

The Private Investment Climate

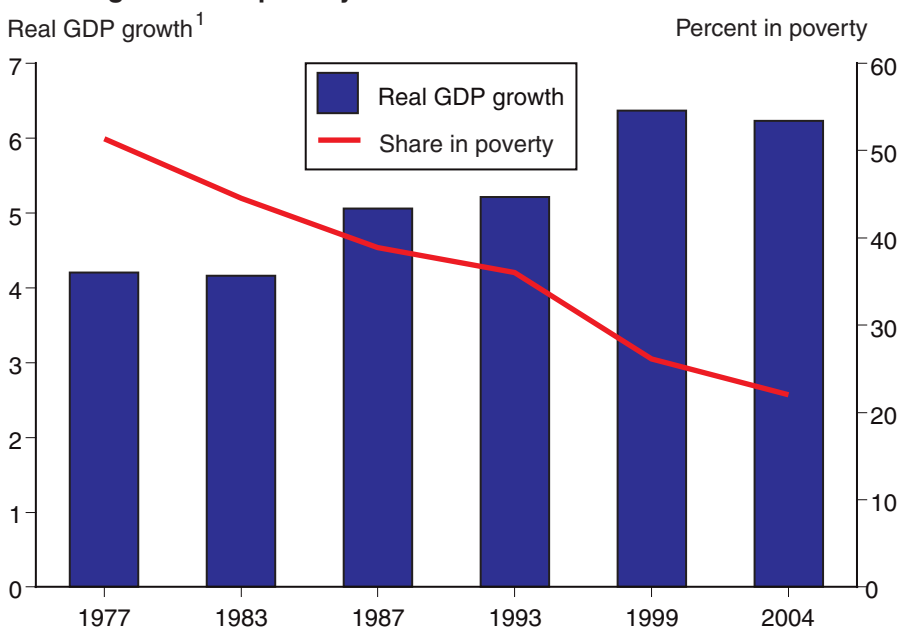
Prospects for agricultural investment hinge largely on the environment for private investment by farmers and agribusinesses. Private investment accounts for the bulk of total investment in agriculture, while fiscal constraints—including growing subsidy outlays—may continue to restrict public investment. Key factors likely to shape the climate for private investment by farmers and agribusinesses include (1) the extent to which domestic demand for agricultural products makes investment potentially profitable; (2) a range of government regulatory, credit, tax, and other policies that affect incentives for domestic and foreign investment in Indian agriculture; and (3) infrastructure constraints.

Consumer Demand

Consumer demand for food products in India has registered significant growth and diversification since the early 1990s, when a package of reforms to industrial, trade, and exchange rate policies launched India on a path of relatively strong income growth. India's youthful demographics and rapid urbanization also bode well for further growth and diversification of food demand (Joshi et al., 2007; Pingali and Khwaja, 2004).

Income growth in India, as measured by growth in real gross domestic product (GDP), has averaged more than 6 percent annually since the early 1990s, and more than 8 percent since 2003, establishing India as one of the fastest growing economies in the world. Rising incomes have contributed to a steady decline in the share of the population living in poverty, with poverty defined as the level of per capita income needed to purchase a nutritionally adequate diet (fig. 7). Although growth has been strong, India's per capita income remains at a level—about \$588 annually in 2006—where

Figure 7
Income growth and poverty reduction in India



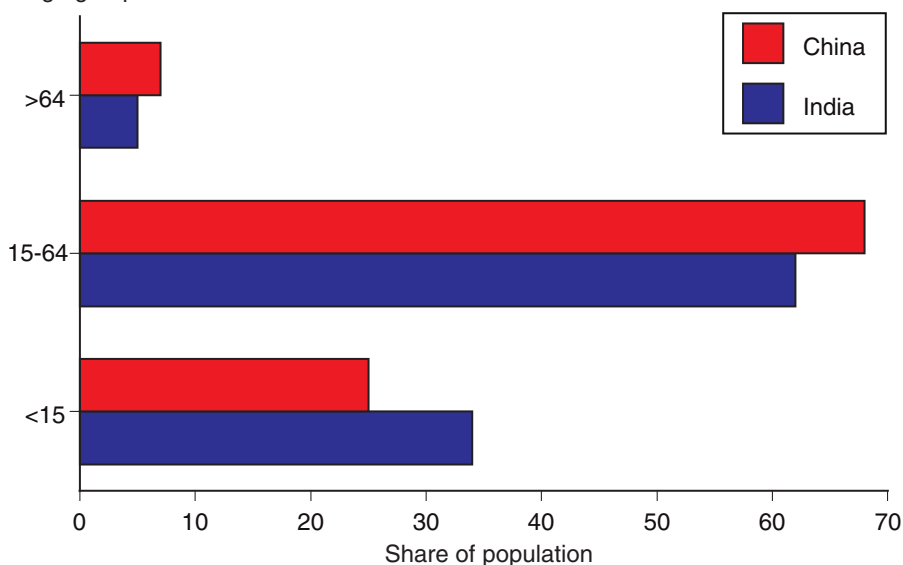
¹Real GDP growth for 5 years preceding year indicated.

Source: Government of India, Ministry of Finance, Economic Survey.

Figure 8

Age composition of India's and China's populations

Age group



Source: Census of India, 2001.

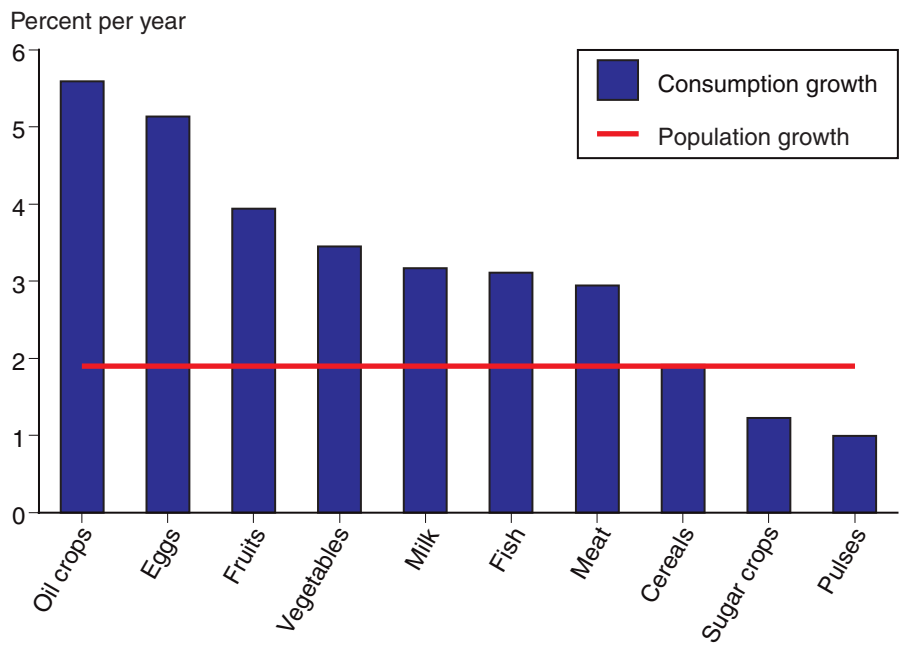
most households continue to spend a large share of new income on food, both to increase caloric intake and to diversify and upgrade diets (World Bank, 2007).

India's youthful demographics—about 34 percent of the population was age 14 or under in 2001 compared with 25 percent in China—is also a driver of food demand (fig. 8). Not only can average levels of daily food intake be expected to rise as more children grow to adulthood, but young adults are often more likely to try new foods and diversify their diets beyond traditional foods. Urbanization is another force that typically contributes to dietary change, through more intense exposure to foods from other cultures and increased demand for convenience foods to accommodate the schedules of two-earner households. The urban share of India's population was 27.8 percent (285 million) in 2001 and is rising steadily. In 2001, India had 35 cities with a population of 1 million or more, with these larger urban areas accounting for more than 10 percent of India's total population of more than 1 billion.

Data on food consumption by major food groups demonstrate the impact of rising incomes, demographics, and urbanization on the growth and diversification of food demand since the early 1990s (fig. 9). While consumption of traditional items such as cereals and pulses continues to expand, other food categories—including vegetable oils, eggs, fruit, vegetables, milk, and meats—have been exhibiting substantially more rapid growth in demand.³ These patterns are also evident from Indian consumer surveys that provide expenditure data by food group and expenditure class. Expenditures on cereals—the traditional food staples that still account for the bulk of average consumer food expenditure—tend to decline among higher income consumers (fig. 10). For higher valued foods groups, however, consumer expenditure tends to accelerate as incomes rise. Foods in greater demand as

³The same pattern of growth across food groups is reflected in consumer survey data collected for selected years by India's National Sample Survey Organization (Government of India, Ministry of Statistics and Program Implementation). The FAO data used here provide broader commodity coverage within food groups and allow use of more stable 3-year average endpoints when computing annual growth rates.

