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Food Price Escalation in South Asia—A Serious and Growing Concern

Bruno Carrasco and Hiranya Mukhopadhyay

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ABSTRACT

South Asia is arguably the most vulnerable region to increasing food inflation given the large segment of the population living below or near the poverty line. This paper deals with the problems related to food price inflation in South Asian in a comprehensive manner. An in-depth empirical analysis of the possible factors that could explain the increase in food inflation is presented in the paper, and the impact of food price inflation on poverty and macroeconomic stability in South Asia has also been covered. Some practical policies are proposed to address the situation including a discussion on how regionalism may provide one of the solutions to food inflation.

I. INTRODUCTION

1. The recent escalation in world food prices is an increasing and growing concern. From a public policy perspective, rising food prices, if sustained, can wreak havoc on the important gains made across developing economies over decades in terms of poverty reduction and achieving Millennium Development Goals (MDGs). Rising food prices can also trigger important destabilizing forces in an economy if second round effects lead to higher inflation and other challenges to macroeconomic management. The hike in global food inflation of 2008 provided a preview of these challenges.

2. As argued in this paper, the increase in food prices is not an isolated phenomenon but rather part of a wider escalation in international commodity prices. Indeed the extent to which food price increases has been observed across different countries and different food items supports this view. While various factors are being attributed to the increase in food prices—from a weakening of the dollar, to climate change to changing consumption patterns from an increase in the ranks of the middle classes—it is unlikely to know for certain how much is each factor contributing on its own. What is key is that there are important cyclical as well as structural factors at work and these affect supply and demand conditions in different ways across different countries. Furthermore, it is important to understand what is behind these factors and how these factors interact with one another when designing policy responses.

3. Policy responses should be able to target those factors that have led to the current demand and supply imbalance. Furthermore, policy responses have to allow for prices to translate into important information signals to enable the appropriate response by market participants. To the extent that these signals are muted, the slower and perhaps more costly the adjustment process to meet the new prevailing conditions. As such, a rise in the price of rice signals an increase in production to farmers. Conversely a well targeted and timely food price subsidy to poorer and more vulnerable households will allow for a social safety net program to be a cost effective means to address food security concerns as compared to a general and unsustainable across the board subsidy. Policy responses should also distinguish between short-term fixes as for example export-bans promulgated in various countries and more sustainable solutions that translate into effective and longer term increases in supply.

4 Recent history has brought to light the importance of technology and how research and development that led to the green revolution managed to improve strains of seeds that were better tailored to local conditions, more resistant to bacteria and resulting in significant greater yields. While there are still important improvements that could be made to bring production levels in line with the world yield average, a call for additional investment in productivity enhancements as well as farm to market infrastructure will be key to bring about a new green revolution.

5 This paper focuses on food inflation in South Asia. South Asia is arguably the most vulnerable region to increasing food inflation given the large segment of the population living below or near the poverty line. From the point of view of food security, the stakes of failing to effectively address escalating food inflation are much higher particularly as bad policies can tip segments of the population into a situation where they may not be able to meet minimum nutritional/calorific requirements. Hence the warning to policymakers is clear; we must get the policies right.

6 In the remainder of this paper, Section II reviews recent trends in food inflation. Section III analyzes the possible factors behind the increase in food inflation. Section IV estimates the

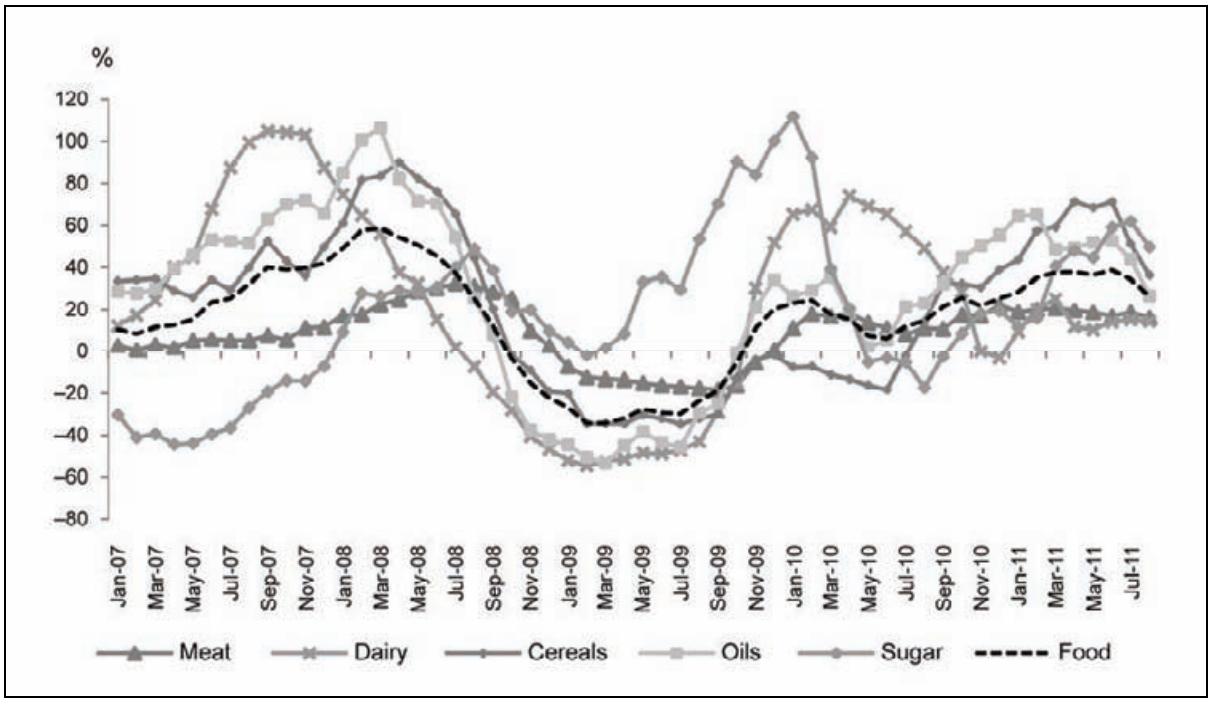
impact on poverty and macroeconomic stability. Section V reviews policies to address the situation. Section VI provides important recommendations for policymakers. Section VII proposes how regionalism may provide solutions to food inflation. Finally, Section VIII concludes.

II. RECENT TRENDS IN FOOD PRICES

A. Recent Trends in Global Food Prices

7 According to the latest data, international food prices increased by 26.4% (year-on-year) in August 2011 but below the 34.5% year-on-year increase in July 2011 and the 58.7% peak recorded in March 2008 (Figure 1). The breakdown of the August figure included a 9.9% increase in cereals, a 3.8% increase in edible oils, a 5.6% increase in meat, a 3.6% increase in sugar and a 2.4% increase in dairy.

Figure 1: Food Price Indices Year on Year Growth, 2002–2004 = 100 (January 2008–August 2011)

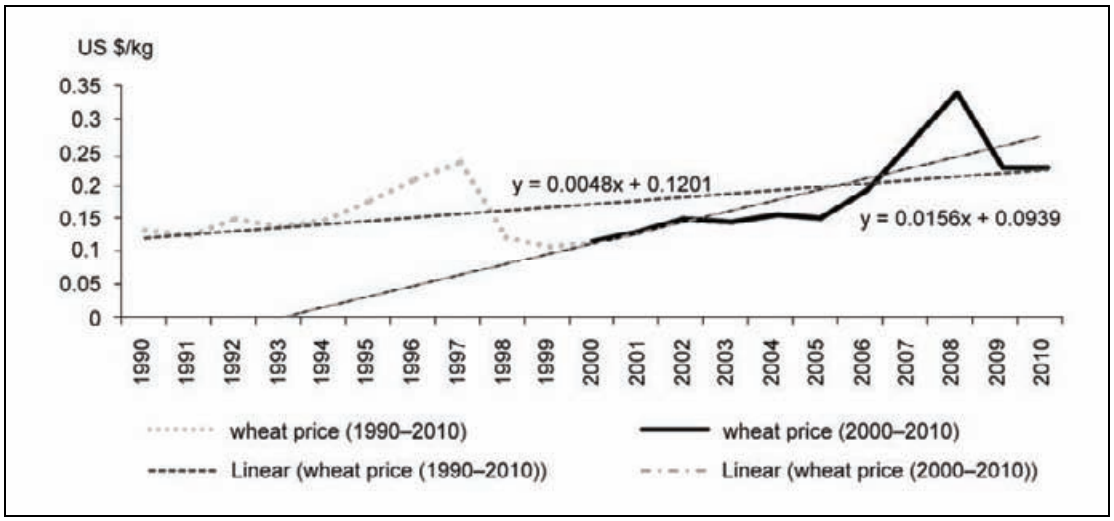


Source: Food and Agriculture Organization. *Food Price Index.* September 2011.

8. As the main staples contributing to meeting the nutritional requirements in South Asia, wheat and rice are of particular importance. Analyzing the long term trend from 1990 to 2010, international wheat prices have increased by 0.5% per annum (see Figure 2). However, in the last 10 years alone, wheat prices have accelerated, growing at 1.6% per annum (see Figure 2).

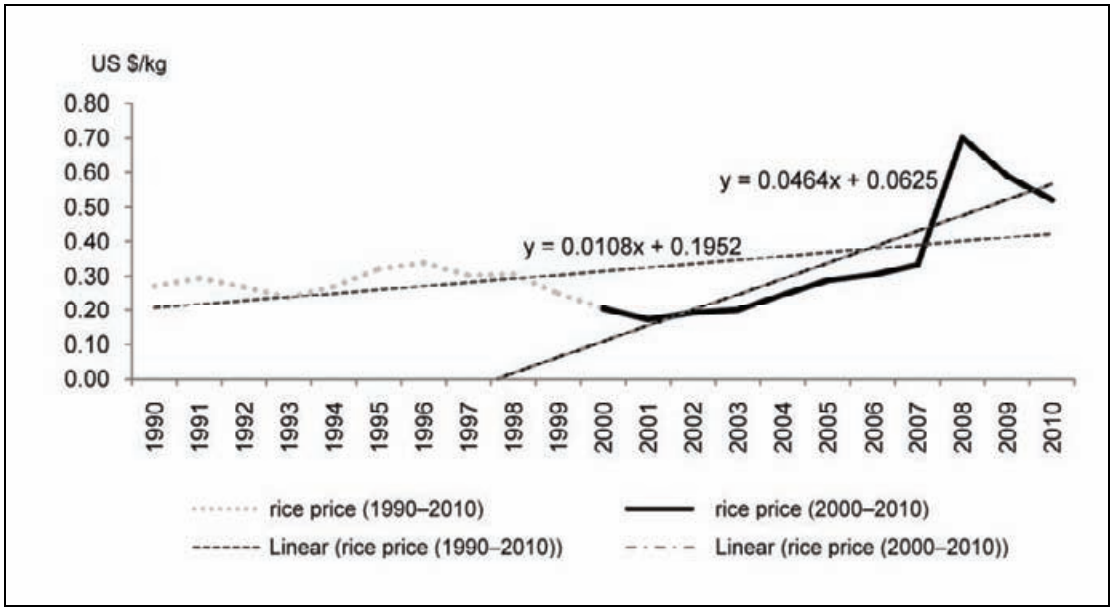
9. Trend growth of international rice prices during 1990–2010 mirrored those of wheat although increasing by 1.1% per annum (see Figure 3), faster than wheat. However, as is the case with wheat, during the more recent sample from 2000–2010, trend growth is even higher at 4.6% per annum (see Figure 3).

Figure 2: International Price of Wheat (1990–2010)



Note: Used wheat no. 1 hard red winter, FOB Gulf of Mexico; Data are originally in months; used simple average to compute for annual prices.
Source: IMF Primary Commodity Prices Database.

