Global Development Network

GDN Working Paper Series

Agricultural Pricing and Public Procurement in South Asia

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Working Paper No. 69
June, 2013

GDN Global Development Network

The Global Research Capacity Building Program™

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This paper has been produced as part of the research which was conducted in the framework of the GDN Global Research Project, "Supporting Policy Research to Inform Agricultural Policy in Sub-Saharan Africa and South Asia." Supported by the Bill & Melinda Gates Foundation, the project aims to help shape North-South and South-South debates on agricultural policies. Designed as a policy research project, it seeks to enrich the body of knowledge related to agricultural issues in two target geographies – Sub-Saharan Africa and South Asia. The views expressed in this publication are those of the author(s) alone.

CONTENTS

ABSTRACT

In the past five years since the global food spikes began, it has become clear that agriculture plays an extremely important role in global markets. Swings in supply and demand have led to huge price volatilities which have affected the poor the most. In such a scenario, the debate about the continuing need for government intervention in South Asian agricultural markets is back on the table. At one end of the spectrum there are those who feel that since the initial economic conditions for government intervention have ceased to exist, governments should withdraw from the food grain market. On the other hand, the current price volatility in the international market and the unfinished reform process in South Asian countries with respect to infrastructure and input market development have meant that a case for government intervention still exists. This paper, through a review of the existing literature and stakeholder interviews, attempts to bring out the various contours of the debate and also proposes, given the above, that a middle path between the two extremes needs to be forged.

1 THE CONTEXT

The summer of 2006 was the starting point of what is today known to be one of 21st century's most volatile periods for the global agricultural market. The period from 2006 onwards has seen wild swings in agricultural commodity prices and the recently released FAO Food Price Index notes that 2011 was a year of high and volatile food prices. Moreover, the bleak economic outlook for the coming year further adds to the uncertainty. In such a scenario, developing countries that depend on agriculture are the hardest hit. For South Asia particularly, one of the major initial economic conditions which led governments to intervene in agricultural markets was international and domestic price volatility. With this reason having made an unwelcome comeback, it has now become important to question whether this alone is sufficient or if not, what other factors contribute to the almost continued existence of interventions in agricultural markets in South Asia.

There have been two concerns that have been raised in recent times. One, and perhaps the most important of them all, is the question raised over the need for government intervention in agricultural markets given the (assumed) almost complete reversal of "initial conditions". Most literature claims that government intervention in the agricultural market was necessitated by some initial conditions resulting from various forms of market failure[1]. More specifically there are four commonly agreed justifications for intervention in food grain markets: (i) weak infrastructure and limited flow of price information (due to lack of market integration), (ii) risk mitigation for technology diffusion, (iii) thinness and volatility of international market and, (iv) the inability to participate in the international market (Rashid et al. 2005). Price and procurement policy together with input subsidies have been the instruments used by the governments to alleviate the ill effects resulting from these conditions. Parallel to these, South Asian countries, like most other developing countries, invested heavily on infrastructure and institutions during the past few decades, in order to eliminate or at least to reduce the market failures and thereby reverse initial conditions for market intervention. The questions today is whether the interventions made during the past decades in these areas have eliminated the "initial conditions" to a substantial degree. In case they were successful, as some are inclined to believe, would there be a need for further continuation of the price and other policies introduced to remedy them?

[1] However there are views against this assertion as well. For example, Hoekman and Martin (2012) argue that " very few of the price distortions in can be justified as dealing with such market failures…….most of these distortions are designed to achieve redistributions if income…..".

However, even if South Asian countries have been successful in tackling the initial set of market failures, conditions for market intervention in agriculture may still persist due to new market failures. It is common knowledge today that there are relatively new market failures affecting agriculture at global level. Externalities relating to global warming and climate change and market imperfections in international agricultural trade are prominent among them. These conditions create domestic divergences that may prompt the individual states to resort to market intervention; perhaps new forms of interventions. Further, there are new concerns at present such as food security and poverty alleviation that were not explicit concerns of development thinkers and practitioners of the early days. In addition to the conventional justifications for market intervention, i.e. Market failure, these new development priorities also provide the policy makers additional grounds to opt for interventions. The "initial conditions" might have been changed but the need for interventions may still persist due to this "second wave" of conditions.

The second concern is about the trade-offs that agricultural subsidies engender. The 'crowding-out' of resources from more productive uses such as public investments in education, infrastructure or health has remained a worry (Vyas, 2002). The costs of government intervention in the agricultural sector should thus be weighed against the benefits.

As such, the objective of this paper is to present a critical review of the experiences of South Asian countries with respect to government intervention in agricultural markets and present a way forward in the changing global environment. More specifically, this paper attempts to analyse the three strands of the debate - whether there is any continuing need for intervention or do government policies merely act as a strain on public resources without a real role to play or is there a need for reform in the existing systems. The following section provides a brief background of the agricultural economy in South Asia followed by a section on the historical overview of the pricing and procurement policies. Section 4 attempts to examine whether initial economic conditions which led to government intervention have changed or do they still persist. Section 5 evaluates the policies in question and analyses whether they have achieved their stated objectives. Section 6 highlights certain case studies of initiatives which highlight the need and the redundancy of intervention and the middle path that can be created by reforming existing systems. Finally we end by summarizing the major issues raised and painting a picture of what should be the way forward.

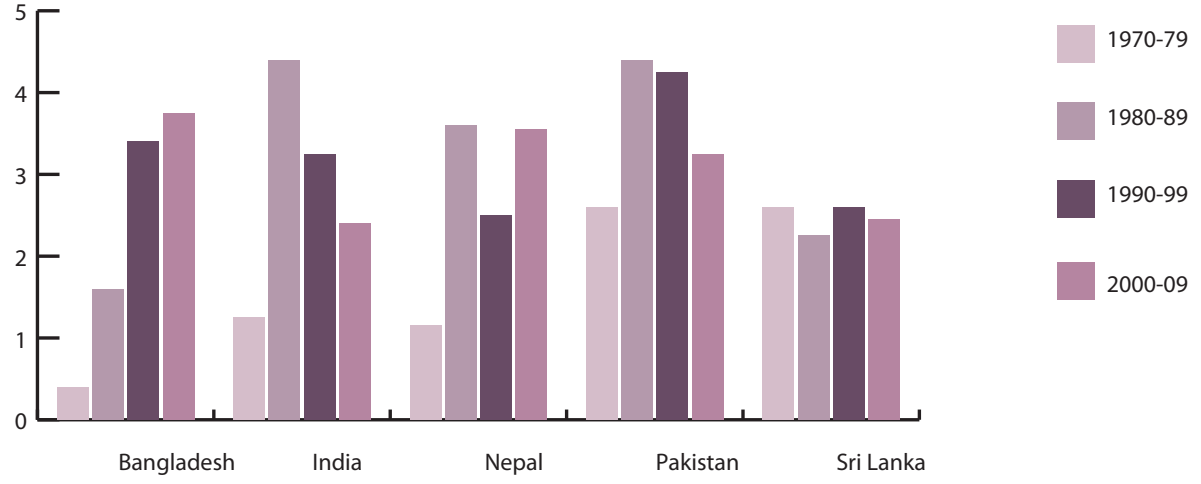
It is also important to note here that the price supports and public procurement have been in force mainly for the staple foods in the focus countries of this study i.e. Bangladesh, India, Pakistan, Nepal and Sri Lanka and bulk of the public funds allocated for such interventions in these countries have been spent on rice and wheat. Consequently the focus of the present study has been confined to these two commodities.

Further, impacts of public policies such as price and procurement, border protection and public distribution of (subsidized) food have, as explained later in this paper, most often been evaluated together as a whole. Decomposition of such total impacts and attributing the components to individual policy instruments is prohibitively difficult or totally impossible. Consequently, "Price Policy" in this paper refers to all policies that create a price gap for a particular product in a particular country. This includes interventions at border (tariffs) as well as in the domestic market (price subsidies). As non price distorting interventions such as direct payments have also been present parallel to the above policies and both these categories have been treated as a whole in studies of agricultural distortions and subsidies, these two types of "support" are also taken in to consideration together in this paper too, where necessary.

2 BACKGROUND OF AGRICULTURE IN SOUTH ASIA

The countries of South Asia have achieved remarkable rates of growth in the last few decades. South Asia is today one of the fastest growing regions in the world. The credit for this lies in effective and impactful policy-making. However, these high growth rates are a skewed visual for all encompassing development. A huge chunk of South Asia's population continues to be engaged in the agriculture sector. Barring Bangladesh, growth rates for agriculture in all other South Asian countries have been declining (India, Pakistan) or stagnating (Sri Lanka) over the past few decades (Figure1). Productivity gaps between agriculture in South Asia and other regions have also been increasing (World Bank, 2010).

Figure 1
Growth Rates of Agriculture in South Asia (1970-2009)



Source: World Bank, 2010

This truth is starkest in the countries of Sri Lanka and India where high growth rates have eclipsed the fundamental imbalances in the economies. In both these countries, historically, agriculture has played a dominant role. In 2009, the share of agriculture in GDP in Sri Lanka was 21 percent while in India it stood at around 17 percent (Table 1). In Sri Lanka in 2009, while the economy grew at around 12 percent, the agriculture sector grew at a mere 2.5 percent. Agriculture in Sri Lanka still employs 43 percent of the total labour force and about 70 percent of the total rural labour force is involved in some form of agricultural activity. In India this number is higher still. The fraction of the working population employed in agriculture is around 56 percent. Worse still, while the economy grew at about 9 percent in 2009, the agriculture sector saw a growth of 0.4 percent.

Table 1
Some basic statistics on agriculture in selected South Asian countries

Country	Gross Domestic Product ($ Millions)		Agricultural Value Added as Percent of GDP		Agricultural Labour Force as a % of Total Labour Force	
	1980	2009	1980	2009	1980	2009
Bangladesh	17430	78231	38	18	73	46.3
India	186392	885430	38	17	56	56 (in 2005)
Nepal	1946	7686	62	35	94	65.7 (in 2001)
Pakistan	23690	161990	30	26	53	44
Sri Lanka	4024	25024	28	21	72	43

Source: World Bank, 2010

In contrast to India and Sri Lanka, have been the stories of Pakistan and Bangladesh. On the one hand agriculture has had somewhat of a turbulent time in Pakistan with no clear phases of growth or decline. Overall growth has been very volatile ranging from about 7.5 percent in 2004/05 to 1 percent in 2008. This seems to suggest two things – one, changes in government in Pakistan are frequent and sudden. Different governments bring in varying agricultural policies which imply that no one policy is allowed to fructify. And two, that growth in Pakistan has been more of a result of worker's remittances and foreign aid rather than any domestic investment or savings (World Bank, 2003). On the other hand, Bangladesh has seen a rapid rise in growth since Independence in 1971. The GDP has risen steadily since the 1980s. Average growth rate has risen from 3.2 percent in 1980-84 to 5.7 percent in 2009. This has been accompanied by a 4 percent growth in the agriculture sector in 2009. A number of factors have contributed to this growth story. These include a stable macroeconomic environment, emphasis on the private sector as the engine of growth, economic liberalization and a focus on the agriculture sector. Economic growth in Bangladesh has been accompanied by a structural transformation. Agriculture has progressively declined in importance.

The case of Nepal deserves special mention in this regard. Labelled as a 'satellite' of India by policymakers, Nepal, today, faces numerous challenges on the economic front. Of utmost importance among them is the precarious situation of food security in the country. Nepal has, since the 1980s been a net importer of cereal grains. Nepal faces the twin challenges of ensuring sustained economic growth and concomitant human development for its masses. Nepal too predominantly depends on its agriculture sector. With almost 66 percent of the labour force employed in the sector in 2009 and almost 35 percent of GDP accruing from it, agriculture clearly dominates the Nepalese economy. Moreover, agricultural growth in Nepal in 2010 was a mere 1.26 percent, while the economy grew at 4.5 percent. This statistic is alarming because of the large number of people who still depend on the agricultural sector whether with respect to food or with respect to employment.

3 OVERVIEW OF AGRICULTURAL PRICING AND PROCUREMENT POLICIES IN SOUTH ASIA

To begin, let us briefly consider the two main ideologies that have prevailed in all South Asian economies as outlined in the literature. First, in the years after political independence most South Asian countries adopted an inward-oriented strategy of import substitution. It was believed that the industrial sectors constitute the commanding heights of their economies. This strategy resulted in massive protection given to industries including import restrictions, export taxes, and overvalued exchange rates. It has been shown that agriculture (in spite of the price supports in place) was discriminated against in the net (e.g. Krueger et al., 1988; Anderson and Martin, 2009; Anderson, 2009; Hoekman and Martin, 2012). Second, after a period of ill-targeted and under-achieving policies, reforms were adopted by most South Asian countries (the extent of these varied) and agriculture became more "liberalized" with reductions in the net tax, particularly after 1980s (Anderson, 2009; Hoekman and Martin, 2012). This was done not only to reduce the fiscal burden of the producer and consumer subsidies but also because interventionist policies had clearly not achieved their stated objectives. In the following section we present a brief overview of the experiences with agricultural pricing and procurement policies and the resulting "with-intervention market structures" for food grains in South Asian economies.