Figure 9
Consumption growth by food group in India, 1991-2004¹

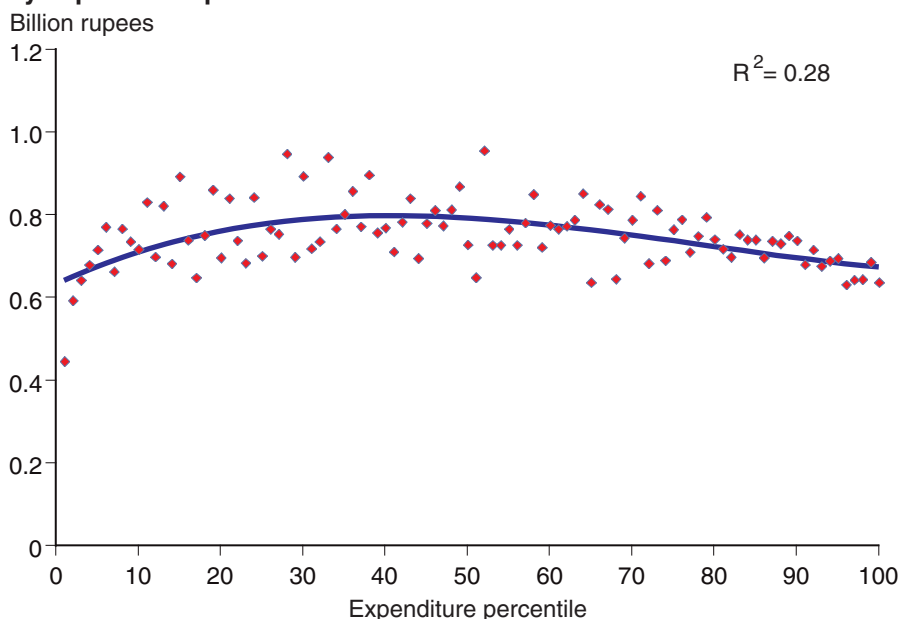


¹ Endpoints based on 3-year year averages centered on middle year; 1991 = 1990-92 average. Source: Food and Agriculture Organization, FAOSTAT database.

incomes rise include not only fruit, vegetables, and edible oils, but also animal-based products such as milk, eggs, and meat (figs. 11-13).

Overall, the robust prospects for growth and diversification of food demand in India contrast sharply with sluggish agricultural investment. Constraining new investment in and for agriculture are policies that diminish incentives for both domestic and foreign investors, as well as infrastructure constraints that increase costs.

Figure 10
Consumer expenditures on cereals by expenditure percentile in India

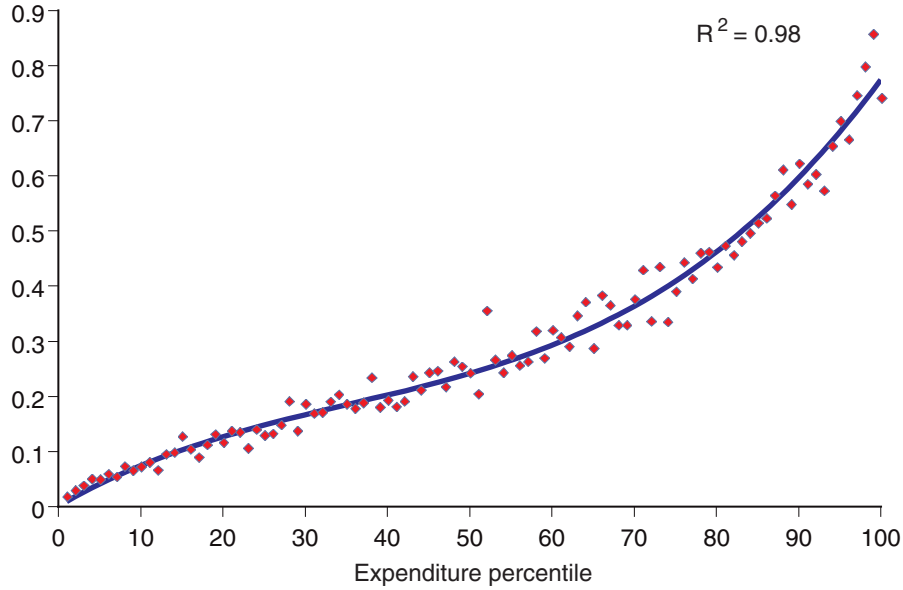


Source: National Sample Survey, 1999/2000.

Figure 11

Consumer expenditures on milk products by expenditure percentile in India

Billion rupees

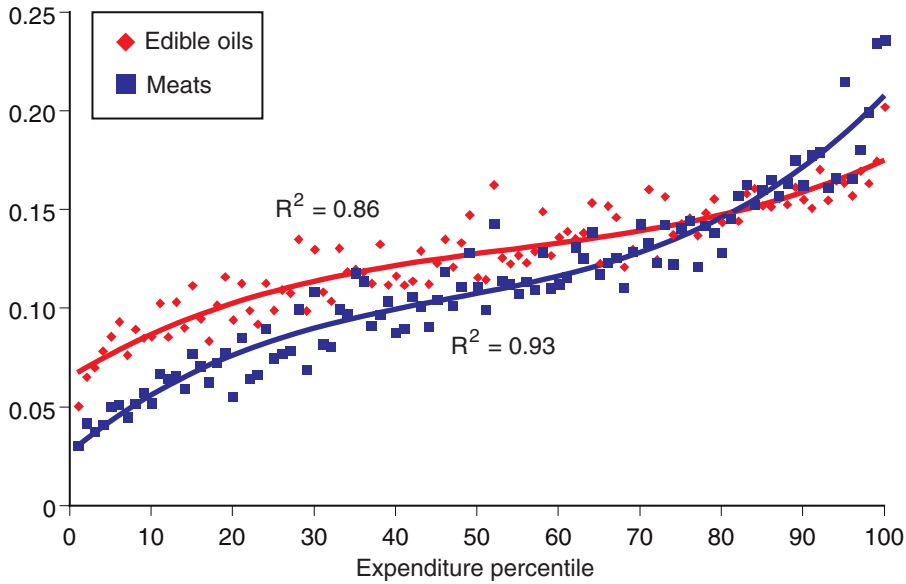


Source: National Sample Survey, 1999/2000.

Figure 12

Consumer expenditures on edible oils and meats by expenditure percentile in India

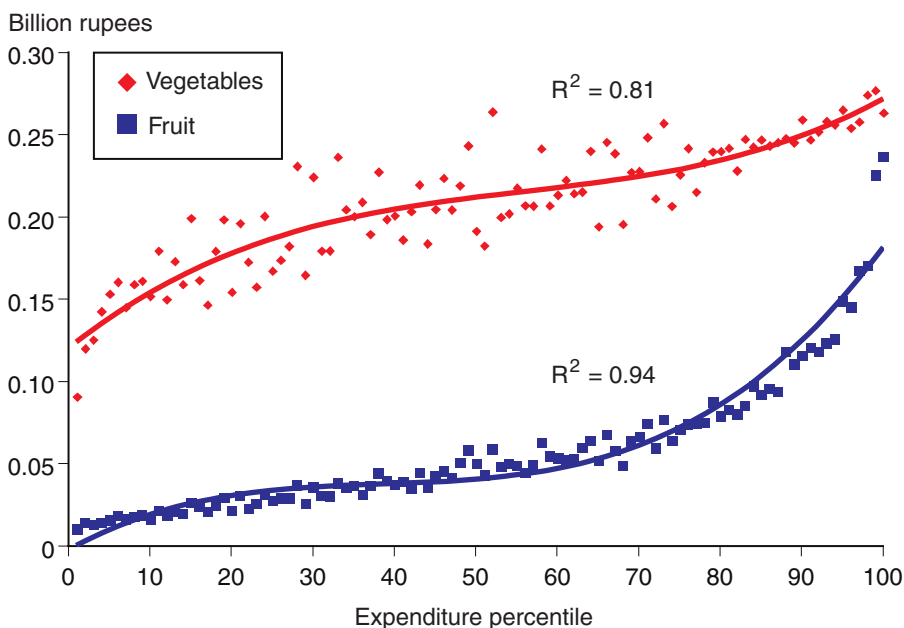
Billion rupees



Source: National Sample Survey, 1999/2000.

Figure 13

Consumer expenditures on fruit and vegetables by expenditure percentile in India



Source: National Sample Survey, 1999/2000.

Policy Factors Affecting Investment

India's agricultural sector—including most aspects of agricultural production, marketing, processing, and trade—has traditionally been heavily regulated. Although an earlier study (Chand and Kumar, 2004) identified the importance of credit availability in driving private investment, a broader range of Indian policies and regulatory interventions is at play in shaping the environment for private investment by farmers and agribusiness. To the extent that regulatory and institutional disincentives for investment have resulted in inefficient markets, they can also limit the potential for farmers—including India's many small farmers—to benefit from and respond to signals from India's expanding and diversifying consumer markets.

The primary goals of regulation have been to enhance food security by ensuring adequate supplies of food staples at affordable prices and to support employment growth through labor-intensive import substitution. Historically, regulation of agriculture has included strict controls on foreign trade, domestic marketing and interstate movement of agricultural produce, the scale of agricultural processing firms, and land ownership (in addition to the taxation, labor, and investment measures that applied to all areas of the economy). While regulation has eased since the early 1990s, there has been less reform in agriculture than in the manufacturing or service sectors of the Indian economy.