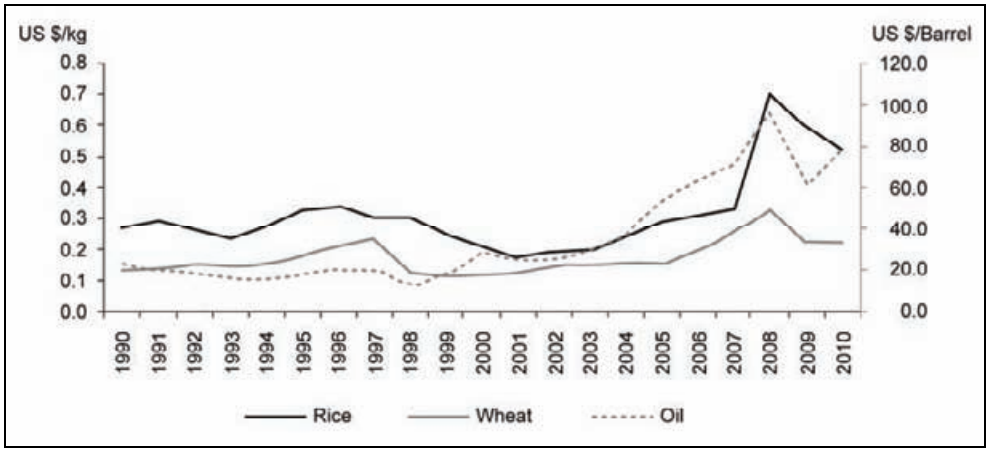
Figure 3: International Price of Rice (1990–2010)



Note: Used rice 5% broken milled white rice, Thailand; Data are originally in months; used simple average to compute for annual prices.
Source: IMF Primary Commodity Prices Database.

10. In view of higher commodity prices, it is reasonable to question whether the sharp increase in the price of oil, oil being a key input in the production—fertilizer, sowing and harvesting—and distribution processes, is behind the increase in food prices. Figure 4 presents the increase in international rice and wheat prices as compared to oil prices.

Figure 4: Are Prices of Rice and Wheat Trailing Oil Prices?



Note: Used rice 5% broken milled white rice, Thailand; wheat no. 1 hard red winter, FOB Gulf of Mexico; used oil average of UK Brent, Dubai, and West Texas intermediate. Data are originally in months; used simple average to compute for annual prices.
Source: IMF Primary Commodity Prices Database.

11. Correlation indices clearly point towards a strong link between the international prices of wheat and rice, and lagged oil prices, with correlation coefficients of 0.71 during 1990–2010. The correlation tends to increase during the 2000–2010 period as compared to the longer 1990–2010 period (see Table 1).

Table 1: Correlation Indices between Prices of Wheat, Rice, and Oil

	(1990–2010)		(2000–2010)	
Commodity	Oil, M-1	Oil, M-2	Oil, M-1	Oil, M-2
Rice	0.72	0.71	0.82	0.82
Wheat	0.75	0.74	0.82	0.79

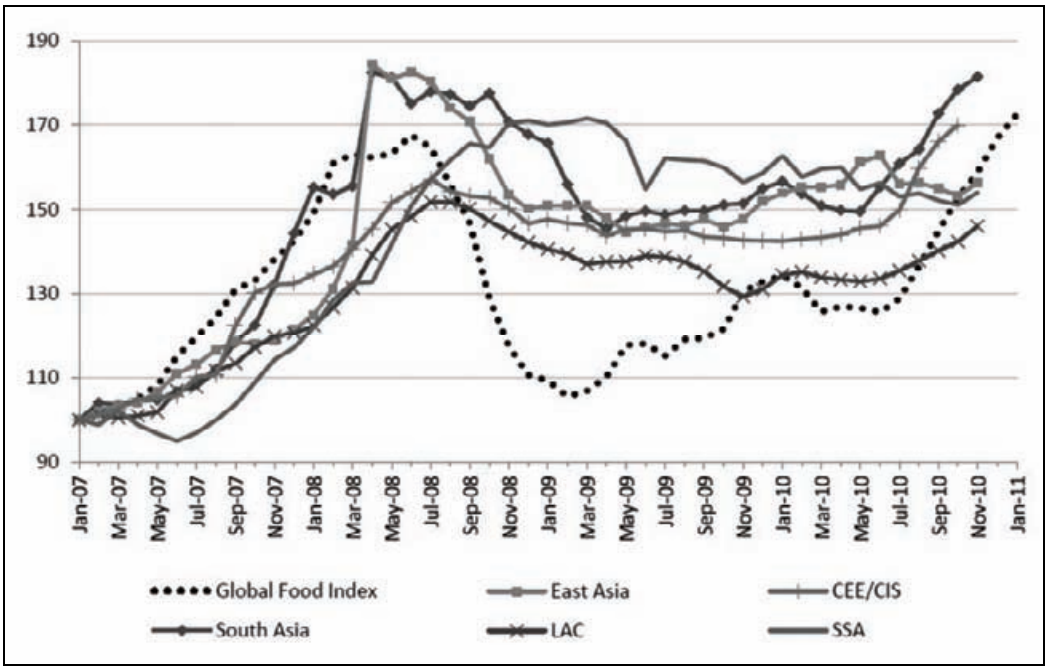
Source: ADB staff calculations.

B. Domestic Prices of Food in Countries in South Asia

12. A breakdown of international food prices by region reveals interesting observations. Food prices in South Asia and elsewhere in Asia have tended to mirror—albeit somewhat imperfectly—the trend in international prices. According to Figure 5 and based on an indexing of food prices, the peak in April 2008 and more recent spike in food prices have been clearly reflected across all South Asia countries. However, South Asia stands out as the region that has been most affected by food price spikes.

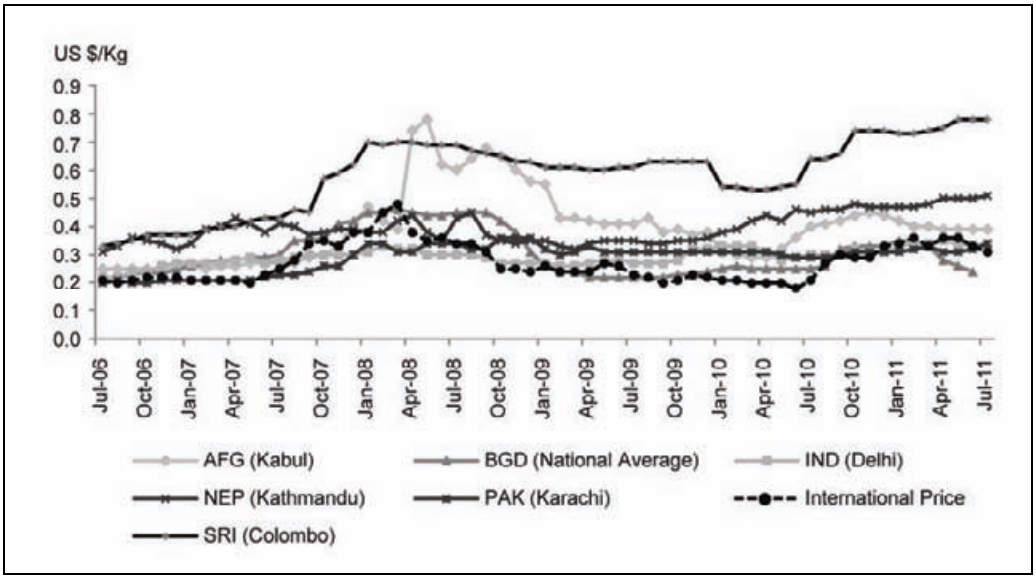
13. A further breakdown of wheat prices in South Asia by countries and for the period July 2006 to August 2011 points to Afghanistan as recording the highest wheat prices in the region reaching $0.8/kg in May 2008 (see Figure 6). More recently, wheat prices in Sri Lanka—a country that is completely dependent on wheat imports—have recorded historical peaks in the region. There are two interesting observations from this figure. First, domestic wheat prices tend to amplify international prices during the peaks and in general remain above international prices throughout the period. Second, there is persistence in domestic wheat prices as, with the exception of Afghanistan, prices across the region have not declined as quickly as international prices between the two peaks.

Figure 5: Local Food Prices by Regions, January 2007–November 2010 (or latest available) (unweighted average index values; January 2007 = 100)



Note: Sample includes 5 countries from South Asia, 5 from East Asia, 16 from LAC, 7 from CEE/CIS, and 24 from SSA; MENA is not included since there is data for only one developing country from that region (Djibouti).
Source: UNICEF (2011). *Escalating Food Prices: The Threat to Poor Households and Policies to Safeguard a Recovery for All.* New York.

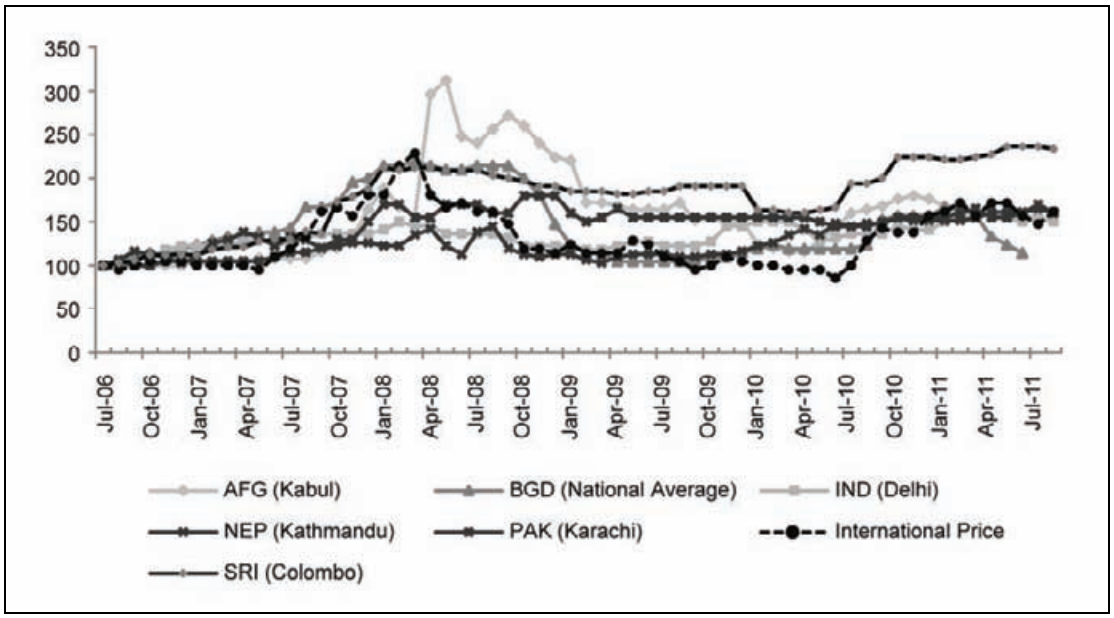
Figure 6: Domestic vs. International Wheat Prices in Selected South Asian Countries (July 2006–August 2011)



Note: Used domestic price of wheat (flour) for Nepal and Sri Lanka; used international price of wheat no. 2 hard red winter, USA Gulf. Data for AFG (Kabul) until July 2011 and BGD (National Average) until June 2011.
Source: GIEWS, FAO.

14. For the purpose of cross-country comparisons, wheat prices from Figure 6 were transformed into an index and rebased to 100 in July 2006. Based on this rebasing, wheat prices in Afghanistan for the period July 2006 to August 2011 have experienced the highest increase amounting to slightly over 200% with the rest of the countries grouped together experiencing price increases in the range of 50% to less than 150% (see Figure 7).

