2 India: The Burden of Domestic Food Policy

2

INDIA: THE BURDEN OF DOMESTIC FOOD POLICY

KENSUKE KUBO

Introduction

India is the second largest producer of rice in the world after China. Of the approximately 623 million tons of rough rice, or paddy, produced globally in 2005, 22 percent was cultivated in India.[1] In recent years, India has also become a major presence in the international rice market. During the 1980s, Indian exports of milled rice were less than one million tons per year. Since 1994-1995, however, annual rice exports from India have run in the millions of tons, occasionally surpassing five million tons, making India one of the world's largest exporters alongside Thailand and Vietnam. Yet, compared with other rice exporters, India has been an unstable supplier: the coefficient of variation of India's net exports of rice during 2000-2007 was 0.37.[2] This is much higher than the corresponding figures for Thailand (0.16), Vietnam (0.13), and the USA (0.17).

During the surge in global rice prices in 2007-2008, the unreliability of India's exports came into full view. On October 9, 2007, the Indian government introduced a series of restrictions on rice exports, culminating in an outright ban on the export of rice other than *basmati* varieties in April 2008. As of August 2010, these restrictions remain in force.

Several authors have pointed out India's role in precipitating the international price surge. For example, Mitchell (2008) shows how the export price of Thai rice began to rise rapidly soon after India introduced export restrictions. He observes that "there were no other important market developments at that time [besides the export restrictions by India and other countries] that could account for the subsequent rice price increases" (p.13). A report by the United States Department of Agriculture also concludes that export restrictions by India and Vietnam were among the immediate causes of the price rise (Childs and Kiawu 2009). Wright (2009) calls the imposition of export restrictions by the Indian government a "key decision in generating the crisis in prices" (p.9).

Despite the consensus that India's export restrictions played a crucial role during the crisis, detailed economic analyses on the reasons behind those restrictions remain scant. According to Childs and Kiawu (2009), the aim of the Indian government was to suppress domestic food prices and win political points ahead of major elections. While there is no doubt that price

[1] Calculations based on United States Department of Agriculture (USDA), Foreign Agricultural Service, *Production, Supply and Distribution Online* (http://www.fas.usda.gov/psdonline/).

[2] The coefficient of variation is a standardized statistic that represents the degree of variability of a quantity, taking on a value between zero and one. A higher value for the coefficient of variation implies higher variability.

Shinichi Shigetomi, Kensuke Kubo, and Kazunari Tsukada, *The World Food Crisis and the Strategies of Asian Rice Exporters*, Spot Survey 32, Chiba, IDE-JETRO, 2011.

stabilization was a major goal, it was evidently not the only one. If the Indian government was only interested in price stabilization, it would have intervened in the rice market by releasing part of its stocks. In fact, its market operations went in the exact opposite direction: during 2007-2008, a record-breaking 28.5 million tons of rice were procured by the Indian government (Department of Food and Public Distribution 2010). Thus, it appears that concerns other than price stabilization also influenced policy-makers' decisions. Clarifying the nature of those concerns is an important step towards improving our understanding of the 2007-2008 crisis.

This chapter presents a detailed analysis of the reasons behind India's rice-export restrictions. The export restrictions were partly driven by the Indian government's desire to meet procurement goals for rice. Those goals, in turn, were defined by physical requirements for the public distribution system (PDS), a vast government scheme that provides food and other supplies to low-income households at subsidized prices. Although the PDS is often criticized for its inefficiency, there is some indication that expanding supply through the system contributes to increased food consumption by the lowest income households. Thus, uninterrupted grain procurement through the PDS is a major component of the poverty reduction effort in India.

Unfortunately, the government's need to procure a large amount of grain each year imposes a significant cost, beyond the so-called "food subsidy" arising from the negative margin between public distribution prices and procurement costs. By fixing a rigid procurement target for itself, the Indian government loses the ability to stabilize prices by participating in the market as a net seller of grain. Rather than release stocks, the government is compelled to purchase large quantities of grain during the harvesting season even when prices are extraordinarily high. By becoming a desperate buyer, the government is liable to play a price-destabilizing role.

In hindsight, the government's procurement operations during and after the harvesting season in 2007-2008 appear to have fueled the rise in rice prices. The government had to either raise its procurement price or restrict exports as it tried to meet procurement goals amid high demand abroad and tight market conditions domestically. It tried both measures, but initial attempts were too weak to stem the flow of rice exports, and procurement targets remained unmet. Market participants expected stronger measures—higher procurement prices and stricter restrictions on exports—to be taken by the Indian government. This led farmers and traders to withhold supply, which inevitably led to a further rise in the market price. Eventually, the government had to impose an outright ban on the export of non-*basmati* rice.

Given that the government's procurement and distribution activities create such a large burden during episodes of rising prices, it is worthwhile considering how the country's rice policy could be adjusted. One possibility is to widen the geographical coverage of procurement activities. This may soften competition between the government's procurement demand and the private sector's demand for exported rice, which appears to have been a driving force behind the price rise in 2007-2008. Faced with less competition from exporters, the government can more easily achieve its procurement targets without having to restrict exports.

A more drastic measure would be to reduce the government's physical involvement in the rice market. Rather than procuring and distributing massive amounts of grain each year, the government could focus its market operations on price stabilization. The food stamps

initiative, proposed by Ramaswami (2002), is one method for subsidizing the food consumption of low-income households whereby the government need not handle grain. While implementing such a policy might entail large adjustment costs, the 2007-2008 crisis strengthens the case for a serious reconsideration of food policy along these lines.

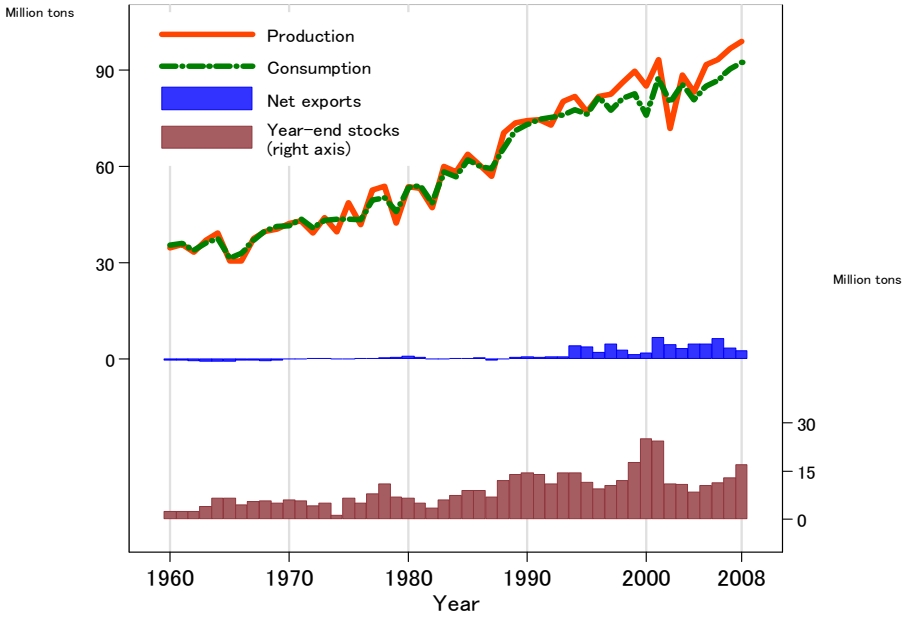
This chapter builds on a basic understanding of the Indian rice economy and the attendant government policies to develop the above arguments, and is organized as follows. Section 1 briefly describes rice production and consumption in India. This is followed by a description of Indian rice policy, focusing on the procurement system and the PDS, in Section 2. Section 3 presents an analysis of Indian rice exports prior to the restrictions in 2007. Section 4 describes the 2007-2008 export restrictions, as well as its aftermath, in some detail. Section 5 evaluates the Indian government's policies and actions in the context of the price surge. This is followed by a concluding section.

1. Production and Consumption of Rice

A major milestone for the Indian rice economy was the attainment of self-sufficiency in the mid-1970s. As Figure 2-1 shows, production has remained volatile thereafter, but India has been able to amass sufficient stocks. Since the mid-1990s, several million tons of rice have been exported each year.

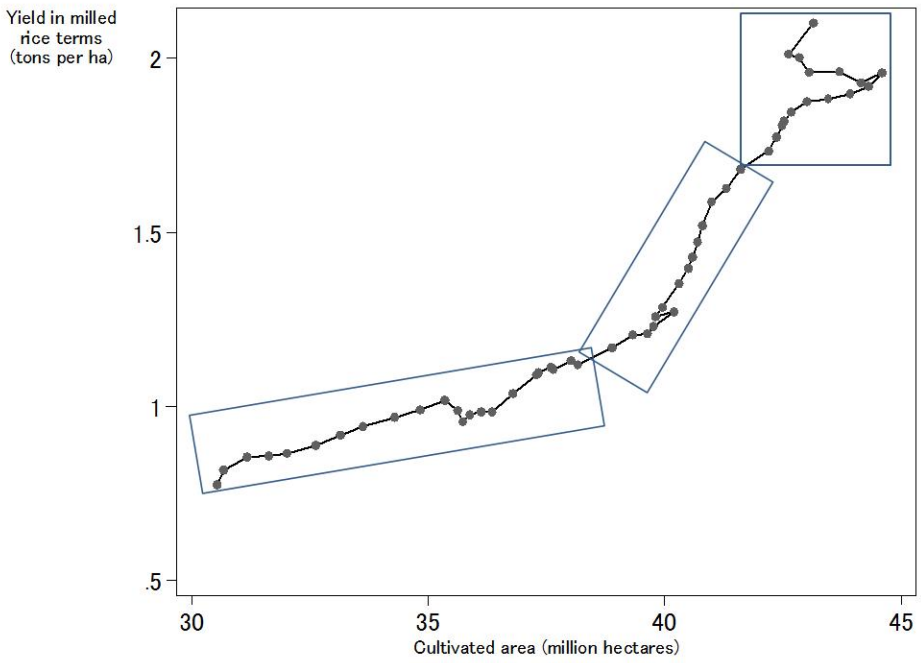
Factors Contributing to Production Growth

An important factor that contributed to rice self-sufficiency was the introduction and widespread adoption of modern agricultural technology including high-yielding varieties (HYVs). Figure 2-2 shows how Indian rice cultivation evolved over time in terms of acreage and yield. In the figure, changes in production are decomposed into changes in acreage and changes in yield. Until the first half of the 1970s, production growth was mostly led by expansion in acreage. In the mid-1970s, however, yield growth became the main source of increased production; this tendency was strengthened in the 1980s. Yield growth has continued into the 1990s and beyond, but rice acreage appears to have hit a ceiling in recent years.



Source: United States Department of Agriculture (USDA), Foreign Agricultural Service, *Production, Supply and Distribution Online* (http://www.fas.usda.gov/psdonline/).

Figure 2-1 Production and Consumption of Milled Rice in India



Source: Department of Agriculture and Cooperation (2008).
Note: Five-year moving averages are used for each variable.

