



# Economic and Social Impact of Global Financial Crisis: Implications for Macroeconomic and Development Policies in South Asia

Rashid Amjad  
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**PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS**  
**ISLAMABAD**

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## 1. INTRODUCTION<sup>1</sup>

The South Asian countries in general were hit hard by the global financial crisis which came in the wake of an unprecedented increase in oil and food prices. The severity of the economic downturn, however, varied from country to country. The regional economies experienced sharp slowdown in economic growth coupled with widening current account deficits, depreciating currencies, and falling foreign exchange reserves. Pessimistic projections for global economic growth and world trade continue to pose a serious risk to growth and development prospects in the South Asian economies. Sizable segments of population in these economies are poor and a slowdown in economic growth would not only add to their miseries but also push low-income households into poverty. With public finances already under pressure, there may be limited options to provide support to the poor and the vulnerable groups. The falling living standards may also trigger protectionist policies that will further harm the already fragile process of regional economic integration in South Asia initiated under the aegis of SAARC. Against this backdrop, the challenge for these economies is to develop an effective response to deal with the potential risks to economic growth and living standards; and to put in place mechanisms for coordinated policy actions to further the agenda of regional economic cooperation in South Asia.

The broad objectives of the present study are to examine the impact of the global financial crisis as it unfolded during 2008 and 2009 on four major South Asian economies i.e., Pakistan, India, Bangladesh and Sri Lanka; identify policy actions taken to mitigate the adverse impacts of the crisis; and spell out a broader framework for macroeconomic and development policies to ensure sustainable and inclusive growth. The study is organised as follows. Section 2 explores the major channels through which the global financial crisis spread to the South Asian economies. Section 3 analyses the economic performance of the regional economies before and after the financial crisis with a view to identifying initial conditions—including shock absorbers and shock amplifiers—that prevailed before the crisis. It is argued that the regional economies' ability to cope with financial crisis critically hinges on

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<sup>1</sup>The paper basically analyses the impact of the crisis on South Asian economies during 2008 and 2009. In the course of revision of the paper some data for 2010 have been incorporated but the basic analysis is focused on these two years. It should also be noted that data for 2008 and 2009 refer to the financial year in each country (e.g. FY 2008 is March 2007-February, 2008 in India, July 2007-June 2008 in Pakistan and Bangladesh, and January 2008 to December 2009 in Sri Lanka).

the initial conditions. Section 4 examines the policy responses and their role in mitigating the impact of financial crisis. Section 5 provides a quantitative assessment of the impact of financial crisis on key macroeconomic variables. Section 6 spells out a broader framework encompassing both macroeconomic and development policies that are needed to put the economies on sustainable growth trajectories. The prospects of regional economic cooperation are explored in Section 7, whereas Section 8 summarises the substantive findings of the study.

## 2. HOW THE REGIONAL ECONOMIES ARE AFFECTED? THE CHANNELS OF TRANSMISSION

The main channels through which the global financial crisis can potentially have an impact on South Asian economies are trade in goods and services, capital flows, remittances, and equity values. The most important channel is the exports of the South Asian economies to the developed world. The United States and Europe remain the major markets for the bulk of South Asian exports. With sharp contraction in demand in the western economies, the South Asian economies saw a steep decline in export growth, with the exception of Bangladesh. Exports of Bangladesh grew at over 15 percent per annum during 2007 and 2008 but slowed to 10.3 percent in 2009. After registering a strong growth in 2008, exports of both Pakistan and India fell respectively by 4.8 percent and 6.4 percent in 2009. Sri Lanka witnessed the largest decline in export earnings (12 percent) in 2009.

Table 2.1

### *Export Growth Performance*

Country	Growth Rates				
	2005	2006	2007	2008	2009
Bangladesh	13.8	21.6	15.7	15.9	10.3
India	28.5	23.4	22.6	28.9	-4.8
Pakistan	16.8	14.3	4.4	18.2	-6.4
Sri Lanka	10.2	8.5	12.8	8.8	-12.0

*Source:* Economic Survey of all countries and monthly statistical bulletin.

A similar trend is observed for imports of South Asian economies. In Bangladesh, import growth slowed sharply from 27.6 percent in 2008 to 10.5 percent in 2009. India witnessed a massive deceleration in import growth from 35.2 percent in 2008 to only 0.2 percent in 2009. Imports sharply declined in both Pakistan and Sri Lanka in 2009 (respectively by 10.3 percent and 18.3 percent) on the back of a slowdown in economic growth.



Table 2.2  
*Import Growth Performance*

Country	Growth Rates				
	2005	2006	2007	2008	2009
Bangladesh	20.6	12.2	8.3	27.6	10.5
India	48.6	32.1	21.4	35.2	0.2
Pakistan	39.6	31.6	8.0	31.2	-10.3
Sri Lanka	10.8	15.7	10.2	24.0	-18.3

*Source:* Economic Survey of all countries and monthly statistical bulletin.

Foreign direct investment plays an important role in the South Asian economies providing necessary resources, technology, and managerial expertise. With the global economic slowdown on the back of a deepening liquidity crunch in the developed countries, FDI into South Asia also contracted with the exception of Pakistan where FDI increased slightly from \$5026 million in 2007 to \$5078 million in 2008. The increase in FDI mainly reflected on-going FDIs and fell sharply in 2009 to \$3209 million. In Bangladesh, FDI fell from \$793 million in 2007 to \$650 million in 2008, in India from \$ 32327 million to \$20700 million and in Sri Lanka from \$548 million to \$313 million. In the case of both Bangladesh and India it sharply bounced back in 2009 and in both countries was higher in 2009 as compared to 2008. In Sri Lanka the downward trend continued.

Table 2.3  
*Foreign Direct Investment*

Country	US \$ Million			
	2006	2007	2008	2009
Bangladesh	743	793	748	941
India	21,991	32,327	20,700	35180
Pakistan	3,450	5,026	5,078	3209
Sri Lanka	451	548	313	151*

*Source:* Asian Development Outlook: 2009; Monthly Statistical Bulletin for all countries.

\*For half year.

Remittances are an important source of foreign capital for South Asian countries and are believed to play an important role in poverty reduction. Contrary to expectations, the South Asian countries as a whole witnessed a 36 percent growth in remittances in 2008 which further increased by about 9 percent in 2009. This is partly due to the fact that a large number of South Asian labour works in middle-eastern countries and these countries have not significantly reduced hiring of migrants, (given the unprecedented increase in pre-crisis oil prices) with the exception of Dubai. On the other hand, the growth in remittances may also be the

result of returning migrants bringing back their accumulated savings. In this case, however, one may expect a decline in future remittances which did not happen and it shows that return migration is not an important cause of the increase in remittances. A reason for this growth may well be a switch in the motivation for remittances from consumption to investment: falling asset prices, rising interest rate differentials and a depreciation of the local currency may have attracted investment from migrants. This has been particularly the case in India. Bangladesh and Pakistan reported falling remittances from the US while flows from GCC countries remained strong.<sup>2</sup>

Table 2.4  
*Worker Remittances*

Country	US \$ Billion		
	2007	2008	2009
Bangladesh	5.98	7.92	9.70
India	30.80	43.50	46.90
Pakistan	5.49	6.45	7.80
Sri Lanka	2.50	2.92	1.60

*Source:* SBP, 2009; Economic Survey of India, 2009; Economic Survey of Sri Lanka, 2009; Economic Survey of Bangladesh, 2009; Reserve Bank of India.

Globally integrated stock markets are also potential channels of the financial crisis. In South Asia, however, with the exception of India and to some extent Pakistan, the impact of financial crisis through the stock markets is likely to be minimal not least because of the relatively under-developed nature of these markets and their limited exposure to global financial institutions. Nevertheless, the ripple effects of a world-wide decline in stock values—equities lost 42 percent of their value across the globe in 2008—were also felt in the South Asian economies. India was the hardest hit with major indices losing about 50 percent of their value accompanied by an outflow of foreign equity amounting to \$12 billion in 2008. In Pakistan, the KSE-100, the major stock market index, plummeted from a peak of 14814 points in December 2007 (market capitalisation of Rs 4.57 trillion) to 5865 points (market capitalisation of Rs 1.85 trillion) in December 2008 declining further to 4929 points (market capitalisation of Rs 1.58 trillion) in January 2009. In Bangladesh, the Dhaka Stock Exchange, the country's major bourse, declined by 12.6 percent in November 2008, compared to June 2008. Overall in 2008 there was a decrease of 7.2 percent in the stock exchange of Bangladesh.

<sup>2</sup>Rajan I. (2009) The Financial Crisis in Gulf and its Impact on South Asian Migrant Workers. A Study submitted to the ADB under RETA.

As investor confidence plunged in the wake of the global financial crisis, all the four economies witnessed an outflow of portfolio investment. India exhibited the largest outflow in portfolio investment amounting to US\$13855 million in 2009, followed by Pakistan (US\$510.4 million), Bangladesh (US\$159 million) and Sri Lanka (US\$31 million). In Pakistan the impact was so severe that the stock market was closed for several days to stabilise the market sentiment.

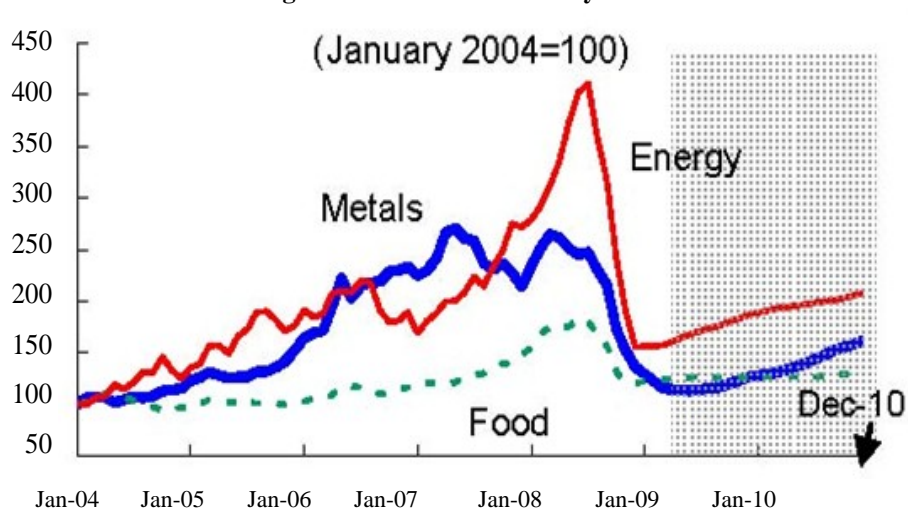
Table 2.5  
*Portfolio Investment*

Country	US \$ Million					
	2004	2005	2006	2007	2008	2009
Bangladesh	6.0	0.3	32.0	106.0	47.0	-159.0
India	11,377	9,315	12,492	7,003	27,271	-13855
Pakistan	-27.7	152.6	351.5	1820.4	19.3	-510.4
Sri Lanka	11.0	60.0	51.0	101.0	60.0	-31.0

Source: Economic Survey of Bangladesh, 2009; Economic Survey of India, 2009; Economic Survey of Pakistan, 2009; Economic Survey of Sri Lanka, 2009.

As a result of world recession, the upsurge in global food and fuel prices has abated and all major commodity prices have declined in the recent period. This has provided a welcome relief to the South Asian economies which were under considerable strain as a result of spike in global food and fuel prices in the period immediately preceding the financial crisis.

Fig. 2.1. Selected Commodity Prices



Source: IMF (2009) The Implications of the Global Financial Crisis for Low-income Countries.

### 3. AN OVERVIEW OF THE MACROECONOMIC PERFORMANCE BEFORE AND AFTER THE CRISIS

The overall growth performance of the South Asian economies was quite impressive in the years preceding the global financial crisis. In Bangladesh, GDP growth averaged over 5 percent during the period from 2000 to 2007, accelerating from 5.9 percent in 2000 to 6.4 percent in 2007. Growth was particularly strong in manufacturing and services sectors and this helped offset the weak growth in agricultural sector. In Pakistan, growth reached at 9.0 percent in 2005 before slowing down to 6.8 percent in 2007. The strong growth was driven mainly by healthy growth momentum in the manufacturing and services sectors. The industrial sector grew at an average annual rate of 9.5 percent led by large and small scale manufacturing, electricity and gas distribution, mining and quarrying, and construction. The services sector also expanded vigorously with growth reaching 8.2 percent in 2008 up from 7.6 percent in 2007. While growth in the services sector was broad-based, the financial sector provided a major impetus with an average growth of 15 percent spurred by far reaching banking reforms.

Table 3.1

<i>GDP Growth Rates</i>							
Country	2004	2005	2006	2007	2008	2009	2010
Bangladesh	6.3	6.0	6.6	6.4	6.2	5.9	5.2
India	8.5	7.5	9.5	9.7	9.0	6.9	7.0
Pakistan	7.5	9.0	5.8	6.8	3.7	1.2	4.1
Sri Lanka	5.4	6.2	7.7	6.8	6.0	4.0	6.0

*Source:* Economic Survey of Pakistan, 2010; Economic Survey of India, 2009; Economic Survey of Bangladesh, 2009; Economic Survey of Sri Lanka, 2009; Asian Development Outlook: 2009 Update.

In recent years, India has been the fastest growing economy in the region with GDP growth sharply accelerating from 4 percent in 2000 to 9.7 percent in 2007. Strong economic growth in India is attributed to a healthy performance by the manufacturing sector on the back of strong domestic demand, robust exports, and substantial inflows of FDI in the manufacturing sector. The services sector also exhibited a strong performance led by investments in Information and Communications Technology. Despite facing a number of challenges including Tsunami in 2005 that devastated tourism and fisheries, Sri Lanka managed to post strong growth in recent years with economic growth averaging at over 6 percent per annum. Economic growth in Sri Lanka has been fairly broad based with major productive sectors including agriculture, manufacturing and services posting strong performance especially in 2008.

Table 3.2  
*Sectoral Growth Rates*

Indicators	Bangladesh			India			Pakistan			Sri Lanka		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
GDP	6.4	6.2	5.9	9.7	9.0	6.9	6.8	3.7	1.2	6.8	6.0	4.0
Agriculture	4.6	3.2	4.6	4.9	5.5	0.6	1.0	4.0	2.0	3.4	7.5	*4.4
Manufacturing	8.4	6.9	5.9	8.1	7.9	3.5	4.0	-3.7	5.2	7.6	5.9	*3.0
Services	6.9	6.7	6.3	10.9	10.5	9.7	6.0	1.6	4.6	7.1	5.6	*1.4
Per Capita GDP	5.1	4.9	4.2	7.5	5.6	3.5	5.3	4.3	1.2	6.1	4.9	3.5

Source: Asian Economic Outlook: 2009, Economic Survey of Pakistan, 2010; Special Statistical Bulletin 2009, Bangladesh; Reserve Bank of India Bulletin May 2009.

