর্যায়ে ব্যাপ্তিপ্রাপ্ত বিভিন্ন বিষয়ে ব্যাপক অভিমত ছিল। ক্যাপার্টের উদ্বোধনী অধিবেশন 
অনুষদের অধ্যাদেশ হয়।

* সরকারী অধ্যাদেশ, অর্থনীতি বিভাগ, চট্টগ্রাম বিশ্ববিদ্যালয়।
প্রথম কর্ম অধিবেশন হয়।

প্রথম কর্ম অধিবেশন ড. মইনুল ইসলামের সভাপতিত্বে বেলা ১১:০০ টায় শুরু হয়। এ অধিবেশনে প্রথম উপস্থিতি করেন প্রফেসর আবুল কালাম আহ্মদ ও প্রফেসর জেলাতি প্রকাশ দত্ত। প্রফেসর আহ্মদ তার প্রবন্ধে 'SASRC Cumulation নিয়া বাণিজ্য মন্ত্রণালয় এবং বন্দন মন্ত্রণালয় এর মধ্যকার বিবেচনা এবং এই বিরোধের অন্যান্য বিষয় প্রকাশ করেন। উপরাংশ পক্ষের অংশগ্রহণ করেন যে এ সমস্যার সমাধান সন্ধির সম্পর্কে তিনি ইতিহাস। মধ্যম পর্যন্ত হিসেবে তিনি রন্ধনী দ্ব্যা উৎপাদনের ক্ষেত্রে দেশীয় উৎপাদনের মোট উপকরণের এক তৃতীয়াংশ সংগ্রহের সুপারিশ প্রদান করেন। উপকরণ সংগ্রহের এ শর্ত পৃথিবী হলেই কেবলমাত্র রন্ধনীকরকদেরকে SAARC Cumulation Benefit থ্রেডের সুযোগ দেয়া যেতে পারে বলে তিনি মন্ত্বর করেন।

প্রফেসর জেলাতি প্রকাশ দত্ত দক্ষিণ এশিয়ায় মূল্য বাণিজ্য অঞ্চল গড়ে তোলার সম্ভাবনা এবং এর প্রক্রিয়া কি হতে পারে তা নিয়ে আলোচনা করেন। মূল্য বাণিজ্য এলাকা কার্যকর করার লক্ষ্যে তিনি বিভিন্ন দ্রব্যের করে এক ক্রীড়া সুবিধা সম্প্রসারণ এবং অন্য কিংবদন্তি বাণিজ্য দূরীরকারের উপর গুরুত্বমান করেন। উপরাংশ দ্বিতীয় প্রকাশের উপর ডঃ নিদাউ চন্দ্র নাগ এবং ডঃ মাহবুব উল্লাহ নিখুঁত আলোকএর হিসেবে অংশগ্রহণ করেন। ডঃ নাগ আঞ্চলিক মূল্য বাণিজ্যের তুলনায় বিশ্ব মূল্য বাণিজ্যের উপর গুরুত্বপূর্ণ করেন। মূল্য বাণিজ্যের ক্ষেত্রে Static gain এর তুলনায় Dynamic gain এর পরিমাণ তাকে বেশী বলে তিনি মন্ত্বর করেন। ডঃ আহ্মদের প্রকাশের উপর আলোচনা করতে গিয়ে তিনি SAARC Cumulation এর ক্ষেত্রে ৫১% মূল্য সংযোজন বিধান করার তুলনায় সত্যের সম্ভাবনা শুরু করেন। মূল সংযোজনের ক্ষেত্রে SAARC বিকৃতি দেশসমূহ কেন অপরূপে হলে না এ নিয়ে তিনি যুক্তি উপস্থাপন করেন।

ডঃ মাহবুব উল্লাহ ডঃ দরের প্রকাশের উপর মন্ত্বর করতে গিয়ে কর সুবিধা প্রাপ্ত দ্বারা স্বার্থ সংগ্রহের সময় বাণিজ্যের ক্ষেত্রে সতর্কতা অন্তঃপর দেন। ইন্ডিয়া প্রদান ২৪০৬টি প্রণয়ন ক্ষেত্রে বাংলাদেশের তুলনামূলক সুবিধা রয়েছে। বৃহৎ দেশ হিসেবে ভারতের উদারতার উপর SAARC এর সাফল্য নির্ভর করেছে বলে তিনি মন্ত্বর করেন। তাছাড়া অন্যান্য আঞ্চলিক সহযোগিতার তুলনায় এ অঞ্চলের আঞ্চলিক সহযোগিতার গতি অত্যন্ত মস্তর বলেও তিনি মন্ত্বর করেন।

সভাপতি ডঃ মইনুল ইসলাম বলেন, ভারত ও পাকিস্তানের মধ্যে বিদ্যমান রাজনৈতিক বিরোধ থাকার কারণে SAARC কে একক পেয়ে নেয়া কঠিন হয়। তাছাড়া এমন ক্ষেত্রে তুলনায় অন্য কথা আনেক বেশী উপায়। চোরাচালানের ব্যাপক মাত্রা কমানোর জন্য তিনি প্রথমেই অবৈধ বাণিজ্যকে বৈধ
মধ্যাহ্নে ভোজের পর ড. হরেন্দ্র কান্ত দে এর সভাপতিত্বে ত্রিতীয় কর্ম অধিবেশন শুরু হয় দুপুর ২.০০ টায়। এ অধিবেশনের আলোচনা বিষয় ছিল সরকারী ব্যাজ সংস্থার। প্রবর্তক ছিলেন প্রফেসর মাহবুব উল্লাহ। তিনি প্রবর্তক লিখেছিলেন তাঁর সুচিত্র বক্তব্য উপস্থাপন করেন। ADP-এর একমাস শেষ শাম প্রকল্প বাতাসের সুপারিশ করেন। নির্দেশিত আলোচক ডঃ বেলায়েত হোসেন বলেন যে রাজ্য আয় বৃদ্ধি না করতে ব্যয়ের অনুরূপতা মাত্র উন্নত করে সামঞ্জস্যপূর্ণ অর্জন করা সম্ভব। যোগাযোগের সীমাবদ্ধতা দুর করার জন্যে তিনি সরকারী ব্যয়ের উপর গুরুত্ব দেন। তবে তিনি প্রকৃত ব্যয় এবং বাড়ানো তহবিল এর মধ্যে ব্যবধান কমানোর সুপারিশ করেন।

মুক্ত আলোচনায় অংশ নিয়ে মাহতার আলম রাশিদী বলেন, ADP-এর আরাকা কমানো উচিত নয়।

বরং এর implementation quality বাড়ানো দরকার। যেহেতু আমাদের দেশের বেসরকারী বিশ্ববিদ্যালয়ের পূর্ব অর্থনীতি দেশের জীবন, তাই সরকারকে এ ব্যাপারে এগিয়ে আসা উচিত। অর্থনীতি সমিতির সাধারণ সম্পাদক ডঃ আবুল বারাকাতও সরকারী ব্যয়ের অপচায় রোধ ও ওপাউন বৃদ্ধি স্পষ্টকে মতামত বাক্য করেন।

তৃতীয় কর্ম অধিবেশন:

বিকেল চারটায় সমিতির সহ-সভাপতি ডঃ আবদুল্লাহ সাতার মদন-এর সভাপতিত্বে শিশ্নায়নের উপর তৃতীয় কর্ম অধিবেশন শুরু হয়। এ অধিবেশনের প্রথম প্রবর্তক ডঃ মোহাম্মদা বাবু এবং প্রফেসর জোনি প্রকাশ দত্ত বাংলাদেশের শিশ্ন উৎপাদনের উপর অর্থনীতি নিয়ে আলোচনা করেন। বাংলাদেশ শিক্ষকের প্রভুত্ব সম্পর্কায় লেখার ঘরে (Double Digit) এ উল্লম্ব হয়ে যাওয়া দেখা করে বাক্যকরণ করেন। বচ্চক এবং বহসমীকরণ মডেল ব্যবহার করে তারা নেমান বলে, অর্থনীতির তুলনায় রাজাশাহীর শিশ্ন উৎপাদনের ক্ষেত্রে সুনিশ্চিত গ্রন্থাবলী কেয়েলে সম্ভব।

তৃতীয় অধিবেশনের তৃতীয় প্রবক্তার উপস্থাপন করেন জনাব অমের মোহাম্মদ, বাঙালি বারো ও আ.ন.ম মইলুল ইসলাম। প্রবক্তার শিল্পীরা ছিল বাংলাদেশের শিশ্ন উৎপাদনের পূর্ববর্তী সমাধান একটি বিনিময় (ARMA) প্রক্রিয়া। লেখকদের দেখান যে, কোন তত্ত্ব ব্যবহার না করে অসুর্য অন্তর্ভুক্ত তথ্য ব্যবহার করে শিশ্ন উৎপাদনের পূর্বোক্ত সচ্ছন্দ।

একক্রমে তারা প্রচুর মডেল পরীক্ষা-নিষেধক করে দুটি মডেল প্রচলন হিসাবে বিচারক রাখেন এবং পূর্বাভাসের ক্ষেত্রে দুটির মধ্যে আবার একটি অক্ষরণ গৃহীত উল্লম্ব মত প্রকাশ করেন। প্রবক্তার উপর মন্ত্রণালয়ের নিউজারিয়া বিশ্ববিদ্যালয়ের অর্থনীতির অধ্যাপক ডঃ সায়ংকুমার খালেদ বলেন যে যেহেতু মেয়ের পূর্বাভাসের ক্ষেত্রে এ ধরনের মডেল উপযোগী হতে পারে তবে দীর্ঘকালীন বিচারকেন এ ধরনের মডেল পরিকল্পনা করা বাণিজ্যীয়।
প্রথম প্রদত্তটির উপর মনোযোগ করতে পিয়ে ডঃ সাইফুদ্দীন খালেদ বলেন যে মডেলটির পারফরমেন্স বাড়ানো সম্ভব যদি ব্যবহৃত ডাটা থেকে seasonality দূর করা যায়। এক্ষেত্রে আর্থিক নীতি অস্তিত্ব প্রকৃতির পরিবর্তে সূচির প্রভাব ফেলবে।

নির্ধারিত আলোচক বৃন্দের বক্তব্য ও যুক্ত অলোচকার পর বাংলাদেশ অর্থনীতি সাধারণ সম্পাদক ড. আবুল বার্কাহ মুন্মাদ জাপন করেন। পরে অধিবেশনের সভাপতি সেমিনারের আয়ুষ্ঠানিক পরিসমাপ্তি ঘোষণা করেন।
স্বাগত ভাষণ

জ্যোতি প্রকাশ দত্ত

সমানিত সভাপতি, বাংলাদেশ অধ্যুষিত সমিতির সভাপতি ড. কাজী খলীফাজামান আহমেদ, সমানিত প্রধান অর্থনীতি প্রশিক্ষণের প্রতিষ্ঠায় অধ্যুষিত বিভাগের মোহাম্মদ মোহাম্মদ হোসেন, ঢাকা থেকে আগত বাংলাদেশ অধ্যুষিত সমিতির কর্মকর্তা, আমানীত অর্থনীতি, শিক্ষা, সহকারী, সাংবাদিক এবং শিক্ষার ছাত্র-ছাত্রীবৃন্দ। অর্থনীতি বিভাগ, চট্টগ্রাম বিশ্ববিদ্যালয় ও বাংলাদেশ অধ্যুষিত সমিতির যৌথ উদ্যোগে আরোহিত আশ্রয়ণ সম্যকতা, সরকারি বাণিজ্য সংস্থার ও শিক্ষার শীর্ষমাঝের অনুষ্ঠিত সেমিনারে অর্থনীতি বিভাগের পক্ষ থেকে এবং আমার নিজের পক্ষ থেকে আপনাদের সবাইকে জানাই আমার অভিনন্দন ও অভিজ্ঞতা।

সমানিত সৃষ্টিসম্পর্কে,

মত আমি দিন আমরা আমারা পালন করলাম মহান্য সাধনার্থ ও মৃত্যুদ্যোগে বিজ্ঞানের সাধনাক্ষম বাষ্পিক। শীর্ষস্থিত সমাজের বিভিন্ন সামাজিক শ্রেণীর কাছে এই অবিচ্ছিন্ন সাধনার্থ জ্ঞানী ভিন্ন যানুনন্দন থাকলেও আমার বাণিজ্য কাছে সাধনার্থ অর্থ ছিল এক ও অভিজ্ঞ। আমি তাই, বেঁধে থাকার নুনুনপাত অর্থমূলক ও রাজনীতিক গ্রন্থিতা। অতচল সাধনার্থ অর্থনীতির দীর্ঘ ব্যাপি ও অর্থনীতির অর্থনীতি আকাশ ও প্রকৃতি তাঁতির ধন্যতার দিকে দুই দিন ঐতিহ্য গভীর হতাশা সাথে ব্যক্ত করবে যে সেই অর্থনীতি ব্যবস্থা পোষিতে আমার দুঃখজনকভাবে ব্যবহৃত হয়েছে। বিশ্বনাথকে সর্বশেষ রিপোর্ট অনুযায়ী বাংলাদেশের ৫০ সালের মাধ্যমে আজ যে কেন মনোঘাঢ়তা দরিদ্র। অতি সম্প্রতি চলাকালে প্রথম ব্যানোর কর্মসূচীর রিপোর্টে বাংলাদেশের কমপক্ষে দুই কোটি মানুষের যাত্রাবিদ্ধতার কথা উল্লেখ করা হয়েছে। দেশের ৫ শতাব্দী মানুষের আজ মোট সম্পদের ৩০ থেকে ৪০ শতাংশে মালিক।

দুর্বলায়িত অর্থনীতি ও রাজনীতির প্রমুখ ব্যাখ্যায় এই বৈশ্বিক উত্তরের বৃদ্ধি পাচ্ছে। এর মূল ব্যাখ্যা যদি নোবেল বিজ্ঞানী অধ্যুষিত জোসেফ স্টিগলিঙের ভাষায় 'বাজার অস্কার' হয় ভাবে শ্রুত হোলা যায়, বাজার ব্যবস্থা কিংবা ব্যবসায় হোলা উক্তি নয়। নোবেল বিজ্ঞানীর সাধারণত বাজার ব্যবস্থার বিরুদ্ধে এই রক্ষা শক্ত অবহেলা নেন না বরং বাজার সংগঠনের কথা বলেন যেখানে সামাজিক খাত সমুহে রাষ্ট্রের অভিনন্দন আক্ষগুণ নিশ্চিত করা যায়। নোবেল বিজ্ঞানী বাঙ্গালি অধ্যুষিত অর্থনীতি যদি সেন ও জগতারে একটি যুক্তির গবেষণা লেখায় (অর্থাৎ বাজার) ব্যবস্থার কথা বলেন যেখানে প্রতিটি মানুষ প্রকৃত সাধনার্থ ।

* সভাপতি, অধ্যুষিত বিভাগ, চট্টগ্রাম বিশ্ববিদ্যালয়।
South Asia has the lowest GNI per capita ($450) and some of the highest levels of child malnutrition in the world with 53 percent of children below the standards for weight by age. It has the highest rate of youth illiteracy -24% for males and 41% for females and, at 34%, the lowest rate of access to sanitation facilities. The economy, which grew by 5.5% a year in the last decade, in large part to growth in India, depends more heavily on agriculture than any other region. With only about 5 personal computers per 1000 people, South Asia lags behind other regions in access to information and communication technology.’ (Source: 2003 World Development Indicators Database, World Bank, 13 April, 2003.)

Economic growth in South Asia has been relatively fast and has been a central policy issue. But the region has a long way to go to achieve sustained and equitable growth. While the share of manufacturing in GDP has increased, the share of agriculture has declined. This has led to a decrease in employment opportunities in rural areas. The region has a high population density and a large share of the population still lives in poverty. The region also has a high rate of unemployment, especially among youth. The region faces a number of challenges, including access to education, health, and infrastructure. However, there is potential for growth in South Asia, as evidenced by the region’s large and rapidly growing population, its abundant natural resources, and its relatively low levels of debt.

The region’s policy environment has been generally supportive of growth, with many countries implementing pro-growth policies. However, there is still scope for improvement, particularly in terms of promoting investment and innovation. The region also faces challenges related to governance, corruption, and institutional capacity.