Figure 7: Domestic vs. International Wheat Prices in Selected South Asian Countries (July 2006 = 100)

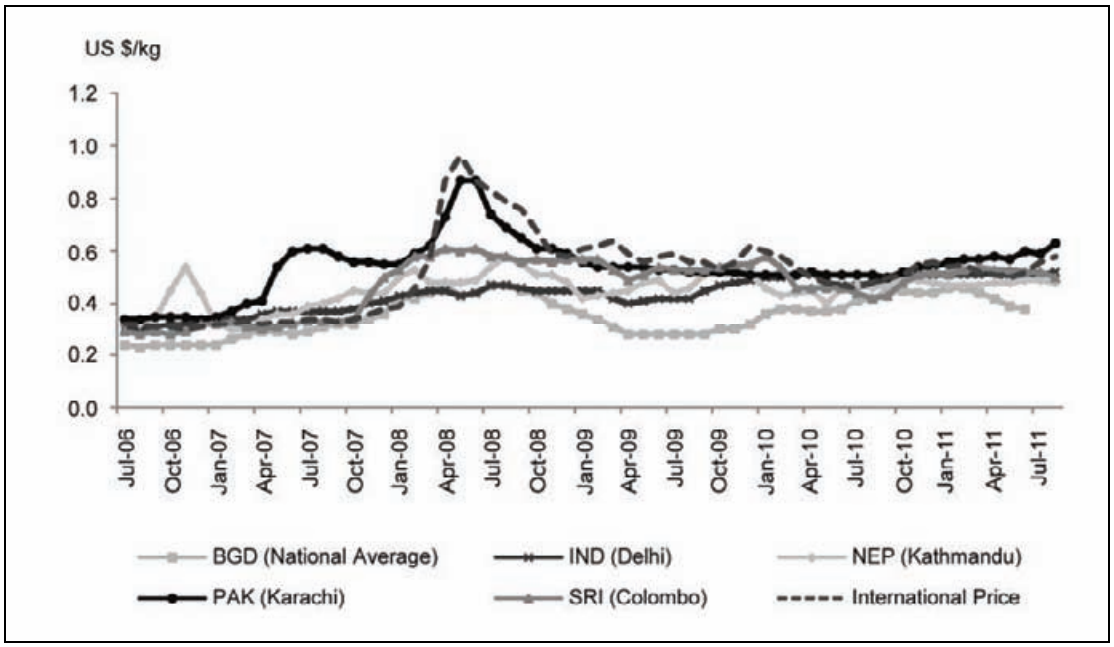


Note: Used domestic price of wheat (flour) for Nepal and Sri Lanka; used international price of wheat no. 2 hard red winter, USA Gulf. Data for AFG (Kabul) until July 2011 and BGD (National Average) until June 2011.
Source: GIEWS, FAO.

15. A similar breakdown is applied to rice prices. This breakdown reflects many of the features as in wheat prices (see Figure 8). Two observations are most noteworthy. First is the absence of a second peak in rice prices following the June 2008 spike as, by and large, rice prices appear to still be on a slightly downward trend from the June 2008 peak. Second, in contrast to wheat, domestic rice prices tend to be more subdued than international prices and, in general, remain below international prices throughout the period.

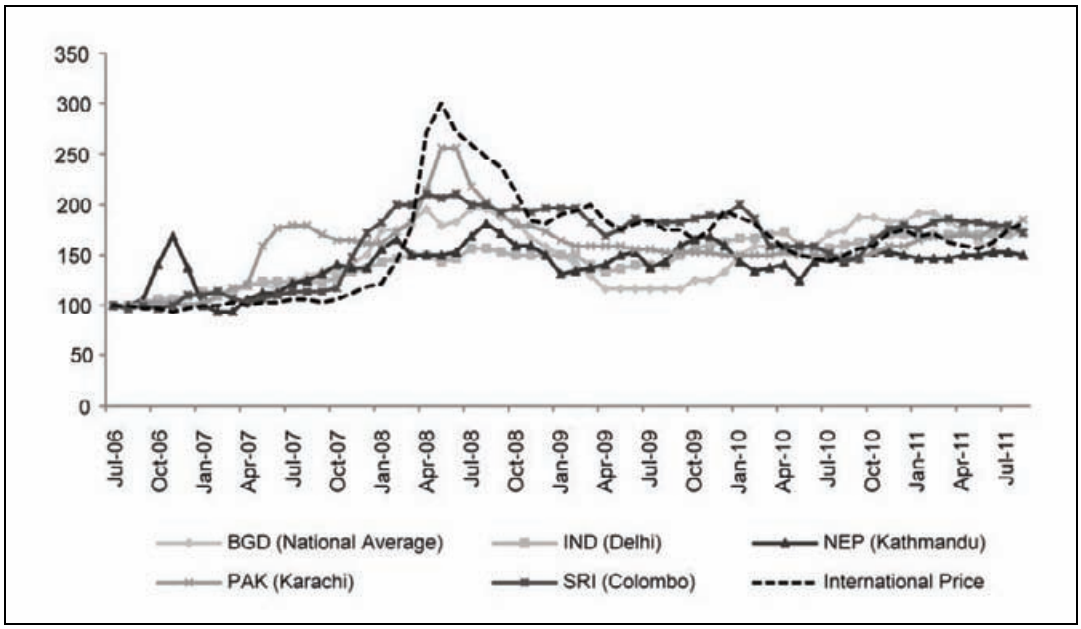
16. Once again, for the purpose of comparison, rice prices were transformed into an index and rebased to 100 in July 2006. Rice prices in Pakistan have recorded the highest growth increasing by more than 100% during this same period, in contrast to the less than 100% for the other countries (see Figure 9).

Figure 8: Domestic vs. International Rice Prices in Selected South Asian Countries (July 2006–August 2011)



Note: Used domestic price of course rice for Nepal, white rice for Sri Lanka, and Bhasmati rice for Pakistan; used international price of rice 100% Bangkok, Thailand. Data for BGD (National Average) until June 2011.
Source: GIEWS, FAO.

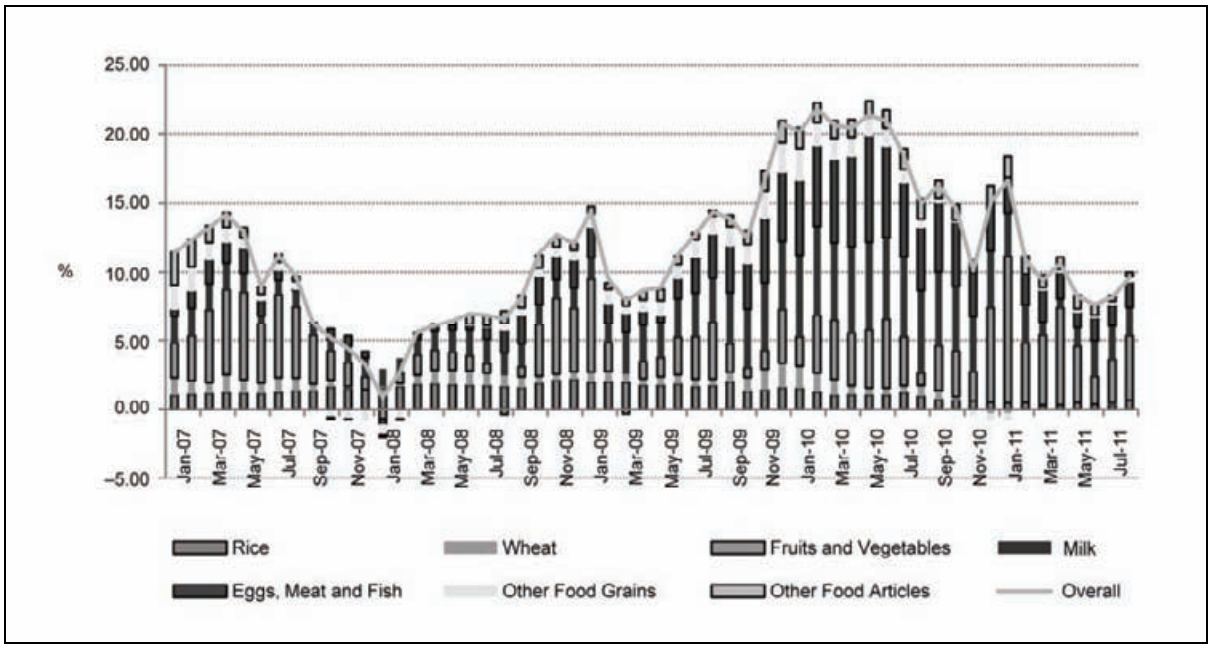
Figure 9: Domestic vs. International Rice Prices in Selected South Asian Countries (July 2006 = 100)



Note: Used domestic price of course rice for Nepal, white rice for Sri Lanka, and Bhasmati rice for Pakistan; used international price of rice 100% Bangkok, Thailand. Data for BGD (National Average) until June 2011.
Source: GIEWS, FAO.

17. Finally, it is important to note that it is not just strong demand for wheat and rice that has been driving food price inflation in economies in South Asia, but different food items have similarly been contributing to food inflation. The breakdown of contribution by items to food inflation for India reveals that, aside from food grains (rice, pulses or lentils), other food commodity components, i.e., eggs, meat, and fish; milk; and fruits and vegetables have equally contributed to the recent food price hikes in India (see Figure 10).

Figure 10: Contributions to Food Price Growth in India (January 2007–August 2011)



Note: Other food grains include pulses, jowar, bajra, maize, barley, and ragi; other food articles include tea, coffee, and condiments.
Source: Staff calculations based on data from Ministry of Statistics and Programme, India.

III. CAUSES—WHAT IS BEHIND THE RENEWED INCREASE IN FOOD PRICES?

18. This section drills deeper into the specific reasons for the increasing demand for food commodities and the limitations of supply to keep up with it. In general, growing demand due to above average population growth and rising national income exceed supply limited by (i) decreasing arable land; (ii) stagnating yields as a result of inadequate investment in agriculture (research, irrigation and extension services); (iii) hoarding of supply producers and traders; and (iv) regional export restrictions. In addition, oil prices seem to place upward pressure on retail prices, in particular rice prices.

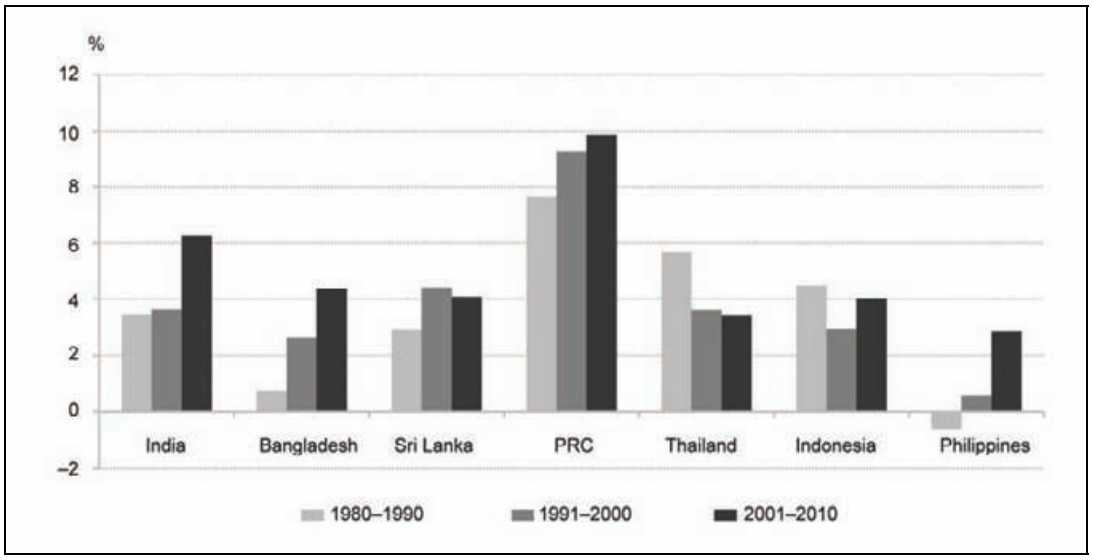
A. Demand Side Factors

19. Population growth together with increasing disposable incomes are the key factors that could explain growing demand for food in South Asia. South Asia experienced limited demographic transition and demonstrates higher fertility rates (2.35)[1] compared to East Asia

[1] www.worldbank.org. Figures are for 2009.