\*[http://www.statistics.gov.lk/national\\_accounts/Web%20pdf/Summary%20Indicators.pdf](http://www.statistics.gov.lk/national_accounts/Web%20pdf/Summary%20Indicators.pdf)

Regional countries exhibited weak macroeconomic fundamentals even before the financial crisis due to sharp increase in global oil and food prices which were not passed on to consumers. For example, fiscal deficit in Sri Lanka was as high as 8 percent of GDP in 2005 before falling to 6.8 percent in 2008. In India, fiscal deficit stood at 7.5 percent of GDP in 2004 falling thereafter to 6 percent in 2008. Whereas Pakistan maintained low fiscal deficit until 2005, the deficit began to rise gradually thereafter reaching 7.4 percent of GDP in 2008 as increases in oil and food prices were not passed on to consumers as it was an election year. Bangladesh maintained fiscal stability with fiscal deficit staying constant at 3.2 percent of GDP during 2004-2007, and rising to 4.7 percent in 2008.

Table 3.3  
*Fiscal Deficit as Percent of GDP*

Country	2004	2005	2006	2007	2008	2009
Bangladesh	-3.2	-3.3	-3.2	-3.2	-4.7	-4.1
India	-7.5	-6.7	-6.4	-5.4	-6.0	-6.8
Pakistan	-2.9	-3.3	-4.3	-4.3	-7.4	-5.2
Sri Lanka	-7.9	-8.4	-8.0	-7.7	-6.8	-7.0

Source: Asian Development Outlook: 2009.

The rate of inflation in Bangladesh increased gradually from 5.8 percent in 2004 to 7.2 percent in 2007, whereas India managed to bring down the rate of inflation to 4.7 percent in 2007 from 6.4 percent in 2004. In Pakistan, inflation accelerated from 4.6 percent in 2004 to 9.3 percent in 2005 before declining slightly to 7.8 percent in 2007. Sri Lanka is the only country in the region that experienced double digit inflation before the financial crisis, with rate of inflation climbing from 9 percent in 2004 to 15.8 percent in 2007.

Table 3.4  
Annual Average Inflation Rates

Country	2004	2005	2006	2007	2008	2009	2010*
Bangladesh	5.8	6.5	7.2	7.2	9.9	6.7	6.5
India	6.4	4.4	5.4	4.7	8.7	2.5	4.0
Pakistan	4.6	9.3	7.9	7.8	12.0	20.8	10.0
Sri Lanka	9.0	11.0	10.0	15.8	22.6	5.0	6.0

Source: Asian Development Outlook: 2009; \* Projected figures.

The South Asian countries rely on debt financing to finance their development needs. The domestic debt to GDP ratio in India, Pakistan, and Sri Lanka declined during the period 2005-2009 from 40.5 percent to 37.9 percent in India, from 33.5 percent to 30.3 percent in Pakistan, and from 51.6 percent to 45.6 percent in Sri Lanka. Foreign debt as percent of GDP has been lowest in India followed by Pakistan and Sri Lanka.

Table 3.5  
Debt as Percent of GDP

Year	India		Pakistan		Sri Lanka	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
2005	40.5	18.5	33.5	28.5	51.6	39.0
2006	38.7	17.2	30.7	25.9	50.3	37.5
2007	37.4	18.1	30.1	24.7	47.9	37.1
2008	38.3	19.0	32.0	26.4	48.3	32.8
2009	37.9	–	30.3	26.8	45.6	31.5

Source: Economic Survey of each country.

During most of the pre-crisis period, the regional economies maintained sound external balances. Except for the year 2005 when Bangladesh posted a current account deficit of 0.9 percent of GDP, it has maintained a current account surplus that amounted to 1.4 percent of GDP in 2007. In India, current account deficit remained low during the period from 2004-07 and stood at 1.5 percent of GDP in 2007. Pakistan witnessed a gradual deterioration in its current account balance from a surplus of 1.3 percent of GDP in 2004 to a deficit of 4.8 percent in 2007. Similarly, there has been a gradual worsening of the current account deficit in Sri Lanka from 2.7 percent of GDP in 2005 to 4.5 percent in 2007.

Table 3.6

*Current Account Balance (as Percent of GDP)*

Country	2004	2005	2006	2007	2008	2009	2010*
Bangladesh	0.3	-0.9	1.3	1.4	0.9	2.8	0.8
India	-0.4	-1.2	-1.1	-1.5	-3.0	-1.5	-2.0
Pakistan	1.3	-1.6	-4.0	-4.8	-8.4	-5.3	-4.8
Sri Lanka	-3.1	-2.7	-5.3	-4.5	-7.1	-3.0	-5.0

Source: Asian Development Outlook: 2009; \*Projected.

All the South Asian countries exhibited stability in the nominal exchange rates during most of the pre-crisis period. In Bangladesh, there was slight currency depreciation with the exchange rate of domestic currency to the US dollar rising from Tk.58.9 in 2004 to Tk.69 in 2007. India on the other hand witnessed an appreciation of the domestic currency with the rate of exchange falling from Rs 44.9 in 2004 to Rs 40.3 in 2007. The currencies of both Pakistan and Sri Lanka depreciated slightly during the period 2004-07: in Pakistan the rate of exchange gradually rose from Rs 57.6 in 2004 to Rs 60.6 in 2007 indicating a slight depreciation, whereas in Sri Lanka the exchange rate rose from Rs 101.2 in 2004 to Rs 110.6 in 2009.

Table 3.7

*Annual Average Exchange Rate (Local Currency to US \$)*

Country	2005	2006	2007	2008	2009	2010
Bangladesh	61.4 (4.2)	67.1 (9.3)	69.1 (2.8)	68.6 -(0.7)	68.8 (0.3)	69.3 (0.7)
India	44.3 -(1.3)	45.3 (2.3)	40.3 -(11.0)	46.0 (14.1)	48.7 (5.9)	46.7 -(4.3)
Pakistan	59.4 (3.1)	59.9 (0.8)	60.6 (1.2)	62.5 (3.1)	78.0 (24.8)	85.2 (8.5)
Sri Lanka	102.1 (0.9)	107.7 (5.5)	108.7 (0.9)	113.1 (4.0)	115.0 (1.7)	114.2 -(0.7)

Source: Asian Development Outlook: 2009, Monthly Statistical Bulletin for all countries; In parenthesis depreciation rates are given (authors' calculations).

The exports of the South Asian countries have exhibited an increasing trend over the last few years. Bangladesh witnessed an increase in exports from \$6389 million in 2000 to \$10526 million in 2006; India from \$42379 million to \$105152 million; Pakistan from \$9028 million to \$16553 million; and Sri Lanka from \$5430 million to \$6886 million. Likewise imports of the South Asian countries have also been on an uptrend. The growing trade volumes indicate the increasing integration of the South Asian economies with the rest of the world.

Table 3.8

*Trade Statistics*

Year/Country	US\$ Million							
	Bangladesh		India		Pakistan		Sri Lanka	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
FY 02	5,986	8540	–		9,140	9,434	4,699	6,105
FY 03	6,548	9658	–		10,889	11,333	5,125	6,671
FY 04	7,603	10903	66,285	80003	12,396	13,604	5,757	8000
FY 05	8,655	13147	85,206	118908	14,482	18,996	6,347	8863
FY 06	10,526	14746	105,152	157056	16,553	24,994	6,886	10253
FY 07	12,178	15971	128,888	190670	17,278	26,989	7,766	11296
FY 08	14,111	20373	166,163	257789	20,427	35,397	8,452	14008
FY 09	15,565	22507	158,201	258379	19,121	31,747	7,437	11,443

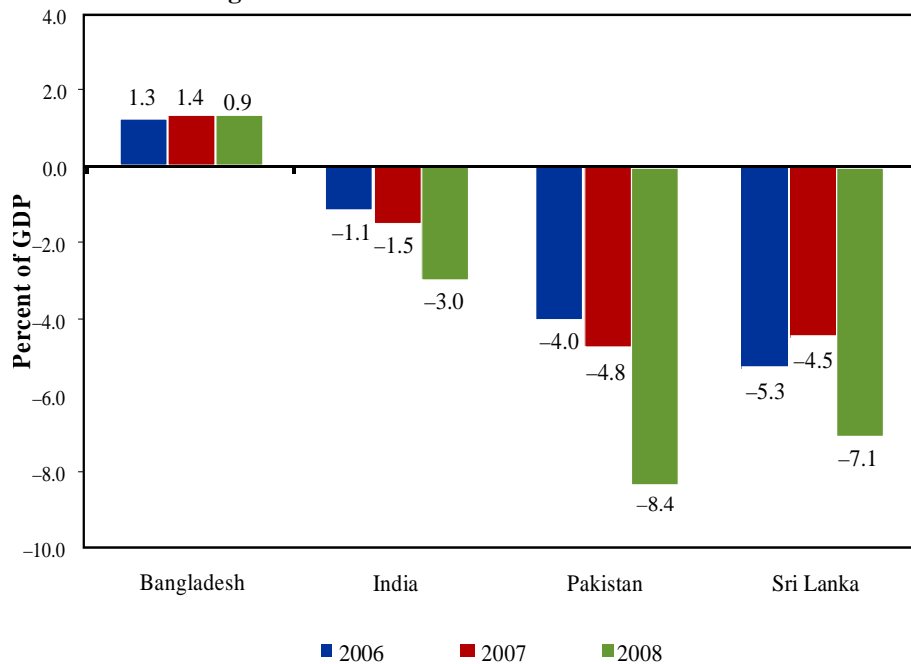
Source: SBP, 2009; Economic Survey of India, 2009; Economic Survey of Bangladesh, 2009; Economic Survey of Sri Lanka, 2009; Note: Figures for Sri Lanka are based on Calendar Year.

### 3.1. After the Crisis

The global financial crisis came at a time when the regional economies were already reeling from terms of trade shock resulting from the global food and fuel price hikes. The financial crisis exacerbated the woes of the South Asian economies resulting in a slowdown in economic growth, widening current account and fiscal deficits, sharply accelerating inflation, dwindling foreign exchange reserves and depreciating domestic currencies. In terms of GDP growth, though Bangladesh performed better than other South Asian countries, it nevertheless saw a moderate slowdown in economic growth from 6.4 percent in 2007 to 6.2 percent in 2008 due mainly to a slight slack in large scale manufacturing and services sectors. GDP growth in Bangladesh fell to 5.9 percent in 2009. Pakistan witnessed a sharp slowdown in economic activity with growth decelerating from an average of 7.3 percent during 2004-07 to 3.7 percent in 2008. Growth slowed down further to about 1.2 percent in 2009 as the security environment posed an additional risk to economic growth. The pace of economic growth in India also slowed considerably with GDP growth slightly falling from 9.7 percent in 2007 to 9 percent in 2008. Both manufacturing and services sectors saw a sharp deceleration in economic activities. GDP growth in India fell to 6.9 percent in 2009. In Sri Lanka, economic growth slowed from 6.8 percent in 2007 to 6 percent in 2008 and the slowdown continued with GDP growing at 4 percent in 2009.

Being highly import dependent and with external accounts already under pressure, both Pakistan and Sri Lanka experienced deterioration in the current account balances. The current account deficit in Pakistan widened to 8.4 percent of GDP in 2008 from 4.8 percent in 2007 and the deficit fell to 6 percent of GDP in 2009. In Sri Lanka, the current account deficit soared from 4.5 percent of GDP in 2007 to 7.1 percent in 2008 and it remained high in 2009. India and Bangladesh have been able to maintain their balance of payments positions at a sustainable level.



**Fig. 3.1. South Asian Current Account Deficits**

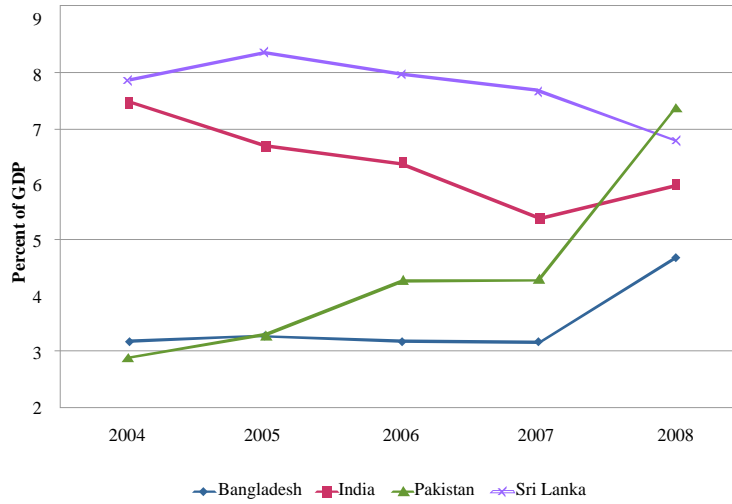
Source: Asian Development Outlook 2009.

On the fiscal side, the budgetary positions generally worsened in the South Asian economies. Fiscal deficit in Bangladesh, after staying almost constant at over 3 percent of GDP during the past few years, increased to 4.7 percent of GDP in 2008. Whereas India was able to bring down its fiscal deficit over the past few years, the financial crisis contributed to a reversal of this trend with the fiscal deficit rising from 5.4 percent of GDP in 2007 to 6 percent in 2008.<sup>3</sup> Pakistan suffered the most with a whopping increase in fiscal deficit from 4.3 percent of GDP in 2007 to 7.4 percent of GDP in 2008 on the back of a weak economy that resulted in slower growth in public revenues. Sri Lanka has been running high fiscal deficits in recent years. However as a result of measures to contain the deficit, the deficit fell from 7.7 percent of GDP in 2007 to 6.8 percent in 2008.

The tight budgetary positions and weak government revenues imperilled expenditure on public sector development programmes including social spending. On the other hand, the regional countries faced a risk of crowding out of private investment with potential increase in the rate of interest triggered by the high fiscal deficits.

<sup>3</sup>If the deficits of the States are added, then the overall deficit comes to about 13 percent of GDP.

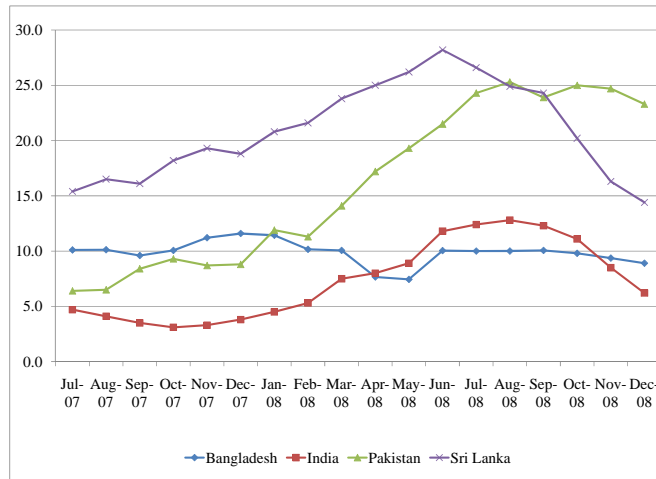
**Fig. 3.2. Fiscal Deficits in South Asia**



Source: Asian Development Outlook 2009.