Figure 2-2 Acreage and Yield in India's Rice Production

Rice is produced in almost all parts of the country. As Table 2-1 shows, the eight largest rice-producing states are geographically dispersed; they can be found in the northern, eastern, central, as well as southern regions of India. Of the main rice states, the one with the highest productivity is Punjab in northern India. This state also witnessed a remarkable growth in acreage during the 1970s and 1980s as irrigated area expanded. Meanwhile, in the eastern states of Orissa and Bihar (including Jharkhand) and in the central state of Madhya Pradesh (including Chhattisgarh), average yield has remained low.[3]

There is some geographical variation in the share of modern HYVs. While HYVs make up more than 90 percent of the rice crop in Andhra Pradesh and Tamil Nadu, their shares in West Bengal and Orissa are only around 70 percent. This reflects the fact that in some parts of eastern India, where seasonal floods and crop submergence are common, traditional flood-tolerant varieties continue to be grown (Kshirsagar and Pandey 1997). In northern India also, the share of HYV is slightly lower than in the southern states. This is attributable to the cultivation of *basmati* varieties, which are not classified as HYVs, in Punjab, Uttar Pradesh, and neighboring Haryana. *Basmati* varieties are high-value cultivars characterized by their fragrance, grain shape and size, and cooking properties (Singh 2000). In 1998-1999, 1.25 million tons of *basmati* rice were cultivated on 683 thousand hectares of land, around 70 percent of which was exported.[4]

Changes in Per Capita Consumption

As the population of India continues to grow at an average annual rate of around 1.5 percent, the sustainability of food self-sufficiency in the country has become a serious concern. A key element of India's food requirement is per capita consumption.

Table 2-2 presents estimates for per capita rice consumption based on a large-scale household survey conducted by the National Sample Survey Organization in 2004-2005. Separate estimates are made for each quintile. The table reveals that in rural India, people in the lowest income group (the first quintile) have the lowest per capita consumption of rice. In urban areas as well, the lowest income quintile exhibits lower per capita consumption than all the other quintiles except for the highest one. These findings suggest that for lower income Indians, rice is a normal good whose consumption increases with income. This implies that as the livelihoods of lower income households improve over time, aggregate rice consumption is expected to increase.

[3] Chhattisgarh, Jharkhand, and Uttarakhand are states formed in 2000 by separating from Madhya Pradesh, Bihar, and Uttar Pradesh, respectively. In the undivided Madhya Pradesh, a majority of the rice production took place in what later became Chhattisgarh. In the case of undivided Bihar, the present-day Bihar was the region where most rice production took place. Similarly in the undivided Uttar Pradesh, rice was mostly produced in the present-day Uttar Pradesh.

[4] According to the Department of Agriculture and Cooperation, Directorate of Rice Development, the state-wise distribution of *basmati* production in 1998-1999 was as follows. Haryana: 632 thousand tons; Uttar Pradesh: 354 thousand tons; Punjab: 164 thousand tons; the remaining states combined: 101 thousand tons.

Table 2-1 Overview of the Eight Largest Rice-producing States

State	Annual paddy production (average during 2003-07, in million tons)	Paddy yield (average during 2003-07, in tons per hectare)	Irrigation ratio (2005-06, in percent)	Acreage share of high-yielding varieties (average during 1998-2000, in percent)	Annualized growth rate of acreage (in percent)		Annualized growth rate of yield (in percent)	
					Between 1971-75 and 1987-91	Between 1987-91and 2003-07	Between 1971-75 and 1987-91	Between 1987-91 and 2003-07
Northern region								
Uttar Pradesh (including Uttarakhand)	17.83	2.97	73.0*	81.1	0.99	0.74	4.56	1.04
Punjab	15.27	5.81	99.3	88.0	8.49	2.04	2.36	1.23
Eastern region								
West Bengal	22.04	3.82	49.8	72.1	0.49	0.13	2.83	1.92
Orissa	10.32	2.31	42.6	70.2	-0.36	0.19	2.34	1.37
Bihar (including Jharkhand)	9.73	1.99	37.7	88.1	0.02	-0.42	1.20	1.22
Central region								
Madhya Pradesh (including Chhattisgarh)	9.80	1.81	25.2	85.0	0.63	0.45	1.76	1.39
Southern region								
Andhra Pradesh	16.61	4.62	96.6	96.3	0.94	-0.51	2.59	1.60
Tamil Nadu	7.90	4.17	93.0	90.5	-1.75	-0.29	2.84	-0.51

Source: Production, acreage, and yield of paddy from International Rice Research Institute, *World Rice Statistics*; irrigation ratio from Department of Agriculture and Cooperation (2008); acreage share of high-yielding varieties from Janaiah et al. (2006).

* Excludes Uttarakhand.

Table 2-2 Average Rice Consumption by Income Quintile in 2004-2005

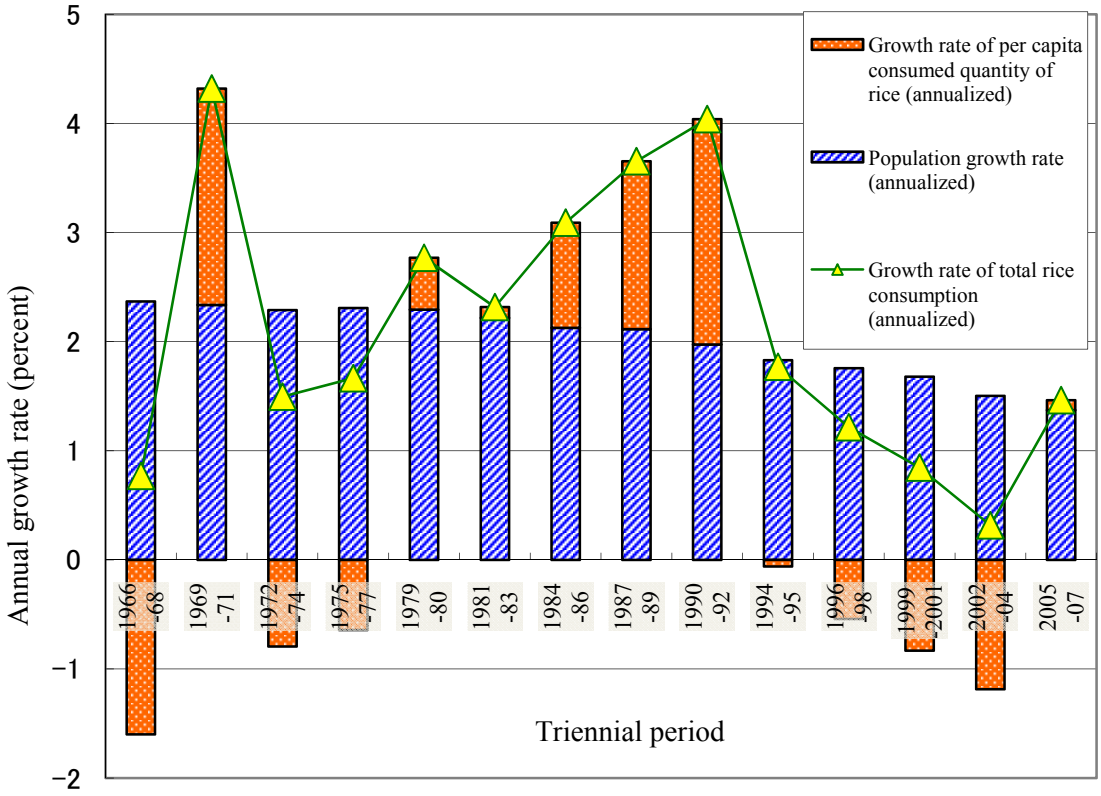
Income quintile	Rural sector		Urban sector	
	Per capita total consumption expenditure (rupees per month)	Per capita rice consumption (kg per month)	Per capita total consumption expenditure (rupees per month)	Per capita rice consumption (kg per month)
1	0〜320	6.21	0〜480	4.80
2	320〜410	6.39	485〜675	5.12
3	410〜510	6.60	675〜930	4.93
4	510〜690	6.86	930〜1380	4.89
5	690〜	6.69	1380〜	4.53

Source: National Sample Survey Organization. *Level and Pattern of Consumer Expenditure, 2004-05*.

Notes: Each income quintile consists of approximately twenty percent of the total population. The exchange rate in 2004-4005 was approximately 45 rupees per US dollar.

It should thus come as somewhat of a surprise that the per capita consumption of rice in India declined during the 1990s and early 2000s, a period of moderate economic growth (Figure 2-3). As a result of this decline, the growth rate of aggregate rice consumption also fell during the same period. This is one of the reasons why India's rice economy has been able to maintain self-sufficiency despite slowing growth in production.

Why did per capita rice consumption decrease during the 1990s and early 2000s? One explanatory factor is the stagnation of income among the rural poor during the economic reform period that began in 1991 (Himanshu 2007). Another explanation is that during the late 1990s and early 2000s, there was stagnation in the public distribution of rice by the government while market prices rose (Chand 2005). According to Figure 2-3, per capita rice consumption increased during the period 2005-2007, and so has the growth rate of aggregate consumption. As discussed in the next section, this reflects to some extent an increase in rice distribution by the government.



Source: Consumption from United States Department of Agriculture (USDA), Foreign Agricultural Service, *Production, Supply and Distribution Online* (http://www.fas.usda.gov/psdonline/); population from World Bank, *World Development Indicators Online.*

Figure 2-3 Decomposition of Rice Consumption Growth

2. India's Food Policy

The Indian government's food policy, which is mainly focused on rice and wheat, consists of two pillars: (i) government procurement of farmers' output, and (ii) public distribution of the procured output.

To some extent, the procurement policy helped to bring about the production gains described above, by reducing the price risks faced by farmers and assuring them positive returns from using modern technology. At the same time, the public distribution program helped to ease the strains of poverty by keeping low the food prices faced by low income consumers. Thus, Indian food policy has generated benefits for both producers and consumers.

On the other hand, several problems in the policy apparatus have been pointed out, such as the excessive geographical concentration of procurement activities, the setting of unreasonable procurement prices, and inefficiency in the distribution of grains (Chand 2005; Ramaswami 2002).

Government Procurement and the Minimum Support Price

There are two channels by which rice is procured by the government. The first channel is direct purchasing of paddy from farmers. This involves farmers – or traders who purchase grain from producers at the farm gate – carrying paddy to organized wholesale markets (called *mandis*) or to procurement centers. In principle, the Food Corporation of India (FCI) and the procurement arms of state governments are prepared to buy the entire amount at the minimum support price (MSP), as long as the grain satisfies a minimum standard called "fair average quality (FAQ)".

The MSP is set by the government each year based on recommendations by the Commission on Agricultural Costs and Prices (CACP). It is set largely on a cost-plus basis, using cost-of-cultivation estimates obtained through farm surveys. The rationale for fixing the MSP is to provide farmers sufficient production incentives, and to reduce the price risks faced by them. The MSP is also a key policy lever that controls the amount of grain that the government procures. In principle, the MSP for paddy is supposed to be announced before planting in the rainy (*kharif*) season begins. In reality, however, the MSP announcement rarely takes place before the planting period, which begins as early as May in some states.

In the northern states of Punjab and Haryana, paddy is procured at *mandis* by FCI agents who attend the competitive auctions held there. If a consignment of paddy fails to be purchased by a private-sector buyer at a price above the MSP, and if it satisfies the FAQ standard, the FCI agent steps in to buy it (Meenakshi and Banerji 2005). In regions where organized wholesale markets are underdeveloped, the FCI and the state procurement agencies buy paddy at their own procurement centers.