India's Constitution vests the governments of India's 35 States and Union Territories with most of the authority to make and implement regulations and policies affecting the agricultural sector. Central government influence over the regulations and policies promulgated by the States stems largely from the extent to which States are dependent on the central government for funds. Many States tend to have unique regulations and policies, which

complicates the regulatory climate facing agribusinesses when operating across State lines. The necessity for obtaining State-by-State legislation and implementation can also slow the process of reform.

India has made progress in reforming market interventions and improving the climate for private investment by farmers and agribusiness since the late 1990s. Plant-scale restrictions have been eliminated for most agribusinesses. Regulation of private movement and storage of farm produce is now less restrictive in many States, and restrictions on the private marketing of farm produce are undergoing reform in most States. Farmers and agribusiness face an improved credit environment. Business taxes are being reduced, food laws are being simplified, and tariff barriers, though high, are declining for some commodities. However, most reforms are being implemented gradually and the lack of a clear political consensus on reducing government intervention in agriculture is likely to continue to slow progress and create risk for investors. In addition, political sensitivity has prevented real progress in several key areas of concern to domestic and foreign investors, including easing restrictive labor laws and developing legal systems to support equitable and efficient rental and sale markets for agricultural land.

Overall, the analysis of individual factors below indicates that the regulatory and policy climate is becoming more supportive of new investment by farmers and agribusiness, but it is not clear if the completed reforms will be adequate to stimulate rapid growth in investment, or if the process of implementing reforms will be sustained.

The Essential Commodities Act

The Essential Commodities Regulation & Enforcement Act of 1955 (or ECA) authorizes the Central and State Governments to make broad ranging interventions in the markets for essential food products to ensure their availability and to protect consumers from possible exploitation by commercial traders (Government of India, Ministry of Consumer Affairs, Food, and Public Distribution, 2007). Under the ECA, Ministries and Departments of the Central Government may issue rules for regulating production, distribution, quality standards, movement, and pricing of essential commodities, including cereals, pulses, edible oils, and sugar. Regulations are implemented through “control orders” issued by State Governments, with monitoring and oversight by the Central Government.

The ECA gives authority to the Central and State Governments to intervene at any level of the supply chain, including:

- Regulating production or manufacture of essential commodities;
- Controlling the price at which essential commodities are bought or sold ;
- Prohibiting the withholding from sale of any essential commodity ordinarily kept for sale (stock holding limits);
- Restricting or preventing private movement of essential commodities across district or State borders.

Control orders under the ECA can be issued by State authorities at any time without Central or State legislative action. State governments may, for example, issue control orders when local prices of essential commodities rise sharply, or if there is suspicion of “hoarding” or black market activities by traders.

Although there is evidence that the imposition of ECA-related restrictions has been declining over time—perhaps because of improved local supplies of cereals and other foods—all States continue to have ECA laws and many have some operative controls over commodity storage and movement (World Bank, 1999). Examples include ongoing controls on the storage, sale, and movement of rice in the State of Tamil Nadu, and recent restrictions on wheat and pulse storage in the State of Maharashtra (Government of Tamil Nadu, 2007; Government of Maharashtra, 2007). Even with declining use, the continued existence of the legal authority to restrict commercial trading and movement of commodities is a source of risk for private investors.

Small-Scale Industry Reservations

The small-scale industry (SSI) sector is a major component of the Indian economy, with about 3.6 million firms accounting for about 39 percent of total industrial value added, 20 million jobs, and 45 percent of total exports. From shortly after independence in 1947 until the late 1990s, most of the food processing sector was, by law, reserved for small-scale firms with a prescribed maximum investment. According to the Industries (Development and Regulation) Act of 1951, this policy was intended to promote the small-scale sector with two objectives: (1) ensuring increased production of consumer goods in the small-scale sector, and (2) expanding employment opportunities through small-scale industries (Government of India, Ministry of Micro, Small, and Medium Enterprises, 2007).

The limit for fixed capital assets for small-scale industries (SSIs) has been increased over time and is currently set at Rs 10 million (about \$247,000). These limits effectively prevented the establishment of large-scale or vertically integrated food processing firms in the past, and continue to do so in the sectors that remain reserved for SSIs. Additionally, the manufacture of most agricultural machinery and many types of food processing machinery was reserved for SSIs before being “dereserved” during 1997-2007. These constraints limited the availability of modern farm equipment and food processing technology. Although some firms received waivers of SSI restrictions to operate larger enterprises, these special licenses have mostly been made available to firms exporting at least 50 percent of their output (Government of India, Ministry of Micro, Small, and Medium Enterprises, 2007).

Since 1997, when rice and wheat milling were removed from the SSI list, food processing industries reserved for the small-scale sector have grown fewer. At present, just six food processing industries remain on the reserved list (Government of India, Ministry of Micro, Small, and Medium Enterprises, 2007):

- Pickles and chutneys
- Bread

- Pastry
- Hard-boiled sugar candy
- Rapeseed, mustard, sesame, and groundnut oil (except solvent extracted)
- Ground and processed spices (other than spice oil and oleoresin spices).

Perhaps as important as SSI policies to the structure of Indian food processing and marketing are the very small-scale, “unorganized sector” firms. These small enterprises operate outside the legal, tax, and regulatory systems that are pervasive in agricultural processing and marketing, and account for about 75 percent of food processing industry output (Government of India, Ministry of Food Processing, 2007). The unorganized sector firms—which the State, local, and Central governments generally choose not to try to control—benefit from avoidance of taxes and regulations and are often competitive with both SSIs and larger firms in supplying small volumes of relatively low-quality goods.

Although only a few food processing industries continue to be reserved for the small-scale sector, the legacy of the SSI policy is an agricultural processing and marketing industry characterized by small, nonintegrated firms and a generally low level of technology. While this structure is beginning to change—with some former SSIs either supplying larger firms, expanding themselves, or closing—agribusiness investors currently face a general lack of competitive suppliers of intermediate goods and services, which may also discourage new investment.

State Agricultural Produce Marketing Committee Acts

Under the authority of India’s Agricultural Produce Marketing Act of 1972 (and its amendments), most Indian States have similar acts (Agricultural Produce Marketing Committee, or APMC, Acts) that regulate the establishment of markets and the marketing of agricultural produce. These acts are intended to ensure that all (or most) trade between farmers and initial buyers occurs through a regulated market, primarily to protect farmers from unfair or exploitative trading practices. But the requirement to market all produce through the regulated markets also facilitates the collection of marketing taxes and fees for State and local governments.

The APMC policies have led to the establishment of more than 7,500 regulated markets in India, each operated by a local marketing committee and supported by the marketing fees collected on each transaction. Marketing fees typically range from 1 to 2 percent, on top of which a market levy is often imposed to support State or local investments in market infrastructure. In general, the quality of marketing infrastructure and services—including roads, marketing floor, weighing, storage, grading, and market information—is poor (Patnaik, 2006). Studies have also found that transactions in regulated markets, where licensed traders can have significant market power, often lack transparency and lead to exploitation of farmers (World Bank, 2006)

The Indian Government has acknowledged that policies established under the APMC Acts have hampered the development of India’s agricultural markets and is now promoting reforms by the State governments (Government of India, Ministry of Agriculture, 2000). In addition to the cost,

quality, and performance issues already noted, the policies have prevented private investment in agricultural markets and infrastructure, and have largely prevented development of coordinated or integrated market structures, such as contracting, that more directly connect farmers and buyers. Although some States have permitted contracts between growers and buyers for specific products, the APMC requirement to trade in regulated markets tended to prevent the emergence of contract farming. Although views differ, some analysts and policymakers have noted the potential advantages of contract farming in India, both in helping growers manage risk and in engaging the private sector in the delivery of inputs and technology (Birthal, 2007; Singh, 2007).

The Ministry of Agriculture is currently promoting the reform of State APMC regulations, including those impeding contract farming and private investment in primary markets, by urging States to conform to a new “model” agricultural marketing act (Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation. 2007). Significant progress has been made in implementing the suggested policy changes, with 25 of India’s 35 States and Union Territories having completed or partially completed the suggested reforms as of January 2007 (table 4). With these reforms and past waivers granted by States to specific enterprises, contract farming activities, particularly for horticultural crops and poultry, are becoming increasingly common. In addition, the recent initiatives by central and State governments to build new terminal markets in Punjab, Haryana, Chandigarh, and Madhya Pradesh, and by the National Dairy Development Board to build the new Safal fruit and vegetable market in Bangalore—all with majority private-sector ownership—indicate an improved climate for private investment (Sharma, 2007; Patnaik, 2006).

Table 4

**Status of State Agricultural Produce Marketing Act reforms
(as of January 2007)**

Stage of reform	Number	States and Union Territories
Reforms completed as suggested by the model act.	12	Andhra Pradesh, Arunachal Pradesh, Chandigarh, Chattisgarh, Himachal Pradesh, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Punjab, Rajasthan, Sikkim
Reforms suggested by the model act partially completed.	5	Delhi, Gujarat, Haryana, Karnataka, Uttar Pradesh
Existing act already provides for reforms suggested by the model act.	1	Tamil Nadu
No existing act; no reforms required.	7	Andaman & Nicobar Islands, Bihar, Dadra & Nagar Haveli, Daman & Diu, Kerala, Lakshadweep, Manipur
Reforms suggested by the model act initiated but not completed.	10	Assam, Goa, Jammu & Kashmir, Jharkhand, Meghalaya, Mizoram, Pondicherry, Tripura, Uttaranchal, West Bengal

Source: Ministry of Agriculture, Government of India, 2007.

