Chapter 3. Trends and evaluation of agricultural policy in India

The chapter describes the evolution of agricultural policies in India since 2000, focusing on current policy settings and institutional structures established to implement such policies. It also presents a quantitative evaluation of support provided through India’s domestic and trade policies, based on the support indicators developed by the OECD (including, among others, the Producer Support Estimate, the Consumer Support Estimate, and Total Support Estimate).
3.1. Introduction

Although India’s Constitution specifies that only the individual states have legislative power in agriculture, the union retains residual powers (Chapter 2). The Government of India, also called the union government, the central government or the centre, provides most of the government expenditure on agricultural and food policy and has scope for much regulatory intervention in the sector. The actions of the central government therefore dominate the picture of agricultural and food policy in India, but the role of state governments is crucial.¹

3.2. Agricultural policy framework

Agricultural policy objectives and basic stages of agricultural policy reform

From India’s early years, seeking to achieve food security has been an important part of the objectives of both its agricultural and trade policy. The phrase food security has been given different conceptual and practical interpretations over time, whether emphasising national self-sufficiency in food production, economic access to food for certain groups, or other dimensions. The consequent policy approaches have therefore also evolved over time. Before the year 2000 no explicit agricultural policy objectives were published at the central government level, other than the priorities outlined in the five-year plans. An implicit objective, to a large extent driven by the experience of food shortages in the early 1960s, was to pursue self-sufficiency in food production. By the 1990s India had not only become self-sufficient in food grains but produced a surplus of food grains. Although the early five-year plans thus focussed to a very large extent on agriculture, the last one was seeking faster, more inclusive and sustainable growth more broadly by bringing macroeconomic imbalances under control and reversing the economic slowdown while also pushing for structural reform in many areas.

1950s-1980s

In the first few years after India’s independence in 1947 growth of agricultural output was achieved mainly by expanding the area under cultivation. Food shortages in the early 1960s made it essential to increase crop productivity and farm output so as to raise national food production. While India in the 1950s met domestic demand for food grains to some extent by imports financed by other countries, uncertainties linked to international political developments brought about a change in such import flows. Although the scope for further expanding the area under cultivation was limited, the advent of the green revolution in the mid-1960s raised crop productivity through improved crop technologies and seed varieties. The government imported and distributed high-yielding varieties of wheat and rice for use in irrigated areas, which was accompanied by an expansion of the extension service and an increase in the use of fertilisers, pesticides, and irrigation. The yields and production of especially wheat and rice increased rapidly. Two institutions with key roles in affecting the prices and distribution mainly of wheat and rice were set up already in 1965, namely the Food Corporation of India (FCI) and the Agricultural Prices Commission, later renamed the Commission for Agricultural Costs and Prices (CACP).

The increasing use of farm inputs other than land underpinned subsequent rapid growth in the industries producing fertiliser, seed and machinery. Government initiatives encouraged increased production and processing of milk. Government funding for agricultural research and extension increased, and many State Agricultural...
Universities (SAU) were set up. Institutional lending to farmers was expanded by directing the commercial banks, nationalised from 1969, to provide credit to agriculture. New financial institutions were established, such as the National Bank for Agriculture and Rural Development (NABARD) in 1982 and regional rural banks. In order to allow domestic agricultural production to increase, import competition was highly restricted.

1980s-1990s

In the 1980s and 1990s the yield-enhancing green revolution technologies were expanded to additional crops and regions, and new technologies were also adopted in the production of pulses, oilseeds and coarse grain in drier areas. Farm production diversified into higher value commodities, such as fish, poultry, vegetables and fruit. Policy reforms were carried out in the rest of the economy, such as delicensing and deregulation in the manufacturing sector, but they largely bypassed agriculture, partly because of the prevalence of state level regulations in agriculture. Following the 1991 crisis-driven devaluation of the Indian rupee, India’s gradual liberalisation of foreign trade basically left the rural sector untouched, including agriculture. From 1980 to 1999 India’s GDP in agriculture at constant prices increased by 80%. Over the same time span, gross fixed capital formation by the public sector in agriculture dropped by about one third whereas subsidies in agriculture increased more than tenfold. Table 3.1 summarises the evolution of agriculture and policy in India from the 1950s.

Table 3.1. Evolution of agriculture and policy in India

<table>
<thead>
<tr>
<th>Approximate years</th>
<th>Key sector features</th>
<th>Major policy initiatives</th>
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</table>
| 1950-65           | Expansion of area main source of growth | • Agrarian reforms (abolition of intermediary landlordship, imposition of land ceiling acts)  
• Strengthening of co-operative credit institutions |
| 1965-80           | Increase in productivity main source of growth | • Develop pathways for the adoption of technological breakthroughs in rice and wheat production  
• Policy support for marketing, research and credit; introduction and formalisation of lending to priority sectors, including agriculture  
• New institutions, e.g. State Agricultural Universities, Food Corporation of India, Agricultural Prices Commission |
| 1980s             | Widespread use of technology in major crop areas | • Some delicensing and deregulation  
• Increase in subsidies and support to agriculture |
| 1990s             | Economic liberalisation in agriculture lags behind general economic reforms | • Cautious relaxation of trade protection in some products, e.g. sugar, cotton, edible oils, wheat, rice  
• Increases in input subsidies  
• Targeting of beneficiaries of public distribution system of food grains |
| 2000s             | Demand-driven shift towards producing fruit, vegetables and livestock | • Alternate tightening and loosening of market and trade regulations  
• Large increases in input subsidies, including credit  
• Gene revolution in seeds, including cotton |
| 2010s             | Major participant in world markets for some commodities | • More structured interaction between central and state level authorities  
• Expansion of food subsidies |

Source: Own tabulation based on literature review.
2000 to present

The National Agricultural Policy (NAP), formulated in 2000, aimed at a yearly growth rate of more than 4% in agriculture based on efficient use of resources and conservation of soil, water and biodiversity (Government of India, 2003a). The tenth five-year plan of the Planning Commission covered the years 2002-07 (Government of India, 2002). While recognising the growth orientation of the 2000 NAP, the plan articulated a need for strategies to be differentiated based on the agri-climatic conditions and the land and water resources of different regions, with particular emphasis on developing the eastern and north-eastern regions. It put a priority on raising the cropping intensity on existing agricultural land, developing rural infrastructure that supports not only agriculture but all rural activities, developing and disseminating agricultural technologies, and reconsidering the rules and regulations that govern agricultural trade. The policies relating to public distribution of food would also be considered for change. The National Policy for Farmers (NPF), approved by the Government of India in 2007, identified a need to focus more on the economic well-being of farmers rather than just on production (Government of India, 2007). It listed the accompanying policy actions under headings such as farmers’ assets and empowerment, farmers’ support services, and special categories of farmers and farming.

The eleventh five-year plan, covering the period 2007-12, saw a need for several actions to accelerate yearly agricultural growth to 4% (Government of India, 2008). These actions would bring technology to farmers, improve the efficiency of investments, increase systems support, rationalise subsidies, diversify production while also protecting food security concerns, and improve the access of the poor to land, credit and skills. In specifically addressing water management and irrigation, the plan saw a need to reduce time delays in constructing irrigation projects, increase irrigation efficiency in both surface water and groundwater systems, adopt an integrated approach to water resources development and conservation, and limit the use of groundwater.

For agriculture in broad terms the twelfth five-year plan for 2012-17 would accelerate the annual growth of agricultural GDP to 4% and allow for a shift of employment out of agriculture, helped by a policy restructuring aimed at supporting the diversification of agriculture and a greater involvement of the private sector in marketing agricultural produce. More specifically, the 2012-17 plan articulated the key drivers of growth in agriculture as comprising (1) the viability of the farm enterprise and returns to investment that depend on scale, market access, prices and risk, (2) the availability and dissemination of appropriate technologies that depend on quality of research and extent of skill development, (3) expenditure on agriculture and in infrastructure along with a policy aim to improve the functioning of markets and more efficient use of natural resources, and (4) governance in terms of institutions that make it possible to better deliver services like credit and animal health and quality inputs like seeds, fertilisers, pesticides and farm machinery. The plan also held that certain regional imbalances must be addressed: a national priority in terms of both food security and sustainability would be to fully extend the green revolution to areas of low productivity in India’s eastern region, where there is ample ground water, and thereby help to reduce water stress elsewhere.

While such topics as farm output, farmers, resources, and regional balance have figured large in the aims of agricultural policy in India since long ago, concerns about various dimensions of food security, such as availability and affordability of food for consumers, are also important in formulating India’s agricultural policy objectives. India’s Constitution identifies raising the level of nutrition as a primary duty of government.
tenth five-year plan (2002-07) recognised that, although the country had attained self-sufficiency in food production a decade earlier, this had not resulted in nutritional security of individuals, especially those of vulnerable groups from the poorer segments of the population. The plan saw the 1997 transition from the Public Distribution System (PDS) to the Targeted Public Distribution System (TPDS) as important in ensuring food at the household level at affordable prices for the poor. Shifting from household food security and freedom from hunger to nutrition security for the family and the individual would involve improving food grain production, increasing production of coarse grains and pulses, and improving the availability of vegetables at an affordable cost. The eleventh plan (2007-12) underlined the need for the TPDS to reduce the leakages (grain not reaching the intended beneficiaries). It also suggested redirecting some subsidies to other welfare schemes in order to achieve better targeting towards the poor, moving towards policies that are specific to individual states or areas, and redefining “poor” for the purpose of the TPDS. The call for action in the twelfth plan (2012-17) recognised similar needs, which would be addressed in the then forthcoming National Food Security Act (NFSA) of 2013.

Framework for policy implementation

Constitutional responsibilities and policy planning

While India’s Constitution lists agriculture only as a state subject, the central government, on grounds of agriculture being a subject of national significance, is an important actor in agricultural policy. It acts both in developing and implementing national policy and in co-operating with and funding much of the policy effort implemented by the states. The Constitution also allows the states to devolve their authority in some subjects, including agriculture, to a lower level of government (panchayat, sometimes called village-level government). The administration of agricultural and food policy in India is therefore complex and involves many ministries, agencies and other institutions at both the central, state and other levels, such as districts within a state.

From 1950 until 2014 India’s Planning Commission, a senior body chaired by the prime minister, outlined national plans and policy priorities. From 1951 it launched a series of five-year plans, the last one for 2012-17. In 2015 the government replaced the Planning Commission with the newly formed National Institution for Transforming India (NITI) Aayog. It is designed to foster greater involvement of the state governments in the economic policy process.

India’s Constitution gives the centre’s Finance Commission certain responsibilities with regard to recommending how to redress imbalances between the taxation powers and expenditure responsibilities among the central and state governments. The recommendations of the fourteenth Finance Commission cover a five-year period from 2015. The central government has accepted the Commission’s recommendation about increasing the share of the states in the pool of central taxes that can be divided between the centre and the states, the so-called devolution of taxes (Government of India, 2016k). This would give the states greater autonomy in designing and financing schemes according to local priorities.

For 2016-17 the central government’s budget foresaw allocating 44% of total plan expenditure as central assistance to the plans of states and union territories (Government of India, various years). This percentage can fluctuate considerably – both in 2012-13 and 2013-14 the share of central plan expenditure that was allocated as central assistance was
25% but in 2014-15 it was 58%. Plan expenditure is essentially what in some countries is called programme expenditure, but it does not include some major subsidy items, such as fertiliser subsidies and food subsidies. The revenues that state governments receive from the central government contribute significantly to how much they are able to spend. On average for all states, the own revenue of the states accounted for 63%, 59% and 55% of their expenditure in 2012-13, 2013-14 and 2014-15, respectively (Government of India, 2017u).

Central government roles in administering policy

The central government’s Ministry of Agriculture, which in 2015 became the Ministry of Agriculture and Farmers’ Welfare (MAFW), provides broad guidelines for agricultural policies. The implementation and administration of many policies remain the responsibility of the state governments. Agencies of the central government directly administer central schemes (CS) and state government agencies administer state sector schemes (schemes are also called programmes). Centrally sponsored schemes (CSS) operate in subjects that are constitutionally the domain of the states. The central government provides resources to the state governments for these schemes while the schemes themselves are implemented by the state government and its agencies. Funds can be transferred from the central to the state level through CS and CSS and also through additional central assistance (ACA) (Chaturvedi, 2011). The priorities, approaches and funding possibilities for agricultural policies differ among India’s states. The extent and nature of the state governments’ co-operation with the centre in CSS and other schemes thus vary greatly among the states.3

The MAFW’s Department of Agriculture, Cooperation and Farmers’ Welfare (DACFW) has 27 divisions, five attached offices, and twenty-one subordinate offices across the country for co-ordinating with state level agencies and implementing central schemes. One public sector undertaking, nine autonomous bodies, ten national level co-operative organisations, and two authorities also function under the DACFW’s administrative control. The MAFW’s two other departments are the Department of Animal Husbandry, Dairying and Fisheries and the Department of Agriculture Research and Education. While the MAFW is responsible at the central level for agricultural policy as such, other ministries have responsibilities in areas that are closely linked to agriculture. At least twelve of the about 40 ministries at the central level have some responsibility for the formulation, implementation or monitoring of agricultural and food policy. Table 3.2 summarises the areas with which the twelve ministries and some of their agencies and institutions are involved.

Many kinds of variable inputs are provided to agricultural producers at artificially low prices, i.e. the inputs are subsidised. This applies mainly to fertilisers, electricity, irrigation water, seeds, machinery, and operating credit. The Ministry of Chemicals and Fertilizer administers the large fertiliser subsidies through its Department of Fertilizers. Many other ministries have responsibilities that concern agriculture and food, including subsidies for electricity and irrigation. The Ministry of Consumer Affairs, Food and Public Distribution administers most food subsidies through its Department of Food and Public Distribution (DFPD). The Ministry of Commerce and Industry administers India’s trade policy through its Department of Commerce.

Depending on the subject matter, the processes for developing and implementing policies in agriculture and food require co-ordination among various ministries, departments, and institutions. Cabinet level decisions on many subjects in agriculture and food are taken by
the Cabinet Committee on Economic Affairs, a standing committee chaired by the Prime Minister. Co-ordination among ministries for Committee decisions is ensured by the Cabinet Secretariat. The implementation of policies is guided by a variety of committees or groups of officials at various working levels, established in formal or less formal ways. Such committees can include officials from several ministries and, depending on the subject matter and the committee’s responsibility, representatives from interest groups. Some committees can have decision making responsibilities and others are advisory. Occasionally a temporary high level committee is established with some independence from government to examine a particular issue and provide recommendations. While there are thus many opportunities for sharing information, views and evidence in the processes for policy formulation and implementation, the large number of ministries, departments, regions, and other centres of interest obviously poses a challenge for timely and effective co-ordination. This challenge is amplified by the fact that, in agriculture, the central government’s identification of policy priorities and implementation of policies in large measure depends on the co-operation of state governments.

State government roles in administering policy

Many state governments have ministries or departments of agriculture, animal husbandry, irrigation or the like. While they implement central and centrally sponsored schemes in co-operation with, e.g. the centre’s DACFW and DFPD, many state ministries and departments also implement state-specific agricultural policies in line with their own priorities and availability of own funds. The effectiveness of shared or delegated implementation of many policies relies in many instances on how effective is the work of a committee comprising officials from both the central and state governments. Co-operation with officials of lower levels of government, such as districts where the policy benefits are actually delivered, is also essential for effective administration. The nature of the co-operation between central and state government officials can help to inform the positions taken by a state in interacting with the central government at the political level, whether in a formal or an informal setting. Such interactions appear normally to occur more in pursuit of particular needs than as an institutionalised ongoing process to articulate shared policy priorities. For example, in 2010 a committee of state ministers, chaired by the central government’s minister of agriculture, was constituted with a view to persuade the various state governments to implement certain reforms in agricultural marketing and to suggest further reforms in that field (Government of India, 2013b).

There are large differences among states and regions in India in terms of natural resource endowments, level of economic development, and potential for growth in production and income in agriculture (Chapter 2). The central government has over time sought to address such disparities in its policy development by monitoring regional and state-to-state differences, identifying problems and opportunities in specific states, and paying special attention to states characterised by relatively lower levels of economic development. The central government’s budget planning allocates resources by taking into account the situation of specific states and regions and providing expenditures and investment incentives accordingly. For example, schemes in agriculture where expenditure is shared by the central and the state government often provide for a larger share of central government expenditure in certain states than in other states or a lower threshold for a farmer’s eligibility as a beneficiary of a scheme. The eight north-eastern states are given priority in this respect (Arunachal Pradesh, Assam, Manipur, Meghalaya,
Mizoram, Nagaland, Tripura and Sikkim) sometimes along with three Himalayan states (Himachal Pradesh, Jammu and Kashmir, and Uttarakhand).

Table 3.2. Ministries and public institutions involved with agricultural policy in India (summary)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Central Ministries, with responsibility for implementing Departments</th>
<th>Selected other implementing institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prices</td>
<td>• Min. of Agriculture and Farmers’ Welfare • Min. of Commerce and Industry</td>
<td>• Commission for Agricultural Costs and Prices (CACP) • State level counterparts to centre’s Departments</td>
</tr>
<tr>
<td>Inputs and production</td>
<td>• Min. of Agriculture and Farmers’ Welfare • Min. of Water Resources, River Development and Ganga Rejuvenation • Min. of Food Processing Industries • Min. of Power • Min. Chemicals and Fertilizers • Min. of New and Renewable Energy • Min. of Environment, Forest and Climate Change</td>
<td>• Central Water Commission • State level counterparts to centre’s Departments</td>
</tr>
<tr>
<td>Credit</td>
<td>• Min. of Finance Reserve Bank of India</td>
<td>• National Bank for Agricultural and Rural Development (NABARD)</td>
</tr>
<tr>
<td>Marketing, procurement</td>
<td>• Min. of Agriculture and Farmers’ Welfare • Min. of Food Processing Industries • Min. of Consumer Affairs, Food and Public Distribution • Min. of Textiles, Agricultural and Processed Food Products</td>
<td>• Food Corporation of India (FCI) • Cotton Corporation of India (CCI) • Jute Corporation of India (JCI) • NAFED • APEDA • Central Warehousing Corporation (CWC) • National Dairy Development Board (NDBB) • Small Farmers’ Agri-Business Consortium (SFAC) • Commodity boards for various plantation crops • Special marketing and processing corporations • Agricultural Cooperative Marketing Federations • Tribal Cooperative Marketing Development Federation • State level counterparts to centre’s institutions</td>
</tr>
<tr>
<td>Public distribution</td>
<td>• Min. of Agriculture and Farmers’ Welfare • Min. of Consumer Affairs, Food and Public Distribution • Min. of Human Resource Development • Min. of Women and Child Development</td>
<td>• Food Corporation of India (FCI) • NAFED • Central Warehousing Corporation (CWC) • State level counterparts to centre’s Departments and Institutions</td>
</tr>
<tr>
<td>Trade</td>
<td>• Min. of Commerce and Industry</td>
<td>• Agricultural and Processed Food Products Export Development Authority (APEDA) • National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) • Commodity boards • Agri-export zones (AEZ) • Food Safety and Standards Authority of India (FSSAI)</td>
</tr>
<tr>
<td>Research, education, extension</td>
<td>• Min. of Agriculture and Farmers’ Welfare</td>
<td>• Indian Council of Agricultural Research (ICAR) • Veterinary Council of India • Indian Council of Forest Research • Central and deemed agricultural universities • Indian Institute of Management (IIM) • Agribusiness management Institutes • State level counterparts, e.g. State Agricultural Universities (SAU), Krishi Vigyan Kendras (KVK, agricultural science centres), Krishi Gyan Kendra (KGK, agricultural knowledge centres)</td>
</tr>
</tbody>
</table>

Source: Elaborated from Arora (2013).
Major components of agriculture and food policy in India

The set of policies directly relating to agriculture and food in India has for a long time consisted of five major categories. They include managing the prices and marketing channels for many farm products, making variable farm inputs available at government-subsidised prices, providing general services for the agriculture sector as a whole (such as research and extension), regulating border transactions through trade policy, and making certain food staples available to selected groups of the population at government-subsidised prices. More recently, environmental measures concerning agriculture have gained prominence.

In line with an evolving set of priorities, the central government has launched particular funding initiatives for important schemes, often called missions, which can include both financial assistance to agricultural producers and processors and the provision of services to agriculture generally to promote and support productivity improvements. Missions often involve co-operation, co-ordination and shared funding between the central government and the state governments in given proportions. Over time the number of missions has changed as missions have come to an end or have been merged with other initiatives under a new name. Missions operating in recent years under the DACFW concern, for example, food security, agricultural development, sustainable agriculture, integrated development of horticulture, oilseeds, oil palms, pulses and maize, micro-irrigation, sustainable agriculture, agricultural mechanisation, and agricultural extension and technology (Annex Table 3.A.1). There is also a Livestock Mission, operating under the DAHD since 2014-15.

In recent years the central government has put a priority on streamlining the provision of benefits to the intended beneficiaries by means of using up to date electronic technology. This applies particularly to the distribution of food subsidies and fertiliser subsidies (Box 3.1).

Box 3.1. Direct Benefit Transfer and Aadhaar

Direct Benefit Transfer

The Direct Benefit Transfer (DBT) system for government transfers was launched in 2013. The transfers include direct cash transfer for food grains and in-kind public distribution of food, many schemes in agriculture, including crop insurance and interest subsidies, as well as fertiliser subsidies. The in-kind schemes under DBT include the Targeted Public Distribution System (TPDS) for food grains, Mid-Day Meals, and, e.g. the Sub-Mission on Agriculture Mechanization – Central Sector. DBT is planned to be applied to 462 schemes from 57 ministries (“DBT Applicable Schemes”, Government of India, 2017g). As of mid-October 2017, 380 schemes from 55 ministries had been brought on the DBT platform, including food and fertiliser subsidies (“DBT Onboarded Schemes”, Government of India, 2017g).

DBT is an effort to reduce the number of levels involved in the flow of transfers, reduce delays in payments, target beneficiaries more accurately, and curb pilferage and duplication. Many schemes have struggled to achieve their goals because of bad targeting, leakages and ineffective service delivery. Part of the motivation for DBT is the observation that benefit transfers and subsidies from
central and state government in India correspond to 4% of Gross Domestic product (GDP), while leakages correspond to 2% of GDP (Government of India, 2016t). DBT is described as a means to speed up payments, remove leakages and enhance financial inclusion. A key element of DBT is the use of modern information and communications technology.

Regarding fertiliser subsidies, DBT is planned to be implemented slightly differently from other schemes (Government of India, 2017h). The subsidy will be released to the fertiliser company instead of the farmer, after the sale is made by the retailer to the farmer. The reasons include the number of products involved, unclear definitions of farmers and their entitlements, and difficulties faced if farmers were to pay an unsubsidised price and only later be reimbursed the amount of subsidy through DBT.

Regarding food grains in the TPDS, there are rules for the cash transfer of the food subsidy, as distinct from beneficiaries buying food grains at the subsidised price (Government of India, 2017b). The amount of food subsidy payable to beneficiaries is calculated by multiplying their entitled quantity of food grains by the difference between 1.25 times the Minimum Support Price and the Central Issue Price. Saini et al. (2017) consider a number of issues in the implementation of DBT, particularly for food subsidies. The Department of Food and Public Distribution has started using DBT for in-kind distribution of food grains to beneficiaries after biometric identification at Fair Price Shops through Aadhaar-enabled devices.

**Aadhaar**

Since 2010 a process is underway to issue a unique identification number to all residents of India. Named Aadhaar (rough translation from Hindi: base), the system is designed to be robust enough to eliminate duplicate and fake identities and allow cost-effective on-line verification and authentication of a person’s identity. Enrolment in the Aadhaar system, which is voluntary and cost-free, captures name, date of birth, gender, address, mobile number (optional), email address (optional) and biometric information consisting of ten fingerprints, two iris scans and a facial photograph. The Aadhaar number itself is random and devoid of any information. By mid-June 2017 about 1.155 billion Aadhaar numbers had been registered.

Most schemes that use DBT digitally seek a person’s Aadhaar number to identify the beneficiaries so as to remove fakes and duplicates from the scheme’s database. An Aadhaar-enabled Fertiliser Distribution System is being implemented in some localities (Government of India, 2016b). Media reports in 2017 suggest that identification through Aadhaar is or will be required when buying fertiliser (Times of India, 2017; Deccan Chronicle, 2017). As part of the end-to-end computerisation of distributing TPDS food grains, Aadhaar numbers are being linked to the ration cards used for distribution (Government of India, 2017i).

*Source:* Government of India (2016t); Government of India (2017ac); Government of India (2017g, 2017i).
3.3. Domestic policies

**Marketing policies**

This section reviews the major policies and regulations affecting agricultural markets - the Essential Commodities Act and the Agricultural Produce Marketing (Regulation) Acts - and introduces the policies involving public procurement, storage and distribution. The procurement of food grains is examined in some detail here, given the important role of this policy area not only for agricultural markets but also for the provision of food subsidies, reviewed in the “Consumer measures” section below. Policies and sector highlights for other crops and for livestock commodities are presented in Annex 3.B.

**Essential Commodities Act**

An early amendment to India’s Constitution gave the central government a statutory provision for regulating the production, prices and distribution of so-called essential commodities with the objective of improving the efficiency of markets and ensuring remunerative prices for producers and affordable prices for consumers. The most fundamental policy instrument is the Essential Commodities Act, 1955 (ECA), which originally applied to foodstuffs, certain cotton yarn, raw jute and jute textiles, many kinds of seeds, fertiliser, petroleum and drugs. The ECA provides for the control of production, supply, distribution, and pricing of essential commodities. It also provides for maintaining or increasing supplies and securing their equitable distribution and availability at fair prices. The motivation is to restrict certain activities of some agents in the context of hoarding and black marketing (i.e. a concern about the prices consumers pay). The movement and storage of many farm products and some inputs have thus been regulated for a long time.