In conclusion, South Asia is a region with significant potential for economic growth. However, it also faces a number of challenges that need to be addressed if the region is to achieve sustained and equitable growth. The region’s policy environment has been generally supportive of growth, but there is still scope for improvement, particularly in terms of promoting investment and innovation. The region also faces challenges related to governance, corruption, and institutional capacity.
উপস্থিত সুধীব্রূন্ধ,
সেমিনারের পরবর্তী দুইটি কর্ম অধিরোধে উপস্থিত থেকে এবং মুক্ত আলোচনায় আপনাদের সুচিতিত ত মতামত ব্যক্ত করে আমাদের উৎসাহ ও সমুদ্ধ করবেন, এই আমাদের একাত্ত কামনা। আমাদের ছাত্র-ছাত্রীরা যাদের জন্য মূলত এই সেমিনারের আহ্লাজন করা হয়েছে, তারা যাতে উপকৃত হতে পারে সে ব্যাপারে সবার একাত্ত সহযোগিতা কামনা করছি।

পরিশেষে আপনাদের সবার প্রতি আবারও কৃতজ্ঞতা জানিয়ে আমার স্নাত বজ্র এখানে শেষ করছি।

সবাইকে ধনাদান।
The SAARC Cumulation: Should We Take it or Leave it?*

Abul Kalam Azad**

Section I

Introduction

Recently, the SAARC cumulation (SC) system approved by the European Union (EU) has given rise to serious uproar in Bangladesh, particularly among those directly or indirectly related with the Readymade Garments (RMG) and Textile industries. Although the SC is expected to accord immediate benefits to the RMG exports of Bangladesh to the EU countries, it is being argued that the system and its practice is sure to hurt the long term interest of the country as far as the future growth of the textile industries, and consequently of the RMG industry also, is concerned. Therefore, stopping implementation of the SC system will deprive the country of short run economic gains while its enforcement will harm the country in the long run. The study1 sponsored by the Ministry of Commerce, Government of Bangladesh on the subject suggests for enforcement of the SC on the ground that its implementation will not have any serious odd implication as far as the growth of the backward linkage industry, i.e., textile industry is concerned. Yet another study apprehends exactly these same odds to happen to our Textile industry following implementation of the SC and advocates for renegotiating its terms and condition2. In the present study, a middle ground is suggested which will allow our RMG exporters to retain the benefits of the SC without sacrificing the growth of the domestic textile industry. The layout of the study is as follows. The present introductory section, Section I, contains a detailed prognosis of the problem at hand. Section II presents the theoretical basis and empirical

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** Professor of Economics, Chittagong, University.
observations to support the position taken in this study, which is followed by concluding remarks and recommendations in Section III.

**Description of the Problem**

What is SC? The SC is a proposed tariff and trade arrangement. What is this tariff and trade arrangement? It follows from two other tariff and trade arrangements known as the Multi-fibre Arrangement (MFA) and the Generalized System of Tariff Preferences (GSP). When the General Agreement on Tariff and Trade (GATT) was first concluded in 1947, it was expected that its non-discriminatory trade principle would apply to all types of commodity-trade. However, developed countries by dint of their superior bargaining power were able to keep outside the purview of the GATT most of their trade in Agriculture and Textile where developing countries had a comparative advantage. They tried, and were successful also, to bypass the GATT rules in Textile trade by means of a separate arrangement with the exporting countries and this arrangement came to be known as the Multi-fibre Arrangement or MFA. The MFA provided the developed countries with a tool to protect their domestic textile industry against ‘excessive’ imports from the developing countries. Meanwhile, the Generalized System of Tariff Preferences (GSP) was instituted as an authorization to the developed nations to grant unilateral non-reciprocal tariff preferences to the developing countries. The EU adopted the GSP scheme and used it together with the MFA to grant differential tariff privileges to the developing countries in respect of trade in textile goods. Because of such differential tariff preferences, Bangladesh as a least developed country enjoys 100% duty-free access to the EU market whereas developing countries like India, Pakistan receive only 15% duty-exemption.

However, such preferential treatment under the GSP scheme hinges on compliance of the exported products with the EU Rules of Origin (RO). Previously in order to qualify for GSP benefits, Bangladeshi RMG exports to the EU market were required to undergo two-stages and three stages of conversions for woven and knit garments respectively. Although the differential tariff privilege accorded to the Bangladeshi exports placed them on a firmer ground in the EU market, the overall GSP utilization rate of Bangladesh declined over the years because Bangladesh did not have strong backward linkage industries and hence was unable largely to qualify for GSP benefits. In order to have an expanded opportunity for availing GSP benefits, Bangladesh had been asking for flexibility in the RO prescribed by the EU. A short-term derogation in the conversion requirement (‘two stages’ for knit and ‘one stage’ for woven garments) was granted in October 1997 and continued up to December 1998 under quota limit.
Later on, the EU RO was revised to *two stages* conversion requirements for both woven and knit RMG and the quota-limit was withdrawn. But even this was not good enough to raise the GSP utilization rate of Bangladesh. So Bangladesh would like to have something more favorable.

Under the EU GSP scheme, partial cumulation is permitted on a regional basis. Regional cumulation allows beneficiary member country of the regional grouping to avail GSP benefits on exports produced from imported raw materials from another member country of the same regional grouping provided the domestic value addition exceeds a certain percentage. The proposed SC is a similar privilege offered by the EU to the members of the SAARC region.

**SAARC Cumulation System**

So the SC system is a relaxation of the Rules of Origin applicable to the Bangladeshi exports (for that matter, exports of any SAARC member country) in order to obtain GSP facility in the EU markets. More specifically, under the SC system, the RMG exports from Bangladesh will qualify for GSP facility even if they are produced from yarn/fabrics imported from the SAARC countries provided the ratio of domestic value-addition is at least 51 percent.

**Conflict of Interest**

The relaxation of the Rules of Origin for Bangladeshi exports to the EU markets is, however, likely to affect the domestic industries asymmetrically. The RMG industry will be the direct beneficiary of this change in the Rules of Origin. In other words, the SC system will allow the RMG exporters to procure their raw materials (yarn/fabric) from the SAARC countries at a relatively cheaper price (than the domestic price of the similar products) and yet those RMG produced from imported fabric/yarn will qualify for GSP facility offered by the EU countries to the Bangladeshi exports. This means a direct saving by the RMG exporters in terms of cost of production. Consequently, the profit margin of the RMG exporters will rise and this will directly benefit those involved with the RMG industries.

On the other hand, the implementation of the SC system is likely to have negative effects on the domestic industries producing yarn/fabrics. Since the demand for these products by the RMG industry is likely to be diverted to the foreign sources (SAARC countries), the growth of the textile industry at home is likely to be adversely affected. Consequently, the textile industry in Bangladesh will experience a decline in the sales revenue following implementation of the SC system.
The preceding paragraphs, however, only describe the possible short run gains and losses of the specific industries. National losses from the implementation of the SC system are going to be even larger in the short run as well as in the long run. In the short run, the loss in terms of output and employment in the textile industry is likely to outweigh the savings made by the RMG industry from the cheaper imports of raw materials. In the long run, not only will the growth of the textile industry at home be adversely affected, the savings made by the RMG industry in the short run may also be far exceeded by the expensive imports of raw materials from the same sources.

BGMEA versus BTMA

So the battle line has been drawn. On the one side is the BGMEA—the association of the garments exporters of Bangladesh and on the other side is the BTMA—the association of the textile mill owners of the Bangladesh. The BGMEA maintains that because of the local supply constraint, about 90% of the raw materials for RMG is to be imported. Under the current two stages conversion requirement prescribed by the EU RO, the bulk of Bangladeshi RMG exports do not qualify for GSP benefits. If the SC is allowed, Bangladesh’s RMG exports will get an additional boost in the EU market regarding its competitive position.

On the other hand, the BTMA holds the view that under private initiative and government patronage, the backward linkage industry of RMG i.e. textile industry of Bangladesh has made significant progress in the recent years. Such progress has been made possible by the protection received by this industry from the Government in the past. Agreeing to SC will be tantamount to surrendering the competitive advantage presently Bangladeshi textile industry enjoys vis-a-vis its counterpart in the SAARC countries. Once the SC goes into operation, the local producers of fabric will lose their competitive advantage over their SAARC counterparts since the Bangladesh RMG exporters will be able to source their input (fabric) from the SAARC countries and still qualify for GSP benefit.

Reconciling the Conflicting Interests

Obviously, going for SC will jeopardize the interest of the textile manufacturers and not going for it will force the RMG exporters to forego the opportunity offered by foreigners (EU countries). So reconciling the mutually conflicting interests of the two important manufacturing sectors of our country will be the sole endeavor of the present study.
Section II

The Impact of SAARC Cumulation

Several studies on the subject of SAARC cumulation (SC) previously tried to analyze the impact of SC on the textile and apparel industry of Bangladesh. Two of the studies\(^1\), mentioned before, focused mainly on the possible production and trade displacement in Bangladesh following implementation of the SC. Both studies endeavor to demonstrate that the enforcement of the SC will not cause any serious and significant deviation from the present trends of production and trade flows in the textile and apparel industry. On the basis of such findings, the study by the Ministry of Commerce rather meekly suggested that the SC could be implemented since it would not spell any misfortune for Bangladesh. The other study, however, quite contrarily observed that the idea of the SC had been ill-conceived/ill-advised. So the study suggested for re-negotiation of the terms and conditions of the SC, since it would not bring, in its present from, any improvement in the textile and apparel industry. In the present study, we will focus on both the external and internal displacement of production and trade in the textile and apparel industry following implementation of the SC.

Analysis of the Present Production and Trade Structure of the Textile and Apparel Industry

An examination of the production and trade structure of the Textile and Apparel Industry of Bangladesh shows that the RMG exports recorded a compound growth rate of 14.8% between 1991-92 and 2001-02 (Table II.1). The import of fabric through back-to-back L/C grew at the (compound) rate of 9.9% during the same period. The lower growth rate of import of fabric compared to that of the growth of export of RMG indicates that import-substitution occurred in the fabric production in the last decade\(^2\).

On the other hand, if we look at the imports of cotton and yarn, we can see that both grew at rates roughly equal to or exceeding the growth of RMG exports. The imports of cotton recorded a growth rate of 17.3% and that of yarn recorded a growth rate of 13.2% between 1991-92 and 2000-01. This implies that in the case of yarn, not much import substitution occurred. This is further confirmed by the very little growth rate, if any, of yarn production in the country during the same period.
Table II.1: Production and Trade Structure of the RMG and Textile Sectors of Bangladesh

<table>
<thead>
<tr>
<th>Year</th>
<th>Production of Cotton (Thousand Tons)</th>
<th>Production Domestic Fabric for RMG (Million Kgs.)</th>
<th>Import of Cotton (Million Dollars)</th>
<th>Import of Yarn (Million Dollars)</th>
<th>Import of Fabric (B/L/C) for RMG (Million Dollars)</th>
<th>Demand for Fabric for RMG (Million Meters)</th>
<th>Export of RMG (Million Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-92</td>
<td>14</td>
<td>60.50</td>
<td>71</td>
<td>92</td>
<td>741.11</td>
<td>1182.57</td>
<td>1182.57</td>
</tr>
<tr>
<td>1992-93</td>
<td>16</td>
<td>60.60</td>
<td>82</td>
<td>127</td>
<td>874.39</td>
<td>1445.03</td>
<td>1445.03</td>
</tr>
<tr>
<td>1993-94</td>
<td>26</td>
<td>51.50</td>
<td>45</td>
<td>72</td>
<td>1033.39</td>
<td>1555.78</td>
<td>1555.78</td>
</tr>
<tr>
<td>1994-95</td>
<td>13</td>
<td>49.10</td>
<td>104</td>
<td>135</td>
<td>1522.73</td>
<td>2228.35</td>
<td>2228.35</td>
</tr>
<tr>
<td>1995-96</td>
<td>13</td>
<td>49.90</td>
<td>169</td>
<td>185</td>
<td>1432.72</td>
<td>2547.11</td>
<td>2547.11</td>
</tr>
<tr>
<td>1996-97</td>
<td>14</td>
<td>50.16</td>
<td>231</td>
<td>195</td>
<td>1265.55</td>
<td>3001.24</td>
<td>3001.24</td>
</tr>
<tr>
<td>1997-98</td>
<td>14</td>
<td>52.88</td>
<td>317</td>
<td>207</td>
<td>1529.28</td>
<td>3783.63</td>
<td>3783.63</td>
</tr>
<tr>
<td>1998-99</td>
<td>14</td>
<td>54.80</td>
<td>356</td>
<td>233</td>
<td>1389.05</td>
<td>4020.10</td>
<td>4020.10</td>
</tr>
<tr>
<td>1999-00</td>
<td>14</td>
<td>58.54</td>
<td>277</td>
<td>300</td>
<td>1580.91</td>
<td>4352.39</td>
<td>4352.39</td>
</tr>
<tr>
<td>2000-01</td>
<td>—</td>
<td>60.82</td>
<td>360</td>
<td>322</td>
<td>—</td>
<td>4860.56</td>
<td>4860.56</td>
</tr>
</tbody>
</table>

Source: Bangladesh Bank, Economic Trends, May 2002, Col. 1; Bangladesh Economic Survey, different issues, Col.2; MOT and BTMA, Cols.3-7; Bangladesh Bank, Import Payments 2000-01, Cols.4,5,6; EPB, Col.8.

Production and Trade Structure of the Textile and Apparel Industry without SAARC Cumulation

Although according to BBS data, the domestic production level of yarn remained static between 1991-92 and 2000-2001, with a decline of output in the first half of the decade (i.e. first half of 90’s) and later rising to the previous level, the EPB and the Ministry of Textile (MOT) reported a growth rate of 14.23% between 1993-94 and 1999-2000 (Table II.2). Anyhow, following the figure reported by the EPB and the MOT, we projected the growth of domestic yarn production for the period 2000-2001 to 2003-2004. For the same period, we projected the growth of demand for fabrics for the production of RMG. In doing so, we used the input (fabric) requirement reported by the EPB and the MOT for the year 1999-2000. Further, we used the assumption that input requirement would grow at the same rate of the growth of output i.e. the growth of the RMG exports. By subtracting the domestic production of yarn from the total demand for yarn, we arrived at the figures for imported yarn for RMG. For estimating the domestic supply of fabric for RMG, we computed the ratio of the same to the total demand for fabric by the RMG
### Table II.2: Domestic Supply of Yarn and Fabric for RMG and Cash Subsidy

<table>
<thead>
<tr>
<th>Year</th>
<th>Production of Yarn (Million Kgs.)</th>
<th>Domestic Fabric for RMG (Million Meters)</th>
<th>Share of Fabric (B/B L/C) in total Export (percent)</th>
<th>Domestic Fabric as % of total fabric used in RMG Export (percent)</th>
<th>Cash Subsidy (Million Dollar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-92</td>
<td>—</td>
<td>—</td>
<td>63.01</td>
<td>—</td>
<td>0.64</td>
</tr>
<tr>
<td>1992-93</td>
<td>—</td>
<td>—</td>
<td>60.51</td>
<td>—</td>
<td>0.58</td>
</tr>
<tr>
<td>1993-94</td>
<td>63.20</td>
<td>45</td>
<td>66.42</td>
<td>5.06</td>
<td>1.94</td>
</tr>
<tr>
<td>1994-95</td>
<td>96.50</td>
<td>104</td>
<td>68.33</td>
<td>9.91</td>
<td>7.21</td>
</tr>
<tr>
<td>1995-96</td>
<td>113.00</td>
<td>169</td>
<td>56.25</td>
<td>13.04</td>
<td>10.77</td>
</tr>
<tr>
<td>1996-97</td>
<td>116.80</td>
<td>231</td>
<td>55.04</td>
<td>15.85</td>
<td>18.38</td>
</tr>
<tr>
<td>1997-98</td>
<td>139.70</td>
<td>317</td>
<td>49.90</td>
<td>17.93</td>
<td>49.68</td>
</tr>
<tr>
<td>1998-99</td>
<td>146.70</td>
<td>356</td>
<td>42.99</td>
<td>18.97</td>
<td>95.87</td>
</tr>
<tr>
<td>1999-00</td>
<td>167.57</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: BTMA, MOT, EPB, Bangladesh Bank.

sector for the period from 1993-94 to 1998-99 and then projected those ratios for the years up to 2004, by extrapolation using simple time-trend values. This in turn enabled us to compute the domestic supply of fabric for RMG for the period between 2000-01 and 2003-04 (Table II.3). The estimation of domestic supply of fabrics together with the total demand of fabrics for RMG allowed us to arrive at the figures for imported fabric for RMG-production during the same period. The values for the import of cotton and export of RMG have been projected on the

### Table II.3: Projection of Production and Trade Structure of the RMG and Textile sector of Bangladesh (2000-01—2003-04)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production of Cotton (Thousand Tons)</th>
<th>Production of Fabric of Yarn for RMG (Million Kgs)</th>
<th>Requirements of Fabric for RMG (Million Meters)</th>
<th>Import of Fabric for Yarn for RMG (Million Kgs)</th>
<th>Import of Fabric for RMG (Million Kgs)</th>
<th>Export of RMG (Million Dollar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>14</td>
<td>191.42</td>
<td>576.54</td>
<td>2352.25</td>
<td>507.41</td>
<td>1775.71</td>
</tr>
<tr>
<td>2001-02</td>
<td>14</td>
<td>218.66</td>
<td>736.67</td>
<td>2700.39</td>
<td>582.50</td>
<td>1963.72</td>
</tr>
<tr>
<td>2002-03</td>
<td>14</td>
<td>249.77</td>
<td>931.56</td>
<td>3100.04</td>
<td>668.72</td>
<td>2168.48</td>
</tr>
<tr>
<td>2003-04</td>
<td>14</td>
<td>285.32</td>
<td>1168.02</td>
<td>3558.85</td>
<td>767.68</td>
<td>2390.83</td>
</tr>
</tbody>
</table>

Note: *actual values.
basis of respective growth rates obtained, by fitting exponential trend line to the
time-series data for the period between 1991-92 and 1999-2000. For the cotton
production, the last available figure from the BBS has been quoted for the period
from 2000-2001 to 2003-2004 as no growth was observed in the preceding period.
The exercise reveals that in the year 2004, the terminal year of MFA, the domestic
yarn supplied to our RMG will increase to about 37% of total demand for RMG
production. In the same way, the domestic supply of fabrics for RMG production
will increase to about 33% of total demand for fabrics by the RMG sector.
However the growth of the domestic supply of both yarn and fabrics is somewhat
‘phony’. As mentioned before, the BBS has reported an almost static production
of yarn between 1991-92 and 2000-01 while BTMA and also EPB claim that yarn
production increased by about 14% during the same period. In the case of fabric
also, the same story goes. According to the BBS data, while fabric production
actually declined between 1991-92 and 1999-2000, the supply of fabric for RMG
production recorded a rapid increase according to the BTMA and the MOT. One
explanation for this observed contradiction in the production of yarn and fabric
may be that while total production declined or remained static, some of the
existing production of yarn and fabric were diverted towards the RMG sector by
the ‘lure’ of generous cash-incentive given by the Bangladesh Government under
the cash compensation scheme. This is reconfirmed by the strong negative
correlation between the growth of cash subsidy and the decline of imports of
fabrics and accessories through back-to-back L/C (the Pearsonian coefficient of
correlation being -.98). The strong negative correlation between the growth of
cash subsidy and the decline in the imports of fabrics, yarns and other accessories
under back-to-back L/C while indicates the replacement of imports by domestic
supply, it also suggests the dependence of the latter on the former at the same
time. And if this dependence is strong enough (there are also reasons to believe
so), the proposed reduction in the rate of cash subsidy from 25% to 15% is likely
to have a negative impact on the replacement of imports by domestic supply in the
case of yarn and fabrics in the future. In such a situation, the shares of domestic
supply of yarn and fabrics are going to be even smaller than those projected for
the year 2004.