(1.98)[2] and South East Asia (1.98).[3] Figure 11 shows increasing per capita incomes for most countries[4] with India and the People's Republic of China (PRC) recording the highest growth over the first decade of the 21st century. Therefore, countries in the region may experience greater pressure on their food supplies from increasing demand.

Figure 11: Average Annual Growth Rate of GDP per Capita in Selected Countries, 1980–2010



PRC = People's Republic of China.
Source: World Bank. Accessed 17 October 2011. www.data.worldbank.org

B. Supply Side Factors

20. The share of South Asia's arable land as percentage of total land area is on a slowly decreasing trend. Given the limited arable land and a certain amount of persistence in crop switching, competing use of food grains (in particular to produce bio-fuel), urbanization and diversion of agricultural land for commercial purposes places limits on the scope for increasing supply of food grains and other commodities.

21. Food supply is further limited by low agricultural productivity, in particular with regard to yield. Figures 12 and 13 provide a closer look at the supply side of wheat and rice for the top global producers. The figures show the maximum yields per hectare of rice (9.9 tons by Egypt) against a world average yield of 4.1 tons and wheat (7.5 tons by New Zealand) against a world average yield of 2.8 tons. As depicted in the figures, there is ample room to increase global supplies, especially as 6 of the top 10 global rice producers and 8 of the top 10 global wheat producers do not even reach average world yields. In South Asia, if India (2nd largest global rice producer) and Pakistan (7th largest global wheat producer), could reach world yield averages in rice and wheat, respectively, this would represent an important contribution to increasing global and regional supplies.

[2] Ibid.
[3] Ibid.
[4] Except for Sri Lanka, Thailand, and Indonesia.

Figure 12: Yields for Top 10 Global Rice Producers (tons per hectare)

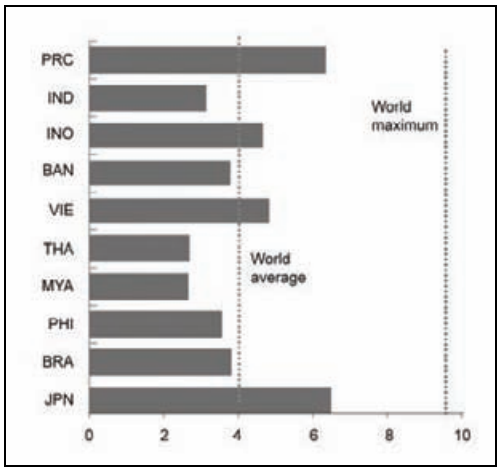
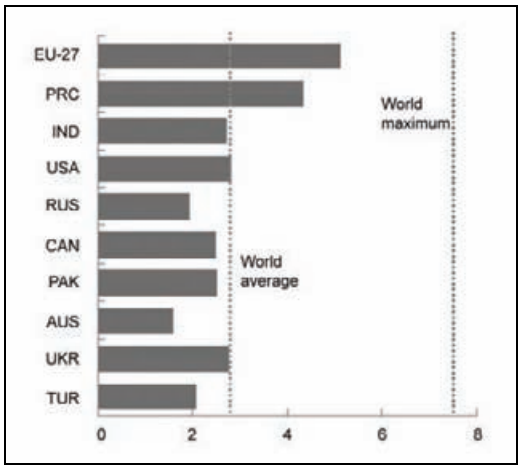


Figure 13: Yields for Top 10 Global Wheat Producers (tons per hectare)



Source: ADB. 2011. *Global Food Price Inflation and Developing Asia.* Manila.

22. Since the 1980s, agriculture value added growth for all South Asian countries (except Bangladesh) has been on a declining trend (Figure 14). Also, South Asia is lagging behind East Asia and the Pacific (EAP) region (developing countries only). Furthermore, although agriculture remains an important sector in South Asia, the share of agriculture value added to GDP has fallen in recent times (Figure 15).

Figure 14: Average Value Added (AVA) Growth in Agriculture, 1980–2009 (%)

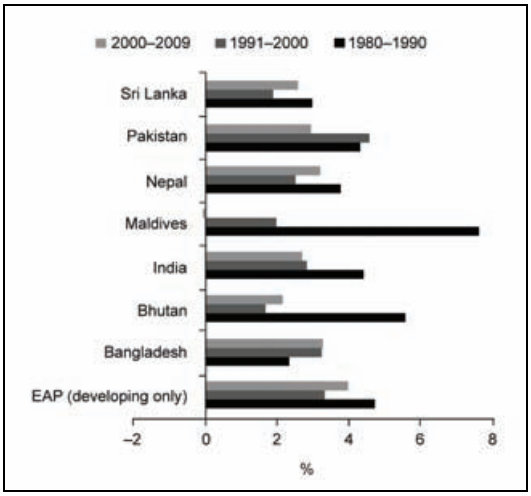
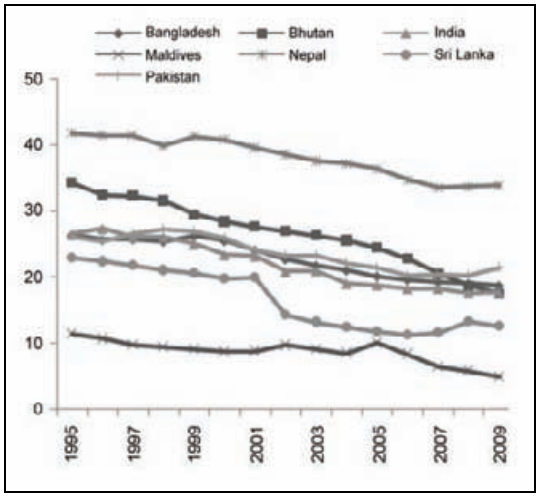


Figure 15: AVA in Agriculture as a % of GDP of South Asian Countries



Source: World Bank Databank. Accessed 19 May 2011. www.data.worldbank.org

23. Countries in South Asia, barring Bhutan, exhibit stagnating if not declining growth in the yields of major crops particularly cereals, rice, wheat, pulses and oil crops. The situation, however, alarming in India as the growth rate in yield declined sharply. The growth rate in yields of cereals for instance, has declined from an average 3.6% a year in the period 1980–1990 to around 1.4% in 2001–2009 in India. Similarly the growth rate of rice yields have dropped from 3.0% to 1.7% in the same time period while wheat annual yield growth slowed down from 4.2% to 0.6% in recent times (Table 2).

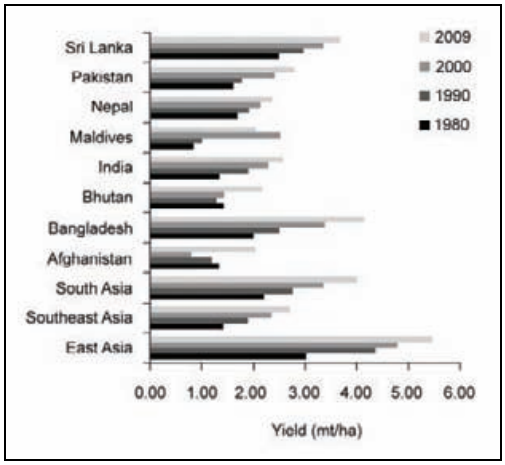
Table 2: Average Annual Growth Rate of the Yield of Major Crops in South Asia

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Cereals	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1980–1990	–1.1	2.3	–0.5	3.6	3.8	1.9	1.1	2.0
1991–2000	–1.4	3.2	1.3	2.0	11.3	1.2	3.3	1.3
2001–2009	–1.9	2.3	7.5	1.4	3.9	1.2	1.8	1.1
Rice								
1980–1990	–1.2	2.5	0.9	3.0	–	3.6	–0.4	2.0
1991–2000	1.3	3.2	–1.5	1.0	–	1.6	3.0	1.3
2001–2009	7.4	2.1	7.7	1.7	–	0.9	2.0	1.0
Wheat								
1980–1990	–1.7	–1.9	–1.9	4.2	–	1.9	2.1	–
1991–2000	–2.4	4.0	3.6	2.9	–	2.7	3.3	–
2001–2009	17.4	0.3	6.0	0.6	–	1.0	0.9	–
Oil Crops								
1980–1990	–0.1	0.6	–5.3	4.4	–2.6	2.2	9.3	5.9
1991–2000	3.7	1.7	0.9	1.5	3.2	0.5	0.4	2.1
2001–2009	–0.7	2.3	16.0	3.0	0.7	1.7	0.7	0.2
Pulses								
1980–1990	0.2	1.1	3.1	3.5	0.7	1.6	5.0	1.0
1991–2000	8.8	1.1	7.0	2.9	3.3	2.5	1.0	3.2
2001–2009	–5.1	1.4	4.9	0.0	4.7	0.4	5.6	0.3

– = No data available.
Source: FAOSTAT.

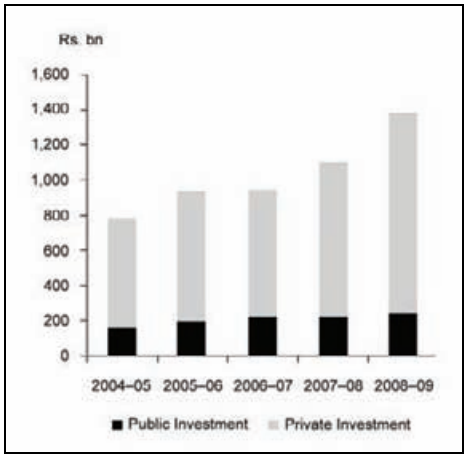
24. Compared to other regions, South Asian countries have lagged behind that of East Asian countries in terms of productivity, as shown in the lower levels of cereal yields in all South Asian countries (Figure 16). The same trend also holds for the other major crops.

Figure 16: Cereals Productivity Trends



Source: FAOSTAT.