The ECA authorises the central government to make orders of several kinds regarding essential commodities, which are implemented and enforced by the state governments. Many of the wide-ranging powers under the ECA are delegated to the state governments. In respect of food items, the powers have generally been delegated to the state governments except for sugar where the central government exercises some controls. “Control” orders, issued by various ministries and departments at the centre and in the states, regulate the production, storage, transport, distribution, disposal, acquisition, use or consumption of a commodity. Such orders can increase the cultivation of food grains, control prices, prohibit the withholding of a commodity from sale, or require a stockholder to sell a commodity to the government. Some states impose stocking limits on a commodity, and some impose requirements for licensing or for declaring stocks. Although there are no restrictions on movement within a state, some state governments have at different times imposed restrictions on movement of food grains between states.

The commodities declared as ‘essential’ under the ECA are reviewed from time to time in the light of changes in the economic situation and particularly with regard to their production and supply. The number of essential commodities, which stood at 70 in 1989, had by 2006 been reduced to 7 through such periodic reviews. However, these commodities are in fact commodity groups, one of which is as broad as “foodstuffs”: (i) drugs; (ii) foodstuffs including edible oilseeds and oils; (iii) fertiliser, whether inorganic, organic or mixed, (iv) petroleum and petroleum products; (v) hank yarn made wholly from cotton; (vi) raw jute and jute textile; and (vii) seeds of food-crops and seeds of fruits and vegetables, seeds of cattle fodder, and jute seeds. The foodstuffs category applies in practice to, for example, rice, paddy, wheat, pulses, edible oils, and edible...
oilseeds. Some specific commodities have at various times been brought explicitly into or out of the ambit of the ECA, such as cotton seeds, sugar, tea, onions and potatoes. The Department of Consumer Affairs (DCA) regularly monitors prices of 22 essential commodities on a daily basis.4

The restrictions authorised under the ECA have gone through numerous changes over time by means of government orders or control orders. The licensing requirements, stocking limits, and restrictions on movement were eliminated in 2002 for wheat, paddy and rice, coarse grains, edible oilseeds, and edible oils, but the changes were not immediately or fully implemented (restrictions on investment in new dairy processing were eliminated at about the same time). In 2016, an order superseded the 2002 order, extending and making more precise the set of commodities no longer subject to the constraints of the ECA. Although the ECA is becoming a less pervasive factor in India’s markets for agricultural commodities, the longstanding presence of the rules of the ECA is part of the foundation for today’s structure of agricultural production and marketing.

APMC Acts

Many states had their own regulations for agricultural marketing since before India’s independence, and marketing remains under the administration of the states. In the traditional system of agricultural marketing, the producers selling their products often incurred a high marketing cost and faced various malpractices. A regulated market aims to eliminate such conditions and enable the producer to face several buyers through open and competitive bidding. From the early 2000s the central government promoted organised marketing in agriculture through a network of regulated markets.

While the ECA regulates transactions in the whole value chain from producer to consumer, the Agricultural Produce Marketing (Regulation) Acts (APMR Acts) in many individual states regulate only the point of first sale from the producer. The acts are often called APMC Acts since they regulate agricultural markets through Agricultural Produce Market Committees (APMCs). A state’s APMC Act empowers the state to establish regulated wholesale markets for agricultural produce, known as mandis or “APMC” markets. It confers wide powers on the APMC to construct and manage agricultural markets and regulate all aspects of marketing, including the levy of a user fee for transactions taking place both on and off the wholesale market yards. The Act extends to the whole of the state and makes the markets the mandatory conduit for trading agricultural produce, which prevents private players from setting up markets and investing in market infrastructure (Government of India, 2017w).

The ECA and APMC Acts affect market development, efficiency, and costs in many ways. For example, the “monopoly of government-regulated wholesale markets has prevented the development of a competitive marketing system” (Government of India, 2014c). The major constraints on the agricultural marketing system have been identified as follows: markets highly fragmented, insufficient number of markets, inadequate physical marketing infrastructure, high incidence of marketing fees and charges, high post-harvest waste, restrictions in licensing, less remuneration to farmers and high intermediation costs, market information asymmetry, and inadequate credit facilities (Government of India, 2015c).

In the context of such concerns, the central government’s Ministry of Agriculture circulated a model State Agricultural Produce Marketing (Development and Regulation) Act to the states in 2003. This was followed by model APMC rules in 2007. The Ministry suggested amendments to the respective state APMC Acts to provide for improved
regulation in marketing of agricultural produce, development of efficient marketing systems, promotion of agri-processing and agricultural exports and the establishment and proper administration of markets for agricultural produce (Government of India, 2003b). The Ministry requested the states to complete the process of modifying their APMC Acts by 2007-08. Most states adopted all or some provisions of the model Act but some did not. Bihar repealed its Act in 2006. Kerala, Manipur and four Union territories do not have APMCs. Progress of other states in modifying their APMC Acts has continued but at a varied pace (Table 3.3). The reforms as adopted by the state governments are considered to have been largely ineffective (Government of India, 2017w). The situation with regard to the status of each state’s APMC Act and its implementation is thus highly differentiated across India’s states.

<table>
<thead>
<tr>
<th>Marketing reform</th>
<th>Adopted by number of states and union territories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of private market yards or private markets managed by a person other than a market committee</td>
<td>21</td>
</tr>
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<td>14</td>
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<td>Single point levy of market fee across the state</td>
<td>17</td>
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</table>

Source: Adapted from Government of India (2016c).

A state is divided into several market areas, and each market area is administered by a separate APMC, which imposes its own marketing regulations, including fees. The markets regulated by the APMC limit the scope of trading in agricultural commodities at the first point of sale, where farmers offer produce after the harvest. These local markets are typically at the level of a taluka or tahsil, i.e. one administrative level higher than the village itself (Chapter 2). Even one state is not a unified agricultural market, and there are transaction costs when moving produce from one market area to another within the state. Multiple licences are necessary to trade in different market areas in the same state.

Rural periodical markets (RPM) operate on a weekly or daily basis in the hinterland of the country under the control of local bodies, panchayats, councils, APMCs, etc. (Government of India, 2017w). In 2017 there were about 22,932 rural periodical markets and 6,615 regulated markets, comprising 2,339 principal markets and 4,276 sub-market yards (Government of India, 2017w). About 15% of the 22,221 RPMs operating in 2012 were regulated under a state’s APMC Act (Government of India, 2011c). The RPMs that are not regulated by an APMC Act operate with traditional informal procedures and link farmers with local consumers. Because of poor infrastructure, the RPMs are generally not able to offer scalable marketing opportunities to farmers (Government of India, 2017w).

The agricultural marketing chain in India is described in different ways in different contexts. Figure 3.1 gives one picture, emphasising the co-existence of regulated and non-regulated markets both at the rural primary and rural secondary levels. It recognises the presence of government agencies, such as the Food Corporation of India, as important
purchasers of some commodities. There are also primary and secondary markets that are not labelled as rural.

Figure 3.1. Major agricultural market types in India

Three stylised kinds of wholesale markets can be identified in India, although in practice there is a diversity of parallel and overlapping marketing channels (Government of India, 2010). They are:

- Assembling wholesale market, where by and large the producer-sellers or their agents assemble their products and offer them for sale in bulk or large quantities. Some large farmers may also bring their produce to these markets. In this so-called primary wholesale market the wholesalers are predominantly the buyers.
- Secondary or distributing wholesale market, where wholesalers from the assembling markets bring products for sale. The buyers in the secondary wholesale markets are wholesalers from smaller nearby places, retailers, exporters and bulk consumers. However, there are cities like Lucknow where there are no primary markets and farmers bring the produce directly to the secondary market. Enterprising and large farmers can also bring their produce for sale in large secondary wholesale markets.
- Terminal wholesale market, from where generally the product is exported.

In this terminology, the assembling wholesale market is where much of farmers’ produce is priced. The notion that some wholesale markets – in this case primary wholesale markets – are the first point of sale for much agricultural produce in India is reinforced by other descriptions, such as those underlying the summary in Table 3.4. However, not all wholesale markets are primary markets, i.e. some wholesale markets are secondary markets, where transactions take place between different traders and market intermediaries, but these are located in large cities and commercial centres. There is no clear distinction between markets in India as there is overlap between the types of markets and the actors in each type.
### Table 3.4. Structure and features of the agricultural market system in India

#### Rural primary markets
- Include mainly the periodical markets known as haats, shandies, painths, and fairs
- Predominantly used by small and marginal farmers, including landless labourers; village traders may be independent or work for specific brokers in primary wholesale markets
- Smallest villages (population less than 500) hold the fewest haats (only 1.6%); majority of haats (47.9%) are in big villages, with a population of over 5,000
- Nearly two thirds of haats are at a distance of 16 km, 23% are at a distance of 6 to 15 km and 9% within a distance of 1 to 5 km

#### Primary wholesale markets
- Located in important towns near centres of production, they are the first points of sale for farmers or aggregators or assemblers
- Farmers with larger surpluses or smaller traders generally purchase surpluses from other small farmers and carry along with their produce to the assembling markets
- Fees are paid for participating in these markets
- Private exporters and bulk processors can meet their requirements from these markets

#### Secondary wholesale markets
- Known as mandis, generally located in district headquarters or important production centres, attracting potential buyers and traders who assemble the produce and consolidate a truck load for sale in terminal wholesale market or arrange transportation to a consumption centre for sale there
- Conducted according to traditional market practices or as per regulations of APMC, where regulated
- Many commodities are traded; a few specialised single commodity markets trade cotton, jute, oilseeds, fruits and vegetables
- Buyers and sellers pay a fee to the manager of the market; in addition to the mandi tax (usually 2.5% of price but varying among states), several other charges apply to products entering regulated market yard (e.g. rural development cess 2%, infrastructure cess 2%, education cess 0.5%)
- Procurement by various government agencies can take place through these markets
- In major cities, these markets are transit market for supplies to the hinterland and distant markets and also terminal market for supplies to retailers for local consumption
- Six states account for 53% of all regulated markets (Andhra Pradesh, Bihar, Maharashtra, Madhya Pradesh, Uttar Pradesh, and West Bengal)
- On average a regulated market serves an area of 435 km²; area served by each regulated market varies greatly among states, from 115 km² in Punjab to 1,215 km² in Meghalaya
- Cold storage exists in 9% of markets and grading facilities in less than one third of markets

#### Terminal wholesale markets
- Produce is finally sold to consumers or processors or is assembled for dispatch to distant markets or exports
- Sellers are usually traders, not producers, unlike in primary and secondary markets


The size of the area served or allowed to be served by any particular market is an issue attracting much local political interest. In major producing states, such as Andhra Pradesh, Bihar, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Tamil Nadu, Uttar Pradesh, and West Bengal, the area served ranged between 115 (Punjab) and 615 km² (Madhya Pradesh) in 2008 (Government of India, 2010). These two areas correspond to circles with a radius of 6 km and 14 km, respectively. While totally schematic, such radii nevertheless suggest the order of magnitude of the distance between the farm gate and a regulated market: it is usually not a matter of hundreds of kilometres but much shorter.

The fragmentation of markets, even within a state, is considered to hinder the free flow of agricultural commodities from one market area to another (Government of India 2017r). Concern had earlier been expressed regarding the role of APMCs in sales of agricultural produce across states, farmers’ returns and incomes, and agricultural productivity growth (Government of India, 2014c). Moreover, multiple handling of the commodity and
charges imposed at multiple levels in the marketing chain has increased the gap between farmers’ and consumers’ prices (Patnaik, 2011). Inter-state differences in the rates of taxes, levies and commissions have added to the price differences across states, even for a commodity of a given grade (Government of India, 2016n). The fees encountered by farmers and others in agricultural marketing have been very diverse, such as sales taxes, market fees, entry fees, and surcharges (Annex Table 3.A.2). Only some states have imposed a sales tax, and there has been wide variation among the states which did so in terms of which commodities were subject to sales tax and the applicable rates. Likewise, the rates of market taxes varied widely among the states which applied taxes as a percentage of the minimum support price set by the central government. However, from 1 July 2017 sales taxes and entry fees have been absorbed into the Goods and Services Tax, or GST (see below). There is a uniform rate of GST in the entire country for the supply of each product.

Producers in many states are required by the state’s APMC Act to sell only to specified middlemen in authorised markets (mandis) (Government of India, 2017j). Supply-demand imbalances in this rigid system can generate price increases, which are sometimes amplified by the actions of middlemen. Price increases have been countered for some essential commodities by invoking the ECA to impose stock limits and controls on domestic trade that are typically pro-cyclical (Government of India, 2017j).

A roadmap was initiated in 2014 in the context of moving towards a national market (Government of India, 2015a). In one step towards the creation of a national agriculture market (NAM), the central government in 2016 approved the creation of a pan-India electronic trade portal, integrating 585 APMC markets across the country. The central government in April 2017 shared with all the state governments a reformulated marketing act as a recommendation for adoption and to initiate greater marketing changes in agriculture and to encourage a single national agriculture market (Government of India, 2017w). It is referred to as the model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017 (APLM Act).

The model APLM Act includes provisions that aid in increasing the density of different types of wholesale agriculture markets, i.e. primary, secondary and terminal markets (Government of India, 2017w). There is also provision to expand physical markets through licensing of existing warehouses and cold storages, and to expand the market network through virtual online market networks. The model APLM Act, if adopted by states, would end the monopoly of APMCs by allowing more players to set up markets and create greater competition at the markets. It would allow the establishment of private markets, direct marketing from farmers, the levying of the market fee only at the first wholesale purchase from the farmer (single point levy of market fee), and the exclusion of fruits and vegetables from the APMC Act. The market fee caps under the model act are proposed to be no more than 1% for fruit and vegetables and 2% for food grains. It would cap commission agents’ fee at no more than 2% for non-perishables and 4% for perishables. The NAM and the model APLM Act, 2017 are seen by governments as precursors to further reforms in the agricultural marketing system. The inclusion of livestock in the title of the model act is motivated by a desire to help certain states introduce better marketing practices for livestock and livestock products (Government of India, 2017w).
Minimum support prices

Within the marketing structure defined by the ECA and the APMC Acts, the central government’s price policy for major agricultural crop commodities seeks to ensure remunerative prices to producers with a view to encouraging higher investment and production and to safeguard the interest of consumers by making available supplies at reasonable prices. The Ministry of Consumer Affairs, Food and Public Distribution (MCAFPD) administers the ECA as it applies to foodstuffs, such as food grains. The Ministry also administers the Prevention of Black-marketing and Maintenance of Supplies of Essential Commodities Act.

The government organises purchase operations through public and co-operative agencies, which intervene in the market through procurement operations with the objective that market prices do not fall below the Minimum Support Prices (MSPs) fixed by the government. The Food Corporation of India (FCI), under the authority of the Department of Food and Public Distribution (DFPD) of the MCAFPD, is the main agency for executing the food grain policies of the central government. The FCI, set up in 1965 under the Food Corporations Act, 1964, is mandated to (a) procure food grains from farmers at remunerative prices, (b) distribute food grains to consumers through public distribution, particularly to vulnerable sections of society at affordable prices; and (c) to maintain buffer stock of food grains for food security and price stability. The functions of the FCI mainly relate to purchasing, storing, moving, distributing and selling food grains on behalf of the central government. The FCI undertakes some of these functions along with other central and state agencies.

A MSP was first announced for rice in 1965. The central government now announces MSPs for the major crop commodities in each marketing season for kharif crops, grown mainly in July-October, and rabi crops, grown mainly in October-March. The Commission for Agricultural Costs and Prices (CACP), which is attached to the Ministry of Agriculture and Farmers’ Welfare (MAFW), provides its recommendations on MSPs to the Department of Agriculture, Cooperation and Farmers’ Welfare (DACFW) of the MAFW. In recommending MSPs, the CACP must take into account the cost of production, overall demand-supply, domestic and international prices, inter-crop price parity, terms of trade between agricultural and non-agricultural sectors, the likely impact of the price policy on the rest of the economy, while ensuring rational utilisation of production resources like land and water. No specific weights attach to any of these factors and the Commission’s recommendations involve its judgement on some of these issues.

The 23 crops for which CACP recommended MSP for the 2016-17 season included fourteen kharif crops: paddy (two types), jowar (sorghum, two types), bajra (pearl millet), ragi (finger millet), maize, arhar (tur, pigeon pea, Cajanus cajan), moong (green gram, Vigna radiata), urad (black gram, Vigna mungo), groundnut, sunflower seed, soybean (yellow), sesame, nigerseed, and cotton (two types). They also included six rabi crops: wheat, barley, gram (chickpea, Cicer arietinum), lentil, rapeseed and mustard (treated as one), and safflower. CACP recommends prices for three other crops: sugarcane, copra, and jute. In some earlier years the CACP recommended a MSP for tobacco. For sugarcane the price is called a Fair and Remunerative Price (FRP) and setting it is the government’s statutory responsibility according to a control order issued under the ECA.

The Cabinet Committee on Economic Affairs (CCEA), chaired by the prime minister, takes into consideration the recommendation of CACP as well as the views of other ministries. The MSP recommended by CACP are mostly approved, sometimes with some
minor modifications. The CCEA raised the actual MSP from the recommended MSP or added a bonus to the MSP in 12 out of the 16 years between 2000-01 and 2015-16 (Annex Table 3.A.3). In some years this was done for two MSPs but never for more than five MSPs. In addition, the CCEA decides on the MSP for toria (oilseed related to mustard) on the basis of the normal market price differentials between toria and rapeseed/mustard, which brings to 24 the number of commodities for which the government sets MSPs. In 2015-16 and 2016-17, the CCEA decided to add a bonus in the MSP for pulses above the recommendation of the CACP. Table 3.5 shows the MSPs for a selection of crops.

Some states for several years paid a bonus over and above the MSP of wheat and paddy. Annex Table 3.A.4 shows the amounts and extent of such bonuses and one calculation of the amounts involved in 2009-10 to 2013-14. The bonus could correspond to 5-10% of the MSP but could exceed 35% in some cases. The centre started curtailing state level bonus payments in 2014, but the centre itself declared bonuses above the MSP for some crops like pulses.

The MSP for many crops has often been set at a level below the international price. While MSPs and international prices are not strictly comparable without adjusting for such factors as margins and transportation costs, the following examples draw on Government

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**Table 3.5. Minimum Support Prices (MSPs) for selected crops (INR per tonne)**

<table>
<thead>
<tr>
<th>Crop year</th>
<th>Wheat</th>
<th>Maize</th>
<th>Rice1 (non-basmati)</th>
<th>Soybean (yellow)</th>
<th>Rapeseed and mustard</th>
<th>Groundnut (in shell)</th>
<th>Chickpeas</th>
<th>Sugarcane2</th>
<th>Cotton (H-4 or Long staple)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>6 100</td>
<td>4 450</td>
<td>7 612</td>
<td>8 650</td>
<td>12 000</td>
<td>12 200</td>
<td>11 000</td>
<td>595</td>
<td>18 250</td>
</tr>
<tr>
<td>2001-02</td>
<td>6 200</td>
<td>4 850</td>
<td>7 910</td>
<td>8 850</td>
<td>13 000</td>
<td>13 400</td>
<td>12 000</td>
<td>621</td>
<td>18 750</td>
</tr>
<tr>
<td>2002-03</td>
<td>6 200</td>
<td>4 850</td>
<td>7 910</td>
<td>8 850</td>
<td>13 300</td>
<td>13 550</td>
<td>12 200</td>
<td>695</td>
<td>18 750</td>
</tr>
<tr>
<td>2003-04</td>
<td>6 300</td>
<td>5 050</td>
<td>8 209</td>
<td>9 300</td>
<td>16 000</td>
<td>14 000</td>
<td>14 000</td>
<td>730</td>
<td>19 250</td>
</tr>
<tr>
<td>2004-05</td>
<td>6 400</td>
<td>5 250</td>
<td>8 358</td>
<td>10 000</td>
<td>17 000</td>
<td>15 000</td>
<td>14 250</td>
<td>745</td>
<td>19 600</td>
</tr>
<tr>
<td>2005-06</td>
<td>6 500</td>
<td>5 400</td>
<td>8 507</td>
<td>10 100</td>
<td>17 150</td>
<td>15 200</td>
<td>14 350</td>
<td>795</td>
<td>19 800</td>
</tr>
<tr>
<td>2006-07</td>
<td>7 500</td>
<td>5 400</td>
<td>8 657</td>
<td>10 200</td>
<td>17 150</td>
<td>15 200</td>
<td>14 450</td>
<td>803</td>
<td>19 900</td>
</tr>
<tr>
<td>2007-08</td>
<td>10 000</td>
<td>6 200</td>
<td>9 627</td>
<td>10 500</td>
<td>18 000</td>
<td>15 500</td>
<td>16 000</td>
<td>812</td>
<td>20 300</td>
</tr>
<tr>
<td>2008-09</td>
<td>10 800</td>
<td>8 400</td>
<td>12 687</td>
<td>13 900</td>
<td>18 300</td>
<td>21 000</td>
<td>17 300</td>
<td>812</td>
<td>30 000</td>
</tr>
<tr>
<td>2009-10</td>
<td>11 000</td>
<td>8 400</td>
<td>14 179</td>
<td>13 900</td>
<td>18 300</td>
<td>21 000</td>
<td>17 600</td>
<td>1 298</td>
<td>30 000</td>
</tr>
<tr>
<td>2010-11</td>
<td>11 200</td>
<td>8 800</td>
<td>14 925</td>
<td>14 400</td>
<td>18 500</td>
<td>23 000</td>
<td>21 000</td>
<td>1 391</td>
<td>30 000</td>
</tr>
<tr>
<td>2011-12</td>
<td>12 850</td>
<td>9 800</td>
<td>16 119</td>
<td>16 900</td>
<td>25 000</td>
<td>27 000</td>
<td>28 000</td>
<td>1 450</td>
<td>33 000</td>
</tr>
<tr>
<td>2012-13</td>
<td>13 500</td>
<td>11 750</td>
<td>18 657</td>
<td>22 400</td>
<td>30 000</td>
<td>37 000</td>
<td>30 000</td>
<td>1 700</td>
<td>39 000</td>
</tr>
<tr>
<td>2013-14</td>
<td>14 000</td>
<td>13 100</td>
<td>19 552</td>
<td>25 600</td>
<td>30 500</td>
<td>40 000</td>
<td>31 000</td>
<td>2 100</td>
<td>40 000</td>
</tr>
<tr>
<td>2014-15</td>
<td>14 500</td>
<td>13 100</td>
<td>20 299</td>
<td>25 600</td>
<td>31 000</td>
<td>40 000</td>
<td>31 750</td>
<td>2 200</td>
<td>40 500</td>
</tr>
<tr>
<td>2015-16</td>
<td>15 250</td>
<td>13 250</td>
<td>21 045</td>
<td>26 000</td>
<td>33 500</td>
<td>40 300</td>
<td>35 000</td>
<td>2 300</td>
<td>41 000</td>
</tr>
<tr>
<td>2016-17</td>
<td>16 250</td>
<td>13 650</td>
<td>21 940</td>
<td>27 750</td>
<td>37 000</td>
<td>42 200</td>
<td>40 000</td>
<td>2 300</td>
<td>41 600</td>
</tr>
</tbody>
</table>

**Note:** MSP does not include the bonus added to the MSP for some crops in some years.
1. MSP for paddy, divided by 0.67.
2. Statutory Minimum Price or Fair and Remunerative Price.

of India (2016; 2017ad). For wheat, the MSP was set below the international price throughout 2011, 2012, and 2013 and started to exceed the international price only in 2014. For maize, the MSP switched from below to above the international price in late 2013. For paddy, on the other hand, the MSP was set below the international price of paddy in all years in the 2012 to 2016 period. For pulses, such as arhar and urad, the MSPs and the international prices were very close in 2012 to 2014, but the MSPs did not match the subsequent much higher international prices. The MSP for gram remained below the international price in all of 2011 to 2015 (and part of 2016). For soybeans, 2012 and 2014 saw MSPs below the international prices, followed by MSPs higher than international prices in much of 2015 and 2016. For most of these and other crops the domestic wholesale price has tended to exceed the MSP, but there are episodes, usually less than year long, when the domestic wholesale price has stayed below even the MSP.

**Procurement and disposal of food grains**

India’s agricultural policy effort and related institutions are to a large extent concerned with wheat and rice, including the interface between their supply and demand. This section therefore concentrates on the procurement and disposal of food grains, with particular references to the later section on “Consumer measures”. Policies specific to other commodity sectors are reviewed in more detail in Annex 3.B: pulses and oilseeds, sugarcane and sugar, cotton, jute, fruit and vegetables, milk and dairy, and bovine meat.

Implemented as part of India’s Price Support Scheme (PSS), the procurement by FCI and state agencies at the MSP is open-ended, i.e. they procure whatever food grains (wheat, paddy and coarse grains) are offered by farmers at specified centres at the MSP plus any applicable bonus. Procurement takes place within a stipulated procurement period specified for each state. Procured grains must conform to prescribed quality specifications. The stock so procured is called central pool stock. In 2015-16 more than 20,000 and more than 44,000 procurement centres operated for wheat and rice, respectively. Most farmers in India sell to other buyers at other prices than the MSP (see below).