Analysis of the Production and Trade Structure of the Textile and
Apparel Industry with SAARC Cumulation

Simple micro economics tells us that the rational producers will try to maximize
their profit. In order to do this they may want to raise the price of their product or
minimize the costs of inputs or both. Since our RMG exporters sell in a
competitive international market, so they are the ‘price-taker’, that is, for our
RMG exports, price is given. So the other alternative left for our RMG producers is to try to source inputs in such way that the costs will be minimum. Presently, these producers receive subsidy from our Government if they use domestic inputs (fabrics). It is needless to mention that this subsidy defray a part of the cost of production of our RMG producers. Again, if the inputs are sourced locally, our RMG products qualify for tariff-exemption in the EU market under the GSP scheme. This is also equivalent to a reduction in the cost of production $^3$. On the other hand, if our RMG producers procure their inputs from abroad, neither they receive any cash subsidy from our Government nor do their products qualify for GSP benefits in the EU market. Naturally, the RMG producers will prefer domestic inputs (fabrics) to imported inputs provided there is no quality or supply constraint.

If $P$ denotes the price of Bangladeshi RMG product in the EU market, $C_B$ denotes the costs of input (fabrics) procured domestically in Bangladesh, $C_I$ denotes the costs of imported inputs, $T$ denotes the tariff exemption received under the GSP scheme and $S$ denotes the subsidy given by the Bangladesh Government to RMG exports produced from domestic inputs, the profit function of the Bangladeshi RMG exporters to the EU market may be given as follows:

$$\Pi_D = P - (C_B - T - S) \text{ or }$$
$$\Pi_D = P - C_B + T + S \quad \text{ .................(1)}$$

On the other hand, if our RMG exporters use imported input, their profit function will stand as -

$$\Pi_I = P - C_I \quad \text{ ................. (2)}$$

Now our RMG exporters, as rational profit-maximizer, will prefer domestic inputs as long as

$$P - C_B + T + S > P - C_I \quad \text{ .................(3)}$$

The condition (3) can be rewritten as

$$(C_B - C_I) < (T + S) \quad \text{ ................. (4)}$$

Condition (4) implies that our RMG producers will prefer Bangladeshi input (fabrics) to the imported inputs as long as the costs difference between domestic inputs and imported inputs is less than the sum of tariff exemption (in the EU market) and cash subsidy given by the Bangladesh Government. When the costs difference is just equal to the sum of tariff exemption and cash subsidy, the RMG producers will be indifferent between domestic inputs and imported inputs. And
in the case of cost difference exceeding the tariff exemption and subsidy, the RMG producers will definitely switch to imported inputs. This switching tendency from domestic inputs to imported inputs will increase as the value of the sum of tariff exemption and cash subsidy, \(T+S\), declines.

With the SC implemented, our RMG exports produced from imported inputs from the SAARC region will qualify for either a maximum 12.8% tariff exemption i.e. \(T=0\) or a minimum 2% tariff exemption i.e. \(T=10.8\%\). In both the cases, the value of \(T\) declines and so does \(T+S\). As we have seen that the switching tendency from the domestic inputs to the imported inputs increases with the decrease in the value of \(T+S\), so it follows that with the SC implemented, there will be a ‘switching away’ from domestic inputs to imported inputs from the SAARC region. Of course, the extent of such ‘switching’ from domestic inputs to imported inputs (from the SAARC countries) will depend on the percentage of our RMG exports produced from imported inputs that qualify for a full 12.8% tariff exemption in the EU market. If this turns out to be a small fraction of the total RMG exports, then not much ‘switching away’ from the domestic inputs to the imported inputs from the SAARC countries is likely to occur.

However, a much bigger switching is likely to take place in our external sourcing of inputs. We know that currently about 80% of inputs (fabrics) for our RMG production is procured from abroad—both SAARC countries and non-SAARC countries. Even in the year 2004, as high as 67% of inputs for RMG production will need to be imported. Presently, all Bangladesh RMG exports produced from inputs (fabrics) imported from the SAARC and non-SAARC countries receive similar tariff treatment in the EU countries. But when the SC is implemented, RMG exports produced from imported inputs from the SAARC countries will receive preferential tariff treatment (ranging from 2% to 12.8%). With this will be added the advantage of ‘lead time’ reduction. This will create room for additional profits to be made by the Bangladeshi RMG producers by simply ‘switching away’ from their non-SAARC sources to SAARC source for input (fabrics) supply. Thus following implementation of the SC there is going to be a big ‘switch’ from the non-SAARC to SAARC countries as far as the imports of fabric for RMG production is concerned.

The SC will allow our RMG producers to make savings on costs by switching the procurement of inputs (fabrics) from non-SAARC to SAARC countries. This savings by the RMG producers will be a net gain for themselves as well as for our country. But if the same cost consideration makes our RMG producers to divert their purchases of inputs (fabrics) from domestic source to other SAARC countries, the RMG producers themselves may benefit but there will be a corresponding production loss in our country, which will be a national loss for all of us.
The available information indicates that presently the cost difference between imported fabrics (from India) and local fabrics is about 40% i.e. imported fabrics is 40% cheaper than the locally procured fabrics. This 40% difference in input cost has been more or less neutralized so long by the cash incentive (25%) given by the Government of Bangladesh and the GSP benefit (12.8%) given by the EU countries, in total, about (25+12.8=) 37.8%. But, from the current fiscal year, the rate of cash incentive given by the Government will be reduced to 15%. This means that the effective cost difference between the imported and domestic fabrics will be widened for the RMG producers. In such a situation, the enforcement of the SC will further widen this margin of effective cost difference by the amount of GSP benefit (at least by 2%, if not by the full amount of 12.8%). Thus the enforcement of the SC is likely to tilt the balance in favor of imported fabrics at least to some extent. Consequently there is possibility of some domestic production loss in the wake of implementation of the SC together with the current reduction in cash incentive. The anticipation of such production loss has got some supporting evidence in the year- to-year growth of imports of cotton, yarn and fabrics in the past.

Table II.4 shows the year-to-year growth rate of imports of yarn, fabrics and RMG. In the year 1997-98, there was a temporary derogation of the Rules of Origin for availing GSP benefits. From October 1997 to December 1998, for woven garments ‘one-stage’ and for knit garments ‘two-stage’ conversions were required. This meant that woven garments produced from imported fabric would have qualified for GSP benefits whereas the conversion requirement earlier was ‘one stage’ higher for each type of garments exports. By implication, this temporary derogation of

Rules of Origin would have negative impact on the import of fabric because now woven garments produced from imported fabric would qualify for GSP benefit. On the other hand, in the case of import of fabric, the derogation of the Rules of Origin supposed to have a positive impact. And this is what we find from the Table above. In the year 1997-98, the import of yarn actually declined as expected and the import of fabric registered a 20.8% growth whereas the previous years had seen negative growth rates. This therefore confirms the view that the enforcement of similar derogation in the Rules of Origin through SC is likely to have a negative impact on the domestic production of fabrics. Then what to do about SC? If it is not enforced, our RMG exporters will be denied the opportunity of making savings in terms of costs of production by relocating the sources of inputs. Contrarily, if implemented, the SC is likely to result in the loss of domestic production by the textile producers. This point of production-loss in the domestic backward linkage industries has been highlighted prominently and rightly in the paper prepared by the MOT on the subject.
A Brief Evaluation of the Paper prepared by the Ministry of Textiles on the SAARC Cumulation

The apprehension that domestic production of fabric may decline following implementation of the SC has been rightly pointed out by the MOT in recommending against the enforcement of SC. The other arguments put forward are, however, not so strong. For instance, it has been pointed out that the mills under the BTMA with a yearly production capacity of 510 million meters produced only 123.3 million meters of woven fabrics which was slightly more than 17% of the total fabric requirement for exports in the year 2001. Despite 75% under-utilization of capacity, MOT recommends massive investment in the textile sector in the rather misplaced hope that Bangladesh will be self-sufficient in fabric production by the year 2004 or so. Similarly, the argument that after the enforcement of the SC, the EU countries will prefer the fabric producing countries when placing orders for RMG because of fresh acquaintance with them or because it will save their costs of transporting fabrics to the RMG producing country like Bangladesh is also not well-founded. The enforcement of SC may entice the EU importers to have rapport with the fabric suppliers in the SAARC countries, but imports of RMG from those countries will not qualify for zero-tariff access in the EU market.

<table>
<thead>
<tr>
<th>Year</th>
<th>Import of Yarn (Million Dollar)</th>
<th>Year-to-Year Growth</th>
<th>Import of Fabric (B/B L/C) (Million Dollar)</th>
<th>Year-to-Year Growth</th>
<th>Demand for Fabric for RMG (Million Meters)</th>
<th>Year-to-Year Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-92</td>
<td>92</td>
<td>—</td>
<td>741.11</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992-93</td>
<td>127</td>
<td>38.0</td>
<td>874.39</td>
<td>18.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993-94</td>
<td>168</td>
<td>32.3</td>
<td>1033.39</td>
<td>18.2</td>
<td>830</td>
<td></td>
</tr>
<tr>
<td>1994-95</td>
<td>200</td>
<td>19.0</td>
<td>1522.73</td>
<td>47.4</td>
<td>1150</td>
<td>38.6</td>
</tr>
<tr>
<td>1995-96</td>
<td>296</td>
<td>48.0</td>
<td>1432.72</td>
<td>-6.0</td>
<td>1322</td>
<td>15.0</td>
</tr>
<tr>
<td>1996-97</td>
<td>395</td>
<td>33.4</td>
<td>1265.55</td>
<td>-11.7</td>
<td>1486</td>
<td>12.4</td>
</tr>
<tr>
<td>1997-98</td>
<td>327</td>
<td>-17.2</td>
<td>1529.28</td>
<td>20.8</td>
<td>1802</td>
<td>21.3</td>
</tr>
<tr>
<td>1998-99</td>
<td>283</td>
<td>-13.5</td>
<td>1389.05</td>
<td>-9.2</td>
<td>1860</td>
<td>3.2</td>
</tr>
<tr>
<td>1999-2000</td>
<td>300</td>
<td>6.0</td>
<td>1580.91</td>
<td>13.8</td>
<td>2049</td>
<td>10.2</td>
</tr>
<tr>
<td>2000-01</td>
<td>322</td>
<td>7.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Finally, it is true that in a competitive free market world, every firm/industry/sector of production should compete and survive on its own efficiency. In our particular case, it is not economically just and efficient to ask the RMG sector to purchase inputs from the domestic textile sector at a price higher than the international one as much as it will be unjust to ask the domestic textile sector to supply inputs to the RMG sector at a price lower than the international one just to keep the latter internationally competitive. Nevertheless, the fact remains that the enforcement of SC, though may be beneficial for the RMG sector, may still lead to production-loss in the domestic textile sector and this may not be acceptable from the national point of view.

So, is there a solution that will allow the RMG sector to benefit from the implementation of SC without causing production-loss in the domestic textile sector? Here we present, first, the theoretical sketch of such a solution.

**SAARC Cumulation without the Loss of Domestic Production: A Theoretical Analysis**

**Short Term Benefits**

*Savings in terms of costs of production*

Under the GSP Scheme, the exports from Bangladesh to the EU countries are entitled to receive 12.8% tax-exemption. This means, Bangladeshi exporters are able to enjoy a cost-advantage of 12.8% vis-a-vis exporters from other countries in the EU market. However, in order to avail this cost-advantage, the EU Rules of Origin (RO) required previously that the inputs going into the production of Bangladeshi exports should have been entirely of local origin. But under the SAARC Cumulation System, Bangladeshi exports to the EU market will be able to enjoy the same advantage even if the inputs for exports of Bangladesh are sourced from India and other SAARC countries.

Now if the inputs for producing exports could be procured at the same costs from both domestic source and the SAARC countries, Bangladeshi exporters would be indifferent between the two sources. If, however, the inputs for exports could be sourced at, say x percent cheaper price, from the SAARC countries, then the cost-advantage of the Bangladeshi exporters in the EU market would stand at (12.8+x) percent. This would lead to a direct saving by the Bangladeshi exporters in the EU market as shown in the following diagram: Let us assume that SS is the supply curve of Bangladeshi exportables to the EU countries without GSP benefit. DD is the normal downward sloping demand curve (Fig.II.1). The equilibrium price and quantity of exportables are, respectively, OP and OE. Now, with the GSP benefit
included, the supply curve of Bangladeshi exportables shifts rightward to $S_3S_1$ and the equilibrium price decreases and quantity of exportables increases to $OP_1$ and $OE_1$, respectively. But with the introduction of SAARC Cumulation System, the supply curve of Bangladeshi exportables not only rotates to horizontal position but also shifts downward to $S_3S_3^*$. The new equilibrium price and quantity of Bangladeshi exportables shift to $OP_3$ and $OE_3$ respectively. Before implementation of the SAARC Cumulation System, the quantity of Bangladeshi exports to the EU markets was $OE_1$. On this amount of exports, the exporters' savings are equal to $P_1Q_1Q_1P_3$ and it is needless to mention that this saving is possible because of implementation of the SAARC Cumulation System. It may be pointed out here that the savings on costs result in two ways: (i) from both cheaper inputs and tariff-exemption, (ii) from tariff exemption only on exports hitherto not covered by GSP since those exports have been produced from imported fabrics.

**Gains from Trade Creation**

SAARC Cumulation System not only can create an opportunity for making savings on production costs of exportables, it also opens the door for reaping benefits from the additional trade-creation. We have assumed a downward sloping demand curve for our exportables in the EU market. The savings made by our exporters on the cost of exportables will enable them to reduce price and,

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*Figure II.1: Analysis of the Effects of the SAARC Cumulation System*

![Diagram of supply and demand curves showing the effects of the SAARC Cumulation System.](image-url)
consequently the market for exportables will expand to $E^2$. The gains from additional trade-creation are represented by the triangular area $Q_1Q_2Q_3$ in the figure above.

**Short Term Losses**

*Loss from Trade Diversion*

However, corresponding to the gains from the simple implementation of the SAARC Cumulation System, there are some losses also to be incurred. This loss will arise because of trade-diversion. Since the producers of our exportables are likely to procure inputs, after implementation of the SAARC Cumulation System, from the SAARC countries, our domestic input suppliers will lose business to the extent our exporters procure inputs from the SAARC countries. So the positive savings made by our exporters on input costs will be offset by the negative trade diversion effect on our domestic input suppliers, following implementation of the SAARC Cumulation System. In the extreme case when all the inputs for exportables are procured from the SAARC countries, Bangladeshi input producers will lose business equal to the area $P_1OE_1Q_1$ and the net loss will be equal to the area $P_1OE_1Q_1$ (net of savings made by the exporters equal to $P_1Q_1Q_2P_2$).