With the worsening of the current account the domestic currencies came under pressure and depreciated to varying extents in the South Asian region. Pakistan suffered the most followed by India, Bangladesh and Sri Lanka. In addition, all the South Asian economies witnessed acceleration in the rate of inflation though the inflationary pressures have been muted somewhat as a result of effective monetary tightening.

**Fig. 3.3. Trends in Inflation in South Asia**



Source: Asian Development Outlook 2009.

The employment and labour market impact of the crisis though generally assumed to be adverse is difficult to assess due to lack of data. However, evidence from different sources provides a reasonably good picture. The ILO has estimated that almost 4.9 million will be additionally openly unemployed in South Asia in 2009.<sup>4</sup> According to a survey conducted by the World Bank, manufacturing, construction and other export-oriented industries are most vulnerable in the face of the global recession. According to a survey conducted by the Indian Labour Bureau, India lost 500,000 jobs in the last quarter of 2008 alone primarily in gems and jewellery, autos, and textile sectors. The Bangladesh Jute Spinners Association reported a layoff of 20,000 contract workers in January/February 2009. In Pakistan the major sectors that are vulnerable to job losses are automobiles, construction and textiles. Over the recent years before the crisis, growth in Pakistan had been driven by private consumption on the back of cheap consumer financing which helped consumers to buy cars and other consumer durables. As interest rates rose due to strict monetary tightening, consumer spending on durable items contracted and this hit the automobile and other consumer durable sectors. Similarly, the construction boom fuelled partly by the cheap availability of bank financing receded with adverse consequences for employment in such activities. Pakistan's exports are highly concentrated in cotton textiles and the global recession may lead to significant layoffs in this sector.

To sum up, it is clear that Bangladesh has been able to cope effectively with the financial crisis thanks to sound economic management that helped maintain macroeconomic stability despite global food and fuel price hikes. In India, economic growth has remained robust and this will help India further consolidate its macroeconomic fundamentals. The Pakistan's economy has stabilised somewhat after it entered into an agreement with IMF in November 2008, and the recent gains in macroeconomic stability are expected to underpin recovery in economic growth. Though prudent macroeconomic management has enabled Sri Lanka to contain the rate of inflation, it continues to face macroeconomic difficulties including a high current account deficit which poses a serious risk to sustained economic growth.

### **3.2. Shock Absorbers and Shock Amplifiers**

A recent study for the ADB has highlighted the fact that an economy's ability to withstand external economic shocks depends on the presence of shock amplifiers and shock absorbers in the domestic economy. Whereas a shock amplifier would exacerbate the adverse economic shocks, a shock absorber would help cushion the domestic economy from adverse external shocks. Based on this framework, an attempt has been made to identify shock amplifiers and shock absorbers to help determine how resilient these economies are to adverse economic shocks.

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<sup>4</sup>ILO 2009. Global Employment Trends. January 2009.

A key shock absorber is macroeconomic stability in terms of low inflation and sustainable fiscal and current account deficits. The analysis above shows that, by and large, Bangladesh and to some extent India had a stable macroeconomic environment which helped these economies to limit the impact of the crisis. On the other hand, both Pakistan and Sri Lanka were experiencing macroeconomic difficulties that made it difficult to contain the effects of the shock.

The lack of integration of the domestic financial systems with the rest of the world has also acted as a shock absorber as it has limited the transmission of financial shocks to the South Asian economies. Also, the reliance of South Asian economies on domestic consumption rather than exports has acted as a shock absorber. In Bangladesh, Pakistan and Sri Lanka, private consumption exceeds 70 percent of GDP whereas in the case of India it is close to 60 percent of GDP (Table 3.10). The high dependence on domestic consumption has insulated these economies from the ramifications of a slump in demand in advanced economies.

Table 3.9

*Private Consumption (as Percent of GDP)*

Country	2004	2005	2006	2007	2008	2009
Bangladesh	74.9	74.4	74.2	74.1	74.5	–
India	58.7	57.6	55.9	55.0	54.7	–
Pakistan	71.7	75.2	71.5	70.9	68.6	69.6
Sri Lanka	70.9	69.0	67.7	67.2	69.7	–

*Source:* Economic Survey of Bangladesh, 2009; Economic Survey of India, 2009; Economic Survey of Pakistan, 2009; Economic Survey of Sri Lanka, 2009.

A healthy foreign exchange reserves position also acts as a shock absorber. It not only helps stabilise the domestic currency but also underpins sound sovereign ratings thus helping to maintain investor confidence. Whereas Bangladesh and India had stable reserves positions that continued to increase from 2007 to 2008, both Pakistan and Sri Lanka were experiencing declining foreign exchange reserves during the same period. In 2008, total foreign exchange reserves as a proportion of total imports stood at about 30 percent in Bangladesh, 120 percent in India, 24 percent in Pakistan and 18 percent in Sri Lanka.

Table 3.10

*Foreign Exchange Reserves*

Country	2004	2005	2006	2007	2008	2009
Bangladesh	2,705	2,930	3,484	5,077	6,149	7,470
India	112,959	141,514	151,622	199,179	309,723	25,1985
Pakistan	10,564	9,805	10,765	13,345	8,577	8,196
Sri Lanka	2,132	2,651	2,837	3,515	2,563	–

*Source:* <http://www.imfstatistics.org/imf/>; SBP, 2009; Economic Survey of Bangladesh, 2009; Economic Survey of India, 2009.

Lack of economic diversification and high dependence on external financing are major shock amplifiers. With the exception of India, other South Asian economies are not much diversified and in particular their exports are highly concentrated in textiles. This feature, therefore, acts as a shock amplifier in the case of Bangladesh, Pakistan, and Sri Lanka. In terms of external financing both Pakistan and Sri Lanka depend heavily on external financing as is evident from the saving investment gap which stood at 8.5 percent of GDP in Pakistan and 9.3 percent of GDP in Sri Lanka in 2008. A high dependence on external financing works to amplify the impact of adverse shocks which may lead to cuts in external inflows.

Table 3.11

*Saving and Investment Gap (as Percent of GDP)*

Country	2004	2005	2006	2007	2008	2009*
Bangladesh	1.4	1.3	3.0	4.2	5.0	
India	2.2	-0.4	-1.3	-1.2	-1.4	
Pakistan	1.3	-1.6	-3.9	-5.1	-8.5	-5.4
Sri Lanka	-3.3	-3.0	-5.7	-4.6	-9.3	

*Source:* Economic Survey of Bangladesh, 2009; Economic Survey of India, 2009; Economic Survey of Pakistan, 2009; Economic Survey of Sri Lanka, 2009; \* Provisional.

Two points are worth emphasising here especially in the context of Pakistan and Sri Lanka that have suffered relatively more as compared with other South Asian economies despite some shock absorbers in these economies. First, the macroeconomic imbalances witnessed in Pakistan after the food and fuel price hikes made macroeconomic management difficult at a time when the economy was hit by the global financial crisis. For example, high fiscal deficit left little fiscal space to prop up the economy. Second, high concentration of Pakistan's exports in textiles and textiles products combined with geographical concentration in recession-hit markets made Pakistan's exports especially vulnerable to global recession. The case of Sri Lanka is not very different as it too experienced macroeconomic difficulties that were compounded by the financial crisis.

#### 4. MACROECONOMIC POLICY RESPONSES

The regional economies acted swiftly to mitigate the adverse impact of the global financial crisis. This section spells out the key macroeconomic policy responses in Bangladesh, India, Pakistan and Sri Lanka to deal with challenges emanating from the global financial crisis.

#### **4.1. Bangladesh**

Bangladesh managed to minimise the adverse impact of the financial crisis through sound economic management that maintained macroeconomic stability in the face of global food and fuel price hikes, thus providing the economy the space for necessary macroeconomic adjustments. Bangladesh adopted several policy measures to mitigate the impact of the crisis on the domestic economy. Funds were allocated to provide cash subsidies to key export-oriented industries. Bangladesh has implemented social safety nets to cushion the impact of the crisis on the poor and vulnerable groups. Two recently launched programmes are the rural employment and road maintenance programme, and 100-Days Employment Generation Scheme. Among the recent fiscal measures to support business activities, the SME sector has been given income tax relief and an endowment has been established for the SMEs to facilitate the availability of credit to these enterprises.

Bangladesh faced significant inflationary pressure in an environment of persistent rise in international prices of essential commodities and oil. This combined with global economic meltdown posed serious challenge for macroeconomic management in Bangladesh. Against this backdrop, the monetary policy stance aimed at prudent use of monetary instruments to ensure economic growth while at the same time maintaining price stability. During the period from December 2007 to June 2008, the repo rate and reverse repo were kept unchanged at 8.5 percent and 6.5 percent respectively. There was a slight decline in weighted average lending rate from 12.8 percent in June 2007 to 12.3 percent in June 2008. Subsequently, emphasis is being placed on ensuring the flow of adequate credit to productive sectors, and improving the supply situation by accelerating import of essential commodities. Consequently, there has been some monetary easing by the Central Bank resulting in a pickup in private sector credit growth from 16.8 percent in December 2007 to 24.9 percent in June 2008. These measures have helped improve the domestic supply situation thus offsetting the inflationary pressure.

Though the financial sector of Bangladesh is largely insulated from global financial crunch, it has nevertheless taken steps to improve the regulatory structure for the financial sector. In particular, measures have been introduced to bring the domestic banking system at par with international standards through modernisation and improved client services. To strengthen the capital base and to implement Basel-II Accord, the commercial banks have been required to maintain 10 percent capital of the risk weighted assets and to maintain core capital at a minimum of 5 percent of their risk weighted assets.

Though there has been an increase in fiscal deficit in the recent period due mainly to higher public spending on flood relief and income support for the poor, Bangladesh has managed to keep the deficit within sustainable limits. The macroeconomic stability combined with strong growth in exports and remittances and easing of international food and fuel prices have helped Bangladesh's recovery.

## 4.2. India

India introduced various macroeconomic measures to stabilise the financial sector, ensure price stability, and encourage economic growth through adequate availability of credit. Both the Government and the Reserve Bank of India acted in close coordination to ensure coherent fiscal and monetary policies aimed at steering the economy amid the financial crisis. On the fiscal side, India introduced a stimulus package amounting to 1.5 percent of GDP to boost domestic demand as well as to improve infrastructure. These measures were complemented by enhanced public spending on social programmes—such as National Rural Employment Guarantee Programme and Rural Self-Employment Programme—designed to support the low-income groups. The fiscal stimulus contributed to a surge in the fiscal deficit to 6.2 percent of GDP in 2009. Whereas the stimulus package may help underpin economic recovery in the short run, the high fiscal deficit poses a serious threat to macroeconomic stability and risks derailing the fragile recovery. In particular, the consolidated fiscal deficit (including State governments' deficits) is already at 13 percent of GDP and any further rise in fiscal deficit could result in a hike in interest rates thus crowding out private investment.

The monetary policy adopted aimed to shore up growth while containing inflation within reasonable limits. The targets set by the Reserve Bank of India for the monetary policy envisage real GDP growth at 8.5 percent, inflation at about 5 percent, and monetary expansion in the range of 17-17.5 percent. During the year 2007-08 the repo rate and reverse-repo rates were kept at 7.75 percent and 6 percent respectively whereas the cash reserve ratio (CRR) was raised by 150 basis points from 6 percent in April 2007 to 7.5 percent in November 2007. The RBI entered into a monetary tightening face during the first six months of 2008-09 through increases in CRR and RR: the CRR was gradually increased by a total of 150 basis points from 7.5 percent to 9 percent in August 2008; the repo rate was increased by 125 basis points from 7.75 percent in April 2008 to 9.0 percent in August 2008. As these measures tightened the liquidity position and lowered the rate of inflation, the RBI resorted to a careful monetary expansion through changes in key monetary instruments. In particular, the CRR was lowered by 400 basis points to 5 percent in January 2009, the repo rate was also lowered by an equal amount to 5 percent in March 2009, and the reverse-repo rate was reduced by 250 basis points to 3.5 percent in March 2009.

The monetary policy measures have led to a stable interest and exchange rate environment and capital outflows have been stemmed. Foreign exchange reserves have also been stabilised at around \$250 billion, partly helped by decline in global fuel and commodity prices which eased the balance of payments position.

### **4.3. Pakistan**

Pakistan's economy had been under strain due to macroeconomic imbalances that were building up after years of expansionary policies. The global financial crisis accentuated the economic difficulties with widening current account and fiscal deficits, soaring inflation and weakening economic growth. Fearing an economic meltdown, Pakistan sought the support of the IMF in November 2008 to help sustain its macroeconomic recovery. Under the IMF programme, Pakistan is committed to continue to follow tight monetary and fiscal policies to restore macroeconomic stability. In response to sharply rising inflation, the Central Bank considerably tightened the monetary policy by raising the discount rate by 250 basis points during 2007-08. The consequent rise in the rate of interest severely constrained private investment while the impact on inflation was moderate as the latter is driven more by supply bottlenecks rather than demand factors. The IMF agreement requires fiscal deficit to be brought down from 7.4 percent of GDP in 2008-09 to 4.2 percent in 2009-10 and to be further slashed to 3.3 percent in 2010-11.

Public finances remain precarious and there is little room for counter cyclical fiscal measures to boost economic growth. In this scenario, the government is striving to reduce public expenditure on the one hand and to enhance public revenues on the other. In particular, the government aims to phase out subsidies on electricity and gas, improve the efficiency of public development spending through better project monitoring and implementation, and reform tax administration. Despite pressure on public finances, however, the government has taken steps to protect the vulnerable groups from the adverse impact of the financial crisis.

There are emerging signs of macroeconomic stability: inflation has eased, partly because of decline in global food and fuel prices, foreign exchange reserves position has improved, and the current account deficit has been contained. However, the economy continues to face serious challenges—law and order, energy shortages etc.—that may affect its growth prospects in the short to medium term.

### **4.4. Sri Lanka**

The financial crisis hit Sri Lanka at a time when it was experiencing high fiscal deficit fuelled partly by expenditure on subsidies and more recently by the costs of rehabilitation and development of the reclaimed areas from Tamil Tigers. Despite a tight budgetary position, however, Sri Lanka introduced a moderate fiscal stimulus package amounting to 0.3 percent of GDP in 2009. At the same time, to avoid a build-up of macroeconomic imbalances, the government is committed under the IMF programme to contain the fiscal deficit to 7 percent of GDP in 2009, and this has effectively limited the fiscal options to stimulate the economy.