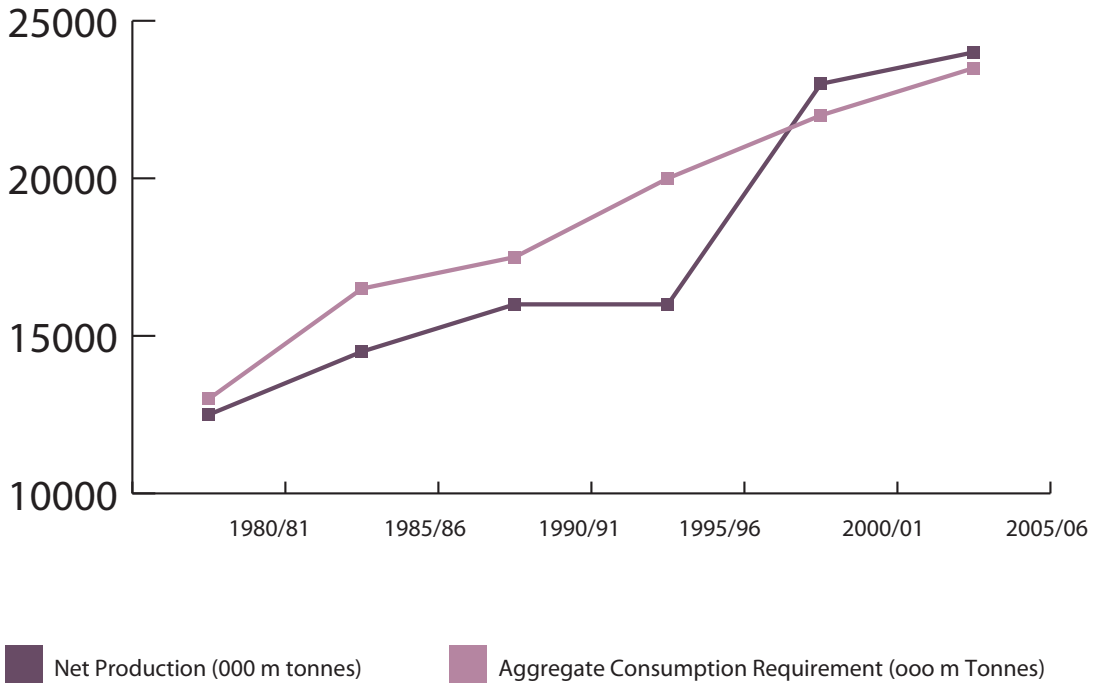
3.1 Price And Procurement Policies And Market Structures

Bangladesh

Policies

At the time of Independence in 1971, the agricultural outlook for Bangladesh was dismal (Ahmed et al., 2007). Not only was the agricultural sector riddled with problems of low yields, declining production and insufficient inputs, Bangladesh also saw one of the worst famines in 1974. The food gap in Bangladesh was high till 1999 as well (Figure 2).

Figure 2
Food Gap in Bangladesh



Source: Paul Dorosh, 2002; Talukder, 2005

All of this led to ensuring food security for the masses as being the top priority of the government. Agricultural procurement policies were thus originated as a means to feed the Public Foodgrain Distribution System (PFDS). The PFDS aimed at providing subsidized foodgrain to a certain section of the population. The PFDS has now become targeted to some extent - the modified rationing scheme has been dismantled and has been replaced by pally (rural) rationing. Most ration channels have been stopped and the focus is now more on in-kind distribution to the poor through Food for Work and Food for Education (FFE) programmes (Dorosh and Shahabuddin, 1999).

A price support policy on the other hand is of more recent origin (Osmani, 1985). The price support system aims at ensuring remunerative prices for the farmer. It has evolved in two phases: initially the idea was to guarantee a floor price, sometimes called an incentive price, which was announced just before the harvesting season. However, at the insistence of the donor agencies, the whole system has been geared towards guaranteeing an incentive price.

Market Structure

Since at least World War II, governments in Bangladesh have regarded rice traders with distrust. But this situation changed since 1990 following the increased domestic production of rice as a result of the concerted efforts to increase agricultural production during the 1980s. Consequently both private and public sectors are presently engaged in rice marketing in Bangladesh (Rashid et al., 2005).

Parboiling of rice, which accounts for more than 90 percent of total production, takes place in a growing array of small and large private mills. About 20,000 small, full-service rice mills process the bulk of marketed paddy—close to 50 percent in 1990 (Ahamed and Chowdhury, 2000).Thus, the government's share in marketed surplus has varied from highs of 30 percent in the mid-1960s to about 7 percent in the first half of the 1990s. By 1998 that share had fallen closer to 5 percent of total marketed surplus (Ahamed and Chowdhury, 2000).

Unlike other developing countries, Bangladesh has routed its pricing and procurement operations through the Department of Food rather than a government parastatal. However, due to the aforesaid increase in private sector participation government procurement has diminished and so has its share of domestic rice stocks.

The procurement price is set at a level sufficient not only to ensure the coverage of input costs but also generate a fair return on the output. In essence, this approach has been an average cost based approach, with a generous allowance for land rent. Procurement prices undergo periodic upward revisions and it generally remains substantially higher than the private buyers' farm price. Nevertheless, farmers account only for about 2 percent of public procurement. In fact there is evidence of collusion between the procurement functionaries and the traders (Chowdhury, 1994) but they are not conclusive. For example, Ahamed and Choudhuri (2000) argue that collusion seems much less likely given the rapid growth in rural infrastructure (particularly roads and telephones), greatly increased numbers of traders at all levels, and a clear de-concentration of marketing flows.

Further, as a result of such improvements in infrastructure and input supply systems, liberalization of the agricultural markets in 1994 was made possible. This has promoted efficiency due to the increased competition in the domestic market (Chowdhuri, 1994).

India

Policies

Agricultural pricing policy in India was commenced after independence as a response to severe droughts and volatile domestic and international prices. There was an excess demand for food, coupled with a severe shortage of supply. The pricing policy has sought to ensure (on the consumer side) food security for the masses and (on the producer side) a stable source of income for producers. In this context, the Minimum Support Price (MSP) is the floor price that is offered to producers for their goods. The other instrument of pricing has been the provision of input subsidies to farmers. On the consumer side, the Public Distribution System (PDS) performs the job of providing food grains at subsidized prices through fair price shops (Mullen et al. 2005).

The MSP was provided for those crops that had the potential to raise grain production. The MSP is announced at the time of sowing and the government agrees to buy all the grain that is offered for sale at this price (Table 2). The crops so chosen are - paddy rice, wheat, five coarse grains, four pulses, eight oilseeds, cotton, jute, tobacco and sugar cane (Planning Commission Report, 2007). The Food Corporation of India (FCI) is the major buyer in the grain market. The FCI is responsible for the purchase, storage, distribution, transportation and sale of food grains. It is also responsible for ensuring that a proper buffer stock is sustained.

Table 2
Minimum Support Price – According to Crop Year (Rs. Per quintal)

Commodity	Variety	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
KHARIF CROP								
PADDY	Common	570	580	645$$/850~	850$	950$	1000	1080
	Grade 'A'	600	610	675$$/880~	880$	980$	1030	1110
RABI CROP								
WHEAT		650$	750$$	1000	1080	1100	1120	1285
$	An additional incentive bonus of 50 per quintal was payable over the Minimum Support Price(MSP).							
$$	An additional incentive bonus of 100 per quintal was payable over the Minimum Support Price(MSP).							
~	From 12.06.2008							

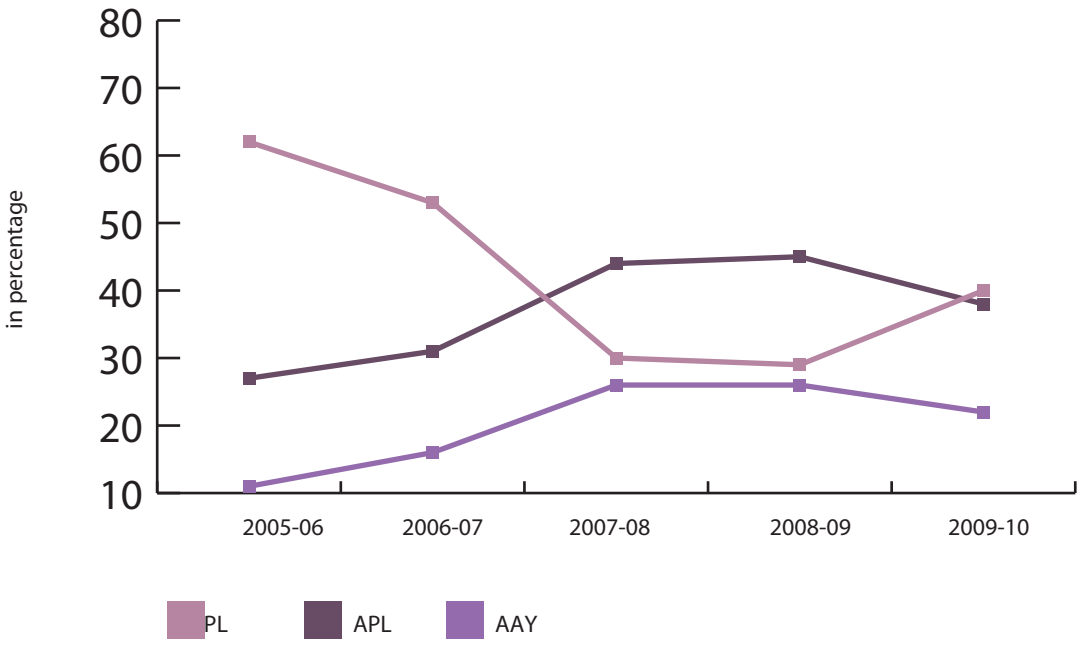
Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation.

The MSP is viewed as a 'safety net' provided by the government. Its objectives include shielding producers from frequent price fluctuations and incentivising farmers to modernize production by introducing high-yielding varieties and modern technologies. The MSP is a crucial instrument in this regard. This double edged price subsidy that holds the consumer prices below and the producer prices above, the free market price has always been an expensive policy instrument for India. For instance, in 2004 the total central government food subsidy was estimated at Rs 258 billion (about $US 5.7 billion and 0.83 percent of GDP), defined as the excess of FCI's total procurement handling and distribution costs over the subsidized sales value (Gulati and Pursell, 2008). However, it is claimed that since modernization has taken place and market failures in the form of infrastructural constraints have been eased, the MSP holds no relevance at present. However, in India, it is politically infeasible to discontinue the MSP.

Subsidizing inputs in India has been another common instrument of attempting to increase agricultural productivity by enhancing incentives. The Green Revolution saw the subsidies for fertilizers, power, and irrigation increase manifold. Since the 1980s the subsidies have been increasing in real value over the years. Given the increasing fiscal burden of such subsidies, it is now a concern that these subsidies are fast becoming unsustainable (Mullen et al. 2005).

With respect to food distribution, the PDS was initiated to ensure micro-level food security in India. It was envisioned as being supplemental and does not proclaim to provide all requirements of a healthy diet. Essential commodities like rice, wheat, sugar, edible oils and kerosene have been provided through a network of fair price shops strewn across the country. The above list of commodities has seen changes from time to time. Before 1997, the system was universal in nature, but mounting fiscal burdens and inefficiencies led to a system of targeting being initiated in 1997(Figure 3).

Figure 3
Allotment of foodgrains under TPDS for API. Families decreased by 22 percentage points between FY 2005-06 and FY 2009-10



Source: Ministry of consumer affairs, Department of Public Distribution, Allocation and Offtake.
Available online at: http://www.fcamin.nic.in/ReportTable/view_reporttable.asp
Note: Does not include allotment of CRP?BSF, Defence and Bhutan

Market structure

As mentioned above, Indian rice market presently comprises two simultaneously operating marketing channels as private and public, as a result of extensive government intervention. However, there are claims that the production of rice has features of perfect competition as itis produced in almost all parts of the country by a large number of producers (Shigetomi et al. 2011). Nevertheless, the impact of heavy market intervention has made Indian rice trade deviate far from perfect competition.

Farm level purchases of rice (paddy) are done by both private and public sectors, but the latter clearly dominates this activity. Food Corporation of India (FCI) buys the enter stock offered to them by the farmers at the Minimum Support price (MSP) if the product satisfied the minimum standards called Fair Average Quality (FAQ) (Shigetomi et al. 2011). Although the MSPs for rice (and also wheat) are set by the government under the supervision of Commission on Agricultural Cost and prices (CACP) on a cost plus basis so as to provide attractive returns to farmers, they remain below international prices in most years(World Bank, 2010).

Parallel to this, the private sector consisting of millers and their agents also buy paddy directly from the farmers. FCI purchases milled rice from the millers as well. Millers sell fixed amounts of their output to the government a statutory price or a" rice levy". The share of levied rice in total government procurement was nearly 60% in 1990s, but has remained below 40 % since 2005-2006. (Shigetomi et al., 2011). On average, the total government procurement of rice amounts 25 percent of the annual harvest (World Bank, 2010).

The Food Corporation of India is a parasratal food grain marketing agency that represents the government in Indian food grain markets. It purchases, stores, transports, and distributes food grains throughout India. In particular, it distributes food grains at subsidized prices to the poor consumers. It also manages India's buffer stocks of food grains. Further, the imports and exports of food grains are canalized through the Food Corporation of India (Gulati et al., 1996).

Although, in principle the system is applicable to the country as a whole, effectively the system operates primarily in a few surplus states such as Punjab, Haryana, Uttar Pradesh and Andhra Pradesh. In these states at least this open-ended procurement system effectively renders the procurement price to be a support price below which the prices do not fall. With regard to rice, the millers are obligated to sell a certain fraction of their produce to the FCI at the levy price, which makes it essentially a tax on the millers. The operations of the FCI is aided by legislations, rules and guidelines, most important amongst which are the monopoly control over international trade in food grains (including rice since1990), and internal movement and storage restrictions on private traders. However, the FCI and other state-level parastatal agencies involved in food grains management have been observed to be highly inefficient (Kumar and Gulati, 2007).