In certain states, the state agencies procure wheat and paddy directly from producers and hold the stock on behalf of FCI. These stocks are handed over to FCI when needed for distribution within or outside the state. In other states, the procurement is made under the Decentralized Procurement (DCP) scheme for distribution within the state under TPDS. In 2017 DCP operated for both wheat and rice in 5 states and for either wheat or rice in 11 states. Until 2015 rice was procured through two routes. In certain states the FCI and state agencies procured custom milled rice, which was generated by milling the paddy which the FCI and state agencies procured from producers. In other states, the state and central governments set a state-specific percentage (up to 50%), which determined the share of their production the rice millers had to deliver to the state agency at a “levy” price set by the central government. In 2015, the central government reduced the compulsory levy rice percentage to zero for all of India, effectively ending the levy rice instrument as a procurement channel. This was seen as one way to reduce the procured quantity and thus the level of central pool stocks.

The quantity of wheat procured in 2016-17 amounted to 23.0 million tonnes and the quantity of rice to 34.7 million tonnes (Figure 3.2). The procured quantities show an increasing trend from 2000-01 to 2016-17 for both wheat and rice. The yearly procured quantity of wheat fluctuates more than that of rice.
Price support procurement effectively operates mainly for wheat, rice and cotton and only in a few states. The states of Punjab, Haryana, Madhya Pradesh, Uttar Pradesh and Rajasthan accounted for 100% of total procurement of wheat in 2016-17. Five states, including Punjab and Uttar Pradesh, accounted for 69% of total procurement of rice in 2015-16. Moreover, only a minor share of total production of wheat and rice is procured. On average between 2000-01 and 2015-16 the procured share of production was 26% for wheat (ranging between 12% and 41%) and 30% for rice (ranging between 23% and 36%) (Figure 3.3). Interestingly, for each of wheat and rice, the time pattern of the procured quantity, which is determined by policy, is almost identical to the pattern of procurement as a share of production. In other words, the policy-determined procurement quantity is more variable than the weather-dependent production quantity.
Procurement at MSP involves only a small share of producers. Out of 90.2 million agricultural households in India, 18.7 million reported sales of paddy in July-December 2012 (Government of India, 2015j; Government of India, 2016q). Of those who reported sales of paddy, only 32.2% were aware of any MSP, 25.1% were aware of any procurement agency, and 13.5% actually sold anything to a procurement agency. Among those households which sold paddy to a procurement agency, only 27% of their sales were at the MSP. Against this background it has been recommended to give wide publicity about MSP and procurement agencies in media before procurement starts and to seek ways to increase farmers’ confidence about procurement being carried out (Government of India, 2016n). The central government has accepted a recommendation to focus more of its procurement on states in eastern India, where farmers often have no alternative to selling at prices below the MSP (Government of India 2015j; Government of India, 2017b).

The procurement of wheat and rice by the FCI and state agencies in support of the MSP enables them to meet their responsibilities to maintain buffer stocks. The central government determines the minimum quantities of wheat and rice that must be maintained in each quarter. These stocking norms comprise “food security reserves” for meeting shortfalls in procurement and “operational stocks” for meeting the monthly requirements for targeted public distribution and other welfare schemes. Earlier terminology referred to the stocking norms as buffer norms and strategic reserve.

From 2000-01 to 2015-16 the stocking norms were slowly raised with a few years’ interval. The stocks have fluctuated between 20 million tonnes and 80 million tonnes for the total of wheat and rice in that period. Stocks were much above the norms in the early years and then fell below the norms. Later in the period the stocks again rose to a peak much above the norms, from which a decline has been observed in recent years. The actual stocks of wheat and rice vary in a regular pattern through each year, partly a result of most procurement taking place in the harvest season of each crop. The peak total stocks of wheat and rice tend to be seen in June and the lowest has in recent years been in the February-March period for wheat and August-October period for rice.

Figure 3.4. Actual stocks of wheat and rice and buffer norms, 2000-01 to 2015-16

![Graph showing actual stocks of wheat and rice and buffer norms, 2000-01 to 2015-16](image)

The quantities of wheat, rice and coarse grains procured by the FCI and state agencies are
issued to the relevant agencies for distribution under the Targeted Public Distribution
System or other welfare schemes or disposed of through sales, including sales for exports.
The FCI issues food grains at Central Issue Prices (CIP) for public distribution under the
National Food Security Act, 2013, and other welfare schemes (section “Consumer
measures”, below). The CIP are set by the government and are lower than the MSP. The
operational loss of the FCI is reimbursed by the central government as the food subsidy.
The operational loss is the difference between (1) the “economic cost” (sum of MSP,
procurement incidentals, and distribution cost) and (2) the CIP, multiplied by the relevant
quantities. The government’s food subsidy also includes the FCI’s cost of carrying stocks.

Sales, mainly of limited quantities of wheat and small quantities of rice (only recently),
take place through auction or at a pre-determined price under the Open Market Sales
Scheme (Domestic) (OMSS-D). Historically, OMSS-D provides for the sales of mainly
wheat through several routes. In 2013-14 the government approved sales of 8.5 million
tonnes of wheat to bulk traders or consumers through tenders, direct sales to small traders
from depots of FCI in different parts of the country, and retail sales to consumers through
state government agencies or national co-operative bodies. Rice was also made available
for sale to retail consumers through state governments. The FCI reports exports of wheat
under the heading “Exports of food grains from Central Pool from 2012-13” amounting to
2.9 and 2.7 million tonnes in 2012-13 and 2013-14, respectively (Government of India,
2017l). In other years such exports have been nil or very small.

Coarse grains have been procured by state governments and their agencies in earlier
years. The central government has no buffer stock commitments for coarse grains, unlike
for wheat and rice. The government does not allow the use of food grains, including
coarse cereals, to produce biofuels. However, grains certified not fit for human
consumption can be sold in open market to be used for producing ethanol for industrial
use, including use for blending for potable liquor. India has not approved any genetically
engineered coarse grain crops. Seed companies and public sector research institutions are
developing genetically engineered crops, including corn and sorghum, but their approval
by government and commercialisation may be several years away.

Price and market institutions for other crops

The DACFW implements procurement of oilseeds, pulses and cotton at the MSP as part
of India’s Price Support Scheme (PSS). It also implements the Market Intervention
Scheme (MIS) for the procurement of perishable agricultural and horticultural
commodities that are not covered under the PSS. (Annex 3.B reviews policies in these
and other commodity sectors in detail).

The PSS is implemented at the request of a state government which agrees to exempt the
procured commodities from the levy of mandi tax and to assist the central agencies with
logistical and financial arrangements. The National Agricultural Cooperative Marketing
Federation of India Ltd. (NAFED) is a central agency for procuring oilseeds, pulses and
cotton under the PSS and is the sole central agency for procuring coconut products under
the PSS. NAFED is a federation of almost 800 producing and processing societies, state
level marketing federations from most states, and several other entities. It promotes the
marketing and trading activities of its affiliated co-operative institutions, such as internal
and international trade, storage, consumer marketing, production of seeds and planting
material, fertiliser sales, and implementation of organic farming programmes.
The major policy instrument applying in the production and marketing of pulses and oilseeds are the MSP and the associated procurement under the PSS. In the past, NAFED has procured groundnuts, soybeans, rapeseed and mustard seed in small scale and occasional operations. In 2015–16 and early 2016-17 NAFED and the Small Farmers’ Agri-Business Consortium (SFAC) procured small quantities of sunflower seed, milling copra, moong beans, groundnuts and soybeans in seven different states. In November 2015 the Cabinet, in order to strengthen the procurement mechanism of pulses and oilseeds, made the FCI the central agency for procuring pulses and oilseeds when their market prices fall below MSPs. Its efforts are supplemented by NAFED, SFAC, the National Cooperative Consumers’ Federation of India Limited (NCCF), and the Central Warehousing Corporation (CWC). The FCI procured a small quantity of pulses in 2015-16 and 2016-17. In order to increase the procurement of oilseeds and pulses from farmers, the Government has recently increased the maximum limit of its quantity to be procured under the PSS from 25% to 40% of the total estimated production of the commodity in a particular state.

NAFED has procured cotton directly from farmers through its co-operative network at state and primary levels. NAFED initiated buffer stocking of pulses under the Price Stabilization Fund (PSF) and procured and stored a small quantity of onion in 2015.

Under the PSS, losses incurred by the central agencies are reimbursed by the government and profits are credited to the government. The DACFW provides working capital to the central agencies in the form of bank guarantees for procurement under the PSS. A standing government guarantee of INR 25 000 million is available with the NAFED and INR 15 000 million to the SFAC. The DACFW also provides letters of comfort to financial institutions for providing short-term loans to the central agencies.

MIS procurement can be undertaken when there is at least a 10% increase in production or a 10% decrease in market prices over the previous year. The MIS is implemented at the request of a state government, which is ready to bear 50% of the loss, if any, within a limit. A pre-determined quantity at the fixed Market Intervention Price (MIP) is procured by agencies designated by the state government for a fixed period or until the prices are stabilised above the MIP. In 2015-16 and early 2016-17 MIP procurement had been carried out for potatoes, oil palm (fresh fruit bunches), grapes, and palm oil in six different states.

**Price comparisons**

Producer prices have for many years and for many crops remained below comparable reference prices in international markets. This is explained partly by inefficiencies in the marketing chain from producers onwards, associated with the ECA and the APMC Acts and other factors, and partly by MSPs having been set below the international reference prices for several commodities at different periods in 2000-16. This has resulted in significant negative price gaps. However, in recent years the producer price has risen above the MSP for non-basmati rice, soybeans, and groundnuts (section 3.5). Moreover, for wheat and maize, the MSPs themselves have been raised above the international reference prices and the producer prices have been high enough to exceed these higher MSPs. The gaps between the producer price and the reference price have thus turned positive. Lately the producer prices of refined sugar and milk have also exceeded or been very close to the international reference prices.
Reduction of input costs

This section reviews the major policies through which agricultural producers obtain farm inputs at low prices. The largest input subsidies are provided through policies governing the supply of fertilisers, electricity, and water, which have operated for many years (Gulati and Narayanan, 2003). Other inputs are now also supplied at subsidised prices, as is the case for seeds, machinery, credit, and crop insurance. The section outlines some of the mechanisms the central government uses for transfers to producers and to the agriculture sector.

Fertilisers

Fertiliser is an essential commodity under the ECA and a fertiliser control order applies. The central government controls the prices at which some fertilisers are sold to farmers. Within India’s Ministry of Chemicals and Fertilizers, the Department of Fertilizers has the main objective of ensuring adequate and timely availability of fertilisers at affordable prices for maximising agriculture production in the country (Government of India, 2017k). The Department of Fertilizers ensures that fertilisers are available at the state level. Distribution within a state is the responsibility of the state government through co-operatives, the private sector or marketing federations. The Department of Fertilizers administers ten fertiliser manufacturing enterprises, nine in the form of “public sector undertakings” and one multi-state co-operative society. The central government subsidises some railway and road transportation of fertilisers. Having gone through several changes over the last few decades, India’s fertiliser policy now operates differently for urea and for phosphate and potash fertilisers, such as di-ammonia phosphate (DAP) and muriate of potash (MOP).

Virtually all of India’s consumption of nitrogenous fertiliser is in the form of urea, and most of the urea consumed in India is manufactured domestically. In 2014-15 imports accounted for 28% of the total consumption of nitrogenous fertiliser, a share that has increased significantly from 2004-05. Under the New Pricing Scheme (NPS), introduced in stages from 2003, a government-fixed selling price applies to urea (sometimes called a maximum retail price). It has been raised slowly over the 2000-17 period from INR 4 600 per tonne to INR 5 360 per tonne, an increase of 17%. From 2015, fertiliser manufacturers in India have been required to produce only neem-coated urea in order to make it more difficult for black marketers to divert urea to industrial consumers (Government of India, 2016f). Farmers pay an extra 5% of the MRP for neem-coated urea (Government of India, 2017d).

The government provides domestic urea manufacturers with a subsidy to settle the difference between their production cost and their revenue from sales at the fixed selling price. The subsidy is calculated for each individual manufacturing plant, taking into account a plant-specific fixed cost and a variable cost which largely represents the plant’s cost of natural gas, which is the feedstock for urea production. Natural gas has been supplied to urea manufacturing plants at a government-determined price that is much lower than the international price, i.e. the government subsidises the difference.

Imports of urea are permitted through three state trading enterprises for direct agricultural use (Metals and Minerals Trading Corporation of India Ltd., Indian Potash Ltd., and State Trading Corporation of India Ltd.). The Department of Fertilizers appoints certain entities as responsible for the handling, bagging and marketing of imported urea. In addition, the central government imports urea from Oman through two co-operative fertiliser enterprises. For most of the time from 2000 a basic duty of 5% has applied, along with a...
3. TRENDS AND EVALUATION OF AGRICULTURAL POLICY IN INDIA

When urea is imported, usually at a price higher than the selling price to farmers, the government subsidises the difference. As international prices of natural gas and urea increased in the 2005 to 2008 period, the subsidy on urea in India also increased. From 2015 a pooling mechanism is in place for averaging the price of domestic natural gas and imported natural gas supplied to urea plants.

The government’s expenditure on urea subsidies is thus a function of several subsidy calculations, which vary over time as a result of changes in international prices of urea and natural gas. The expenditure is also affected by the quantity of nitrogenous fertiliser consumed, which rose by 55% from 10.9 million to 16.9 million tonnes (nutrient) between 2000-01 and 2014-15 (Government of India, 2011b; 2014d; 2016h).

Imports account for the bulk of the consumption of phosphatic fertilisers and for the entire consumption of potassic fertilisers. Virtually the same duties as for urea apply to these imports, which are open to many commercial companies. Until 2010 subsidy payments by the government for about 22 types of phosphatic and potassic fertilisers corresponded to the difference between the respective import parity prices and the Maximum Retail Price (MRP) fixed by the government. From 2010 the Nutrient-Based Subsidy (NBS) policy applies to these so-called decontrolled fertilisers, and the government no longer fixes the MRP. The government sets NBS rates in INR per kilogram of nutrient (nitrogen, phosphate, potash, sulphur), which translate into subsidy rates per tonne of fertiliser, such as di-ammonium phosphate (DAP) and muriate of potash (MOP, potassium chloride) (Fertilizer Association of India, 2017). The fertiliser companies themselves set maximum retail prices at a “reasonable rate”. Fertiliser companies are required to clearly print retail price along with the applicable subsidy rate on the fertiliser bags. Any sale above the printed retail price is punishable under the ECA. Farmers effectively pay the market price less the NBS subsidy rate for the nutrients in the fertiliser they buy. As international prices for DAP and MOP declined markedly between 2010-11 and 2016-17, the respective NBS subsidy rates in INR per tonne were reduced even more, and the subsidy rate reduction was still larger in terms of USD per tonne. In 2016-17 the NBS subsidy rate on DAP and MOP was INR 8 945 and 9 282 per tonne, respectively, which was 45% and 37% less than in 2010-11. The subsidy rates for DAP and MOP are shown in USD per tonne in Figure 3.5, along with their respective international prices. In the first couple of years after the 2010 decontrolling of phosphatic and potassic fertilisers, the maximum retail price of DAP more than doubled and for MOP it more than tripled (Gulati and Banerjee, 2015).

Similar to the situation for urea, the consumption of phosphatic and potassic fertiliser has a direct effect on the amount of subsidy. The consumption of phosphatic fertiliser increased from 4.2 million tonnes to 6.1 million tonnes (nutrient) between 2000-01 and 2014-15, while the consumption of potassic fertiliser increased from 1.6 million tonnes to 2.5 million tonnes (nutrient) in the same period (Government of India, 2011b; 2016h). This corresponds to increases by 45% and 62%, respectively.

The time path of fertiliser subsidisation in India is shown in Figure 3.6, based on government expenditures. In two years part of the subsidies was provided to manufacturers in the form of government bonds, which they sold in the market or sold back to the government in later years. Both cash and total subsidies peaked in 2008-09, when world fertiliser prices were extremely high. After falling back, fertiliser subsidies have continued to increase in most of the recent years, but the rise is slower than it was ten years earlier. In most years, except between 2008-09 and 2011-12, urea subsidies (sum of indigenous and imported) were larger than the subsidies on phosphatic and
potassic fertiliser. More than half of the fertiliser expenditure in the most recent years is accounted for by subsidies on indigenous urea. The expenditure on phosphatic and potassic fertiliser has been declining since these fertilisers were decontrolled in 2010.

**Figure 3.5. Subsidy rates for DAP and MOP, 2010-11 to 2016-17**

![Chart showing subsidy rates for DAP and MOP, 2010-11 to 2016-17](source)


**Figure 3.6. Evolution of fertiliser subsidies, 2000-01 to 2016-17**

![Chart showing evolution of fertiliser subsidies, 2000-01 to 2016-17](source)

**Source:** 2000-01 to 2014-15: Gulati and Banerjee (2015); 2015-16 and 2016-17 (revised budget): Government of India’s Expenditure Budget, Ministry of Chemicals and Fertilisers, Demand No. 7.


**Electricity**

Electricity is a major input in agricultural production in India, primarily for powering pumps for irrigation water. Much water pumping is for bringing ground water in tube wells to the surface. Numerous entities operate under the central Ministry of Power. They include statutory bodies, such as the Central Electricity Authority, regulatory commissions and transmission utilities, autonomous bodies, such as research and training institutes, and public sector undertakings, such as the power generation entities and the Rural Electrification Corporation, which provides financial assistance in the form of loans for rural electrification. Over the last 25 years, reforms in electricity governance, such as the Electricity Act 2003, have resulted in some unbundling of these functions into separate entities for generation, transmission and distribution. The central government’s regulatory reach extends only to the transmission of electricity by state electricity boards between states, not within a state. The public sector, primarily state electricity boards (SEBs), is responsible for generating, transmitting and distributing electrical power. Regulatory bodies have been established both in the states and at the centre. The state regulatory bodies are empowered to set the electricity rates the SEBs charge to different categories of customers, such as agriculture, industry, domestic and commercial.

The rates the SEBs charge to agricultural customers is very low relative to the rates charged to other customers. In 2013-14 the rate for agriculture was zero not only in several states in the Northeast but also in the important agricultural producing states of Punjab and Tamil Nadu (Government of India, 2014b). The share of SEB revenue from agricultural consumers in total SEB revenue is much lower than the share of energy sold (in kWh) to agricultural consumers in India: in 2009-10 and 2013-14 the revenue shares were 6% and 8% and the sales shares were 23% and 22%, respectively (Power Finance Corporation Ltd., 2015). In other words, industrial and commercial electricity consumers cross-subsidise both agricultural consumers and domestic consumers (essentially households). Moreover, to the extent that the SEBs on an ongoing basis operate at a loss, covered by some policy intervention, a further subsidy element may be identified, although not specific to agriculture. On the other hand, it could be argued that the costs of SEBs are unnecessarily high, due to such factors as inefficient capacity utilisation and theft. The evolution of electricity subsidisation, along with irrigation subsidies and other variable input use subsidies is shown in Figure 3.14.

While the price agriculture pays for electricity is low, it is also recognised that the supply is erratic and the quality is low. Lengthy power interruptions are common and erratic, making it difficult to rely only on electrical power for pumping water. Voltage fluctuations harm the pump motors or reduce their efficiency. Farmers’ electricity consumption is often not metered and they pay a flat charge related to the capacity of the pump motor. The cost per kWh of the electricity they do consume can therefore be high. Some of these problems may be remedied through the DDUGJY initiative announced in 2014 by the central government’s Ministry of Power. The initiative, ongoing until 2022, aims to separate the feeder lines for agriculture and non-agriculture, strengthen the transmission and distribution infrastructure in rural areas, including the metering of electricity consumption, and carry out rural electrification. Many states had already separated feeders for electricity supply for agricultural use from supply for rural non-agricultural use, allowing stricter scheduling to be imposed on supply for agricultural use while maintaining its lower price (Government of India, 2013e).
Water

Surface water for irrigation is supplied to agricultural producers in India at prices lower than the costs incurred by the government agencies at central and state level that manage the supply. While groundwater as a source for irrigation has become relatively more important than surface water, the pricing of surface water remains a crucial instrument in reducing the cost of inputs for agricultural producers. The Central Water Commission, operating under the Ministry of Water Resources, River Development and Ganga Rejuvenation, is concerned with schemes for irrigation, among other things. In policy making it consults with state governments.

Government-funded projects involve building physical infrastructure, such as canals and dams, and operating and maintaining these facilities. The yearly costs the agencies incur thus include operations, maintenance, depreciation and interest on the capital employed. Recovering the full cost from the users of water would require making assumptions about the interest on capital, among other things. In the event, out of the expenses on operations and maintenance, i.e. excluding any interest on capital, only a small portion is recovered from the users of water in the form of an irrigation service fee. In 2001 the irrigation service fee that was collected corresponded to 8% of the expenses on operations and maintenance and the proportion is reported to have since declined further.

Water rates fixed in the past are not revised to account for inflation and there are shortfalls in the collection even of the resulting low rates. A lack of metering of water use in irrigation contributes to the difficulty of matching what a user pays with what it costs to supply the water, the value of the water used in irrigation, or some other indicator. Several initiatives have over the years been devised or integrated so as to increase the irrigated area more rapidly, increase water efficiency, and make irrigation management more effective (Chapter 2).

The National Mission on Micro-Irrigation (NMMI) operates since 2005-06 to financially support farmers setting up drip irrigation, sprinkler systems, and irrigation systems. Government assistance in general has paid for 50% of the cost of a micro-irrigation system, up to a maximum of 5 ha per beneficiary. The subsidy rate is more recently set at 35%, varying by category of farmer. Funding has been shared 80 (centre):20 (states), and from 2016 it is 60:40. State governments also subsidise micro-irrigation systems. While governments seek to expand water-saving micro-irrigation by means of financial support, the availability of free or low-cost electricity is an incentive for farmers to pump and use more water rather than less. It has been recommended that both the price of water and the price of energy for pumping water be regulated as part of the management of this natural resource (Government of India, 2016r).

Seeds, machinery and other inputs

Many kinds of seed are essential commodities under India’s ECA. From the time of the green revolution in the 1960s policies governing the development, production and distribution of seeds have been put in place, whether as acts, control orders, plans or missions. Seed policies concern such issues as balancing the incentives for plant breeding between the private and public sectors and encouraging farmers to use certified seeds and replace seed more often so as to increase yields. The central government’s Indian Council of Agricultural Research plays a central role, along with universities, research centres and sponsored breeders, in producing breeder seeds. The National Seeds Corporation (NSC) (amalgamated with the former State Farms Corporation of India), state seeds
corporations, state departments of agriculture, and private seed producers are involved in bringing breeder seeds to the foundation seeds stage.

State seeds corporations and other state institutions, along with the NSC, arrange for the production of certified seeds. A variety of initiatives at the central and state levels are in place to develop the institutional infrastructure for distribution of certified seeds and provide financial assistance for the use of certified seeds. The centre’s major scheme in this area is the Development and Strengthening of Infrastructure Facilities for the Production and Distribution of Quality Seeds, operating since 2005-06. Several of the central government’s missions in agriculture include components that subsidise farmers’ use of certain seeds and improved planting material.

The centre’s DACFW co-operates with state government departments in training farmers and technicians, testing machinery and equipment, encouraging the establishment of machinery banks for custom hiring, and subsidising the acquisition of machinery by farmers individually or in groups. The ICAR and state agricultural universities contribute to the development of suitable machinery. Larger pieces of machinery are increasingly employed as a result of custom hiring becoming more widespread. The policy efforts extend to post-harvest technology, such as storage, transport and primary processing.

The purchase or use of farm inputs of many other kinds is often encouraged by some form of government expenditure, often as part of the missions. This can apply to the purchase of diesel fuel, pesticides, machinery and irrigation equipment, such as diesel-powered and solar-powered pumps.

Credit

About 64% of agricultural credit outstanding is held by institutional sources, almost all of it by commercial banks, co-operative societies and banks, and regional rural banks (Chapter 2). The National Bank for Agriculture and Rural Development (NABARD), established in 1982, supervises co-operative banks and regional rural banks and promotes sustainable and equitable agriculture and rural prosperity through credit support, related services, and institutional development. NABARD’s financial operations include loans to rural infrastructure institutions, marketing federations, producer organisations, and food processing industry, as well as refinancing of co-operative banks and regional rural banks. NABARD is under the responsibility of the Department of Financial Services of the Ministry of Finance, which holds almost all of its capital (the Reserve Bank of India holds a very small share).

Some three-quarters of all agricultural credit outstanding consist of short-term credit and the share has been growing (Chapter 2). The policy instruments in the credit sector, such as interest subsidies, almost exclusively relate to short-term credit over six to twelve months, i.e. operating credit during the crop season. Subsidisation of fixed inputs is on a much smaller scale in the form of requirements that institutional lenders provide credit to agricultural producers at interest rates below the market rate.

Since 2006 the central government has operated the Interest Subvention Scheme (ISS) for farmers. The subsidy takes the form of transfers to lending institutions to enable them to deliver credit to farmers at the subsidised rate. Initially the interest rate subsidy amounted to two percentage points on short term credit up to INR 300 000 (Hoda and Terway, 2015; Government of India, 2017f). Subsidy increases followed, such that by 2013-14 an additional interest subsidy of three percentage points was available if the interest was paid
on time. This brought the total interest subsidy to five percentage points, reducing the effective rate of interest on some short-term credit to 4%. From 2016-17 the DACFW instead of the Department of Financial Services provides the interest subvention. The scheme continues in 2017-18. The scheme also assists small and marginal farmers with a two percentage point interest subsidy on loans for post-harvest storage. The interest subsidy for short term credit to farmers was budgeted at INR 150 billion in 2017-18.