**Overall Short-Term Gains/Losses**

The overall gains/losses from the implementation of the SAARC Cumulation System will depend on the size of the rectangle $P_2OE_1Q_2$ and the triangle $Q_1Q_2Q_3$. If the area of $Q_1Q_2Q_3$ exceeds that of the rectangle $P_2OE_1Q_2$, then there are clear short-term gains to be had from the implementation of the SAARC Cumulation System. In the opposite case, however, the short-term loss is evident.

**Long-Term Loss**

*Growth of the Linkage Industries*

With the short term gains/losses we should take into account the long term losses arising from the impact of the SAARC Cumulation System on the growth of the backward linkage industries. Although we cannot venture to depict this loss diagrammatically, it is for sure that if the implementation of the SAARC Cumulation System diverts the domestic demand for inputs to the SAARC countries, it will impair the future growth our of industries producing inputs for our exportables.
Should the SAARC-Cumulation System Stay or Go?

The question that naturally arises is whether the SAARC Cumulation System should stay or go. The answer to this question becomes somewhat subjective. While it is possible to make an estimate of the gain and loss quantitatively for the short term, to make a similar estimate for the long term becomes rather complex and not so definite. Those who put more weight to the long term losses that are assumed to follow from the implementation of the SAARC Cumulation System, will reject the short term gain, if any, very lightly. According to them, if we go for the implementation of the SAARC Cumulation System, we may make short term gain but we may be loser in the long run. On the other hand, if we opt against the implementation of the SAARC Cumulation System, we will perhaps prevent the long term losses but the short term gains, if any, will be foregone.

So, is there a way that will enable us to avail the short-term gains without sacrificing the long run benefits? Here we suggest an alternative way and demonstrate that it takes care of both the short term and long term interests of the country. What is that alternative? It is a crafty implementation of the SC: (i) Go for the implementation of the SAARC Cumulation System and (ii) impose an export duty on the exportables, produced from imported inputs and destined for the EU countries (qualified for GSP facility), to match the GSP-benefit obtainable on our exports to the EU. The latter measure will take away the advantage of using the imported inputs over the domestic inputs following implementation of the SAARC Cumulation System. (iii) However, a certain portion of the exportables produced from the imported inputs and destined for the EU market may be exempted from this proposed export-duty provided that a corresponding pre-specified level of similar exports has been made using domestic inputs. (iv) The ratio of the exports made from imported inputs and qualifying for exemption from the export-duty vis-a-vis the exports made from domestic inputs will depend on the supply capacity of domestic inputs and the amount of expected increase in exports resulting from the implementation of the SAARC Cumulation System. This will put the supply curve S:S₂ (in the Figure) of our exports to the EU market a little higher than the one with simple implementation of the SAARC Cumulation System, SS₂.

The resulting gain from trade-creation, Q₁Q₂Q₅, though a little smaller, is nevertheless positive. There is also short-term savings in terms of input costs equal to P₁Q₁P₅. Additionally, the net short-term loss from trade-diversion, P₀O₂Q₅ and the long term loss in terms of negative effect on the growth of the backward linkage industries are both escaped. Thus a crafty implementation of the SAARC Cumulation System will enable Bangladesh to reap the short-term benefits without surrendering both the short term and long term gains.
In concrete terms, the abovementioned ‘crafty implementation’ of the SC may be interpreted as follows: We have seen that the domestic supply of fabrics for RMG will stand at roughly 33% of the RMG exports. So our exporters of RMG may be granted GSP certificate (Certificate of Origin Form A) for 200 taka worth export produced from imported inputs (fabrics) for every 100 taka worth export produced from domestic input (fabric). Otherwise, the exports of RMG (to the EU) produced from imported fabrics may be subjected to an export tax equal to the amount of GSP benefits (2%, if value-addition is less than 50%, or 12.8%, if value-addition is more than 50%) in order to qualify for the Certificate of Origin Form A to be issued by the Government of Bangladesh. The implementation of the SC in this manner is expected to prevent the loss of domestic textile production while allowing the RMG exporters to obtain GSP benefits on exports made from imported fabrics and also make savings in terms of costs of production from the cheaper imported inputs.

**SAARC Cumulation on Non-Textile Exports**

Another argument in favor of implementing the SC will be its possible beneficial effects on non-textile exports of Bangladesh to the EU market. Recently the EU has offered that everything but arms (EBA) from the LDCs may enter the EU market free of duty. This means that the SAARC cumulation rules can be applied to all sorts of products except the harmful ones like arms, drugs etc..

Table II.5 shows the commodities that are currently exported to the EU countries and which may benefit from the implementation of SC. Vegetables, fruits, spices,

**TABLE II.5 : Non-Textile Exports to the EU Countries**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>UK, Germany, Italy, France, Netherlands, Switzerland, Sweden, Belgium, Greece</td>
<td>3657</td>
</tr>
<tr>
<td>Fruits</td>
<td>Switzerland</td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td>UK, Germany, Denmark, Belgium, Ireland</td>
<td>10058</td>
</tr>
<tr>
<td>Stainless steel Tableware</td>
<td>UK, Germany, Netherlands</td>
<td>734</td>
</tr>
<tr>
<td>Spices</td>
<td>EU countries</td>
<td></td>
</tr>
</tbody>
</table>

bicycle, stainless steel tablewares etc. are presently exported to the EU countries from Bangladesh. We can import these commodities and parts thereof from India and other SAARC countries and may re-export them to the EU after full or partial processing in Bangladesh, taking the advantage of tariff-exemption given under the GSP scheme.

2005 and Beyond

The year 2005 will be a milestone in the evolution of the free trade regime worldwide. The previous 31st night would have seen the end of the MFA and January 2005 will welcome the return of textile trade within the fold of worldwide free trade regime envisaged by the WTO. Good or bad, it is true that Bangladesh has been one of the beneficiaries of the outgoing MFA regime. The year 2005 will see an end to such benefits flowing from the MFA. Consequently, Bangladesh will have to face competition in the international market from all the WTO member countries – not only from the countries of the SAARC region. Bangladesh will have to be ready to face fierce competition in all of its exports including the RMG exports. In that competition, the ‘key’ to success will be the competitive advantage enjoyed by Bangladeshi producers vis-à-vis their international counterparts— particularly in India and Pakistan.

Competitive Advantage & Spinning

Available information confirms the common idea that both India and Pakistan enjoy natural advantage over Bangladesh in producing yarn. This advantage stems from the supply of raw material (cotton), because both India and Pakistan produce cotton which Bangladesh imports from these two countries, among others. Since the raw materials are the major cost item in the spinning process, accounting for around 65% of the total yarn costs, Bangladesh will be trailing behind these countries as far as the production of yarn is concerned. Considering the glut in yarn supply in the international market, Bangladesh should consider, as a matter of policy, whether it should try to specialize in yarn production.

Competitive Advantage and Weaving

Weaving is the next higher stage after spinning in the textile production and therefore involves more processing than yarn production. Following the logic of Heckscher-Ohlin’s Factor-Endowment Theory, it is in this stage where Bangladesh can use its cheap labor supply, production skill and ingenuity to overcome the natural disadvantage in the lower ladder (spinning) of textile
production. The cost structure of new weaving projects show that in this stage of production Bangladesh stands at a comparable level with India and Pakistan as far as the cost of production of fabrics is concerned.

**Dumping by India and China**

Regarding the Indian and Chinese dumping practices in fabric supply, it may be pointed out that in the year 2005, MFA will be abolished and redress will be available from the WTO against ‘harmful’ dumping as both of them are members of the WTO.

**Financial Assistance**

Besides, Bangladesh will be able to provide, if she desires and can afford, indirect financial support to textile production via incentives to RMG exports and she can do so without violating the WTO-rule until her per capita income reaches 1000 US dollar benchmark.

## Section III

**Conclusions and Recommendations**

In the present study, we have examined the past growth and performance of our RMG and Textile sectors, their present state and future prospects both before and after the abolition of the MFA in the year 2004. We have also tried to analyze the impact of the SC on the performance of our RMG and Textile sectors.

It has been found that the EU takes about 70% of our Knit-RMG exports and more than 45% our woven RMG exports, which is indicative of the importance of the EU as a destination of our exports in general and RMG exports in particular. Again it has been observed that nearly 70% of fabric requirement of our knit-RMG exports and only about 20% of the fabric requirement of the woven-RMG exports are met from domestic source thus making them eligible for GSP benefits offered by the EU.

It has been further observed that if the RMG exports and the domestic supply of fabrics continue to grow at the current rates, the latter will meet roughly 33% of the total fabric requirement for the RMG exports in the year 2004.

The theoretical analysis of the impact of the SC has revealed that if the SC is not implemented, it will deprive Bangladesh from the short term benefits of savings to be accrued from cheap imported inputs, GSP coverage of RMG exports
produced from imported fabrics (from SAARC countries) and also from the additional exports resulting from the additional trade-creation. On the other hand, the exercise adequately demonstrated that the short term gains from the SC may be far outweighed by the production-loss due to trade-diversion effects and its negative impact on the growth of the domestic backward linkage industries to the RMG sector.

The theoretical exercise further demonstrates that a crafty implementation of the SC will enable the country to escape the negative trade-diversion loss and its effect on the growth of the domestic Textile industry. Since the domestic fabric supply for the export-oriented RMG is projected to stand at roughly 33% of the total demand, the said crafty implementation of the SC may be designed as follows:

Go for enforcement of the SC. But exports to the EU of RMG made of imported fabric and eligible for GSP may be subjected to an export tax equal to the GSP benefit (2%, if value-addition is less than 50%, or 12.8%, if value-addition is more than 50%). However, such export taxes may be waived for 200 taka worth RMG exports for every 100 taka worth exports of the same produced from domestic fabrics.

As regards the comparative advantage of Bangladesh in RMG and Textile production vis-a-vis India and Pakistan, it has been pointed out that Bangladesh’s natural advantage is likely to lie at the upper end of the manufacturing process. So Bangladesh should do better in specializing in cutting-making (RMG), fabric processing and weaving instead of spinning, at least initially.

Further it has been shown that Bangladesh’s RMG exports are likely to face stiff competition in the post-MFA period but Bangladesh, as an LDC, can take the advantage granted by the WTO of continuing present financial assistance to the RMG exports till her per capita income level reaches the 1000 US dollar benchmark.

Notes

Section 1


3. When the product of two or more countries of a regional group are used in manufacturing a particular commodity, conflict or uncertainties may arise regarding the originating status of the product. RO specifies the criteria for the determination of origin of different products in such cases for tariff purpose.

4. The stages of conversion are as follows:
   Stage 1: conversion of cotton to yarn (spinning)
   Stage 2: conversion of yarn to fabrics (weaving)
   Stage 3: conversion of fabric to RMG (cutting & making)


6. Currently, similar regional cumulation are allowed by the EU to countries belonging to three regional groupings, for instance, the Association of Southeast Asian Nations (ASEAN), Central American Common Market (CACOM) and the Andean group.

7. The BTMA claims that presently they supply roughly 20% of the fabric required for woven RMG and about 70% of the fabric requirement of the knit RMG.

Section II


2. Rahman & Bhattacharya op. cit. p.11.

3. It should noted that the duty rebate under the GSP is actually received by the importer of RMG in the importing country. Nevertheless, the effect of the scheme provides an edge to the Bangladeshi exporters over the potential competitors and works as a force similar to that causing rightward shift of the supply curve.

4. Domestic fabric supply for RMG, according to BTMA, was about 19% in the year 1999-2000 while the BGMEA claims it to be around 10%.

5. One study shows that price difference between Chinese fabric and Bangladeshi fabric is 43 to 51% in some cases. Since India is a rival supplier of China in Bangladesh, so the price of Indian fabric also should be similarly competitive. Dr. Martelli Associates, ‘Bangladesh Textile Study’, IFC, Washington, D.C, May 1999.

6. This is exactly what the MOT apprehends strongly. MOT, ‘Recommendation on the SAARC cumulation in respect of Five Categories of RMG exports to the EU under the GSP Scheme’, March 2002.

8. Because of cost advantage resulting from the use of imported inputs and because of huge supply of inputs (from imports) compared to domestic supply.

9. Although, according to BTMA, the rate of GSP-utilization has been 46% in the year 2001, around 35% of that took place in the knit-Garments exports. It is the woven-Garment exports which is our weak point as far as the domestic supply of fabric is concerned. And here the implementation of SC is likely to yield benefits.

References


Issues and Prospects of Free Trade Agreements for Bangladesh: Theory and Experience*

Jyoti Prakash Dutta**

1. INTRODUCTION

Regional cooperation or integration, as is often interchangeably used, particularly in the form of trade-related agreements, either bilateral or multilateral, have now become more than ever a global phenomenon. In fact, the world now is divided into several trade blocs. In almost all parts of the globe, Latin and North America, Western Europe, Africa, Southeast and South Asia; regional cooperation in one form or another, is at work today with varying degrees of integration of participating countries, which is usually considered as an important policy option in a second best world for growth and development. Bangladesh, as a member of least developed countries, also opted for this popular but not uncontroversial policy option only very recently in the mid 1980s through taking the initiative of forming SAARC (South Asian Association for Regional Cooperation) in 1985, although SAARC is not a trade agreement rather a broad forum for mutual collaboration in economic, social, cultural, scientific and technical fields. Later, however, in order to promote cooperation for pursuing common economic objectives of the region, SAARC countries decided to establish Preferential Trading Arrangement (PTA) the agreement of which was signed in 1993 as SAPTA or SAARC Preferential Trading Arrangement (the rounds I, II, and III have already been implemented in 1995, 1996, and 1998 respectively) and also embarked upon a program of establishing a Free Trade Area called South Asian Free Trade Area (SAFTA) by 2001. In order to reap the full benefits of cooperation through further liberalization of trade, the SAARC Chamber of Commerce and Industry (SCCI) has recently expressed its interest to form a SAARC Economic Union by 2008. These are all multilateral initiatives in South Asia. On the bilateral front, South Asian nations are also engaged in regional

* This paper was presented at the Regional Conference of Bangladesh Economic Association on Regional cooperation, Public Expenditure Reforms and Industrialization held in Chittagong University on 24 December 2003.
** Professor of Economics, Chittagong, University.
cooperation through creating Free Trade Areas (FTAs) on bilateral basis. For example, Srilanka and India have signed an agreement on FTA in 1998. Following the suits of other nations in the region, Bangladesh, very recently, has started showing her keen interest for bilateral free trade agreements with India, Srilanka and Pakistan and, with that end in view, has held several rounds of talks with these countries in the mean time. Her recent initiative to actively participate in the BIMSTEC (Bangladesh, India, Myanmar, Srilanka and Thailand Economic Cooperation) through a framework of agreement on FTA to be signed on February 10, 2004 in Bangkok, Thailand, and interest aired in the last OIC summit held in Malaysia to form an Islamic Common Market are quite indicative of present regime’s optimistic attitude towards one or other form of regional cooperation as an effective policy option for harnessing development potentialities of the country. The main objective of the present paper is to have an overview of the issues relevant for Bangladesh with respect to regional cooperation particularly in the form of FTA – both bilateral and multilateral, and the possible benefits and costs that could emanate from these agreements in the short–run as well as in the medium and long–run. Accordingly, the paper is structured as follows. Section 2 briefly presents different concepts or dimensions of regional cooperation. Section 3 dwells upon the theory of regional cooperation with special emphasis on FTA along with some of its major benefits and costs. Section 4 reports some experience of cooperation from across the globe. Section 5 illustrates the issues and prospects of SAPTA and SAFTA along with the bilateral talks of Bangladesh on FTA. Section 6 concludes the paper with some policy suggestions.

2. FORMS OF REGIONAL COOPERATION:

Regional cooperation may assume different forms. The simplest form of cooperation could begin with a sectoral approach, where contracting countries could select one or more specific sectors or areas for effective cooperation in the profiles of production, choice of technology, marketing, government policies, etc. The process of regional cooperation in Europe, in fact, started in this way following a proposal of the then French foreign minister, Robert Schuman, for pooling European coal and steel resources. In 1952, European Coal and Steel Community was established and by the end of 1954 nearly all custom duties, quota restrictions and other barriers to community trade in coal, coke, pig-iron and scrap iron had been removed.

Preferential Trading Arrangements (PTA) can be considered as an offshoot of this form of cooperation where the contracting countries offer not a single product or products of a single sector rather a list of products and services in which they
are willing to provide preferential market access in their economies to other members of the group. Under this arrangement, the contracting countries need to arrive at a consensus for the extent of phased reduction in the tariff and non-tariff barriers on a preferential basis for the suppliers of other member countries. This product-by-product approach indeed implies a very slow process of cooperation, which, however, can be hastened by agreeing upon across the board tariff reduction.