Whenever a farmer expects his grain to receive a market price above the MSP – due to favorable market conditions or superior grain quality – he can sell it to a private buyer rather than to the procurement agency. Thus, direct procurement of paddy does not intervene in the voluntary behavior of farmers and traders. Nevertheless, the MSP and the wholesale market price are strongly interdependent. On the one hand, private-sector buyers must offer wholesale prices above the MSP in order to fulfill their needs. On the other hand, the government must take the wholesale market price into account when setting the MSP, or it will end up procuring too much or too little grain. This interdependence will figure prominently in subsequent discussions.

The second procurement channel involves millers selling a fixed percentage of their output to the state government at a statutory price. Called the rice levy, this system is based on mandatory provision of rice by millers.[5] The statutory price, called the levy price, is calculated by adding milling costs and a modest margin to the MSP. The government's hope is that rice millers will behave competitively in the wholesale market and bid the price of paddy up to the MSP. In reality, however, farmers often sell paddy to millers at prices substantially below the MSP (see, for example, Kurmanath 2009). The share of levied rice in total government procurement was around 60 percent during the 1990s, but has remained below 40 percent since 2005-06.[6]

---

[5] The levy percentage varies across states. In the six largest rice procurement states (jointly contributing nearly 90 percent of the total procured amount), millers provide between 50 and 75 percent of their output to the state governments. *Basmati* and other specialty varieties are exempted from the levy.

[6] The share of levied rice was calculated from data available on the FCI's website, assuming a milling ratio of 70 percent.

Geographical Distribution of Procurement

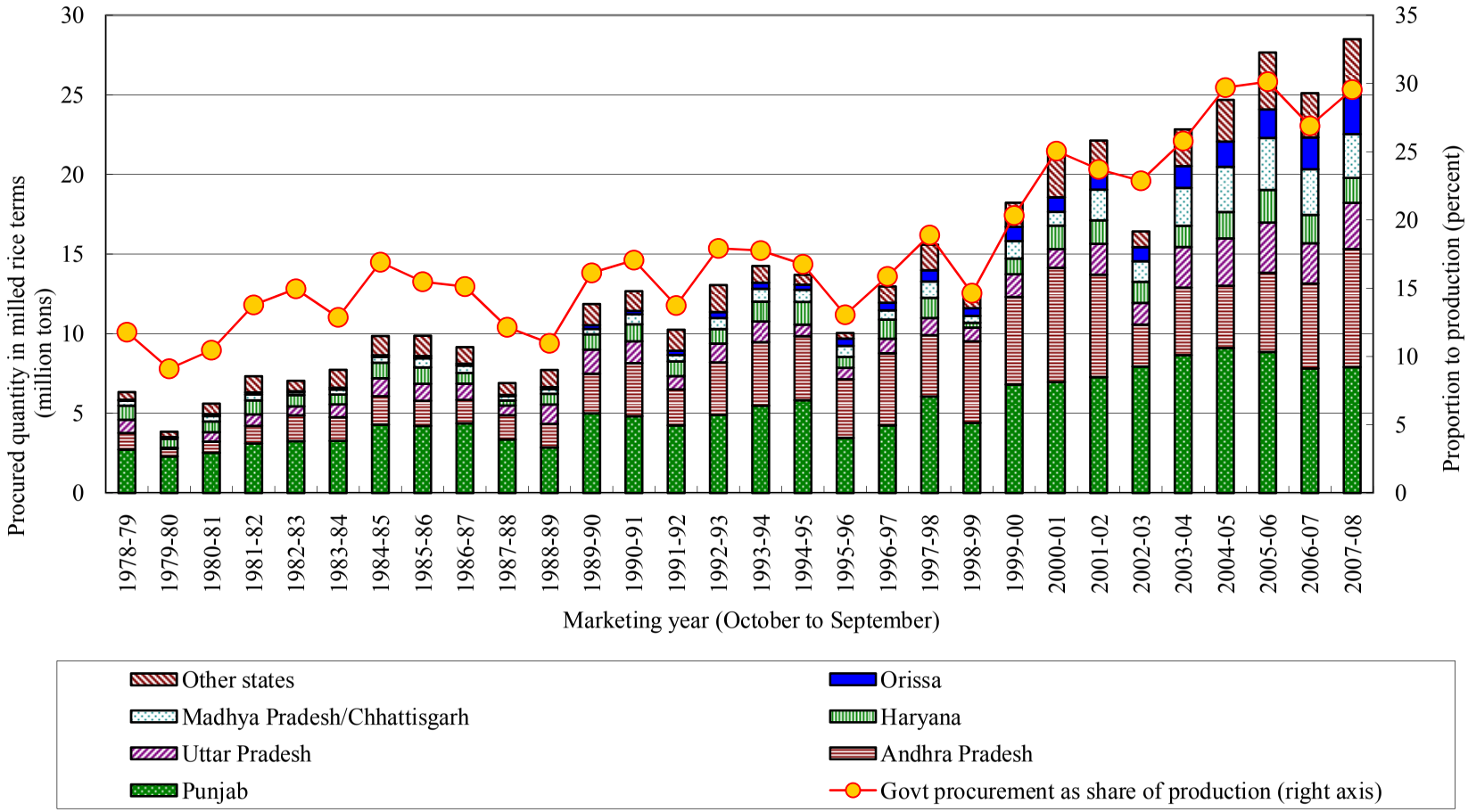
Figure 2-4 presents the volume of rice procurement by the government along with its ratio to total production. Both paddy directly procured from farmers and rice levied from millers are included. From the 1980s to the mid-1990s, government procurement as a proportion of production remained in the 10 to 15 percent range. The share then started to rise in the late 1990s, reaching 30 percent by the 2007-2008 marketing year (October to September).

As the state-wise breakdown shows, the largest amount of rice is contributed by Punjab. In the early 1980s, around 45 percent of the government-procured rice originated there, but by the mid-2000s, Punjab's share had fallen to around 30 percent. The share of neighboring Haryana is also falling in recent years, indicating that the dominance of the northern granary is gradually weakening.

Meanwhile, rice procurement from Andhra Pradesh has grown steadily over the last three decades. In 2007-2008, it came close to overtaking Punjab as the largest contributor of rice to the government. Chhattisgarh and Orissa are also notable for large procurements in recent years. These two states barely saw any rice procurement before the early 1990s, but their contributions have grown under the Decentralized Procurement Scheme that began in the late 1990s. This scheme allows each state to procure its PDS requirements from within its borders. As a result, we are seeing a gradual geographical diversification of rice procurement.

Table 2-3 presents state-level information on the size of the marketable surplus of rice in the late 1990s, as surveyed by the Directorate of Marketing and Inspection.[7] It reveals that Punjab is an exception among the main rice producing states: less than 3 percent of its rice output is consumed in-state, and well over 90 percent of the paddy is considered as marketable surplus. More than 50 percent of the marketable surplus in Punjab is sold by farmers directly to the FCI, while in the other major states excluding Tamil Nadu, the FCI's share is less than 1 percent.

[7] The estimates from the Directorate's Marketable Surplus and Post Harvest Losses Survey (Directorate of Marketing and Inspection 2002) are slightly outdated. However, they are likely to be more reliable than estimates based on the Cost of Cultivation surveys, found in such publications as Department of Agriculture and Cooperation (2008). Unfortunately, the Marketable Surplus survey is conducted irregularly at long intervals, and the last available data is from the late 1990s.



Source: Government of India, Ministry of Agriculture. *Agricultural Statistics at a Glance,* various issues; Ministry of Finance (2009).
Notes: The figures for Madhya Pradesh/Chhattisgarh are for the undivided Madhya Pradesh up to 1999-2000; for 2000-2001 and beyond, the figures are for Chhattisgarh only.

Figure 2-4 Government Procurement of Rice by State

Table 2-3 Marketable Surplus of Rice in the Major Producing States

State	Household consumption of rice as percentage of production in 1999-2000*	Marketable surplus as percentage of production (average during 1996-97 to 1997-98)	Percentage of marketable surplus sold to:			
			Consumers	Traders	FCI	Others
Northern region						
Uttar Pradesh	64.29	49.18	5.25	91.08	0.05	3.62
Punjab	2.65	94.43	0.18	29.85	51.15	18.82
Eastern region						
West Bengal	77.92	67.43	0.59	99.25	0.01	0.15
Orissa	112.85	38.60	13.56	83.28	0.38	2.78
Bihar	120.40	31.36	8.26	89.40	0.03	2.31
Central region						
Madhya Pradesh	91.94	57.37	0.17	96.64	0.76	2.43
Southern region						
Andhra Pradesh	90.84	61.36	1.18	97.75	0.02	1.05
Tamil Nadu	91.80	28.93	1.32	72.73	19.15	6.80

Source: Consumption from National Sample Survey Organization, *Level and Pattern of Consumer Expenditure in India, 1999-2000*; production from International Rice Research Institute, *World Rice Statistics*; marketable surplus from Directorate of Marketing and Inspection (2002).

* Total household consumption in each state was calculated using estimates by the National Sample Survey Organization for 1999-2000; production was calculated as the average during the period 1996-2000.

The two eastern states of Bihar and Orissa have a "rice deficit" in that household consumption of rice in those states exceeds production. The marketable surplus ratio is low in these states: more than 60 percent of the paddy output is consumed by the producing households. Of the output that is traded, a fairly large proportion – 8.3 percent in Bihar and 13.6 percent in Orissa – is sold directly to consumers. Presumably, this consists mainly of intra-village sales. Nevertheless, in both states more than 80 percent of the marketable surplus is sold to traders, which implies that farmers sell approximately 30 percent of their output to traders. Thus, even in the rice-deficit states, the degree of commercialization is substantial.

In Orissa's case, a non-negligible amount is sold directly to the FCI, and a larger amount is procured by the state government. During the period from 1996-1997 to 1998-1999, approximately 18 percent of the marketable surplus rice in the state was procured by the government. This shows that even in a rice-deficit state with a low marketable surplus ratio, the government can conduct significant procurement operations.

By implication, it should be possible to expand procurement operations in hitherto neglected regions like Bihar. In recent years, serious political efforts have been made to increase paddy procurement in Bihar. However, purchases by the FCI and other agencies remain below two hundred thousand tons, or less than 3 percent of the state's output (*The Bihar Times* 2009; *The Hindu* 2009). The main obstacle appears to be the lack of sufficient marketing infrastructure, especially storage facilities (*The Bihar Times* 2010).

Co-movement of Wholesale Prices and the MSP

To see the effect of government procurement on the rice market, we look at the co-movement of the MSP and the wholesale market price for paddy in Figure 2-5. The wholesale price data are taken from two *mandis* in North India: one in Amritsar, Punjab and the other in Bahraich, Uttar Pradesh. The distance from Amritsar to Delhi is approximately 400 kilometers as the crow flies, while Bahraich is roughly 450 kilometers from Delhi.[8] The data represent average wholesale prices during the harvest season for common long grain varieties such as IR8 and PR106, similar to what the government procures in North India.

A notable feature of Figure 2-5 is that the average market price in Amritsar is always higher than the MSP. This reflects the fact that government procurement is well-established in Punjab state. That most of the procurement in Punjab takes the form of direct paddy purchases, rather than rice levies, also explains why the MSP functions as a floor price in Amritsar (Damodaran 2000).

By contrast, paddy and rice procurement is not consistent in eastern Uttar Pradesh, where Bahraich is located (Chand 2005). For this reason, there are many years, such as 2000-2001, 2001-2002, 2002-2003, 2006-2007, and 2007-2008, when the average market price is significantly below the MSP.