Land Tenure Policies

Operational holdings of agricultural land in India are small and fragmented, reflecting the pressure of a large rural population on available cultivable land, as well as laws that set landownership ceilings and weak legal frameworks to support the sale and rental markets for farmland. About 63 percent of India's land is farmed in operational holdings of less than 4 hectares, and holdings are becoming more fragmented as farms are divided through inheritance (table 5). India's average operational holding of just 1.3 hectares is larger than in China and some other developing countries, but small relative to holdings in other major agricultural regions such as the United States, the EU, Brazil, Argentina, Canada, and Australia.

Such small operational holdings discourage agribusiness investment by complicating vertical coordination or integration by traders and processors because of the need to assemble produce from so many farmers. Throughout India, national and State laws prevent private companies, as opposed to individuals, from owning agricultural land except for specific approved purposes, such as producing seed or conducting scientific research. It is unclear whether Indian marketing firms and processors will be able to work successfully with large numbers of small farmers. If unsuccessful, this factor could limit the economic viability or scale of vertically integrated food marketing and processing enterprises.

With laws typically capping landholdings at 15-20 hectares, far above the current average holding size, progress in improving land rental markets may be an important step in allowing operational holdings to grow to more efficient scales. Land rental and tenancy laws vary by State, with relative freedom of land rental in some States (Assam, Punjab and Haryana), and a total ban on rentals in others (Bihar, Gujarat, Karnataka, Kerala, Manipur, Orissa, Rajasthan, Jammu & Kashmir and Uttar Pradesh). Lack of clear landownership records is often a key impediment to reform, although a number of States have made progress in land registration and computerization of land records. Also, legal frameworks often place landowners at risk by giving tenants ownership rights after land is rented and operated for several years. This precedent reportedly discourages the rental of farmland and results in near-term rentals that discourage investment in land improvement.

Table 5

Distribution of operational agricultural landholdings in India

Size	1995/96		2000/01	
	Share of holdings	Share of area	Share of holdings	Share of area
	<i>Percent</i>			
Marginal (< 1 hectare)	61.6	17.2	63.0	18.8
Small (1-2 hectares)	18.7	18.8	18.9	20.2
Semi-medium (2-4 hectares)	12.3	23.8	11.7	24.0
Medium (4-10 hectares)	6.1	25.3	5.4	23.8
Large (>10 hectares)	1.2	14.8	1.0	13.2

Source: Ministry of Agriculture, Directorate of Economics and Statistics, *Agricultural Statistics at a Glance 2006*.

Some States, including West Bengal, have achieved success in improving tenant registration and strengthening land rental and sales markets. Recent policy statements—including the National Agricultural Policy, 2002, and 10th Five-Year Plan document—urge the reformulation of tenancy laws to encourage advanced commercialization of agriculture.

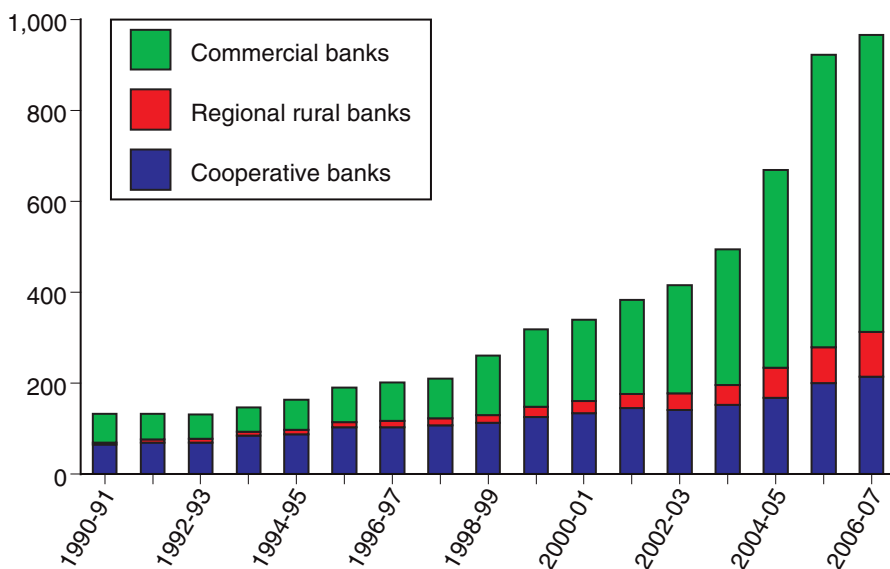
Credit Policies

India’s agricultural credit system—an extensive network of cooperative, public sector, and commercial banks—has significantly improved both the availability and terms of credit for agriculture and allied activities since the late 1990s. Following sluggish growth in availability during most of the 1990s, institutional agricultural credit has expanded about 19 percent annually in real terms since 2000, with private commercial banks accounting for most of the expansion (fig. 14). The surge in credit availability has been particularly strong since the announcement of a “Farm Credit Package” in 2004 that aimed at doubling farm credit within 3 years, but has exceeded its annual targets with increases of 37 percent and 40 percent in the first 2 years of implementation.

An important mechanism for expanding the availability and use of credit by producers has been “Kisan (Farmer) Credit Cards.” The cards were introduced in 1998 and, by 2006, were available to about 64.5 million farmers (Government of India, Ministry of Finance, Economic Survey, 2008). Despite the improved availability of institutional credit, about 41 percent of Indian farmers, often those with smaller landholdings, remain dependent on traditional moneylenders at other noninstitutional sources of credit (Government of India, Ministry of Statistics and Program Implementation, 2005).

Figure 14
Direct institutional credit for agriculture and allied activities in India

Billion 1993/94 rupees

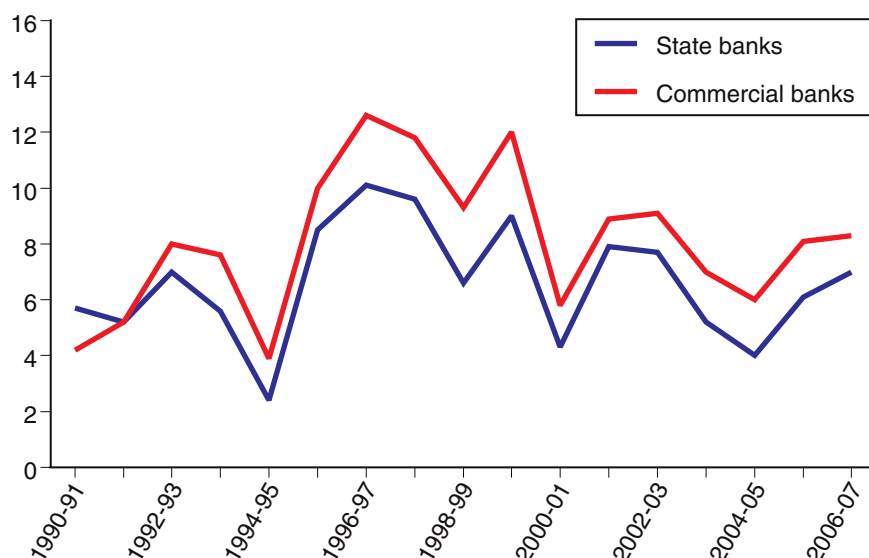


Source: Reserve Bank of India; Government of India, Ministry of Agriculture, Statistics at a Glance, 2006.

Figure 15

Prime real lending rates in India

Percent/year



Source: Reserve Bank of India; Government of India, Ministry of Agriculture, Statistics at a Glance, 2006.

Credit availability has also improved—and interest rates have generally declined—for business investors. Ensuring a supportive monetary and interest rate environment for investment has been a top policy priority of the Indian Government. Despite rapid economic growth, inflation has averaged about 5 percent and interest rates have generally declined since the late 1990s. Overall, business investors have enjoyed relatively low and stable real interest rates since 2000 (fig. 15).

Tax Policies

Indirect taxes, including tariffs on imported goods and excise taxes on domestically manufactured products, are a major source of government revenue in India, accounting for about 52 percent of the tax receipts and 41 percent of the total revenue receipts of the central government. Agricultural marketing and retail sales taxes are also important sources of State revenue. Declining excise tax rates and tariffs have reduced the share of indirect taxes in total government revenues since the early 1990s, while direct taxes on personal and business income have accounted for an increasing share of revenues.

In 2005, the Central and State governments began implementing a central value-added tax (VAT) system that will eventually unify the central excise and State sales tax systems across all States. The VAT system imposes taxes only on the value added at each step of the supply chain through a system of firm credits for taxes paid on purchased intermediate inputs, thus preventing the cascading of taxes on final products. Introduction of the VAT, together with simplification and reduction of State sales and marketing taxes and indirect taxes, will lower business costs, particularly for larger and integrated firms operating across multiple States.