Nepal

Policies

Agricultural policies in Nepal need to be examined in a particular context. There are a couple of factors which inhibit independent policymaking in Nepal. First, Nepal is a landlocked country and shares a long open border with India. This coupled with the fact that Nepal has no independent ports of its own and is frequently affected by export bans of the Indian government, makes it imperative for Nepal to focus on food self-sufficiency. Moreover, the border with India is extremely porous and gives rise to much informal trade. This affects prices of inputs and outputs in Nepal. It is thus prudent for Nepal to align its agricultural pricing policy with that of India's and for the two countries to have mutually optimizing policies (F.A.O., 2010). Second, Nepal is beset with the problem of having a lower scale of production than India or China, because of its small size. If production is increased, then the local market is quickly saturated; and if there is high demand for its exports, Nepal is unable to rapidly increase production to meet this rising demand. Third, Nepal is also a Least Developed Country (LDC), which means that rural-urban divides are wide and poverty rates, though declining, are also high. For poor smallholders, the issue is one of accessing markets (by developing infrastructure) and increasing market efficiency (by becoming more competitive) (FAO, 2010). For Nepal, thus, the initial conditions for government intervention in agriculture do exist.

Given the large number of people employed in the agriculture sector, pricing and procurement policies have tended to focus on enhancing their welfare. Nepal's policies have run similar to those in other developing countries albeit with a crucial difference. Most of Nepal borders India, and this border is extremely permeable. This has made independent agricultural policy making within Nepal very difficult. After liberalization in early 1990s output pricing policies do not exist in Nepal. Inputs, however, are sporadically subsidized and seeds and fertilizers have been the inputs that have been focussed upon. This is attributable to the high importance Nepali policy makers attach to the role of inputs in increasing agricultural production. For example the yield difference between areas with and without irrigation for cereals in Nepal in 2008/09 was 41 percent (Pullabhotla et al. 2011). The policy makers show their concern over the lack of interest shown in Nepal on improving non-tradable factors such as irrigation.

Pakistan

Policies

Government intervention in agricultural input and output markets has a long history in Pakistan. These interventions have had varied objectives. Procurement operations and import monopolies have aimed at providing cheap food to the urban population. Support prices on the other hand were mainly responsible for providing a floor for market prices after the harvest. Input subsidies had the objective of encouraging the use of modern inputs to help increase productivity levels (Salam, 2009).

It was recognized in the early 1970s that farmers faced constraints on multiple fronts. They neither had proper storage facilities nor did they possess the financial capacity to store their marketable surplus. The Pakistan Agricultural Storage and Services Corporation (PASSCO) was thus set up in 1973. PASSCO was responsible for not only implementing support prices but also for holding buffer stocks, procuring offered grain, stabilizing prices and building marketing infrastructure. Today, PASSCO only enters the market occasionally (Rashid et al. 2005).

According to Hamid et al. (1991), direct price intervention has been governed by balance of payments considerations (which led to a promotion of export crops to earn foreign exchange and reduce imports of deficit crops), by political considerations which prompted the government to protect consumer interests, and lastly by budgetary considerations which put a check on subsidies. More often than not these factors were in conflict. The economic and political situation of the time influenced which factor triumphed over the other. For instance, during the commodity price boom of the 1970s, the government attempted to protect urban consumers by keeping the procurement price of wheat low and subsidizing imported wheat. To finance the import subsidy, the government monopolized export trade in cotton and rice, and created a wedge between their international and domestic prices.

Sri Lanka

Policies

Sri Lankan governments since Independence have focussed on fulfilling two principal objectives – guaranteeing food security for their population and remunerative prices for their producers. To help achieve these aims the government focused most of its attention on rice, the staple of the economy. The Guaranteed Price Scheme (GPS) was one of the main arms of government intervention. In its simplest form, the GPS entailed the stipulation of a procurement price for paddy by the government. Unlimited quantities of rice could be sold to the Paddy Marketing Board (PMB), the government parastatal which handled marketing. After the paddy was procured it was milled and transported to the warehouses of the Food Commissioner's Department. Economic reforms undertaken since early 1990s led to disbanding of the GPS (Bandara and Jayasuriya, 2007). Recently the food crisis of 2008 made Sri Lankan government revive procurement and distribution operations.

As a developmental tool, food subsidies have always occupied a prominent position in Sri Lanka. Before 1978 much of the food subsidy bill was spent on the public food distribution scheme that operated under a universal ration system for rice. The scheme envisaged to ensure adequate provisioning of rice in order to meet the needs of the population. After 1978, the ration system was replaced with a food stamp scheme in a bid to reduce both the cost of the subsidy and the extent of state intervention in the market (Samaratunga, 1984). The liberalization of the economy in 1977 did not bring about a shift in the core objectives of agricultural policy. Food security and producer welfare continued to be emphasized. Government intervention in agriculture became more indirect and via trade and exchange rate policies. The 2008 food crisis has however led to a re-introduction of the Guaranteed Price Scheme.

Market structure

Marketing of rice in Sri Lanka has been historically handled by both private and public sectors. The government maintained a price support programme as the Guaranteed Price Scheme (GPS) at the farm level, distributed rice under the Public Rice Distribution scheme at the consumer level and monopolized the imports of rice.

Farmers' produce is divided into three major parts i.e. on–farm consumption, seeds and market surplus. Marketed surplus is sold either to farm level private buyers or to the government. Private sector purchases go through the private trade channels to the retail sellers of "open market rice". Government procurement combined with the imports was entirely channelled to the public rice distribution scheme.

In the present context (after 2008), marketing is undertaken by both private and public channels. Government intervenes in rice market through the Paddy Marketing Board (PMB) and the Cabinet Subcommittee on Food Security and Cost of Living Control. Government procures paddy through regional PMBs. PMB owns more than 140 stores in 7 regions, (Pollonnaruwa, Anuradhapura, Eastern, Southern, Northern, North-Western and Ampara). Due to their limited storage capacity PMB only procures only a minimal proportion of farmers' produce: only 2000-2500 kg from an individual farmer. In 2008 the total government procurement was nearly 0.16 percent as a percentage of total paddy production in 2007/2008 crop year. Presently, PMB doesn't own any mills, thus regional PMBs send paddy to private millers. Once the milling is completed PMB hands over milled rice to the Department of Food Commissioner. The Department of Food Commissioner distributes rice throughout the island via co-operative shops and private retailers.

Private sector is also actively involved in rice marketing in Sri Lanka at present. Usually, private procurement price is less than the government guaranteed price. In 2007/2008 'Maha season' government guaranteed prices were Rs.22.00 per kg of average quality rice (Nadu) and Rs.22.00 per kg of higher quality (Samba) whereas private sellers offered lower prices (It was nearly Rs.18.00.and Rs. 18.50 per kg for Nadu and Samba). Private sellers also send paddy to private mills. Presently, there are very few large scale mills (Nipuna, Araliya etc) and several small scale mills in operation. Millers sell milled rice to wholesalers at a whole sale price which is less than the consumer price. Retailers buy rice from wholesalers and sell to consumers at around the ceiling price for consumer rice of average quality of Rs. 70 per kg, imposed by the government through the Consumer Affairs Ministry.

Table 3 presents a summary of the product market interventions adopted in past few decades in the five South Asian countries under study. Accordingly, six intervention policies namely support prices, public procurement, movement restrictions, subsidized food rationing, import monopoly and buffer stocking, had been employed by the study countries in the past, in varying degrees. Out of these only support prices, public procurement and subsidized food ration distribution are the policy instruments surviving till today. In fact these three instruments have been used as components of a single "food price and public distribution policy" package and decisions on the three components have been interrelated. The main stated objectives of this package have been to ensure stable and remunerative price to the producers while offering enhanced food security to the consumers the apparently have been "inseparable" from each other. However, the question remains whether the border policies which have a significant bearing on these objectives have been, by and large, consistent with these objectives of domestic agricultural policy.

Table 3
An Analysis of Pricing and Procurement Policies in South Asia

INTERVENTION	BANGLADESH	INDIA	NEPAL	PAKISTAN	SRI LANKA
Support Price Year Introduced	1964-65	1964-65	1960s	1973	1948
Still in Force?	Partially	Yes	Scaled back in 1998-99	Partial – Support prices for wheat are sporadically announced	No (but partial re-introduction after 2008)
Procurement Operations – Year Introduced	1964-65	1964-65	1960s	1973	1948
Still in Force?	Minimal (Procurement more streamlined)	Yes	Yes (but amount procured is small)	Occasional procurement of rice and wheat	No (but partial re-introduction after 2008)
Movement Restrictions – Year Introduced	1941 (during British Rule)	1941 (during British Rule)	-	1941 (during British Rule)	1973
Still in Force?	Lifted in 1989	Yes, Partially	No	Lifted in 2001 but enforced in 2004	No
Issue Prices (Ration System) – Year Introduced	1942 (under British Rule)	1942 (under British Rule)	1960s	1942 (under British Rule)	1942
Still in Force?	Yes – Targeted Distribution (Food-for-Work)	Yes – Targeted Distribution	Food assistance in 2008-09 restarted.	No (but re-introduction debated after 2008)	Food stamps
Monopoly in Import – Year Introduced	1964-65	1964-65	1960s	1973	1942
Still in Force?	Minimal	Yes	Minimal	Occasional /Minimal	No but proposed

3.2 TRADE POLICIES IN BRIEF

After a period of under-achieving policies and continued pressure from international donor agencies and the WTO, international trade reforms were adopted by most South Asian countries, of course in varied extents. As a result, agriculture in South Asian countries became more liberalized starting from early 1990s (Samaratunga et al., 2007), leading to gradual increases of their agricultural tradability (Table 4).

Table 4
Agriculture Tradability Index

Country	1992	1998	2002
Bangladesh	0.09	0.14	0.18
India	0.05	0.08	0.11
Nepal	0.13	0.19	0.22
Pakistan	0.20	0.20	0.22
Sri Lanka	0.52	0.70	0.69

Note: ATI=Agricultural imports plus agricultural exports/Agricultural GDP
Source: ARTNET Policy Brief, 2006

In addition to external pressure, liberalization of agricultural trade in South Asia could have been undertaken not only to reduce the fiscal burden of the producer and consumer subsidies but also because interventionist policies had not achieved their stated objectives. Table 5 presents some information picturing the present status in relation to agricultural trade in the focus countries as this could be of help in understanding some of the analytical results presented in the following sections of this paper.

Table 5
Present Status of Agricultural Liberalization Efforts in South Asia

Country/Indicator	Bangladesh	India	Nepal	Pakistan	Sri Lanka
General					
Agri.Trade/GDP (%)	3	2	7	3	10
Imports					
QRs on Imports	Yes	Yes	Yes (Minor)	Yes	Yes (Minor)
Import Restrictions (Trade Reasons) – Import Licensing	Some Restrictions	No	No	No	Very Few
State Import Monopolies	No	Yes	No	No	No
Average Custom Duty Rate	16.3	22.2	13.7	17.3	11.3
Uses Anti-Dumping	No	Yes	No	Yes	No
Exports					
Some Export QRs	Yes	Yes	Yes	Yes	No
Some Export Taxes	No	Yes	Yes	Yes	No
Some Direct Export Subsidies	No	Yes	Yes	Yes	No
Average Agric Bound Rate	188.3	115.7	42.3	101.6	50
Percent Agric Tariff Lines Bound at WTO	100	100	100	89.6	100

Source: UNESCAP

3.3 MAGNITUDES OF DOMESTIC MARKET INTERVENTIONS

Table 3 presented an overview of price and procurement policies in the focus countries in qualitative terms. This section attempts to show the magnitudes of these interventions in terms of the volumes procured under these policies and the costs of implementing them.

Table 6 provides a comparison of procurement levels of rice and wheat in the focus countries except Nepal and it shows that India has been implementing the most effective procurement programme in the region followed by Pakistan. It is important to note that the percentage of procurement has been increasing in India and Bangladesh over the years in spite of progressive liberalization measures after 1990.The notable exception of Sri Lanka is attributed to "abrupt" and opening up of the economy in 1977 deregulation of internal agricultural trade, including the abolishment of the rice ration scheme (Samaratunga, 1984).

Table 6
Public procurement of rice and wheat in focus countries

Period/ Indicators	Bangladesh [1]	India [2]	Sri Lanka [4]	Pakistan
Procurement as percentage of total rice production (milled)				
Rice				
1970s	1.52	9.82	23.4	--
1980s	1.82	14.01	6.7	--
1990s	3.31	16.88	3.26	--
2001-2003	3.11	25.26	0.47	--
Wheat				
1970s	2.6	18.33		--
1980s	9.06	19.53		29.69
1990s	4.68	20.88		24.39
2001-2003	5.28	22.32		20.5
Distribution as percentage of total supply				
Rice				
1970s	4.33	9.46	36.41	--
1980s	3.83	14.65		--
1990s	3.31	13.42		--
2001-2002	3.47	15.45		--
Wheat				
1970s	81.24	26.41		--
1980s	66.14	19.73		27.04
1990s	39.65	17.62		35.31
2001-2002	19.85	19.56		22.66

Notes: 1The distribution figures in Bangladesh include food aid, which is the main source of supporting social safety net programs.
2Total supply of food, taken from FAOSTAT, includes only the food available for human consumption; and is defined as the sum of production, net import, and change in domestic stock.

Sources: Ahmed, Haggblade, and Chowdhury (2000) and Food Planning and Monitoring unit for Bangladesh; Rashid and Gulati (2005) for India; Samaratunga, P. (1984) and Annual Reports of the Paddy Marketing Board, for Sri Lanka; FAOSTAT (2004) CD-ROM for supply and production statistics.

As was mentioned earlier, public procurement has been operation in tandem with public distribution of food grains in all the countries under study. Table 6 reveals that no general pattern of change of public distribution over time or with procurement ratio could be found. This situation could be due to ad-hoc changes made from time to time in procurement and public distribution, without rational planning. For instance in India, the surplus states have a huge say in policymaking. Farmers want higher support prices because it obviously means income security. Politicians are happy to give it to them because these surplus farmers constitute a huge voter base and appeasing them is a top priority. This nexus implies that more land gets allocated to commodities like wheat and rice for which support prices are announced. This leads to excess procurement by the FCI and in the absence of proper disbursement mechanisms, resulting in wastage of food stocks. The incentive structure in agriculture thus gets heavily distorted (Bhalla and Singh,2009).