[8] Amritsar and Bahraich were chosen because price data going back to the 1970s were available for these two markets. Nevertheless, data for Amritsar after 2002-2003 was not available. Therefore, the figures for "Amritsar" from 2003-2004 onward are from the *mandi* in Ajnala, a town 30 kilometers away (both towns are in Amritsar district). During the 2005 harvest season, daily paddy arrivals in Ajnala and Bahraich averaged around 1,850 tons and 940 tons, respectively. Measured in these terms, both *mandis* are of average size in their respective regions.

Pressures of Export Demand

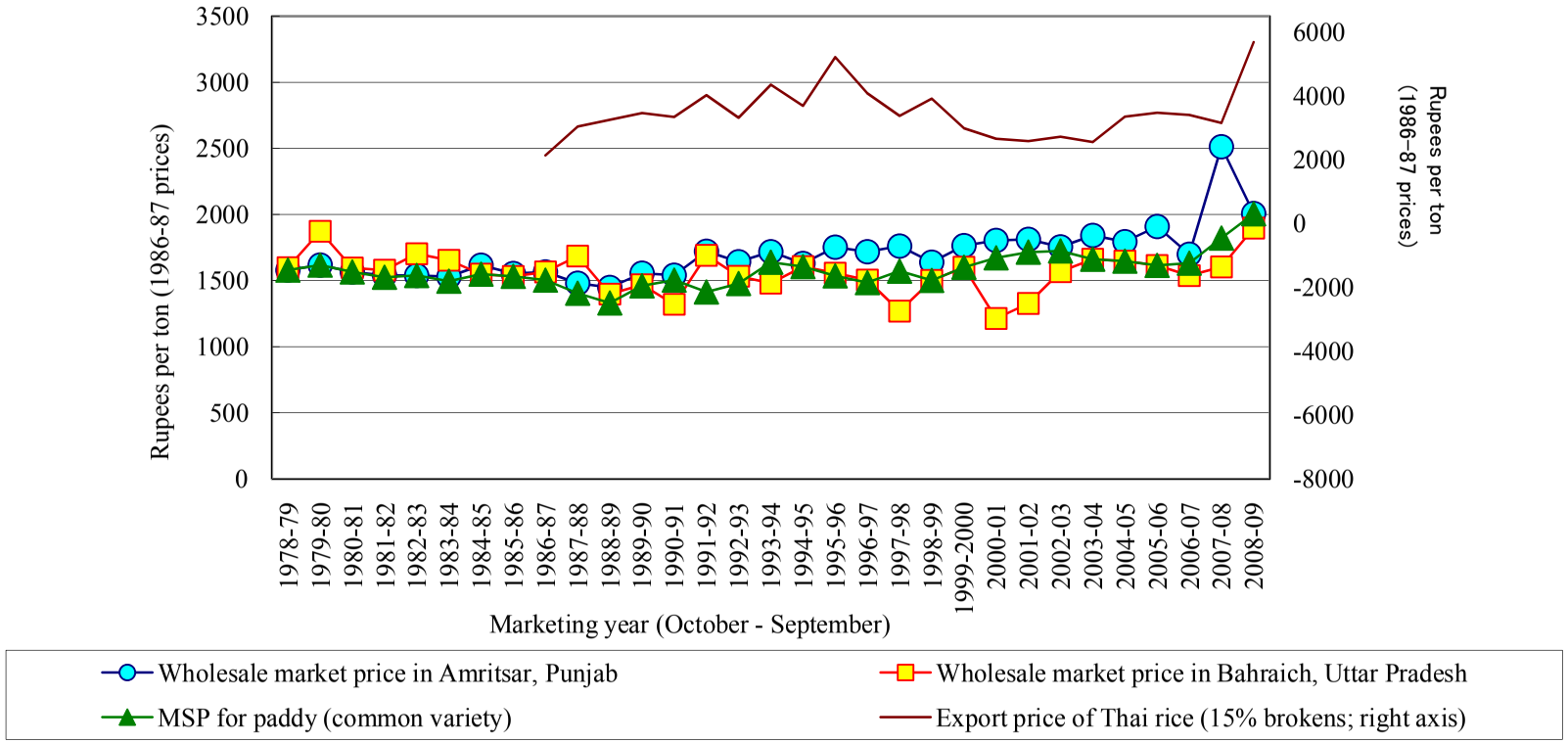
Figure 2-5 also provides insight into the relationship between the domestic and international markets. The uppermost graph is the export price of Thai rice, converted into constant rupee terms, which serves as an indicator of supply and demand conditions in the international market. During periods when the Thai export price stayed high – such as the mid-1990s and the mid-2000s – the market price in Amritsar rose, departing significantly from the MSP. This strongly suggests that the demand for exported rice reached Amritsar and its surrounding areas.

This is not surprising, because Punjab appears to have been a source of non-*basmati* rice export since it was liberalized in the mid-1990s. Punjab and Haryana have traditionally been centers of *basmati* exports, and for this reason, many of the private-sector miller-traders who had any experience in exporting rice prior to liberalization were located in these two states or in Delhi. After the liberalization of non-*basmati* exports, these miller-exporters emerged as the main players in this new business.[9] It is likely that they procured much of the exported rice from the Punjab-Haryana region, thereby contributing to the rise in wholesale prices there.

In some periods, the demand for rice from overseas is so high, and the pressure on domestic wholesale prices so strong, that the MSP has to be revised upward in order for the government to fulfill its procurement target. As described in section 4, this was the case in 2007. Thus, in markets such as Amritsar, both the wholesale price and the MSP are strongly dependent on conditions in the international market.

Meanwhile, Figure 2-5 shows that average market prices in Bahraich have remained at or below the MSP even during periods of high international prices. Unlike Punjab, Haryana, and western Uttar Pradesh, Bahraich and its surroundings in eastern Uttar Pradesh are less developed in terms of marketing infrastructure. The processing and trading industries are also less developed there (Singh and Ram 1993). For these reasons, it is likely that conditions in the international market have had a weaker influence on market prices in Bahraich.

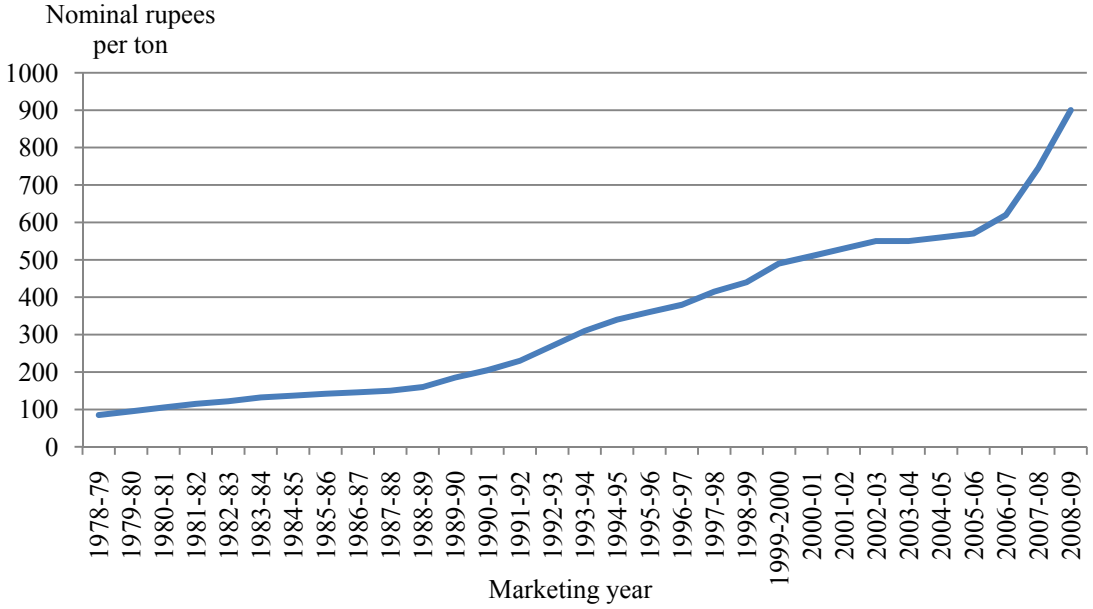
[9] The Ministry of Agriculture's Directorate of Rice Development maintains a list of the main exporters of non-*basmati* rice as of February 2003. Of the 51 miller-exporters listed, 38 also appear on the list of main *basmati* exporters (see http://dacnet.nic.in/rice/Rice%20Export.htm).



Source : The wholesale market prices are from (1) Government of India, Ministry of Agriculture, *Bulletin on Food Statistics*, various issues; (2) Government of India, Ministry of Agriculture, *Agricultural Prices in India*, various issues.; and (3) Agricultural Marketing Information Network, *Market-wise,Variety-wise Prices: Weekly Analysis*. The minimum support price is from Government of India, Ministry of Finance, *Economic Survey*, various issues. The Thai export price is from United States Department of Agriculture, Foreign Agricultural Service, *Rice Outlook Monthly Tables.* The consumer price index used for deflating comes from Reserve Bank of India, *Database on Indian Economy*.

Notes: The figures for Amritsar from 2003-04 to 2008-09 are from the nearby market of Ajnala. The wholesale price for Amritsar is from the end of October in each year (except for 1988-89 when the November price was used, and the years 1978-79, 1979-80, and 1980-09 when the December price was used). The Bahraich price is from the end of November in each year (expect for 2005-06 when the December price was used). All prices are deflated to 1986-87 price levels using the all-India consumer price index for agricultural laborers and rural laborers. The Thai export price is an average of the October and November prices in each year. It was converted into constant rupee terms using the US dollar-rupee market exchange rate and the Indian consumer price index.

Figure 2-5 Minimum Support Price and Average Wholesale Market Prices of Paddy



Source: Ministry of Finance, *Economic Survey,* various issues.
Note: The values include mid-year bonuses.

Figure 2-6 MSP for Paddy in Nominal Terms

Downward Rigidity of the MSP

A notable feature of the MSP for paddy is its extreme downward rigidity. As can be seen from Figure 2-6, the MSP has never fallen in nominal terms. To some extent, this is understandable because the determination of the MSP includes a cost-plus component, and agricultural input costs have seldom fallen in India. The active political lobbying of rice farmers is another contributing factor.

Given the Indian rice sector's exposure to the international market since the mid-1990s, however, it is becoming difficult to justify the unidirectional movement of the MSP. For one thing, international prices are anything but unidirectional; if the MSP is not allowed to fall, there will be occasional periods, such as the late 1990s and early 2000s, when it becomes too high relative to prevailing market conditions. Secondly, the MSP is moving away from the cost-plus formula, and becoming more strongly influenced by demand in both domestic and international markets.

Analysts such as Chand (2005) have called for the MSP to be linked to demand conditions in a more reasonable manner. So far, the toughest move by the government has been to freeze the MSP for paddy in 2003-2004.

Structure of Public Distribution

Most of the government-procured rice is distributed to domestic consumers through the public distribution system (PDS) and other social welfare programs. The main aim of the PDS is to alleviate malnutrition by raising the food consumption of low-income households. Food items including rice, wheat, and sugar, as well as non-food items such as kerosene, are sold through fair price shops located throughout the country.