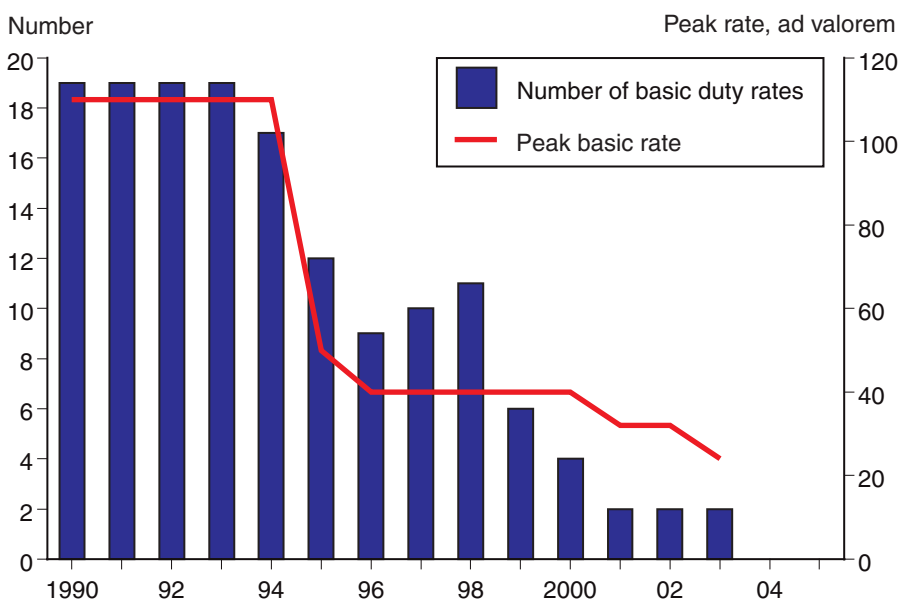
Excise taxes. India’s traditionally high excise taxes have been reduced significantly since economywide reform began in the early 1990s (fig. 16). The excise tax system has been steadily simplified with fewer basic rates, and peak tax rates have been reduced from 110 percent (ad valorem) in 1991 to 24 percent by 2004. However, despite declining rates, excise tax revenues have remained buoyant—growing more than 9 percent annually in real terms since 1999/2000—due to rising demand and improved tax compliance (Government of India, Ministry of Finance, *Economic Survey*, various issues).

Traditionally high excise tax rates for many processed agricultural products have also been reduced (table 6), stimulating demand through lower consumer prices and improving the investment climate for food processors. For “organized” sector firms—those that pay taxes—lower excise taxes will also improve their competitiveness with firms qualifying as small-scale industries, which receive concessional tax treatment, and with unorganized sector firms, which often pay little or no taxes.

State sales and agricultural marketing taxes. State taxes on retail sales and transactions in regulated agricultural markets are typically major sources of State revenue. Tax rates vary by State as well as by product. In 2005, prior to introduction of the value added tax (VAT) system, sales tax rates for processed agricultural products ranged from 8 to 23 percent, with most of the largest States imposing taxes of 12-16 percent. With the VAT, these rates will likely decline and converge across States, although it is not clear how quickly this will happen (World Bank, 2005).

Agricultural marketing taxes imposed on all agricultural produce at the first point of sale also vary significantly by State. These taxes typically include marketing fees of 1-2 percent and development or infrastructure “cesses” (fees) as high as 5 percent, on top of mandatory commissions and fees for

Figure 16
Trend in central excise taxation in India



Source: Government of India, Ministry of Finance, *Economic Survey* various issues.

Table 6

Changes in India's excise taxation of food products since 2001

Year and product	From	To
2001/02:		
Fruit & vegetable preps	16%	0
2002/03:		
Tea	2 rupees/kg	1 rupee/kg
2003/04:		
Branded, packed refined edible oils	0	8%
2004/05:		
Processed meat, fish, and poultry prod.	16%	8%
Cakes and pastries	8%	16%
2005/06:		
Surcharge on refined edible oils	1 rupee/kg	0
2006/07:		
Condensed milk	16%	0
Ice cream	16%	0
Processed meat, fish, and poultry prod.	8%	0
Pasta	16%	0
Ready-to-eat processed foods	16%	8%
2007/08		
Packed biscuits	16%	0

Source: Government of India, Ministry of Finance, Economic Survey, various issues.

cleaning, weighing, bagging, and other services paid to private agents in the market (World Bank, 2005). The reform of State Agricultural Produce Marketing Committee laws—already underway—may create more competition with private markets and eventually reduce these fees.

Direct taxes. India has also taken steps to extend direct tax incentives to the food processing industry. In 2004/05, the Government announced a package of incentives for new firms that process, preserve, and package fruits and vegetables, including a 5-year waiver of direct taxes plus a 25-percent reduction in taxes for the next 5 years. In 2005, India also increased tax incentives for the development of Special Economic Zones (SEZs) and for firms, including agro-processing firms, operating in SEZs, among them:

- Duty-free import of goods for development, operation, and maintenance of SEZ units;
- 100-percent income tax exemption on exports from SEZ units for the first 5 years, 50-percent exemption for years 6-10, and a 50-percent exemption of reinvested export profits for years 11-15;
- External commercial borrowing by SEZ units up to \$500 million/year, without restriction, through recognized banking channels;
- Exemption from central Government sales and service taxes;
- Exemption from State sales taxes and other State levies.

As of April 2008, six new food and agri-processing SEZs have been approved. How quickly the SEZ policy will improve investment in these sectors is uncertain due to ongoing disputes over the acquisition of land—particularly agricultural land—to accommodate the SEZs.

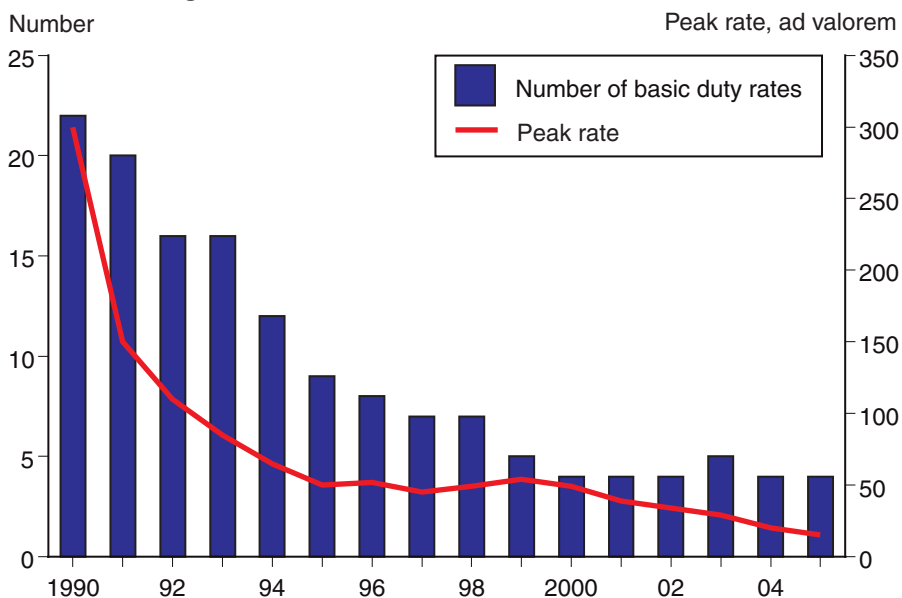
Tariff Policy

Import tariffs have also been simplified and reduced since the early 1990s (fig. 17). Peak tariffs—the rates charged for the most highly protected products—for nonagricultural goods dropped from 300 percent in 1991 to 12.5 percent by 2006. In agriculture, import access has improved due to the removal of quantitative restrictions in 2001 and some reductions in applied tariffs, but bound agricultural tariffs remain high relative to other sectors of the Indian economy, and relative to most other countries. Although the Government has been reluctant to reduce agricultural tariffs that protect India’s many small farmers and small-scale agribusinesses, many agricultural tariffs are now set well below World Trade Organization bound rates (table 7). There has been a tendency in recent years to reduce tariffs when domestic shortages lead to significantly higher consumer prices for essential food commodities. Setting applied tariffs well below bound rates has led to India’s emergence as a major importer of pulses and vegetable oils since the 1990s. More recently, India has reduced its applied tariffs for wheat and corn to zero and sharply lowered its tariffs on palm oil products to help augment domestic supplies and stabilize prices.

Reduced tariff protection presents both challenges and opportunities for investors in agriculture and agribusiness. On the challenge side, lower tariffs imply more competitive pressure to reduce costs and improve quality through increased scale, improved technology, and vertical integration. Reduced agricultural tariffs may tend to discourage some new investment aimed at serving rising domestic demand. However, competitive pressure could foster gains in efficiency and quality that allow agriculture and agribusinesses to expand in both domestic and global markets. Some agribusinesses may benefit from freer trade in raw materials and intermediate products. For example, greater access to imported oilseeds could benefit producers and consumers by allowing greater oilseed processing

Figure 17

Trend in nonagricultural tariffs in India



Source: Government of India, Ministry of Finance, Economic Survey various issues.

Table 7

India's bound and applied tariffs for selected agricultural products

	Bound rate	Applied rate ¹
	<i>Percent</i>	
Grain and oilseeds		
Pulses	100	0
Wheat	100	0
Rice	70	70
Corn	70	0
Oilseeds	100	30
Horticulture		
Apples	50	50
Oranges, lemons, grapes	100	30
Potato	100	30
Onions	100	5
Meats		
Poultry, whole	100	30
Chicken, leg	150	100
Processed products		
Wheat flour	150	0
Milk powder	60	60
Cheese	40	30
Sugar	150	60
Frozen vegetables	150	30
Oilcake	100	15
Crude soybean oil	45	40
Crude palm oil	300	45
Refined soybean oil	45	45
RBD palm olein	300	52.5

¹As of January 2008.