Faced with soaring inflation, Sri Lanka adopted a tight monetary policy stance in 2008. The Central Bank adopted quantitative targeting to contain monetary expansion and this succeeded in lowering the rate of inflation to 7.6 percent by



February 2009. Consequently, the monetary policy has been eased with a lowering of the benchmark interest rates of Repurchase (REPO) and the Reverse Repurchase (RREPO) respectively by 225 bps and 125 bps in 2009. Also, the statutory reserve requirement for the commercial banks has been lowered.

In the initial period after the crisis, the Central Bank intervened in the foreign exchange market to defend the domestic currency which came under severe pressure amid the global financial crisis. The intervention resulted in a decline in the foreign exchange reserves to very low levels. In the recent period, however, the domestic currency has been allowed to depreciate and this has led to a build-up of foreign exchange reserves to about US\$ 4 billion.

## **5. A QUANTITATIVE ASSESSMENT OF THE IMPACT OF THE FINANCIAL CRISIS**

This section employs the Papanek-Basri (2009) framework for estimating the impact of world economic crisis on Bangladesh, India, Pakistan and Sri Lanka. The methodology involves a two-stage procedure to estimate the direct and indirect impact of the global financial crisis on the South Asian economies. In the first stage, the direct impact on the domestic economies is estimated through exports, foreign investment and fiscal deficits. The analysis in the first stage has four components, which are combined together to provide an estimate of the direct impact of the global recession on the South Asian economies. We begin our analysis with estimating the impact of the recession on exports of not only goods, but also of services; which are an important source of revenue for the economies of India and Pakistan in particular. Export is an important channel through which impact of the recession is felt on the domestic economies; more so since the bulk of exports of the South Asian economies are destined for developed countries which have witnessed a substantial fall in demand for imports. We take account of the fact that imports may be cheaper, and coupled with decreased demand for these imports in the domestic economy (on account of the decreased demand for exports), this is a potential source of offsetting the decline in exports.

The next step focuses on gross and net impact of changes in export of services (including remittances, tourism receipts, shipping, and interest on private debt). Some of the countries, such as Pakistan, have exhibited particularly resilient trends in remittance inflows so far, which will offset the negative effect of export demand shortfall to some extent. The third step involves the impact on private investment flows (private domestic investment as well as FDI). Again, any projected increase in domestic investment in 2009 will offset the impact of the crisis coming through the other channels. The fourth and final step looks at the effect of the recession on the size of the government deficit.

In the second stage, a Keynesian-type multiplier is used to estimate the indirect impact of changes in key macroeconomic variables on GDP. The detailed

derivation of the multiplier is provided in the appendix. Data on key macroeconomic variables has been collected from a variety of sources, both international as well as domestic.

### 5.1. Estimation of the Direct Impact

#### *Step 1: Estimated Change in Export Earnings in 2009 Compared to 2008*

The gross decline in goods exports in the four countries is based on actual export flows for 2008 and 2009 (Table 5.1). We see that no significant decline in exports of Bangladesh is expected while India is expected to be affected the most in terms of decline in export earnings, followed by Pakistan and Sri Lanka.

Table 5.1

<i>South Asian Exports for 2008 and 2009</i>			
Country	2008	2009	Exports of 2009 as % of 2008
Bangladesh	15,486	15,059	97.2%
India	183,534	154,946	84.4%
Pakistan	21,215	18,327	86.4%
Sri Lanka	8,073	7,151	88.6%

*Source:* Monthly Statistical Bulletin for all countries.

With the fall in exports, the demand for imported inputs that are used in the production of these exports will also contract. There are a number of ways in which the share of imported inputs in exports (and also domestic production) can be computed including, input/output tables, export demand function estimates and ratio of imported inputs in domestic production. Here we use the share of imported inputs in domestic production (2004–2008) to estimate a baseline scenario (average) of these shares for each country that are used in estimating the direct effect of the crisis on the domestic economies (Table 5.2). We also construct two additional scenarios with +/-5 percentage points variation around these baseline estimates.

Table 5.2

<i>Coefficients for Imported Inputs (2004-2008)</i>	
Country	Coefficient
Bangladesh	19.1
India	21.4
Pakistan	19.0
Sri Lanka	24.5

*Source:* Authors' calculations. The Coefficient is simply the value of imported inputs expressed as a percentage of GDP. Data are taken from UN COMTRADE Database.

The decline in export value needs to be disaggregated into price and quantity effects. The quantity effect for each country is estimated by the ratio of percentage change in exports at current prices to the percentage change in exports at constant prices. The remaining is attributed to variation in exports due to changes in prices. Table 5. details the result of this analysis, based on export data for the four countries for two comparable quarters (Quarter– II) in 2008 and 2009. In the case of India, we see that the quantity effect of decline in export value is 50.8 percent, while the price effect is (100-50.8) 49.2 percent. The decline of Pakistan’s exports exhibits a significantly greater price effect (86.9 percent) than a quantity effect (13.1 percent). Bangladesh shows a similar trend, with 19.3 percent of the change being attributed to quantity effect and 80.7 percent being caused by price effect. Sri Lankan exports have been affected in a relatively more balanced fashion, with a price effect of 69.2 percent and a quantity effect of 30.8 percent.

Table 5.3

*Exports at Current and Constant Prices (Q 2 – 2008 and Q 2 – 2009)  
and Quantity and Price Effects*

Country	Current Prices			Constant Prices			Effect (%)	
	Q2-2008	Q2-2009	% Change	Q2-2008	Q2-2009	% Change	Quantity	Price
Bangladesh	3,961	3,921	-1.03	2,990	3,582	19.80	100	
India	49,358	34,568	-29.96	37,253	31,582	-15.22	50.8	49.2
Pakistan	5,961	4,799	-19.49	4,499	4,385	-2.54	13.1	86.9
Sri Lanka	2,010	1,541	-23.32	1,517	1,408	-7.18	30.8	69.2

Source: Monthly Statistical Bulletins for all countries.

To take into account the potential impact of reduced cost of imported products used in the production process of the country’s exports, a similar method has been used to estimate the price and quantity effects for imported inputs. It can be seen that the price effect is relatively strong in the case of Bangladesh, at 71.7 percent, followed by Pakistan (at 57.1 percent). On the other hand, the quantity effect is stronger in the case of India (55.9 percent) and Sri Lanka (67.5 percent), as compared to the price effect (44.1 percent and 32.5 percent) respectively (Table 5.4).

Table 5.4

*Imports at Current and Constant Prices (Q 2 – 2008 and Q 2 – 2009)*

Country	Current Prices			Constant Prices			Effect (%)	
	Q2-2008	Q2-2009	% Change	Q2-2008	Q2-2009	% Change	Quantity	Price
Bangladesh	6,756	5,075	-24.9	5,027	4,673	-7.0	28.3	71.7
India	78,362	50,936	-35.0	58,309	46,899	-19.6	55.9	44.1
Pakistan	10,144	7,165	-29.4	7,548	6,597	-12.6	42.9	57.1
Sri Lanka	3,725	2,153	-42.2	2,772	1,982	-28.5	67.5	32.5

Source: Monthly Statistical Bulletins for all countries.

***Step 2: Impact of Recession on Services Exports***

Services exports comprise of migrant remittances, tourism receipts, revenue from shipping industry, interest on private debt, and IT services. Data collected from national sources suggest that services exports declined from US \$338 million to US \$240 million in the case of Sri Lanka. This trend is most likely on account of lowered out-sourcing levels by foreign multinational firms as well as lower tourism revenues due to individuals adjusting their consumption patterns in the face of economic hardship. However, in the case of Bangladesh, India and Pakistan, services exports increased by US\$96 million, US\$3,606 million and US\$426 million respectively in 2009 over corresponding figures for the previous year, largely on account of increased remittance flows from workers abroad.

***Step 3: Private Investment***

The level of private domestic investment in Bangladesh and India increased in 2009, on account of the fiscal stimulus packages announced by the governments to counter the recession; in the case of Bangladesh investment levels increased by US\$ 2,256 million and in India by US\$ 4,331 million. On the other hand, Pakistan and Sri Lanka saw a decline in domestic investment levels amounting to US\$ 616 million and US \$55 million respectively. Applying the import intensity coefficients calculated earlier for each country to these investment levels, this amount is deducted from the change in private domestic investment levels for each country.

***Step 4: Foreign Direct Investment***

FDI inflows into the four countries exhibit trends that mirror trend in domestic investment; with Bangladesh and India showing increase of US\$193 million and US \$2,240 million respectively. On the other hand, even though Pakistan and Sri Lanka have been exhibiting strong FDI in recent years, both countries saw decline in FDI in 2009 of US\$ 816 million and US\$ 53 million respectively, mainly because of global recession. Of the total change, a percentage (determined by the import intensity coefficients) is assumed to be utilised for the purchase of foreign goods and services, and this amount is adjusted into the overall FDI figure.

***Step 5: Government Deficit***

Both Pakistan and Sri Lanka have entered into a fiscal tightening mode, on account of which the government deficit declined by US\$5,163 million and US\$ 2,162 million respectively. Bangladesh and India have the fiscal space to opt for a fiscal stimulus package designed to help the economy recover from the adverse impact of the recession. The Indian government's deficit is almost doubled in size from US\$ 3,074 million to US\$ 7519.2 million; while in Bangladesh it increased by US\$ 299 million over the period 2008 to 2009. The impact of the recession on

government deficit in these countries is potentially felt through reduced earnings from customs duty collection, and the slowdown in domestic manufacturing activity as a result of decreased demand resulting in lower tax collection.

### *Summary of the Direct Impact*

The economies of India, Pakistan and Sri Lanka exhibited a substantial decline in export earnings. The offsetting factors included a decline in import prices and demand for imported inputs. In the case of India, the total direct impact is estimated to range between US\$ 12,576-16,006; in Pakistan from US\$ 9,258-9,800 million; in Sri Lanka from US \$2,751-2,924 million. In the case of Bangladesh, however, the economy is expected to benefit to the tune of US\$ 1,319 million to US\$ 1,351 million,<sup>5</sup> due perhaps to decline in the cost of imported intermediate inputs (see appendix tables for details).

### **5.2. Estimation of the Indirect Impact**

The indirect effect on the economies is computed by using a Keynesian-type multiplier. The multiplier has been computed on the basis of estimated import demand function, tax revenue equation and consumption function for each of the four countries using available annual data (see Appendix for detailed specification and estimated coefficients of each function for each country). Derivation of the multiplier, using these coefficients is detailed in Table 5.5 with the smallest figure for Sri Lanka at 1.166 and largest for Bangladesh at 2.316.

Table 5.5

#### *Computation of Multipliers*

Multiplier Component	Bangladesh	India	Pakistan	Sri Lanka
M	0.186	0.091	0.286	0.551
1-t	0.920	0.908	0.898	0.858
c(1-t)	0.754	0.592	0.750	0.694
1-c(1-t)+m	0.432	0.499	0.536	0.858
1/[1-c(1-t)+m]	2.316	2.003	1.865	1.166

*Source:* Authors' calculations.

With these multipliers, overall impact on the national economy is calculated for all countries. In India, the overall decline in GDP due to financial crisis is approximately one percent while for Pakistan it is 2 percent of GDP. Sri Lanka is the most affected country where the impact of financial crisis comes out to be 5.8 percent of GDP. In the case of Bangladesh, the crisis did not have a negative impact mainly because the key sectors including private investment and exports showed a positive performance supported by macroeconomic measures (Table 5.6).

<sup>5</sup>The estimated range of the direct impact is based on the import intensity coefficients.

Table 5.6

*Impact of Recession on Domestic Economies*

	US \$ Million			
	Bangladesh	India	Pakistan	Sri Lanka
Direct Impact	1,324.0	-14,291.0	-9,801.0	-2,835.0
Overall Impact	7,529.0	-5,306.0	-3,379.0	-1,187.0
Impact as Percentage of GDP (2008)	9.0	-1.0	-2.0	-5.8

*Source:* Authors' calculations.

## **6. DEALING WITH THE CRISIS: A BROADER FRAMEWORK FOR MACROECONOMIC AND DEVELOPMENT POLICIES**

The global financial crisis has served to underscore the fact that the South Asian economies remain vulnerable to external shocks and that their ability to deal with such shocks is severely constrained by their inherent weaknesses such as macroeconomic imbalances, lack of export competitiveness, dependence on foreign inflows, and inadequate physical infrastructure. The South Asian countries need to adopt a holistic approach to tackle their development challenges so as to be able to withstand external economic shocks. This approach should encompass both macroeconomic policies and development policies aimed at attaining robust growth necessary for maintaining a steady pace of job creation and poverty reduction. This section spells out the key elements of these policies.

### **6.1. Macroeconomic Policies**

Macroeconomic stability is fundamental to fostering economic growth. Therefore, the first and foremost goal of macroeconomic policies should be to ensure a stable macroeconomic environment that encourages private investment and hence economic growth. Prudent fiscal and monetary policies must be designed so as to avoid the build-up of macroeconomic imbalances that ultimately weaken the growth process.

Fiscal policies must be geared towards creating room for public sector programmes to shore up the domestic economies without jeopardizing macroeconomic stability. With the exception of India which has been able to put in place a stimulus package in the wake of the financial crisis, other South Asian countries have not been able to introduce adequate stimulus measures because of their tight fiscal positions. The tax-to-GDP ratios are historically low in South Asian countries and there is much scope for bolstering revenues through streamlining tax administrations. On the expenditure side, there is a need to reorient public expenditures towards raising the productive capacity of the economies through public investment in critical physical infrastructure, health, and education.

Prudent use of monetary instruments is essential to help cushion the impact of external economic shocks. Whereas the South Asian countries have followed appropriate monetary policies to deal with the financial crisis, it is important to continue to align the monetary policies towards achieving price stability while ensuring robust economic growth.

A key issue that must be kept in view is the need for fiscal and monetary policy coordination to achieve the desired objectives. Lack of consistency between the fiscal and monetary policies may lead to macroeconomic imbalances with adverse consequences for key macroeconomic objectives including price stability and economic growth. In particular, the use of expansionary fiscal policy to stimulate the domestic economies may stoke inflationary pressures especially when the deficit is financed through borrowings from the central bank. This has been the case in Pakistan where deficit financing through central bank borrowing has been significant; and this partly explains the persistence of inflationary pressure despite a tight monetary policy by the central bank. An expansionary fiscal policy may still conflict with the monetary policy even if deficit is financed through domestic and/or external borrowing. In this case, high fiscal deficits may trigger an increase in interest rates leading to crowding out of private investment on the one hand, and balance of payments difficulties on the other, both of which will be problematic for maintaining a given monetary policy stance.