The PTA is an interim step towards establishing a Free Trade Area (FTA). A FTA is also considered to be a loose form of cooperation where member countries agree to remove tariffs and other barriers to trade, while each member country retains its own commercial policy to countries outside FTA. The aim of FTA is to partly, or in the end, to totally, eliminate customs duties and restrictions to trade between them. As each member of a FTA keeps its own custom tariff and commercial policy in force toward outsiders, rules are needed to determine which goods inside the area can move freely from one country to another. In other words, it is basically the rules of origin that are very important for FTA. Examples of FTAs include the EFTA (European Free Trade Agreement), NAFTA (North American Free Trade Agreement formed in 1993 by the U.S., Canada and Mexico), Mercosur (in Latin America formed in 1991 by Argentina, Brazil, Paraguay & Uruguay), Andean Pact (reactivated as FTA in 1990 by Bolivia, Colombia, Ecuador, Peru and Venezuela), Group of 3 (G 3 – a FTA includes Colombia, Mexico and Venezuela), Caricom (in the Caribbean) and AFTA (ASEAN Free Trade Area established in 1992).

A Customs Union is deeper than FTA with respect to commitments within which trade restrictions are abolished but which has a concerted commercial policy towards non-members and common external tariff on imports from them, though the tariff rates may vary between commodities.

Even higher order of cooperation is the Common Market in which, in addition to the common external tariff and the concerted commercial policy of the custom union, it aims at establishing a unified market area with the free movement of good, services and factors of production (viz., labor and capital). The European Common Market until 1992 is a conspicuous example of functional common market.

The highest and most organized form of cooperation is the Economic Community or Economic Union which not only aims at achieving common external tariff and commercial policy and removal of restrictions on trade of goods, services and factors of production within the union, but also aims at
harmonizing agricultural and industrial policies, concerted monetary, fiscal and exchange rate policies as a step to a common currency and a common central bank. The European Union is currently passing through such a critical phase of regional cooperation.

3. THEORY OF FREE TRADE AGREEMENT

Typically, the stylized analyses based on static models assume that under free trade agreements all tariff and non-tariff barriers are completely dismantled and that all the effects of liberalization materialize. They also assume that all other basic parameters – import and export elasticities, technology, structure of preferences – remain fixed. In short, demand and supply functions are altered only by the modified tariff structure. But when partial equilibrium techniques are used, existing studies, following Jacob Viner (1953), estimate trade creation and trade diversion effects on consumers, producers and government. Generally speaking, a FTA or customs union has effects on both the export and import sides. New export opportunities to partner countries yield net trade-creation effects and are beneficial; but the net import effects may be ambiguous, and depends, among others, on the size of the countries and pre-existing trade flows.

Thus the theory of Customs Union, following Viner, and the mainstream theoretical research on the subject, suggests certain degree of uncertainty of net gains that might accrue from regional trade agreements particularly FTAs. It is, therefore, difficult to pass any categorical judgments on the economic impacts of any kind of trade–related cooperation mentioned in the preceding section. In static and partial equilibrium settings, the basic concepts of the theory are those of trade creation and trade diversion. Trade creation affects the economy favorably while the trade diversion adversely affects the economy. An agreement (a FTA or Customs Union) is more likely to lead to trade creation if (a) the contacting countries are actually competitive but potentially complementary, (b) the cost differentials between the countries in goods they both produce is larger, (c) the initial tariff differentials between the contacting countries is greater, (d) the volume of trade originally covered by the contacting countries is larger, and the losses caused by trade diversion would be smaller if the tariffs to the countries outside FTA (rest of the world) is smaller. But the static and partial equilibrium approaches have their own theoretical pitfalls. The analysis of trade creation and trade diversion effects in static sense simulates the trade impacts of FTA at a particular point in time (say a year) and, therefore, is unable to capture the effects if tariff reductions are phased in over a period (say 10 or 12 years). Again, the partial equilibrium analysis is only capable of capturing the trade impacts of FTA.
But, as we all know, FTA will not only affect trade alone; through trade it will also impact overall growth, income distribution, employment, industrial structure, technology, foreign direct investment (FDI), etc. Since the empirical foundation of dynamic analysis is still weak, comparative static analysis using Applied General Equilibrium (AGE) or Computable General Equilibrium (CGE) models are largely used in simulating the effects of FTA or Customs Union or any other form of regional cooperation. Keeping these theoretical loopholes in mind, let us see what could be the benefits and costs FTA in a competitive situation.

FTA is generally built on strategic considerations arising from imperfect and incomplete market at home and abroad, which handicap the spread of efficiency gains in certain sectors and the development of new productive patterns with progressively higher degree of value-added. The conventional literature on the benefits and costs of FTA focuses attention in a framework of competitive equilibrium. In this framework, FTA is beneficial if the effects of trade creation (shift toward cheaper sources of supply) are larger than those of trade diversion (shift toward more costly source of supply). The crucial issue, however, is how benefits and costs are measured. Apart from trade creation through guaranteed market access, FTA ensures economic efficiency in different product lines through raising competition and promoting specialization in regional market, balances regional investment pattern, creates potential platform for non-traditional products, helps exploit externalities through providing foreign market as catalyst, etc. Moreover, in the face of economies of scale, what otherwise would be costly trade diversion can eventually become a cost-reducing welfare-enhancing effect. Expansion of regional market can also attract FDI. These, however, are all potential benefits of FTA rather than guaranteed outcomes, which will ultimately depend on nature of policy environment under which FTAs operate. The most frequently cited costs are as follows:

(a) FTA can divert trade away from possibly more efficient firms, which are located in non-member countries. This has costs for domestic consumers and for non-member countries that lose market share. The trade diversion risks locking the partner economies into patterns of inefficient production.

(b) FTA can improve the terms of trade of member countries at the expense of non-member countries and give rise to incentives for maintaining or increasing protection.

(c) While FTA induces FDI in the expanded regional market, it can locate unevenly and, in the absence of harmonized incentives, may be a source of competition among partners and thereby may cause fiscal drain.
Benefits are often asymmetrically distributed and initially concentrated in some members while others are dependent on uncertain spillover effects (in multilateralism).

An explosion of FTA creates a spaghetti pattern of agreements with multiple hubs and spokes that give rise to distortions of trade, administrative costs, rent seeking and a difficult to predict distribution of gains among countries.

The emergence of FTA can create defensive reactions, in which a country joins an agreement not because it is the best option, but because of the real or potential costs of being left out of an integration process.

Finally, FTA distracts attention from multilateral rounds of liberalization and delays further unilateral opening.

Before we conclude the section, we want to iterate that evaluating the benefits and costs of FTA is no easy task. Part of the problem is the nature of the subject matter because it is a complex general equilibrium phenomenon with dynamic process, making it difficult to dissect for purposes of causal explanation. Moreover, a short-run analysis is incomplete because, when an agreement becomes successful, one expects to see initial costs compensated by benefits that play out over the medium and long run. Besides, FTA is usually evaluated in the light of what would have happened in its absence. Moreover, economists are interested in measuring changes in welfare; given the complications of defining this for a particular country they often use a proxy expressed in summary statistic reflecting growth in trade. However, conclusions about FTA rarely are based on the entire story. Much of the debate centers on static trade creation and trade diversion effects. This is partly because many economists consider these effects to be the fundamental dimension for evaluating FTA. One problem, however, is that the static analysis frequently uses a partial competitive equilibrium framework to jump to general conclusions about a process that is a general equilibrium phenomenon. Consequently, dynamic approach is resorted to, which is still weak. Nevertheless, the models of dynamics are sufficiently specified to suggest that the benefits behind the dynamics of FTA are potentially large. It is therefore worth the effort to go beyond static trade creation-diversion analysis (which has its ambiguous dimensions as well) to begin to better understand, even if only very imperfectly, the longer-term dynamics. What we should remember is that any sort of transformation has costs. So FTA will involve some unwanted trade diversion costs. However, countries justify these costs by the greater benefits that are expected, which are spread over a longer period of time.

4. EXPERIENCE OF FTA IN OTHER REGIONS
4.1 Mexico and Latin America

In the 1980s Mexico went through a very acute debt crisis, caused by macroeconomic imbalances, inefficient policies and highly protected import-substituting industries. To get rid of these economic ailments, it rapidly started stabilization and structural adjustment in 1983. It liberalized trade by lowering its protection rate to a maximum of 20 per cent and completely freed 75 per cent of its production. It also opened up its capital market. In 1993, it became the member of NAFTA (North American Free Trade Area, the other two members are the United States and Canada) and signed a number of bilateral trade agreements with many Latin American countries like Chile (1991), Bolivia (1994), Costa Rica (1994), Colombia (1994), Venezuela (1994), Nicaragua (1998), etc. As a result of opening up the economy and signing regional trade agreements – both bilateral and multilateral, massive foreign investment, approximately US$15 billion a year, was attracted to Mexico. Its industrial production grew rapidly with widening diversity. Employment in its manufacturing sector increased, and its industrial production was restructured, not destroyed. In other words, overall unemployment did not increase because of FTA, as was feared initially, rather it was observed that more jobs were created in Mexico as a result of accession to NAFTA. But wage structure followed the same pattern as in the U.S., with higher wages for skilled workers and stagnating or decreasing wages for unskilled workers (the Stolper-Samuelson Theorem).

Not only Mexico, the 1990s witnessed a wave of regional integration in Latin America where as many as 15 agreements – FTA and customs union – were signed. Between 1990 and 1997, the region’s exports expanded by 95 per cent; imports grew even faster, at 127 per cent. Imports as a percentage GDP now equal more than 20 per cent, up from 10 per cent in 1990. Moreover, the region’s growth of imports has consistently exceeded that recorded at the world level: according to WTO estimates, the value of world imports grew by an average 7 per cent a year between 1990 and 1996, compared to 15 per cent for Latin America.

4.2 APEC Countries

With the help of an Applied General Equilibrium (AGE) model called Global Trade Analysis Project (GTAP), Philip D. Adams simulates the effects of trade liberalization on the APEC countries, taking in the U.S., Japan, Canada, and most of the South-East Asian nations. The simulations, using a multi-country AGE model with 37 commodity types and up to 20 regions of the world, conclude that at the macroeconomic level, the trade liberalization generates an increase in the
capital stock and hence in real GDP in all regions other than the rest of the world, which maintains existing barriers to trade. Domestic consumption is assumed to expand in line with GDP but investment expands with the capital stock, i.e., more rapidly than GDP. Hence, overall domestic spending in each APEC region expands more than GDP and their trade balances move towards deficit. Imports expand sharply when protection is reduced. Exports are stimulated by depreciations of the real exchange rate. The analysis further observes that the implications for each region’s industries primarily depend on the extent to which the trade liberalization exposes the industries to additional import competition and on industries’ export orientation. Examples of sectors, which are strongly stimulated by the liberalization, are the agricultural industries of Australia, New Zealand and Taiwan; and some of the manufacturing sectors (e.g., textiles, clothing and footwear and chemical products) of South-East Asia. Transport is the sector, which, overall is adversely affected by trade liberalization. The paper finally concludes that trade liberalization offers large long-term benefits in terms of increased GDP to those which liberalize.

4.3 Morocco and Tunisia

In 1995, Morocco and Tunisia – the first two Arab countries, signed Association Agreements that committed them to integrate into a FTA with the European Union (EU). The implementation of the agreements is scheduled to take place over 12 years, and it is still not clear how effective the FTA will be before the time is up. But the impacts of FTA on the economies of these two North African lower middle-income countries in the last few years were rather clear, of course in a comparative static sense. During the period 1990 and 1995, the real GDP growth rates of Morocco and Tunisia were 1.0 and 4.0 per cent respectively. But between the period 1995 and 2002, Morocco and Tunisia registered relatively fair growth rates, which were 3.4 and 5.1 per cent respectively. The performance in the foreign sector was also noticeable. The exports/GDP ratio (or export propensity) of Morocco which was about 26% in 1995, stood at 30% in 2002. The corresponding figures for Tunisia were 40.5% and 44.3%. More specifically, export shares in Morocco and Tunisia both increased during the first half of the 1990s, stabilizing afterwards until 2001 when they experienced a significant rise. From the data available in the website of the World Bank, it is observed that trade openness (or trade ratio) in Morocco measured as the sum of real exports and imports of goods and services as a share of real GDP increased from 58.53% in 1995 to 64.48% in 2002. The corresponding figures for Tunisia are 86.55% and 94.2%. Although the FDI figures for Tunisia are not readily available, the World
Bank data show that the FDI in Morocco in 1992 was U.S.$503 million, which stood at U.S.$2658 million in 2001.

However, there are economists who observe no significant correlation between trade policy reforms of the countries like Mexico, Morocco or Tunisia and their growth in GDP. They argue, “we find little evidence that open trade policies – in the sense of lowering tariff and non-tariff barriers to trade – are significantly associated with economic growth” because, according to them, the methods of ascertaining the link between trade policy and growth have serious shortcomings. Also there are studies which observe that trade policy reforms had minimal impacts on employment.

In spite of this controversy inherent in the subject as mentioned earlier, we can see that the usual predictions of the static models that FTA would prove costly to these two countries have been proved unfounded. It should be mentioned here that Moroccan and Tunisian manufactured goods have had free access to EU markets since 1976. Thus so long as agriculture is excluded, the proposed FTA offers the two countries no additional export advantages, while requiring them gradually to remove their own trade barriers against manufactured goods imported from the EU. Nevertheless, these two countries have been reaping benefits from the new opportunities generated by the FTA’s dynamic effects, e.g., increased FDI. Indeed, estimates indicate that further reforms coupled with more domestic and foreign investment could make the benefits of FTA outweigh its costs, if any, and increase employment, income and growth in real terms.

5. SAARC, SAPTA, SAFTA, BIMSTEC AND BILATERAL FTAS

The idea of South Asian regional cooperation was first proposed by Bangladesh in 1980 with a view to holding periodic, regional-level consultations among countries in South Asia on matters of mutual interest and possible cooperation in economic, social, cultural and other fields. As a result, SAARC formally came into existence with the adoption of the Charter at its first summit in Dhaka in 1985 (7–8 December). In December 1991, the sixth summit held in Colombo approved the establishment of an Inter-Governmental Group (ICG) to formulate an agreement to establish a SAPTA (SAARC Preferential Trading Arrangement) by 1997. But well in advance of the date stipulated in Colombo summit, the framework agreement on SAPTA was finalized in 1993, and formally came into operation in December 1995. The agreement reflected the desire of the SAARC countries to promote and sustain mutual trade and economic cooperation within the SAARC region through exchange of concessions. So far three rounds of talks
on this agenda have taken place. The first two rounds of trade negotiations under SAPTA were concluded on product-by-product basis and the third round was based on chapter-wise. The fourth round has been decided to be held chapter-wise, sectoral and across the board. The tenth summit held in Colombo in 1998 decided that in order to accelerate progress in the next round of SAPTA negotiations, deeper tariff concessions should be extended to products which are being actively traded, or likely to be traded, among members; that discriminatory practices and non-tariff barriers should be simultaneously removed on items in respect of which tariff concessions are granted or have been granted earlier. Measures to remove tariff and non-tariff barriers and structural impediments should also be taken in order to move speedily towards the goal of a South Asian Free Trade Area (SAFTA). SAPTA was, therefore, envisaged primarily as the first step towards the transition to a SAFTA leading subsequently towards a Customs Union, Common Market and Economic Union. A Committee of Experts for drafting a comprehensive treaty framework on SAFTA has already finalized a working draft following the decision taken in the eleventh SAARC summit held in Katmandu on 4 to 6 January 2002, which is now under consideration of member states. In the mean time, bilateral agreements on FTAs between some member countries have been signed (e.g., India and Sri Lanka) and negotiations for more of such arrangement are going on between Bangladesh and Sri Lanka, India and Pakistan. The recent bias of SAARC countries towards bilateral FTAs probably has emanated from the poor performance of SAPTA (For example, about 95% of total imports of Bangladesh from India takes place not under SAPTA but under general rules) and the bleak prospect of multilateral SAFTA.

The number of products covered and the depth of preferential tariff concessions agreed in the three rounds of negotiations under SAPTA are shown in Table: 1, which shows that the concessions covering a total of 4951 products range from 7.5% and 100%.

One of the core principles of the SAPTA agreement is that there should be special treatment for LDCs through the consideration of additional measures and reduction of domestic content requirement (i.e., the rules of origin) further so that the LDCs within SAARC (Bangladesh, Nepal, Bhutan, Maldives) can benefit equitably from trade liberalization.