Under the PDS, the rice and wheat procured by the FCI and state agencies are sold to state governments at an administered price called the central issue price (CIP). The regulated price of grain at fair price shops is fixed by each state government, taking into consideration the costs of intra-state distribution. The price of rice charged at fair price shops is lower than the government's cost of procurement, which is calculated as the sum of the MSP and the per-unit costs of storage, transport, etc. Thus, the government loses money on every kilogram of rice that it sells through the PDS. The aggregated value of this loss is called the "food subsidy". Since April 2002, the maximum amount of PDS grain that a below-poverty-line (BPL) family can buy at a fair price shop has been fixed at 35 kilograms per month (Department of Food and Public Distribution 2010).

Figure 2-7 shows the PDS prices for rice. Up to November 1997, a single CIP was set for all PDS sales. Since December 1997, two separate CIPs have been set: a low price for BPL households, and a higher one for above-poverty-line (APL) households. State governments can purchase grains at the lower CIP up to a quota defined by the estimated number of BPL households in their respective areas. Each state is then responsible for identifying which households are actually below the poverty line, and issuing ration cards to those households.

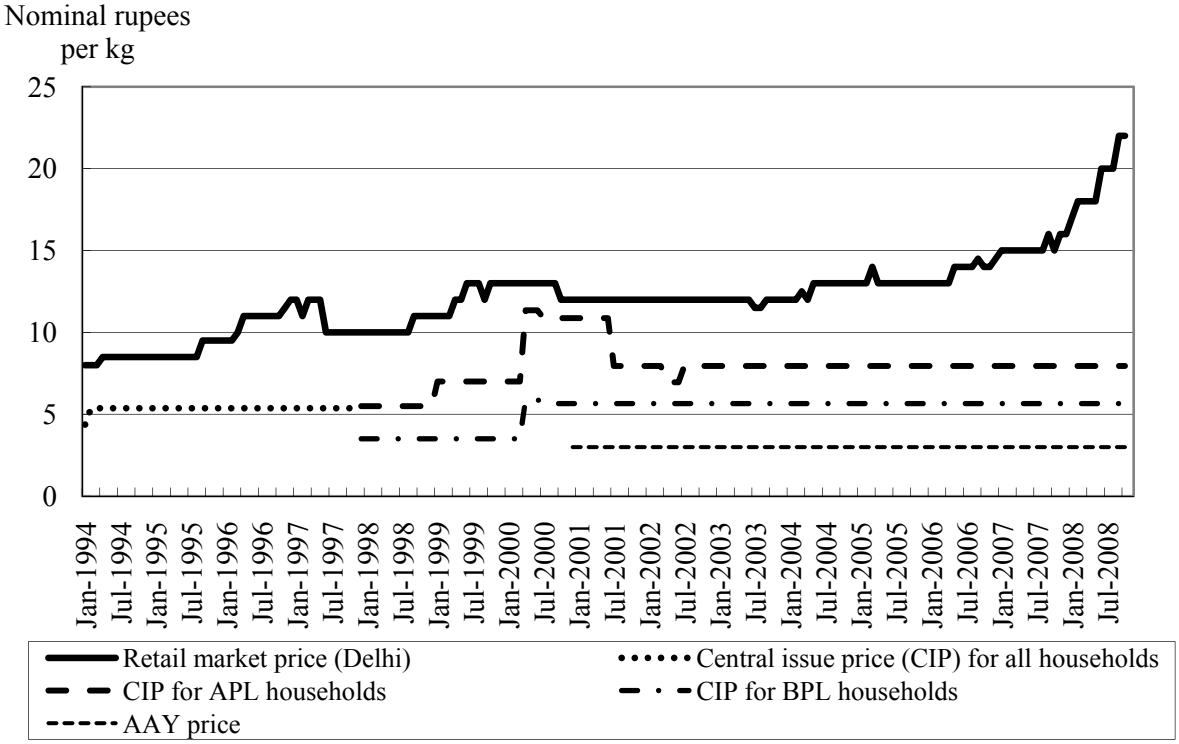
Since July 2000, the CIP for BPL households has been fixed at 5.65 rupees per kilogram (US$0.12), which is substantially below the government's procurement cost. The estimated number of BPL households is 65.2 million (based on 2000 population estimates), and the maximum quantity of grain (the sum of rice and wheat) allocated to them is 27.4 million tons per year.

In December 2000, an even lower price for the poorest of the BPL households was introduced, under a program called *Antyodaya Anna Yojana* (AAY). Unlike the BPL and APL prices, the AAY price is defined at the retail level. Households with AAY ration cards are able to buy grain at the highly subsidized price of three rupees per kilogram. The government estimates that 25 million households (38.3 percent of all BPL households) should be eligible for the AAY benefits (Department of Food and Public Distribution 2010).

Figure 2-7 compares the PDS prices to the retail price in the open market in Delhi. It shows that the gap between the market price and the PDS prices has been expanding rapidly since the mid-2000s. PDS prices have clearly not been adjusted to market conditions.

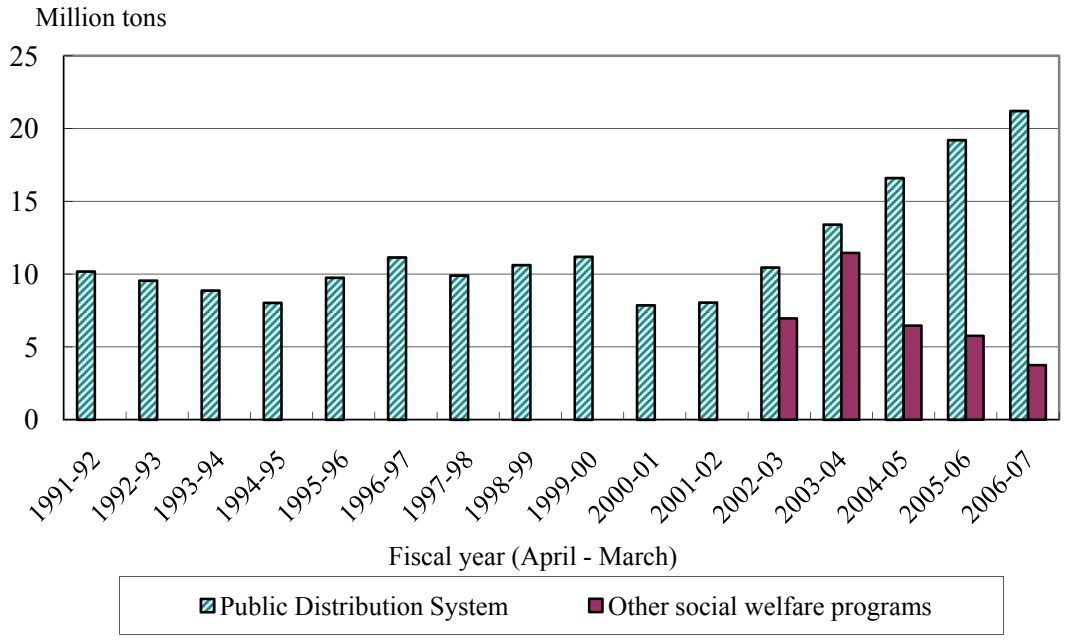
Partly as a result of this widening gap, the quantity of rice supplied through the PDS has been growing rapidly in recent years (Figure 2-8). In 2006-2007, the quantity of rice distributed through the PDS reached 21.2 million tons, comprising 24.5 percent of total consumption. Another reason behind this growth is that the government has been adjusting the rice-to-wheat ratio of PDS grains in favor of rice.

The expansion of other social welfare programs also contributed to the increase in government distribution of rice up to the mid-2000s. A mid-day meal program for government schools consumes approximately 1.3 million tons of rice per year. The food-for-work program, where laborers' wages at public works sites are paid in kind with grain, was another large consumer of government-distributed rice. Since the enactment of the National Rural Employment Guarantee Act in 2005, however, wages for public works are more often paid in cash. This explains why, in Figure 2-8, the amount of rice distributed through "other social welfare programs" has been declining since the mid-2000s.



Source: Department of Food and Public Distribution. *Annual Report*, various issues; website of Department of Consumer Affairs, Price Monitoring Cell.

Figure 2-7 Retail and PDS Prices of Rice



Source: Ministry of Finance. *Economic Survey,* various issues; Department of Food and Public Distribution (2008).
Note: Figures for "other social welfare programs" was available only for 2002-2003 onward.

Figure 2-8 Distribution of Rice by the Central Government Through the PDS and Other Social Welfare Programs

Criticism of the PDS

The PDS has been criticized for its inefficiency and for the corruption that surrounds its administration in some parts of the country. It is reported that a large amount of grain is diverted from the system, in the process generating illicit profits for various middlemen and officials including the managers of fair price shops (Mooij 2001; Yardley 2010). As a result, in many regions including Bihar, a large proportion of PDS grains fails to reach the targeted low-income households at the subsidized prices.

Despite these problems, the PDS continues to be a pillar of India's poverty reduction policy. One reason is the strength of vested interests, including the farmers who gain from having a large part of their output procured by the government. Another reason is that in some parts of the country, such as the southern states of Andhra Pradesh, Kerala, Tamil Nadu, and Karnataka, the PDS works reasonably well at distributing food to the targeted households (Mooij 1999a; 1999b; Ramaswami 2002). Thus, politicians in those states rely on the continued existence of the PDS, as well as its expansion, to gain and maintain popular support.

The rise in government distribution of rice may be one of the reasons for the rebound in per capita rice consumption during the mid-2000s, as shown in Figure 2-3. In states where the PDS and other social welfare programs are functional, the large-scale targeting of food subsidies to the lowest-income households is likely to have had the desired effect, albeit at a high fiscal cost. It is probable that this experience strengthened, in the minds of politicians and possibly the electorate, the indispensability of the PDS.

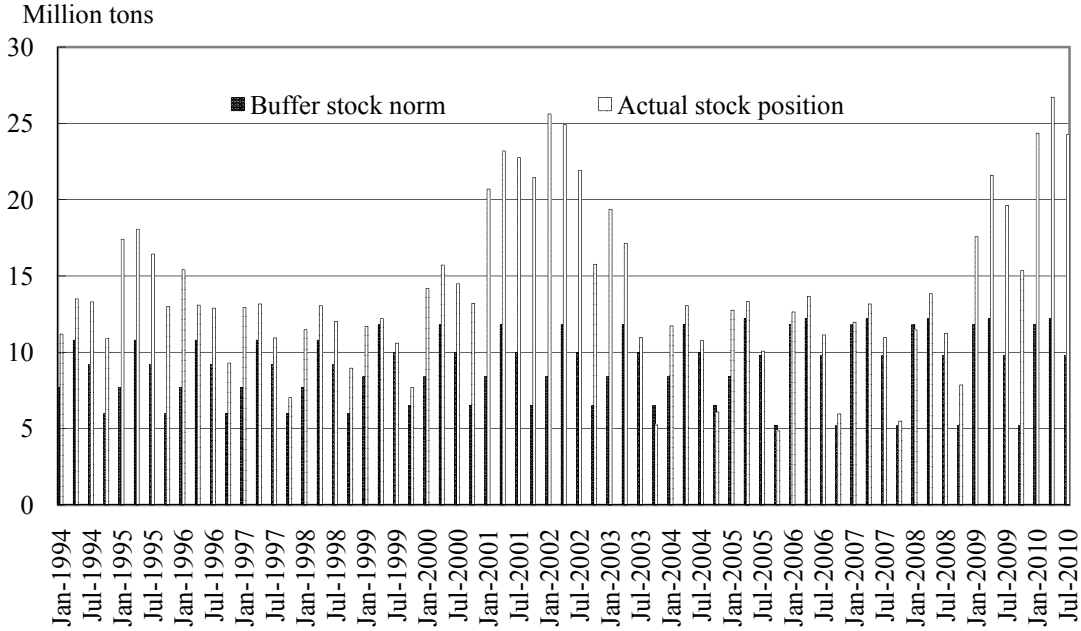
Management of Stocks

While there is a direct link between the government procurement of rice and its distribution through the PDS, there is a gap in timing between the two activities. This implies that the public food system carries a large stock of rice at any given time. The Indian government fixes buffer stock norms for the beginning of each quarter of the year, by taking into consideration the expected distributional requirements and procurement volumes for each season.[10]

Figure 2-9 presents these buffer stock norms along with the actual size of the central government's stocks. The period between mid-2000 and mid-2003 is characterized by a buffer stock that is far above the norm, which was caused by excess procurement of rice that began in the late 1990s. During this period, the MSP was set above the market-clearing level. The international price of rice was low, and there was little scope for commercial export of non-*basmati* rice. This resulted in the build-up of government stocks (Chand 2005).