Maintaining sustainable levels of current account deficits is essential for macroeconomic stability. Whereas India and Bangladesh have managed to keep their current accounts within sustainable limits, Pakistan and Sri Lanka have witnessed widening current account deficits. These deficits not only lead to an accumulation of external debt but also constrain economic growth as countries often resort to import compression policies to stabilise the current account. A better response would be to improve export competitiveness leading to enhanced export earnings that can be important source of financing the current account deficits.

Whereas the financial crisis has prompted reforms to streamline the financial sector, the reform process must continue to improve the functioning of the financial system. A well-functioning financial system that efficiently channels investible funds to most productive uses is essential for industrial development and growth. It is therefore imperative to improve the efficiency of the financial sector and ensure its health by strengthening the prudential regulations and ensuring their effective implementation.

## **6.2. Development Policies**

### **Short Term**

A key aim of the development policies in a short term perspective must be to protect the vulnerable segments of the population from adverse economic shocks.

With endemic poverty, there is a need to ensure that adequate social safety nets are in place that provide a cushion to the poorer households amid economic slowdown. Pakistan has launched the Benazir Income Support Programme that provides direct income support to the poorest households identified on the basis of a poverty scorecard. The programme started with an initial allocation of \$425 million, equivalent to about 0.3 percent of GDP in 2008-09. During the current year, the programme would cover 3.4 million families and there are plans to double the allocation next year to cover 7 million families. India launched the National Rural Employment Guarantee Scheme in 2005 to provide job opportunities to the rural poor. The scheme provides job guarantees to members of the rural households for one-hundred days in public works at a minimum wage of Rs 100 per day.

### **Medium to Long Term**

It is important to emphasise that while such schemes provide immediate relief to the poor segments of society; these do not address the underlying problem of the lack of effective mechanisms to ensure inclusive growth. The key challenge here is to reorient the public sector development programmes towards attaining the goal of inclusive growth that generates employment opportunities for the poor and thus helps in poverty reduction. In this respect, the development spending may be allocated for the development of labour intensive sectors with a large potential for job creation such as the small and medium enterprises and construction. Also, the public sector development programmes need to focus on imparting the necessary skills to enhance labour productivity thus helping to raise incomes of the poor.

While the public sector programmes are important tools to achieve various development goals, it is important to ensure effective mechanisms for programme selection, monitoring and evaluation. Evidence shows that many development projects fail to achieve their desired objectives not least because of faulty procedures at various stages of the project cycle. There is, therefore, a need to evolve transparent selection procedures that would ensure the selection of projects which promise high returns. Also, the process of programme monitoring and evaluation must be strengthened to improve the delivery of public services.

In a longer term perspective, the development policies need to be geared towards improving competitiveness and productivity of the South Asian economies. Attaining greater competitiveness through productivity improvements is the single most important development challenge facing the South Asian economies. In this era of rapid globalisation and heightened competition, the regional countries can compete only through improving their long term competitiveness.

#### **6.2.1. *Competitive Environment***

It is widely recognised that a competitive business environment that rewards entrepreneurship, efficiency, and innovation is essential for sustained economic



growth. Such an environment is characterised by market driven incentives and a level playing field for investors; and is supported by a transparent, predictable and consistent regulatory framework and a liberal trade regime. In contrast, state intervention in economic activities and trade barriers are often accompanied by distortions in economic incentives, rent-seeking behaviour, and inefficiencies, all of which stifle the process of economic growth. Besides internal competition, external competition through openness to international trade plays a key role in the process of economic growth. There are a number of channels through which openness is thought to influence economic growth. First, a liberal trade regime enhances efficiency through greater competition and improved resource allocation. Second, greater access to world markets allows economies to overcome size limitations and benefit from economies of scale. Third imports of capital and intermediate goods can contribute to the growth process by enlarging the productive capacity of the economy. Fourth, trade can lead to productivity gains through international diffusion and adoption of new technologies.

In recent years, the South Asian countries have adopted policies to liberalise and deregulate their economies with a view to fostering greater competition in their economies. In addition, the trade regimes have been considerably liberalised. While these measures have introduced greater competition in the economies, there is still room for encouraging greater domestic competition and more opening up of the economies to international trade and investment.

### ***6.2.2. Institutions and Governance***

A growing and influential body of literature emphasises that institutions such as property rights, judicial system, rule of law, and contract enforcement etc. play an important role in the process of economic growth. It is argued that a favourable institutional environment reduces transactions costs, encourages skill acquisition and innovation, supports capital formation and capital mobility, and allows risks to be priced and shared, all of which positively influence economic growth. Similarly, good economic governance fosters productivity and growth by ensuring a predictable and consistent policy environment. The South Asian economies generally rank low in terms of various indicators of the quality of institutions and governance developed by the World Bank. There is therefore a need to improve the quality of institutional infrastructure to improve the long term growth prospects.

### ***6.2.3. Regulatory and Legal Environment***

A business-friendly regulatory and legal environment is of fundamental importance in promoting industrial development. Though the South Asian countries have strived to improve the overall business climate, weaknesses remain in the regulatory and legal framework that hinder private enterprises. Businesses still have

to comply with a host of regulations relating to work environment including health and sanitation, product standards, and taxation etc. Excessive discretionary powers in the hands of the enforcing agencies often lead to harassment of enterprises and opens up avenues for corruption resulting in loss of business confidence. To develop a viable industrial sector, there is a need to put in place a regulatory and legal environment that is conducive for private businesses.

#### **6.2.4. Human Resource Development**

Human resource development is both the ‘means’ as well as the ‘end’ of development. No country has grown on a sustained basis without improving the lot of its human resources. South Asia’s track record in the development of human resources is not very impressive, though education and health indicators show some improvement over time. The regional countries in general are deficient in skilled human resources that are vital for technological and industrial advancement. The productivity of various industries is adversely affected due to lack of skilled workers and some of the industries do not get established because of the lack of requisite skilled workers. In order to build a sound and diversified production structure in the industrial sector, the regional countries need to attach high priority to human resource development. Pakistan has already taken a step in that direction by bringing the idea of “investing in people” at the heart of the 10th five year plan.

#### **6.2.5. Technological Advancement**

It is widely recognised technological advancement is critical for long-run industrial success. In a rapidly changing international economic environment, technological developments have become ever more vital for sustaining the development momentum. Unfortunately, the state of technology has been far less satisfactory in the South Asian economies as compared with other emerging economies. The pursuit of the strategy of import substitution for such a long period left very little incentives for research and development by the local industries. To prepare the regional countries to face the emerging challenges, the development of technology and its interface with the industry has to be brought to the forefront of the industrial vision for the future. There is a need to provide incentives for R&D at the firm level: for example tax incentives aimed at promoting corporate R&D investment such as deduction of R&D expenditures and human resource development costs from taxable income, and reduced tariffs on import of R&D equipment and supplies.

#### **6.2.6. Physical Infrastructure**

The provision of adequate infrastructural facilities including power supply, telecommunications, and transportation network is a prerequisite for industrial development. The availability of quality infrastructure lowers the transaction costs of

firms and hence directly affects their ability to compete in the global market. However, the state of physical infrastructure in the South Asian economies remains less than satisfactory resulting in higher cost of doing business and eroding competitiveness. The underdeveloped state of infrastructure also hinders FDI as foreign investors favour locations with decent physical infrastructure that can cope with logistics of modern businesses. In view of domestic resource constraints, private sector participation in infrastructure projects would be crucial. A successful example of public private partnership is Sialkot Airport in Pakistan which was constructed by the local businesses in partnership with the public sector.

### **6.2.7. Industrial Diversification**

With the exception of India which has achieved some industrial diversification, other South Asian economies have not been able to diversify their economies. To diversify and broaden the industrial base, it is necessary to encourage investment in the new industries that are capable of exploiting dynamic comparative advantage, exhibit strong backward linkages, and have healthy future growth prospects. The industrial diversification policies need to be designed in close consultation with the private sector. The experience of Asian economies including Japan, Korea, and Singapore, has shown that targeted intervention by the government along with sound public-private partnership can be instrumental in fostering a wide range of new industries that can compete effectively in the global marketplace.

A related issue is export diversification. Again, with the exception of India which has diversified its export basket to some extent, exports of other regional economies are highly concentrated mainly in cotton textiles and garments. The high concentration of exports in few product categories makes them particularly vulnerable to external demand shocks. A diversified industrial structure would help the countries to diversify their exports, strengthen their export earnings, and ease foreign exchange constraint that has often acted as a binding constraint on growth.

## **7. REGIONAL ECONOMIC COOPERATION**

Even though South Asian economies are bound in the SAARC for over two decades and have signed a free trade agreement (SAFTA), intra-regional trade remains minimal and the South Asia region remains the least integrated region in the world.

It is increasingly being recognised that regional trading arrangements provide an effective framework for coordinated policy responses to deal with external economic shocks. In South Asia as well, there is significant potential for developing collective approaches to safeguard the interests of the region. Collective forums such as SAARC can help the South Asian countries to develop common position and

effectively deal with the multilateral negotiations on trade with other regions and at international forums like WTO. Also, SAARC member countries can cooperate with each other in order to insulate the regional economy against external shocks.

### **7.1. Key Areas for Regional Economic Cooperation**

The South Asian countries can cooperate on a number of fronts to strengthen regional cooperation. To begin with, a key area for economic cooperation in South Asia is monetary cooperation. The South Asian countries have generally faced severe foreign exchange constraints owing to persistent imbalances in their current accounts. The paucity of foreign exchange can be an impediment to intra-regional trade—as also to any other international transaction—if these trade flows are transacted in terms of international currencies. Most of the South Asian countries are members of the Asian Clearing Union that facilitates intra-regional trade by obviating the need for hard currencies for settling regional trade balances. However, not all regional trade transactions are carried through the ACU and there is room for strengthening this important instrument of regional trade cooperation in South Asia. In particular, there is a need to expand its coverage to include all SAARC member countries as well as to settle all intra-regional trade transactions through its clearing mechanism. In addition to monetary cooperation, a regional trade financing facility will provide access to trade finance and thus help boost intra-regional trade. Such a facility would not only enable risk pooling across the regional countries but will also provide economies of scale.

The SAARC platform can also be used to bring together the SAARC Ministers of Finance as well as Central Bankers to devise regionally coordinated actions to mitigate the adverse impact of the global financial crisis. The regional economies face similar development challenges and an effective regional response can be instrumental in helping these economies to realise their full growth potential. For example, the regional countries can adopt coordinated exchange rate policies to ensure their competitiveness in global markets. Similarly, the Central Banks can pool their resources on a regional basis to address balance of payments difficulties of the member countries.

A regional system of surveillance to monitor potential risks to the financial systems in the wake of global crises can prove to be effective in helping the countries to initiate timely measures to insulate themselves from adverse external shocks. Such a system can draw on both national and international expertise working under the umbrella of SAARC.

Another key initiative would be to bring issues of economic management within the framework of SAARC Planning Ministerial meetings. The South Asian countries can learn from each others' experiences thus enabling them to develop coherent strategies based on informed knowledge to deal with the shared problems of under-development and poverty. The regional countries are struggling to provide

support to the vulnerable groups and in this area the regional economies have a lot to learn from each others' experience. By sharing information and through policy dialogue the regional economies can develop effective responses to deal with the problem of widespread poverty.

The SAARC Chamber of Commerce provides an important forum that provides opportunities for private businesses to interact and share information. However, this forum is not effectively utilised due mainly to lack of information to interested businesses. There is therefore a need to popularise this forum that can play an effective role in bringing the businesses together and helping to generate ideas for better integration of the regional economies.

Finally, there is a need to strengthen and institutionalise the existing efforts that have been initiated to use bilateral and/or regional forums for developing collective approaches to deal with economic management issues. For example, Pakistan and India has initiated a process for regular meetings of their Planning Commissions. A delegation of the experts of the Planning Commission of Pakistan visited India to apprise their counterparts of the process of development planning in Pakistan as well as its response to the financial crisis, and to learn from the Indian experience. Whereas the visit of the Pakistani delegation was quite successful, India has not reciprocated so far.

It needs to be emphasised that to sustain such initiatives, these efforts must be complemented by measures to enhance the degree of economic integration through greater intra-regional trade and investment. There is a great potential to forge a viable regional trading block thanks to close geographical proximity and shared cultural and business values. It is therefore essential to move the process of regional economic integration forward through serious efforts in several key areas including confidence building measures, reduction in trade barriers, harmonisation of customs procedures and tariff structures, improving transparency of trade and investment policies, collectivism, and effective implementation of SAFTA. These measures will contribute towards strengthening economic ties in the region thus helping to create an effective platform for coordinated efforts to achieve the shared goal of economic development and prosperity.

## **7.2. Confidence-building Measures**

First and foremost, confidence building measures are needed to create the right atmosphere for greater economic ties in the region. The region is dominated by two large economies, India and Pakistan, and these countries must lead the way towards regional economic integration in South Asia. Actions of these economies have a strong influence on trade policies of other South Asian countries. Both the countries need to work together to ensure smaller regional countries that their interests will be safeguarded and their apprehensions about the domination of larger economies will be addressed in regional matters. Possibilities of trade expansion in

South Asia would be rather limited unless the benefits of trade liberalisation accrue to all the partners. Easing of travel and visa restrictions would promote contact between the business communities within the region, leading to ushering of new possibilities for economic cooperation. Opening up of bilateral trade beyond what is covered by SAFTA would bring a new wave of relations and confidence, and may lead to a broader trade and economic ties within the region. Finally, there is a need to create awareness about the potential benefits of regional economic cooperation. This will make various regional economic cooperation initiatives more acceptable to general masses thus making it easier for governments to engage in such initiatives.

### **7.3. Making SAFTA Work**

The SAFTA agreement provides a useful framework for strengthening trade ties in the region. However, the success of SAFTA depends on its effective implementation, which would require a conducive economic and political environment and a strong willingness for integration and liberalisation of the SAARC members. This will reduce the chance of disruption of trade and derailment of the agreement. Also, there must be a strong acceptance of the members for the subsequent economic adjustments. Continuous dialogues and interaction along with sincere efforts towards understanding each others' point of view are the essential ingredients for the success of SAFTA and any other integration efforts in the region.