The next measure of the scale of the intervention is the cost involved. The first and most direct cost is of course the operating cost. However, bulk of these costs is spent on salaries and wages which are not true economic costs but transfers. The true economic cost is the welfare loss to the society resulting from distorting the incentive structure of the competitive market and the indirect costs of rent-seeking, leakages in the system etc. However, limited availability of information has been a problem and most of the information available on individual countries is not uniform, making inter country comparisons difficult.

Table 7
Costs of agricultural services – Absolute and comparative measures

Year	Bangladesh			Nepal			Sri Lanka		
	Absolute (Bn Taka)	As a % of agri GDP	As a % of Total Exp	Absolute (Bn Rs.)	As a % of agri GDP	As a % of Total Exp	Absolute (Bn Rs.)	As a % of agri GDP	As a % of Total Exp
1993-1996	7.77	1.54	4.23	6.27	5.03	16.98	8.34	10.39	4.57
1997-2000	11.57	2.49	4.11	6.62	4.72	11.44	10.7	7.07	3.81
2001-2004	13.27	2.49	3.12	7.42	4.56	9.43	14.52	6.54	3.45
2005-2008	29.4	4.77	4.18	5.42	2.94	5.33	38.73	14.26	4.77

Source: Asian Development Bank, Statistical Database System

A possible compromise between what is desired and what is available is presented in Table 7. The costs of "Agricultural Services" therein are not exactly the costs of operating price and distribution alone and they may include other services such as input subsidies. Consequently these figures could most probably be upwardly biased. It is interesting to note that these costs are substantial in both absolute values as well as percentages of agricultural GDP and total government expenditure and they have been increasing over time except in Nepal. Nevertheless the impact of strong fertilizer subsidies on these cost figures should be discounted in any comparison of them with the benefits (if at all) of price, procurement and public distribution policies.

Unfortunately, such cost benefit studies remain an unfulfilled need in these countries and what is available are some fragmented evidences on costs and possible benefits. It has been found that in comparison to the private sector government parastatals that operate the food policy in countries such as India and Pakistan are becoming increasingly inefficient and expensive. Subsidy bills of the government in India for buffer stocking have risen from $160 million in 1992 to $1.6 billion in 2002. In Pakistan too subsidy bills have ballooned by almost five times. It is alarming to note that even though the FCI in India is a beneficiary of transport and credit concessions, the unit trading cost of wheat by FCI is more than twice that of private traders. The story is similar in Pakistan as well. Returns on sales of PASSCO were much lower than those for private firms (almost 8 percent lower in some cases). Procurement costs are also up for PASSCO. In nominal terms, per ton procurement costs have almost doubled since 2006(Rashid et al. 2005). As such, it seems safe to assume that the total food policy packages in South Asian countries are costly and they deliver whatever possible subsidies to the target groups only at very low transfer efficiency for public funds.

4 HAVE THE INITIAL CONDITIONS CHANGED?

As mentioned in the beginning of this paper, the basis for intervention in agricultural markets has been the presence of a market failure. In the context of South Asia this meant four things – underdeveloped rural and urban infrastructure systems, volatility in global markets, lack of adequate access to modern technology and inadequate access to global markets. Have these initial conditions changed and/or have newer conditions justifying intervention developed are the two questions examined here in a bid to perceive whether intervention has become obsolete or if it still continues to be a valid development option.

Rashid et al. (2005) present a comprehensive analysis on the question of changes of initial conditions in several Asian countries including South Asia. According to them, with regard to the first concern of underdeveloped infrastructure, from 1970 to 2000, there has been a turnaround in access to information as seen by telephone, radio and television densities. Ratios of telephone ownership to population have risen dramatically in South Asia, especially in India and Pakistan. There has also been a rapid increase in the road networks in India, Pakistan and Bangladesh. This increase was almost three times in Pakistan and Bangladesh and more than four times in India. However, this statistic seems incomplete and may not give us the entire picture for two reasons – one, increases in road networks may have happened only in urban areas mainly and farmers in rural areas could still be facing infrastructural challenges and two, infrastructure development in the form of provision of faster, efficient and cheaper means of transport is also an essential requirement of farmers. Moreover, market integration is also another prerequisite for the functioning of the agriculture sector. The experience with this has been mixed. While in Bangladesh rice markets are more integrated now than in the 1970s, in India the results are not so good. The absence of integration has been attributed to immense government regulation which increases costs for private traders. Thus, even though it might be true that initial conditions with respect to infrastructure have improved challenges might still remain warranting the continued existence of support pricing.

The second concern of volatility in international markets has been mitigated by expansion in trade volumes. There has been a massive growth in wheat and maize markets the world over and because of this development large imports by any one country do not cause disturbances in the international market. For instance in 1966 India imported ten million tons of wheat. Bangladesh too has successfully utilized privatized international trade, albeit with certain favourable circumstances, as a major source of its price stabilization and food security programme to adjust to a poor harvest in late 1997 and a massive flood in 1998 (Dorosh 2001). Moreover, since in the 1990s price volatility in the international markets had come down due to increased production stability, a deeper global market and commercial orientations of exporters. However, as we know now, international markets since 2006 have been characterized by extreme price volatility (due to both demand side factors – rising demand for biofuels and for agricultural commodities due to rising incomes and population pressures and supply side factors – erratic agricultural outputs due to frequent droughts in Australia and Ukraine, the major wheat exporters).

Third, one of the chief motives of support prices was to make farmers less risk-averse and encourage rapid technology adoption in order to increase yields and hence incomes. High Yielding Varieties (HYV's) are now employed by most farmers in South Asia and almost all sown area of wheat and rice are under HYV's. There is however a caveat to be made here. Successful harvest of HYV's requires among other things, good irrigation facilities. Though South Asian economies have invested in irrigation development this has not been as widespread as one would want. For smaller economies like Nepal seeds and fertilizers have been the inputs that have been focussed upon. Moreover, even though it is claimed that farmers have the technical know-how and have mastered the technology, this is doubtful because discussions with farmer groups, particularly in India have revealed that farmers in most states (barring those in the food bowls like Punjab and Haryana) are still lacking education on these crucial technologies and there has been a skewed development in this regard. Thus, even though there has been rapid technology diffusion it has been (a) concentrated in a few areas, (b) not all farmers have benefitted from it. This means that even though the initial condition for intervention might not still be that persuasive anymore, there is now a need for a different kind of intervention, one which is more targeted towards specific regions of a country or tailored to meet specific weather (and hence output) predictions.

The last justification for government intervention was the limited foreign reserves South Asian countries possessed in the 1970s (Rashid et al., 2005). There was a crucial link between food security, food-aid and foreign currency reserve. Since most South Asian countries, prior to the Green Revolution depended on food-aid flows, and since foreign reserves were limited, intervention was based on the premise that private foodgrain trade couldn't be allowed to fritter away these scarce reserves. However, this situation has changed in present times with most countries not depending on food-aid (except Bangladesh from time to time) and also holding sufficient reserves. Cereal imports have declined too with the increases in domestic production. Thus, international liquidity is not such a constraint any longer. This however, has obviously changed in after the 2008 food crisis. Foreign reserves of countries have fallen sharply due to currency depreciation and widening current account deficits. This means that, in some measure, the rationale for government intervention in agriculture still exists.

While it is thus clear that there have been changes in the initial conditions for government intervention, most of these changes are not entirely persuasive. As such, the stage where it could be claimed that the conditions have completely reversed in all respects to warrant government withdrawal from interventions, hasn't been reached yet in South Asia.

It is questionable whether market intervention in South Asian agriculture could be totally withdrawn in the present context even if the aforementioned initial conditions are totally eliminated because the world is facing another challenge in the form of "global market failure", which emanates from two sources i.e. technical and institutional. Among several forms of global technical market failure present today, the most prominent is resulting from the global externality of green house gas emissions and consequent global warming. Tropical regions in the developing world, which include greater part of South Asia, are particularly vulnerable to potential damage from environmental changes due to the poor soil quality of agricultural lands therein. Global warming thus leads to decreased productivity (Mendelsohn and Dinar, 1999).

The main concern here is the increased ambient temperature and increased variability of seasonal rainfall on which South Asian agriculture mainly depends. Although detailed studies on the impact of these global externalities are not yet widely available for South Asia, the isolated evidences available point in the direction of significant negative effects. For example Kumar (2009) estimates the loss to annual producer revenue to be 9 percent due to increased ambient temperature in India. Punyawardana (2004) reports an increase of the coefficient of variation of North East monsoonal rains in Sri Lanka from 31 percent (1931-60) to42 percent (1961-90) and sees this as the main climate change related problem Sri Lankan agriculture is facing. This kind of increased climatic variability causes production instability in agriculture which in turn results in increased price instability (FAO, 2010). Owing to this, the attainment of price stability, one crucial objective of government intervention in South Asian food grain markets, is becoming increasingly difficult.

On the institutional side, certain rigidities in global food markets due to market concentration, regional trade agreements etc. and increased volatility in global financial markets are imposing limits on the desired efficiency of the "free" market (Institute of Policy Studies, 2008). Agricultural support and protection in developed countries is seen as the major cause of low agricultural prices and implicitly a tax on net agricultural exports in developing countries (Diao et al., 2001). While this denies the developing countries including South Asia, of possible benefits of trade liberalization, increased price volatility culminated in the spike experienced in 2008 deteriorated their confidence in the liberalization process. There is unease about the increased risk of food insecurity that South Asian countries are now facing as a result of liberalizing their economies. For instance in Sri Lanka and Nepal liberalization has not led to increased incomes and growth in rural agriculture[2]. In Nepal, the incidence of food deprivation relative to the recommended daily requirement has remained constant at 230kcal/person/day since 1990 while in Sri Lanka it has stagnated at 260. Moreover, agricultural growth rates in these two countries have been low (in 2010 the growth rates were 1.26 percent in Nepal and 7.0 percent in Sri Lanka[3]) and in Nepal it has rarely been higher than population growth rate. Further, the other Para- efficiency objectives of market intervention such as income equity, poverty reduction, inter alia, are also being weighed against the benefits promised by liberalization. Along with these, the emergence of current global market failure could, arguably, prompt another round of market interventions particularly in relation to staple foods in developing countries including South Asia. On this

[2] As per the discussions with policy makers in these countries
[3] 2010 was an unusually good crop year for Sri Lanka. Growth rate usually is around 1 – 2 percent.

backdrop, it is important then to examine how effective have the government intervention policies hitherto adopted been, in achieving their stated objectives.

5 IMPACT OF GOVERNMENT INTERVENTION IN THE AGRICULTURAL MARKET

Agricultural price and procurement policies in South Asian countries, as mentioned earlier, have had multiple objectives. It was also made clear that, along with the support price policies that are meant to subsidize producers, there had almost always been a consumer price and (food grain) distribution policy aiming at consumer subsidization and micro level food security. In fact these two "policies" have often been the components of a larger "Food and Agriculture Policy". Many of the studies in the past have analyzed this policy package as one and consequently separating the effects of price and procurement policy from the food (subsidy) policy has not always been possible.

Furthermore, the international trade policies of individual countries also impact on the food and agriculture sector through the prices. The analyses of policy impacts on agriculture have been further complicated by this simultaneous presence of border and domestic policies. The following review of the impacts of "price and procurement policy" may therefore suffer from an "identity crisis" to some degree.

5.1 IMPACT OF SPECIFIC POLICIES

The three main instruments employed by South Asian governments for intervention in agriculture include: Agriculture Support Price and Government Procurement for Buffer Stocks under PPP and subsidized Issue Prices and Rations for Agricultural Commodities under PFDP. The impact of each of these policies in the South Asia region is discussed below.

5.1.1 Impact of agriculture support price

For South Asia, it is not so much the question as to whether support prices were used as policy instruments (because inevitably they were) but one of, if support prices achieved their stated objectives. A study of the literature tells us that the experiences have been mixed. In India and Sri Lanka, the procurement price policy has held the farm gate prices below the c.i.f. prices most of the time, but above the farm price that would prevail in a free market situation. But in Pakistan, the announced procurement had often been below the open market farm prices thus having little or no impact on the former. In Nepal, on the other hand prices of India had greater influence in setting the domestic prices because of the open border the two countries are sharing. Formal measures of the price gaps so created by policies are therefore examined below to evaluate the impacts of the respective policies.

Providing a producer subsidy

Except in the dated study by Krueger et al. (1988) quantitative estimates of subsidies involved in the domestic price and procurement policies are scarce for developing countries and especially for South Asian countries (Jostling and Valdes, 2004). One notable exception is the work of Gulati and Narayanan (2003) for India but studies of comparable detail were not available for other South Asian countries until the output of the World Bank project on Distortions to Agricultural Incentives appeared in 2007/8. This review, therefore, draws heavily on the findings of this project and accordingly, the Nominal Rates of Assistance (NRA) for all countries under study except Nepal are set out in Table 8. However, these estimates not the "ideal" measures of domestic price policies alone as the estimates were made for sets of "covered farm products" varying from country to country but always included a range of products broader than cereals (rice and wheat). In spite of this "identity crisis" these NRA estimates are used in this study to trace the general patterns of market distortions in agriculture in South Asia.