Increasing the distribution of rice through the PDS and other welfare schemes helped to draw down this excess stock. Before the Indian government got around to these distributional measures, however, much rice was also released into the international market.

[10] The government also specifies the size of a food security reserve, which is not included in the buffer norms. As of August 2010, the food security reserve consists of two million tons of rice and three million tons of wheat (Department of Food and Public Distribution 2010).



Source: Department of Food and Public Distribution, *Annual Report,* various issues; Ministry of Finance (2001); website of Food Corporation of India (http://fciweb.nic.in/).

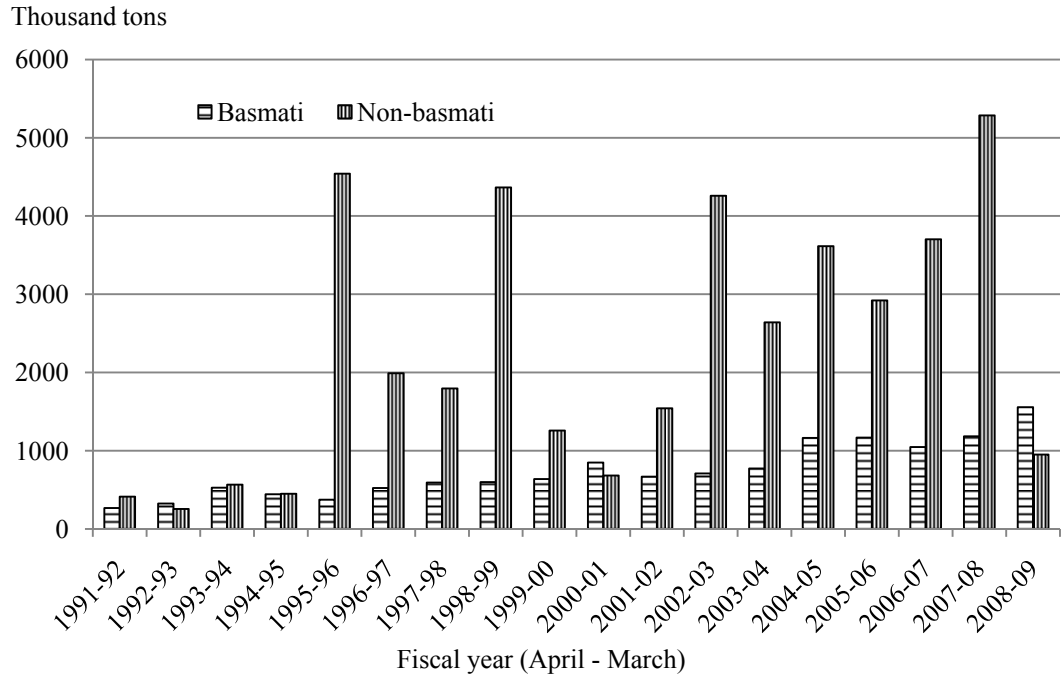
Figure 2-9 Rice Buffer Stocks of the Central Government

3. Rice Exports Prior to 2007

Indian rice exports are divided into two distinct groups: *basmati* and non-*basmati*. *Basmati* rice has long been a major export crop. As seen from Figure 2-10, the volume of *basmati* exports has grown steadily over the years, and has stayed above one million tons per year since 2004-2005. The main destination of *basmati* exports is the Middle East, with Saudi Arabia being the largest importer.

By comparison, the volume of non-*basmati* rice exports has been volatile. Up to the early 1990s, quantitative restrictions kept the annual volume of non-*basmati* exports well below one million tons. In 1993, as part of a wide-ranging export liberalization policy, the quantitative restrictions on non-*basmati* rice exports were replaced by a minimum export price (Ministry of Finance 1994). The minimum export price was then abolished in 1994 (Ministry of Finance 1995). In 1995-1996, the first full year after complete liberalization, a record-breaking 4.54 million tons of non-*basmati* rice was exported. The following year's exports were less than half this amount, but there was another surge in 1998-1999 when more than 4 million tons was exported.

During 1999-2000 and 2000-2001, non-*basmati* exports slumped as international prices sagged (compare Figures 2-5 and 2-10). The government failed to lower the MSP in response to market conditions, which caused it to procure large amounts of rice, building up massive stocks as shown in Figure 2-9. Then, in 2001 the government began to unload its excess stocks onto the international market. This is reflected in the rise of non-*basmati* exports from 2001-2002 onward.



Source: Department of Agriculture and Cooperation, *Agricultural Statistics at a Glance,* various issues.
Notes: The figures for 2007-2008 and 2008-2009 are provisional.

Figure 2-10 Indian Exports of Basmati and Non-basmati Rice

The export of government rice was not directly carried out by the government. Private-sector exporters bought the rice from the FCI at the fixed rate of 5,650 rupees per ton, which was equal to the subsidized PDS price for BPL households at the time. This price was significantly lower than the export prices from Thailand and Vietnam, even after taking exporters' margins into account (Damodaran 2001). Combined with the existence of entry barriers, both artificial and natural, this ensured that exporters with access to the FCI's supplies made substantial profits.[11] In 2002-2003 alone, a staggering 8.1 million tons was released by the government for export (Department of Food and Public Distribution 2005). Such actions by the Indian government played a role in the prolonged stagnation of international prices (see Figure 2-5).

Once the distribution of rice through the PDS and other social welfare programs started to pick up, and buffer stocks approached their normal levels, it became unnecessary for the government to dump its stock onto the international market. Thus, large-scale exports of government rice have not occurred since October 2004, with the exception of rice exported as food aid (Department of Food and Public Distribution 2010).

[11] The buyers of FCI rice were limited to large companies with a certain level of exporting experience, and this created an artificial entry barrier against smaller traders (Padmanabhan 2002). In addition, seaborne trade in non-*basmati* rice generally takes place through bulk cargo ships with loads greater than ten thousand tons. This creates a technological entry barrier. Reflecting these barriers to entry, Damodaran (2001) notes that many of the traders who exported FCI rice during this period were the large miller-exporters located in Delhi.

Meanwhile, a resurgence in private-sector exports of non-*basmati* rice occurred in the mid-2000s, as conditions in the international market improved. More than three million tons of non-*basmati* rice was exported in each of the years between 2004-2005 and 2007-2008. When combined with *basmati* exports, average export volume surpassed 4 million tons per year, making India the third largest rice exporter in the world after Thailand and Vietnam.

4. The Export Restrictions of 2007-2008

India's reign as a top rice exporter turned out to be short-lived. During the price surge of 2007-2008, it was forced to halt the export of non-*basmati* rice. This section provides an account of the major developments during this period, and the government's actions are evaluated in the subsequent section.

The Need for Rice Procurement

As mentioned in Section 2, the political importance of food distributed through the PDS and other social welfare schemes is likely to have grown in recent years. When the United Progressive Alliance, led by the Congress Party, took power in the 2004 general elections, it was seen as a victory for the relatively pro-poor stance of the alliance members. Thus, it was natural for the new government to place renewed importance on social welfare programs such as the PDS.

Meanwhile, conditions in the domestic rice market appeared favorable to the government's procurement operations until 2006. Rice procurement in 2005-2006 reached a historical high of 27.7 million tons, and domestic supplies remained abundant during 2006-2007. However, when the government announced in July 2006 that the MSP for paddy would be set at 5,800 rupees (US$126) per ton, the state leadership of Punjab immediately called for it to be raised, claiming rising cultivation costs (*The Tribune* 2006). The central government quickly responded and raised the MSP by 400 rupees in August, which eventually generated a comfortable procurement of 25.1 million tons for 2006-2007.

The politicians' aggressive calls for a higher MSP, and the government's quickness to concede, can be traced to developments in the wheat market. In early 2006, the government failed to meet its wheat procurement targets despite a mid-season raise in the MSP from 6,500 rupees to 7,000 rupees per ton. The procured amount of 9.2 million tons was a 38 percent reduction from the previous year. As a result, the government had to import 4.4 million tons of wheat, an amount not seen since the 1960s (Department of Food and Public Distribution 2007). Domestic procurement of wheat fell short of the target again in 2007. This strengthened the government's resolve to meet the procurement target for rice at any cost.

Responding to an Unprecedented Export Demand

2007 was an exceptional year for the international rice market, even before the price surge late in the year. Between April and September, non-*basmati* rice exports from India were 48.2 percent greater than in the same period of the previous year. In August, it was reported that in the southern state of Andhra Pradesh, some rice millers were exporting rice without meeting the state's levy requirements (Sarma 2007). North Indian *mandis* were also experiencing a rise in wholesale prices due to high export demand.

The MSP for rice announced in May was 6,450 rupees (US$157) per ton – only 4 percent above the previous year's rate. At this level, the government's procurement operations that began in September were doomed to fail; by October, wholesale market prices for common rice in Amritsar were as high as 10,000 rupees (US$250) per ton.

As Damodaran (2007a) observes, domestic prices may have surged precisely because the MSP was considered to be unacceptably low. Many farmers and traders, expecting a large upward revision of the MSP in the near future, refrained from putting their supplies on the wholesale market. The shortage created by this strategic behavior is likely to have fuelled the price rise.

Imposing and Adjusting Export Restrictions

Faced with the possibility of a procurement failure, the government announced a ban on non-*basmati* rice exports on October 9, 2007. Simultaneously, the MSP was raised to 6,950 rupees. The export ban was met with strong opposition by exporters, especially in South India where premium rice varieties grown for export do not belong to the *basmati* category. There was also much confusion as to whether shipments ordered before the ban could be carried through.

In response, on October 31 the government lifted the ban and imposed a minimum export price (MEP) instead. The initial MEP for non-*basmati* rice was US$425 per ton. The aim was to stop the cheaper varieties from being exported so that the government procurement targets could be met; no international buyers were expected to pay more than US$425 for common rice.

To the government's surprise, with the global price rise accelerating in November, non-*basmati* rice – including common varieties such as PR106 – began to be exported in large quantities at prices above the MEP (Damodaran 2008). It was also reported that some exporters were over-invoicing their shipments in order to clear the MEP threshold (*The Economic Times* 2007). In this way, the export of non-*basmati* rice continued unabated after the imposition of the MEP, and domestic wholesale market prices continued to rise as a result (Damodaran 2007b).