Table 1: Tariff Concessions offered by SAARC Countries
### Table 2: Revised Rules of Origin

<table>
<thead>
<tr>
<th>Items</th>
<th>Before Amendment</th>
<th>Before Amendment</th>
<th>After Amendment</th>
<th>After Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not wholly produced and obtained LDCs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic value addition in an exporting country</td>
<td>50%</td>
<td>40%</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>Maximum input permitted from non-contracting states</td>
<td>50%</td>
<td>60%</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Cumulative Rules of Origin Aggregate domestic value in an exporting country</td>
<td>60%</td>
<td>50%</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Source: <a href="http://www.saarcnet.org">http://www.saarcnet.org</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows the reduction in the rules of origin criteria (both for LDCs and non-LDCs within SAARC) in terms of the extent of value addition required...
before and after the downward revision in the SAPTA rules of origin.

Any analysis for expanding trade and economic progress in South Asia must begin with the recognition and concern that the share of SAARC countries in total world trade today is less than 1% and that intra-SAARC trade, despite all efforts on SAPTA tariff concessions and relaxed rules of origin, remains a meager 3% of their total world trade. This compares poorly with 63.4% for intra-European (EU) trade, 37.2% for North America (NAFTA), 38.4% for East Asia (ASEAN). The cumulative loss to the region is rather colossal, which is confirmed by the large amounts of “unofficial trade” that continues to be traded across the borders of India and Bangladesh, Nepal, Pakistan and Sri Lanka. A recent survey conducted by the South Asia Enterprise Development Facility (SAEDF), an organization supported by the International Finance Corporation (IFC), reveals that about Rs. 3.42 billion (in Indian currency) of trade takes place between the seven Northeastern States (NES) of India and Bangladesh of which 43% takes place through informal trade route. From the data available in the website of SAARC, it can be observed that smaller economies like Nepal, Bangladesh and Maldives, are having substantial levels of trade with their neighbors. But India and Pakistan are the only two countries where the export levels to SAARC countries are much higher than the import levels, i.e., these two countries are having huge trade surpluses with their SAARC neighbors. Therefore, it is recognized that in an effort to materialize SAFTA, the base of traded commodities within SAARC must be enlarged from a meager level of 3% to at least 10% of their total world trade. Thus multilateral trade liberalization through SAPTA could not serve the purposes of LDCs like Bangladesh so far. Consequently, the interest for bilateral FTAs is growing, which are widely considered not as a “stepping stone” rather as a “stumbling bloc” for multilateral arrangements like SAFTA.

Again, Bangladesh along with four other members (India, Myanmar, Sri Lanka and Thailand) is also supposed to sign a framework of agreement on FTA (BIMST Economic Cooperation or BIMSTEC) in Bangkok on February 10, 2004, although Bangladesh, as usual, is less clear about the benefits of the deal. In a rapidly changing scenario, Thailand, Sri Lanka and India have said that they would sign the deal whether or not Bangladesh agrees to join such a framework. Both India and Thailand are in talks to sign a bilateral FTA. In order to improve bilateral trade with the countries like Myanmar and Thailand, India, bypassing Bangladesh, has established a new road linkage with Myanmar via Manipur. Sri Lanka and Thailand are also involved in similar talks while the bilateral FTA between India and Sri Lanka has proved to be a success. Under the circumstances, if Bangladesh decides to stay outside this multilateral FTA, there might emerge
some real or potential costs of being left out in such a regional trade integration process, as mentioned earlier.

However, Peter Warr, an Australian consultant of ESCAP, in his recent report submitted to the Commerce Ministry of GOB has opined that Bangladesh would not gain much from the FTA with BIMSTEC countries. National Board of Revenue is also known to have conducted a similar study in which it was also observed that Bangladesh would lose revenue, many industries would be forced to close down leading to huge job losses, and import dependence would increase. The basis of this sort of skeptic conclusions regarding BIMSTEC is, however, not readily known. Probably the frustrating results of SAPTA as well as the unfamiliar markets, divergent levels of developments and meager volume of trade with Myanmar and Thailand, are putting brake on Bangladesh initiative to sign a FTA with these countries. Table: 3 shows that almost three-fourth of the merchandise exports of Bangladesh goes to Western Europe, North

### Table 3: Direction of Merchandise Exports and imports of Selected Asian Countries in 2002

<table>
<thead>
<tr>
<th>Country</th>
<th>Western Europe, North And Central America</th>
<th>Exports to (in %)</th>
<th>Western Europe, North And Central America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myanmar</td>
<td>61.2</td>
<td>29.2</td>
<td>91.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>51.5</td>
<td>37.6</td>
<td>59.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>6.0</td>
<td>73.6</td>
<td>62.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>88.3</td>
<td>10.0</td>
<td>65.9</td>
</tr>
<tr>
<td>India</td>
<td>26.9</td>
<td>50.1</td>
<td>25.5</td>
</tr>
<tr>
<td>Maldives</td>
<td>36.6</td>
<td>62.8</td>
<td>65.2</td>
</tr>
<tr>
<td>Nepal</td>
<td>51.3</td>
<td>45.6</td>
<td>60.7</td>
</tr>
<tr>
<td>Pakistan</td>
<td>20.2</td>
<td>56.2</td>
<td>31.9</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>11.5</td>
<td>70.4</td>
<td>65.3</td>
</tr>
</tbody>
</table>

*Source:* Key Indicators of Developing Asian and Pacific Countries, 2003, Asian Development Bank, Tables 21 & 22, pp. 113 & 114. and Central America, while more than three-fifth of her imports originates from Asian region. Apparently Bangladesh is having large trade deficits with Asia as a whole. On the
other hand, the foreign trade of both Myanmar and Thailand are basically dependent on Asia. Under such a situation, if the BIMSTEC countries sign a FTA, it may be difficult for Bangladesh to penetrate the markets of these countries through competing out the Asian giants. It may also further widen the already existing trade deficits of Bangladesh with this region. This is, however, an observation based on static facts. From dynamic viewpoint, the long-run effects of such FTA may outweigh the short-run costs as observed elsewhere in the globe.

Let us now look at the issues and prospects of bilateral FTAs between Bangladesh, India, Sri Lanka and Pakistan that are now in the process of laborious negotiations. Opinions of academics and policy makers are, however, divided in this respect. Those who are in favor argue that Bangladesh has already opened up her economy to a great extent including floating her exchange rate with convertibility in the current account, scaling down her tariff line from 150% in 1992-93 to 32.5% in 2002-03, and reducing the tariff structure from nine steps in 2001-2002 to five steps in 2002-2003\textsuperscript{a}. If we consider the trade ratio as the degree of openness of an economy we see that Bangladesh (42.1) ranked second after Sri Lanka (88.8), followed by Pakistan (34.5) and India (19.41) in 2000\textsuperscript{b}.

<table>
<thead>
<tr>
<th>Country</th>
<th>Gross National Income</th>
<th>Total Exports</th>
<th>Total Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>48617 (8.07)</td>
<td>5617 (8.26)</td>
<td>7968 (9.33)</td>
</tr>
<tr>
<td>India</td>
<td>477368 (79.24)</td>
<td>48430 (71.26)</td>
<td>60540 (70.89)</td>
</tr>
<tr>
<td>Pakistan</td>
<td>60047 (9.97)</td>
<td>9530.7 (14.02)</td>
<td>11107.7 (13.01)</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>16411 (2.72)</td>
<td>4866.4 (6.45)</td>
<td>5785.4 (6.77)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>602443 (100)</td>
<td>67964.1 (100)</td>
<td>85401.1 (100)</td>
</tr>
</tbody>
</table>

Notes: Figures in the parentheses indicate percentage of the total.

Source: Key Indicators of Developing Asian and Pacific Countries, 2003,

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Source: Key Indicators of Developing Asian and Pacific Countries, 2003,

So, opening the economy further will not do the harm. They argue that if a small country like Sri Lanka (having the highest openness), contributing only 2.72% of total income (GNI) of these four countries, as shown in Table: 4, can benefit from...
an agreement on FTA with a country like India (having about 80% of total income), then there is no reason of why Bangladesh, contributing 8.07% of total income would not gain from such an arrangement.

Asian Development Bank, Country Tables. To them, if Bangladesh goes into an agreement on FTA with India or with other SAARC neighbors, colossal damages to her economy as usually are feared would not likely to happen. In support of their view they draw the reference of prognosis that was proved groundless in the case floating versus fixed exchange rate debate.

But those who are against argue that Bangladesh is currently having a very meager level of trade with these SAARC countries. Moreover, whatever is the trade volume, she is facing continuous trade deficits with India, Pakistan and Sri Lanka. As we have already mentioned, only 6% of her total exports in 2002 (Table: 3) was directed to Asia in which the amount directed to these three SAARC nations was certainly meager. In 1999, the total exports of Bangladesh were U.S.$4520 million of which only 0.6 per cent was exported to these countries. In the same year, total imports were U.S.$8352 million of which, however, 13.35 per cent originated from these three SAARC nations. Thus with the present basket of exports, according to them, if Bangladesh enters into FTAs with India or Pakistan, the trade balance will further worsen. So, neither the pre-FTA level of trade nor the existing trade balance scenario immediately provides a strong basis to argue in favor of bilateral FTAs. Besides, Bangladesh does not have any prior experience of FTA. If she at all wants to go for such an arrangement, according to them, she may sign FTAs with small neighbors like Nepal, Bhutan or Sri Lanka on experimental basis and closely monitor the repercussions on her economy. They also frequently cite the security question particularly with India as an important factor that can undermine the potential benefits of FTA. Let us now try to put the usual benefits and costs of FTAs mentioned in section 3 into this perspective.

**First**, the benefit of FTA would be small if the pre-existing tariff level were low. The pre-FTA tariff structure of these countries including Bangladesh indicate that although, all of these countries have reduced tariff to a considerable extent, narrowed down the varieties of protection, moved toward fairly uniform tariff rates and unified exchange rate systems, yet it is observed that both average tariff on manufacturing and primary products, and the coverage of QRs, is still high compared to East Asian countries. Thus the pre-FTA tariff structure of these four countries does offer a good ground for FTAs. Moreover, the prevalence of trade dwindling para-tariff (border charges, fees, etc) and non-tariff (regulations
or practices other than tariff) barriers and other impediments of trade (e.g., antidumping or countervailing tax, etc.) also provides a sound basis for FTAs.

### Table 5: Major Exports by Principal Commodity of elected SAARC Countries

<table>
<thead>
<tr>
<th></th>
<th>Bangladesh</th>
<th>India</th>
<th>Pakistan</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Fish</td>
<td>2. Thread</td>
<td>2. Tea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clothing</td>
<td>5. Leather products, n.e.s.</td>
<td>6. Desiccated Coconut</td>
<td>7. Copra</td>
</tr>
<tr>
<td></td>
<td>Coffee, tea, cocoa, spices and manufactures</td>
<td></td>
<td>8. Coconut Oil</td>
<td></td>
</tr>
</tbody>
</table>


**Second**, if we look at the composition of major exports and imports of these countries (Table: 5), we see that in many sectors they are competitive, although in many sectors again complementarity exists. For example, exports of textiles and clothing continue dominate total manufacturing exports countries like Bangladesh, Pakistan and Sri Lanka the shares of which are respectively 76, 78 and 50 percent. By December 2004, when MFA will be phased out, Bangladesh will face severe competition with these SAARC members including India. Under the changed scenario, Bangladesh can try to survive in the tariff/quota-free international market by importing necessary raw materials from Pakistan or for that matter, from India, for her RMG industry (the so-called SAARC cumulation) and regain her lost markets of raw jute, jute goods, tea, etc. Although, countries like Pakistan, Sri Lanka, India, China, Indonesia, etc. will, as they are now, remain the big competitors of Bangladesh in this respect, because at that time they will be able to export RMG without any quota or tariff through converting the fabrics they export now. Here, however, Bangladesh may enjoy some competitive edge over other countries with respect to unit labor cost. **Third**, it is usually argued that FTAs will adversely affect the existing industrial structure of Bangladesh. But this
fear also would be misplaced if the scale economies and vertical linkages among industries were taken into account. It is true that FTAs may lead to losses of some industries and gains of others. But countries like Bangladesh where labor is relatively cheap, labor-intensive downstream firms can attract capital-intensive upstream firms. In other words, agglomeration of vertically linked industries (e.g. composite textiles and RMG) may offset the potential loss in this respect. **Fourth,** if agriculture is included in the FTA and rules of origin are relaxed, many agricultural and non-traditional products like battery, cosmetics, cement, light engineering products, spares of machineries and transports, etc. may add to this list of exports. **Fifth,** intra-regional investment flow and increased FDI in the post-FTA regional market can open up new product lines and generate employment opportunities. **Sixth,** the fear of fiscal loss also seems to be less reasonable in view of relatively low volume of imports from the countries under consideration and already scaled down tariff structure. Nonetheless, whatever loss would be incurred, it could be compensated by resorting to less distortionary taxes like VAT. **Finally,** an analysis of the political economy of FTA particularly with India suggests that FTA with India might be able to help bridge up the existing chasms in the relationship between these two countries. Here, however, the chauvinistic attitude of India should be relinquished and its treatment to Bangladesh as a LDC must be ensured in conformity with the WTO and SAPTA rules of business. In her recent talks with Bangladesh on FTA, India is reported to have demanded transit facilities and withdrawal of bar imposed by Bangladesh on the import of sugar and yarn from India using the land routes in exchange of 118 products for which Bangladesh wanted tariff-free entry. As a result, the FTA talks between India and Bangladesh have reached deadlock. It is relevant to mention here that there are some other lingering issues with India like sharing of the waters of 54 common rivers, cross-border terrorism, demarcation of territorial boundary, etc. that have been contributing to worsening political relationship between these two neighbors. India’s recent initiative to adopt an inter-river linking project will certainly widen this gap further. We think that many of these bilateral issues are more political than economic, which can be resolved if a meaningful and effective FTA is worked out. Because mutually benefiting economic agreements may help resolve political problems and bring these two countries closer.

It should, however, be remembered that all these issues and prospects of FTAs discussed above in the context of Bangladesh are probable and based on long-run assumptions. It is natural that many economic costs, real or monetary, hidden or overt, may wreak upon the economy immediately but the corresponding benefits that would ensue may spread over a longer period of time and outweigh these
costs. Everything, however, depends on the objective conditions under which the policies pertaining to FTAs operate.

6. POLICY SUGGESTIONS

In order to make FTAs a success, the following policy suggestions may be put forward:

(a) FTAs should be negotiated and applied on the principles of overall reciprocity and mutuality of advantages of the contracting nations taking into account the respective levels of industrial, technological and overall development.

(b) Preferential measures must be ensured for the LDCs in order to resist the possibility of unequal distribution of benefits.

(c) Para-tariff, non-tariff and other barriers to trade must be removed.

(d) High-intensity trade items should be identified on priority basis.

(e) Supporting trade-augmenting measures like opening of land routes between the member countries, improving infrastructural linkages like port, harmonization of measures and standards, custom valuation system, dispute settlement procedure, etc. should be enforced and monitored meticulously.

(f) Proper investment climates (both political and economic) of the contracting nations should be ensured and their investment policies be harmonized so that intra-regional and international investments may flow. In this respect, the ‘Agreement on the Promotion and Protection of Investment’ should be signed between the SAARC nations.

Notes


4. By trade creation we mean the increase in import demand of a product following a reduction in tariff; the extent of which will depend on the original level of imports of the product as well as the responsiveness of import demand to changes in price (i.e., price elasticity of demand). By trade diversion, on the other hand, we mean supplanting the imports of a
more efficient source by a less efficient one following changes in tariff rates; the extent of which again will depend on relative changes in the tariff rates of the contracting countries as well as the substitution response of domestic output.


10. The Stolper-Samuelson (SS) theorem states that the wages of skilled workers increase with the increase in the relative price of skill-intensive goods. When applied to international trade, it comes in contradiction with Hecksher-Ohlin (HO) Theory.


15. Ibid, p. 951.


18. http://www.saarcnet.org:


33. Ibid, p.894.

Relative Influence of Monetary and Fiscal Policies on Industrial Output of Bangladesh: A Dynamic Analysis*

Mudabber Ahmed**
Jyoti Prakash Dutta***

1. INTRODUCTION

The share of industrial sector in the GDP of Bangladesh is low (around 15%1) and its growth could never achieve a double-digit rate in the last three decades. In the 1970s, 80s and 90s, the actual or compound growth rates of this modern sector were 8.8%, 2.5% and 7.67% respectively2 Researchers usually tried to assign either demand or supply related factors for explaining the poor performance of this sector (Dutta and Ahmed, 1994; Raj, 1976; Bagchi, 1970, etc). But a complete analysis in this regard should take into cognizance of the monetary and fiscal policy issues to explain the dynamic behavior of industrial output. The previous studies also suffer from a major methodological deficiency. Most of these studies mainly dealt with single equation model and thus important feedback mechanism was overlooked. Some of these studies also were subject to omitted variables bias. Studies exploring the relative influence of public policies (monetary and fiscal policies) on industrial sector are, to the best of our knowledge, rarely available. The present study is an endeavor towards this unexplored area in the sense that a dynamic multivariate and multi-equation model is developed in order to isolate the relative influence of monetary and fiscal policies on industrial output and also trace the behavior of industrial output over time due to each of the policy shocks.