Since 2004 the centre has encouraged the restructuring and issue of fresh loans to farmers affected by natural calamities, one time settlement for small and marginal farmers, fresh finance to farmers whose earlier debts had been settled, and relief measures for farmers indebted to private money lenders (Hoda and Terway, 2015). The Reserve Bank of India has issued standing guidelines to banks for relief measures in times of natural calamities, including the conversion of the principal outstanding on crop loans and agriculture term loans and the accrued interest into term loans for periods ranging from 3 to 10 years (Government of India, 2013a). In 2006 the central government undertook to mitigate the distress of the farmers in suicide-prone districts (Hoda and Terway, 2015). This included interest waivers and restructuring of loans, investments in irrigation, seed replacement, watershed development and horticulture development. A lending scheme for priority sectors requires commercial banks to direct 18% and 4.5% of their lending to, respectively, agriculture and suppliers of a variety of agricultural inputs (Hoda and Terway, 2015). Farmers’ access to banking and credit is facilitated by the Kisan Credit Card (KCC) scheme, which documents a bank customer’s personal and financial details.

Debt relief in agriculture has applied through partial or full debt waivers, in which the government reimburses the lending institutions their cost of implementing the debt waivers. In 2008 the central government introduced the Agricultural Debt Waiver and Debt Relief Scheme (ADWDRS) on overdue short-term production loans and investment loans (Hoda and Terway, 2015). Farmers with landholdings of up to two hectares (small and marginal farmers) were provided a complete waiver. For other farmers, 25% of the eligible amount (including principal and interest) was waived, provided they paid 75% of that amount. About half of the central government’s expenditure on this scheme was incurred in 2008-09, with the remainder being accounted for in declining amounts in the subsequent three years, for a total of INR 522 billion (Government of India, 2013a).

At the state level, Andhra Pradesh and Telangana decided on a debt redemption scheme for farmers in 2014 (Ramakrishnudu, 2015). While media reports in 2017 have indicated several initiatives where a state government intended to provide funds for lending institutions to waive farmers’ loans, it has not been possible to substantiate the status and the amounts of these initiatives. One report lists eight such announcements ranging between INR 77 billion (USD 1.2 billion) and INR 560 billion (USD 8.5 billion), depending on the state, in Uttar Pradesh, Maharashtra, Punjab, Madhya Pradesh, Gujarat, Haryana, Tamil Nadu, and Karnataka (IndiaSpend, 2017). Out of these, Uttar Pradesh, Maharashtra and Punjab have implemented their debt waivers. Rajasthan is reported also to have announced a debt waiver in 2017.

**Crop insurance**

Several crop insurance schemes have been and are being implemented under the responsibility of the central government through the National Agricultural Insurance Scheme (NAIS). Participation in crop insurance schemes is optional for state governments. The NAIS was introduced in 1999, replacing the Comprehensive Crop Insurance Scheme. The Weather Based Crop Insurance Scheme (WBCIS) was introduced
in 2007 and a Modified NAIS in 2010. In 2013 the National Crop Insurance Program (NCIP) merged the WBCIS, the Modified NAIS, and the Coconut Palm Insurance Scheme. The implementation and administration of crop insurance have been handled by the Agriculture Insurance Company of India Ltd. (AIC) since 2003, involving also private sector and public sector insurance companies (AIC, 2017). The central and state governments pay the AIC to reimburse claim payments and subsidise premiums. The AIC and other insurance companies offer additional insurance products, such as rainfall insurance, coffee rainfall insurance, and rubber plantation insurance (AIC, 2016).

The NAIS, which began to be phased out in 2016, covered all food crops, oilseeds, and annual commercial and horticultural crops. Participation was compulsory for indebted farmers and voluntary for others. The premium rates ranged between 1.5% and 3.5% of the insured value of food and oilseed crops, while actuarial rates applied for commercial and horticultural crops. Small and marginal farmers were provided a 10% subsidy on their premium, shared by the central and state governments.

From 2016 the PMFBY (Pradhan Mantri Fasal Bima Yojana, Prime Minister Crop Insurance Scheme) is being implemented in association with the state governments. Buying crop insurance remains compulsory for indebted farmers and voluntary for others, which effectively involves agricultural lending institutions, such as banks, in farmers’ crop insurance decisions. In contrast to other insurance schemes there is no limit on the government’s premium subsidy (Government of India, 2016d). Producers pay a premium of 2% and 1.5% of the “sum insured” of the kharif and rabi crops, respectively, and 5% for annual commercial and horticultural crops. The actuarial premium may be several times larger, with the central and state governments sharing the cost of paying the difference in premium. A crop loss is determined on the basis of the yield shortfall in the producer’s local administrative area, such as a village, i.e. not specifically on the producer’s own land. Electronic technology is expected to be used for estimating yield losses and for depositing payments in producers’ bank accounts.

The PMFBY is implemented along with a Restructured Weather Based Crop Insurance Scheme (RWBCIS). About 30% of India’s cropped area was covered by crop insurance schemes in 2016-17. The premium rates paid by farmers in the most recent scheme, the PMFBY, are generally lower than in earlier schemes, especially the Modified NAIS (Table 3.6). Although the PMFPY premiums are calculated on an actuarial basis, farmers pay 1.5% of the sum insured for rabi crops, 2% for kharif crops and 5% for horticulture and commercial crops. The remaining amount of premiums is paid by the central and state governments in a 50:50 ratio.
Table 3.6. Premium charged to farmers for crop insurance

<table>
<thead>
<tr>
<th>Season</th>
<th>Crops (selected)</th>
<th>NAIS</th>
<th>mNAIS</th>
<th>WBCIS</th>
<th>PMFBY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabi crops (October-March)</td>
<td>Wheat</td>
<td>1.5%</td>
<td>10-11%</td>
<td>10-11%</td>
<td>1.5%</td>
</tr>
<tr>
<td></td>
<td>Pulses and oilseeds</td>
<td>2.0%</td>
<td>10-11%</td>
<td>10-11%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Kharif crops (July-October)</td>
<td>Paddy and pulses</td>
<td>2.5%</td>
<td>10-11%</td>
<td>10-11%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>Oilseeds and bajra</td>
<td>3.5%</td>
<td>10-11%</td>
<td>10-11%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Annual crops</td>
<td>Commercial and horticultural crops</td>
<td>Actuarial</td>
<td>10-11%</td>
<td>10-11%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Note: NAIS: National Agricultural Insurance Scheme; mNAIS: modified National Agricultural Insurance Scheme; WBCIS: Weather-based Crops Insurance Scheme; PMFBY: Pradhan Mantri Fasal Bima Yojana. While the premiums are calculated on an actuarial basis, the insured farmers are required to pay only the premium rates shown. The residual premiums are paid by the central government and the state governments concerned.

Source: Government of India (2011a; 2014f; 2015a; 2016d; 2016o).

Missions

The National Food Security Mission (NFSM) operates since 2007-08 to increase the production of wheat, rice and pulses as well as the promotion of commercial crops like cotton, jute and sugarcane. The strategy is to provide financial assistance promote and extend improved technologies regarding, e.g. seed, micronutrients, soil improvement, pest management, machinery, and irrigation, as well farmer capacity building. Until 2014-15 the central government provided all the funding, and more recently the funding has been shared between the central and state governments in a 60:40 ratio. From 2016-17 several new such initiatives were undertaken to increase the production of pulses.

The National Agricultural Development Plan (known by its Hindi name: Rashtriya Krishi Vikas Yojana, RKVY) operates since 2007-08 to encourage the formulation of state and district level plans and to induce the states to increase own spending on a highly diverse set of activities. They relate to, e.g. crop development, horticulture, mechanisation, natural resource management, marketing, animal husbandry, dairy development, and extension. In 2014-15 the three largest elements of RKVY in terms of expenditure were crop development, horticulture and micro/Minor irrigation, together accounting for 44% of total expenditure on RKVY. Until 2015-16 the central government provided all the funding for the mission, and more recently funding is shared 60 (centre):40 (state) in most states. The states have full flexibility in their use of the mission funds. A number of sub-schemes have been introduced from 2010-11 or later, focussed on bringing the green revolution to eastern India, crop diversification, reclamation of problem soils, shifting rice fallow area in eastern India to pulses and oilseeds, and controlling foot and mouth disease.

The centrally sponsored National Mission on Oilseeds and Oil Palm (NMOOP) restructures since 2014 the earlier Integrated Scheme of Oilseeds, Pulses, Oil Palm, and Maize (ISOPOM), along with the centrally sponsored schemes for tree borne oilseeds and oil palm area expansion (Government of India, 2014a). Operating through three mini-missions (oilseeds, oil palm, tree borne oilseeds), NMOOP seeks to increase the production of vegetable oil through support for many kinds of improvements in inputs and practices, such as seeds, nutrient management and sprinkler irrigation. Funding of the mission is mostly shared 50:50 between the central and state governments. Launched in
2004, ISOPOM is a centrally sponsored scheme aiming to promote crop diversification, with funding shared 75 (centre):25 (state). ISOPOM had resulted from the 2004 merger of programmes for the development of oilseeds production, pulses, maize, and oil palm.

The Mission for Integrated Development of Horticulture (MIDH) brings together since 2014-15 the earlier National Horticulture Mission (the major element of MIDH), the Horticulture Mission for North East and Himalayan States, National Bamboo Mission, National Horticulture Board, Coconut Development Board, and Central Institute for Horticulture, Nagaland. The central government’s 50% share and the state governments’ 25% share of the premium for coconut palm insurance is funded under MIDH, and 25% is paid by farmers.

The National Mission for Sustainable Agriculture (NMSA) operates since 2014-15 to make agriculture more productive, sustainable, remunerative, and climate resilient. The mission restructures other missions and programmes in the DACFW and has two major components: rainfed area development and soil health management. Since 2015-16 an additional scheme is in place to mitigate the effects of drought and increase the area under irrigation: the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY; Prime Minister’s Agricultural Irrigation Plan). The scheme aims at providing end-to-end solutions in irrigation supply chains, with respect to water sources, distribution network and farm-level applications. Under PMKSY, ongoing canal and water surface schemes will be looked at in conjunction with watershed development, rain water harvesting, micro irrigation etc. One prominent element of the NMSA is the introduction of a scheme to provide information to farmers on soil analysis and related nutrient recommendations. The scheme is designed to provide this information in the form of a “soil health card” once every two years.

In livestock, the National Livestock Mission (NLM) in 2014-15 subsumed many earlier central and centrally sponsored schemes under a common heading. They include schemes focused on the development of production of particular species, such as sheep, pigs and poultry, as well as schemes concerned with developing livestock feed and with particular issues in livestock production, such as utilisation of fallen animals (Annex Table 3.A.5 illustrates the diversity of subjects subsumed under the NLM). A livestock insurance scheme offers a 50% subsidy of the premium for insurance for loss of high-yielding cattle or buffalo by death. Five animals per beneficiary are eligible for coverage. Insurance is offered by private insurance companies. Similar to the various crops missions, the NLM also has an extension component.

**State-level agricultural policies**

In addition to implementing policies funded fully or partially by the centre, many states operate their own agricultural policies. The Constitution allows the states to devolve their authority in some subjects, including agriculture, to a lower level of government (panchayat, sometimes called village-level government). Some state policies complement or add to the policy effort undertaken by the centre (e.g. some states have in the past declared a state bonus on wheat and paddy over and above the MSP set by the central government). Policies in many states include making financial contributions to cover part of the cost of a farmer’s investment or input purchases. For example, the Madhya Pradesh government used a two-pronged strategy to increase the use of farm machinery: a village scheme and a scheme to give incentives to rural youth to establish custom hiring centres. Both were found to have contributed significantly to increased mechanisation in
assessments of state-specific agricultural issues and policies emphasise the importance for agricultural development of improvements in irrigation, electricity supply (including solar), roads, rice varieties, crop and livestock diversification, drought proofing, marketing and procurement, land leasing, and downstream cold storage and food processing facilities (Verma et al., 2017; Hoda et al., 2017a; Hoda et al., 2017b; Gulati et al., 2017). The priority put on any single one of these subjects depends on the decision of the state government.

### Box 3.2. Illustrative example of state agricultural policy: Odisha

The Department of Agriculture in Odisha, an eastern state, is responsible for agriculture, horticulture, soil conservation and a watershed mission. Several autonomous bodies work under the department, such as the Odisha State Seeds Corporation, Odisha Agro Industries Corporation, Agriculture Promotion and Investment Corporation of Odisha Limited, Odisha State Seed and Organic Products Certification Agency, Institute on Management of Agricultural Extension, and Odisha Cashew Development Corporation.

Odisha has an explicit State Agriculture Policy, which specifies many instruments for state financial assistance to the agriculture sector, such as paying a specified share, up to a limit, of the cost of farmers’ investment and input purchases. Odisha’s agricultural policy lists more than 80 instruments for financial assistance under the following headings.

- **Agriculture**: capital investment subsidy for commercial agri-enterprises; private lift irrigation projects; soil management; organic farming; pesticides and bio-pesticides.
- **Horticulture**: nursery; vegetable seed production; seed infrastructure; vegetable cultivation in open condition; establishment of new garden (area expansion); floriculture; spices (ginger and turmeric); mushroom cultivation; plantation crops; post-harvest management; establishment of marketing infrastructure for horticulture produce; protected cultivation; promotion of integrated nutrient management and integrated pest management; organic farming; vermi compost unit; micro irrigation.
- **Animal resources development**: milking machine; manual and power operated chaff cutter; cream separator; mini cattle/ poultry/ fish feed mill; paneer making machine; khoa making vat; deep freezer; bulk cooler and chillers.

*Source: State Agriculture Policy 2013, Agriculture Department, Odisha*  
[http://agriodisha.nic.in/Content/pdf/State_Agriculture_Policy_2013_e.pdf](http://agriodisha.nic.in/Content/pdf/State_Agriculture_Policy_2013_e.pdf) and  
[http://agriodisha.nic.in/Home/HomeAboutUs](http://agriodisha.nic.in/Home/HomeAboutUs).
Rural public services infrastructure (research and development, education and training, quality and sanitary control, agricultural infrastructure, marketing and promotion)

Research

The publicly funded National Agricultural Research System (NARS) consists of the Indian Council of Agricultural Research (ICAR) and a network of research institutions and State Agricultural Universities (SAUs). ICAR has a vast mandate concerning research, technological development, extension and education. ICAR co-ordinates, guides and manages research in areas including crop science, natural resource management, horticultural science, fisheries science, and animal science in all of India. ICAR’s network includes 62 State Agricultural Universities, four deemed universities, three central agricultural universities, and four central universities with agricultural faculty. The SAUs, originally modelled after land grant universities in the United States, are usually established through state legislation and rely on funding mainly from state governments. To provide a legal base for the establishment, functioning and uniformity of agricultural universities, ICAR developed a model act for agricultural universities in India, last revised in 2009.

Although an autonomous body, ICAR links to and is mainly funded by the central government through the Department of Agricultural Research and Education (DARE) in the MAFW. In 2011 DARE established Agrinnovate India Limited to promote and spread the research and development outcomes of ICAR. A major activity of the company is the commercialisation of technology. Agro-economic research is under the administration of DAFW, not DARE.

Extension

The central government provides support to the state governments to reform their extension services, including the establishment of several hundred Agriculture Technology Management Agencies (ATMAs) across the country. This is in addition to the network of 662 centres called Krishi Vigyan Kendra (KVK) or agricultural science centres. The KVKs, which assess, refine and demonstrate location specific technology in agriculture, are financed by the central government. DAC and ICAR guidelines for state governments and SAUs encourage the linking of the research and extension systems, such as the ATMAs working together with KVKs at the district level, keeping district priorities in view. Some SAUs operate Krishi Gyan Kendra (KGK) or agricultural knowledge centres.

In recent years the National Mission on Agricultural Extension and Technology (NMAET) has supported a vast array of extension activities, both through central schemes and centrally sponsored schemes. The NMAET supports such activities as extension education, training, and agricultural mechanisation. The mission provides financial assistance for individual ownership of farm machinery. Some components under the mission support the production and distribution of certified and quality seeds, and others address plant protection, plant quarantine, pesticide management and food safety. From 2014-15 the Sub-Mission on Agricultural Mechanization (SMAM) promotes the use of farm machinery and provide financial assistance to acquire and hire farm machinery.
Product safety and inspection

The Food Safety and Standards Authority of India (FSSAI) is established by the Food Safety and Standards Act 2006 (FSSA). Operating under the Ministry of Health and Family Welfare (MHFW), the FSSAI administers the Food Safety and Standards Regulations (FSSR) of 2011. The FSSR applies equally to domestic and imported foods and requires all food processors, manufacturers, exporters, and importers to have their products certified according to FSSAI regulations. The FSSAI establishes standards for food and regulates the manufacture, storage, distribution, sale and import of food, with a view to ensuring availability of safe and wholesome food for human consumption, and contributing to the development of international technical standards for food and sanitary and phytosanitary standards. The MAFW is involved with sanitary and phytosanitary measures through its Department of Animal Husbandry, Dairying, and Fisheries (DAHDF) and Directorate of Plant Protection, Quarantine and Storage (DPPQS). Standards, including those in agriculture and food, are administered by the Bureau of Indian Standards (BIS). Technical regulations are formulated by sector-specific agencies.

The Ministry of Food Processing Industries (MOFPI) provides assistance for the setting up and upgrading of food testing laboratories by organisations in the central and state governments, including universities. MOFPI also operates schemes to motivate the food processing industries to adopt food safety and quality assurance mechanisms, such as ISO 9000 and HACCP, to prepare food processing industries to face global competition, to enable adherence to stringent quality and hygiene norms, to enhance product acceptance by overseas buyers, and to keep Indian industry technologically abreast of international best practices.

The Agricultural Produce (Grading and Marking) Act, 1937 provides for grading and marking of agricultural, horticulture and livestock products with the objectives of making available quality agricultural products to consumers. The central government makes rules for grade designations to indicate the quality of the product and specifies grade designation marks. Manufacturers who comply with standards laid down by the Directorate of Marketing and Inspection of the MAFW are allowed to put 'AGMARK' labels on their products.

The Fruit Products Order, administered by the Ministry of Food Processing Industries, was a mandatory certification mark on processed fruit products under the Food Safety and Standards Act, 2006.

Producer organisations

The National Cooperative Development Corporation (NCDC) promotes and develops co-operatives in agriculture and rural activities, such as farmers’ co-operatives for production, marketing, processing, storage, and exports and imports of agricultural produce and foodstuffs. It supplements the efforts of state governments. In addition to internal accruals and borrowings, it is funded by the central government’s MAFW.

The central government promotes the creation of Farmer Producer Organizations (FPOs) through the SFAC (Government of India, 2016r). An FPO is an association of farmers offering the advantages of both a co-operative and a private company. State governments and their agencies can also be involved in promoting FPOs. The SFAC helps to create state-level farmer producer companies (FPC) with smaller FPOs as shareholders of the state-level FPC.
An FPO can offer a variety of services to its members, including financial services (loans for crops, purchase of tractors, pump sets, and construction of wells), input supply (fertilisers, pesticides, seeds, and others), purchasing produce (also storing, processing and packaging), marketing, insurance (e.g. crop insurance), and technical services (promoting best practices, providing marketing information). SFAC supports FPCs with credit guarantees and with equity grants up to INR 1 million. Both instruments help FPCs obtain credit from mainstream financial credit institutions. In March 2017 there were 586 registered FPOs and 152 were in the process of registration.

**Taxes in agriculture**

The central government’s income tax act specifically excludes “agricultural income” from central government taxation. It defines agricultural income essentially in terms of rent or revenue derived from land and income from land by agricultural operations, including processing to make agricultural produce fit for sale. In keeping with India’s constitutional distinction between agriculture and animal husbandry, agricultural income does not include here income from selling livestock products, such as animals, poultry and milk, which is therefore subject to taxation. The exclusion of rent, revenue or income associated with land is explained by the long-established imposition by state governments of a land based levy called “land revenue”. The states, but not the centre, have the constitutional right to collect land revenue. The land revenue can be collected at different rates depending on the classification of the land, such as wet or dry. While the states can also tax agricultural income, the implementation of such taxes varies: most states impose no such tax and some impose tax only on income from plantations, such as tea, coffee, rubber or spices. Some states have intermittently introduced and then abandoned agricultural income tax.

Following protracted centre-state negotiations and a constitutional amendment in 2016, the central and state governments started applying a new value-added tax from 1 July 2017 (Chapter 2). This Goods and Services Tax (GST) replaces a large number of taxes, levies and other fees collected by the central and state governments at different rates at different points in the value chains of different products. The initial GST structure is designed such that massive changes in the tax rates for any sector are avoided (Government of India, 2017b). Six different rate levels apply to goods and services: nil, 3% (goods only), 5%, 12%, 18%, and 28% (also a 0.25% rate for three minor goods items). As in similar systems in other countries, it is the “supply”, such as the sale, of a product that is subject to tax, not its production. The supply of primary agricultural commodities, including food grains, is taxed at the nil rate and the supply of most other food items are taxed at the lower percentages (Government of India, 2017m). Moreover, a person who cultivates land (“agriculturist”) does not need to register for GST as a supplier. A dairy, poultry or livestock farmer needs to register as a supplier if the farm’s sales figure exceeds INR 2 million (about USD 30 000) (Government of India 2017q).

The collection of GST is destination based, with central GST and state GST applying to transactions within a state. An integrated GST applies to transactions between states, for which the central government has a particular responsibility in enabling the integration. The integrated GST is collected on imports from other countries but not on exports. The integrated GST on imports is levied and collected under the Customs Tariff Act 1975, as amended, and applies in addition to the basic customs duty. The implementation of GST is seen by some as facilitating India’s move towards a National Agricultural Market (Government of India 2015e). By subsuming many kinds of taxes on the marketing of
agricultural produce, the GST may ease the inter-state movement of agricultural commodities.

**Consumer measures**

**Supply of food grains to state governments**

A series of public food distribution systems has evolved in India from 1942. The Targeted Public Distribution System (TPDS) was introduced in 1997. It targeted the distribution of food grains and other essential supplies to various categories of the population defined in relation to the government-determined poverty line. The public distribution of food grains, such as the TPDS, operates under the joint responsibility of the central and state governments.

The central government, through the FCI and state agencies, is responsible for the procurement and storage of food grains. The central government allocates food grains to the state governments. The FCI on behalf of central government transports food grains from surplus states to deficit states. The operational responsibility for distribution to beneficiaries rests with the state governments.

**Distribution of food grains to beneficiaries**

In September 2013, the National Food Security Act (NFSA) was enacted by the Parliament, extending to all of India and absorbing the TPDS and several other food programmes. The NFSA established a statutory right for the targeted sections of the population to obtain certain quantities of food grains at subsidised prices under the TPDS. The Act envisaged this right extending to about two-thirds of India’s population, i.e. to more than 800 million people. The incorporation of TPDS into the NFSA proceeded at different speeds in different states, but by 1 November 2016 the NFSA had been implemented in all 36 states and Union Territories, which thus receive their monthly allocation of food grains as per their entitlement under the NFSA. Several other welfare schemes, mainly operating under the NFSA, also provide food grains to particular categories of recipients (discussed below).

The state governments are responsible for distributing the food grain entitlements, i.e. allocating the supplies within the state, identifying eligible families, issuing ration cards, distributing food grains mainly through Fair Price Shops (FPSs) and licensing and supervising the functioning of the FPSs. FPSs, which numbered 528 000 in 2016, can be owned privately, by co-operative societies or by the government. Some state governments also distribute such items as sugar, pulses, edible oil, iodised salt, and spices through the same outlets as where they distribute NFSA food grains. The central government provides assistance to the state governments to meet the cost of transporting food grains within a state and for the margins of the Fair Price Shop (FPS) dealers.

The functions and actors in the food grain distribution system are summarised in Figure 3.7. The activities of governments in procuring food grains at MSP and acquiring and managing public stocks are deeply intertwined with government activities in making food grains available for public distribution (allocating at Central Issue Price), distributing food grains, and enabling their sale to beneficiaries (Saini and Gulati, 2015).
Figure 3.7. Schematic of procurement and public distribution of food grains in India

State governments use their own criteria to identify families or households eligible for TPDS and NFSA entitlements, using estimates by the central government of the numbers of recipients. The TPDS distinguishes among three categories of recipients: families Above the Poverty Line (APL), Below the Poverty Line (BPL), families and AAY households (AAy stands for Antyodaya Anna Yojana, a category established in 2000, comprising the poorest of the poor and numbering up to 25 million people). The Central Issue Price at which TPDS beneficiaries could buy food grains was held constant since 2002 at INR 8.30 per kg for rice and INR 6.10 per kg for wheat for APL families; INR 5.65 and INR 4.15 per kg, respectively, for BPL families; and INR 3.00 and INR 2.00 per kg, respectively, for AAY households (Government of India, 2017y).

Under the NFSA the state agencies identify the eligible recipients as belonging to one of only two categories: priority households and AAY households. The size of the food grains entitlements in the priority category are defined in terms of a person, an innovation possibly related to raising the likelihood of reaching the intended group of NFSA recipients, while the entitlements in the AAY category continue to be defined in terms of a household as under TPDS. Priority households are entitled to buy 5 kg of food grains per person per month at subsidised prices. AAY households are entitled to buy 35 kg of food grains per household per month at the same subsidised prices. These prices are INR 3, INR 2, and INR 1 per kg, respectively, for rice, wheat, and coarse grains (corresponding to about USD 45, USD 30 and USD 15 per tonne in 2016; calculated at average daily exchange rates of the Reserve Bank of India). For AAY households these prices and entitlements remain the same under NFSA as under TPDS.