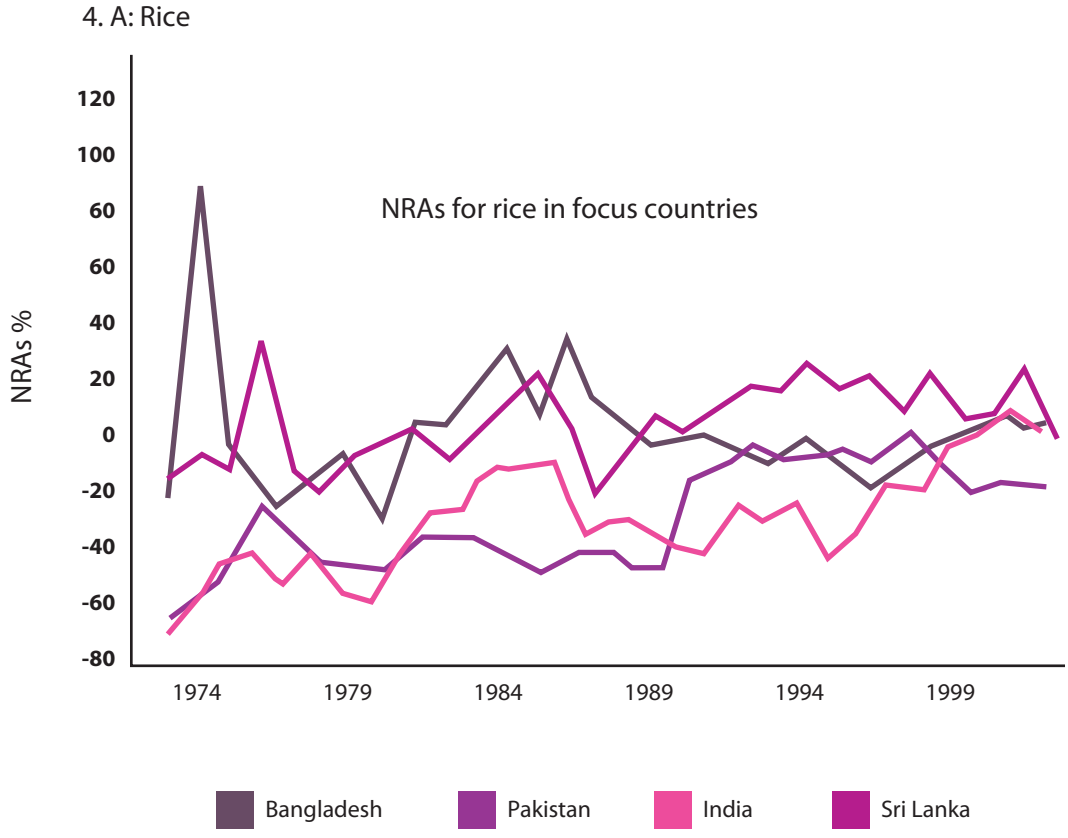
Table 8
Nominal rates of assistance for covered farm products, [a] for the focus economies, 1965- 2004. (Percent)

Economy indicator	1965–69	1970–74	1975–79	1980–84	1985–89	1990–94	1995–99	2000–04
Bangladesh								
NRA, domestic MS[b]	na	na	0	0	0	0	0	0
NRA,agric. total agriculture	—	—	2.8	-3.8	16.8	-2.2	-7.6	3.9
India								
NRA, domestic MS[b]	18.1	17.8	3.7	2.1	4.3	3.4	-0.1	0.2
NRA,agric. total agriculture	0.3	0.2	-5.6	1.9	24.9	1.8	0.7	15.8
Pakistan								
NRA, domestic MS[b]	0	0	0	0	0	0	0	0
NRA,agric. total agriculture	21.7	9.3	-11.8	-9.3	-5.9	-10.2	-2.6	1.5
Sri Lanka								
NRA, domestic MS[b]	6.9	5	5.1	5	3.6	1.5	0.7	0.9
NRA,agric. total agriculture	-30	-20.3	-31.9	-19.2	-12.6	-1.7	11.5	8.6
South Asia								
NRA, domestic MS[b]	16.3	16.1	3.1	1.8	3.6	2.8	-0.1	0.2
NRA, border MS[b]	-14.9	-15.4	-9.2	-2.5	13.5	-7.5	-6.2	5.2

a. Covered products vary from country to country and include both importables and exportables
b. MS = market support, either via domestic subsidies (or taxes if negative) or via a measure at the border such as an import tariff or export subsidy (or negative an import subsidy)
Source: Adopted from Anderson and Martin (2007).

Price and procurement policies of Bangladesh and Pakistan have had no significant distortionary effect on their agriculture as implied by zero NRA domestic coefficients. India and Sri Lanka on the other hand have been supporting their agricultural sectors significantly through their domestic policies till 1975 and 1985 respectively, but in declining degrees thereafter. In South Asia as a whole, domestic policies have been subsidizing their agriculture significantly, although on a declining trend. The NRA total coefficients have, on the other hand, been negative right through out except for India implying over all taxation of agricultural sectors till 2000. This is a result of stronger negative NRA.border coefficients outweighing the positive NRAs relating to domestic output and input policies (Refer to Anderson and Martin, 2007 for details).It is important to note that the NRA.border coefficients have turned positive after 2000, after the countries concerned adopted more outward looking trade and macroeconomic reforms. Consequently, the total impact of border, domestic and input price policies have turned positive, implying a net subsidy to agriculture. The largest contributor to this subsidy has been from the cumulative effect of border measures (which remained equivalent to a positive import tariff despite enhanced efforts towards trade liberalization), but not from domestic measures, except in India where input subsidies contribute the most.

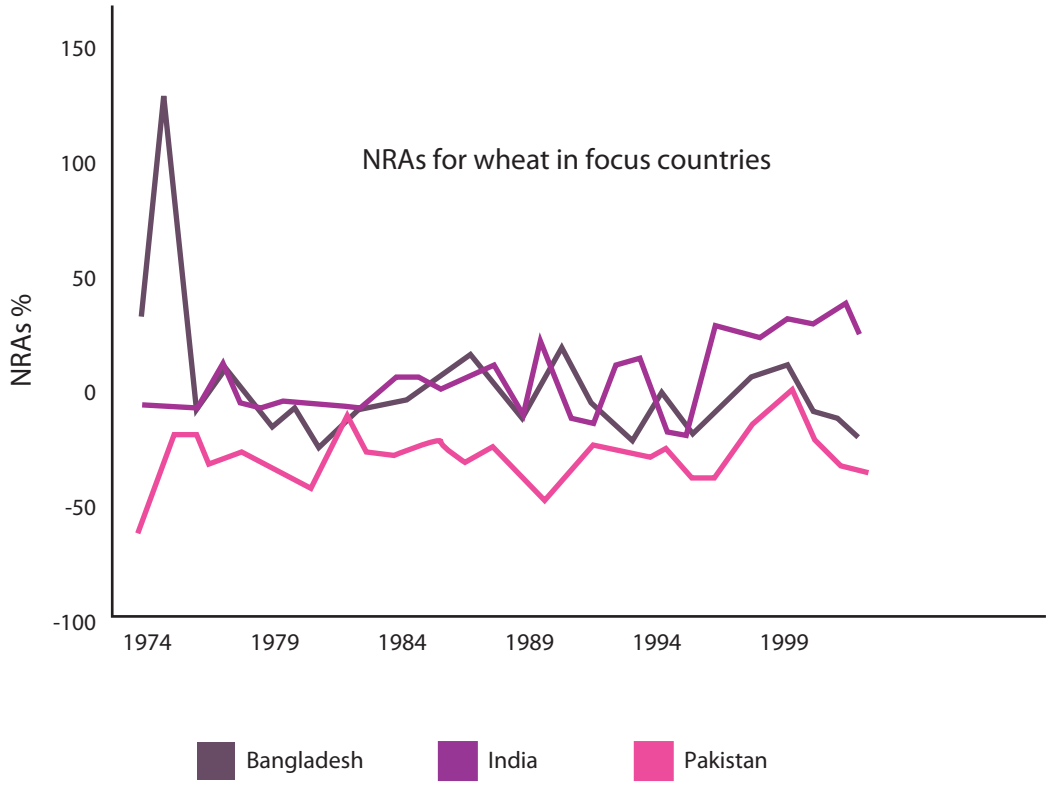
Figure 4
NRAs for rice and wheat in focus countries [a]



a: Estimates are not available for Nepal
Source: Based on estimates given in Gulati and Pursell (2008)

Figure 4
NRAs for rice and wheat in focus countries [a]

4. B. Wheat



a: Estimates are not available for Nepal
Source: Based on estimates given in Gulati and Pursell (2008)

A closer picture of the distortions relating to specific products under study i.e. rice and wheat, is provided in Figure 4. But it should be born in mind that the levels of assistance shown therein are the combined effects of both border and domestic measures. The domestic measures, again, are not exclusive to price and procurement policy and they also include the consumer subsidy policies. Evaluating the impact of price and procurement policy using this information should therefore be undertaken with caution. On the average for the period before 1990, the strongest towards trade liberalization), but not from domestic measures, except in India where input subsidies contribute the most.

Support to the producers of both rice and wheat had been provided by the policy package adopted by Bangladesh with India coming close in the case of wheat. Nevertheless, Figure 5 clearly shows that this average picture camouflages the fact that the assistance had been widely fluctuating around the zero support axis. It is imperative to mention that these fluctuations are resulting from fluctuations in domestic production due to climatic and other physical conditions as well as the policy responses of the government towards them. Sri Lanka which produces only rice showed similar fluctuations before 1990 but has become a consistent producer supporter since. Rice producers of India were subject to a net tax till 2000 but started receiving a subsidy afterwards. Interestingly, Pakistan's policy packages on both rice and wheat have never subsidized the producers. On the whole, a general producer taxing situation has changed in to a producer subsidizing one with reforms since late 1990s with the exception of Sri Lanka where the change came in early 1980s.

Table 9
Gross Subsidy Equivalents (GSE) of assistance to farmersa, total and per farm worker, South Asian Economies, 1965 to 2004

GSE (Constant 2000 US$ million)									
Economy		1965–69	1970–74	1975–79	1980–84	1985–89	1990–94	1995–99	2000–04
Bangladesh	GSE absolute	na	na	na	-672	882	-103	-448	189
	As a % of agri GDP [b]	na	na	na	na	na	-25.94	-103.72	35.81
India	GSE absolute	-993	-7803	-8653	-49	21607	1600	281	1543.3
	As a % of agri GDP [b]	na	na	na	na	na	42.56	6.72	32.07
Pakistan	GSE absolute	1089	-34	-815	-787	-380	-755	-260	95
	As a % of agri GDP [b]	na	na	na	na	na	-619.4	-177.23	10.24
Sri Lanka	GSE absolute	-455	-396	-571	-344	-194	-27	245	154
	As a % of agri GDP [b]	na	na	na	na	na	-0.03	0.2	7.07

b. Per person engaged in agriculture (at constant 2000 US$ using the U.S. GDP deflator)

Economy	1965–69	1970–74	1975–79	1980–84	1985–89	1990–94	1995–99	2000–04
Bangladesh	na	na	20	-22	26	-3	-12	5
India	-6	-43	-43	0	97	7	1	57
Pakistan	78	-2	-47	-41	-19	-35	-11	4
Sri Lanka	-195	-155	-207	-116	-60	-8	66	40

Source:
a. Adapted from Anderson and Martin (2009).
b. GSE percentages were computed using agriculture GDP from ADB statistical data set.

The above NRA estimates are price based and therefore, while being helpful in identifying distortions, they are not good measures of the total subsidies resulting from the policy, which depends on the volume of products. Gross Subsidy Equivalent (GSE) estimates which take into account both the policy effect and the product volume effect are therefore presented in Table 9 as measures of subsidies resulting from direct and indirect impacts of the policies. It reveals that the total subsidies (measured as GSEs) had been negative up till 2000 for Bangladesh and Pakistan after which point they became positive. For India and Sri Lanka this change came early. Obviously this follows the pattern of NRAs presented in Table 8, on which the GSEs are based. However, the additional insights come from proportional measures that compare total GSEs with the size of the agriculture sectors and the per capita GSEs which reflect the policy support at grass root level.

Table 9 reveals that the Gross Subsidy Equivalents of agricultural policies in Bangladesh and India currently amount to over 30 percent of the respective agricultural GDPs while it was around 10 percent in Pakistan and Sri Lanka. Either way the proportion is substantial, but there is one caveat to remember. This subsidy is the combined impact of both domestic and border policies and therefore could not be attributed to domestic policies alone.

Per capita GSE estimates also follow NRAs in their movements over time but reflect better on the benefits from the policy mix received at individual farm worker level. Individuals' subsidy receipts in Bangladesh and Pakistan (which are $5 and $4 respectively) cannot be rated as substantial even at their low average income levels. Nevertheless, the situation in India and Sri Lanka (with supports at $57 and $40 per capita respectively) is different at least for the majority of "poor" smallholder farmers.

In summary all South Asian countries studied have been maintaining their price, procurement and distribution policies with non-negative support to their agriculture sectors through domestic (product market) policies. Nevertheless, separation of the impacts of price and procurement policies from those of public food distribution policies and macroeconomic policies has not been possible with the limited research information available. The non-negative farmer support of domestic policies had been negated by stronger negative impacts of border policies until the trade and macroeconomic reforms in late 1990s and early 2000. Currently the agriculture sectors are being supported by the overall policy packages of the respective countries, but the bulk of it comes from border protection in spite of progressive liberalization efforts. On the other hand, total and per capita farmer subsidies are not large even where they are significant. Under these circumstances it is difficult to justify the "expensive" price and procurement policies on producer subsidization grounds. To ascertain the overall merits of these policies, therefore, a look into other benefits generated by them has to be taken.

Impact on Price Stabilization

In addition to producer subsidization support prices were meant to aid price stabilization to help in increasing production through reducing price risk. This was expected to lead to greater adoption of new technology.

However, producer prices of wheat in Pakistan have been highly unstable (Hamid et al., 1991). In this regard, the coefficient of variation of the border price has been 0.29 while that of the procurement price was 0.09. This indicates prima face that the price and procurement has been able to maintain the procurement price stable in the midst of volatile international prices. Nevertheless, without adequate infrastructural capacity to procure the total marketable surplus the open market producer prices must have been fluctuating with varying domestic production levels, although data to support this could not be availed of.

In India on the other hand (Table 10), the government has been successful in stabilizing domestic prices because there is little year-to-year correlation between the domestic prices and the border prices of major food products. This also implies that there has been some success achieved in insulating domestic markets from swings in world prices (Krueger et al. 1991).