Accordingly, the paper is structured as follows: section 2 specifies the model and

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* This paper was presented at the Regional Conference of Bangladesh Economic Association on Regional cooperation, Public Expenditure Reforms and Industrialization held in Chittagong University on 24 December 2003.
** Associate Professor, Department of Economics, CU And
*** Professor, Department of Economics, CU
1 Key indicators of developing Asian and Pacific countries, 2003, ADB.
methodology. Section 3 presents a brief discussion about the data set used in the present paper. Section 4 displays and discusses the empirical findings. Section 5 concludes.

2. METHODOLOGY

The methodology applied in this study is known as Vector Autoregressive (VAR) model where each of a set of variables is regressed on past values of itself and past values of all other variables included in the system. As an alternative to traditional econometric system of equations where variables are generally arbitrarily labeled as endogenous or exogenous, VAR models have been developed as powerful multivariate models (Sims, 1980) where no such dichotomy of variables is used. In these models, all variables are simultaneously included in order to unlock the dynamic influence of all the variables of the system.

Since the objective of this paper is to examine the effect of monetary and fiscal policies on industrial output in a multivariate framework, our model includes two policy variables, viz. money stock (M) which represents monetary policy and quarterly development expenditure (QDE) of the government which represents the fiscal policy and one target variable, viz. industrial production index (IPI). So the VAR model with n lags is:

\[
\begin{align*}
IPI_t &= \sum_{i=1}^{n} A_i IPI_{t-i} + \sum_{i=1}^{n} B_i QDE_{t-i} + \sum_{i=1}^{n} C_i M_{t-i} + e_{ipt} \\
QDE_t &= \sum_{i=1}^{n} A_i IPI_{t-i} + \sum_{i=1}^{n} B_i QDE_{t-i} + \sum_{i=1}^{n} C_i M_{t-i} + e_{qdet} \\
M_t &= \sum_{i=1}^{n} A_i IPI_{t-i} + \sum_{i=1}^{n} B_i QDE_{t-i} + \sum_{i=1}^{n} C_i M_{t-i} + e_{mt}
\end{align*}
\]

Since in VAR models, estimated coefficients do not provide us with interpretable economic insights, we, therefore, present two important summary measures, namely, Forecast Error Variance Decompositions (FEVD) and Impulse Response Functions (IRF), which capture the dynamic properties of the model.

Variance decompositions measure the quantitative effect that individual shocks have on all the variables in the system including the shocked variable itself. A system’s reaction to shock in one of the variables can best be explained by IRF.

3. DATA

See Enders (1995, p. 310) for details about Forecast Error Variance Decompositions (FEVD) and Impulse Response Functions (IRF).
The data used in this study are taken from the IMF, *International Financial Statistics* (IFS) CD-ROM- supplemented by IMF, IFS Yearbook except for QDE. The QDE figures are taken from the various issues of Statistical Yearbook of Bangladesh. Quarterly observations comprising the period 1975:Q2-2001:Q4 are used to estimate the model. Where quarterly observations are not available, figures are obtained by using Lisman and Sandee (1964) method.

4. **RESULTS**

The VAR model is estimated with a lag length of 4. To capture dynamics, it is customary to include 4 lags if the data are quarterly and to include 12 lags if the data are monthly (Sims, 1986 and 1992; and Christiano et. al. 1994). In principle there is nothing to prevent us from incorporating a large number of lags in a VAR model. But as a practical matter degrees of freedom are quickly eroded, as more lags are included. The simple VAR model is estimated by applying OLS method.

We start our analysis with Forecast Error Variance Decompositions (FEVD).

<table>
<thead>
<tr>
<th>Steps</th>
<th>IPI</th>
<th>Explained by innovations in</th>
<th>QDE</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>97.79131</td>
<td>0.661873</td>
<td>1.546816</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>95.91193</td>
<td>2.283018</td>
<td>1.805052</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>92.52711</td>
<td>3.908352</td>
<td>3.564543</td>
<td></td>
</tr>
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<td>5</td>
<td>93.51659</td>
<td>3.843432</td>
<td>2.639975</td>
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</tr>
<tr>
<td>6</td>
<td>92.38841</td>
<td>4.072404</td>
<td>3.539184</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>91.97650</td>
<td>4.46365</td>
<td>3.559847</td>
<td></td>
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<td>8</td>
<td>91.40982</td>
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<td></td>
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<tr>
<td>10</td>
<td>91.23951</td>
<td>4.891516</td>
<td>3.868973</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>90.51544</td>
<td>5.550632</td>
<td>3.933931</td>
<td></td>
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<tr>
<td>12</td>
<td>90.05148</td>
<td>5.997592</td>
<td>3.950931</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>90.26881</td>
<td>6.003349</td>
<td>3.727845</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>89.78888</td>
<td>6.146873</td>
<td>4.064248</td>
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<td>15</td>
<td>89.23030</td>
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<td>4.196504</td>
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</tr>
<tr>
<td>16</td>
<td>88.87864</td>
<td>6.970295</td>
<td>4.151063</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>88.80059</td>
<td>7.157613</td>
<td>4.041800</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>88.27082</td>
<td>7.440406</td>
<td>4.288778</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>87.64491</td>
<td>7.919398</td>
<td>4.435693</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>87.24301</td>
<td>8.347617</td>
<td>4.409371</td>
<td></td>
</tr>
</tbody>
</table>
Though there is no hard and fast rule regarding the number of steps to be examined but it should be enough to understand the dynamic interactions among the variables. We will examine 20 quarters, which is five years worth of steps.

The variance decompositions for series IPI are displayed in table 1. A closer look at the table reveals the following:

(a) From the beginning to the end, the principal factor driving industrial output is the industrial output itself contributing 100% in the first period to 87% in the last period. This result is not surprising as it reflects effect of all factors other than government policy.

(b) Both fiscal and monetary policies have moderate power in explaining industrial output.

(c) Contribution of fiscal policy in explaining industrial output is below 1% in the beginning but the long-run effect is moderate explaining around 8%.

(d) Contribution of fiscal policy in explaining the industrial output is stronger than monetary policy across the entire time horizon.

For information on the simulated trajectory of industrial output due to fiscal policy and monetary shocks, we need to look at the impulse response functions depicted in figures 1 and 2 respectively.

**Shock to Fiscal Policy**

The impulse response function or the simulated trajectory of industrial output due to a positive one standard deviation fiscal policy shock shows that industrial output reaches its peak level at the 4th period followed by a gradual decline up to 8th period. Then output increases again up to 11th period and stabilizes thereafter. However,
Then output increases again up to 11th period and stabilizes thereafter. However, the overall trend is positive.

**Shock to Monetary Policy**
The simulated trajectory of industrial output due to a positive one standard deviation monetary policy shock is shown in figure 2. The response shows an erratic behavior (ups and downs) throughout the entire time horizon for which no acceptable explanation whatsoever is readily available.

![Figure 1: Response of Industrial Production to Shock in Fiscal Policy](image)

![Figure 2: Response of Industrial Production to Shock in Monetary Policy](image)

**5. SUMMARY AND CONCLUSIONS**
The main objective of this paper was to examine relative influence of fiscal and monetary policy on industrial output and dynamic behaviour of industrial output due to each of the policy shocks. Accordingly, a simple VAR model is developed and our objective is achieved by estimating variance decompositions and impulse response functions. Several conclusions emerge from the results presented above. These are:

i) our finding states that fiscal policy is more effective than monetary policy;

ii) expansionary fiscal policy drives industrial output up;

iii) expansionary monetary policy has uncertain effect on industrial output.

These findings have significant policy implications. The policy maker should be aware of the potential consequences of an expansionary policy since the main objective of the government is to achieve rapid industrial growth.


Forecasting Bangladesh Industrial Production:
A Simple Univariate ARMA Approach*

Omar Haider Mohammad*
Nazmul Bashar**
A.N.M. Moinul Islam**

1. INTRODUCTION

Bangladesh, a predominantly agrarian society, is striving hard to industrialize the economy by mobilizing resource from within and outside its geographic boundary. The recent years have seen significant improvement in the relative share of industry in the national economy. Relative shares of industry in Gross Domestic Product were 16.3, 20.9 and 25.5 percents in the years of 1980, 1990 and 2002 respectively (ADB, 2003). Industrial growth has also been more or less steady despite the ongoing recession in the world economy. The average growth rate of industrial output was 6.56 percent during 1997 to 2001 (ADB, 2003). Hence, forecasting industrial output is an important issue in analyzing the economic performance of Bangladesh which is showing a steady improvement in the relative share of industrial output in GDP. In fact, this is equally important for developed industrialized economies as well as for the LDCs. Actually, industrial sector is important in explaining aggregate fluctuation of the economy. In addition, forecasts of industrial output can be useful in more general forecasting models.

As far as Bangladesh economy is concerned, to the knowledge of the authors, no satisfactory forecasting model for industrial output in Bangladesh has yet been developed. At least one attempt however, is made to explain the behavior of the industrial output on sector basis (Dutta, 1993), which does not attempt to forecast
the future behavior explicitly and also not substantiated by sophisticated econometric analysis. A number of attempts are made for other countries viz. for Italy (Bruno & Lupi, 2003), for the UK (Simpson et al, 2000) etc that use mainly univariate models and provide satisfactory forecast results. In this light, this paper is an attempt to develop a univariate forecasting model for Industrial output in Bangladesh. Such a univariate model provides a more sophisticated method of extrapolating time series in that they are based on the notion that the series that is to be forecasted has been generated by a stochastic process, with a structure that can be characterized and described. As we know, a time-series model provides a description of the random nature of the process that generates the sample of observations under study, which is given not in terms of a cause and effect relationship (as would be the case in a regression model) but in terms of how that randomness is embodied in the process. Hence, our objective is to develop a model that explains the movement of time series data of industrial output in Bangladesh by relating it to its past values and to a weighted sum of current and lagged random disturbances.

The structure of the rest of the paper is as follows: the Methodology Section explains general ARMA modeling as well as the procedures used to derive the particular specifications adopted. The following section tests the stationarity of the data series employed. The Model Specification Section intends to select an appropriate specification from various rival models. Substantive results are presented in the following section that shows both forecast results and their forecasting performance. Finally some conclusions are presented.

2. OBJECTIVES AND METHODOLOGY

The main objective of this study is to specify a short run forecasting model of industrial output within the ARMA framework. Our study is based on the monthly data of industrial output index of Bangladesh covering the period January 1992 to November 2002. These data are taken from the IFS CD Rom Version (September 2003). We have chosen 1992 as the starting year to avoid any possible structural break due to major political regime change in early 1990s. On the other hand we couldn’t use the most recent industrial output data, as data were not available beyond November, 2002. We have used the data from January 1992 to December 2001 for the estimation purpose and the data for remaining eleven months for out of sample forecasting purpose.

An ARMA (Autoregressive-Moving average) model has the general form:

$$y_t = c + \sum_{i=1}^{p} \alpha_i y_{t-i} + \sum_{i=0}^{q} \beta_i \varepsilon_{t-i}$$  \[1\]
where $y_t$ is a stationary variable, $C$ is constant and $\varepsilon_t$ is the error term. It can be seen from equation [1] that ARMA models consist of two main parts; the first is the Autoregressive part (AR) that includes lag values of the dependent variable and the second is the Moving Average part that contains the lag values of error terms. In fact, AR(p) and MA(q) can be treated as the restricted ARMA model. For an AR(p) model $\beta_i = 0 \text{ for } i = 1, 2, 3, \ldots$ and for an MA(q) model $\alpha = 0 \text{ for all } i$. The main task of these types of model is to set the appropriate lag orders for AR and MA terms. In this paper we will follow standard Box-Jenkins procedure to specify the appropriate model. This procedure involves the following steps:

**Step-1**: Check the stationarity of the industrial output series, and, if necessary, transform the series to induce stationarity.

**Step-2**: From the examination of the data series as well as the autocorrelation and partial autocorrelation functions of the series (transformed series for nonstationary case) choose a few ARMA specifications for estimation and testing in order to arrive at a preferred specification with white noise residuals.

**Step-3**: Calculate forecasts over a relevant time horizon from the preferred specification.

3. **STATIONARITY CHECK**

Figure 1 shows the graph of Industrial output indices for the period between 1992:01 and 2002:11.
In the above figure we notice at the first glance is the presence of a linear time trend. Industrial production is increasing over time. However, it is very difficult to get any idea about the stationarity of the series from this graph. Like many other macroeconomic monthly series, the industrial output series exhibits some seasonality. This is evident from the peaks roughly observed in every year ending.

To check the stationarity of the series we will use Augmented Dickey Fuller (ADF) test of the unit root. The unit root tests are mainly based on the following AR(1) process:

$$Y_t = \rho Y_{t-1} + X_t \delta + \varepsilon_t$$  \hspace{1cm} [2]

where $X_t$ is the vector of optional exogenous regressors which may consist of a constant, or a constant and a trend; $\rho$ and $\delta$ are parameters to be estimated, and $\varepsilon_t$ is assumed to be white noise. If $|\rho| \geq 1$, $Y$ is a nonstationary series and the variance of $Y$ increases with time and approaches infinity. If $|\rho| < 1$, $Y$ is a stationary series. Thus, the hypothesis of stationarity can be evaluated by testing whether the absolute value of $\rho$ is strictly less than one.

The ADF test uses the modified version of [2], which suggests estimating the following equation:
\[ \Delta Y_t = \alpha Y_{t-1} + X_t + \delta + \beta_1 \Delta Y_{t-1} + \beta_2 \Delta Y_{t-2} + \ldots + \beta_q \Delta Y_{t-q} + \nu_t \]  

where \( Y_t \) denotes the industrial output and \( \Delta Y_t = Y_t - Y_{t-1} \). \( \alpha = \rho - 1 \) and the null hypothesis \( H_0: \alpha = \rho - 1 \) is tested against the alternative, \( H_1: \alpha < \rho - 1 \) based on the ADF-test statistic. We will use the critical values provided by Mackinnon (1996) to evaluate the null hypothesis. Observing figure 1, we include a constant and linear time trend as regressors in the test equation. Lag order (0 in this case) of the difference terms is determined by the Modified Akaike Information Criterion (MAIC). The result of the ADF unit root test is shown below (t-statistics are shown in parentheses):

\[
\Delta Y_t = 46.6 - 0.617Y_{t-1} + 0.37\text{trend} + \nu_t \\
(7.01) \quad (-7.13) \quad (6.69)
\]

ADF Test Statistic = -7.13, P value = 0.000

The significance of all the coefficients and the value of DW statistic close to 2 indicate the correct specification of the test equation. The ADF test statistic is highly significant. The above results clearly reject the unit root hypothesis. Thus we may consider the industrial output series as stationary.

4. MODEL SPECIFICATION

Following Box-Jenkins procedure, we first observe autocorrelation and partial autocorrelations of the industrial output series.

Figure 2 shows the autocorrelation function (ACF) and partial autocorrelation function (PACF) (up to lag 36) for the industrial output index that covers the period 1992:01 to 2001:12. Slowly decaying autocorrelations may give us an indication of the nonstationary series. However, the formal ADF test already rejected the nonstationarity hypothesis. The wavy pattern of the autocorrelation function is an indication of the presence of seasonality in the series.
The single spike at lag 1 in the partial autocorrelation function suggests an AR(1) model. Along with this, positive spike at lag 12 and negative spike at lag 13 hints at a multiplicative Seasonal Autoregressive (SAR(12)) model with the following specification:

**Model 1:**

\[(1 - \alpha_t L)(1 - \delta L^{12}) Y_t = c + \epsilon_t \quad [4.1]\]

where \(Y_t\) is the industrial output and \(\epsilon_t\) is the error term. \(L\) is the lag operator defined as \(L^i Y_t = Y_{t-i} \quad (i = 1, 2, 3, \ldots)\). We may rewrite equation [4.1] as
Now we can see that Model 1 is able to capture the facts of spikes at lag 1, 12 and 13 of the PACF. Thus we start our experimentation of the model building with equation [4.1], the result of which is reported here:

\[(1 - \alpha_1 L - \delta L^{12} + \alpha_1 \delta L^{13}) Y_t = \epsilon_t \quad [4.2]\]

Estimated Model 1:
\[(1 - \alpha_1 L)(1 - \delta L^{12}) Y_t = c + \epsilon_t\]

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>149.7392</td>
<td>13.67209</td>
<td>10.95218</td>
<td>0.0000</td>
</tr>
<tr>
<td>(\alpha_1)</td>
<td>0.349226</td>
<td>0.093125</td>
<td>3.750068</td>
<td>0.0003</td>
</tr>
<tr>
<td>(\delta)</td>
<td>0.827484</td>
<td>0.050212</td>
<td>16.47982</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Adj R^2 = 0.86.