Source: Ministry of Agriculture, Directorate of Economics and Statistics, *Statistics at a Glance, 2007*.

efficiency (Persaud and Landes, 2006). And, access to competitively priced feed can be critical to contain production costs and maintain growth in consumption and production of poultry meat and eggs (Landes et al., 2004).

Labor Policies

Under the Indian constitution, labor law is on the “concurrent list,” giving both the Central and State governments the authority to enact legislation on most labor matters. India’s comprehensive labor laws—aimed primarily at protecting the rights of employees—are often seen as a disincentive to new investments by larger, organized sector firms. For example, firms with more than 100 employees are required to obtain government permission before laying off workers and can remain obligated to pay workers even after a unit has gone out of business. There are approximately 45 central government laws addressing labor practices and roughly four times that number of additional laws enacted by States (Basu, 2006). Some of the major central government laws are:

- Workmen’s Compensation Act, 1923: Specifies compensation to be paid in case of injury or death of a worker.

- Payment of Wages Act, 1936: Specifies when and how wages must be paid and what deductions are permitted.
- Industrial Employment (Standing orders) Act, 1946: Requires employers to clearly define the conditions of employment in conformance with model “standing orders” dealing with worker classification, holidays, shifts, payment of wages, leaves, termination etc.
- Industrial Disputes Act, 1947: Provides for investigation and settlement of disputes; sets conditions for laying off workers.
- Minimum Wages Act, 1948: Sets minimum wages for all employees.
- Employees Provident Fund and Miscellaneous Provisions Act, 1952: Requires minimum employee and employer contributions to “Provident Fund” or retirement accounts.
- Maternity Benefit Act, 1961: Requires payment of maternity benefits and/or medical bonus and maternity leave for women employees.
- Payment of Bonus Act, 1965: Requires payment of specified bonuses to employees of firms with 20 or more employees.
- Payment of Gratuity Act, 1972: Requires payment of specified gratuity, or separation allowance, to employees of firms with 10 or more employees, (Embassy of India, 2007).

Significant reform to India’s labor laws to give employers more flexibility in hiring and laying off workers has proven difficult at the central government level, but several States have made changes to support growth in the information technology industry or to attract foreign investment. To avoid falling under the purview of these laws, many larger firms prefer hiring contract labor or organizing into a number of units small enough to avoid the regulations. Locating within an SEZ, where labor laws are sometimes less restrictive, may also be increasingly attractive to new investors.

Food Laws

Until the new Food Safety and Standards Bill was passed in August 2006, India’s food processing industry was subject to regulation by eight government ministries administering more than a dozen legislative acts dating as far back as 1954. The complex, overlapping, and sometimes contradictory regulatory environment was seen as a deterrent to investment and innovation in food processing.

The 2006 bill, which awaits implementation, consolidates the laws relating to food and establishes a Food Safety and Standards Authority of India to set science-based food standards and regulate the manufacture, import, processing, distribution, and sale of food. The “Food Authority” is to be established in the Ministry of Health and supported by scientific committees and panels in setting standards. According to the legislation, the goal is to have an effective and transparent regulatory framework that will allow the food industry to work efficiently and attract investment. The new legislation is to be enforced by State Governments, State Commissioners for Food Safety, and local government bodies.

Foreign Direct Investment Policy

Indian investment rules currently permit FDI up to 100 percent ownership in most sectors, and in most cases with automatic approval. This includes investment in India's Export Oriented Units and, more recently, in India's planned Special Economic Zones. Key agricultural areas where FDI is currently not permitted (Government of India, Ministry of Finance, Union Budget, various issues) are:

- Retail trading, except for wholesale trading and single-brand retailing.
- Agricultural production, except for floriculture, horticulture, development of seeds, animal husbandry, fisheries, cultivation of vegetables under controlled conditions, tea plantations, and services related to agriculture and allied sectors.
- Housing and real estate.

Foreign investors and firms can enter India as either incorporated or unincorporated entities. Incorporated firms can be established through joint ventures with existing firms, or as wholly owned subsidiaries of foreign companies. Unincorporated entities can take the form of liaison, project, or branch offices of foreign firms. All profits, dividends, and foreign investment may be freely repatriated, except for special cases where nonresident Indians invest in specific schemes that do not permit repatriation (Government of India, Ministry of Commerce and Industry).

Restrictions on agricultural production and, particularly, multi-brand retailing likely deter some foreign firms from investing in Indian agribusiness. In the absence of a competitive and efficient domestic food retailing industry, the inability to integrate forward into retailing likely reduces the potential profitability of investments in food supply chains by multinational retailers. However, it is likely that foreign investors are as discouraged—and perhaps even more so—by the same regulatory and policy disincentives faced by domestic firms investing in agribusiness.

Infrastructure Factors Affecting Investment

The climate for agribusiness investment in India is also shaped by the availability, quality, and costs of various infrastructural services required by agricultural producers, traders, and processors. In general, India's transport, power and water infrastructure, while often available at low cost, is of poor quality. Similarly, the institutions that provide important agricultural services, such as market information and grading/inspection services, are generally considered to be weak, while the agricultural research and extension system is criticized for being unresponsive to emerging needs of the farm sector. These infrastructural and institutional deficiencies impose additional costs and risks for new investors.

Power

India's economy labors under a chronic shortage of electrical power. During 2003-2005, the average energy deficit was more than 7 percent and the average peak shortage was about 11 percent, gaps that have not been closed

Table 8

Estimated average power tariffs and costs in Indian States, 2001-02

Category	India average	Andhra Pradesh	Uttar Pradesh	Rajasthan	Tamil Nadu	Haryana
<i>Rupees per kilowatt-hour</i>						
Agriculture	0.42	0.14	1.19	0.46	0.01	0.48
Domestic	1.95	1.74	1.81	1.90	1.81	2.80
Industry	3.79	4.41	4.82	3.95	3.95	4.51
Overall	2.40	2.22	2.59	2.21	2.37	2.25
Cost of supply	3.50	3.61	3.83	3.68	3.09	4.12

Source: Planning Commission, May 2002.

significantly in the last decade. About 64 percent of India's power is generated by thermal plants, 25 percent from hydroelectric facilities, 8 percent from wind and other renewable sources, and 3 percent from nuclear plants (Ministry of Power, 2008). Plans to reduce the energy deficit by expanding public and private investment in power generation and transmission are ambitious, but have generally fallen below target.

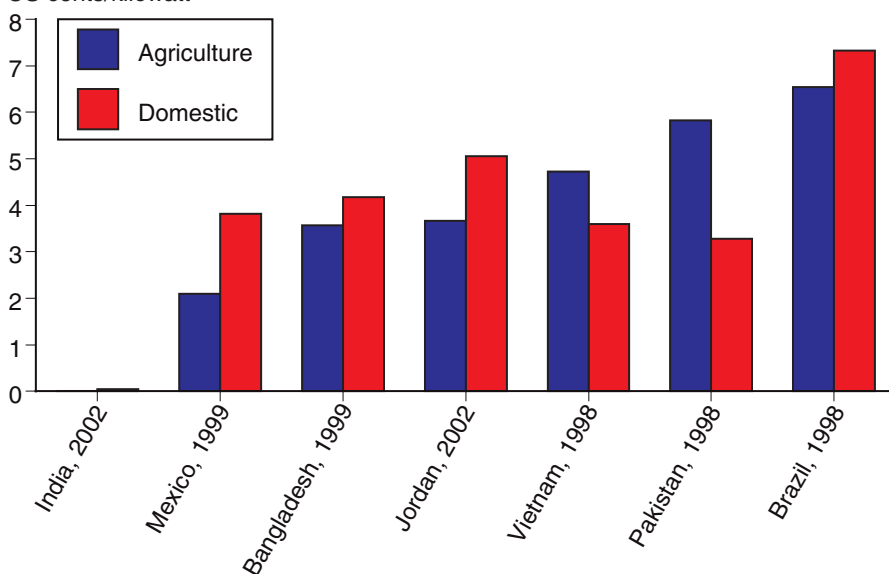
Low cost recovery is a fundamental problem of the power sector, leading to underinvestment in new generation and transmission capacity, as well as poor maintenance of existing capacity. Large subsidies on household and agricultural power use, together with significant theft, are key sources of low cost recovery. Power rates for agricultural uses are heavily subsidized throughout India, while industrial users are charged high power rates that cross-subsidize agricultural and household users. Overall, however, the average power tariff accounts for only about 70 percent of the costs of generation and transmission (table 8).

Power costs for both agricultural and household (domestic) uses in India are low by international standards (fig. 18). This cost advantage for farmers

Figure 18

Agricultural and domestic (household) power tariffs, selected countries

US cents/kilowatt



Source: Kapoor and Barnes, 2003.