The government's response was to raise the MSP to 7,450 rupees in November, but to no avail. It then raised the MEP to US$500 per ton in December, but this was still not enough to stem the flow of non-*basmati* exports, so the MEP was raised to US$650 in early March 2008, and then finally to US$1,000 later that month. A separate MEP for *basmati* rice was introduced in early March at US$900 per ton. This was revised in late March to US$1,100.

As the central government struggled to find the correct MEP level, some state governments began imposing their own quantitative restrictions on rice exports. From the end of 2007 to the beginning of 2008, the government of Andhra Pradesh prohibited rice millers from selling to exporters. In Chhattisgarh, rice millers had to present proof to state officials that they fulfilled the rice levy before being allowed to export (Damodaran 2007b). Emulating these measures, the Indian government prohibited the export of non-*basmati* rice on April 1, 2008, and raised the MEP for *basmati* varieties to US$1,200.

In hindsight, the Indian government's piecemeal approach to using MEPs may have fuelled the global price surge. Each raise in the MEP failed to halt the tide of non-*basmati* exports. This generated expectations among traders and speculators that the government would take more restrictive measures in future, and that those measures would cause prices to rise. These

expectations may have kept international prices afloat, which, in turn, caused the successive hikes in MEP to fail to stem exports. By the time the non-*basmati* MEP reached US$1,000, international prices may have been kept afloat only by the vague notion that even more restrictive measures, implying even higher prices, were in store.

Domestic Market Developments after the Ban

After India banned non-*basmati* exports, the price surge in international markets continued for a few more weeks. The Chicago Board of Trade rough rice futures contract peaked at the end of April 2008, and the monthly average export price of Thai rice reached its peak in May (USDA 2010). The subsequent fall in international prices indicates that fears of future shortages had subsided, even though India's non-*basmati* export supply had officially shut down.

Meanwhile, the Indian government's MSP of 7,450 rupees per ton represented a 20 percent increase from the previous year. This was a relatively modest increase, given that the international price of rice stayed at approximately twice the pre-crisis level even after it stabilized. In the now-closed rice economy of India, however, the MSP appeared attractive to farmers, and the government ended up procuring a record-breaking 28.5 million tons. Figure 2-4 reveals that a particularly large quantity was procured in Andhra Pradesh. Early efforts by the Andhra Pradesh government to curb exports and increase procurement were apparently successful.

The MSP for 2008-2009 was further raised to 9,000 rupees per ton. This raise had less to do with any increases in cultivation cost, and more to do with appeasing farmers deprived of profitable exporting opportunities. It is not surprising that the resulting rice procurement was another record-breaking one: a staggering 33.7 million tons. Having made exceptionally large procurements for two consecutive years, the government's rice stocks grew uncontrollably; by mid-2009, it was more than twice as large as the buffer norm (Department of Food and Public Distribution 2010; see figure 2-9).

To outside observers, it appeared that the Indian government was repeating the mistake it made in the late 1990s: setting the MSP too high and amassing unmanageably large stocks. The drought of 2009, however, brought some vindication to the government. Rice production during 2009-2010 was 89.1 million tons, approximately 10 percent less than the previous year. Responding to the inflationary pressures created by this shortfall, between October 2009 and March 2010 the government allocated three million tons of rice to the Open Market Sales Scheme. Under this scheme, state governments were expected to purchase rice from the FCI at prices of around 15,000 rupees per ton, and supply it directly to consumers through fair price shops and other channels (Ministry of Consumer Affairs, Food and Public Distribution 2010; Vydhianathan and Radhakrishnan 2010).

Unfortunately, these efforts have apparently been insufficient for bringing government stocks under control. There was a national uproar in July 2010 when newspapers reported that large amounts of rice and wheat were rotting in the FCI's storage facilities, where the grain had been kept under near-open conditions (Halarnkar and Randhawa 2010; *Deccan Herald* 2010).

Exceptions to the Export Ban

As of August 2010, the ban on non-*basmati* rice exports remains in effect. This has especially disappointed farmers and exporters in South India, where high-priced non-*basmati* varieties are grown. Even though a premium non-*basmati* variety from North India called Pusa-1121 was allowed to be exported in September 2008, none of its southern counterparts have received the same favorable treatment. This has led some South Indian exporters to accuse the central government of having a "northern bias" (*The Economic Times* 2010).

Meanwhile, some non-*basmati* rice has been exported from India in the form of food aid to other developing countries. Between October 2007 and June 2009, the Indian government approved 35 government-to-government deals concerning rice exports.[12] The largest by far was the agreement announced in February 2008 to sell 450 thousand tons to Bangladesh, which had been ravaged by a cyclone and floods the previous year. The actual transaction was carried out not by the Indian government, but by private-sector exporters under contract with state trading enterprises (Sarma 2009). The Bangladesh government paid around US$400 a ton, near the prevailing international price (Kabir 2008). Similarly, government-to-government trades with African countries were humanitarian in principle, but somewhat commercial in practice.

Some rent-seeking problems have been reported in relation to these food aid transactions, where certain Indian exporters were accused of colluding with officials of foreign governments in requesting the Indian government to lift the non-*basmati* export ban on a case-by-case basis (Datta 2009). The ban has created a large gap between the domestic price of rice in India and that in other countries, and this has presented significant profit opportunities. If, for instance, an exporter can procure rice in the open market in India and then sells it in an African country at the local price, he stands to make a substantial profit. In any country where a vibrant business community exists, such opportunities will inevitably give rise to rent-seeking activities.

A similar situation exists in Japan, where the domestic price of rice is several times higher than the international price due to tariff protection. When combined with Japan's WTO obligations to import a minimum of 767 thousand tons of rice each year, this arbitrage opportunity becomes a rent-seeking threat. The Japanese government's response to this situation may be of interest to Indian policy makers.

Rather than importing the entire "minimum access" quantity by itself, or assigning a specific firm to do it, the Japanese Ministry of Agriculture, Forestry, and Fisheries (MAFF) holds regular auctions, called simultaneous buy and sell (SBS) auctions, in which private-sector companies participate.[13] The companies form buyer-seller pairs; usually, the buyer is a Japanese wholesaler and the seller is a foreign miller-exporter or a Japanese trading company. Each pair submits a bid to the government auctioneer, where a bid consists of a buying price as well as a selling price. The auctioneer then awards the importing contracts to

[12] Not all of these deals have been carried out. For example, in October 2008 a total of 55,000 tons of non-*basmati* rice was cleared for export to Nigeria, Senegal, Ghana, and Cameroon. By June 2009, the only transaction to actually have taken place was the 15,000-ton deal with Ghana (Srinivas 2009).

[13] The SBS auction is used for private sector imports of rice meant for domestic retail consumption. This comprises approximately 100 thousand tons, or thirteen percent of the minimum access quota. The remainder is imported by the government and sold in the domestic market for processing and feed purposes, or re-exported as food aid. Fukuda et al. (2003) contains a description of the Japanese rice import system, including the SBS scheme.

the buyer-seller pairs whose margins (the difference between the buying and selling prices) are the highest. The winners then pay a fee to the government that is calculated on the basis of their bid margins. In this way, the Japanese government extracts a large proportion of the profits that arise from minimum access imports. Not only is the scope for rent-seeking reduced by this system, the government also gains substantial revenues.

5. Evaluating the Government's Actions

Necessity of Export Restrictions

The previous section's description of the events in 2007-2008 supports the notion that the Indian government's export restrictions, as well as its piecemeal manner of implementation, contributed to the international surge in rice prices. As described in Chapter 1, the price surge had a large negative impact, both economically and socially, on rice-importing developing countries. This has led some foreign governments and international organizations to criticize India's conduct during the crisis, along with that of other countries restricting agricultural exports. For instance, in June 2008 the president of the World Bank spoke of the need for "an international call to remove export bans and restrictions" (Zoellick 2008).

Such calls are, however, unlikely to be heeded given the lack of meaningful discipline against export restrictions (Mitra and Josling 2009). Unless governments find it in their own interest, or that of their citizens, export bans and other restrictions are unlikely to go away. The relevant question, then, is whether the imposition of export restrictions on rice was the best policy option for India.

To answer this question, one needs to clarify the objectives of the Indian government. First, increasing the food consumption of the lowest income households has been given high priority by the government. This was made explicit in the Prime Minister's 2010 Independence Day speech, in which he states that the government "wants a food safety net in which no citizen of ours would go hungry" (Singh 2010). Second, government leaders have been concerned about the level of food prices faced by consumers. In the same speech, the Prime Minister emphasizes that the government is "making every possible effort to tackle" the inflation in food prices, and endeavoring "to minimize the burden of increased prices on the poor" (Singh 2010). As the latter quote implies, India's "food safety net", consisting mainly of the Public Distribution System, is not sufficient to meet the needs of the poor; low-income households must obtain some proportion of their food – the majority, in many cases – from the open market.

What viable policy alternatives, besides restricting exports, did the government have in pursuing these objectives in 2007-2008? Apparently not many, because the Indian government's only policy lever, besides border measures, was the level of MSP. Raising the MSP drastically (say, to around 15,000 rupees per ton) instead of stopping at 7,450 rupees might have let the government meet its procurement target for 2007-2008. However, a large proportion of the procured rice would have failed to reach poor consumers given the rampant diversion of grain under the PDS. With no export restrictions and high international market prices, grain diversions in 2007-2008 would have been greater than in any previous year, with much of the diverted grain being exported. Thus, drastically raising the MSP would have been extremely costly to the government – in terms of higher procurement costs not only in

2007-2008 but also in subsequent years due to the downward rigidity of the MSP – without being effective at securing the food consumption of poor households. Besides, the policy would have been totally ineffective at lowering prices in the open market.

Restricting exports was, by comparison, a more cost-effective measure. And the Indian government's initial policy of trying to control the flow of non-*basmati* exports, rather than banning it altogether, appeared quite reasonable. In essence, the policy consisted of bifurcating the domestic rice market into (i) an exporting segment consisting of *basmati* and high-valued non-*basmati* varieties, and (ii) a domestic segment consisting of common varieties whence the government could procure its requirements. This bifurcation was to be implemented by setting a MEP for non-*basmati* rice.[14] It was hoped that the government could meet its procurement requirement without having to raise the MSP too high, and that farmers would continue to have access to export opportunities.

The strategy failed mainly because the demand for exported rice was stronger than anyone had expected. It appeared that no level of MEP was sufficiently high to stem the export of common varieties of rice, and thus an outright ban became necessary.[15] In hindsight, the international price surge might have been less dramatic had India maintained the original export ban that it imposed in October 2007. To be fair, though, it is hard to blame the Indian government for its piecemeal approach given the high uncertainty and the panicked market conditions that prevailed at the time.

Possibilities for Improved Policy Response

The rice-export restrictions may have been necessary given the government's objectives and constraints in 2007 and the external market conditions that existed. This does not rule out improvements in the way that India responds to similar situations in the future. By adjusting its food policy, India may be able to reduce its dependence on severe export restrictions such as an outright ban.

One possible avenue is to weaken the competition between the government's paddy/rice procurement operations and the demand from private-sector exporters. In 2007-2008, such competition was observed in North Indian *mandis* where the FCI struggled to buy paddy from farmers at the MSP, and in other parts of the country where millers faced the choice between exporting rice and fulfilling the rice levy. If this competition can somehow be weakened, the need for severe export restrictions will subside.