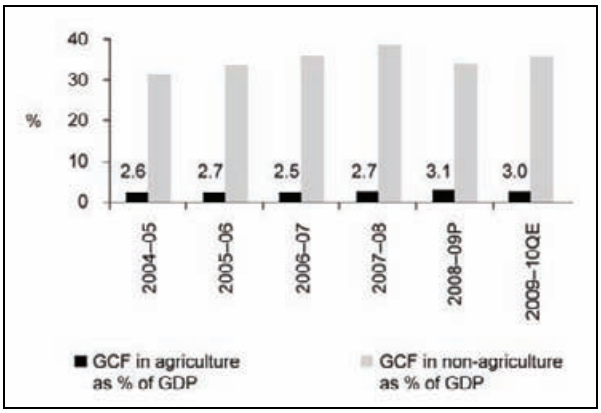
Figure 17: Public and Private Investment in Agriculture and Allied Sectors, India



Source: DAC, Ministry of Agriculture GOI. *Agricultural Statistics at a Glance 2010.* http://dacnet.nic.in/eands/latest_2006.htm

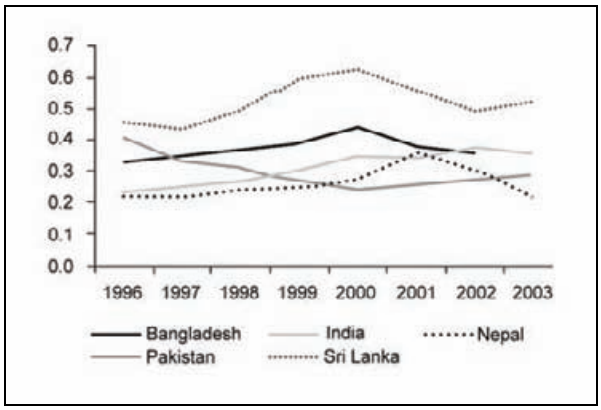
25. The stagnant and declining yields of major crops can be ultimately linked to the stagnant and declining investments in agriculture. Public investments in agriculture in India, for instance, have been generally the same since 2004, implying sharp decline in real terms (Figure 17). Furthermore, Gross Capital Formation (GCF) in agriculture as a percentage of GDP has not only been sluggish but more importantly has remained at very low levels relative to GCF in the non-agriculture sector (Figure 18). The same story holds for investments in research and development not just for India but for the rest of South Asia (Figure 19). Low and declining levels of public investment in agriculture coincides with ever increasing subsidies which implies that the greater part of agriculture expenditures just go to subsidies (Figure 20).

Figure 18: Investments in Agriculture and Non-agriculture Sector to GDP in India



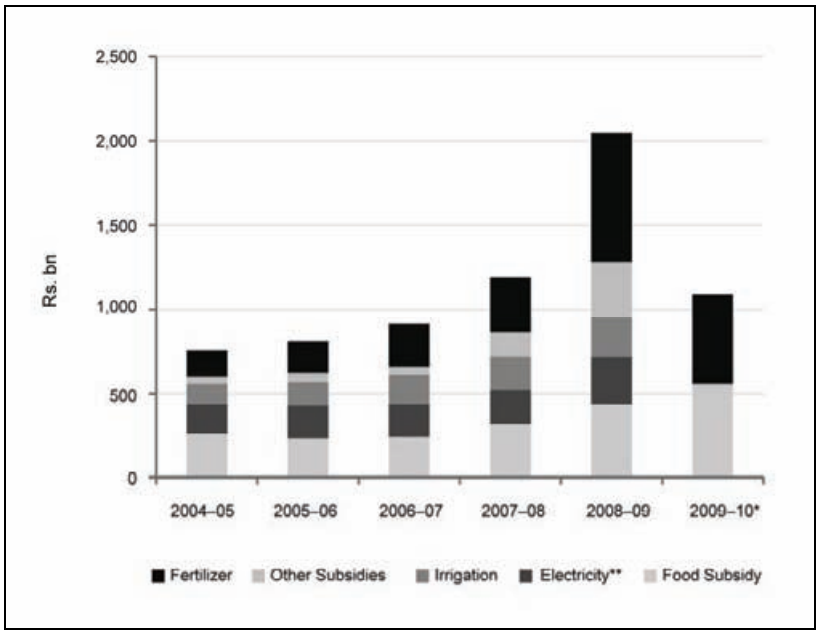
Source: Ministry of Finance, *Economic Survey 2010–11.*

Figure 19: Public Agricultural R&D as a Percentage of Agricultural GDP



Source: ASTI database. www.asti.cgiar.org/data/

Figure 20: Subsidies in Agriculture Sector, India (at current prices)



Notes: * Value does not include irrigation, other subsidies and electricity.
** Includes all subsidies to Electricity Boards and Corporations. Separate estimates of Electricity subsidy Accountable.
Source: Department of Agriculture and Cooperation, Ministry of Agriculture GOI. *Agricultural Statistics at a Glance 2010.* http://dacnet.nic.in/eands/latest_2006.htm

26. One other factor that somewhat counter-intuitively is blamed for the declining yields in agriculture is the so-called 'Green revolution' of the 1970s. Despite the rapid increase in yields at the outset, the green revolution has also resulted in environmental damage caused by (i) heavy and inappropriate use of fertilizers and pesticides, (ii) irrigation practices leading to salt build-up and (iii) receding groundwater levels in areas where more water is pumped for irrigation. This has led perversely to the dampening of long term productivity levels.[5] In India for instance, the use of fertilizers not based on proper soil testing, nutrient deficiency analysis, or crop needs have adversely affected crop yields, soil fertility, and long-term sustainability. States/regions in India which were the frontrunners[6] during the Green revolution are now suffering from soil degradation, ground water depletion and contamination and more importantly declining yields. To redress this problem, adequate training and extension programs and other corrective measures could be undertaken in order to reverse current trends and boost production in these states.

27. More recently, commodity traders (and producers) have started to recognize the increasing likelihood of further food price escalation and are already hoarding food grains with the intention of speculating on future rapid price increases. This may be contributing to price overshoots and destabilizing price dynamics during episodes of bad harvests or other supply shocks. There is also likely to be an interplay of energy and food security considerations whereby direct (through higher oil prices as a key input in production and distribution of food) and indirect forces (through diversion of food grains to bio-fuels) places greater upward pressure on food prices, which tends to further reinforce destabilizing price dynamics.

C. Other Factors

28. The feedback loops between global oil prices and other commodity prices is also contributing to price volatility as higher global oil prices may also impact domestic food prices as increasing transport costs are passed on to retail food clients.

29. Finally, it is also of interest to assess whether in this period of higher food commodity prices there are distributional aspects at play involving intermediaries taking advantage of the volatility to build margins between production to final retail stage contributing to the price escalation. A closer analysis of data from Bangladesh points to the fact that while there does not appear to be any recognizable pattern in the percentage price mark-up from farm gate to retail prices in wheat over the past six years, there is some support for an increase in the price mark-up for rice (see Tables 3 and 4).

30. Bangladesh and India extensively used export restrictions during the recent food price escalation and there is some evidence that it adversely impacted food prices for neighboring countries. A study conducted by the World Bank (2010) simulates the impact of export restriction on food prices in South Asia. While non-regional export restrictions do not substantially impact domestic food prices in South Asia, in part due to a relatively large self sufficiency in grains in the region, an export restriction in, for example, India would lead to lower domestic price build-up in India, however at a cost in terms of an increase in domestic prices of rice and wheat in importing countries such as Sri Lanka, Bangladesh and perhaps the rest of South Asia. "In Bangladesh and Nepal, India's restrictions on rice export contributed to rice price inflation."[7]

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5 International Food Policy Research Institute (IFPRI) (2002).
6 Refers to Punjab, Haryana and Western U.P.
7 World Bank (2010).

Table 3: Decomposition of Bangladesh Farm Gate vs. Retail Rice (Coarse) Prices

	Farm Gate Price	Wholesale Price	Retail Price	[(Retail-Farm gate)/Farm gate] * 100 (%)
FY2005	15.36	14.74	15.32	0.3
FY2006	15.50	15.80	16.28	5.0
FY2007	16.56	17.01	17.79	7.4
FY2008	23.35	25.00	26.01	11.4
FY2009	22.83	24.27	25.53	11.8
FY2010	21.57	22.18	23.67	9.7
FY2011 (December 2010)	23.52	30.99	32.67	38.9

Source: Directorate General of Food and Department of Agricultural Marketing and ADB calculations.

Table 4: Decomposition of Bangladesh Farm Gate vs. Retail Wheat Prices

	Farm Gate Price	Wholesale Price	Retail Price	[(Retail-Farm gate)/Farm gate] * 100 (%)
FY2005	11.85	12.49	12.65	6.7
FY2006	13.88	13.90	14.37	3.5
FY2007	18.12	17.35	17.50	–3.4
FY2008	28.89	27.03	27.83	–3.7
FY2009	14.49	20.92	22.24	53.5
FY2010	17.27	16.28	16.90	–2.2
FY2011 (December 2010)	20.76	23.65	26.50	27.6

Source: Directorate General of Food and Department of Agricultural Marketing and ADB calculations.

31. There is no evidence that weather related events have adversely impacted supply in the recent price hikes. All countries in South Asia have achieved above average harvests in 2010 and the same are expected for 2011. The food crisis in 2007–2008, however, was influenced by weather events.

D. Determinants of Food Prices: An Empirical Analysis

32. Despite it being a widely analyzed phenomenon, it is still not apparent what is behind the high global food prices. Proximate factors would point to a continuation of the trend of high commodity prices observed in 2008 that was punctuated by the global crisis and that has reappeared following on the global recovery. It is also likely that supply shocks related to weather events such as floods in Australia and droughts in Russia have further exacerbated the increase in international wheat prices and, through substitution effects, may have steered demand towards rice and thereby placing pressure on rice prices. There is also evidence that other structural factors on both the demand and supply side may partly explain global food price hikes.

33. As demonstrated earlier, increases in global food prices partly fuelled into higher domestic prices in South Asia. In particular, Bangladesh and Sri Lanka have closely tracked international prices in wheat over the past five years. Against the backdrop of South Asia's limited trade integration and high self-sufficiency rates for main food commodities/staple, there are several home-grown factors contributing to price rises. Accordingly, domestic factors also play a part in the observed trend of rising food prices in South Asia beyond the rise in global food prices.

34. In this section we attempt to pin down the determinants of food price inflation in South Asia based on panel estimates of three South Asian countries—Bangladesh, India, Sri Lanka—from 1995–2009. We use Wholesale Price Index (WPI) for food as the dependent variable. Agricultural production index (API) and the per capita GDP (GDP) are the two independent supply side and demand side variables respectively (for a detailed description of variables see Appendix 1). A fixed effects model is used to isolate country specific characteristics. We also use slope dummies (for India and Bangladesh) to account for varying impacts of supply and demand side factors across countries.

35. Estimates reveal that demand and supply side factors are strong drivers of food inflation in South Asia (see Tables 5 and 6).[8] Higher per-capita income and declining agricultural output significantly push food prices up in the region. However, further analysis shows that the effect of supply and demand factors differs across countries. For instance, a decline in agricultural output has a stronger impact on food prices, i.e., higher food inflation, in India compared to Bangladesh. This variable however is an insignificant determinant of food price inflation in Sri Lanka (Model 1). Supply side factors in the context of ever increasing demand due to rising incomes in the region become more critical if the current trends of declining agricultural yields and investments in agriculture continue. Unless efforts are made to increase production, food prices will become greatly sensitive to natural supply shocks in the market.

Table 5: Regression Results

Dependent Variable: *WPI food*
Method: *Fixed Effects Model*

	Coefficients		
Independent Variables	**Model 1**	**Model 2**	**Model 3**
GDP per capita (GDP)	1.86***	2.33***	0.74***
	(5.98)	(14.57)	(2.80)
Agricultural Production Index (API)	0.85	–0.21	–0.26
	(1.10)	(–0.65)	(–0.91)
d_i*API*	–2.81***		
	(–6.66)		
d_b*API*	–1.41**		
	(–2.54)		
d_i*GDP*		–1.34***	
		(–7.34)	
d_b*GDP*		–0.85**	
		(–2.57)	
WPI_{-1}			0.71***
			(6.12)
d_i*WPI_{-1}			–0.41***
			(–2.72)
d_b*WPI_{-1}			0.01
			(0.05)
Constant	–2.46***	–2.58***	–0.83**
	(–3.12)	(–4.83)	(–2.26)
R-sq	0.93	0.95	0.95

Notes: All continuous variables are log-transformed.
The figures in parenthesis are t-values.
Data spanning from 1995–2009.
***, **,* denote significance at the 1%, 5%, and 10% level respectively.
Source: Staff estimates based on data from CEIC, WDI, FAOSTAT.