Whereas SAFTA provides tariff reductions across a range of commodities, there is still room for a freer trade regime in the region. The improvement in the custom as well as tax administrations must complement tariff reduction policies. This process should be designed and implemented in close consultation with the private sector. Reduction in tariffs alone is not sufficient to promote economic ties in the region. What is needed is a regulatory environment that facilitates trade through reduction in the transaction costs associated with bringing goods and services across borders. Trade facilitation involves a wide range of initiatives, including, for instance, reforms in the regulation and harmonisation of standards, promoting efficiency in customs, and improvement in regional transport infrastructure. The regional countries need to adopt a coherent strategy to harmonise their trade policies, focusing in particular on transport and transit systems, and customs procedures. Domestic regulatory procedures and institutional structures based on international best practice models (for example of ASEAN) can improve transparency and introduce professionalism in border clearance procedures. Streamlining regulations on technical barriers and liberalising transport and telecommunications regimes can also facilitate trade. Collective action to raise capacity in trade facilitation in terms of upgrading ports, and introduction of information technology in border processing would lower transaction costs and expand trade across the region.

## 8. SUMMARY AND CONCLUSIONS

This paper has explored the economic and social impact of the global financial crisis in South Asia with a view to identifying a set of macroeconomic and development policies that are essential to enable the economies to withstand external economic shocks. The analysis has shown that Bangladesh has been able to cope effectively with the financial crisis thanks to sound economic management that helped maintain macroeconomic stability despite global food and fuel price hikes. India is facing major challenges in the aftermath of the global financial crisis and recession in the global economy. As business confidence plunged, stock prices crashed and foreign capital fled resulting in a drawdown of foreign exchange reserves, depreciation of the domestic currency, increase in short-term interest rates, and a tight domestic liquidity position. In the real sector, though growth has slowed it has remained robust and this will help India in stabilising its macroeconomic fundamentals.

After a spell of high economic growth, Pakistan's economy was slowing down due mainly to high fuel and food prices and unprecedented power shortages. As the financial crisis unfolded, confidence in the financial sector plunged, export plummeted, current account deficit soared and the foreign exchange reserves fell sharply. The economy has stabilised somewhat after it entered into an agreement with IMF for a stabilisation package in November 2008.

Sri Lanka faced serious macroeconomic difficulties after the financial crisis. Nevertheless, it has introduced measures to contain monetary growth and reduce the fiscal deficit. These measures combined with global decline in food and fuel prices have contributed to lowering the rate of inflation from 22.6 percent in 2008 to 8 percent in the beginning of 2009. However, Sri Lanka has been unable to contain the current account deficit which remains above 7 percent of GDP.

Several lessons have emerged from the study. First, whereas all the countries have felt the impact of the financial crisis, the extent of the impact depends as much on the initial conditions prevailing in the regional economies before the financial crisis as on handling of the crisis. For example, Bangladesh has shown a remarkable resilience and has been able to maintain macroeconomic stability that has helped the country to avoid a sharp slowdown. This has been possible because of favourable initial conditions such as macroeconomic stability as well as deft handling of the crisis by using prudent monetary and fiscal instruments. On the other hand, Pakistan was always susceptible to adverse external shocks because of macroeconomic imbalances that kept the economy under strain even before the crisis. These initial conditions provided little room for macroeconomic adjustments necessary to deal with the global financial crisis.

Second, political will plays an important role in macroeconomic outcomes. Pakistan, for instance, was unable to pass on higher oil prices to the consumers which badly hurt its fiscal position. On the other hand, Bangladesh passed on

increases in oil prices to the consumers and this helped the country to maintain a stable fiscal position providing it necessary space to absorb the external economic shocks.

Third, the trade-off between stabilisation and economic growth assumes special significance in LDCs because of the problem of widespread poverty. This is most apparent by looking at Pakistan's experience. Pakistan began monetary tightening before the financial crisis to stem the rising tide of inflation. After the financial crisis, Pakistan entered into an agreement with IMF which dictated the continuation of tight monetary policy stance. This led to sharp a slowdown in economic growth resulting in unemployment and poverty. It is generally believed that Pakistan continued the process of monetary tightening far longer than was necessary and thus has been unable to fine tune its macroeconomic management keeping in view its development challenges.

Finally, the process of economic stabilisation in the regional economies has been helped by favourable factors such as decline in global oil prices and steady inflow of remittances. However, the regional economies need to be wary of future hikes in oil prices as well as the possibility of a decline in remittances. The latter is highly probable because the current inflow of remittances may reflect the accumulated savings of the return migrants and actual decline in remittances may only show up later. Future layoffs in the Gulf may also result in a squeeze in this important source of foreign exchange earnings.

The study has laid out a broader framework encompassing both macroeconomic and development policies that may help the regional countries to sustain robust growth, create more and better jobs, and alleviate poverty. An overriding goal of macroeconomic policies should be to ensure a stable macroeconomic environment that encourages private investment and hence economic growth. Prudent fiscal and monetary policies must be designed so as to avoid the build-up of macroeconomic imbalances that ultimately hamper the growth process. In a shorter term perspective, development policies need to focus on social safety nets as well as on programmes to empower the poor through skill development and productivity improvement. In the long-run, a key challenge is to enhance competitiveness and productivity of the South Asian economies. This can be achieved by focusing efforts on several key areas including human resource development, technological advancement, physical infrastructure, regulatory and legal environment, export diversification, and institutions and governance.

Regional forums such as SAARC can provide an effective framework for coordinated policy responses to deal with external economic shocks. The South Asian countries can cooperate on a number of fronts including, for example, monetary cooperation in the form of Asian Clearing Union, establishment of a regional trade financing facility, joint meetings of SAARC Central Bankers and



Ministers of Finance for macroeconomic policy coordination, incorporation of economic management issues into the SAARC Planning Ministerial meetings, and effective utilisation of SAARC Chamber of Commerce to promote business to business contacts. At the same time, efforts must be made to enhance the degree of economic integration through greater intra-regional trade and investment. The objective of greater economic integration in South Asia can be realised through concerted actions aimed at building confidence and implementing SAFTA in letter and spirit. Stronger regional ties will create mutual stake-holding and encourage the member countries to cooperate and work closely in dealing with their macroeconomic and development challenges.

### *Appendices*

Table A. 1

*Direct Impact of Global Crisis on Bangladesh— Scenario A Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>15,486.00</b>	<b>15,059.00</b>	<b>-427.00</b>	
Of which 100 percent is due to decline in quantity			-427.00	
Decline in imported inputs at 14 percent of decline in quantity exported				59.78
Imported inputs into exports at 14 percent of total exports			-2,108.26	
Effect of 17 percent decline in prices of imported inputs into exports				358.40
Net decline in goods exports				<b><u>-8.82</u></b>
<b>B. Exports of Services—Total of items below</b>	<b>1,525.00</b>	<b>1,621.00</b>		<b><u>96.00</u></b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	19,334.51	21,590.28	2,255.77	
Minus imported inputs at 14 percent	2,706.83	3,022.64	315.81	<b>1,939.96</b>
b. Foreign direct investment	748.00	941.00	193.00	
Minus imported inputs at 14 percent	104.72	131.74	27.02	<b>165.98</b>
<b>D. Government Deficit</b>	<b>2,466.54</b>	<b>2,765.70</b>	<b>299.15</b>	
Shortfall on expenditures @ 1 percent of GDP		892.16	-593.01	
Spent outside Bangladesh at 15 percent	369.98	88.95	-281.03	<b>-874.04</b>
<b>F. Total Impact of Crisis</b>				<b><u>1,319.09</u></b>

Table A. 2

*Direct Impact of Global Crisis on Bangladesh—Scenario B Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>15,486.00</b>	<b>15,059.00</b>	<b>-427.00</b>	
Of which 100 percent is due to decline in quantity			-427.00	
Decline in imported inputs at 19 percent of decline in quantity exported			81.13	
Imported inputs into exports at 19 percent of total exports			-2,861.21	
Effect of 17 percent decline in prices of imported inputs into exports			486.41	
Net decline in goods exports				<b>140.54</b>
<b>B. Exports of Services—Total of items below</b>	<b>1,525.00</b>	<b>1,621.00</b>		<b>96.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	19,334.51	21,590.28	2,255.77	
Minus imported inputs at 19 percent	3,673.56	4,102.15	428.60	<b>1,827.17</b>
b. Foreign direct investment	748.00	941.00	193.00	
Minus imported inputs at 19 percent	224.40	282.30	57.90	<b>135.10</b>
<b>D. Government Deficit</b>	<b>2,466.54</b>	<b>2,765.70</b>	<b>299.15</b>	
Shortfall on expenditures @ 1 percent of GDP		892.16	-593.01	
Spent outside Bangladesh at 15 percent	369.98	88.95	-281.03	<b>-874.04</b>
<b>F. Total Impact of Crisis</b>				<b>1,324.77</b>

Table A. 3

*Direct Impact of Global Crisis on Bangladesh— Scenario C Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>15,486.00</b>	<b>15,059.00</b>	<b>-427.00</b>	
Of which 100 percent is due to decline in quantity			-427.00	
Decline in imported inputs at 24 percent of decline in quantity exported			102.48	
Imported inputs into exports at 24 percent of total exports			-3,614.16	
Effect of 17 percent decline in prices of imported inputs into exports			614.41	
Net decline in goods exports				<b>289.89</b>
<b>B. Exports of Services—Total of items below</b>	<b>1,525.00</b>	<b>1,621.00</b>		<b>96.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	19,334.51	21,590.28	2,255.77	
Minus imported inputs at 24 percent	4,640.28	5,181.67	541.38	<b>1,714.38</b>
b. Foreign direct investment	748.00	941.00	193.00	
Minus imported inputs at 24 percent	261.80	329.35	67.55	<b>125.45</b>
<b>D. Government Deficit</b>	<b>2,466.54</b>	<b>2,765.70</b>	<b>299.15</b>	
Shortfall on expenditures @ 1 percent of GDP		892.16	-593.01	
Spent outside Bangladesh at 15 percent	369.98	88.95	-281.03	<b>-874.04</b>
<b>F. Total Impact of Crisis</b>				<b>1,351.68</b>

Table A. 4

*Direct Impact of Global Crisis on India— Scenario A Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>183,534.00</b>	<b>154,946.00</b>	<b>-28,588.00</b>	
Of which 50.8 percent is due to decline in quantity			-14,522.70	
Decline in imported inputs at 16 percent of decline in quantity exported			2,381.72	
Imported inputs into exports at 16 percent of total exports			-25,411.14	
Effect of 17 percent decline in prices of imported inputs into exports			4,319.89	
Net decline in goods exports				<b>-21,886.38</b>
<b>B. Exports of Services—Total of items below</b>	<b>66,968.00</b>	<b>70,574.00</b>		<b>3,606.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	296,353.18	300,683.77	4,330.59	
Minus imported inputs at 16 percent	48,601.92	49,312.14	710.22	<b>3,620.37</b>
b. Foreign direct investment	34,236.00	36,476.00	2,240.00	
Minus imported inputs at 16 percent	5,614.70	5,982.06	367.36	<b>1,872.64</b>
<b>D. Government Deficit</b>	<b>3,073.48</b>	<b>7,519.19</b>	<b>4,445.71</b>	
Shortfall on expenditures @ 1 percent of GDP			-3,244.41	
Spent outside India at 15 percent	461.02	486.66	25.64	<b>-3,218.77</b>
<b>F. Total Impact of Crisis</b>				<b>-16,006.14</b>

Table A. 5

*Direct Impact of Global Crisis on India— Scenario B Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>183,534.00</b>	<b>154,946.00</b>	<b>-28,588.00</b>	
Of which 50.8 percent is due to decline in quantity			-14,522.70	
Decline in imported inputs at 21 percent of decline in quantity exported			3,107.86	
Imported inputs into exports at 21 percent of total exports			-33,158.44	
Effect of 17 percent decline in prices of imported inputs into exports			5,636.94	
Net decline in goods exports				<b>-19,843.21</b>
<b>B. Exports of Services—Total of items below</b>	<b>66,968.00</b>	<b>70,574.00</b>		<b>3,606.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	296,353.18	300,683.77	4,330.59	
Minus imported inputs at 21 percent	63,419.58	64,346.33	926.75	<b>3,403.84</b>
b. Foreign direct investment	34,236.00	36,476.00	2,240.00	
Minus imported inputs at 21 percent	7,326.50	7,805.86	479.36	<b>1,760.64</b>
<b>D. Government Deficit</b>	<b>3,073.48</b>	<b>7,519.19</b>	<b>4,445.71</b>	
Shortfall on expenditures @ 1 percent of GDP			-3,244.41	
Spent outside India at 15 percent	461.02	486.66	25.64	<b>-3,218.77</b>
<b>F. Total Impact of Crisis</b>				<b>-14,291.49</b>

Table A. 6

*Direct Impact of Global Crisis on India—Scenario C Summary*

	2008	2009	Gross Decline	Net Decline
<b>A. Goods Exports</b>	<b>183,534.00</b>	<b>154,946.00</b>	<b>-28,588.00</b>	
Of which 50.8 percent is due to decline in quantity			-14,522.70	
Decline in imported inputs at 26 percent of decline in quantity exported			3,833.99	
Imported inputs into exports at 26 percent of total exports			-40,905.74	
Effect of 17 percent decline in prices of imported inputs into exports			6,953.98	
Net decline in goods exports				<b>-17,800.03</b>
<b>B. Exports of Services—Total of items below</b>	<b>66,968.00</b>	<b>70,574.00</b>		<b>3,606.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	296,353.18	300,683.77	4,330.59	
Minus imported inputs at 26 percent	78,237.24	79,380.52	1,143.28	<b>3,187.31</b>
b. Foreign direct investment	34,236.00	36,476.00	2,240.00	
Minus imported inputs at 26 percent	9,038.30	9,629.66	591.36	<b>1,648.64</b>
<b>D. Government Deficit</b>	<b>3,073.48</b>	<b>7,519.19</b>	<b>4,445.71</b>	
Shortfall on expenditures @ 1 percent of GDP		7,690.12	-3,244.41	
Spent outside India at 15 percent	461.02	486.66	25.64	<b>-3,218.77</b>
<b>F. Total Impact of Crisis</b>				<b>-12,576.84</b>

Table A. 7

*Direct Impact of Global Crisis on Pakistan—Scenario A Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>19052</b>	<b>18328</b>	<b>-724</b>	
Of which 13.1 percent is due to decline in quantity			<b>-94.84</b>	
Decline in imported inputs at 14 percent of decline in quantity exported			13.27	
Imported inputs into exports at 14 percent of total exports			-2,563.97	
Effect of 17 percent decline in prices of imported inputs into exports			435.88	
Net decline in goods exports				<b>-274.86</b>
<b>B. Exports of Services—Total of items below</b>	<b>3,589.00</b>	<b>4,015.00</b>		<b>426.00</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	4,462.80	3,847.20	-615.60	
Minus imported inputs at 14 percent	624.32	538.20	-86.12	<b>-529.48</b>
b. Foreign direct investment	4,462.92	3,646.56	-816.36	
Minus imported inputs at 14 percent	624.33	510.13	-114.20	<b>-702.16</b>
<b>D. Government Deficit</b>	<b>12,622.53</b>	<b>7,460.02</b>	<b>-5,162.51</b>	
Shortfall on Expenditures @ 1 percent of GDP		706.28	-5,868.78	
Spent outside Pakistan at 15 percent	1,893.38	-880.32	-2,773.70	<b>-8,642.48</b>
<b>F. Total Impact of Crisis</b>				<b>-9,722.97</b>