In addition to the TPDS, a set of Other Welfare Schemes (OWS) operates under the NFSA. The National Program of Mid-Day Meal in Schools (Mid-Day Meal Scheme) is the responsibility of the central government’s Ministry of Human Resource Development. Local depots of the FCI supply food grains for free to the relevant state agencies (the FCI is paid the food subsidy by the Ministry at the NFSA prices). The state agencies are responsible for the distribution and meal preparation functions in schools according to central government rules. More than 100 million children benefit from this scheme.
The Wheat Based Nutrition Program (WBNP) is implemented by the Ministry of Women and Child Development under its Integrated Child Development Scheme. The Ministry pays the food subsidy to FCI at NFSA prices for food grains allocated to state-run child development projects to provide food to children below the age of six and to pregnant or lactating women. Despite the programme name, rice accounts for more than 30% of the allocated grains. Other schemes under which the central government allocates food grains at subsidised prices include the scheme for Supply of Food Grains to Welfare Institutions, the scheme for Supply of Food Grains for SC/ST/OBC Hostels (SC/ST/OBC refers to certain defined segments of the population), the Annapurna Scheme (concerns senior citizens in certain circumstances), the Emergency Feeding Programme, and the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls. Moreover, states that participate in the Decentralized Procurement Scheme are responsible not only for procuring food grains within the state but also for distributing it to the segments targeted under TPDS and other welfare schemes.

**Food subsidies**

The centre determines the difference between the economic cost and the central issue price, which is passed on to the FCI or the state government as food subsidy. The amounts of food subsidies released for the three recipient categories under the TPDS (BPL and APL families and AAY households) increased significantly from 2007-08 onwards (Figure 3.8). The increases in these components ceased or reversed in conjunction with the introduction of the NFSA in 2013-14. From 2014-15 the share of the NFSA component in the food subsidy is seen as growing along with the progressive implementation of the NFSA by state governments. The total food subsidy is somewhat larger than the sum of the components accounted for explicitly in Figure 3.8. This may be related to the fact that the total food subsidy reported by the DFPD includes not only subsidies released under various welfare schemes but also reimbursement of the FCI’s carrying charges for buffer stocks, such as freight, storage, and interest charges. In addition to the food subsidy of the central government, state governments have provided food subsidies of varying size, ranging between 6% and 17% of the centre’s food subsidy expenditure.

**Figure 3.8. Major components of the centre’s food subsidy, 2007-08 to 2015-16**

Source: Government of India (2017z).
A shift away from the physical grain transfer to deposits of cash into the beneficiaries’ bank accounts is envisaged as part of the government’s direct benefit transfer initiative (Box 3.1 above and Chapter 4). A pilot initiative of this kind is ongoing in three Union Territories. The recent application of India’s Direct Benefit Transfer and its Aadhaar identification to the distribution of fertiliser subsidies is outlined in Box 3.1 above.

**Environmental measures**

While few measures are explicitly labelled as environmental measures in the context of agricultural policy in India, the nexus of agriculture and the environment is gaining recognition. The need for attention to environmental sustainability in agriculture is identified in policy documents such as the twelfth five-year plan 2012-17 (Government of India, 2013e). This relates to such issues as the use of water and fertiliser in Indian agriculture, among others. The National Mission on Sustainable Agriculture (NMSA), which derives from India’s national action plan on climate change, involves co-operation with state level agencies. The mission merges many activities of the DACFW related to sustainable agriculture, with special emphasis on soil and water conservation, water use efficiency, soil health management, and rainfed area development. Adaptation measures are also covered under other ongoing schemes such as the National Initiative on Climate Resilient Agriculture (NICRA), the *Pradhan Mantri Krishi Sinchayee Yojana* (PMKSY; Prime Minister’s Agricultural Irrigation Plan), and the District Agricultural Contingency Plans (DACP).

The authority to regulate the quality of genetically modified crops is provided under the Environment (Protection) Act, 1986. The Ministry of Environment, Forest and Climate Change is responsible for approving the release of genetically modified seeds, such as Bt cotton hybrids. It is reported that genetically modified eggplant (brinjal) has been developed but not approved for release, while approval for release of genetically engineered mustard is under consideration (Deshpande, 2017). India participates in the Global Environmental Facility Formulation, concerning such issues as climate change mitigation and adaptation, biodiversity and land degradation. The central government’s Ministry of New and Renewable Energy (MNRE) implements the National Biogas and Manure Management Programme (NBMMP), which supports the installation of household size plants to generate gas from biomass, including what is generated in farming. The programme was launched already in 1981 under the name National Programme on Biogas Development (NPBD). The Solar Pumping Program for Irrigation and Drinking Water, operating under the responsibility of the MNRE since 1992, offers financial support through state governments, NABARD and regional rural banks for the installation of such pumps, in some cases replacing diesel pumps. A National Policy on Biofuels has been in place for many years, with steps having been taken in 2017 towards new biofuels initiatives.

**Overall budgetary outlays on agro-food policies**

Overall the ministry in the central government with the largest expenditure on agriculture and food is the Ministry of Agriculture and Farmers’ Welfare (MAFW). The Ministry of Chemicals and Fertilizers and the Ministry of Consumer Affairs, Food and Public Distribution also account for large shares of the central government’s expenditures on agriculture and food. The major subsidy schemes provide subsidies to agricultural producers and others under the headings of fertiliser subsidies, power (electricity) subsidies, and irrigation subsidies, while consumers are the beneficiaries of the
government’s food subsidy. However, the central and state governments operate many more subsidy schemes and also fund or provide general services for agriculture.

Accounting for expenditures of both the central and state governments, one analysis reported yearly total amounts averaging about INR 4 000 billion, including expenditure on capital account, in the 2009-10 to 2013-14 period (U.S. Department of Agriculture, 2014). Based on the data reported by this source, about two-thirds of all expenditure on agriculture and food took the form of the four major items of fertiliser subsidies, agricultural power subsidies, expenditure on irrigation and flood control, and Food Corporation of India subsidies (not clear whether this includes subsidies released directly to states undertaking decentralised procurement), and a sub-total of six much smaller items. This latter sub-total consisted of five items that are primarily central government expenditures (commodity boards and export development, Cotton Corporation of India subsidies, NAFED subsidies, jute subsidies, and sugar subsidies) and one state government item, which is the dominant component of this sub-total (state bonuses on the minimum support prices for procurement). The remaining one-third of all state and central government expenditure on agriculture and food falls under a very wide variety of headings. It does not appear possible to gauge the relative shares of the central and state governments in this one-third of expenditure, which, in line with the source, could be labelled capital and revenue expenditures on agriculture and allied services, rural development, and special area programmes.

The evolution in nominal terms of the major categories of expenditure in agriculture and food in the 2009-10 to 2013-14 period is highlighted in Figure 3.9. The single largest and fastest-growing expenditure category was capital and revenue expenditure on agriculture and allied services, rural development and special area programmes (expenditure on irrigation and flood control has been excluded from this category for purposes of Figure 3.9). All the other expenditure categories also increased over the period, except fertiliser subsidies, which had reached a peak in 2008. The sum of the six minor expenditure headings, at INR 24 billion in 2013-14, is too small to be visible in the context of the larger expenditure items shown in Figure 3.9.

**Figure 3.9. Agriculture and food expenditures by states and centre, 2009-10 to 2013-14**

![Figure 3.9. Agriculture and food expenditures by states and centre, 2009-10 to 2013-14](source: Calculated based on U.S. Department of Agriculture (2014).)
Within the MAFW the Department of Agricultural Cooperation and Farmers’ Welfare (DACFW) is responsible for many of the programmes that involve transfers to state governments. The expenditures of the DACFW are many times larger than those of the Department of Animal Husbandry, Fisheries and Dairying and a few times larger than those of the Department of Agriculture Research and Education (Figure 3.10). This corresponds to the relatively few support programmes directed to India’s livestock sector, compared to the crop sector. The expenditures of all three departments have been on a slowly increasing path in nominal terms since the mid-2000s and possibly before. The steep increase in anticipated DACFW expenditure in 2016-17 is explained by expenditures on two schemes: the PMFBY crop insurance scheme and the Interest Subsidy for Short Term Credit to Farmers. Of these PMFBY is a new scheme while the interest subsidy scheme was earlier in the budget of the Ministry of Finance (Department of Financial Services) and transferred to the budget of DACFW from 2016-17.

Figure 3.10. Expenditures of departments of the Ministry of Agriculture and Farmers’ Welfare, 2006-07 to 2017-18

Note: 2016-17 and 2017-18 are revised estimate and budget estimate. Source: Expenditure Budget, Volume I (various years), Statement No. 2 or Demand No. 1.

The two large subsidies for food and fertiliser are accounted for more explicitly in government accounting than the large subsidies for electricity in agriculture and irrigation, the measurement of which can involve some estimation of price gaps or revenue forgone. The food subsidy has increased significantly from 2007-08, with the somewhat larger increases in 2014-15 and 2015-16 being associated with the implementation of the NFSA (Figure 3.11). The fertiliser subsidy has increased more slowly, except for the peak in 2008-09. The yearly fertiliser subsidy has been quite stable at roughly INR 700 billion since 2011-12. The category ‘other subsidy’ includes many relatively small expenditure, of which the major one has usually been the interest subvention for providing short term credit to farmers (this programme has somewhat different names, depending on the data source).
3. TRENDS AND EVALUATION OF AGRICULTURAL POLICY IN INDIA

Figure 3.11. Expenditures on selected subsidies, 2000-01 to 2017-18

Note: ‘Other subsidy’ includes interest subsidies and other subsidies. No data for ‘Other subsidy’ available for 2016-17 and 2017-18.


NITI Aayog, the policy “think tank” of the central government, provided in April 2017 an analysis of recent and projected expenditures. It suggested that expenditure on agriculture (including livestock, forestry, fishery, and rural development) could more than double from 2015-16 to 2019-20 in nominal terms. The food subsidy might increase by about 25%, while the fertiliser subsidy might decline slightly, in both cases taking into account better targeting of the expenditure. Since total expenditure by the central government (revenue and capital) might increase by about 58% between 2015-16 and 2019-20, the share of the food subsidy and particularly the share of the fertiliser subsidy in total expenditure might decline over that period (Figure 3.12).
3. TRENDS AND EVALUATION OF AGRICULTURAL POLICY IN INDIA

3.4. Trade policies

Institutional responsibilities

The Ministry of Commerce and Industry is responsible for international trade and trade policy. Several of the entities under the Ministry’s Department of Commerce have a role in trade in agriculture and food. The Directorate General of Foreign Trade (DGFT) formulates and implements India’s Foreign Trade Policy. The Agricultural and Processed Food Products Export Development Authority (APEDA) has particular responsibilities in developing and promoting exports of many agricultural products.

India’s Foreign Trade Policy (FTP) is announced every five years and reviewed and adjusted annually. The current FTP applies from 2015 to 2020. India's trade policy is largely driven by domestic supply considerations and also intended to attain short-term objectives, such as containing fluctuations in commodity prices. This requires constant fine-tuning of policies, for example, through decisions by the DGFT and the Central Board of Excise and Customs, which reduces the predictability of the policy regime applicable to imports and exports. A Trade Infrastructure for Export Scheme was launched in 2017 in connection with the midterm review of the FTP. Many other parts of government play important parts in advising on and implementing agricultural trade policy (Table 3.7).
### Table 3.7. Main institutions involved in agricultural trade policy

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Trade-related functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ministry of Commerce and Industry</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Commerce</td>
<td>Regulates, develops, and promotes India's international trade and commerce; responsible for multilateral and bilateral commercial relations and negotiations</td>
</tr>
<tr>
<td>Directorate General of Foreign Trade</td>
<td>Advises the Government in formulating and issuing the Foreign Trade Policy, the Handbook of Procedures, and their amendments; issues import and export licences</td>
</tr>
<tr>
<td>Tariff Commission</td>
<td>Makes recommendations on tariff-related issues taking into account the interests of manufacturers, traders, consumers, and India's international commitments</td>
</tr>
<tr>
<td><strong>Ministry of Agriculture</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Agriculture and Cooperation</td>
<td></td>
</tr>
<tr>
<td>Trade Division</td>
<td>Co-ordinates export and import of agricultural commodities</td>
</tr>
<tr>
<td>Plant Protection Division</td>
<td>Plant protection and quarantine, and pest management</td>
</tr>
<tr>
<td>Department of Animal Husbandry, Dairying, and Fisheries</td>
<td>Develops sanitary requirements for imports of animals and animal products, including dairy, poultry, meat, and fishery products; protects livestock health</td>
</tr>
<tr>
<td><strong>Ministry of Finance</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Economic Affairs</td>
<td>Prepares and presents the Central Budget and the budgets for the state governments to the Parliament</td>
</tr>
<tr>
<td>Department of Revenue</td>
<td>In charge of matters relating to the levy and collection of direct and indirect taxes and levies; enforces certain acts; levies taxes on sales in the course of inter-state trade or commerce</td>
</tr>
<tr>
<td>Central Board of Excise and Customs</td>
<td>Formulates policy concerning the levy and collection of customs duty, central excise duty, and service tax; the prevention of smuggling; and the administration of matters relating to customs, central excise, service tax, and narcotics</td>
</tr>
<tr>
<td><strong>Ministry of Consumer Affairs, Food, and Public Distribution</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Consumer Affairs</td>
<td>Monitors prices, availability of essential commodities, and consumer movement in India; controls some statutory bodies</td>
</tr>
<tr>
<td>Bureau of Indian Standards</td>
<td>Develops and formulates Indian standards and provides certification of products, processes, and management system</td>
</tr>
<tr>
<td>Department of Food and Public Distribution</td>
<td>Formulates and implements national policies on procurement, movement, storage, and distribution of food grains; formulates policies concerning the sugar subsector, and imports and exports of rice, wheat, and edible oil</td>
</tr>
</tbody>
</table>

Source: Table II.3, WTO (2011b).

### Trade relations

As a contracting party of the General Agreement on Tariffs and Trade 1947, India is an original member of the World Trade Organization (WTO) (WTO, 2015b). It provides most-favoured-nation treatment to all WTO members and to other trading partners. India is a partner in 16 regional trade agreements notified to the WTO, mainly with its neighbours and other Asian countries and also Chile and MERCOSUR. India has made “early announcements” of negotiations with the European Union, the European Free Trade Area, the Southern African Customs Union and the Bay of Bengal Initiative on Multi-Sectoral Technical and Economic Cooperation with Bangladesh, Bhutan, Myanmar, Nepal, Sri Lanka and Thailand. Negotiations are ongoing with Australia, Canada, the Gulf Cooperation Council, Indonesia, Israel and New Zealand and are being considered with Egypt and Mauritius. India is a party to the negotiations on a Regional Comprehensive Economic Partnership (RCEP) Agreement between the 10 members of the Association of South East Asian Nations (ASEAN) and six of their trade partners (Australia, China, India, Japan, Korea and New Zealand).
India is a recipient of preferences under the Generalized System of Preferences from Australia, the European Union, Japan, New Zealand, Norway, Switzerland, Turkey, the United States, and the Eurasian Economic Union. India provides duty free and quota free treatment to least developed countries under the Duty Free Tariff Preference Scheme, which is open to all least developed countries.

As of June 2017 India was not involved as the complainant in any recent WTO disputes on agricultural products. India was involved as the respondent in compliance proceedings brought by the United States concerning the importation of certain agricultural products, such as poultry meat and eggs, and relating to sanitary and phytosanitary measures.

In the WTO Committee on Agriculture India has faced numerous questions (268 by June 2017) by other members both on its notifications and on matters relevant to the implementation of its commitments. By February 2018 India’s annual notifications of domestic support in agriculture extended up through 2013-14. India has provided no notifications of new or modified domestic support measures exempt from reduction.

In the negotiations on agriculture under the WTO Doha Development Agenda, India is an active participant, often aligned with groups of other developing countries.

**Tariff and non-tariff import policy measures**

In the decades preceding the economic reforms of 1991-92, India’s import regime for merchandise was comprehensively controlled through quantitative restrictions and high import duties. After the 1991-92 economic reforms a process of phasing out the restrictions was initiated, along with progressive reductions of tariffs. The reductions in agricultural tariffs were more modest than for other imports. Agriculture continued to be shielded from foreign competition also by non-tariff barriers, including quantitative restrictions, import licensing requirements, price controls on inputs and final goods, and marketing restrictions.

Tariffs apply to imports of most agriculture and food items. Tariff rate quotas (TRQs) are scheduled on a few products. Import prohibitions or import restrictions apply to several products. Sanitary or phytosanitary import permits are required for imports of animal products, plants, and plant material.

**Tariffs**

A 1999 WTO dispute ruling found that India’s quantitative restrictions on many imports, including agriculture, were no longer justified on balance-of-payments (BOP) grounds (WTO, 1999). Leading up to India’s subsequent lifting of its BOP quantitative restrictions on agricultural imports, India renegotiated its WTO tariff bindings on many agricultural products. This involved raising the tariffs of several products, including skim milk powder, maize, rice, certain other cereals, and rapeseed, colza and mustard oils. The increases were combined with the introduction of tariff rate quotas (TRQs) for some of these products. At the same time, India reduced the tariffs on numerous products, including butter, other cheeses, and certain processed foods. While many quantitative restrictions through state trading monopolies were also given up at that time, imports of some commodities, such as cereals and coconut oil, continued to be the monopoly privilege of state trading enterprises. From the early 2000s India continued to manage import protection in agriculture through tariffs, TRQs, state trading requirements, monitoring or prohibition of imports of certain sensitive products.
India’s bound tariffs in agriculture are inscribed in its WTO Schedule of Concessions and Commitments. India’s Basic Customs Duty (BCD), known as its Scheduled Rate of Customs Tariff or statutory rate, is approved by Parliament at the time of approving the annual budget. These rates are notified, i.e. made public, by the Department of Revenue of the Ministry of Finance. They are in many cases lower than the WTO scheduled bound rate. For many products the government applies tariff rates that are still lower than the annually approved statutory rates (which themselves for many products are lower than the WTO bound rates). Table 3.8 outlines the diversity of the three tariff rates (WTO bound, statutory, and applied) associated with each of a selection of crop products. The government may through executive decisions allow imports to be exempt from duty, i.e. an applied rate of zero (Hoda and Gulati, 2013). In addition to the BCD (statutory rate), imports can be subject to cesses and an additional duty in lieu of the excise duty levied on domestic products.

In 2015 the simple average applied customs duty for agricultural products was 32.7%, significantly higher than the corresponding average of 10.2% for non-agricultural products. The 32.7% leaves a relatively large gap below the simple average final bound rate in agriculture of 113.5% (WTO, ITC and UNCTAD, 2017). The average of the bound rate results from India’s WTO tariff bindings of 100% for agricultural commodities, 150% for processed products, and 300% for some edible oils. The decision to maintain applied rates considerably below the bound rates creates a wide spread between bound and applied tariff rates for many tariff lines. This is conducive to larger imports than if applied tariffs were at the bound level, which may be associated with the size of India’s imports of, for example, pulses, vegetable oils and sugar. It also allows India to raise its tariffs substantially while complying with its WTO commitments.

While the simple average applied tariff in agriculture in 2016 was 32.7%, the trade-weighted average was likely higher: in 2015 the trade-weighted average was 47.2% (WTO, ICT and UNCTAD 2017). No tariff lines have a bound tariff below 5%, but the Most Favoured Nation (MFN) applied duty was zero on 5.2% of the tariff lines in 2016. Non-ad-valorem tariffs accounted for 0.3% of the tariff lines in agriculture in 2016 for both bound and MFN applied tariffs.

The average final bound tariff for the standard WTO products groups ranged between 65.0% for dairy products and 169.7% for oilseeds, fats and oils in 2016 (Table 3.9). In terms of the MFN applied duties, cotton was the lowest at 6.0% and beverages and tobacco the highest at 68.6%. Within some standard groups, several individual products were imported duty free. The applied tariffs for some products have often been changed considerably as market pressures have fluctuated. Annex Tables 3.A.6 and 3.A.7 show the evolution over time of ad valorem duties on selected cereals, pulses, and oilseeds and on fruit, vegetables, and livestock, respectively.
<table>
<thead>
<tr>
<th>HS</th>
<th>Item</th>
<th>Export policy</th>
<th>Import policy</th>
<th>WTO bound rate (%)</th>
<th>Statutory duty (%)</th>
<th>Applied rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cereals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.01</td>
<td>Wheat and meslin</td>
<td>Free</td>
<td>STE³</td>
<td>100/80</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>1006.10</td>
<td>Rice in the husk</td>
<td>Free</td>
<td>STE³</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>1006.20</td>
<td>Brown rice</td>
<td>Free</td>
<td>STE³</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>1006.30</td>
<td>Semi-milled or wholly milled rice</td>
<td>Free</td>
<td>STE³</td>
<td>70</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>1006.40</td>
<td>Broken rice</td>
<td>Free</td>
<td>STE³</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Pulses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>713.10</td>
<td>Peas¹</td>
<td>Prohibited²</td>
<td>Free</td>
<td>50</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>713.20</td>
<td>Chickpeas¹</td>
<td>Allowed</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>713.31</td>
<td>Moong and urad</td>
<td>Prohibited²</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>713.40</td>
<td>Lentils¹</td>
<td>Prohibited²</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>713.50</td>
<td>Broad beans</td>
<td>Prohibited²</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>713.60</td>
<td>Pigeon pea</td>
<td>Prohibited²</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Oilseeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.01</td>
<td>Soya beans</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>12.02</td>
<td>Groundnuts, shelled</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>12.03</td>
<td>Copra</td>
<td>Free</td>
<td>STE³</td>
<td>100</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>12.05</td>
<td>Rapeseed and mustard seed</td>
<td>Free</td>
<td>STE³</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.10</td>
<td>Sunflower seeds</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.20</td>
<td>Palm nuts and kernels</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.40</td>
<td>Cotton seeds</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.50</td>
<td>Mustard seeds</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.60</td>
<td>Safflower seeds</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1207.99</td>
<td>Other (niger seeds)</td>
<td>Free</td>
<td>Free</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Vegetable oils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.07</td>
<td>Soyabean oil</td>
<td>Prohibited</td>
<td>Free</td>
<td>45</td>
<td>45</td>
<td>12.5-20</td>
</tr>
<tr>
<td>15.08</td>
<td>Groundnut oil</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>12.5-20</td>
</tr>
<tr>
<td>1511.10</td>
<td>Crude oil (palm oil)</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>7.5</td>
</tr>
<tr>
<td>1511.90</td>
<td>Other (palm oil)</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>1512.00</td>
<td>Sunflower seed, safflower or cottonseed oil</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>12.5-20</td>
</tr>
<tr>
<td>1513.11</td>
<td>Crude oil (coconut oil)</td>
<td>Free</td>
<td>STE³</td>
<td>300</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>1513.19</td>
<td>Other (coconut oil)</td>
<td>Free</td>
<td>STE³</td>
<td>300</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>1513.21</td>
<td>Crude oil (palm kernel or babassu oil)</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>1513.29</td>
<td>Palm kernel or babassu oil</td>
<td>Prohibited</td>
<td>Free</td>
<td>300</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>1514.11</td>
<td>Crude oil (rapeseed/mustard oil)</td>
<td>Prohibited</td>
<td>Free</td>
<td>75</td>
<td>75</td>
<td>12.5</td>
</tr>
</tbody>
</table>

1. The binary categorisation free-prohibited may in some cases involve less discrete interpretations.
2. Import for value addition and subsequent export under Advance Authorisation Scheme allowed since 14 November 2013. Subsequent to the date of the source document for this table, the prohibition on exports of all varieties of pulses was removed on 22 November 2017.
3. Import allowed through state trading enterprise.
4. The applied duty for chickpeas is 40% as of February 2018, for lentils 30% as of December 2017, and for peas 50% as of November 2017 (Commodity Profile for Pulses, February 2018, Department of Agriculture & Cooperation, Ministry of Agriculture and Farmers Welfare, Government of India).

Table 3.9. Final bound and applied MFN rates on agricultural products in 2005 and 2016

<table>
<thead>
<tr>
<th></th>
<th>Final bound rate (%)</th>
<th>MFN applied 2005 (%)</th>
<th>MFN applied 2016 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Maximum</td>
<td>Average</td>
</tr>
<tr>
<td>Animal products</td>
<td>106.1</td>
<td>150</td>
<td>33.0</td>
</tr>
<tr>
<td>Dairy products</td>
<td>65.0</td>
<td>150</td>
<td>35.0</td>
</tr>
<tr>
<td>Fruit, vegetables, plants</td>
<td>100.1</td>
<td>150</td>
<td>31.5</td>
</tr>
<tr>
<td>Cereals and preparations</td>
<td>133.1</td>
<td>150</td>
<td>37.3</td>
</tr>
<tr>
<td>Olseeds, fats and oils</td>
<td>163.7</td>
<td>300</td>
<td>48.4</td>
</tr>
<tr>
<td>Beverages and tobacco</td>
<td>120.5</td>
<td>150</td>
<td>68.9</td>
</tr>
<tr>
<td>Cotto</td>
<td>110.0</td>
<td>150</td>
<td>17.0</td>
</tr>
<tr>
<td>Other agricultural products</td>
<td>104.8</td>
<td>150</td>
<td>27.1</td>
</tr>
</tbody>
</table>


**Tariff rate quotas**

India has scheduled TRQs on five lines at the HS six-digit level, corresponding to twelve lines at the HS eight-digit level (skimmed milk powder and certain related dairy products, maize, sunflower or safflower seed oil, and rape, colza and mustard oil and fractions of the oilseeds) and applies TRQs to imports of these products (WTO, 2015b). Eligible importers are state-trading companies, including NDDB, NAFED, The State Trading Corporation of India Ltd (STC), and others, including State Cooperative Marketing Federations. Imports must be cleared by customs before 31 March of each financial year.