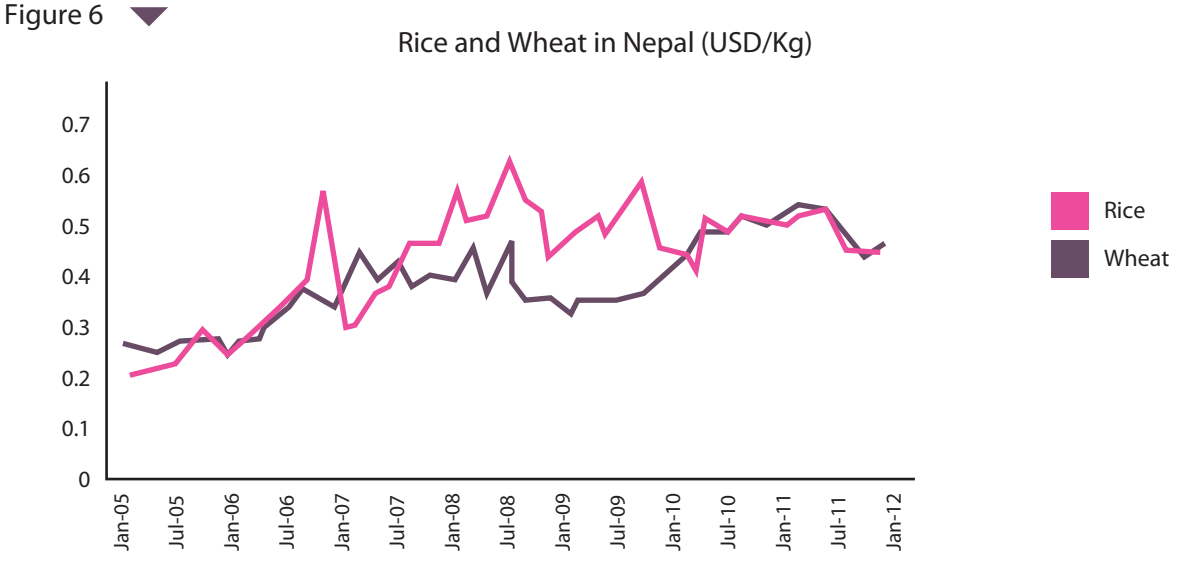
Table 10
Measures of price instability

a. Coefficient of Variation of Rice and Wheat in India				
Period / Commodities	Rice		Wheat	
	India	World	India	World
1995-2000	14.7	18.6	17.1	26.2
2001-2006	3	21.7	7.4	15.5
2007-2009	6.2	40.8	3.4	25.9
1995-2009	15.1	46.7	20	36.8
b. Correlation coefficient between Domestic and International Prices				
Period	Rice		Wheat	
1995-2008	0.26		0.42	
1995-2001	-0.83		-0.76	
2002-2008	0.79		0.8	

Source: Reserve Bank of India

Domestic price of rice has been more variable than that of wheat in Nepal between 2005 and 2012 (Figure 6). The absence of an effective price and procurement policy in Nepal (Table 3) has negatively affected the stability of her rice prices than the wheat prices. As was explained earlier, these price fluctuations must be clearly affected by the presence of a long and porous border between Nepal and India. However, it is not clear whether this is a positive or a negative relationship.

Figure 6



Source: FAO

Table 11
Deviations of annual average prices of rice from the trend in Sri Lanka

	Rough Rice (Farm level)	Parboiled Rice (Retail Level)	Raw Rice (Retail Level)
1990	14.56	9.92	6.98
1991	16.28	8.41	7.82
1992	10.57	6.27	6.11
1993	8.37	5.32	4.64
1994	7.33	4.21	4.1
1995	6.52	4.87	3.87
1996	12.59	7.27	9.88
1997	13.51	11.23	11.8
1998	13.52	10.54	11.13
1999	7.24	4.72	4.42
2000	15.36	7.76	6.59
2001	11.3	5.85	5.15
2002	13.47	6.69	7.05
2003	12.13	8.34	8.21
2004	14.23	9.58	8.67

Source: Hector Kobbekaduwa Agrarian Research and Training Institute, Sri Lanka

In Sri Lanka the farm prices show a significantly higher variability compared to consumer rice during the period 1990 – 2004 (Table 11). However, this corresponds to the period after the scaling down and final abolition of the PMB that was responsible for the maintenance of the Guaranteed Price and procurement. But, when the GPS and the Rice Ration scheme were in full effect (before 1977), both producer and consumer price in the open market had been maintained with minimal variation over time (Samaratunga, 1984).

One useful way of judging the price stability in South Asian countries is to examine their responses in the face of global food crisis of 2008. World Bank (2010) concludes that in India and Bangladesh, the governments' price support systems played an important and sensible role in keeping domestic prices relatively stable. Accordingly, the government of Bangladesh "set a sensible rice procurement price Tk. 28 per kg which provided a reasonable balance of the interests of farmers and consumers..... and it gave an incentive to increase paddy production". On the other hand, the 2007-08 procurement prices remained well below the import parity price of rice, which was about Tk. 55/kg at the time. Thus, the government made sure that net rice consumers in Bangladesh felt only part of the burden caused by rapidly rising international prices.

In India the gap between the MSP and international prices was especially large during the food crisis, even though the MSP for wheat was raised from Rs. 850 per 100 kg in 2006-07 to Rs. 1000 in 2007-08 and the MSP for paddy was raised from Rs. 650 to Rs. 775. The main reason for the larger increase of the price of wheat was the government's wish to increase buffer stocks and avoid the need for imports. This policy worked and government procurement of wheat reached 22.6 million MT in 2008-09, nearly twice the previous year's level (World Bank, 2010).

Sri Lanka's response to the food crisis was different. At the time Sri Lanka was over 90 percent self sufficient in rice and the market was free of interventions except for import tariffs. The impact of the global food crisis first felt in Sri Lanka on the price of wheat which is hundred percent imported. Wheat flour being the closet substitute for rice in Sri Lanka, this led to an increase in price of rice in the retail market. In fact, the heat of increasing rice prices in the world market was felt several months later. Nevertheless, the benefit of rising prices in the consumer market was not adequately transferred to the farm level due to inefficiency in the rice market. Government's response to this was the imposition of a price ceiling of Rs. 70 per kg of average quality in the retail market and a price floor of Rs. 24 per kg of paddy at farm level. Consequently, the food crisis led to an introduction of serious government intervention to the "free" rice market of Sri Lanka. Through the Price Control department's policing the ceiling on consumer price was maintained effectively but the price floor at farm level did not benefit the farmers adequately as the government did not have the necessary infrastructure to procure a substantial proportion, let alone the total amount, of paddy offered to it (Institute of Policy Studies, 2008). This policy still continues with periodic revisions and is unlikely to be repealed in foreseeable future. This intervention perhaps saved Sri Lanka a possible ordeal of extreme events like consumer panic and food riots and it received wide popular support. But its long run impact is yet to be fully evaluated.

In a study of price transmission during the global food crisis, Dawe (2011) shows that Bangladesh and India have been "price stabilizers", before 2008 and they had generally been able to contain domestic price increases by using trade policies and taking advantage of the depreciation of the US dollar. During the food crisis in 2007-08 the increases of domestic real price (in US dollar terms) with respect to the world price were 26 percent and 7 percent in Bangladesh and India, respectively. The reason for the relatively high price transmission from world to domestic market in the former was shown to be the comparatively high freedom enjoyed by the traders there to import rice. Nevertheless, this "high" transmission looks modest in comparison to other Asian countries like Thailand, Philippines and Viet Nam. It is argued that trade policies could explain some of the different outcomes across countries along with speculative activities by farmers, traders and consumers. On the other hand, the use of "various commodity based policies" is also offered as another explanation.

This shows that the countries studied except Nepal have managed to insulate domestic prices from international price fluctuations at times of substantial procurement and failed to do so in times of lean procurement. Although macroeconomic and trade policies may have played a significant role in this the contribution of domestic price and procurement policy has been substantial. This contention generally agrees with Rashid et al. (2005) who concluded using the coefficients of variation that most South Asian countries have been able to able to stabilize prices and achieve agricultural growth in the last few decades.

Impact on Output

Output in agriculture in South Asia has seen remarkable growth as compared to the pre-Green Revolution period. Cereal production has more than doubled since the 1970s. In the case of rice, production has increased from 99 million tons in the 1960s to 260 million tons in 2003. Wheat production has seen almost a five-fold increase in South Asia in the same period (Rashid et al. 2005).

Price policy was argued by Rashid et al. (2005) to be the main catalyst for this phenomenal growth. Since governments guaranteed a minimum price, this floor price was responsible for making sure prices did not fall due to production gluts. Had there been no floor price, prices would have fallen steeply and thus incentives to produce and invest in new technology would have been mitigated and technology diffusion would have been halted. This implies that support prices have been successful so far in reducing farmers' price risks making them invest increasingly in new technologies.

However, there is an alternate claim that output growth in South Asia has been as a consequence of area expansion. According to Ranaweera and Samaratunga (1994), the guaranteed price scheme in Sri Lanka, before 1967, led to an increase in output levels which was primarily due to an expansion in area under rice cultivation due to expansionary land policies. However, they too acknowledge that the guaranteed price helped this expansion effort through reduction of risk.

Alternatively, Bhalla (1991) points out that the real price of rice in Sri Lanka had not changed from the 1950s till 1985. Even though there were periodic increases in procurement prices since1967, these haven't been reflected in real farmer prices. As such, Sri Lanka's achievement of near self-sufficiency in rice production seems more a result of technical advancements and perhaps more recently and input subsidies than output price increases. There is also a claim that output growth in countries like Pakistan and India has also been a result of massive input subsidization which has led to a reduction in costs and the case of wheat in Pakistan bears testimony to this. These refute the stand taken in some literature that the support prices were able to act as a production incentive and the question apparently remains open.

Impact on Crop Diversification

One of the indirect effects of support prices which are often overlooked in policymaking is its tendency to thwart crop diversification. This concern is pertinent because of two reasons – one, since support prices act as a disincentive for producing those crops which are not protected, imports of such crops surge, thus widening the fiscal deficit. Secondly, it is also true that crop diversification has numerous benefits such as enhancement of soil fertility which are also negated due to the imbalance in crop production. In India and Sri Lanka for instance, in the early years after PPP was initiated, there was a tendency to produce only food grains. Moreover, the PPP is also very asymmetric and skewed towards the production of rice and wheat which has resulted in an imbalance in the production of other crops such as pulses, oilseeds etc. There has thus been a shortage of these crops which are now being met from imports. These imports are in turn having an adverse impact on producers in the unfavourable dry-land areas. Thus the PPP has inadvertently discouraged the production of coarse cereal and pulses: the only alternatives available to the less well endowed farmers in agriculturally backward regions (Planning Commission of India, 2007). Further, this was found to be a strong factor discouraging diversification of resources to exportable crops to take advantage of the opportunities opened by trade liberalization (Samaratunga et al., 2007).

5.1.2 Impact of administered prices and public food distribution

It was mentioned in the beginning itself that public food grain distribution policies (PFDP) have been implemented in close connection with price and procurement policies (PPP) in South Asian countries. Thus the issues pertaining to these have to be examined too, in any attempt of evaluating PPPs. Administered prices (Issue prices) are usually the prices at which food grains are sold to consumers at subsidized rates through ration shops. An issue price generally aims at ensuring certain minimum food consumption by all households. In recent years, the ration system in most South Asian countries has become targeted (being administered to only a certain section of the population) rather than universal in a bid to reduce the mounting fiscal burden.

The ration system was initiated to ensure micro-level food security in South Asian countries. It was envisioned as being supplemental and does not claim to provide all requirements of a healthy diet. Essential commodities like rice, wheat, sugar, edible oils and kerosene have been provided through a network of ration shops in India while there is a variation in the commodity mix across countries. In examining the effectiveness of PFD as a policy instrument three things need to be focused on: one, whether this policy has led to an increase in food security in the targeted population, two, if consumers have been shielded from price swings in the international and domestic markets and three, if the food ration has acted as a household income source. However, adequate evidence to evaluate the third aspect could not be gathered due to practical constraints.

PFDPs and Impacts on Food Security

Reducing the number of food insecure persons was one of the primary objectives of the food distribution systems in South Asia. For example in Bangladesh, one of the key components of the government's food policy was to ensure supply of food to urban consumers through Statutory Rationing (SR). The Modified Rationing (MR) scheme was introduced in 1949 in an attempt to direct the ration system to the rural areas. A need-based priority classification was carried out and the MR sought to distribute rations to the poorest of the rural population (Deb, 2011). However, the critical point here is that, since these were not statutory, the government was under no obligation to ensure their uninterrupted supply. Allocations were thus highly variable from year to year.

India has been implementing Targeted Public Distribution System (TPDS) since 1977 under which 103 million 'below poverty line' families are receiving subsidized food grains. But the sheer size of the programme along with resource constraints and inefficient administration has led to poor execution of it (Mittal, 2011).

Although Pakistan has no clear food policy, Pakistan Baitul Maal (PBM) has been operating a targeted Food Support Programme since 2003 for the poor and underprivileged (Ramay, 2011).Nepal also implements a public distribution programme through Nepal Food Corporation targeting the food deficit hilly areas. But this covers only 5 -6 percent of the deficit in target areas (Karmacharya, 2011). In contrast to all the above Sri Lanka was undertaking a public rice distribution programme which was universal from the beginning, but was terminated in 1979 due to heavy fiscal burden (Samaratunga, 2011).