Q Stat for Residuals (p Values are shown in parentheses):
Lag 6: 5.50 Lag 12: 20.699 Lag 18: 35.738 Lag 24: 49.64
(0.239) (0.023) (0.003) (0.001)

All the estimated coefficients are highly significant. High value of R^2 also suggests very good fit of the model. However, these are not enough to find an appropriate model unless the estimated residuals turn out to be white noise. We were particularly interested in checking the serial correlation left in the residuals. To perform this, we calculate the Ljung-Box Q statistics from the autocorrelations and partial autocorrelations of the residual series up to 24 lags. If the estimated residuals are serially uncorrelated, the Q statistic for any specific lags should be insignificant. Here we report Q statistics for lags 6, 12, 18 and 24. We find that Q statistic is decisively significant at lags 12, 18 and 24, which is an indication of the presence of serial correlation in the residuals. It implies that model represented in equation [4.1] is not adequate and we need to look for a little more complicated model.

If we look at the ACF of the industrial production series, we may observe the slowly decaying autocorrelations with the relative peak at lag 12. Thus we may
want to include an MA term with single lag 12 along with the AR(1) and SAR(12) in our model. This model can be represented as:

**Model 2:**

\[(1 - \alpha_i L)(1 - L^{12}) Y_t = c + (1 + \beta_i L^{12}) \varepsilon_t \]  

[5]

The result of which is shown below:

<table>
<thead>
<tr>
<th>Estimates</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>943.2226</td>
<td>2845.279</td>
<td>0.331504</td>
</tr>
<tr>
<td>$\alpha_i$</td>
<td>0.364892</td>
<td>0.091959</td>
<td>3.967986</td>
</tr>
<tr>
<td>$\delta$</td>
<td>0.991984</td>
<td>0.027448</td>
<td>36.14060</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>-0.896867</td>
<td>0.023559</td>
<td>-38.06874</td>
</tr>
</tbody>
</table>

Adj R$^2 = 0.8919$

**Q Stat for Residuals** (p Values are shown in parentheses):

- Lag 6: 8.443 (0.038)
- Lag 12: 14.23 (0.114)
- Lag 18: 18.808 (0.223)
- Lag 24: 33.56 (0.04)

**Q Stat for Squared Residuals** (p Values are shown in parentheses):

- Lag 6: 9.526 (0.023)
- Lag 12: 13.00 (0.163)
- Lag 18: 18.881 (0.219)
- Lag 24: 22.086 (0.395)

Compared with the previous model, we can see that estimation of equation [5] gives relatively larger coefficients for AR and SAR terms. Nevertheless, all the coefficients are highly significant. The significant Q-stats for the residual at lag 6 and 24, however, still indicate the serial correlation in the residuals. Again, this suggests need for re-specification of the model.

We may now look again at the wavy seasonal pattern of the ACF of the industrial output series. It can be seen that every wave has the duration of about six months. Thus we introduce multiplicative Seasonal MA term (SMA (12)) along with
MA(6) term and multiplicative Seasonal AR (SAR(12)) with AR(1) term in our new specification, which can be shown as:

**Model 3:**

\[(1 - \alpha_1 L)(1 - \delta L^{12}) Y_t = c + (1 + \beta_1 L^6)(1 + \gamma L^{12}) \varepsilon_t\]

the estimation results of which are shown below:

<table>
<thead>
<tr>
<th>Test</th>
<th>Estimates</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1708.259</td>
<td>8959.224</td>
<td>0.190670</td>
<td>0.8492</td>
</tr>
<tr>
<td>(\alpha_1)</td>
<td>0.365602</td>
<td>0.092180</td>
<td>3.966170</td>
<td>0.0001</td>
</tr>
<tr>
<td>(\delta)</td>
<td>0.995816</td>
<td>0.023481</td>
<td>42.40898</td>
<td>0.0000</td>
</tr>
<tr>
<td>(\beta_1)</td>
<td>-0.178433</td>
<td>0.095791</td>
<td>-1.862734</td>
<td>0.0654</td>
</tr>
<tr>
<td>(\gamma)</td>
<td>-0.890753</td>
<td>0.024360</td>
<td>-36.56691</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Adj R^2 = 0.8957

**Q Stat for Residuals** (p Values are shown in parentheses):

Lag 6: 1.125 (0.57)
Lag 12: 7.06 (0.53)
Lag 18: 11.489 (0.647)
Lag 24: 27.041 (0.134)

**Q Stat for Squared Residuals** (p Values are shown in parentheses):

Lag 6: 7.039 (0.03)
Lag 12: 11.45 (0.177)
Lag 18: 19.72 (0.139)
Lag 24: 25.81 (0.172)

This model apparently produces better results. All the ARMA coefficients are reasonably significant. Q statistics for the residuals (up to 24 lags) are all insignificant, which indicates no serial correlation in the estimated residuals. However we may have to deal with different kind of problem indicated by the Q statistics of the squared residuals. We see that the Q statistic for the estimated squared residual is significant at lag 6. Although not reported here, lag 5 and 7 also show the significant (at 5% level) Q statistics. This implies the variances of the residuals are serially correlated. Stated differently, this may be an indication
of the ARCH (Autoregressive Conditional Heteroscedasticity) effect. A series is said to have an ARCH effect if its unconditional (long run) variance is constant but there are periods in which the variance is relatively high / low. In the graph of the industrial output indices in figure 1, we may observe the smaller fluctuations of the series prior to the year 1994. There is, however, much more certain statistical test for ARCH effect, which is known as ARCH-LM test. In terms of the previous model we perform this LM test, and with lag 1, the result is shown below:

\[
\hat{\epsilon}_t^2 = 31.54 + 0.179\hat{\epsilon}_{t-1}^2 \\
(0.00) \quad (0.0651)
\]

F Statistic = 3.4749 (0.0651)

nR^2 = 3.4272 (0.0641)

We can reject the null hypothesis of no ARCH at 6% level of significance.

Thus we may need to incorporate this ARCH effect in our ARMA model (equation 5). After some experimentation with the order of ARCH process, we finally specify the following generalized ARCH (GARCH, in short) model:

Model 4:

\[
(1-\alpha_i L)(1-\delta L^{12})Y_t = c + (1+\beta_1 L^6)(1+\gamma L^{12})\epsilon_t \\
\sigma_t^2 = b_0 + b_1\epsilon_{t-1}^2 + b_2\sigma_{t-1}^2 + b_3 Y_t
\]  

[7]

where \(\sigma_t^2\) denotes the conditional variance of the residual. According to our specification, the main difference between model 3 and 4 is that model 3 assumes constant variance for the residual but model 4 assumes that the variance of the estimated residuals is a function of the news about the volatility of the series in the previous period (\(\epsilon_{t-1}^2\)), last period’s forecast variance (\(\sigma_{t-1}^2\)) and current level of Y. The result of the estimation of this model is shown below. As before all the ARMA coefficients are found significant. Now the constant term also turns out to be significant which was insignificant in the model with no accommodation for ARCH. The coefficients in the variance equation are all also significant. Most
importantly, Q statistics for residuals as well as for the squared residuals at any lag are insignificant at conventional 5% level.

**Estimated Model 4:**

\[
(1 - \alpha_1 L)(1 - \delta L^{12}) Y_t = c + (1 + \beta_1 L^6)(1 + \gamma L^{12}) \epsilon_t
\]

\[
\sigma_t^2 = b_0 + b_1 \epsilon_{t-1}^2 + b_2 \sigma_{t-1}^2 + b_3 Y_t
\]

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>229.4776</td>
<td>41.19560</td>
<td>5.570439</td>
<td>0.0000</td>
</tr>
<tr>
<td>\alpha_1</td>
<td>0.472526</td>
<td>0.112462</td>
<td>4.201641</td>
<td>0.0000</td>
</tr>
<tr>
<td>\delta</td>
<td>0.927319</td>
<td>0.026550</td>
<td>34.92758</td>
<td>0.0000</td>
</tr>
<tr>
<td>\beta_1</td>
<td>-0.198338</td>
<td>0.105113</td>
<td>-1.886895</td>
<td>0.0592</td>
</tr>
<tr>
<td>\gamma</td>
<td>-0.535471</td>
<td>0.089619</td>
<td>-5.974940</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

**Variance Equation**

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>b_0</td>
<td>318.0190</td>
<td>96.85419</td>
<td>3.283483</td>
<td>0.0010</td>
</tr>
<tr>
<td>b_1</td>
<td>0.259426</td>
<td>0.132282</td>
<td>1.961165</td>
<td>0.0499</td>
</tr>
<tr>
<td>b_2</td>
<td>-0.694004</td>
<td>0.162457</td>
<td>-4.271923</td>
<td>0.0000</td>
</tr>
<tr>
<td>b_3</td>
<td>-1.990113</td>
<td>0.672988</td>
<td>-2.957128</td>
<td>0.0031</td>
</tr>
</tbody>
</table>

Adj R² = 0.8695

\[\text{DW} : 2.04\]

**Q Stat for Residuals** (p Values are shown in parentheses):

<table>
<thead>
<tr>
<th>Lag</th>
<th>Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3.78</td>
<td>0.15</td>
</tr>
<tr>
<td>12</td>
<td>7.47</td>
<td>0.48</td>
</tr>
<tr>
<td>18</td>
<td>18.62</td>
<td>0.18</td>
</tr>
<tr>
<td>24</td>
<td>28.352</td>
<td>0.101</td>
</tr>
</tbody>
</table>

**Q Stat for Squared Residuals** (p Values are shown in parentheses):

<table>
<thead>
<tr>
<th>Lag</th>
<th>Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4.88</td>
<td>0.09</td>
</tr>
<tr>
<td>12</td>
<td>10.032</td>
<td>0.263</td>
</tr>
<tr>
<td>18</td>
<td>19.996</td>
<td>0.130</td>
</tr>
<tr>
<td>24</td>
<td>24.00</td>
<td>0.242</td>
</tr>
</tbody>
</table>
The formal ARCH LM test could not reject the no ARCH hypothesis for any lag specification (not reported here). Although this model is a quite good one, we can still try to find some better model, as some of the Q stats for residuals and squared residuals in this model are only marginally insignificant.

In search of a better model we may return to the model 3 (equation 6) and try to incorporate ARCH specification in this model. Note that the calculated Q statistics for squared residuals in model 3 are found significant for the lags 4 to 10. These might be the indication of the presence of ARCH effect. The formal ARCH LM (1) test on this model shows the presence of ARCH effect at 10% level of significance.

The suggested GARCH model is:

\[
(1 - \alpha_t L)(1 - \delta L^{12})Y_t = c + (1 + \beta_t L^{12})\epsilon_i
\]

\[
\sigma_t^2 = b_0 + b_1\epsilon_{i-1}^2 + b_2\sigma_{i-1}^2 + b_3Y_t
\]  

\[\text{ARCH LM (1) Test for Model 2:}\]

\[
\hat{\epsilon}_t^2 = 33.65 + 0.163\hat{\epsilon}_{t-1}^2
\]

\[
F \text{ Statistic} = 2.8409 \ (0.0949) \quad nR^2 = 2.8186 \ (0.0931)
\]

*p-values are in parentheses*
The result of the estimation is shown below:

Estimated Model 5:

\[ (1 - \alpha_1 L)(1 - \delta L^2) Y_t = c + (1 + \beta_1 L^2) \epsilon_t \]

\[ \sigma_i^2 = b_0 + b_1 \epsilon_{i-1} + b_2 \sigma_{i-1}^2 + b_3 Y_t \]

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>238.6053</td>
<td>51.59849</td>
<td>4.624270</td>
<td>0.0000</td>
</tr>
<tr>
<td>( \alpha_1 )</td>
<td>0.516633</td>
<td>0.115334</td>
<td>4.479460</td>
<td>0.0000</td>
</tr>
<tr>
<td>( \delta )</td>
<td>0.928115</td>
<td>0.031024</td>
<td>29.91637</td>
<td>0.0000</td>
</tr>
<tr>
<td>( \beta_1 )</td>
<td>-0.565369</td>
<td>0.095167</td>
<td>-5.940813</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Variance Equation

| B_0   | 334.2981 | 102.2236  | 3.270262   | 0.0011|
| B_1   | 0.240220 | 0.102809  | 2.336577   | 0.0195|
| b_2   | -0.721578| 0.154760  | -4.662564  | 0.0000|
| b_3   | -2.059769| 0.708525  | -2.907125  | 0.0036|

Adj R^2 = 0.86       DW = 2.08

**Q Stat for Residuals** (p Values are shown in parentheses):

\[(0.16)\] \[(0.52)\] \[(0.311)\] \[(0.258)\]

**Q Stat for Squared Residuals** (p Values are shown in parentheses):

\[(0.71)\] \[(0.317)\] \[(0.209)\] \[(0.195)\]

Obviously this model produces the best results so far. All the coefficients in ARMA and variance equations are significant. Moreover, the Q statistics of the estimated residuals and squared residuals up to lag 24 are not significant at any reasonable level of significance. Another advantage of this model over model 4 is that this is more parsimonious. However, ultimate model selection will be done
based on the forecasting ability of the model. In the next section we will examine the forecasting ability of these two models.

5. FORECASTING

We have so far introduced five ARMA models for the industrial output of Bangladesh. It is already shown that the first three models could not pass the diagnostic tests. Model 4 and 5 are the preferred ones where we assume a GARCH (1,1,Y) process for the error variance. In model 4 we include a constant, AR(1), multiplicative SAR for lag 12 and MA(12) as regressors. In model 5 we retain AR(1) and SAR(12) and also include MA(6) with multiplicative SMA(12). It is found that estimated coefficients and their standard errors are similar in these two models. It can be noted that these models can explain about 86% of the total variation in industrial output index.

As noted earlier, we have estimated these models using the data that cover the period between 1992:01 and 2001:12. We retain remaining samples between 2002:01 and 2002:11 for out of sample forecasting. In the following figures we have shown the dynamically forecasted values of industrial output index for these eleven months.
Figure 3: Forecast of Industrial Production based on Model 4

Figure 4: Forecast of Industrial Production based on Model 5
The two figures are almost identical. Both the forecasted series roughly mimic the actual series. On average, both models under-predict the industrial production in the first and third quarters and over-predict in the remaining two quarters. However, these two models exhibit slight differences in the magnitudes of the forecast errors. The forecasting evaluation based on various forecasting error criteria is summarized in the following table:

**Forecast Evaluation:**

<table>
<thead>
<tr>
<th></th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root Mean Squared Error</td>
<td>4.717268</td>
<td>4.305568</td>
</tr>
<tr>
<td>Mean Absolute Error</td>
<td>3.419541</td>
<td>3.189317</td>
</tr>
<tr>
<td>Mean Absolute Percentage Error</td>
<td>2.293223</td>
<td>2.138738</td>
</tr>
<tr>
<td>Theil Inequality Coefficient</td>
<td>0.015951</td>
<td>0.014500</td>
</tr>
<tr>
<td>Proportions of Mean Squared Error Bias Proportion</td>
<td>0.097331</td>
<td>0.003878</td>
</tr>
<tr>
<td></td>
<td>Variance Proportion</td>
<td>0.000450</td>
</tr>
<tr>
<td></td>
<td>Covariance Proportion</td>
<td>0.902219</td>
</tr>
</tbody>
</table>

In terms of all basic criteria it is evident that model 5 produces the smaller forecast errors. Mean squared error, Mean absolute error and Mean absolute percentage error are slightly bigger in model 4. Theil inequality coefficients are very close to zero in both model indicating almost perfect fit.

We also report the components of total mean squared for both models. The bias proportion tells us how far the mean of the forecast is from the mean of the actual series. The variance proportion tells us how far the variation of the forecast is from the variation of the actual series. The covariance proportion measures the remaining unsystematic forecasting errors. Note that the bias, variance, and covariance proportions add up to one. If the forecast is "good", the bias and variance proportions should be small so that most of the bias should be concentrated on the covariance proportions. Here we observe that in model 4 bias and variance proportions account for about 10 percent, whereas in model 5, these two proportions account for only 1 percent. Particularly the bias proportion is relatively large (about 9%) in model 4, which indicates that mean of the forecasts does a poor job of tracking the mean of the dependent variable. On the contrary, in model 5 most of the errors (about 99%) come from the unsystematic sources, indicating very good forecast performance. Thus we may treat model 5 as our desired forecasting model.
6. **CONCLUSION**

In this paper we tried to develop a short run forecasting model of industrial production for Bangladesh using the information about the history of industrial production. In attempting to do so we introduced several ARMA models and based on some diagnostic tests we finally chose two models for forecasting. We then showed that between these two models, one model is preferred over another for forecasting purpose. Our preferred model suggests an ARMA specification with multiplicative seasonal autoregressive term. This model implies that we can forecast the industrial output series; at least for few months ahead using the information about last month’s industrial output, seasonal variation in the series and shocks occurred in the same period of last year. There may exist many other variables, which can be used for forecasting industrial output. However, our analysis shows that information regarding the history of industrial output alone can be very useful in predicting the future values of the series.

**References**