**Import prohibitions and licensing requirements**

From well before the early 2000s prohibitions have applied to imports of a range of agricultural products, including meat and offal and animal fats. India has continued to ban imports of milk and milk products from China. Some products which had earlier been subject to quantitative import restrictions are designated as sensitive products, the imports of which are monitored with a view to raising the applied tariff rates in case of a surge in imports. The list of such products had by 2011 expanded to include bamboos, cocoa, copra, cotton, milk and milk products, edible oils, food grains, fruits and vegetables, pulses, poultry, tea and coffee, spices, and sugar. APEDA monitors the imports of sugar. Imports of some products are subject to a licensing requirement, in some cases conditional also on, e.g. a sanitary or phytosanitary permit also being obtained. Import licensing without such conditions applied in 2014-15 to less than 4% of the tariff lines for live animals and products and vegetables products. Counting also the need for other permits, the number climbs to 17% of tariff lines for live animals and products and 8% for vegetable products. The imported material must be used by the importer and cannot be sold. Imports of some products, such as cashew and betel nuts, are subject to minimum import prices.

**State trading**

Goods subject to state trading for imports in 2002 comprised mainly edible oils, including coconut oil and other oils and copra. State trading also applied to many cereals traded by the Food Corporation of India (FCI): rice, wheat, maize, oats, rye, grain sorghum, buckwheat, millet, canary seed, jawar, bajra, and ragi. In later years imports of these...
products continued to be subject to state trading, and a few products were added to the list, such as milk or cream, and sunflower seed or safflower oil. On 29 September 2014 the exclusive rights of the FCI to import 11 agricultural products, other than wheat and rice, were removed and the FCI is no longer a state trading enterprise for these products. Imports of wheat, rice and coconut products remained subject to state trading in 2017 (Table 3.8). The State Trading Corporation of India Ltd (STC), a government enterprise, handles exports and imports of bulk agricultural commodities predominantly on behalf of the government. It imports pulses and maize for popcorn. The importing state trading enterprises identified by India in its 2014 notification to the WTO included the FCI, NDDB, STC, NAFED, Project and Equipment Corporation of India Ltd. (PEC Limited, a government enterprise under the Ministry of Commerce and Industry), and Spices Trading Corporation Ltd. (all business activities of the latter have ceased). Several of these are importing STEs for milk powder.

Sanitary and phytosanitary measures

Imports of animal products into India require sanitary import permits (SIPs) issued by the DAHDF. Permits must be obtained prior to shipping from the country of origin. The DAHDF issues SIPs for livestock products based on an import risk analysis. Imports of live animals and animal products that are restricted items under India’s trade policy require an import licence issued by the DGFT following an import risk analysis by the DAHDF. Imports of animal products are only allowed through designated ports where animal quarantine and certification services are available (Amritsar, Bangalore, Chennai, Delhi, Hyderabad, Kolkata, and Mumbai). Imports of plants and plant materials are regulated under the Destructive Insects and Pests Act 1914, the Plant Quarantine (PQ) (Regulation of Import into India) Order 2003, and international conventions. The Directorate of Plant Protection, Quarantine and Storage of the MAFW implements the Plant Quarantine Regulations. Inspection of agricultural commodities for exportation is carried out to meet the requirements of importing countries under the International Plant Protection Convention (IPPC). Imports of any food, feed, and food materials that contain genetically modified material require the approval of the Genetic Engineering Appraisal Committee (GEAC), a body established under the Ministry of Environment, Forest and Climate Change.

India participates in the Codex Alimentarius. India's national enquiry points under the WTO SPS Agreement are: the DAHDF for animal health and related issues; the MHFW for food safety related issues; and the DACFW for plant health or phytosanitary issues. Between 1996 and May 2015, India had made more than 200 notifications to the WTO Committee on SPS Measures. The Ministry of Commerce and Industry is responsible for implementing the WTO Agreement on Technical Barriers to Trade.

Export policy measures

Some agricultural products have been subject to export prohibitions, export quotas, and minimum export prices. State trading is required for some products, and export subsidies are provided. Government of India (2012) provides some details.

The Agricultural and Processed Food Products Export Development Authority (APEDA), under the responsibility of the Ministry of Commerce and Industry, provides financial assistance to exporters in the areas of market development, infrastructure development, quality development and transport assistance. The products involved are cereals, processed food and vegetables, fresh fruits and vegetables, animal products, floriculture
and seeds, and organic products. The DGFT administers export measures, such as minimum export prices, export prohibitions, and export licensing and quotas, and state trading requirements.

Export subsidisation and export promotion

Regarding export subsidisation in agriculture, India has in recent years provided assistance for exports by sea in non-refrigerated containers or by air at the rate equal to the lesser of 10% of the FOB value or 25% of the freight cost. Transport by sea in refrigerated containers is assisted at a higher rate. A subsidy of INR 3,300 per tonne for the marketing and promotion of raw sugar was approved in 2014. India has reported to the WTO Committee on Agriculture that it provided certain export subsidies from 1995-96 onwards (reports available only up through 2009-10) (WTO, 2011a, 2012b). These subsidies took two forms: international air freight assistance and internal transport subsidies. The former has applied to an evolving set of products, such as fresh fruit, fresh and processed vegetables, plants and flowers, cotton, tea and animal products. The latter has applied primarily to sugar. India’s understanding is that it is entitled to provide certain export subsidies under the WTO Agreement on Agriculture. A WTO decision in 2015 requires the subsidisation of agricultural exports to end, which for India would occur at the end of 2023 (WTO, 2015a).

India has increasingly promoted exports of agricultural products since the mid-2000s. In its 2002-07 foreign trade policy, India took specific steps to boost agricultural exports. They included the establishment of agri-export zones, which receive assistance from the central and state governments to improve efficiencies in the supply chain of specified products through such measures as the provision of services and inputs by ministries of agriculture, research and development support from agricultural universities, and the setting up of cold storage facilities with assistance from the National Horticulture Board. The agricultural export zones are monitored by APEDA. The Indian Oilseed and Produce Export Promotion Council (IOPEPC) is concerned with the promotion of various oilseeds and oils. The Cashew Export Promotion Council of India carries out similar functions and provides export assistance in the form of grants.

A special agricultural products scheme (Vishesh Krishi Upaj Yojana) was introduced in 2004 to promote the exports of fruit, vegetables, flowers, dairy, poultry and their value-added products. The scheme provided an incentive in the form of an import duty credit, which was equivalent to a certain percentage of the value of exports in the previous year. The scheme was renamed as Vishesh Krishi Gram Udyog Yojana (VKGUY or Special Agricultural and Village Industry Scheme) in 2006, following modifications of the scheme. The 2015-20 Foreign Trade Policy merged several earlier schemes, including VKGUY and an Agri-Infrastructure Incentive Scrip into the new Merchandise Exports from India Scheme (MEIS) (Government of India, 2015g). Agricultural and village industry products previously supported under VKGUY receive higher support than other products. Exports of most agricultural products are supported regardless of their destination. Rewards under MEIS are payable as a percentage (2%, 3% or 5%) of realised FOB value of exports as a MEIS duty credit scrip. The scrip can be transferred or used for payment of a number of duties or taxes. Scrips and inputs imported under the scrips are transferable, which provides more flexibility to exporters than did earlier schemes (Government of India, 2016i). The export incentives under MEIS were increased by 2% for labour intensive products of the micro, small and medium enterprise sectors in December 2017.
Export regulations

In contrast to export promotion, India has for several decades managed its agricultural exports through a combination of such tools as export prohibitions, export licensing requirements, export quotas, export duties, minimum export prices, and state trading requirements. The application or elimination of such restrictions could be changed several times per year, with a view to maximising agricultural exports earnings while also taking into account concerns about domestic supplies and prices. Export controls were gradually being relaxed by the early 2000s. Export cesses, a form of export taxes, which had applied to several products, such as coffee, spices, tobacco, and other agricultural commodities, were removed in 2006. An export tax was imposed on cotton for six months in 2010. In 2015 an export cess applied to tobacco. An export duty applied from June 2016 on certain exports of sugar.

Table 3.10 summarises the kind of export measures applied for selected products in the 2000-01 to 2015-16 period. The years 2006-07 to 2012-13 saw the most intensive use of export measures for these products. Many other products were not subject to export measures in any of the years observed, and there were years when no export measures applied to the selected products either. Table 3.8 indicates the export policy applicable to selected crops in 2017.

Minimum export prices were sometimes imposed both before and in the early 2000s, e.g. for onions, which were also subject to state-trading and export quotas. In 2015 minimum export prices were applied to certain edible oils, onions, Bangalore roses, Krishnapuram onions and, until 27 December 2016, potatoes.

Export prohibitions and export quotas are imposed on an annual basis. They are usually in place for a specific period, during which they may be subject to change. Goods subject to export restrictions and quotas must be accompanied by licences from the DGFT and sometimes by other permits. Export licensing requirements apply to live animals and certain animal products. Milk powder, wheat, edible oil, pulses, and non-basmati rice and wheat products have been subject to export quotas, as has sugar exported by state-trading enterprises within the preferential import regimes of the European Union and the United States.

Exports of many livestock products were prohibited in the early 2000s. In 2006 exports of wheat, pulses, sugar (to certain destinations), and bone-in sheep meat and goat meat were prohibited. Agricultural products subject to export prohibitions for some time in the subsequent years have included non-basmati rice, wheat, pulses, edible oils, milk powder, casein and casein derivatives, and onions. In 2014, export prohibitions, with some exemptions, applied to pulses (not chickpeas) and to all edible oil. The export prohibition on pulses was removed in November 2017.

Exporters of boneless meat of buffalo (the only bovine meat exports allowed) require a certificate from the veterinary authority of the state where the meat originates to show that the meat is from buffaloes not used for breeding and milch purposes. Quality control and inspection is also required. The prohibition on exports of beef and bone-in buffalo meat is established under the authority of the Export (Quality Control and Inspection) Act, 1963.
### Table 3.10. Mention of various export measures in selected sources, 2000-15

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th>Maize</th>
<th>Rice</th>
<th>Chickpeas</th>
<th>Potatoes</th>
<th>Onion</th>
<th>Mango</th>
<th>Sugar</th>
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<th>Milk</th>
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<td>STE,</td>
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**Note:** Entries represent only mentions in the indicated sources without assessing their validity. The mentions drawn from WTO Trade Policy Reviews and Saini and Gulati (2017) are interpreted broadly, while those drawn from the OECD database (in grey shaded cells) are more specific. The abbreviations read as follows: EB= export ban; ED= export duty; EI= export incentive, ER= export restriction; MEP= minimum export price; STE= state trading enterprise for exports. The codes drawn from the OECD database, shaded in grey, read as follows: M3= export quota; M4= export prohibition; M14= other export measure. The products shown are a subset of the products in the PSE estimation for India. No export measures were mentioned in the listed sources for the other products in the PSE estimation (Soybeans, Rapeseed, Beef, Sheepmeat, Poultry, Eggs, Bananas, Eggplant, Groundnut, Tomatoes). Any mention is recorded if it can be assigned to a particular year. Even a short application of measure, such as one week or part of a year, is recorded in the year applied. Years are financial years: April-March.

1. While chickpeas are generally exempt from export measures, other pulses (peas, lentils, beans, etc.) are often subject to export bans. This matters for the interpretation of market price differentials for pulses in the PSE estimation for India.


India has identified several exporting state trading enterprises in agriculture in its reporting to the WTO. The 2014 notification covers 14 such enterprises (WTO, 2012a; 2013). Exports of onions have been carried out by state trading enterprises except when exports were prohibited in 2010 and 2011. The onion state trading enterprises are mainly state level enterprises, in addition to the National Cooperative Consumers’ Federation of India Ltd. (NCCF) and the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED). In its reporting to the WTO, India has explained that export prices are determined on commercial considerations and by the demand and supply forces in the international market. State trading by the Indian Sugar Exim Corporation Limited has been used for exports of sugar under preferential import quotas. The Tribal Cooperative Marketing Development Federation of India Ltd. (TRIFED) has operated as a state trading enterprise for gum karaya. The State Trading Corporation of India Ltd exports wheat and rice, maize, oilseed extraction (such as soybean meal and rapeseed meal), and tea. Despite its name this government enterprise has not been identified by India as an exporting state trading enterprise to the WTO.

3.5. Evaluation of support to agriculture

This section presents a quantitative evaluation of support provided to agriculture through India’s domestic and trade policies for the period 2000 to 2016. The evaluation is based on the indicators of agricultural support developed by the OECD, including the Producer Support Estimate (PSE), the Producer Nominal Assistance Coefficient (producer NAC), the Producer Nominal Production Coefficient (producer NPC), the Consumer Support Estimate (CSE), the General Services Support Estimate (GSSE), Total Support Estimate (TSE) and others (Box 3.3). A detailed description of the OECD methodology to estimate agricultural support (the “PSE Manual”, OECD, 2016) and a comprehensive database for OECD and selected non-OECD countries including India are available from http://oe.cd/pse. The methodology applied in this study is fully consistent with that used for other countries as presented in OECD reports that monitor and evaluate agricultural policies (OECD, 2017).

Box 3.4 provides basic information on how this methodology has been applied in the case of India.

Box 3.3. OECD indicators of support to agriculture

**INDICATORS OF SUPPORT FOR PRODUCERS**

**Producer Support Estimate (PSE):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

**Percentage PSE (%PSE):** PSE transfers as a share of gross farm receipts (including support).

**Producer Nominal Assistance Coefficient (producer NAC):** The ratio between the value of gross farm receipts (including support) and gross farm receipts valued at border prices (measured at farm gate).

**Producer Nominal Protection Coefficient (producer NPC):** The ratio between the average price received by producers at farm gate (including payments per
tonne of current output), and the border price (measured at farm gate). The producer NPC is also available by commodity.

**Producer Single Commodity Transfers (producer SCT):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures directly linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the transfer.

**Producer Percentage Single Commodity Transfers (producer %SCT):** The commodity SCT expressed as a share of gross farm receipts for the specific commodity (including support).

**INDICATORS OF SUPPORT TO CONSUMERS**

**Consumer Support Estimate (CSE):** The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products. If negative, the CSE measures the burden (implicit tax) on consumers through market price support (higher prices), that more than offsets consumer subsidies that lower prices to consumers.

**Percentage CSE (%CSE):** CSE transfers as a share of consumption expenditure on agricultural commodities (measured at farm gate), net of taxpayer transfers to consumers.

**Consumer Nominal Assistance Coefficient (consumer NAC):** The ratio between the value of consumption expenditure on agricultural commodities (at farm gate) and that valued at border prices (measured at farm gate).

**Consumer Nominal Protection Coefficient (consumer NPC):** The ratio between the average price paid by consumers (at farm gate) and the border price (measured at farm gate).

**Consumer Single Commodity Transfers (consumer SCT):** The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures directly linked to the production of a single commodity.

**INDICATORS OF SUPPORT TO GENERAL SERVICES FOR AGRICULTURE**

**General Services Support Estimate (GSSE):** The annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture regardless of their nature, objectives and impacts on farm production, income, or consumption. The GSSE does not include any transfers to individual producers.

**Percentage GSSE (%GSSE):** GSSE transfers as a share of Total Support Estimate (TSE).

**INDICATORS OF TOTAL SUPPORT TO AGRICULTURE**

**Total Support Estimate (TSE):** The annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support
agriculture, net of associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

**Percentage TSE (%TSE):** TSE transfers as a percentage of GDP.

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**Box 3.4. India’s PSEs: What and how?**

**Period covered:** 2000-16

**Products covered:** Wheat, maize, rice (basmati and non-basmati weighted together), soybeans, rapeseed and mustard, groundnuts, chickpeas, other pulses, potatoes, onion, tomatoes, mango, bananas, sugar, cotton, milk, bovine meat (includes buffalo meat), sheep meat, poultry, eggs. These 20 commodities account for 66% on average of the total value of agricultural output in India in 2014-16. The fifteen crop products account for 56% of the value of total crop production in 2014-16, while the five animal products represent on average 85% of total livestock production.

**Market Price Support**

**Producer prices:** For wheat, maize, non-basmati rice, basmati rice, soybean, rapeseed and mustard, groundnuts, potatoes, onion, tomatoes, mango and sugar a nationally representative yearly price is obtained from monthly state average prices in Agmarknet in the states that together produced at least half of national production of the crop (2000 and 2001 prices were estimated differently, as Agmarknet data were not available). Agmarknet reports prices from a large number of markets, many of which are very close to the producer level. Prices of cotton, milk, and eggs are from the Cotton Association of India, the National Dairy Development Board, and the Directorate of Economics and Statistics, respectively. Prices of chickpeas, bananas, buffalo meat, sheep meat, and poultry meat are obtained by dividing value of output by quantity of output.

**External reference prices:** Export unit values are used for basmati rice, soybeans, rapeseed and mustard, groundnuts, potatoes, onion, tomatoes, mango, bovine meat, sheep meat, and eggs. Wheat uses export prices from U.S. Gulf (FAO-GIEWS), maize uses export prices from U.S. Gulf (World Bank Pink Sheet), non-basmati rice uses export prices from Thailand, refined sugar uses export FOB prices from European Union ports, cotton uses Cotlook U.S. Memphis CFR Far Eastern, and bananas uses export prices from Ecuador. Chickpeas uses import unit values. Milk uses Oceanian FOB export prices of skim milk powder and butter from the OECD’s Aglink data base. Poultry meat uses FOB export prices from Brazil (FAO-GIEWS). Prices other than import and export unit values are adjusted for international transportation costs.

**Price gap estimates:** For the purposes of calculating market price differentials, chickpeas and other pulses are treated as imported. All other commodities are considered exported. The subtraction of the external reference prices from the domestic producer price resulted in negative price gaps for most commodities examined in most or all years. The weaknesses in the physical infrastructure in the producer-to-consumer value chain especially for perishable commodities (“market development gap”) are confounded with policy-induced practices on the part of
the many intermediaries in the value chains for all commodities. These factors combined contribute to making the price gaps negative. Because of the existence of restrictive regulations and the pervasive presence of governmental institutions in the marketing of agricultural commodities these negative price gaps are retained in the estimation of the PSE for India, in line with established methodology. As there are no specific policies targeting sheep meat, the price gap has been set to zero in line with the PSE methodology.

**Marketing margins:** The number of markets in which producers or aggregators sell to wholesalers as first buyers is very large and the distance between many producers and their market is relatively small. Marketing margins beyond the point where the producer price is observed, processing costs, and transportation costs are expressed as percentages of the producer price, whether that price is the price observed in Agmarknet (most crops) or the unit value of output (chickpeas, bananas, and livestock products). These percentages are different for different commodities. Port handling charges are expressed as percentages of the border price, also different for different commodities.

**Quality adjustments:** A quality adjustment of the reference price was made for mango, tomatoes, potatoes and onions intended to capture the quality difference between exports and domestic use.

**Budgetary support:** Budgetary expenditure information for the period 2000-16 originates from the central government’s Union Budget. It includes expenditures under several other ministries in addition to the Ministry of Agriculture and Farmers’ Welfare, such as the Ministry of Chemicals and Fertilizers and the Ministry of Consumer Affairs, Food and Public Distribution. This includes expenditures on central schemes and centrally sponsored schemes. Expenditures by state governments of their own resources are not at this stage incorporated.

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**Support to agricultural producers**

**Level of producer support**

The percentage Producer Support Estimate (%PSE) is the OECD’s key indicator to measure the level of support provided to agriculture. It expresses the monetary value of support transfers to agricultural producers as a share of gross farm receipts. Because it is not affected by inflation or differences in the size of the sector, it allows comparisons of the level of producer support over time and between countries. The level of producer support is important because it provides insights into the burden that agricultural policies place on consumers (positive Market Price Support, MPS), producers (negative MPS) and taxpayers (budgetary transfers). In most of the countries studied by the OECD any MPS is positive, often because the support price for a commodity is set higher than the international reference price. The opposite situation, where support prices have been set below international reference prices, is observed in India for many commodities and years. Examples include wheat (not 2016) and maize (not in 2014-16) and non-basmati rice. Producer prices of many commodities have thus also been below their reference prices in all or many years in the 2000-16 period, which generates a negative MPS for each such commodity and year. The sum of MPS amounts across all the 19 individually studied commodities is negative in all years (not counting “other pulses”). This complicates the interpretation of agriculture-wide indicators, such as the %PSE, TSE and %TSE.
The support to agricultural producers in India, expressed as a share of gross farm receipts (%PSE) averaged -3.5% in 2000-02 and -6.2% in 2014-16 (Tables 3.11 and 3.12). These negative percentage PSEs are made up of negative and positive components which to some extent offset each other arithmetically and they therefore need to be interpreted carefully. For example, the average figure of -6.2% (INR -1 643 billion) for the period 2014-16 results from two main components. One is budgetary payments, almost exclusively composed of input subsidies, which are equivalent to a positive figure of 6.9% of gross farm receipts (INR 1 814 billion plus some very minor miscellaneous payments). The other component is market price support, which is equivalent to a negative figure of -13.1% of gross farm receipts (INR -3 458 billion).

India’s %PSE fluctuated markedly in the 2000 to 2016 period, registering a high of zero in 2000, a low of -31% in 2007, followed by large swings and then registering levels much closer to zero in 2015 and 2016 (Figure 3.13). These variations were driven primarily by changes in the relative levels of the domestic and international prices underlying MPS, while input subsidies followed a more steadily increasing trend. The particularly large absolute size of negative MPS in 2011-13 (and to some extent also in 2007 and 2008) coincides with periods of high international commodity prices, which were not or only partially transmitted to the domestic market, due at least in part to India’s use of export-impeding measures. For example, export restrictions or export bans applied in several of those years to wheat, non-basmati rice, certain chickpeas, sugar and milk. While the absolute amounts of negative MPS generally increased from 2000 to 2013 (i.e. MPS became more negative), the absolute amounts of negative MPS then declined very rapidly in 2014 and 2015, particularly as a result of a declining reference price for milk. Combined with slowly increasing budgetary transfers this made the post-2000 %PSE attain its smallest absolute negative value in 2015, before it again became somewhat more negative in 2016.

Figure 3.13. Level and composition of Producer Support Estimate in India, 2000–16

Table 3.11. India: Estimates of support to agriculture, INR million

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<tbody>
<tr>
<td>Total value of production (at farm gate)</td>
<td>5 305 693</td>
<td>24 610 640</td>
<td>22 691 460</td>
<td>24 343 410</td>
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<td>of which: share of MPS commodities (%)</td>
<td>64.8</td>
<td>66.1</td>
<td>66.6</td>
<td>68.2</td>
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<tr>
<td>Total value of consumption (at farm gate)</td>
<td>5 012 789</td>
<td>21 830 062</td>
<td>20 534 748</td>
<td>22 111 841</td>
</tr>
</tbody>
</table>

Producer Support Estimate (PSE)

- Support based on commodity output:
  - 602 122
  - -3 458 446
  - -4 862 898
  - -2 238 803
  - -3 273 639

Market Price Support

- 602 122
- -3 458 446
- -4 862 898
- -2 238 803
- -3 273 639

Payments based on output

- 0
- 0
- 0
- 0
- 0

Payments based on non-current A/An/R/I, production not required

- 0
- 0
- 0
- 0
- 0

Miscellaneous payments

- 718
- 2 199
- 0
- 4 198
- 2 400

Percentage PSE (%) -3.5 -6.2 -13.3 -1.7 -4.3
Producer NPC (coeff.) 0.9 0.88 0.82 0.91 0.89
Producer NAC (coeff.) 0.97 0.94 0.88 0.98 0.96

General Services Support Estimate (GSSE)

- 166 942
- 787 407
- 718 578
- 802 495
- 841 147

Agricultural knowledge and innovation system

- 19 006
- 68 918
- 68 197
- 65 447
- 73 109

Inspection and control

- 95 727
- 595 030
- 525 807
- 625 417
- 633 867

Development and maintenance of infrastructure

- 642
- 9 752
- 9 798
- 6 917
- 12 000

Marketing and promotion

- 49 392
- 74 017
- 80 571
- 61 024
- 80 457

Cost of public stockholding

- 987
- 7 583
- 3 538
- 12 487
- 6 725

Miscellaneous payments

- 0
- 0
- 0
- 0
- 0

Percentage GSSE (% of TSE) 99.6 105.9 106.1 42.9 78.2
Consumer Support Estimate (CSE)

- 776 664
- 5 006 394
- 6 221 599
- 3 893 277
- 4 904 346

Transfers to producers from consumers

- 587 747
- 3 307 608
- 4 691 541
- 2 089 511
- 3 148 377

Other transfers from consumers

- 10 949
- 278 638
- 250 702
- 287 011
- 298 200

Excess feed cost

- 488
- -18 259
- -30 619
- -3 156
- -21 003

Percentage CSE (%) 16.3 24.7 32.4 18.9 23
Consumer NPC (coeff.) 0.86 0.86 0.81 0.9 0.87
Consumer NAC (coeff.) 0.86 0.8 0.76 0.84 0.91

Total Support Estimate (TSE)

- 167 657
- 583 126
- -1 195 461
- 1 869 564
- 1 075 276

Transfers to consumers

- 576 798
- -3 586 246
- -4 942 243
- -2 376 522
- -3 439 972

Budget revenues

- 755 404
- 3 890 734
- 3 946 080
- 3 959 075
- 4 217 048

Percentage TSE (% of GDP) 0.7 0.4 -1 1.4 0.7

GDP deflator 2000-02 = 100

- 100
- 220
- 215
- 219
- 226

Note: NPC: Nominal Protection Coefficient. NAC: Nominal Assistance Coefficient. A (area planted), An (animal numbers), R (income).