[8] The authors checked for endogeneity problems and the null hypothesis of the joint test of no endogeneity was accepted at the 1% level. Also, the correlation coefficient between *GDP* and *API* was found to be 0.30, implying multicollinearity may not be serious.

Table 6: Country Coefficients

	Supply (API)	Demand (GDP)	Past Inflation (WPI_{-1})
BGD	–0.56**	1.48**	0.72
IND	–1.96***	0.99***	0.31***
SRI	0.85	2.33***	0.71***

Note: Parameter estimates refer to elasticities rather than marginal values.
***, **,* denote significance at the 1%, 5%, and 10% level respectively.
Source: Staff estimates based on data from CEIC, WDI, and FAOSTAT.

36. From Model 2 (Table 5) we can see how higher per-capita income affects food prices differently across countries. In Sri Lanka and Bangladesh, per-capita income is a stronger determinant of food inflation, while for India, though a significant determinant, it is weaker when compared to the other countries. This could be explained by the changing pattern of food consumption in India as income rises (see Box 1.1). Although, food prices tend to fluctuate with supply factors, it is also driven by genuine changes in demand as evidenced by our results. Past inflation values also significantly push food prices higher in the current period which implies the persistence of the trend of high food prices (Model 3). This effect is strongest for Sri Lanka, less strong for India and insignificant for Bangladesh.

Box 1.1: Evidence of Shifting Consumption Patterns: An Indian Case Study[a]

India's robust growth in national income has brought forth a rise in the demand for food stuff in the country. Due to rising per capita income, domestic per capita food availability has persistently lagged behind demand for food grains in recent years. Estimates from a simple model to assess food grain inflation in India during the period FY1986–2007 corroborate that both demand and supply side factors are responsible for food price increases. Demand side factors, in particular, the rise in population and higher income, significantly drive food inflation in India.

Regression Results

Dependent variable: WPI index for food grain
(Method: OLS)

Variable	Coefficients
Constant	–216.57*** (–11.26)
Per capita net availability	–0.53* (–0.81)
Per capita income	45.15*** (11.17)
Square of per capita income	–2.26*** (–10.76)
Dummy	–0.16*** (–3.24)
R^2	0.9847
Adj. R^2	0.9811

***, **, * denote significance at the 1%, 5%, and 11% level.
Notes: All continuous variables are log-transformed and therefore, parameter estimates are elasticities rather than marginal values. The figures in parenthesis are t-values. Data spanning from FY1986–FY2008.
Source: Staff estimates based on data from Ministry of Finance, *Economic Survey 2010–11*.

Box 1.1: *Continued*

However, a more important observation from the regression is the changing consumption patterns in the country brought forth by rising incomes. Results confirm a priori expectations that income elasticity for food grain falls as per capita income increases (negative coefficient for the square term). Thus, at low levels of income, demand for food grains-cereals and pulses- are high, but as income increases, people substitute away from food grains and consume more of other food stuff like meat, vegetables, dairy etc. This is consistent with observations that India's food price inflation is driven, to a great extent, by escalating prices of food products like oil cakes, edible oils and dairy products among others, rather than food grains alone which are the traditional culprits of food price inflation in the country.[b]

[a] Carrasco et al (2010).
[b] Sthanumoorthy (2008).

37. Regression results confirm the widely documented observation of the failure of supply to meet South Asia's ever increasing demand for food fueled by rising income and high population growth. Results also show the differing impact of demand and supply pressures on food price inflation across countries and the persistence of high prices in the region. However, caution should be exercised when interpreting the results due to the limited time span and observations used for the analysis.

IV. IMPACTS

38. The section highlights the impact of rising domestic food prices in South Asia on poverty and macro-economic management. It is notable that South Asia's poor are particularly vulnerable to food price rises while its economies suffer from higher than average overall inflation when compared to the remainder of developing Asia.

A. Impact on Poverty

39. ADB staff calculations estimate the price elasticity of poverty, which measures the percentage increase in poverty when food prices increase by 1%, using the latest POVACL (World Bank)[9] database. The analysis simulates the effect of rising food prices by 10%, 20% and 30% on the change in percentage of poor and the total headcounts of poor in South Asia. Table 7 presents the results of the sensitivity analysis on how increasing food prices may affect the poor.

40. The data suggests that the poor in South Asia are on average (6.2%) more vulnerable to food price increases (30% increase) than other regions in developing Asia (average is 5.8%) and confirms South Asia's relatively higher proportion of food in consumption basket. Likewise, 60% of total increase in numbers of poor in developing Asia (if food prices rise by 10%, 20% or 30%) would be caused by increases in poor headcount ratios in South Asia. Effects of food price increases on poverty vary across countries and within countries. Sri Lanka would be least affected by any food price increase. India, the rural areas in particular, and Bangladesh would be most affected by the effective increase in food prices.

[9] POVCAL provides a world poverty estimate based on household surveys across 116 developing countries for the period 1981–2005.

Table 7: Impact of Food Price Increases on Poverty for South Asia vs. Developing Asia (25 Countries), $1.25-a-day Poverty Line

	Change in percentage of poor (in percentage points) with an increase in food prices by:			Change in number of poor (in millions) with an increase in food prices by		
	10%	20%	30%	10%	20%	30%
Afghanistan	n/a	n/a	n/a	n/a	n/a	n/a
Bangladesh	2.5	5	7.5	3.8	7.7	11.5
Bhutan	1.8	3.5	5.3	0.01	0.02	0.03
India-Rural	2.9	5.8	8.8	22.8	45.6	68.5
India-Urban	2.1	4.3	6.4	6.7	13.4	20.0
India average*/sum	2.7	5.4	8.1	29.5	59.0	88.5
Nepal	2.0	4.1	6.1	0.6	1.1	1.7
Pakistan	2.2	4.5	6.7	3.47	6.9	10.4
Sri Lanka	1.2	2.4	3.6	0.24	0.47	0.71
South Asia average/sum	**2.1**	**4.1**	**6.2**	**37.6**	**75.2**	**112.8**
Percentage of increase in total poor in developing Asia by South Asia				**58.4%**	**58.4%**	**58.4%**
Developing Asia	**1.9**	**3.9**	**5.8**	**64.4**	**128.8**	**193.2**

Note: India's average is based on rural (70%) and urban (30%) population (World Bank, as of 2009).
Source: ADB. 2011. *Global Food Price Inflation and Developing Asia.* Manila.

41. The following factors are driving poverty elasticity and may contribute to differences in elasticity indices across countries: (i) the higher inequality, the lower the price elasticity of poverty and hence the smaller the impact on poverty ratios for any given increase in food prices (ii) the distribution of income just under the poverty line (more people just under the line, the larger the elasticity), (iii) the higher the base level of food prices, the larger the elasticity as for example a 1% change in price at $10/unit has a larger impact than 1% change in prices at $5, (iv) the level of GDP/capita with smaller elasticity for countries with higher incomes, and (v) country specifics such as the effectiveness of social security systems and other safety nets, and other cultural institutions captured by a country dummy.

42. In the light of severe impact of rise in food prices on countries' poverty rates, notably in South Asia, efforts to stabilize food prices must take center stage.

B. Impact on Macroeconomic Management

43. The escalation of food prices has had an appreciable impact on inflation. In a period of rapidly increasing food prices, the relatively larger weight of food in the basket of goods that determines the CPI, the larger the impact on inflation, ceteris paribus. Table 8 provides corresponding food weights in the basket of goods comprising the CPI (WPI for India) for various countries in South Asia. In South Asia food weights span from a low of 31.7% in Bhutan to a high of 61% in Afghanistan. This compares with 30.2% in PRC and 33.0% in Thailand.

44. Figures 21 and 22 reflect the contribution of food to total consumer price inflation in a sample of countries in Asia. Given the greater weight of food in overall CPI in countries in South Asia, it is no surprise to note that for a given increase in food prices, countries in South Asia have experienced greater inflation than other countries in Asia. Another point to note is that for countries in South Asia such as Bangladesh and India, average food inflation was a larger source of inflation in the first half of 2010 as compared to the second half.

Table 8: Food Weights in CPI (%)

Country	Percentage
Afghanistan	61.0
Bangladesh	58.8
Bhutan	31.7
India	46.2
Maldives	33.3
Nepal	42.0
Pakistan	40.3
Sri Lanka	45.5
Indonesia	36.2
People's Republic of China	30.2
Philippines	46.6
Thailand	33.0

Source: Various national statistics websites and Asian Development Outlook Reports.

Figure 21: Contribution to CPI Inflation January–June 2010 (percentage points)

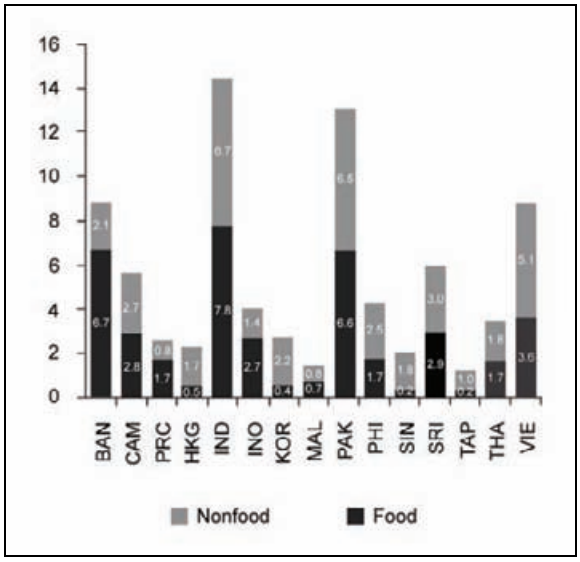
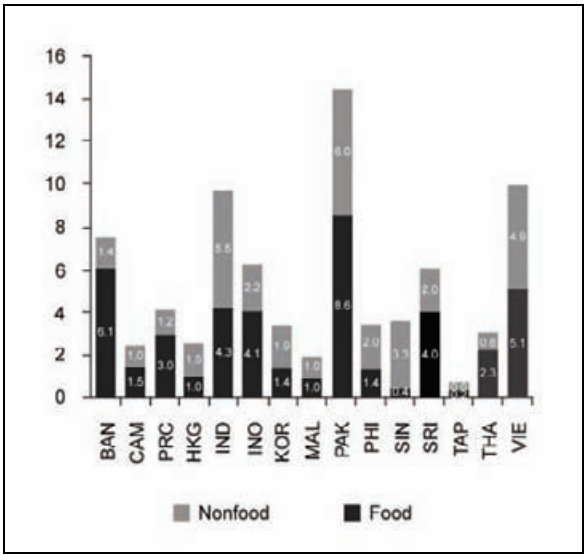


Figure 22: Contribution to CPI Inflation July 2010–latest (percentage points)



BAN = Bangladesh; CAM = Cambodia; PRC = People's Republic of China; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Republic of Korea; MAL = Malaysia; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei,China; THA = Thailand; VIE = Viet Nam.
Source: ADB staff calculations using data from CEIC Data Company, Ltd. and various national government sources.

45. Major direct impact of persistent higher food prices also includes adverse impact on growth as it reduces real income consumption, saving and investment. Interest rate tightening as policy response to control inflation would reduce aggregate demand and lead to further economic slowdown. Implementation of food subsidies and other social safety net programs are likely to increase current expenditure and worsen the fiscal deficit. In particular, Bhutan, Sri Lanka, India, Pakistan and Maldives already have relatively high fiscal deficits (see Table 9).

Table 9: Macroeconomic Vulnerability

	Fiscal Deficit	
Inflation	*Low*	*High*
Low		Maldives, Bhutan and Sri Lanka (*)
High	Afghanistan, Nepal and Bangladesh	India, Pakistan

Vulnerability thresholds: Fiscal Deficit> 6% of GDP, Inflation > 7%.
* indicates vulnerability from the Balance of Payments crisis due to import of wheat.
Source: ADO and staff calculations.