Table A. 8

*Direct Impact of Global Crisis on Pakistan—Scenario B Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>19052</b>	<b>18328</b>		<b>-724</b>
Of which 13.1 percent is due to decline in quantity			-94.84	
Decline in imported inputs at 19 percent of decline in quantity exported			18.01	
Imported inputs into exports at 19 percent of total exports			-3,480.37	
Effect of 17 percent decline in prices of imported inputs into exports			591.66	
Net decline in goods exports				<b>-114.33</b>
<b>B. Exports of Services—Total of items below</b>	<b>3,589.00</b>	<b>4,015.00</b>		<b><u>426.00</u></b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	4,462.80	3,847.20	-615.60	
Minus imported inputs at 19 percent	847.46	730.56	-116.90	<b>-498.70</b>
b. Foreign direct investment	4,462.92	3,646.56	-816.36	
Minus imported inputs at 19 percent	847.48	692.46	-155.02	<b>-971.38</b>
<b>D. Government Deficit</b>	<b>12,622.53</b>	<b>7,460.02</b>		
Shortfall on Expenditures @ 1 percent of GDP		706.28	-5,868.78	
Spent outside Pakistan at 15 percent	1,893.38	-880.32	-2,773.70	<b>-8,642.48</b>
<b>F. Total Impact of Crisis</b>				<b><u>-9,800.89</u></b>

Table A. 9

*Direct Impact of Global Crisis on Pakistan—Scenario C Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>19052</b>	<b>18328</b>		<b>-724</b>
Of which 13.1 percent is due to decline in quantity			-94.84	
Decline in imported inputs at 24 percent of decline in quantity exported			22.75	
Imported inputs into exports at 24 percent of total exports			-4,396.77	
Effect of 17 percent decline in prices of imported inputs into exports			747.45	
Net decline in goods exports				<b>46.20</b>
<b>B. Exports of Services—Total of items below</b>	<b>3,589.00</b>	<b>4,015.00</b>		<b><u>426.00</u></b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	4,462.80	3,847.20	-615.60	
Minus imported inputs at 24 percent	1,070.60	922.92	-147.68	<b>-467.92</b>
b. Foreign direct investment	4,462.92	3,646.56	-816.36	
Minus imported inputs at 24 percent	1,070.63	874.79	-195.84	<b>-620.52</b>
<b>D. Government Deficit</b>	<b>12,622.53</b>	<b>7,460.02</b>		
Shortfall on Expenditures @ 1 percent of GDP		706.28	-5,868.78	
Spent outside Pakistan at 15 percent	1,893.38	-880.32	-2,773.70	<b>-8,642.48</b>
<b>F. Total Impact of Crisis</b>				<b><u>-9,258.71</u></b>

Table A. 10

*Direct Impact of Global Crisis on Sri Lanka—Scenario A Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>8,277.15</b>	<b>7,151.00</b>		<b>-1,126.15</b>
Of which 30.8 percent is due to decline in quantity			-346.85	
Decline in imported inputs at 20 percent of decline in quantity exported			67.77	
Imported inputs into exports at 20 percent of total exports			-1,397.14	
Effect of 17 percent decline in prices of imported inputs into exports			237.51	
Net decline in goods exports				<b>-820.87</b>
<b>B. Exports of Services—Total of items below</b>	<b>338.00</b>	<b>239.60</b>		<b>-98.40</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	235.50	180.70	-54.80	
Minus imported inputs at 20 percent	46.01	35.30	-10.71	<b>-44.09</b>
b. Foreign direct investment	3,148.00	3,094.80	-53.20	
Minus imported inputs at 20 percent	615.05	604.65	-10.39	<b>-42.81</b>
<b>D. Government Deficit</b>	<b>-626.38</b>	<b>-2,787.98</b>	<b>-2,161.59</b>	
Shortfall on expenditures @ 1 percent of GDP		205.87	-2,367.46	
Spent outside Sri Lanka at 15 percent	-93.96	355.12	449.08	<b>-1,918.39</b>
<b>F. Total Impact of Crisis</b>				<b>-2,924.55</b>

Table A. 11

*Direct Impact of Global Crisis on Sri Lanka— Scenario B Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>8,277.15</b>	<b>7,151.00</b>		<b>-1,126.15</b>
Of which 30.8 percent is due to decline in quantity			-346.85	
Decline in imported inputs at 25 percent of decline in quantity exported			85.11	
Imported inputs into exports at 25 percent of total exports			-1,754.69	
Effect of 17 percent decline in prices of imported inputs into exports			298.30	
Net decline in goods exports				<b>-742.74</b>
<b>B. Exports of Services—Total of items below</b>	<b>338.00</b>	<b>239.60</b>		<b>-98.40</b>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	235.50	180.70	-54.80	
Minus imported inputs at 25 percent	70.65	54.21	-16.44	<b>-38.36</b>
b. Foreign direct investment	3,148.00	3,094.80	-53.20	
Minus imported inputs at 25 percent	944.40	928.44	-15.96	<b>-37.24</b>
<b>D. Government Deficit</b>	<b>-626.38</b>	<b>-2,787.98</b>	<b>-2,161.59</b>	
Shortfall on expenditures @ 1 percent of GDP		205.87	-2,367.46	
Spent outside Sri Lanka at 15 percent	-93.96	355.12	449.08	<b>-1,918.39</b>
<b>F. Total Impact of Crisis</b>				<b>-2,835.13</b>

Table A. 12

*Direct Impact of Global Crisis on Sri Lanka— Scenario C Summary*

	2008	2009	Gross Change	Net Change
<b>A. Goods Exports</b>	<b>8,277.15</b>	<b>7,151.00</b>	<b>-1,126.15</b>	
Of which 30.8 percent is due to decline in quantity			-346.85	
Decline in imported inputs at 30 percent of decline in quantity exported			102.45	
Imported inputs into exports at 30 percent of total exports			-2,112.24	
Effect of 17 percent decline in prices of imported inputs into exports			359.08	
Net decline in goods exports				<u>-664.62</u>
<b>B. Exports of Services—Total of items below</b>	<b>338.00</b>	<b>239.60</b>		<u>-98.40</u>
Migrant remittances				
Tourism				
Shipping				
Interest on private debt				
<b>C. Private Investment</b>				
a. Domestic private investment	235.50	180.70	-54.80	
Minus imported inputs at 30 percent	82.43	63.25	-19.18	<b>-35.62</b>
b. Foreign direct investment	3,148.00	3,094.80	-53.20	
Minus imported inputs at 30 percent	1,101.80	1,083.18	-18.62	<b>-34.58</b>
<b>D. Government Deficit</b>				
Shortfall on expenditures @ 1 percent of GDP		205.87	-2,367.46	
Spent outside Sri Lanka at 15 percent	-93.96	355.12	449.08	<b>-1,918.39</b>
<b>F. Total Impact of Crisis</b>				<u><b>-2,751.60</b></u>

**APPENDIX – MULTIPLIER DERIVATION**

We begin with the fundamental national income accounting identity

$$Y = C + I + G + NX \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

Assume that consumption increases with increases in income:

$$C = C_0 + cY \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

Where  $C_0$  is autonomous consumption (consumption irrespective of income level) and  $c$  is the Marginal Propensity to Consume (MPC) out of income, and represents the increase in consumption per unit increase in income level. This specification can be modified to account for disposable income (YD), rather than income. Subtracting taxes (TA) from, and adding any transfer payments (TR) to income (Y) gives disposable income (YD):

$$YD = Y - TA + TR \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

Thus, the consumption function in Equation (2) can be represented as:

$$C = C_0 + c(Y - TA + TR) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

Transfer payments are generally not counted as part of GDP, since consumption or investment by recipients is included in private consumption (C) or investment, (I). Rather than a simple lump sum tax; the tax component depends on income and can be represented by the following tax revenue function:

$$TA = Ty \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

Expanding the national income identity by including tax revenue function [Equation (5)] in the consumption equation [Equation (4)], and then including this in Equation(1), the national income accounting identity will be:

$$Y = C_0 + c(Y - tY + TR) + I + G + NX \quad \dots \quad \dots \quad \dots \quad (6)$$

Collecting terms involving  $Y$  on the right hand side:

$$Y = [C_0 - cTR + I + G + NX] + c(1 - t)Y \quad \dots \quad \dots \quad \dots \quad (7)$$

Net exports are the difference between exports and imports:

$$NX = X - M \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (8)$$

Imports are generally taken as depending on the domestic income level,  $Y$ , exchange rate (EXRATE), domestic prices (CPI) and international reserves (RES),<sup>6</sup> so the import function is give as:

$$M = mY + m_2EXRATE + m_3CPI + m_4RES \quad \dots \quad \dots \quad \dots \quad (9)$$

Including this import function in the national income accounting identity in Equation (6), we have:

$$Y = [C_0 - cTR + I + G + X - m_2EXRATE - m_3CPI - m_4RES] + c(1 - t)Y - mY \quad (10)$$

Moving all terms involving  $Y$  to the left hand side:

$$(1 - c(1 - t) + m)Y = [C_0 - cTR + I + G + X - m_2EXRATE - m_3CPI - m_4RES] \quad (11)$$

Thus:

$$Y = \frac{1}{(1 - c(1 - t) + m)} [C_0 - Ctr + I + G + X - m_2EXRATE - m_3CPI - m_4RES] \quad (12)$$

Here  $\frac{1}{(1 - c(1 - t) + m)}$  is the Keynesian multiplier accounting for marginal propensity

to consume out of income ( $c$ ), the income tax rate ( $t$ ), as well as the marginal Propensity to import,  $m$ . Naturally, the larger is the value of  $c$  and the smaller are the values of  $t$  and  $m$ , the larger is the size of the multiplier, and hence the impact on output

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<sup>6</sup>Specification based on Z. Kotan and M. Saygili "Estimating an import function for Turkey" Discussion Paper No. 9909, Central Bank of the Republic of Turkey, 1999.



This core specification can now be modified to account for value addition in Foreign Private Investment (FPI) rather than simple investment,  $I$ , and it can also incorporate Value Added in exports (the difference between total exports and imports brought into the economy for use in producing exports), government expenditure ( $G$ ), as well as remittance receipts ( $REM$ ).

$$\frac{dY}{d[(1-mx)X + REM + (1-mfpi)FPI + (1-mg)G]} = \frac{1}{[1-(1-t)c + m]}$$

Table A.13

*Aggregate Open Economy Income Generation Model for Bangladesh:  
The Impact of the World Economic Crisis 2008-09*

<b>SCENARIO A</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>14.10%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mpfi)FPI] = 1/[1 - (1-t)c + m]$			
<b>mx</b>	14.10%		lower band import intensity coefficient
<b>m</b>	18.60%	15.44%	Import intensity before & after price decline for imports
<b>t</b>	8.05%		marginal/average income tax rate
<b>c</b>	82.01%		marginal propensity to consume
<b>mpfi</b>	13.79%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
<u>Evaluate Right Hand:</u> $1/[1 - (1-t)c + m]$			
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	18.60%	2.316	before price effect
<b>With m=</b>	15.44%	2.498	after price declines
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$			
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	1,319.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	79,565.90		
<b>M non X 2008</b>	2,680.89		
		<b>Evaluate line 24</b>	
		<b>(Δλ/λ0)</b>	0.08 multiplier change due to price effect of 0.17
		<b>(Δλ/λ0) Y0</b>	6,285.87 Additional Y due to reduction of import prices
		<b>[ΔX(1-mx) + ...+...]λ1</b>	3,295.50 Reduction of Y due to fall in export VA + others
		<b>(Δλ/λ0) Y0 + [ΔX(1-mx) + ...+...]λ1</b>	2,990.37 Total change of Y
		<b>% of Y0</b>	0.04 Change of Y as share of Y0

## SCENARIO B

SCENARIO B			
<b>IMPORT INTENSITY COEFFICIENT:</b>	19.10%		
<b>Multiplier formula:</b>	$dY/d[(1-mx)X + REM + (1-mpfi)FPI] = 1/[1 - (1-t)c + m]$		
<b>mx</b>	19.10%		Baseline import intensity coefficient
<b>m</b>	43.63%	36.21%	Import intensity before & after price decline for imports
<b>t</b>	8.05%		marginal/average income tax rate
<b>c</b>	82.01%		marginal propensity to consume
<b>mpfi</b>	13.79%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:	$1/[1 - (1-t)c + m]$		
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	43.63%	1.466	before price effect
<b>With m=</b>	36.21%	1.645	after price declines
<b>Impact Calculation:</b>	$Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 =$ $(\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$		
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	1,324.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	79,565.90		
<b>M non X 2008</b>	2,680.89		
		<b>Evaluate line 24</b>	
		<b>(Δλ/λ0)</b>	0.12 multiplier change due to price effect of 0.17
		<b>(Δλ/λ0) Y0</b>	9,706.68 Additional Y due to reduction of import prices
		<b>[ΔX(1-mx) + ...+...]λ1</b>	2,177.61 Reduction of Y due to fall in export VA + others
		<b>(Δλ/λ0) Y0 + [ΔX(1-mx) + ...+...]λ1</b>	7,529.07 Total change of Y
		<b>% of Y0</b>	0.09 Change of Y as share of Y0

**SCENARIO C**

<b>SCENARIO C</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>24.10%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mpfi)FPI] = 1/[1 - (1-t)c + m]$			
<b>mx</b>	24.10%		Upper band import intensity coefficient
<b>m</b>	43.63%	36.21%	Import intensity before & after price decline for imports
<b>t</b>	8.05%		marginal/average income tax rate
<b>c</b>	82.01%		marginal propensity to consume
<b>mpfi</b>	13.79%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand: $1/[1 - (1-t)c + m]$			
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	43.63%	1.466	before price effect
<b>With m=</b>	36.21%	1.645	after price declines
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$			
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	1,351.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	79,565.90		
<b>M non X 2008</b>	2,680.89		
<b>Evaluate line 24</b>			
<b>(Δλ/λ0)</b>	0.12	multiplier change due to price effect of 0.17	
<b>(Δλ/λ0) Y0</b>	9,706.68	Additional Y due to reduction of import prices	
<b>[ΔX(1-mx) + ...+...]λ1</b>	2,222.01	Reduction of Y due to fall in export VA + others	
<b>(Δλ/λ0) Y0 + [ΔX(1-mx) + ...+...]λ1</b>	7,484.66	Total change of Y	
<b>% of Y0</b>	0.09	Change of Y as share of Y0	