There are two main problems affecting the efficiency of public food distribution schemes in South Asia: poor targeting and leakages. Sri Lanka's (past) universal ration scheme could be seen as the best example of poor targeting; even large scale rice producers received 4 lb of rice per week per person at a highly subsidized price. Nevertheless, corruption and leakages were not reported and this is to be expected in a universal subsidy considered to be adequate by the recipients. On the other hand the Targeted Public Distribution System (TPDS) in India has introduced massive inefficiencies mainly because of poor targeting. PDS food grain purchase constituted only 11 per cent of the total per capita monthly food grains consumption in 2004-05. There were marked regional disparities and although the impact of TPDS on southern and north-eastern states is much better, it has hardly any impact on some of the poorest states (Bihar, Assam, U.P.). Also, there is sufficient evidence that the amount of leakage in the system is extensive. Fair price shop owners find it more profitable to sell the grains at the open market where they will get a higher price and hence they turn away the poor people or adulterate the grain sold to them. Empirical evidence shows that 67 percent of the wheat (in India) meant to reach the poor ends up missing the target (Basu, 2010).

South Asia has the highest number of food deprived people among all country groups. However, a huge chunk of this number is accounted for by India (25 million undernourished people in 2008). The other cause for concern for all South Asian countries is that this number has been increasing over time. This clearly means that not only have food ration systems not been functioning properly, but also have led to extreme corruption and leakages when seen in the light of the fact that spending on these programs has actually increased over time.

Preceding discussion makes it clear that targeting of subsidized food through public distribution systems have been poor. The costs of these "poor" operations have been high too and one might question whether this money could be channelled to other safety net programmes with higher social returns. Nevertheless, PDSs continue to survive because of the extremely high political appeal food security entails. The interesting point is that, at least in some cases continuation of the price and procurement policy is made possible by the demand created by PDSs. If not for them, food grains procured by the state may not find a suitable outlet, particularly where public storage and buffer stocking are weak.

Protection against Price Volatility

Protection against price volatility emerged as a policy objective in South Asia in the 1970s and 1980s. This was in contrast to the quantitative targets which were the highlight of earlier policymaking. This is important because stabilization of seasonal and inter-annual price swings should be the objective of any food ration policy. In Bangladesh, Open Market Sales (OMS) were introduced in order to stabilize the seasonal and inter-annual price swings. By and large most food ration schemes in South Asia have been successful in protecting their consumers from price instability mainly because of political repercussions if that were not the case. However, it must be noted that the targeted form of rationing that has been introduced in countries such as India and Bangladesh and the large attendant exclusion errors means that a large section of the poor do not get the rationed quota and are subject to the swings in market prices as a result.

Operational Costs of PDSs

Public food grain distribution systems in some South Asian economies were initially set up for the benefit urban consumers. For Bangladesh where poverty levels are high, this means a large scale operation and in 2007/8 the off take of rice and wheat had been 1081 and 1560 thousand metric tons, respectively (Deb, 2011). However, government was under no obligation to ensure uninterrupted supply since the programme was not statutory. The allocations were thus highly variable from year to year.

Pakistan has also been operating a targeted Food Support Programme since 2003 at a substantial cost. In 2007 it amounted to P. Rs. 6 billion. Nepal also implements a limited public distribution programme through Nepal Food Corporation targeting the food deficit hilly areas but no data on the cost could be traced. In contrast to all the above Sri Lanka was undertaking a public rice distribution programme which was universal from the beginning, but was terminated in 1979 due to heavy fiscal burden (Samaratunga, 2011)

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5.1.3 Buffer stocking[4]

One of the primary goals of agricultural procurement policies in South Asia has been the maintenance of an adequate buffer stock. The state maintains a buffer stock as a safeguard against the adverse impacts of fluctuations in price and production of agricultural commodities. Procurement is most common in India with Nepal, Pakistan and Bangladesh also engaging in some form of buffer stocking. In Sri Lanka proper procurement operations (which were in place pre-1977) are not present anymore, though as policymakers maintain that there is an urgent need for reform in this area. What is important to examine here are, 1) whether government pricing has been successful in building up stocks of desired size 2) whether the public policy package and institutions have managed the stocks efficiently and 3) whether the stocks have contributed to the attainment of price stability.

1). The main reason of the success of the Governments in securing a reasonable share of the marketable surpluses of the respective countries lies with the setting of procurement prices for food grain above the prices in markets without intervention. For example the MSPs for wheat and paddy rice are set on a cost plus basis so as to provide an attractive return to farmers. To keep up government procurement, the MSPs for wheat and rice were continually increased in recent years and consequently, the government buys about 20 percent of the total wheat harvest and 25 percent of the rice harvest, on average (World Bank, 2010). In Pakistan too targets for the national support price and procurement quantities are set at the federal level and in early years this served as an effective floor price that promoted public procurement and building of stocks

[4] This section is largely based on Key Informant Interviews conducted by the authors.

(Salam, 2009). Nevertheless at present, Pakistan Agricultural Storage and Services Corporation (PASSCO), which is responsible for public procurement, enters the market only occasionally. Sri Lanka also followed the same pricing policy which attracted over 30 percent of the total domestic production of rice (Samaratunga, 1984). However, the public procurement programme was gradually scaled down and finally abolished in 2000.

In Bangladesh the procurement price of rice is set to cover the variable cost of production and a fair rent on fixed inputs, mainly land. Procurement price undergo periodic upward revisions and it generally remains substantially higher than the private buyers' farm price. However, the government's share in marketed surplus which was as high as 30 percent in mid-1960s under this pricing scheme but fell to 5 percent in 1998. The reason for this reduction of governments share in rice stocks has been the reduction of the intensity of procurement activity by Directorate General of Food due to rising fiscal cost and the increasing reliance of the government on the private sector (Ahamed and Chowdhury, 2000).

The other important factors behind successful procurement and stock building are the decentralization of operations and open ended procurement. All the countries under study had these policies in principle but not without country specific features that sometimes affect the efficiency of procurement and stock building. In India, although the system is applicable to the country as a whole it effectively operates primarily in a few surplus states such as Punjab, Haryana, Uttar Pradesh and Andhra Pradesh. In these states at least this open-ended procurement system effectively renders the procurement price and consequently leads to high proportions of procurement. To support this in the case of rice, the millers are obligated to sell a certain fraction of their produce to the FCI at the levy price (Kumar and Gulati, 2007). However the mismatch between demand and supply of food grains resulting from unequal procurement among states is rectified by the transfer of grains from food surplus areas to food deficit areas.

Procurement of rice is decentralized in Bangladesh as well, but with central coordination. There are about 1050 procurement points which work out to one procurement point for 53 villages. In addition, except for the 4 silos operated by the Department of Food, there are 12 Central Storage Depots and 621 Local Storage Depots which also function as purchasing points during the harvest times (Choudhury, 1994). During its hay day this provided 20 percent of the rice requirement of the Public Food Distribution system. However as mentioned above, state procurement has been scaled down in Bangladesh in recent times and the procurement has fallen below 5 percent of the marketed surplus. In Pakistan too, procurement operations are decentralized but coordinated centrally by Pakistan Agricultural Storage and Services Corporation. Procurement targets are set by the provinces keeping in mind the amount to be disbursed and the amount of stock to be built up.

In some cases, researchers believe that the rationing policy is a stronger determinant of procurement volumes than the support price itself, and the procurement system would fail to exist without the ration system. In Sri Lanka, it has been empirically shown that the price of GPS had been playing only a secondary role in determining GPS procurement and the major determinant is the ration scheme that affectively changed the demand for rice, and thus the open market price of rice (Samaratunga, 1984). Also, Basu (2010) reports that the shrinking of PDS distribution during the recent past has led to accumulation of excess public stocks of food grain in India.

2) On the question of how effectively the stocks have been managed, it is important to examine the reasons behind the gradual reduction of the importance of public food grain stocks in South Asian countries. Increased recognition of the importance of private sectors in food grain marketing following broader liberalization and the concurrent deregulation of domestic trade are two strong factors behind this change (Ahamed and Chowdhury, 2000, World Bank, 2010). However, the role of inefficient management of entire procurement –distribution programmes (Kumar and Gulati, 2007, World Bank, 2010) in this process of shrinking of public grain stocks cannot be discounted. Such over all "inefficient management" is obviously reflected in stock management as well.

All South Asian countries periodically revised the state procurement prices upwards partly as a means of acquiring adequate stocks. This increased the burden on the government budgets of operating these programs leading to managerial inefficiencies. The other important factor that led to inefficient stock management is the mismatch between the acquisition and disposal of stocks. In South Asian countries the main outlets for public stocks are public distribution programmes. In India for instance, procurement programme with high set prices to support the farmers end up purchasing quantities that exceed the requirements of the PDS. As a result, in recent years the Food Corporation of India (FCI) has come under a lot of flak for excess procurement which has led to an over-accumulation of buffer stocks. In its early days, the FCI was only responsible for procuring food grains and disbursing them through the Public Distribution System. However, now, the FCI has become a means to maintain the MSP by procuring whatever is offered. The practice of selling some grain above the MSP (to the Above Poverty Line population) and a certain fraction below the market price to the Below Poverty Line (BPL) population ends up with the net effect of increased price of food grains in the open market. This further reduces the demand for PDS rice. Given that most of these buyers are the poor who are either not classified as BPL or do not have access to outlets run by the public food distribution (PDS) this is a serious lacuna in the system. This coupled with high inflation rates and poor disbursement mechanisms have meant that the country now is faced with the dichotomy of having massive food stocks on the one hand and people dying of starvation deaths on the other (Basu, 2010).

In Pakistan too, the efficiency of the government's wheat policies is recorded to be low with most of the benefits of the wheat procurement and distribution scheme accruing to wheat flour millers and some traders. The current scheme has also created significant excess capacity in the wheat milling industry while crowding out private sector participation in wheat marketing (World Bank, 2010).

An opposite experience was observed in Sri Lanka with the drastic reduction of the personal quota offered under the universal rice ration scheme. This resulted in a large increase in the demand and consequently the price of open market rice. The farmers responded to this change by turning to the open market buyers and the government had to resort to strict stock movement restrictions to secure the desired level of procurement (Samaratunga, 1984).

These examples make it clear that setting procurement prices alone would not be adequate for the acquiring desired levels of stocks let alone efficiently disposing of it. Apart from the general administrative efficiency successful maintenance of public food stocks heavily depend on matching procurement with possible channels of its disposal which, in South Asian countries happens to be public food distribution. The situation can be made more manageable in case the governments can secure export markets for their products.

3) One principal objective of buffer stock maintenance is stabilizing domestic prices of the products concerned. This includes insulating domestic prices form the impacts of violent fluctuations in world prices and undesirable domestic supply shifts. The forgoing discussion revealed that the public procurement systems in South Asian countries have been generally setting their prices at 'support' or 'floor' price levels. This prevents producer prices from falling below a certain "desired" level. Although the legitimacy of the "desired minimum prices" may be questioned they certainly save the farmers from serious price slumps at the times of production gluts. The main obstacle in achieving this objective is the inadequacy of accessible purchasing point and lack of general administrative efficiency of the programmes. As shown in preceding sections, South Asian countries could not be completely cleared of these shortcomings. Nevertheless in the case of India, World Bank (2010) states that "the government's price support system plays an important role in keeping domestic prices relatively stable". These mixed opinions should be evaluated for their legitimacy in further research.

In relation to international prices South Asian countries have apparently followed a two pronged policy. For example in India the MSP system is to a limited degree guided by international prices but it certainly does not mimic them. This way only a relatively small part of the international price changes is transmitted to farmers. Although the prices set on cost-plus basis are attractive to the farmers they remain below international prices in most years (World Bank, 2010). As such, the "support" price offered to farmers is an implicit tax on the farmers in favour of consumers (in an open economy setting) while the price stability is the reward to the farmers for bearing it.

Moreover, for socio political reasons the issue prices of wheat and rice that are used in the food based safety net systems in India have been kept constant since 2002 (World Bank, 2010). Nevertheless, it is important to note that price stability here is ensured by price control rather than stock management.

6 CASE STUDIES

The following case studies have been so chosen to highlight the debate this paper has attempted to bring out. On the one hand there is the case studies of Bangladesh experience with privatization of food grain markets which highlights the benefits of government withdrawal from the agricultural sector while on the other hand there is the case of Chhattisgarh, an Indian state where well implemented government intervention has reformed the food procurement and distribution network and made it one of the best performing states in the country. A third case is an example of the middle path that can be adopted. E-choupal is an initiative by an Indian agribusiness conglomerate which has attempted to circumvent the constraints created by weak infrastructural links and has empowered farmers by linking rural farmers directly to the company through the use of internet and other wireless technology which enables them to be the best judges of the most appropriate price for their produce.

1) Bangladesh[6] - A case of deregulation facilitated by productivity growth

Food policy has also evolved. Successive Bangladesh governments have brought about major structural reforms. First, as a consequence of rising production levels and marketable surplus, international trade in food grain has been opened to private traders. Rice and wheat imports were liberalized in the 1990s. The policy of the government to expedite clearance of private sector food grain imports has given clear signals to the private sector about the seriousness of the government to introduce reforms. This has resulted in massive spatial integration of wholesale wheat and rice markets. Second, due to a decrease in food grain prices, the government has been able to cut back on wasteful ration channels without penalizing the poor. Not only has the system become more targeted, it is also now linked to poverty schemes such as Food for Work.

Bangladesh has been perhaps the only South Asian economy to have completely dismantled its food procurement and distribution system and still have achieved remarkable success in reducing poverty rates and increasing agricultural productivity. Bangladesh's PFDS accounted for almost 17 percent of total government expenditure in 1990. However, rapid increases in food grain production thereafter have meant that since 1994, the government has proactively attempted to reform food policy. Food grain distribution has been privatized, restrictions on international trade have been lifted and government presence in food grain markets has come down sharply. These developments have been the result of substantial investment in agricultural research coupled with institutional developments in irrigation and fertilizer markets. The Green Revolution of the 1970s helped develop the technology that had the potential to raise yields. The 1980s then saw input market reform. This included among other things, privatization of fertilizer distribution and import. Reforms in input markets have enabled farmers to expand the cultivation to the dry-season rice crop (Boro). The Boro crop now accounts for 40 percent on total rice production. Aggregate food grain production in Bangladesh has increased at a high rate which now exceeds population growth. Food grain marketing has also evolved with increasing marketing volumes, decreasing food grain prices and growth in privately held food grain stocks.