V. POLICY RESPONSES BY GOVERNMENTS IN SOUTH ASIA

46. Policy responses in South Asia have been immediate and mainly focused on (short-term) reduction of food prices to consumers. A wide range of policy instruments were used to ease the impact of the renewed food crisis including food price reduction, safety net programs and stimulation of production, Table 10 below summarizes the policy responses of the respective governments in South Asia. More detailed information on policy measures taken in Bangladesh and India is provided in Appendix 2.

Table 10: South Asia Policy Responses, 2010/11

	Domestic Food Price Reduction				Safety Net Programs				Production
	Reduce Food Taxes	**Increase Supply (Grain Stocks)**	**Export Restriction**	**Price Controls Consumer Subsidies**	**Cash Transfer**	**Food for Work**	**Food Aid**	**Feeding Programs**	**Stimulate Response**
Afghanistan		✓					✓		✓
Bhutan	n/a								
Bangladesh	✓	✓	✓	✓		✓	✓		✓
India		✓	✓	✓			✓	✓	✓
Maldives	n/a								
Pakistan	✓	✓	✓	✓			✓		
Nepal		✓		✓					
Sri Lanka	✓	✓		✓					

Source: ADB. 2011. *Global Food Price Inflation and Developing Asia.* Manila.

VI. KEY RECOMMENDATIONS FOR POLICYMAKERS

47. France, as the chair of the G20, has placed food price volatility on its priority agenda with the pressure on commodity prices unlikely to recede anytime soon. The World Bank reported high food prices as the biggest challenge facing most developing countries and thus urged the G20 to take practical and interconnected steps to better manage volatilities in commodity prices with particular focus on the links between international and local prices.[10] Moreover, the report also highlighted that effectiveness of social safety nets, public access to information on grain stocks, better weather forecasting, and readiness to provide fast-disbursing aid will remain critical areas of concern.[11] Similarly, ADB has reiterated that a key factor why inflation, especially food price inflation, should be a main priority for policymakers in Asia is its impact on poverty and inequality. Based on the analysis in this paper and recognizing the

[10] World Bank (2011).
[11] ADB (2011).

interconnectedness of measures, five key recommendations for policymakers are proposed to address—if not contain—the current episode of food inflation and the potential for volatile swings in food prices in the future.

48. **Priority 1: Addressing stagnating agriculture productivity.** Against the backdrop of constant increasing demand due to continuous population growth in South Asia, the first and most important challenge is to address the issue of stagnating agricultural productivity in a comprehensive manner. If there is one thing the current food spiral shows us rather too clearly is that the neglect on the agriculture sector is taking its toll with the exposed weaknesses on the supply side largely attributable to falling investments in agriculture. There is enough evidence to show that India, despite efforts in this area, could improve its rice yield substantially, especially in the eastern and south-eastern part of the country. This is a complex challenge, and requires simultaneous focus on agricultural research, dissemination of technology, pricing of inputs and outputs, and more importantly balancing the eco-systems. One important issue is to take an informed decision on genetically modified foods and experiment more with improved seeds that are less prone to climate change. Last but not least, diversification of agriculture, from crop production to livestock farming, fisheries and poultry need to be encouraged by all means.

49. **Priority 2: Developing agriculture support network.** Investment in research and development to improve crop yields and to make production systems more resistant to shocks must be simultaneously combined with further infrastructure investment. Doing so, will address the inefficiencies in food supply management and distribution such as the decline in quality and post-harvest losses caused by poor storage facilities, ill-equipped milling and drying facilities, etc. According to ADB (2011), key infrastructure investments should include irrigation and water resource management; early warning systems of flood; farm to market roads, storage facilities, and ICT for disseminating market information. Furthermore, the upgrading of processing, storage, transport, and trade infrastructure are crucial to facilitate prompt responses to food supply disruptions. Policy changes that reduce transaction costs and encourage private agents to participate in marketing and investment is as important as the development of better infrastructure and institutions.

50. Incentivizing farmers through the price mechanism is an important prerequisite for triggering supply responses. Thus, trading infrastructure, including linking the farmers with the markets is crucial. The provision of Minimum Support Prices (MSPs) for Government procurements may not be a right option, especially for incentivizing the small and marginal farmers. Moreover, it may have a ratchet effect on food price inflation. Thus, infrastructure in agriculture including storage, communication, and village roads should be developed on a priority basis. Allowing supermarket chains to operate in the domestic market could be of some help in fast tracking the provision of trading infrastructure and improving supply chain management, although some disagree to this suggestion (see for instance, Singh [2011]).

51. **Priority 3: Getting the prices right.** Prices send the signal of how much something is worth. Thus, it is imperative that prices reflect correctly current market conditions. In this light, policy should avoid distorting global price signals to narrow the gap between demand and supply of food grains in the domestic markets. Otherwise, this will have further adverse impact on international prices, and will also impart additional food subsidy burden on the governments. Thus, policy should promote higher farm gate prices if the supply side is binding and ensure that input prices including that of land and water are not distorted. Governments should re-examine

their policies on food and oil subsidies and replace general subsidies with targeted subsidies proven better at responding to the needs of the most vulnerable groups.[12]

52. **Priority 4: Focusing on sustainable solutions.** Often times, governments faced with the issue of spiraling food prices which affect the poor disproportionately and threaten macroeconomic stability embark on short-term protectionist measures such as general subsidies, export taxes, and export bans which, as experience has shown, results in exacerbating the global rise in food prices. Market integration should be promoted by eliminating policy distortions that create hurdles in transferring food from surplus to deficit regions. Furthermore, restrictive trade policy interventions may not be effective in stabilizing domestic prices (Martin and Anderson, 2010).[13]

53. **Priority 5: Effective use of monetary policy.** The recent spike in food prices is expected to impact general inflation given that food comprises the bulk of the consumption basket for countries such as those in South Asia. Monetary policy can accommodate increases in food prices if underlying causes are seasonal and recognizing food price inflation as a temporary occurrence. However, if food price inflation is feeding into second round effects, i.e., wage-price inflation, then policy rates could be tightened to contain the risk of triggering an inflationary spiral in the economy depending on the nature of credit market disequilibrium (see Carrasco and Mukhopadhyay, 2011; and Basu, 2011).[14]

VII. IS REGIONALISM AN ANSWER?

54. Earlier discussions on the "food crisis and food security in South Asia tended to ignore the regional food price inflation and the possibility of improving food security by liberalizing, instead of restricting, trade."[15] A recent study (2010) explored the potential mitigation of regional food price inflation through a simulated full implementation of the South Asia Free Trade Area (SAFTA). The results suggest full implementation of SAFTA to only have minimal impacts on world food prices, and only marginally impinge domestic food prices in South Asia. The large number of sensitive products (negative list) and the presence of non-tariff barriers and subsidies from SAFTA prevent the Agreement from having greater impact on domestic food price inflation in South Asia.[16] To play a meaningful role in reducing domestic food price inflation, SAFTA needs to further develop to include non-tariff barriers and subsidies/and reduce the number of sensitive items.

55. Beyond trade, broad based regional integration is vital in addressing food inflation in South Asia. Key policy responses may include: (i) enhance regional initiatives such as the operationalization of the Food Bank established during the 15th South Asian Association for Regional Cooperation (SAARC) in 2008; (ii) achieve synergy effects by coordinating regional institutes in the area of agricultural research (increase of crop yields); and (iii) cooperation in climate change initiatives to address weather disturbances adversely impacting agricultural output. In the short run, a regional emergency food grain stock may constitute the beginning to a more comprehensive regional engagement.

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12 Ibid.
13 Cited in ADB (2011).
14 Tightening of the short-term policy rates may not be effective if the credit market is supply constrained.
15 World Bank (2010).
16 Ibid.

A. Experience from Other Regions

56. Unlike more integrated regions in Asia, export restrictions were part of the policy actions used in South Asia. However, none of the countries in South-East Asia used export restrictions to deal with the renewed food crisis. The leaders of the ASEAN+3 also established a permanent rice reserve management system in October 2010. The management system includes effective models for managing rice reserves, sharing of market information, and facilitating rice trade within ASEAN+3 countries.[17]

57. While opening of the rice trade is a long-term objective, ASEAN decided to address temporary shortcoming in rice through the management of a regional buffer stock and launched the East Asia Emergency Rice Reserve in March 2004 on a pilot basis limited to small-scale disaster relief on humanitarian grounds. The limited impact on regional rice prices and the cumbersome deployment mechanism led ASEAN to decide on a more permanent and more effective successor model. In this regard, ASEAN expressed the need for enhanced food security information to ensure effective rice reserve management. On these grounds, the ADB TA for ASEAN+3 is achieving the following outputs: (i) ASEAN authorities agree on the business plan and management structure for the ASEAN Plus Three Emergency Rice Reserve; (ii) ASEAN authorities agree on the strategy and medium-term action and the implementing rules and regulations, for expanded and stable rice trade in the region that fully complies with the ASEAN Trade in Goods Agreement; and (iii) the ASEAN Food Security Information System is broadened. To date, the operational guidelines were endorsed by ASEAN+3 Ministers for Agriculture and Forestry in August/September 2010.

B. SAARC Food Bank

58. South Asia has moved along similar lines as ASEAN+3 by establishing the SAARC Food Bank (SFB) on 3 April 2007 in New Delhi. The agreement, which superseded the “Agreement on Establishing the SAARC Food Security Reserve,” has two objectives; (a) to act as a regional food security reserve for the SAARC member countries during normal times, food shortages and emergencies; and (b) to provide regional support to national food security efforts, foster inter-country partnerships and regional integration, and tackle regional food shortages through collective action. Under the agreement, the food bank has been authorised to start functioning with a total reserve of 241,580 tons of food grains, of which India, Pakistan, Bangladesh, Nepal, Sri Lanka, Afghanistan, Bhutan and Maldives are to contribute 153,000 tons, 40,000 tons, 40,000 tons, 4,000 tons, 4,000 tons, 1,420 tons, 200 tons and 180 tons respectively.

59. However, SFB is not yet able to reserve adequate food grains to ensure regional food security. At present, around 243,000 tons of food grains—153,000 tons in India, 40,000 tons each in Bangladesh and Pakistan, 4,000 tons each in Nepal and Sri Lanka, 1,200 tons in Afghanistan, 200 tons in Bhutan and 180 tons in Maldives—are available with the SFB. During the fourth meeting of the SFB in Dhaka in 2010 it was proposed to increase the strategic reserve at the SFB to 400,000 tons from the present 243,000 tons, which may later be increased to one million tons. The factors that reportedly influenced the meeting in arriving at the decision of increasing the strategic reserve to 400,000 tons are: (i) rapid growth of population outpacing declining agricultural land in the South Asian region; (ii) increasing number of hungry people putting the future of food security at risk in the South Asian region; and (iii) inadequacy of SFB to address food crisis during any emergency, as well as food security in the South Asian region.

[17] ADB (2011).

60. There is an immediate need to make the SFB operational and effective. While addressing the 4th meeting of SFB, the Bangladeshi Food and Disaster Minister Abdur Razzaque said: “The SAARC member countries need to focus on several issues—food-grain pricing, operational guidelines and delivery systems—to make the Food Bank operational.” The effective operationalization of SFB may constitute a first step in building an efficient regional response mechanism to food inflation in South Asia.

VIII. CONCLUSION

61. This paper clearly brings out the causes and macroeconomic ramifications of persisting food price inflation in South Asia. Unless controlled in a sustained manner, food price inflation will have serious implications for growth, poverty and inequality. However, there is no quick fix. As discussed above, a comprehensive policy package needs to be designed to confront this problem from various fronts. Technological upgradation, competitive pricing strategy, improved storage and marketing, and last but not the least regional cooperation should play important roles in combating food price inflation.