A way to achieve this is to widen the geographical coverage of government procurement activity. To their credit, the central and state governments have recently succeeded in extending rice procurement to Chhattisgarh and Orissa. However, there remain rice-producing regions such as Bihar where government procurement is small. In such areas, rice farmers receive prices that are below the MSP. In fact, the current food policy makes them worse off,

[14] As mentioned by Srinivasan (2008), a specific export tax on non-*basmati* rice may have been a better tool than the MEP for restricting exports. In addition to raising revenue for the government, an export tax drives a wedge between the exporter's sales price and its procurement price, which exerts downward pressure on domestic prices.

[15] Some exporters have suggested that the government should have waited to see if the 1,000-dollar MEP set in March 2008 would be effective at stemming non-*basmati* exports before imposing the outright ban (*The Economic Times* 2008). Srinivasan (2008) also mentions that there was a slowdown in rice exports as the MEP was raised, which suggests that the policy actually was effective at curbing exports. What level of MEP would ultimately have been sufficiently high for achieving the government's objectives remains an open question.

because the inflow of cheap PDS rice from other states exerts downward pressure on the wholesale market price. By expanding procurement in such areas, possibly by making use of the Decentralized Procurement Scheme, the central and state governments will find that their procurement activities compete less severely with export demand. In the newly covered regions, the resulting rise in wholesale prices is also likely to elicit a positive supply response from farmers. A necessary condition for expanding procurement in areas like Bihar is the development of marketing infrastructure such as rural roads, grain storage facilities, and regulated market yards. Such investments by themselves are likely to have positive effects on farm income and production.

A second possibility is to reduce the amount of grain handled by the government by changing the way it subsidizes the food consumption of low-income households. By doing so, the government could focus its grain marketing activities on price stabilization; it would no longer need to enter the rice market as a desperate buyer as it did in 2007-2008. As a result, market participants will have less of an incentive to speculate on future government actions, which will bring some stability to both the domestic and international markets.

One method for reducing the government's physical involvement in grain markets is to replace the PDS with the food stamps program proposed by Ramaswami (2002). This involves targeted distribution to low-income households of vouchers that can be exchanged for food grains. Recipients can use the food stamps at regular stores in addition to fair price shops, and the distribution of grains is kept entirely within the private sector. The value of food stamps is indexed to market grain prices (or, equivalently, denominated in quantity terms) so that it is exchangeable with the same amount of grain regardless of market conditions. While questions remain about its functionality – namely, whether it will lead to higher food grain consumption by the poor – and some economists remain skeptical of its benefits (e.g., Swaminathan 2004), the idea appears to be gaining traction in government circles (Planning Commission 2002; Ministry of Finance 2010).

Conclusion

Indian citizens in the lowest income group face a real deprivation of food, implying the need for policy intervention. For this reason, the large-scale distribution of rice through the public distribution system (PDS) and other social welfare schemes has remained a key element of the Indian government's food policy.

In 2007-2008, the government's need to procure rice for distribution as well as its desire to maintain price stability, combined with an unprecedented demand for Indian rice exports, made export restrictions unavoidable. The government's initial response was a market bifurcation strategy, involving the use of a minimum export price (MEP) for non-*basmati* rice. This strategy failed, fuelling an international price surge in the process. In the end, an outright ban on non-*basmati* exports had to be introduced.

Export restrictions on rice are likely to remain in the Indian government's policy toolbox as long as the provision of food security to its vulnerable citizens remains high on its agenda. However, the need for the government to impose severe export restrictions, such an outright ban, may be lessened through judicious adjustments of its food policy.

References

The Bihar Times. 2009. "Paddy Procurement in Bihar May Fall Short of Target." January 27.

_____. 2010. "Farmers Commission of Bihar Demands Hassle-free Procurement System." June 30.

Chand, Ramesh. 2005. "Whither India's Food Policy? From Food Security to Food Deprivation." *Economic and Political Weekly.* March 12: 1055-62.

Childs, Nathan, and James Kiawu. 2009. "Factors behind the Rise in Global Rice Prices in 2008." United States Department of Agriculture, Economic Research Service, Outlook Report. http://www.ers.usda.gov/Publications/RCS/May09/RCS09D01/RCS09D01.pdf.

Damodaran, Harish. 2000. "No Move to Discontinue Paddy Purchase." *The Hindu Business Line.* Aug 2.

_____. 2001. "Little Headway in FCI Rice, Wheat Exports." *The Hindu Business Line.* August 1.

_____. 2007a. "Bonus Announcement: Delay Hits Paddy Buying." *The Hindu Business Line.* October 9.

_____. 2007b. "Rice Prices on a Boil: Market Tight." *The Hindu Business Line.* December 30.

_____. 2008. "Minimum Export Price of Non-basmati May Be Hiked." *The Hindu Business Line.* February 11.

Datta, Saikat. 2009. "Whose Name on a Grain of Rice?" *Outlook.* July 27.

Deccan Herald. 2010. "Food Grains Rot in the Open as Prices Rise." July 27.

Department of Agriculture and Cooperation. 2008. *Agricultural Statistics at a Glance 2008.* New Delhi: Government of India.

Department of Food and Public Distribution. 2005. *Annual Report 2004-2005.* New Delhi: Government of India.

_____. 2007. *Annual Report 2006-2007.* New Delhi: Government of India.

_____. 2008. *Annual Report 2007-2008.* New Delhi: Government of India.

_____. 2010. *Annual Report 2009-2010.* New Delhi: Government of India.

Directorate of Marketing and Inspection. 2002. *Marketable Surplus and Post Harvest Losses of Paddy in India 2002.* Nagpur: Government of India, Ministry of Agriculture.

Economic Times. 2007. "Rice Prices Set to Go up Further on Govt's Food Security Plan." November 19.

_____. 2008. "Non-*basmati* Export Ban Decision Hasty: Exporters." April 2.

_____. 2010. "Southern Cos Seek Nod to Export Premium Rice Varieties." June 10.

Fukuda, Hisao; John Dyck; and Jim Stout. 2003. "Rice Sector Policies in Japan." United States Department of Agriculture, Economic Research Service Electronic Outlook Report. http://ddr.nal.usda.gov/dspace/bitstream/10113/38887/1/CAT11135995.pdf.

Halarnkar, Samar, and Manpreet Randhawa. 2010. "India Lets Grain Rot Instead of Feeding Poor." *Hindustan Times,* July 26.

Himanshu. 2007. "Recent Trends in Poverty and Inequality: Some Preliminary Results." *Economic and Political Weekly.* February 10: 497-508.

The Hindu. 2009. "Paddy Procurement in Bihar Slow: Minister." July 1.

Janaiah, Aldas; Mahbub Hossain; and Keijiro Otsuka. 2006. "Productivity Impact of the

Modern Varieties of Rice in India." *Developing Economies.* 44, no. 2: 190-207.
Kabir, F.H.M. Humayun. 2008. "Govt Opens LC to Import 0.4m Tonnes of Indian Rice." *Financial Express (Bangladesh).* April 7.
Kshirsagar, K.G., and S. Pandey. 1997. "Diversity of Rice Cultivars in a Rainfed Village in the Orissa State of India." In *Using Diversity: Enhancing and Maintaining Genetic Resources On-Farm,* ed. Louise Sperling and Michael Loevinsohn. Ottawa: International Development Research Centre.
Kurmanath, K.V. 2009. "Farmers Not Getting Full Benefits of Support Prices." *The Hindu Business Line.* March 7.
Meenakshi, J.V., and A. Banerji. 2005. "The Unsupportable Support Price: An Analysis of Collusion and Government Intervention in Paddy Auction Markets in North India." *Journal of Development Economics.* 76: 377-403.
Ministry of Consumer Affairs, Food and Public Distribution. 2010. "Steps Taken to Check Prices of Rice and Wheat." Press release dated May 18.
Ministry of Finance. 1994. *Economic Survey 1993-1994.* New Delhi: Government of India.
_____. 1995. *Economic Survey 1994-1995.* New Delhi: Government of India.
_____. 2001. *Economic Survey 2000-2001.* New Delhi: Government of India.
_____. 2009. *Economic Survey 2008-2009.* New Delhi: Government of India.
_____. 2010. *Economic Survey 2009-2010.* New Delhi: Government of India.
Mitchell, Donald. 2008. "A Note on Rising Food Prices." Policy Research Working Paper no. 4682. Washington, D.C.: World Bank.
Mitra, Siddhartha, and Tim Josling. 2009. "Agricultural Export Restrictions: Welfare Implications and Trade Disciplines." International Food and Agricultural Trade Policy Council Position Paper.
Mooij, Jos. 1999a. "Real Targeting: The Case of Food Distribution in India." *Food Policy*, 24: 49-69.
_____. 1999b. "Food Policy in India: The Importance of Electoral Politics in Policy Implementation." *Journal of International Development*, 11: 625-36.
_____. 2001. "Food and Power in Bihar and Jharkhand: PDS and Its Functioning." *Economic and Political Weekly*, August 25: 3289-99.
Padmanabhan, Mohan. 2002. "Small Rice Exporters Irked Over FCI Policy." *The Hindu Business Line.* July 19.
Planning Commission. 2002. *Tenth Five-year Plan*. New Delhi: Government of India.
Ramaswami, Bharat. 2002. "Efficiency and Equity of Food Market Interventions." *Economic and Political Weekly*, March 23: 1129-35.
Sarma, C.R.S. 2007. "Rice Exports Booming at Kakinada Old Port." *The Hindu Business Line.* August 13.
_____. 2009. "Rice Exporters Seek Fair Chance in Deal with Africa." *The Hindu Business Line.* May 13.
Singh, V.P. 2000. "The Basmati Rice of India." In *Aromatic Rices,* ed. R.K. Singh, U.S. Singh, and G.S. Khush. New Delhi: Oxford and IBH Publishing, pp.135-151.
Singh, Manmohan. 2010. *PM's Independence Day Speech.* Prime Minister's Office.
Singh, B.B., and Rajpati Ram. 1993. "Rural Infrastructure and Agricultural Development in a Backward Economy." In *Nehru and Planning in India: Proceedings of the National Seminar on Pandit Jawaharlal Nehru, Planning Commission, and Planned Development*

in India, ed. N.B. Das Gupta, J.L. Raina, H.M. Jauhari, and B.M. Jauhari. New Delhi: Concept Publishing, pp.139-153.

Srinivas, Nidhi Nath. 2009. "Rice Exports: A Peep Behind Closed Doors." *The Economic Times.* July 10.

Srinivasan, G. 2008. "Exporters May Stand to Lose from Higher Floor Price for Rice." *The Hindu Business Line*, March 31.

Swaminathan, Madhura. 2004. "Targeted Food Stamps." *The Hindu*, August 3.

The Tribune. 2006. "MSP Hike Rejected as Too Meagre: Amarinder Wants Centre to Revise It." July 29.

United States Department of Agriculture (USDA). 2010. *Rice Yearbook 2010.* http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1229.

Vydhianathan, S., and R.K. Radhakrishnan. 2010. "Behind the Success Story of Universal PDS in Tamil Nadu." *The Hindu,* August 10.

Wright, Brian. 2008. "Speculators, Storage, and the Price of Rice." *Agricultural and Resource Economics Update* 12, no. 2: 7-10.

Yardley, Jim. 2010. "India Asks, Should Food Be a Right for the Poor?" *The New York Times*. August 8.

Zoellick, Robert B. 2008. *Speech to Rome World Food Security Summit*. June 6.