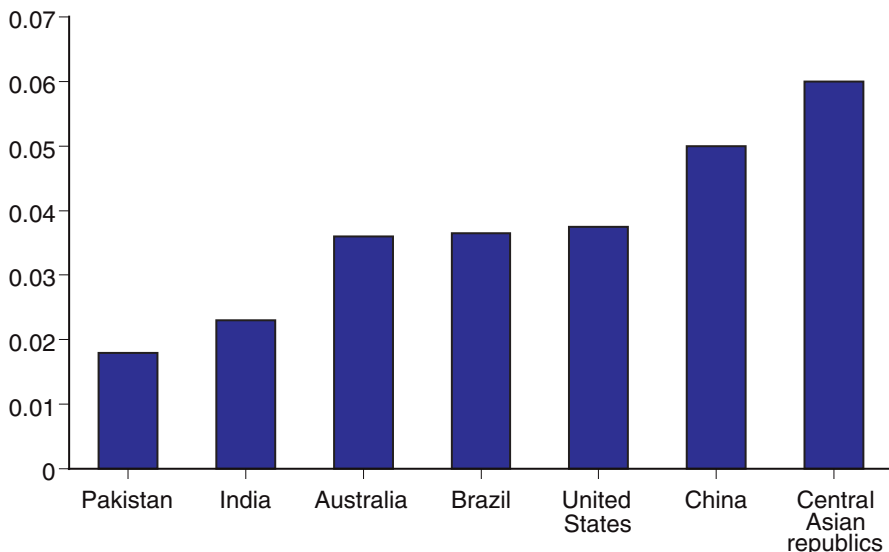
and farm households is at least partially offset by power rationing, frequent power interruptions, and voltage fluctuations that damage pumps and make water supplies unreliable. In addition, India's power subsidies are hastening the depletion of groundwater resources due to the low cost of operating electric irrigation pumps (Gulati and Narayanan, 2003).

The industrial and commercial sectors account for about 36 percent of India's power use, compared with 29 percent by agriculture, 21 percent by households, and 14 percent by other users. However, because of problems with power availability and quality and the high cost of power to industrial users, a growing number of firms (and households) are investing in their own "captive" power generation facilities to supplement supplies from the power grid. Captive power capacity is estimated to be about 20,000MW, or 16 percent of the total capacity operated by public utilities (Hindu Business Line, 2005; Government of India, Ministry of Power, 2008).

In June 2003, the Government of India enacted the Electricity Act, which provides a framework for comprehensive power sector reforms. The act authorizes the Central Government to harmonize central and State laws, enforce national policies, and establish a competitive environment for the power sector. Power generation no longer requires a license, and new rules are established to strengthen transmission and support private investment in power generation and distribution. The act progressively reduces cross-subsidies and moves tariffs toward the actual cost of supply. Progress on power reform has been mixed. Additions to generating capacity are expected to meet only 57 percent of the current 5-year planning target, while the weighted-average power tariff increased 13.4 percent between 2003 and 2007, led by large hikes in agricultural tariffs (Government of India, Ministry of Finance, Economic Survey, 2006/07).

Figure 19
Average truckload freight rates in selected countries, 2002

\$ per ton per kilometer



Source: World Bank, India Road Transport Service Efficiency Study, Energy and Infrastructure Operations Division, South Asia Regional Office, November 1, 2005.

Transportation

More than two-thirds of India's domestic freight is transported by road, with the remainder shipped primarily by rail. Although India has an extensive rail transport system, the use of road transport grew from 51 percent of all freight in 1991 to 67 percent by 1998. Users have grown to regard road transport as more readily available, reliable, and cost-effective than rail transport (Cook et al., 1999; World Bank, 2005a).

India's road freight transport sector, while competitive and low-cost compared with other countries (fig. 19), tends to be slow and unreliable. For example, average transit time for the 1,408-kilometer (875 mile) trip between Delhi and Mumbai is 3 days, and for the 2,019-kilometer (1,255 mile) trip from Delhi to Bangalore it is 4-5 days, both about twice the time that would be expected in the United States. Slow and unreliable transit times stem from low speeds associated with poor roads and mixed traffic, lack of urban bypasses, and delays for inspection and fee collection at internal border checkpoints. Checkpoint delays alone typically account for 15-25 percent of the transit time (World Bank, 2005a).

Both road and rail transport systems have very limited capacity for bulk handling and transport of agricultural commodities. With a few exceptions, cereals, oilseeds, and other basic agricultural commodities in India are handled and transported in gunny sacks via standard, multi-purpose trucks or railway wagons. Refrigerated rail or road transport of perishable agricultural products is also limited. However, private investment in refrigerated road transport is growing, with subsidized financing available through government programs.

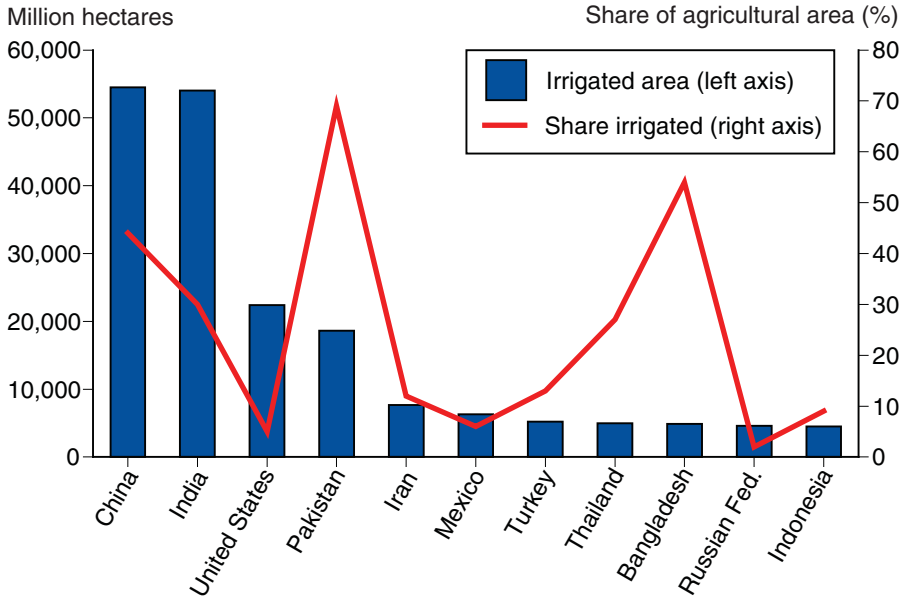
Water

Growth in irrigated area has boosted Indian farm output through both higher yields and increased cropping intensity. About 54 million hectares—or 30 percent of all agricultural land—is now irrigated, making India second only to China in irrigated area (fig. 20). The largest share of and most of the growth in irrigated area is associated with private investment in wells and diesel/electric pumps for groundwater irrigation. Power subsidies have prompted the expansion of groundwater irrigation. Surface-water irrigation—which is dependent on public investment in dams, reservoirs, and canals—accounts for about a third of irrigated area, a share that has been declining. Rising public investment costs for new surface-water projects, together with the cost of subsidies for canal water, are contributing to the slowed growth of surface irrigation. In some areas, particularly in north India where intensively irrigated wheat and rice have become common, agriculture is increasingly threatened by water logging and salinity problems associated with high rates of canal irrigation and extraction of groundwater (Gulati and Narayanan, 2003; Gulati et al., 2005).

With the expansion of irrigation, agriculture now accounts for 84 percent of total water use in India (Government of India, Planning Commission, 2002). Many regions face a growing challenge as agricultural, industrial, and household uses compete for water resources. Industrial uses now account for 3-5

Figure 20

Countries with the largest irrigated area



Source: Food and Agriculture Organization, FAOSTAT database.

percent of water use, about half from surface-water and half from groundwater sources. While most States promise adequate water supplies as part of their industrial policies, highly water-dependent industries tend to locate facilities only in water-surplus areas. Water demand by domestic and industrial users is projected to grow 27 percent and 14 percent, respectively, between 2010 and 2025 (Rosegrant et al., 2002), necessitating more government emphasis on water use regulation, pricing of water, and water resource development.

Agricultural Research and Extension

India has one of the largest public sector agricultural research and extension systems in the world, as well as a growing private sector research and extension industry. Both public and private research and extension have been important factors in agricultural productivity growth in India, with public research accounting for about 30 percent of total factor productivity growth between 1956 and 1987 and private sector research accounting for about 11 percent (Evenson et al., 1999).