Table 3.12. India: Estimates of support to agriculture, USD million

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<td>Total value of production (at farm gate)</td>
<td>112 279</td>
<td>380 817</td>
<td>371 118</td>
<td>371 834</td>
<td>399 501</td>
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<td>of which: share of MPS commodities (%)</td>
<td>64.8</td>
<td>96.1</td>
<td>66.6</td>
<td>66.2</td>
<td>65.5</td>
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<tr>
<td>Total value of consumption (at farm gate)</td>
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<td>338 051</td>
<td>335 845</td>
<td>337 748</td>
<td>340 561</td>
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<td>Producer Support Estimate (PSE)</td>
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<td>-26 100</td>
<td>-52 728</td>
<td>-6 917</td>
<td>-18 654</td>
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<td>Support based on commodity output</td>
<td>-12 692</td>
<td>-54 178</td>
<td>-79 532</td>
<td>-34 197</td>
<td>-48 805</td>
</tr>
<tr>
<td>Market Price Support</td>
<td>-12 692</td>
<td>-54 178</td>
<td>-79 532</td>
<td>-34 197</td>
<td>-48 805</td>
</tr>
<tr>
<td>Payments based on output</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Payments based on input use</td>
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<td>28 045</td>
<td>26 805</td>
<td>27 216</td>
<td>30 115</td>
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<tr>
<td>Based on variable input use</td>
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<td>27 498</td>
<td>26 356</td>
<td>26 073</td>
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<td>Based on Receipts / Income</td>
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<tr>
<td>Based on Area planted / Animal numbers</td>
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<td>0</td>
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</tr>
<tr>
<td>with input constraints</td>
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</tr>
<tr>
<td>Payments based on non-current A/An/R/I, production not required</td>
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<td>0</td>
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<td>With variable payment rates</td>
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<td>Based on a specific non-commodity output</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Based on other non-commodity criteria</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous payments</td>
<td>15</td>
<td>33</td>
<td>64</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Percentage PSE (%)</td>
<td>-3.5</td>
<td>-6.2</td>
<td>-13.3</td>
<td>-1.7</td>
<td>-4.3</td>
</tr>
<tr>
<td>Producer NPC (coeff.)</td>
<td>0.9</td>
<td>0.88</td>
<td>0.82</td>
<td>0.91</td>
<td>0.89</td>
</tr>
<tr>
<td>Producer NAC (coeff.)</td>
<td>0.97</td>
<td>0.94</td>
<td>0.88</td>
<td>0.98</td>
<td>0.96</td>
</tr>
<tr>
<td>General Services Support Estimate (GSSE)</td>
<td>3 526</td>
<td>12 183</td>
<td>11 752</td>
<td>12 258</td>
<td>12 540</td>
</tr>
<tr>
<td>Agriculture and food systems</td>
<td>402</td>
<td>1 068</td>
<td>1 115</td>
<td>1 000</td>
<td>1 090</td>
</tr>
<tr>
<td>Research and extension</td>
<td>25</td>
<td>500</td>
<td>502</td>
<td>477</td>
<td>522</td>
</tr>
<tr>
<td>Development and maintenance of infrastructure</td>
<td>2 021</td>
<td>9 201</td>
<td>8 600</td>
<td>9 553</td>
<td>9 450</td>
</tr>
<tr>
<td>Marketing and promotion</td>
<td>14</td>
<td>148</td>
<td>160</td>
<td>106</td>
<td>179</td>
</tr>
<tr>
<td>Cost of public stockholding</td>
<td>1 044</td>
<td>1 150</td>
<td>1 318</td>
<td>932</td>
<td>1 199</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>21</td>
<td>116</td>
<td>58</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Percentage GSSE (% of TSE)</td>
<td>99.6</td>
<td>135</td>
<td>40.1</td>
<td>42.9</td>
<td>78.2</td>
</tr>
<tr>
<td>Consumer Support Estimate (CSE)</td>
<td>16 370</td>
<td>78 112</td>
<td>101 753</td>
<td>59 468</td>
<td>73 116</td>
</tr>
<tr>
<td>Transfers to producers from consumers</td>
<td>12 399</td>
<td>51 828</td>
<td>76 730</td>
<td>31 916</td>
<td>46 839</td>
</tr>
<tr>
<td>Other transfers from consumers</td>
<td>-236</td>
<td>4 310</td>
<td>4 100</td>
<td>4 384</td>
<td>4 446</td>
</tr>
<tr>
<td>Transfers to consumers from taxpayers</td>
<td>4 222</td>
<td>22 261</td>
<td>21 424</td>
<td>23 216</td>
<td>22 145</td>
</tr>
<tr>
<td>Percentage CSE (% of TSE)</td>
<td>23</td>
<td>16.3</td>
<td>32.4</td>
<td>18.9</td>
<td>23</td>
</tr>
<tr>
<td>Consumer NPC (coeff.)</td>
<td>0.9</td>
<td>0.86</td>
<td>0.81</td>
<td>0.9</td>
<td>0.87</td>
</tr>
<tr>
<td>Consumer NAC (coeff.)</td>
<td>0.86</td>
<td>0.8</td>
<td>0.76</td>
<td>0.84</td>
<td>0.81</td>
</tr>
<tr>
<td>Total Support Estimate (TSE)</td>
<td>3 581</td>
<td>8 345</td>
<td>9 845</td>
<td>9 553</td>
<td>10 031</td>
</tr>
<tr>
<td>Transfers from consumers</td>
<td>-12 163</td>
<td>-56 138</td>
<td>-80 830</td>
<td>-36 300</td>
<td>-51 284</td>
</tr>
<tr>
<td>Transfers from taxpayers</td>
<td>15 981</td>
<td>60 174</td>
<td>57 178</td>
<td>60 473</td>
<td>62 969</td>
</tr>
<tr>
<td>Budget revenues</td>
<td>-236</td>
<td>4 310</td>
<td>4 100</td>
<td>4 384</td>
<td>4 446</td>
</tr>
<tr>
<td>Percentage TSE (% of GDP)</td>
<td>0.7</td>
<td>0.4</td>
<td>1.4</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>GDP deflator 2000-02 = 100</td>
<td>100</td>
<td>220</td>
<td>215</td>
<td>219</td>
<td>226</td>
</tr>
</tbody>
</table>

Note: NPC: Nominal Protection Coefficient. NAC: Nominal Assistance Coefficient. A (area planted), An (animal numbers), R (receipts), I (income). 1 MPS commodities for India are: wheat, maize, rice, soybean, rapeseed, groundnuts, chickpeas, other pulses, potatoes, onion, tomatoes, mango, bananas, sugarcane, cotton, milk, bovine meat, sheep meat, poultry, and eggs. Market Price Support is net of producer levies and Excess Feed Cost. n.a.: not applicable.

Composition of producer support by policy category

Beyond measuring the level of support, whether positive or negative, it is more important to analyse the way in which support is delivered. The composition of support shows how positive producer support is provided and negative producer support is imposed, with different impact on the agricultural sector and on the distribution of benefits across society. This is particularly relevant in the case of India, where in essence two separate policy regimes operate at the same time: output market policies that seem to depress domestic producer prices, particularly in years past, and positive budgetary transfers to producers by means of input policies.

Positive market price support can have a large effect on production and trade, imposes additional, regressive costs on domestic consumers, is not effective in improving farm income, and can have negative effects on the environment. Negative market price support taxes producers and is a disincentive to producing in line with effective demand. Negative market price support, by itself, provides a positive transfer to those consumers who buy at market prices. Both positive and negative market price support, either of which by definition applies on a commodity-by-commodity basis, distort relative production incentives across individual commodities. More direct forms of income support are much more effective at improving farm income with fewer spillover effects than are input subsidies and output subsidies. Policies that directly target the achievement of specific policy objectives are likely to be more effective than those that are provided to all producers through production or input subsidies. At the same time, targeted policies may involve higher costs associated with designing, implementing, monitoring and evaluating specific policy measures, which can make the move towards targeted policies more challenging (van Tongeren, 2008; Martini, 2011).

Budgetary transfers account for practically all of the positive producer support for agriculture as a whole in India. Virtually all of this support is classified as payments based on variable input use, the OECD classification that includes the provision of inputs such as fertiliser, irrigation, water, electricity, pesticides, seeds, and fuel at subsidised prices, and the share of crop insurance premiums paid by government. Paying less than market interest rate for short-term or operating credit and policy-driven write-offs by lenders of such debts are also components of this support category. Agricultural producers may not be receiving explicit payments under policies in this category but are able to buy inputs at prices that are lower than a reference price, such as the price they would face in the absence of the policy or the price paid by other users of the input. Input subsidies not only allow producers to respond to output market and policy signals but also give incentives to produce more of those commodities where producers are most able to respond to the distortions in relative input prices resulting from subsidies. Their potential to distort producer decisions is thus at least as large as that of market price support. Although the large input subsidies, such as for fertilisers, electricity, irrigation water, credit and many other kinds of inputs, are part of India’s PSE, they are not allocated to individual commodities and do not enter the Single Commodity Transfers (SCT; see below).

Budgetary support to agricultural producers increased from an average of INR 402 billion (USD 9 billion) in 2000-02 to INR 1,816 billion (USD 28 billion) in 2014-16 (Figure 3.14). An intermediate peak of INR 1,711 billion (USD 37 billion) was observed in 2008, when fertiliser subsidies were particularly large, as was the write-off of debts incurred mainly as operating credit (part of “other variable input use”). The input subsidies have throughout the 2000-16 period been overwhelmingly dominated by
subsidised fertilisers, electricity and irrigation water. While fertiliser subsidies are on a slow decline, electricity subsidies are slowly rising (while seen in USD terms in Figure 3.14, fertiliser subsidies have levelled off in INR terms and electricity subsidies have risen more quickly). Subsidies for irrigation water declined only slightly over several years, followed by an increase in 2016 to the earlier level. Interest subsidies on operating credit have increased and in some years farmers’ credit balances have been fully or partially written off, translating into considerable amounts of producer support. Payments supporting fixed capital formation, primarily for agricultural mechanisation, were not made to any significant degree before 2007 but have since followed a slowly growing trend while remaining very small in relation to subsidies on operating credit (Figure 3.14).

\[\text{Figure 3.14. Level and composition of budgetary transfers in India, 2000-16}\]

Fertiliser subsidies remain the single largest component of India’s input subsidies. The large yearly increases of the mid-2000s have not been continued, and the yearly amount of fertiliser subsidies has largely stabilised in 2014-16 in INR terms. This may have been a consequence of the 2010 policy change, which differentiated the subsidy regime for phosphatic and potassic fertilisers (that are largely imported) from the regime for urea (that is both imported and manufactured in India). Fertiliser subsidies in government expenditure accounting can include subsidies accruing to both fertiliser manufacturers and importers and to fertiliser users, i.e. farmers. Fertiliser subsidies could alternatively have been measured by multiplying price gaps at the farm level by fertiliser consumption, with the price gaps being the difference between the hypothetical unsubsidised farm gate price and the subsidised price. Such estimates for urea, di-ammonium phosphate (DAP) and muriate of potash (MOP) would show fertiliser subsidies at the farm level even larger than the expenditure-based measurement in some years but generally with the same pattern over time. The expenditure-based measurements were retained in the PSE calculations.

State governments operate many programmes providing budgetary transfers to agricultural producers or the sector. The amounts involved are small in relation to the transfers funded by the central government (Box 3.5).

### Box 3.5. Estimating budgetary transfers by state governments in relation to PSE

In addition to the central government expenditures and state level expenditures on major input subsidy programmes, which are included in the estimated PSEs, states finance a myriad of small programmes. In order to make an assessment of the significance of these programmes, expenditures in six states were studied in 2013-14 and extrapolated to all states as follows.

The budgetary transfers on agricultural programmes of the ministries of agriculture (or similar) were obtained from the budget documents for 2013-14 of the governments of Punjab, Madhya Pradesh, Gujarat, Uttar Pradesh, Bihar and Odisha. Each transfer was classified as a PSE or a GSSE transfer based on the implementation criteria of the programme. Most of the PSE transfers were classified as payments based on variable input use or payments based on fixed capital formation. The sum of the budgetary transfers on PSE programmes in the six states was divided by the total agricultural budget of the six states, and the ratio was applied to the total agricultural budget of all states in India. This generated an estimate of the magnitude of PSE transfers fully financed by the state governments themselves. The extrapolation assumes that the share calculated for the six states represents the share in all states, on average, of PSE transfers in their agricultural budgets.

The data on budgetary transfers by the states was obtained from the document “State Finances: A Study of Budgets”, issued by the Reserve Bank of India. The data includes both capital expenditure and revenue expenditure under the heading agricultural and allied activities. Some state government budgetary expenditures are accounted for separately under certain headings in the PSE and GSSE categories and did not enter this extrapolation. This includes capital expenditure on irrigation and under the Rashtriya Krishi Vikas Yojana (RKVY) scheme.

The estimated budgetary PSE transfers of all states from their own resources in 2013-14 amounted to INR 105 billion (USD 1.7 billion). This would correspond to 0.5% of the gross farm receipts in agriculture used to calculate %PSE if incorporated. As the data are available for only one year and for a relatively small number of states, they are not included in the estimates of the PSE.

Negative market price support strongly dominated the market price support picture in 2000 to 2016 for agriculture as a whole in India. In years when a commodity’s market price support (MPS) has been positive, its level was modest. For several commodities the calculated MPS was negative in all years of the period (groundnuts, onion, tomatoes, and bananas). For some other commodities the calculated MPS was negative in all years except one (wheat, milk, and bovine meat). The negative MPS occurs when the domestic producer price is less than the reference price calculated for the same level of transformation in the marketing chain.

Many countries maintain the domestic producer price higher than the reference price with the help of policy measures at the border or a combination of border measures and
domestic policy measures. The domestic producer price can also be kept lower than the reference price with the help of domestic regulations and policy impediments on exports, such as prohibitions, restrictions, or duties on exports, as well as administrative barriers to exports. Weak institutional infrastructure concerning, e.g., marketing channels, and poor physical infrastructure, such as roads or facilities for handling perishable commodities, contribute to the wedge between the higher reference price and the lower producer price. Such a wedge can be attributed to policy-based distortions in the commodity value chain (Pursell et al., 2009; Government of India, 2013e; Saini and Gulati, 2017) and have been interpreted as such in the PSE calculations reported here.

Producer prices of agricultural commodities in India are affected by policies on pricing, procuring, stocking, moving, and trading the commodity. Policies that govern the flow of commodities from the producer level to downstream levels in the marketing chain include the Essential Commodities Act and the APMC Acts. Differences among the states in the status of their respective APMC Acts and how these acts are implemented make it difficult to generalise about the effects on the prices of a set of commodities. A variety of policies impeding the export of a commodity throughout the period examined, such as export prohibitions, export quotas, export duties, and minimum export prices tend to have negative effects on producer prices.

In India’s fruit and vegetable sector, poor transportation infrastructure has been more explicitly identified as an important element of the difference between the farm gate and international prices (Mattoo et al., 2007). That study also mentions policy distortions that restrict competition and result in uneven utilisation of existing infrastructure, and high domestic storage and marketing costs. NCAP (2010) and Deodhar et al. (2006) drew similar conclusions. Such conditions may apply not only to perishable commodities, including fruit, vegetables, milk, meat, and eggs, but also to grains, oilseeds and other crops more generally.

The Market Price Differential (MPD) for a commodity is the domestic price less the reference price, calculated at the same level in the value chain. In the OECD’s measurement of policy support to agricultural producers in many countries, the standard approach is to set a negative MPD to zero unless the negative differential can be explained as a result of the application of agricultural policies. For an imported commodity to which policies, such as tariffs, are in place to increase the domestic price but the domestic price is nevertheless below the reference price, the MPD is set to zero. This attributes the observed negative price gap to factors not related to agricultural policies. While a negative MPD is observed for India for most commodities in many, most or all of the years of the 2000-16 period, negative MPDs were set to zero only for chickpeas (and thus also for other pulses) in 2001-14 and for sheep meat in all years.

While the calculation of producer support in India is carried out separately for 19 individual commodities, some additional commodity coverage is achieved by extrapolating support from chickpeas to all pulses. Moreover, a group called “other commodities” comprises all commodities for which an MPD is not obtained individually nor by the extrapolation for pulses. “Other commodities” includes all fruits and vegetables, other than potatoes, onion, tomatoes, mangoes, and bananas, as well as all other crops and livestock produced in India. It accounted for 34% of the value of production in India’s agriculture in 2014-16, a slight decline from 35% in the early years of the period. An MPS is attributed to “other commodities” as a group, based on the assumption that the ratio between the MPS for those commodities where an MPD is calculated or extrapolated and their total value of production is the same as the corresponding ratio for “other commodities” as a group.
Commodity profile of producer support

Producer Single Commodity Transfers (SCT) is an indicator of the extent to which agricultural policies are commodity-specific, or the flexibility that policies allow producers in their choices of product mixes. For example, some countries (not India) provide output payments designated for a specific commodity and require recipient farmers to produce that commodity. This provides a production incentive similar to that of market price support. The prevalent negative market price support in India gives a disincentive to the production of the commodity. Alternatively, payments may be provided to producers of any commodity in a designated group (for example, any crop within a cereal group), or simply to producers of any commodity without distinction. The latter payments give freedom to those who receive support to define their production mix, and producers become more responsive to market signals.

The SCT measures the sum of MPS, whether positive or negative, and payments provided for the production of only a specified individual commodity. While there are no output-based payments for individual specified commodities or groups of commodities in India, the SCTs nevertheless include some small such input-based payments, for example for seeds and dairy development. The SCT can be expressed in relative terms as a percentage of gross receipts for a given commodity, i.e. %SCT. A figure of 10%, for example, would indicate that the value of transfers that are specific to that commodity is equivalent to 10% of gross receipts for that commodity. Similarly, a %SCT of -15% for a commodity would reveal that the value of commodity-specific transfers from producers of the commodity corresponds to 15% of the commodity’s gross receipts. In the case of India, a commodity’s gross receipts are the same as or very close to the commodity’s value of production. This occurs because there are no commodity-specific output payments, commodity-specific input subsidies are relatively small, and the value of the transfers through other input subsidies are not allocated to individual commodities.

On average, in 2014-16, only poultry meat, maize, sugar, chickpeas (and other pulses) and sheep meat exhibit positive %SCT (Figure 3.15). For chickpeas, the positive %SCT in 2014-16 results from averaging positive MPS values in 2015 and 2016 with the zero MPS in 2014, one of the many years in which the producer price was below the reference price (in spite of MFN tariffs in place) and the negative price gap was set to zero. The small positive %SCT for sheep meat derives from setting sheep meat’s negative price gap to zero, leaving its Excess Feed Cost as positive support because feed commodities in India exhibit negative price gaps. Negative %SCT are observed for the important crops of rice, cotton, and wheat, but these %SCT levels are moderately negative compared to the much more negative %SCT for mango, bananas, and potatoes. Positive commodity-specific transfers other than MPS have accounted for a negligible share of positive producer support in India in 2000-16.
Figure 3.15. Producer Single Commodity Transfers (SCTs) by commodity in India, 2014-16


The individual commodity with the largest amount of negative MPS in most years of the 2000-16 period was milk (Figure 3.16). However, milk MPS turned slightly positive in 2015 when the reference price continued dropping from its 2013 high. Rice saw small positive MPS amounts in the first couple of years, large negative MPS in the middle of the period and then small negative MPS amounts in recent years. Wheat registered large negative MPS amounts in most years of the period but its MPS turned positive in 2016. The size of the negative MPS for oilseeds was more consistent over time, as were the negative MPS amounts for cotton and bovine meat. The MPS for refined sugar was positive all except three years in the 2000-16 period, often coinciding with the availability of some form of export incentives (the negative MPS in 2016 is accounted for in the positive average MPS in 2014-16). While the MPS for pulses was set to zero instead of being counted as negative in 2001-14, it became positive in 2015 and 2016 (not shown). The set of fruit and vegetable commodities in the figure (onion, potatoes, mango, bananas, and tomatoes) showed a significant and rapidly growing amount of negative MPS. It is thus possible to discern a clear pattern of MPS for an increasing number of commodities having turned positive in 2015 (maize, chickpeas, milk) and 2016 (wheat, eggs), in contrast to the more numerous and larger negative MPS amounts in the years before.
A commodity’s support indicated by %SCT, whether positive or negative, results from policy interventions which affect farmers’ production choices, compared to a situation of no intervention. Policies in India, whether impeding exports or suppressing producer prices through the structure and conduct of the marketing chain, have for many years generated predominantly negative levels of %SCT for most commodities. This pattern has been attenuated in the most recent years, with more commodities, including wheat and maize, registering positive %SCT. Apart from the positive or negative effect of a positive or negative %SCT on the production of a given commodity, the relative levels of support among commodities also translate as incentives for the production of more or less of any single commodity. These effects are confounded with the effects of support for different kinds of inputs and the responsiveness of production of different commodities to such support. Producers’ marketing options also play a role in their decisions on what to produce. In some parts of India the government’s procurement activities are an important part of the marketing environment that producers face especially for wheat and rice, but less so in other parts of the country.

Therefore, as already indicated great care needs to be taken in interpreting a country’s %PSE, or any other aggregate country indicator, when the value reported is the result of large positive and negative components numerically offsetting each other. In this situation, the aggregate indicator is likely to be a poor indicator of policy performance. The policies behind both the negative and the positive components alter the relative prices and therefore the incentives in the sector in different but not offsetting ways. While the numerical indicators for negative price support and positive input subsidies may arithmetically offset each other, the distortions the policies generate are multi-faceted and cumulative. Similarly, in comparing across countries, caution needs to be exercised in interpreting the indicators, since it is less misleading to concentrate on the composition of the indicator than on its single numerical value.
The average level of support in India at -6% was lower than the OECD average of 18% in 2014-16. India along with Ukraine and Viet Nam were the only three countries covered by OECD calculations to show a negative average %PSE in 2014-16 (Figure 3.17). Compared to the East and Southeast Asian countries in the sample, the level of support to producers in India was much lower than in Japan (47%) and Korea (49%), and lower than in Indonesia (27%), the Philippines (24%) and China (15%) (OECD, 2017).

**Figure 3.17. Producer Support Estimates in India and selected countries, 2014-16**

The Consumer Support Estimate (CSE) is a related indicator measuring (1) the cost to consumers arising from policies that support agricultural producers by raising domestic producer prices, as many countries do, and (2) the support (negative cost) to consumers from policies that suppress domestic prices. The CSE also includes budgetary food subsidies for consumers. In the OECD methodology, the consumer is understood as the first buyer of the commodity. A negative CSE indicates that consumers are paying more than they would in comparison to border prices (an implicit tax). In the majority of countries monitored by the OECD, consumers are taxed in this way but may in some countries be partly compensated, e.g. through direct budgetary subsidies to processors or various forms of food assistance. When CSE is positive, consumers are able to purchase the product more cheaply on the domestic market (an implicit subsidy). An additional large component of CSE in India is the food subsidy, which allows large segments of the population to purchase food grains at prices that are even much lower than their already low domestic market prices.

Similar to the PSE, the CSE can be expressed in relative terms as a percentage of consumption expenditures (%CSE). In 2014-16, consumers in India benefitted from agricultural and food policies that generated a %CSE of 25% (Figure 3.18). This positive %CSE indicates that policies that depressed farm prices, along with food subsidies, reduced consumption expenditure by (positive) 25% on average across all commodities, compared to what consumptions expenditure would have been in the absence of these


**Support to consumers of agricultural products**

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policies and subsidies (this static comparison does not account for changes in production and consumption if policies and subsidies were removed). This contrasts sharply against the negative %CSE of -8% observed in OECD countries on average in 2014-16, acting as a tax on consumers. It is a rate of consumer support that is considerably higher than that observed in the few other countries where net support to consumers is positive, whether through policies that keep domestic prices below international prices (Ukraine with %CSE of 14% in 2014-16) or through budgetary subsidies as in the United States (%CSE of 12% in 2014-16) (Table 3.13). In other countries with budgetary food subsidies the %CSE is nevertheless zero or negative because the domestic prices are kept higher than international prices, as in Brazil and Indonesia with a %CSE of 0% and -32%, respectively.

Figure 3.18. Consumer Support Estimate in India and selected countries, 2014-16

Table 3.13. Diversity of %CSE in selected countries with budgetary food subsidies, 2014-16

<table>
<thead>
<tr>
<th>Country</th>
<th>%CSE</th>
<th>Transfers to consumers from taxpayers as share of value of consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil¹</td>
<td>-0.2</td>
<td>1.1%</td>
</tr>
<tr>
<td>India</td>
<td>24.7</td>
<td>6.6%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>-32.2</td>
<td>1.5%</td>
</tr>
<tr>
<td>Kazakhstan²</td>
<td>2.9</td>
<td>1.6%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>13.8</td>
<td>0.0%</td>
</tr>
<tr>
<td>United States</td>
<td>11.9</td>
<td>14.0%</td>
</tr>
</tbody>
</table>

1. %CSE was positive in 2014 and 2015 and negative in 2016.
2. %CSE was negative in 2014 and 2015 and positive in 2016.