[6] Based on literature from Out of the Shadow of the Famine: Evolving Food Markets and Food Policy in Bangladesh, IFPRI Research Report, 2000 and Rashid et al. 2005.

Third, due to the substantial rise on private food grain stocks, the government has been able to reduce its own stocks and thus reduce costs of holding them. Procurement has become more streamlined. While procurement price is below the market price, procurement has also been quite large. It has been observed that producers from remote areas will find the procurement price more attractive and those near towns and cities will find the market price attractive. Thus, in this situation procurement will be limited to outlying production centres. Thus, 78 percent of the procurement of rice in Bangladesh is limited to 4 outlying districts of Denajpur, Sylhet, Rajshahi, and Rangpur.

As a result of the above, the cost of government subsidies has come down from taka 3,916 million ($120 million) in 1989 to taka 1,680 million ($42 million) in 1994. There are more resources available for investment in new social welfare programs targeted for the poor.

Reduced intervention by the Bangladeshi government has thus led to efficiency gains and market development. As a result of this Bangladesh has been able to free up more resources to be allocated to other development and social welfare schemes. Moreover, competition in domestic markets has increased and this has benefited consumers. There is increased price and production stability and there is now more of a focus on enhancing social welfare. For instance, in Bangladesh, it is heartening to note that the share of social welfare programs has increased from 32 percent in the pre-reform period (1972-1992) to almost 85 percent in the post-reform period (1993-2003). Furthermore, as a result of increased private sector participation in international trade government costs have reduced by $190 million per year.

2) The PDS Turnaround in Chhattisgarh, India - A case of people empowerment and improved governance.

As outlined in Section 3, the Public Distribution Scheme (PDS) in India has been a policy instrument of the government since the 1960s. However, over time, the PDS had come to be criticized for widespread corruption and leakages. The case of Chhattisgarh had been no different. As much as 50 percent of the rice meant for the poor never reached the intended beneficiary. One of the prime reasons for this was that PDS shops were owned by private businessmen who lived far away from the shop and thus had very little incentive to keep the shop open at all times. Since these businessmen were not accountable to the villagers, no control could be exercised over them. However, starting in 2003, things began to change. The newly elected government decided to tackle the issue. There were five reforms made.

- One, the PDS shops were now headed by local community owned bodies like forest co-operatives, gram panchayats and women self-help groups.
- Two, the commission to the PDS shop owners was raised by almost 4 times. It was a well known fact that the motivation to cheat was due to distorted incentives being faced by fair price shop owners. PDS shop owners preferred to (as compared to selling the grain at the subsidized rate) re-send their food grains to the millers who would sell it back to the government at the market rate.

  It was well known since the motivation to cheat lay in the fact that incentives were distorted because since there are usually losses the PDS owner prefers to re-send food grains to the millers.

- Third, it was quickly realized that making a change at the last mile of delivery i.e. the PDS shops, is not enough and hence there were changes made in the entire chain starting from procurement. The recycling of paddy by the rice millers was stopped. Rice was no longer sold by fair price shops back to the government. Numerous raids were made and large quantities of paddy and rice were confiscated.

- Four, there was also the concern of bogus BPL cards which led to diversion of foodgrains to ineligible users. This was remedied by issuing fresh cards and also by including more families under the net.

- The last and most important reform was done at the source level – at the time of procurement of the grain. The first reform in this regard was that transportation was de-privatized. The Civil Supplies Corporation was now made in charge of transporting grains with the assumption that there would be increased accountability now. Strict guidelines were also issued as to the date and time of delivery. To facilitate this, a web-based application was started where one could perform real-time tracing of the amount procured, disbursed and transported. Receiving of ration was now done under the presence of government and vigilance officials and locally elected representatives. This helped raise awareness among people about their entitlements and also reduced the chances of siphoning of grain.

Chhattisgarh is today considered a model for all of India. It showcases the power that government intervention has in ensuring objectives are achieved. This happened because the government was successful in removing the distortions in incentives which were being created for the private sector. Two caveats are however in order which have prevented this model from being adopted by other states. One, Chhattisgarh is a budget surplus state which allowed it to invest in transforming the programme. It also produces enough foodgrains to feed its people. Second, Chhattisgarh was lucky to have elected a politically astute government after 2003. There was a conscious attempt made not to disturb the existing beneficiaries. Moreover, while bogus ration cards were cancelled, the system became universal and the umbrella was expanded rather than excluding those who might be just as poor.

3) E-Choupal Initiative in India - A case of reducing transaction cost through the application of IT

The E-Choupal is the brainchild of the Indian Tobacco Company (ITC), an Indian agribusiness conglomerate. Farmers in many parts of rural India are still faced with the market failures which merit government intervention – weak infrastructural links, poor transportation options, numerous intermediaries, disintegrated markets and so on. The farmers in this regard were thus at the mercy of private traders (unless there was an FCI procurement centre close by, which invariably wasn't the case). This meant that there was a case for government intervention (or in this case, a reform of the exiting interventions in place!). It was in such a scenario that ITC came up with the e-choupal initiative. This initiative offers a middle path for a variety of reasons.

- There is a direct linkage between the farmer and the end buyer. This not only eliminates all the inte mediaries in the system but also allows the farmer to get the full remuneration for his produce. Trad tionally, the Mandies (large agricultural marketing centres) were the buying points for the end buyer. There were usually a long line of intermediaries involved in getting the produce from the farmer to the Mandies, each charging a commission on the way. As a result of the introduction of the e-choupal, farmers can now negotiate directly with the end buyer (ITC in this case).
- The major takeaway for the farmer from the e-choupal is that he is now empowered with inform tion. This has reduced his dependence on intermediaries. The information on prices that he now has makes him improve the quality of his produces and then earn even better prices. There is thus an automatic incentive building mechanism in this initiative. A literate farmer is elected from the village itself to act as the interface between illiterate farmers and the computer. Moreover, the intermedia ies originally in the value chain are not removed but their roles are now redefined to coordinators. These coordinators assist ITC in numerous ways such as helping set up new e-choupals and conduc ing village surveys.
- The second major takeaway is that farmers are now able to align their agricultural output with market demand. Since in the internet kiosks the prices in different mandies are listed transparently, the farmer can now choose to sell his produce where he knows he'll get a higher price. The bargai ing power of the farmer thus increases. Other data on farming practices, soil quality and weather information also help the farmer in numerous ways.
- The e-choupal initiative is recognized today as one of the widest Internet based initiatives in India. It covers 1300 choupals (village gathering places) and links almost 700 villages. The number of farmers impacted by the initiative is close to a million. The programme is most widespread in the state of Madhya Pradesh in central India. Other states such as Uttar Pradesh, Andhra Pradesh and Karnataka account for the rest of the states in which e-chouplas have been set up. The value of agricultural commodities procured from theses e-choupals is to the tune of $140 million.

Even though the prices offered by ITC do not exceed those offered at the mandi, there is still a profit to be made for the farmer. The e-choupal initiative enables cost savings because the dealings are efficient, timely and transparent. Moreover, since they are done closer to home, transport costs also reduce drastically. This also implies that there is less scope for wastage and costs incurred thereafter. Farmer savings have been estimated to be around $10 per ton of soybeans (World Bank, 2010).

The above case study thus gives us food for thought in that it eliminates the huge leakages that have come to be associated with government pricing and procurement in India and provides farmers with a viable alternative to either travelling huge distance to government procurement centres or to making distress sales. The underlying conditions for intervention still exist but this example demonstrates that there can be a co-existence of the two. With government usually focussing on procuring in surplus states, these alternatives in other areas can help mitigate the situation, at least in the short run, till necessary investments in infrastructure are made.

6 SUMMARY AND A WAY FORWARD

This study has focused in its review of existing literature and interviews with relevant stakeholders on four main aspects in relation to the price and procurement policies in five main South Asian countries– (a) historical experiences relating to the said policy of the respective countries (b) whether there has been a reversal of the initial economic conditions which justified government intervention (c) critical evaluation of the extent to which government intervention in the agricultural sector has achieved stated objectives, and finally (d) documenting case studies which highlight the debate whether government intervention in agriculture should be continued or not.

A number of conclusions have emerged. The initial conditions of market failure in agriculture sectors in South Asian countries have apparently been abated by the infrastructural and technological and in some cases institutional developments took place in last two to three decades. Nevertheless, total lift of public intervention in agriculture could not be justified as the initial conditions have not been reduced to a sufficient degree, although this "degree" could not be quantified. Further, the impact of newer forms of (global) market failure such as climate change and increased price volatility in international markets are not adequately understood yet. Therefore, the debate about the necessity of government intervention is still an open one, contrary to what some literature claims.

Even though this study was meant to examine on the Price and Procurement policies (PPP) it was found that it has been closely intertwined with Public Food Distribution policies (PFDP) in all countries. It was also found, in some cases, the procurement levels of the PPP depended more on the changes in PFDP than the procurement price itself. As such, the literature available is on combined PPP – PFDP rather than either of them alone, making it difficult to separate out the impact of PPP. In many cases the impact of border policies are also implicated with those of the domestic policies, making the assessment of individual policies even cumbersome.

As a whole, the domestic policies have been scaled down over the years in all the countries studied and the interest of the policy makers and researchers has moved towards trade (liberalization) policy. Both domestic and border measures together had discriminated against agriculture in the past and this situation has changed in favour of agriculture over time and particularly after 2000. But it is important to note that the PPP-PFDP package has maintained a positive or at least non-negative support, to the farmers. The latest figures indicated agriculture being supported at present but the contribution of the domestic policy to the overall support is minimal. The aggregate subsidies provided by the domestic policy packages of the respective countries are substantial albeit with negligible per capita subsidy levels except in India and Sri Lanka. As such, subsidizing the farmers, the most pronounced objective of the PPP-PFDP policy package has been met but not to an appreciable degree at present.

Stabilization of prices, the next most important objective of policy intervention has been met but only moderately successfully. PP and PFD policies announced prices at farm and consumer levels to protect the farmers and consumers respectively, from violent fluctuations. However evidence indicate that the administered prices at the consumers' end and quantity restrictions that come with them impact on prices at both ends and the separation of the impact of PPP alone is again difficult.

Even though output growth in the past three decades has been impressive and it has been often attributed to the price and procurement policy, there is a lack of hard evidence to prove the link. Technological improvements took place in the last two to three decades are definitely behind this positive trend but the role of price risk reduction is not clear. However, the domestic prices held artificially high by the PPP could safely be assumed to have made the adoption of expensive modern inputs possible.

The impact of PPP has been negative on crop diversification that could help South Asian agriculture in several ways including export expansion under liberalization. Nevertheless this might not have been a priority in early days when import substitution and self sufficiency were the policy objectives.

The second component of the "Food Policies", the PFDPs, has established its position as a measure against rampant food insecurity in South Asian countries. Also, it continues to be there despite heavy fiscal costs since food security is a sensitive issue with a lot of political appeal. With the exception of Sri Lanka's past rice rationing scheme, PFD schemes in South Asia have not been securing enough food to the recipients to feel food secure. On the other hand, poor targeting and leakages appear to be the major drawbacks of the schemes while general inefficiency and limited resource availability also thwart their smooth execution. Poor and unplanned buffer stock operations compound the gravity of the situation too. In spite of these problems the PFDPs are likely to continue at least in some countries due to the political priority they receive.

The costs of government intervention in agriculture were found high and increasing and there needs to be serious cost-benefit analyses of such interventions. However, as mentioned before, this aspect of research remains wanting particularly for individual domestic agricultural policies. Filling this knowledge gap would be a prerequisite for any future attempt at modifying existing policies or designing new ones.

It is clear that for governments to respond to the rapidly changing global and local economic conditions, policies too will have to change. The policies of the 1970s demonstrated to us the power that government intervention has in helping agricultural markets grow at impressive rates, although some differences of opinion may still exist. Nevertheless there is now a renewed clamour for a second round of reforms, particularly in the wake of trade liberalization. Whether this implies continued government intervention with changes, complete government withdrawal or a partnership between the public and the private sector is for individual countries to decide as farmers' welfare, agricultural price stability and general food security and continue to be the most important objectives of agricultural policy.

Finally it is clear from the preceding discussion that neither the initial conditions for government intervention have been completely altered nor the interventions have achieved their major objectives to the fullest extent due to a plethora of reasons. As such, while there is a case for government intervention owing to the former reason above, there is a strong need for reforms in the old system due to the latter. Thus, there is a case for forging a middle path that combines the might of the public sector and the efficiency and the dynamism of the private sector. The case studies highlight that there is room for innovative solutions to the challenges of the agricultural sector. Recent literature offers a number of solutions to remedy the existing yet ailing food procurement and distribution network in South Asia and make it more responsive to the needs of the farmers and consumers alike and to reduce the burden on government by refining the policies to ensure targets are achieved. This entails – (i) Setting and announcing of procurement prices should be done objectively to ensure remunerative prices and minimum risk to the farmers in diverse geographical locations. (ii)Food grain policy in South Asia should make sure that a buffer stock is maintained with the objective of using it to keep prices low during a shortage and secondly, should ensure universal access for food. The key point of the solution is that maintaining a minimum buffer stock at all times is unnecessary (iii) The policy goal needs to be to acquire food grains when there is a surplus and release it when there is a shortage in supply. (iv)The manner in which the procured grains are disbursed is important. In times of shortage release the stocks of grains in small quantities, instead of large quantities in order to reduce prices. (v)Issue food ration coupons that can be used as money to buy food from any store, directly to targeted households, thereby eliminating the "intermediary" ration shop owners.

The case studies presented bear evidence to the fact that the reforms of this nature are possible but needs context specific strategies to supplement the broad policy provisions.

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Supported by the Bill & Melinda Gates Foundation