The public agricultural research system—governed by the Indian Council for Agricultural Research (ICAR)—includes 47 central research institutes, 32 national research centers, and 37 State agricultural universities with more than 30,000 research staff (Government of India, Ministry of Agriculture, Indian Council of Agricultural Research, 2007). ICAR and the public research system have been criticized for failing to adapt research priorities to the changing economic and scientific environment for agriculture (Government of India, Planning Commission, 2005; World Bank, 2004). Key issues include making research more demand based to meet the needs of an increasingly diverse agricultural consumption basket, adapting research and extension to new agricultural technologies, and developing more effective public-private research partnerships. A new multi-year

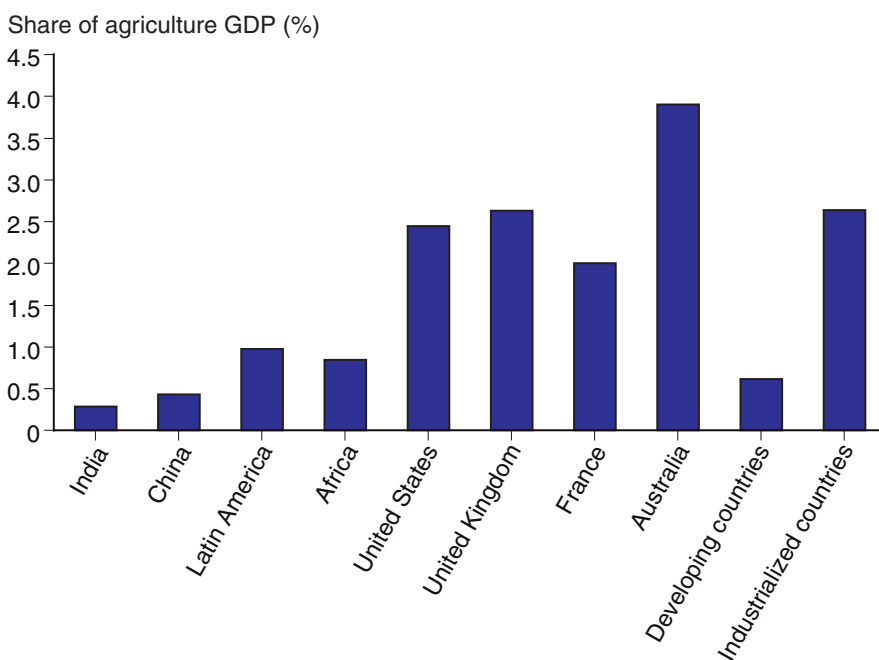
National Agricultural Innovation Project funded by the World Bank seeks to address these issues through research capacity building and the formation of public-private consortia focusing on research questions across agricultural supply chains.

Private sector participation in agricultural research is increasing. Government efforts to promote biotechnology research and recent steps to strengthen and clarify intellectual property protections—including passage of the Plant Variety Protection and Farmers’ Rights Act (2002) and formulation of the National Seed Policy (2002) and the National Seed Act (in draft)—provide an impetus for private sector involvement in research. At present, private sector research tends to focus on higher value crops (Bt cotton, Bt eggplant, etc.) and on plant types (hybrid seeds) with high expected returns to private investment.

Historically, public investment in agricultural research in India has been low relative to many other countries (fig. 21), but investment has increased since the late 1990s (fig. 22). During 2000-2007, available data indicate that public investment grew about 6 percent annually in real terms, implying a continued increase in investment as a share of agricultural output.

Public agricultural extension is primarily the responsibility of State governments, and has been much criticized for lack of effectiveness (Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, 2002; Planning Commission, 2005). Key problems include understaffing, lack of coordination, and difficulty in shifting from the historical focus on food grain production to a more diverse set of crop and marketing issues. The Government’s New Policy Framework for Agricultural Extension

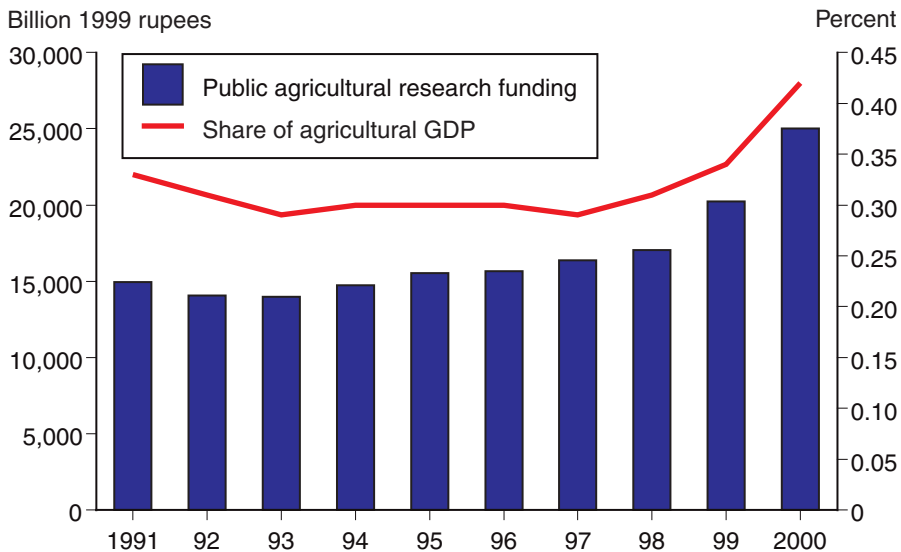
Figure 21
Public agricultural research expenditures in selected countries and regions¹



¹ 1995 data for all countries except the United States (1993) and Australia (1994).
 Source: Pal and Byerlee, 2003.

Figure 22

Public agricultural research funding in India



Source: Pay and Byerlee, 2003.

sion (2002) seeks to instill a new approach that concentrates on increasing farm household income through agricultural diversification. The goal is to make the extension system more market-oriented and farmers more competitive in domestic and international markets.

Along with the government effort to strengthen and improve funding for public extension services, private companies and nongovernmental organizations (NGOs) are becoming more active in providing extension services. Models employed by private firms and NGOs include fee-for-service extension, extension linked to input supply or marketing services, and extension linked to contract farming or vertical coordination (World Bank, 2004).

Cold Chain Capacity

Although cold chain capacity is expanding due to public and private investments, India’s capacity for cold storage and refrigerated transport of perishable food products is limited. Cold storage capacity in 2006 was 21.7 million tons, reflecting growth of about 11 percent since 2004 (Government of India, Ministry of Food Processing, 2007). As of 2003, approximately 90 percent of total cold storage capacity was used to store potatoes, with other fruit and vegetable products accounting for about 7 percent and dairy products about 1 percent.

Only a few integrated cold chains are established in India, including two serving the dairy industry (Gujarat Cooperative Milk Marketing Federation, and Mother Dairy Foods Processing Ltd), one serving the franchises of McDonald’s India, and Snowman Frozen Foods Ltd, which operates the only countrywide cold storage and refrigerated transport network. Most cold storage and refrigerated transport capacity is operated by small, nonintegrated firms that do not make use of state-of-the-art technology or management practices (U.S. Trade and Development Agency, 2006).

A number of programs now aim at expanding investment in cold chain capacity:

- A capital investment subsidy scheme for construction, expansion, and modernization of cold storage for produce is being implemented by the National Horticulture Board of the Ministry of Agriculture. Between 2001 and 2004, this scheme facilitated private investment in about 4.7 million tons of new cold storage capacity (Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, 2005).
- The Central Warehousing Corporation (CWC), the largest owner of warehouse capacity in India, is developing a large cold storage facility near Delhi, with plans to develop other modern cold storage facilities throughout the country.
- The Agricultural Processed Food Products Export Development Authority (APEDA), part of the Ministry of Commerce and Industry, is promoting the development of world-class perishable cargo facilities at air cargo terminals.
- The Container Corporation of India Ltd is building cold storage units across the country, as well as refrigerated containers, to support agricultural exports.

Institutional Services for Agriculture

Many of the institutional services needed to support agricultural markets are in the early stages of development in India. In some cases—such as grades/standards and market information—the services have been the responsibility of government agencies that have not adapted to provide the services needed by expanding and diversifying markets. In other cases—such as futures trading—government policies that have regulated markets to protect consumers or farmers have prevented or slowed the evolution of market services.

Grades and standards. The Agricultural Produce (Grading and Marketing) Act of 1937 empowers the Government to fix quality grades, authorize commodity grading, specify labeling and packaging requirements, and confiscate substandard produce. In practice, government decisions on grades and standards issues are seldom rendered in cooperation with the private sector. Although government agencies establish and revise grades and standards for many commodities, there are generally no inspection services in Indian markets and commodities are seldom bought and sold based on these grades and standards. Most Indian grain, for example, is traded based on the broad standard of “fair-to-average quality (FAQ)” with no formal grading, although some private buyers and sellers trade grains at premiums or discounts to the FAQ price based on their independent quality assessments.

Market information. There is a critical shortage of objective, reliable, and timely public information on most major Indian commodity markets, including traded volumes and prices, production, consumption, and stock levels. Although public market reporting by the Ministry of Agriculture and State governments is improving, current reporting includes a limited range

of variables—mostly wholesale prices and production estimates—of uncertain quality. The lack of adequate public market information tends to raise the transaction costs and price risk faced by market participants, creates the potential for information asymmetry between large and small players in the market, likely reduces marketing efficiency, and limits information available to support policy formulation. Several private sector firms now sell market information based on their proprietary data collection, and others provide marketing data through their village-level agricultural service centers.

Futures trading. The Government removed its longstanding prohibition on futures trading in most agricultural commodities in 2003/04, leading to the immediate formation of several exchanges to trade futures contracts in major farm commodities (Government of India, Ministry of Finance, Union Budget, 2004/05). However, except for a few commodities that have had a longer history of futures trading—most importantly soybean oil, which has been traded since 2000—traded volumes remain small compared with overall market size and contracts often lack liquidity, thus limiting the utility of the markets for hedging risk.

While the availability of futures contracts and traded volumes have tended to increase, there continues to be concern over the impact of speculators and unscrupulous traders on the stability of consumer prices for essential commodities. In 2006/07, a government panel determined that futures market activity was contributing to a runup in consumer wheat and rice prices, leading the Government to announce a cessation of wheat and rice trading in February 2007, which remains in effect (U.S. Department of Agriculture, Foreign Agricultural Service, 2007). As a result of limited contract liquidity and uncertain government policy, prospective investors in agricultural production, marketing, and processing enterprises continue to face limited and uncertain access to risk management tools.