Table A.14

*Aggregate Open Economy Income Generation Model for India:  
The Impact of the World Economic Crisis 2008-09*

<b>SCENARIO A</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>	<b>16.40%</b>		
<b>Multiplier formula:</b>	$dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$		
<b>mx</b>	16.40%		lower band import intensity coefficient
<b>m</b>	9.10%	7.55%	Import intensity before & after price decline for imports
<b>t</b>	9.16%		marginal/average income tax rate
<b>c</b>	65.16%		marginal propensity to consume
<b>mpfi</b>	16.67%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:	$1/[1 - (1-t)c + m]$		
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	9.10%	2.004	before price effect
<b>With m=</b>	7.55%	2.068	after price declines
<b>Impact Calculation:</b>			
	$Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 =$		$EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 =$
	$(\Delta\lambda/\lambda0) (\lambda0) EXOG0 +$		$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots+\dots]\lambda1$
	$\Delta EXOG\lambda1 =$		
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-16,006.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	757,936.53		
<b>M non X 2008</b>	9,356.83		
		<b>Evaluate line 24</b>	
		$(\Delta\lambda/\lambda0)$	0.03
		$(\Delta\lambda/\lambda0) Y0$	24,244.07
		$[\Delta X(1-mx) + \dots+\dots]\lambda1$	-33,095.22
		$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots+\dots]\lambda1$	-8,851.15
		<b>% of Y0</b>	-0.012
			multiplier change due to price effect of 0.17
			Additional Y due to reduction of import prices
			Reduction of Y due to fall in export VA + others
			Total change of Y
			Change of Y as share of Y0

<b>SCENARIO B</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>21.40%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$			
<b>mx</b>	21.40%		Baseline import intensity coefficient
<b>m</b>	9.10%	7.55%	Import intensity before & after price decline for imports
<b>t</b>	9.16%		marginal/average income tax rate
<b>c</b>	65.16%		marginal propensity to consume
<b>mpfi</b>	16.67%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand: $1/[1 - (1-t)c + m]$			
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	9.10%	2.004	before price effect
<b>With m=</b>	7.55%	2.068	after price declines
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$			
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-14,291.50	<b>Evaluate line 24</b>	
<b>VA in X 2008</b>		<b>(Δλ/λ0)</b>	0.03 multiplier change due to price effect of 0.17
<b>Y0 2008</b>	757,936.53	<b>(Δλ/λ0) Y0</b>	24,244.07 Additional Y due to reduction of import prices
<b>M non X 2008</b>	9,356.83	<b>[ΔX(1-mx) + ...+...]λ1</b>	-29,550.19 Reduction of Y due to fall in export VA + others
		<b>(Δλ/λ0) Y0 + [ΔX(1-mx) + ...+...]λ1</b>	-5,306.11 Total change of Y
		<b>% of Y0</b>	-0.0070 Change of Y as share of Y0

<b>SCENARIO C</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>	<b>26.40%</b>		
<b>Multiplier formula:</b>	$dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$		
<b>mx</b>	26.40%		Upper band import intensity coefficient
<b>m</b>	9.10%	7.55%	Import intensity before & after price decline for imports
<b>t</b>	9.16%		marginal/average income tax rate
<b>c</b>	65.16%		marginal propensity to consume
<b>mpfi</b>	16.67%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:	$1/[1 - (1-t)c + m]$		
<b>Coefficient</b>		<b>Result</b>	
<b>With m=</b>	9.10%	2.004	before price effect
<b>With m=</b>	7.55%	2.068	after price declines
<b>Impact Calculation:</b>			
	$Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 =$ $(\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$		
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-12,576.50		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	757,936.53		
<b>M non X 2008</b>	9,356.83		
		<b>Evaluate line 24</b>	
		$(\Delta\lambda/\lambda0)$	0.03 multiplier change due to price effect of 0.17
		$(\Delta\lambda/\lambda0) Y0$	24,244.07 Additional Y due to reduction of import prices
		$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-26,004.12 Reduction of Y due to fall in export VA + others
		$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-1,760.05 Total change of Y
		<b>% of Y0</b>	-0.002 Change of Y as share of Y0

Table A.15

*Aggregate Open Economy Income Generation Model for Pakistan:  
The Impact of the World Economic Crisis 2008-09*

<b>SCENARIO A</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>14.00%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$			
<b>mx</b>	14.00%		lower band import intensity coefficient
<b>m</b>	28.60%	23.74%	Import intensity before & after price decline for imports
<b>t</b>	10.22%		marginal/average income tax rate
<b>c</b>	83.52%		marginal propensity to consume
<b>mpfi</b>	24.44%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:		$1/[1 - (1-t)c + m]$	
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	28.60%	1.865	before price effect
<b>With m=</b>	23.74%	2.051	after price declines
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$			
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-9,723.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	167,700.00		
<b>M non X 2008</b>	2,038.47		
		<b>Evaluate line 24</b>	
		$(\Delta\lambda/\lambda0)$	0.10 multiplier change due to price effect of 0.17
		$(\Delta\lambda/\lambda0) Y0$	16,724.55 Additional Y due to reduction of import prices
		$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-19,943.74 Reduction of Y due to fall in export VA + others
		$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,219.19 Total change of Y
		<b>% of Y0</b>	-0.02 Change of Y as share of Y0



**SCENARIO B**

<b>IMPORT INTENSITY COEFFICIENT:</b>				<b>19.00%</b>		
<b>Multiplier formula:</b>				$dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$		
<b>mx</b>	19.00%			Baseline import intensity coefficient		
<b>m</b>	28.60%	23.74%		Import intensity before & after price decline for imports		
<b>t</b>	10.22%			marginal/average income tax rate		
<b>c</b>	83.52%			marginal propensity to consume		
<b>mpfi</b>	24.44%			marginal propensity for FPI		
<b>ΔPm/Pm</b>	-17.00%			Price decline assumed by study		
<b>Multiplier Calculations</b>						
Evaluate Right Hand:				$1/[1 - (1-t)c + m]$		
<b>Coefficient</b>	<b>Value</b>		<b>Result</b>			
<b>With m=</b>	28.60%		1.865	before price effect		
<b>With m=</b>	23.74%		2.051	after price declines		
<b>Impact Calculation:</b>						
				$Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 =$ $(\Delta\lambda/\lambda0) (\lambda0) EXOG0 + (\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$		
<b>Change in VA x multiplier</b>						
<b>ΔVA in X + other changes</b>	-9,801.00			<b>Evaluate line</b>		
<b>VA in X 2008</b>				<b>24</b>		
<b>Y0 2008</b>	167,700.00			$(\Delta\lambda/\lambda0)$	0.10	multiplier change due to price effect of 0.17
<b>M non X 2008</b>	2,038.47			$(\Delta\lambda/\lambda0) Y0$	16,724.55	Additional Y due to reduction of import prices
				$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-20,103.74	Reduction of Y due to fall in export VA + others
				$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,379.19	Total change of Y
				<b>% of Y0</b>	-0.020	Change of Y as share of Y0

<b>SCENARIO C</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>24.00%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$			
<b>mx</b>	24.00%		Upper band import intensity coefficient
<b>m</b>	28.60%	23.74%	Import intensity before & after price decline for imports
<b>t</b>	10.22%		marginal/average income tax rate
<b>c</b>	83.52%		marginal propensity to consume
<b>mpfi</b>	24.44%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:		$1/[1 - (1-t)c + m]$	
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	28.60%	1.865	before price effect
<b>With m=</b>	23.74%	2.051	after price declines
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$			
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-9,259.00	<b>Evaluate line 24</b>	
<b>VA in X 2008</b>		<b>(Δλ/λ0)</b>	0.10 multiplier change due to price effect of 0.17
<b>Y0 2008</b>	167,700.00	<b>(Δλ/λ0) Y0</b>	16,724.55 Additional Y due to reduction of import prices
<b>M non X 2008</b>	2,038.47	<b>[ΔX(1-mx) + ...+...]λ1</b>	-18,991.99 Reduction of Y due to fall in export VA + others
		<b>(Δλ/λ0) Y0 + [ΔX(1-mx) + ...+...]λ1</b>	-2,267.44 Total change of Y
		<b>% of Y0</b>	-0.01 Change of Y as share of Y0

Table A.16

*Aggregate Open Economy Income Generation Model for Sri Lanka:  
The Impact of the World Economic Crisis 2008-09*

<b>SCENARIO A</b>			
<b>IMPORT INTENSITY COEFFICIENT:</b>	<b>14.11%</b>		
<b>Multiplier formula:</b>	$dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$		
<b>mx</b>	14.11%		lower band import intensity coefficient
<b>m</b>	55.10%	45.73%	Import intensity before & after price decline for imports
<b>t</b>	14.23%		marginal/average income tax rate
<b>c</b>	80.88%		marginal propensity to consume
<b>mpfi</b>	11.01%		marginal propensity for FPI
<b>ΔPm/Pm</b>	-17.00%		Price decline assumed by study
<b>Multiplier Calculations</b>			
Evaluate Right Hand:	$1/[1 - (1-t)c + m]$		
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>	
<b>With m=</b>	55.10%	1.167	before price effect
<b>With m=</b>	45.73%	1.310	after price declines
<b>Impact Calculation:</b>			
	$Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 =$ $(\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$		
<b>Change in VA x multiplier</b>			
<b>ΔVA in X + other changes</b>	-2,924.00		
<b>VA in X 2008</b>			
<b>Y0 2008</b>	20,586.91		
<b>M non X 2008</b>	1,125.70		
			<b>Evaluate line 24</b>
		$(\Delta\lambda/\lambda0)$	0.12 multiplier change due to price effect of 0.17
		$(\Delta\lambda/\lambda0) Y0$	2,525.44 Additional Y due to reduction of import prices
		$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,829.33 Reduction of Y due to fall in export VA + others
		$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-1,303.89 Total change of Y
		<b>% of Y0</b>	-0.06 Change of Y as share of Y0

**SCENARIO B**

<b>SCENARIO B</b>																		
<b>IMPORT INTENSITY COEFFICIENT:</b>		<b>19.11%</b>																
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$																		
mx	19.11%		Baseline import intensity coefficient															
m	55.10%	45.73%	Import intensity before & after price decline for imports															
t	14.23%		marginal/average income tax rate															
c	80.88%		marginal propensity to consume															
mpfi	11.01%		marginal propensity for FPI															
$\Delta Pm/Pm$	-17.00%		Price decline assumed by study															
<b>Multiplier Calculations</b>																		
Evaluate Right Hand:		$1/[1 - (1-t)c + m]$																
<b>Coefficient</b>	<b>Value</b>	<b>Result</b>																
With m=	55.10%	1.167	before price effect															
With m=	45.73%	1.310	after price declines															
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$																		
<b>Change in VA x multiplier</b>																		
$\Delta VA$ in X + other changes	-2,835.00	<b>Evaluate line</b> <b>24</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><math>(\Delta\lambda/\lambda0)</math></td> <td style="text-align: center;">0.12</td> <td>multiplier change due to price effect of 0.17</td> </tr> <tr> <td><math>(\Delta\lambda/\lambda0) Y0</math></td> <td style="text-align: center;">2,525.44</td> <td>Additional Y due to reduction of import prices</td> </tr> <tr> <td><math>[\Delta X(1-mx) + \dots + \dots]\lambda1</math></td> <td style="text-align: center;">-3,712.77</td> <td>Reduction of Y due to fall in export VA + others</td> </tr> <tr> <td><math>(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1</math></td> <td style="text-align: center;">-1,187.33</td> <td>Total change of Y</td> </tr> <tr> <td>% of Y0</td> <td style="text-align: center;">-0.058</td> <td>Change of Y as share of Y0</td> </tr> </table>		$(\Delta\lambda/\lambda0)$	0.12	multiplier change due to price effect of 0.17	$(\Delta\lambda/\lambda0) Y0$	2,525.44	Additional Y due to reduction of import prices	$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,712.77	Reduction of Y due to fall in export VA + others	$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-1,187.33	Total change of Y	% of Y0	-0.058	Change of Y as share of Y0
$(\Delta\lambda/\lambda0)$	0.12			multiplier change due to price effect of 0.17														
$(\Delta\lambda/\lambda0) Y0$	2,525.44			Additional Y due to reduction of import prices														
$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,712.77			Reduction of Y due to fall in export VA + others														
$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-1,187.33	Total change of Y																
% of Y0	-0.058	Change of Y as share of Y0																
VA in X 2008																		
Y0 2008	20,586.91																	
M non X 2008	1,125.70																	

**SCENARIO C**

<b>IMPORT INTENSITY COEFFICIENT:</b>				<b>24.11%</b>	
<b>Multiplier formula:</b> $dY/d[(1-mx)X + REM + (1-mfpi)FPI] = 1/[1 - (1-t)c + m]$					
mx	24.11%			Upper band import intensity coefficient	
m	55.10%	45.73%		Import intensity before & after price decline for imports	
t	14.23%			marginal/average income tax rate	
c	80.88%			marginal propensity to consume	
mpfi	11.01%			marginal propensity for FPI	
$\Delta Pm/Pm$	-17.00%			Price decline assumed by study	
<b>Multiplier Calculations</b>					
Evaluate Right Hand:		$1/[1 - (1-t)c + m]$			
<b>Coefficient</b>		<b>Result</b>			
With m=	55.10%	1.167		before price effect	
With m=	45.73%	1.310		after price declines	
<b>Impact Calculation:</b> $Y1 - Y0 = EXOG1\lambda1 - EXOG0\lambda0 = (EXOG0 + \Delta EXOG)\lambda1 - EXOG0\lambda0 = EXOG0(\lambda1 - \lambda0) + \Delta EXOG\lambda1 = (\Delta\lambda/\lambda0)(\lambda0)EXOG0 + (\Delta\lambda/\lambda0)Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$ $\Delta EXOG\lambda1 =$					
<b>Change in VA x multiplier</b>					
$\Delta VA$ in X + other changes	-2,751.00			Evaluate line 24	
VA in X 2008			$(\Delta\lambda/\lambda0)$	0.12	multiplier change due to price effect of 0.17
Y0 2008	20,586.91		$(\Delta\lambda/\lambda0) Y0$	2,525.44	Additional Y due to reduction of import prices
M non X 2008	1,125.70		$[\Delta X(1-mx) + \dots + \dots]\lambda1$	-3,602.76	Reduction of Y due to fall in export VA + others
			$(\Delta\lambda/\lambda0) Y0 + [\Delta X(1-mx) + \dots + \dots]\lambda1$	-1,077.32	Total change of Y
			% of Y0	-0.05	Change of Y as share of Y0

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