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APPENDIXES

Appendix 1

Variable Descriptions

Variable	Description	Source
Wholesale Price Index Food (WPI)	Log of WPI food BGD: 1969–70=100 IND: 1993–94=100 *Consists of the weighted average of food grains, fruits, vegetables, milk, eggs, meat, fish, condiments, spices and other food articles (i.e., tea and coffee).* SRI: 1974=100	CEIC Database. WPI for BGD from 2006-09 were estimated from CPI food because of data unavailability.
Agricultural production Index (API)	Log of Agricultural Production Index. Shows the relative level of the aggregate volume of agricultural production for each year in comparison with the base period 1999–2001.	FAO
Gross Domestic Product per Capita (GDP)	Log of Gross Domestic Product per Capita (in 2000 US$).	World Development Indicators, World Bank
WPI_{-1}	Log of WPI food lagged by one period	
d_i	Country dummy for India. $d_i = 1$ for India $d_i = 0$ for Bangladesh and Sri Lanka	
d_b	Country dummy for Bangladesh. $d_b = 1$ for Bangladesh $d_b = 0$ for India and Sri Lanka	
d_x*WPI_{-1} where $x=i,b$	Interaction term for India's (Bangladesh) inflation expectations.	
d_x*API where $x=i,b$	Interaction term for India's (Bangladesh) agricultural output.	
d_x*GDP where $x=i,b$	Interaction term for India's (Bangladesh) income.	

Appendix 2

Policy Measures Adopted in Bangladesh and India

Measures Adopted in Bangladesh

Month	Fiscal Measures
November 2009	Government cut the fertilizer prices to boosting agricultural production.
December 2009	Focusing on the objectives of food price stability and ensuring food security, the Government issued '*Krishi* Cards' (agricultural cards) to 18.2 million farmers for fertilizers, agricultural loans, and subsidies for diesel and other inputs.
January 2010	The Government started open market sales (OMS) of rice in Dhaka and adjoining districts to stabilize rice prices.
February 2010	1. The Government introduced 'fair price cards' for 2.5 million ultra-poor families across the country, under which families with no permanent income or land and not enlisted for any social safety net programs would receive. 2. Kilograms of rice per month at Tk22.0 a kilogram for 3 months.
July 2010	The budgetary allocation for food subsidy was Tk.11.0 billion in FY2011. However, it is expected to increase by about 40.0% due to higher food grain prices at the international market, and expansion of safety net programmes for the extreme poor.
January 2011	1. Addressing the food price issues, the Government has been providing around 1.2 million families with 20 kg of rice every month at Tk.24/kg through fair price cards in addition to open market sales (OMS). 2. The Government started providing food grains at subsidized prices to 0.75 million poor people along with 0.3 million Class-IV government employees and village police who get 20 kg of food grains every month under fair price cards. 3. The government in early January 2011 decided to introduce the food ration system for the ultra-poor.
	Trade Measures
December 2009	The Government imposed a ban on rice exports to stabilize rice prices and ensure availability of the staple in the domestic market, which continues until now.
June 2010	As a precautionary step, Bangladesh Bank directed all commercial banks to cap interest rates at 12.0% on import finance for essential items, edible oil, gram, lentils, pulse, onions, spices, dates, fruits, and sugar to ensure an adequate supply of these items and to keep prices under control during the ensuing Ramadan.
December 2010	Bangladesh has reduced the maximum payment time from rice procurement from 60 to 45 days for local millers and from 45 to 30 days for importers to discourage rice hoarding.
February 2011	1. The Government reduced import VAT on edible oil from 15.0% to 10.0%. 2. The central bank re-fixed the time limit for repayment of loans for the procurement of rice millers and traders and has extended loan repayment time for the rice millers to 45 days from the previously fixed 30 days upon the food ministry suggestion. 3. The Government imposed a ban on sugar exports.
	Monetary Measures
April 2010	Bangladesh Bank raised the interest rates on government securities, particularly bonds, and resumed the auction of 30-day Bangladesh Bank bills as a step to reduce the excess liquidity.
May 2010	Bangladesh Bank raised the cash reserve requirement by 50 basis points to 5.5%.
June 2010	As a precautionary step, Bangladesh Bank directed all commercial banks to cap interest rates at 12.0% on import finance for essential items, edible oil, gram, lentils, pulse, onions, spices, dates, fruits, and sugar to ensure an adequate supply of these items and to keep prices under control during the ensuing Ramadan.
August 2010	To restrain the demand-driven impact arising from excess liquidity, Bangladesh Bank raised the repo rate from 4.5% to 5.5% and the reverse repo rate from 2.5% to 3.5%.
December 2010	Bangladesh Bank has also raised the cash reserve requirement from 5.5% to 6.0% effective 15 December 2010.

Measures Adopted in India

1. **Macro measures.** To anchor food inflation from becoming generalized inflation, the RBI has hiked its policy rates (both repo and reverse repo rate) since March 2010. By 25 January 2011, the repo and reverse rate were hiked to 6.5% and 5.5% respectively (from 4.75% and 3.25% in March 2010). In addition, the RBI also narrowed the LAF corridor from 1.5% to 1%.

2. Fiscal policy has followed the fiscal consolidation road map suggested by the 13th Finance Commission. The recent Budget proposes to exceed the (central) fiscal deficit target of 4.8% suggested by the Finance Commission by planning for a deficit of 4.6% in FY2011. Indeed the 'effective revenue deficit' target is fixed at much less than the Commission's recommendations.

3 As a short term policy measure, the government has reduced import duties on various food items such as rice, wheat, pulses, edible oils (crude), butter, and ghee to zero and edible oil items to 7.5%.

4. Import of raw sugar has been allowed at zero duty under open general license (OGL), while sugar exports have been banned.

5. **Micro measures.** The recent Budget has taken several measures to contain food inflation, increase productivity, and promote faster supply responses from agriculture, such as increasing outlays to the Rashtriya Krishi Vikas Yojana,[1] promoting the production of pulses, palm oil, and nutria-cereals, vegetable production clusters, etc. It has also increased allocation of credit to agriculture sector and for infrastructure such as in storage and cold chains. It also entails revamping of the Agricultural Produce Market Act (APM) Act. This would allow, for example, agro processors, private markets, corporate players and exporters to directly deal with farmers. In the case of Gujurat, its amendment of the APM act has also given a push to contract farming. There are also some measures that would bring down the cost of inputs such as fertilizer, credit, power, micro-irrigation, machinery, feedstock, etc. All these measures are expected to reduce cost and improve productivity in the agriculture sector only in the medium term.

6. The following committees have been appointed to track food inflation:

   a. A working group of Consumer Affairs has been appointed by the Prime Minister (with Narendra Modi as Chairman) and has suggested various measures to stem food price increases, such as banning of future trading in essential commodities and allowing direct sale of cheaper food that could bring down the gap between retail prices and farm harvest prices.

   b. The Government also appointed an Inter-Ministerial Group (IMG) under the Chief Economic Adviser, Ministry of Finance, to review the overall inflation situation, with particular reference to primary food articles. The group is expected to review production and its susceptibility to shocks, trends in rainfall, develop early warning systems, assess international trends, recommend action on the fiscal, monetary,

[1] The program aims to achieve 4% annual growth in the agriculture sector during the XI Plan period, by ensuring a holistic development of agriculture and allied sectors. It was launched by GoI in 2007–2008 to incentivize states to draw up plans for their agriculture sector more comprehensively, taking agro-climatic conditions, natural resource and technology into account and integrating livestock, poultry and fisheries fully.

production, marketing, distribution, and infrastructure fronts to prevent price spikes, and suggest measures to strengthen collection and analysis of data and forecasting.

c. The Committee of Secretaries under the Cabinet Secretary is to review the price situation at the state level, and advise the Central Government in maintaining close coordination with State agencies for taking suitable remedial measures on a fast track.

7. Other issues/measures taken over the last year include (some of which are described in the Economic Survey, 2010–2011):

(i) The government has not reversed the excise/duties that were reduced as part of the fiscal stimulus packages in the post September 2008.
(ii) Although the government has accepted the Kirit Parikh Committee recommendations of oil price deregulation, it has not passed on the rise in cost of world oil prices in domestic diesel and kerosene prices and passed on only the petrol prices.
(iii) Levy on imports of raw sugar and white/refined sugar removed banned exports of sugar (although recently ban on exports have been revoked)
(iv) Export of non-basmati rice, edible oils (except coconut oil and forest based oil) and pulses (except Kabuli chana) banned.
(v) Minimum export price (MEP) used to regulate exports of onion (at US$1,200 per tonne for December 2010) and basmati rice (at US$900 per MT);
(vi) Futures trading in rice, urad, and tur suspended by the Forward Market Commission.
(vii) Stock limit orders extended in the case of pulses, paddy, and rice up to 30 September 2011 and edible oil and edible oilseeds up to 31 March 2011.
(viii) Export of Onion (all varieties) not permitted with effect from 22 December 2010 until further orders. On the hand, it had allowed imports of Onion from neighboring countries. But recently it has relaxed the onion export ban as its prices have come down sharply.
(ix) Full exemption from basic custom duty, special additional duty and education cess provided to onions and shallots with effect from 21 December 2010.
(x) National Agricultural Marketing Federation (NAFED) and National Co-operative Consumers' Federation of India (NCCF) were asked to sell onions at Rs 35 per kg from their retail outlets at various locations and the loss covered through budgetary support.
(xi) A scheme was introduced for setting up of farmers' mandis and mobile bazaars, improve the supply chains, and encouraging food processing industries.
(xii) Revamping the Public Distribution System through computerization and other steps, including opening more procurement windows across the country.
(xiii) Considering waiving of mandi tax, octroi, and other local levies that hinder smooth movement of essential commodities.

8. However, considering the agro-ecological differences as well as socio-economic and political variations among countries, it may not be realistic to expect producers to be able to achieve maximum yields anytime soon. Moreover, yields attained in labs may be closer to biological potential but the realities on the ground in actual farms may be quite different, making it difficult to reach the potential even with the use of best farming practices. IRRI, for instance, noted that yield growth in rice would need to expand by an average of 1.2%–1.5% per year for the next 10 years for supply to keep abreast with growing demand. Such yield improvements

will need to come from “quick gains” type of investments (like efficiency in nitrogen fertilizers or water, in which current application in Asia is 30%–50% below levels that can be used with good agronomic management practices), and the longer-type of research and development such as improved varieties and value chains).

9. Bolstering agricultural productivity through research and development is extremely important, particularly as demand for food continues to expand. New farming techniques and crop varieties need to be developed and transferred to farmers to adapt to farming conditions that have increasingly become even more challenging, especially in the face of dwindling resources (such as agricultural land and water) and the adverse effects of climate change. Soil erosion, water scarcity, and uncertain weather patterns are causing greater instability in the production of food crops. In addition, policies are needed to encourage the entry of private investment in agricultural research and development that is science- and technology-based to boost efforts to create more resilient agricultural systems in the future and to benefit small farmers who are the major Asian producers.

Food Price Escalation in South Asia—A Serious and Growing Concern

South Asia is arguably the most vulnerable region to increasing food inflation given the large segment of the population living below or near the poverty line. This paper deals with the problems related to food price inflation in South Asia in a comprehensive manner. It presents an in-depth empirical analysis of the possible factors that could explain the increase in food inflation, and discusses the impact of food price inflation on poverty and macroeconomic stability in South Asia. The paper further proposes some practical policies to address the situation, including how regionalism may be a solution to food inflation.

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