Support to general services for agriculture

In addition to support provided to individual producers, the agricultural sector is assisted through the financing of activities that provide general benefits, such as agricultural
research and development, training, inspection, marketing and promotion, and public stockholding. The General Services Support Estimate (GSSE) measures this support. The provision of common as opposed to individual benefits distinguishes the general services support from that measured by the PSE.

In India expenditure on general services followed an increasing trend from 2000 to 2010, after which such expenditure in USD terms has remained lower (Figure 3.19). Expressing GSSE as a percentage of gross farm receipts gives an indicator that supplements the standard OECD indicators, such as %PSE. This GSSE percentage was 2.9% in 2000-02 and 3.0% in 2014-16, revealing that expenditure on general services to the agriculture sector has just barely kept pace with the increases in value of production and budgetary transfers to producers, let alone outpaced those increases. The largest single expenditure category in GSSE is development and maintenance of infrastructure, almost all of which relates to hydrological infrastructure, specifically capital expenditure on irrigation. Hydrological infrastructure alone accounted for 75% of GSSE expenditures in 2014-16, followed by the cost of public stockholding, which accounted for 9% of GSSE. The cost of public stockholding has fluctuated considerably, having accounted for only about 2% of GSSE in 2005, 2006 and 2007, when wheat stocks and wheat procurement were very low as a result of production having been unusually low in 2004-05 and 2005-06. Expenditure on the agricultural knowledge and innovation system (knowledge generation, education, and extension) has rarely amounted to more than 10% of the GSSE expenditure. Knowledge generation and extension have in recent years accounted for some 6 and 3 percentage points, respectively, of that share, leaving a very small share for education.

**Figure 3.19. Level and composition of GSSE in India, 2000-16**

Support to the agricultural sector as a whole

The Total Support Estimate (TSE) is the broadest indicator of support, representing the sum of transfers to agricultural producers individually (PSE) and collectively (GSSE),
and direct budgetary transfers to consumers. Expressed as a percentage of GDP, the
%TSE provides an indication of the cost that support to the agricultural sector places on
the overall economy. Its value depends on the degree to which the agricultural and food
sector is supported in a country, the size of this sector and its importance relative to the
overall economy. As with the PSE the presence of large negative amounts in the TSE
requires careful interpretation of the resulting indicator.

India’s TSE averaged INR 583 billion (USD 8 billion) per year in 2014-16, representing
0.4 % of GDP (Figure 3.20). Because of the large negative MPS in most of the
2000-16 period, the %TSE was negative from 2004 to 2014, becoming positive only in
2015 and 2016. This does not define a situation of negligible transfers. Rather, the
relatively modest arithmetic TSE hides the existence of very large transfers among
agricultural producers, consumers and taxpayers. They include the very large negative
MPS in many years (a transfer away from producers) and the large input subsidies
providing positive support to producers but with different economic effects, along with
the large and growing transfer from taxpayers to consumers.

Focusing on the positive transfers altogether (i.e. sum of budgetary transfers to producers,
GSSE and transfers to consumers from taxpayers, and not counting the negative market
price support) these amounted to 2.5% of India’s GDP in 2000-02, dropping to 1.9% of
GDP in 2014-16. It is also instructive to consider the budgetary support element relative
to value added in agriculture (an indicator of the size of the agriculture sector). The
positive transfers to producers, to the agriculture sector and to consumers altogether
corresponded to about 21% of gross value added in agriculture (crops and livestock) on
average in 2014-16. The budgetary transfers to producers and the agriculture sector
(i.e. input subsidies and GSSE) were by themselves at a level equal to 14% of gross value
added in agriculture.

Figure 3.20. Level and composition of TSE in India, 2000-16

With a level of total support to its agriculture sector and food consumption sector in 2014-16 amounting to 0.37% of GDP, India finds itself between Canada and Chile in the absolute size of this net transfer as a percentage of the country’s GDP (Figure 3.21). In India’s case the positive support to producers is mainly budgetary support in the form of input subsidies. The central government’s budgetary producer support together with its sizeable budgetary subsidy on food grains to a large part of the population corresponds to as much as 20% of the total budgetary revenue expenditure of the central government. This concentration of expenditure highlights the need to calibrate the amount of spending on agriculture and food so it remains in line with evidence on how well such spending contributes to the achievement of overall policy objectives. It also underscores the need to allocate and implement spending initiatives under the headings of agriculture and food in such ways that they reach the intended beneficiaries and have the desired effects.

Figure 3.21. TSE in India and selected countries, 2014-16

The share of GSSE in total support (%GSSE) indicates the relative importance of these transfers within support to the agricultural sector. In the present situation for India, where the modest TSE is the net result of adding large positive and negative components, the %GSSE is difficult to interpret. As an alternative, the GSSE can be expressed as a share of the sum of the budgetary transfers in PSE (mainly input subsidies) and the GSSE. This share rose from an average of 29% in 2000-02 to a high of 38% in 2005, before declining.

to an average of 30% in 2014-16. The decline seen in the last decade in the share of budgetary support that is provided as general services to the agricultural sector as a whole rather than to individual producers is of concern since it represents a move away from the less distorting forms of producer support expenditure. The kind of support provided through GSSE measures is also the kind that most effectively builds resilience and sustainability in the agriculture sector, in contrast to ongoing expenditures on input subsidies and, in some countries, on price support.

Notes

1 For ease of reading, the text in this chapter often refers to states and Union Territories (UT) as states only. While India’s Constitution identifies animal husbandry as distinct from agriculture, as does much analytical work in India, this text includes animal husbandry and livestock under the heading of agriculture.

2 While a 4% growth rate in agriculture is often mentioned in policy documents, the indicator to which this growth rate or other growth objectives refers is rarely clear, such as total value of output in agriculture, value-added in agriculture, or farmers’ income (Chand, 2017).

3 Chaturvedi (2011) reviewed all CSS and certain other transfers, not only those in agriculture. Among the issues he identified was the difficulty of monitoring the flow of funds because of funds being released under CSS not only to state governments but also to independent societies, of which senior officials of a state government were in charge, or to district level organisations. He recommended that the variety of schemes be consolidated and reduced in number and reorganised for greater clarity and focus on priorities, while also allowing states adequate flexibility in using the funds. The review was informed by a review of inter-governmental transfers in Australia and Canada, while recognising the constitutional difference between those countries seeking to equalise the levels of service and India’s more limited purpose of transferring resources to the states to meet their requirements for expenditure.

4 These commodities are: onion, potato, tomato, wheat, rice, wheat flour, gram, tur, urad, moong, lentil/masoor, sugar, milk, groundnut oil (packed), mustard oil (packed), vanaspati (packed), soy oil (packed), sunflower oil (packed), palm oil (packed), gur, tea loose, and salt pack.

5 The variety of labels attaching to various kinds of agricultural markets in India makes it difficult to find consistent numbers for markets. The total number of wholesale markets and rural primary markets was 27,326 in 2015, consisting of 20,580 rural periodical markets and 6,746 regulated wholesale markets (Government of India, 2015c).

6 Neem coating also reduces nitrogen losses from the soil. Neem oil is derived from the fruit of the neem tree.

7 Deendayal Upadhyaya Gram Jyoti Yojana (not translated in India’s official texts in English). Deendayal Upadhyaya was a political philosopher. Gram Jyoti Yojana translates roughly as village light plan.

8 For example, the Seed Village Program has subsidised half of the farmer’s cost of certified seeds (up to a limit of ½ acre), provided farmer training in growing and processing seeds, and subsidised part of the farmer’s cost of buying a bin for storing seeds (Government of India, 2017n).

9 During two seasons in 2003 and 2004 a Farm Income Insurance Scheme operated on a limited pilot basis, going beyond insurance against yield loss only. The scheme sought to protect not only the income of the farmer, but also to reduce the government expenditure on procurement at MSP.

10 No official translation appears to be available. AAY may be roughly translated as a plan for uplifting the weakest section of society.
Giving a picture of budgetary outlays on agriculture and food in India is complicated by such factors as the participation of both the central and state governments in making such outlays, the not always explicit mention of what elements are included under particular headings when expenditures are analysed, and changing practices over time with regard to the level of detail and classification in expenditure reporting.

The report converts this expenditure to a yearly average of about USD 78 billion in 2009-10 to 2013-14. The expenditure corresponds to between 4% and 5% of India’s GDP.

Complaints about India’s quantitative restrictions had been initiated by Australia, Canada, the European Union, New Zealand, Switzerland, and the United States. The United States pursued its case through the WTO Appellate Body, resulting in India agreeing to eliminate its BOP restrictions in two instalments in 2000 and 2001 (Hoda and Gulati, 2007).

Under the Customs Tariff Act, 1975, the MFN tariff is based on the statutory duty rates.

For example, duties on imports of 50,000 tonnes of skim milk powder were zero in 2013-14; on peas, beans and lentils duties were zero from 2007-08 onwards; on wheat duties were zero for some time until 1 April 2013; and on rice the BCD of 70% was fully exempted between 2009-10 and 2011-12 (Hoda and Gulati, 2013).

A cess in India is a central government tax levied for specific purpose as a percentage of and on top of another tax.

The simple average bound rate for non-agricultural products is 34.5%.

In 2014-15, 2015-16, and 2016-17 the duties on cereals were set high enough that no imports could normally take place, such as 70-80% for rice and 50-100% for wheat. However, when cyclical shortfalls in domestic production put an upward pressure on domestic prices, the government temporarily reduces the duty or exempts imports from duties altogether. The BCD on milled rice was exempted in 2009-10, 2010-11, and 2011-12, and imports were allowed on a duty free basis in those years, before tariffs were raised in 2012-13. Import of wheat was similarly exempted from duty during 2006-07 and 2007-08 and more recently between 2012-13 and 2014-15. The BCD is 30-50% for pulses, such as peas, beans and lentils, but these products have been exempted from duty from 2007-08. Duties had been exempted earlier on imports of edible oils, in which India has a structural shortfall in domestic production. Import duties on sugar were lifted for a short period in 2012 and then reinstated at 10%. Duties have then been raised more recently: for crude palm oil, the duty was 2.5%, 7.5% and 12.5% in 2014-15, 2015-16, and 2016-17, respectively. For other palm oil the duty was 10%, 15%, and 20% in the same years. While the BCD on raw sugar was 100%, the applied tariff rate was 10%, 15%, 25%, and 40%, respectively, from 2013-14 to 2016-17. A consistent increase is thus observed for the applied tariffs on palm oil and raw sugar, although they remain below the statutory duty. For certain tropical products in which India is a traditional exporter, such as tea, coffee and pepper, duties are set at levels as high as 70-100%. The import duty on frozen meat and frozen offal has in the last several years remained at 36.1%, after having been set at somewhat higher or lower rates in the early 2000s. Fresh and chilled meat imports face a lower duty of 30.9%.

Budgetary producer support in this calculation includes only expenditure under the headings Agriculture & allied services and Rural development and Fertiliser subsidy. The revenue expenditure is the sum of Total non-development revenue expenditure and Total development revenue expenditure.
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WTO (2012b), “Notification”, G/AG/N/IND/9, Committee on Agriculture.

WTO (2011a), “Notification”, G/AG/N/IND/8, Committee on Agriculture.


### Annex Table 3.A.1. Selected agriculture sector schemes and programmes, 2014

<table>
<thead>
<tr>
<th>Scheme or programme</th>
<th>Budget allocation (INR billion)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Mission for Sustainable Agriculture (NMSA)</td>
<td>16.8</td>
<td>Seeks to address issues of “sustainable agriculture” in the context of climate change by devising appropriate strategies for ensuring food security, enhancing livelihood opportunities, and contributing to economic stability at national level. Aims at enhancing agricultural productivity in rain-fed areas focusing on integrated farming, water use efficiency, soil health management and synergising resource conservation</td>
</tr>
<tr>
<td>Mission for Integrated Development of Horticulture (MIDH)</td>
<td>22.6</td>
<td>Aims at holistic growth of horticulture sector covering fruits, vegetables and flowers with a view to augmenting farmers’ income and nutritional security</td>
</tr>
<tr>
<td>National Mission on Oilseed and Oil Palm (NMOOP)</td>
<td>4.3</td>
<td>Aims at ensuring edible oil security through production improvement of traditional oilseed and tree-borne oilseed</td>
</tr>
<tr>
<td>National Mission on Agricultural Extension and Technology (NMAET)</td>
<td>13.2</td>
<td>Seeks to restructure, strengthen and promote agricultural extension to enable use of appropriate agro-technology and improved agronomic practices to farmers</td>
</tr>
<tr>
<td>National Food Security Mission (NFSM)</td>
<td>20.3</td>
<td>Seeks to ensure food security by reducing gaps between potential and actual yields and by providing extension and promotion services to agriculture and rural community</td>
</tr>
<tr>
<td>Rashtriya Krishi Vikas Yojana (RKVY)</td>
<td>99.5</td>
<td>Seeks to promote public investment in agriculture and related sector by the states, and provide flexibility and autonomy to states for planning and executing programmes/projects.</td>
</tr>
<tr>
<td>Modified National Agriculture Insurance Scheme (MNAIS)</td>
<td>28.2</td>
<td>Aims at providing relief to the farmers from crop failure due to natural disasters, pests and diseases</td>
</tr>
<tr>
<td>Integrated Scheme for Agricultural Marketing (ISAM)</td>
<td>8.0</td>
<td>Seeks to promote: (i) creation and improvement of marketing infrastructure, (ii) capacity-building of stakeholders, and (iii) access to market information</td>
</tr>
<tr>
<td>Integrated Scheme on Agriculture Cooperation (ISAC)</td>
<td>1.1</td>
<td>Seeks to promote co-operative action in agriculture by: (i) capacity-building of co-operatives to undertake value addition; (ii) providing managerial and technical inputs including training; (iii) fostering diversification of activities; and (iv) boosting creation of co-operative storage/cold facilities</td>
</tr>
<tr>
<td>Integrated Scheme on Agriculture Census and Statistics (ISAC&amp;S)</td>
<td>2.6</td>
<td>Aims at collecting statistics relating to the agricultural holdings, land use, cropping patterns, irrigation status, tenancy, and deriving facets of agriculture in the country</td>
</tr>
<tr>
<td>Secretariat Economic Services</td>
<td>0.1</td>
<td>Aims at carrying out agro-economic evaluations and research and providing expert services to the department on various economic and statistical issues</td>
</tr>
</tbody>
</table>

*Source: WTO (2015b) (WTO Secretariat, based on information provided by the Indian authorities).*
### Annex Table 3.A.2. Sales taxes and other taxes levied in agricultural marketing, by states

<table>
<thead>
<tr>
<th>State</th>
<th>Sales tax</th>
<th>Taxes (% of MSP)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>4%: all commodities except maize, jowar, ragi, bajra, coarse grains</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bihar</td>
<td>-</td>
<td>3%</td>
<td>-</td>
</tr>
<tr>
<td>Assam</td>
<td>4% to 8%: all commodities except rice, wheat, wheat flour, pulses, fruit and vegetables, gur</td>
<td>-</td>
<td>Not collected as markets not operating</td>
</tr>
<tr>
<td>Chattisgarh</td>
<td>-</td>
<td>2.2%</td>
<td>-</td>
</tr>
<tr>
<td>Delhi</td>
<td>3%: oilseeds; fruit and vegetables: nil; fenugreek: 7%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gujarat</td>
<td>4%: cotton; 2-3%: certain spices; other agricultural commodities exempted from sales tax</td>
<td>0.8%</td>
<td>Octroi: 0.2 to 4%</td>
</tr>
<tr>
<td>Goa</td>
<td>2%: betel nut and cashew nut; coconut, fruit and vegetables, cattle and milk exempted from sales tax</td>
<td>-</td>
<td>Entry fee: cattle INR 10 per head; vehicle INR 10 per truck</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>-</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Haryana</td>
<td>4%: food grains, pulses and oilseeds; nil: fruit and vegetables</td>
<td>11.5%</td>
<td>-</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>-</td>
<td>5%</td>
<td>-</td>
</tr>
<tr>
<td>Karnataka</td>
<td>Nil: food grains; 2%: pulses; 4%: oilseeds</td>
<td>-</td>
<td>Market fee exempted for industrial and export purchases</td>
</tr>
<tr>
<td>Kerala</td>
<td>INR 4 to 8%</td>
<td>-</td>
<td>No market regulation, hence no prescribed fees</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Not available</td>
<td>9.2%</td>
<td>Development cess from traders only: 1 to 5%</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>All agricultural commodities exempt from sales tax</td>
<td>3.8%</td>
<td>Entry fee: INR 10 per truck</td>
</tr>
<tr>
<td>Punjab</td>
<td>-</td>
<td>14.5%</td>
<td>-</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>4%: food grains; nil: coarse grains; 2%; pulses and oilseeds; nil: fruit and vegetables</td>
<td>3.6%</td>
<td>Surcharge on sales tax: 15%</td>
</tr>
<tr>
<td>Tripura</td>
<td>Nil: all agricultural commodities</td>
<td>-</td>
<td>Entry fee: INR 1 per head</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>4%: food grains; 2%: pulses; 4%: oilseeds and others</td>
<td>16.71%</td>
<td>-</td>
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<tr>
<td>Uttarakhand</td>
<td>-</td>
<td>7.5%</td>
<td>-</td>
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<tr>
<td>West Bengal</td>
<td>Not available</td>
<td>2.5%</td>
<td>Purchase tax on jute: 4%</td>
</tr>
</tbody>
</table>

*Source: Government of India (2015f).*
### Annex Table 3.A.3. Cases where recommended MSP and fixed MSP are different

<table>
<thead>
<tr>
<th>Season</th>
<th>Status of MSP</th>
<th>Paddy common</th>
<th>Paddy Grade A</th>
<th>Jowar</th>
<th>Bajra</th>
<th>Tur (Arhar)</th>
<th>Moong</th>
<th>Urad</th>
<th>Wheat</th>
<th>Barley</th>
<th>Rapeseed and mustard</th>
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<tbody>
<tr>
<td>2000-01</td>
<td>Rec. 580</td>
<td>610</td>
<td>460</td>
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<td>2007-08</td>
<td>Rec. 645 1550</td>
<td>675 1700</td>
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<td>2011-12</td>
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<td>2012-13</td>
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<td>2013-14</td>
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<td>4425 4625</td>
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</tbody>
</table>

1. MSPs are in INR per 100 kg. NR: not recommended.
2. MSPs are recommended by CACP and fixed by CCEA.
3. Where the recommended and fixed MSP are the same, CCEA fixed the MSP at the recommended level and decided on an additional bonus.

### Annex Table 3.A.4. State government bonuses in procuring wheat and rice, 2010-11 to 2013-14

<table>
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<tbody>
<tr>
<td><strong>Wheat</strong></td>
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<tr>
<td>MSP (INR/tonne)</td>
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<tr>
<td>Bihar</td>
<td>11 000</td>
<td>11 700</td>
<td>12 850</td>
<td>13 500</td>
<td>10 000</td>
<td>10 800</td>
<td>12 500</td>
<td>13 100</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>500</td>
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<td>2 700</td>
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<tr>
<td>Karnataka</td>
<td>1 000</td>
<td>2 500</td>
<td>2 500</td>
<td>2 500</td>
<td>2 500</td>
<td>2 500</td>
<td>2 500</td>
<td>2 500</td>
</tr>
<tr>
<td>Kerala</td>
<td>4 000</td>
<td>4 200</td>
<td>4 500</td>
<td>4 500</td>
<td>4 500</td>
<td>4 500</td>
<td>4 500</td>
<td>4 500</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>1 000</td>
<td>1 000</td>
<td>1 500</td>
<td>1 500</td>
<td>1 000</td>
<td>500</td>
<td>1 000</td>
<td>500</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>2 000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odisha</td>
<td>1 000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rajasthan</td>
<td>1 000</td>
<td>1 000</td>
<td>1 500</td>
<td>1 500</td>
<td>1 000</td>
<td>500</td>
<td>1 000</td>
<td>500</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rice (paddy)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>State Bonus (INR/tonne)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bihar</td>
<td>2 500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total bonus amount (INR million)**

<table>
<thead>
<tr>
<th></th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3 538</td>
<td>7 998.5</td>
<td>14 703.5</td>
<td>11 434.5</td>
</tr>
</tbody>
</table>

**Note:** MSP is Minimum Support Price. Not all bonus rates are included. Total bonus amount is calculated by multiplying each state’s bonus rate by the quantity procured in the state (procurement at MSP or with a bonus does not necessarily take place in all identified states in all years).

**Source:** U.S. Department of Agriculture (2014); Saini and Kozicka (2014).

### Annex Table 3.A.5. Schemes incorporated in the National Livestock Mission

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Central Scheme</th>
<th>Centrally Sponsored Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central fodder development organisations</td>
<td>Centrally sponsored fodder and feed development scheme</td>
<td>Conservation of threatened breeds of livestock</td>
</tr>
<tr>
<td>Central sheep breeding farm</td>
<td></td>
<td>Poultry development</td>
</tr>
<tr>
<td>Central poultry development organisations</td>
<td></td>
<td>Utilisation of fallen animals</td>
</tr>
<tr>
<td>Integrated development of small ruminants and rabbits</td>
<td></td>
<td>Livestock insurance</td>
</tr>
<tr>
<td>Piggery development</td>
<td></td>
<td>Establishment/modernisation of rural slaughterhouses, including mobile slaughter plants</td>
</tr>
<tr>
<td>Poultry venture capital fund</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salvaging and rearing of male buffalo calves</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Government of India (2017t).
### Annex Table 3.A.6. Evolution of ad valorem duties (%), selected cereals, pulses and oilseeds, 2000-15

<table>
<thead>
<tr>
<th>Year</th>
<th>Rice¹</th>
<th>Wheat²</th>
<th>Maize</th>
<th>Chickpeas</th>
<th>Groundnut</th>
<th>Rapeseed³</th>
<th>Soybean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>80-70²</td>
<td>50</td>
<td>72.6</td>
<td>5.5</td>
<td>44</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>2001-02</td>
<td>80-70²</td>
<td>50</td>
<td>15.1-51¹</td>
<td>5</td>
<td>44</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>2002-03</td>
<td>87.2-76.8²</td>
<td>50</td>
<td>15.1-51¹</td>
<td>10</td>
<td>35.2</td>
<td>35.2</td>
<td>35.2</td>
</tr>
<tr>
<td>2003-04</td>
<td>80-70²</td>
<td>50</td>
<td>15.1-51¹</td>
<td>10.2</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>2004-05</td>
<td>81.6-71.4²</td>
<td>50</td>
<td>61.2</td>
<td>10.2</td>
<td>30.6</td>
<td>30.6</td>
<td>30.6</td>
</tr>
<tr>
<td>2005-06</td>
<td>80-70²</td>
<td>50</td>
<td>61.2</td>
<td>10.2</td>
<td>30.6</td>
<td>30.6</td>
<td>30.6</td>
</tr>
<tr>
<td>2006-07</td>
<td>80-70²</td>
<td>50-5-0¹</td>
<td>61.2</td>
<td>10.2</td>
<td>35.9</td>
<td>35.9</td>
<td>35.9</td>
</tr>
<tr>
<td>2007-08</td>
<td>82.4-72²</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2008-09</td>
<td>82.4-72²</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2009-10</td>
<td>0</td>
<td>0</td>
<td>0-51.5⁵</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2010-11</td>
<td>0</td>
<td>0</td>
<td>0-51.5⁵</td>
<td>10.3</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2011-12</td>
<td>0-82.4-72.1¹</td>
<td>0</td>
<td>0-51.5⁵</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2012-13</td>
<td>82.4-72.1</td>
<td>0</td>
<td>0-51.5⁵</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2013-14</td>
<td>80-70</td>
<td>0</td>
<td>0-51.5⁵</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2014-15</td>
<td>80-70</td>
<td>0</td>
<td>0-50¹</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
<tr>
<td>2015-16</td>
<td>80-70</td>
<td>0-10-25⁵</td>
<td>0-50¹</td>
<td>0</td>
<td>30.1</td>
<td>30.1</td>
<td>30.1</td>
</tr>
</tbody>
</table>

1. Duties for two varieties: Broken rice and Other rice (excluding basmati).
2. Import of common varieties of rice with 50% or more broken are permitted free for import.
3. Duties for Other wheat and Durum Wheat
5. Duty till August 2015; duty between August and October 2015; duty October 2015 onwards.
6. Tariff Rate Quota (TRQ) for import up to (i) 400 000 tonnes in 2001-02; (ii) 450 000 tonnes in 2002-03; (iii) 500 000 tonnes in 2003-04; beyond TRQ duties separate.
7. TRQ for import up to 500 000 tonnes; beyond TRQ separate duties apply.
8. Duty exemption up to January 2008; normal TRQ duty applicable beyond.
9. Includes mustard seed.

Source: Saini and Gulati (2017), drawing on Goyal (various issues). Includes basic duty and, where applicable, educational cess, countervailing duties, and special countervailing duties.
### Annex Table 3.A.7. Evolution of ad valorem duties (%), selected fruit, vegetables, and livestock, 2000-15

<table>
<thead>
<tr>
<th></th>
<th>Potato</th>
<th>Onion</th>
<th>Mango</th>
<th>Banana</th>
<th>Meat (bovine meat)</th>
<th>Milk powder</th>
<th>Sugarcane</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>44</td>
<td>0</td>
<td>44</td>
<td>49.8</td>
<td>44</td>
<td>0</td>
<td>44</td>
</tr>
<tr>
<td>2001-02</td>
<td>44</td>
<td>0</td>
<td>44</td>
<td>49.8</td>
<td>44</td>
<td>0</td>
<td>44</td>
</tr>
<tr>
<td>2002-03</td>
<td>35.2</td>
<td>5</td>
<td>35.2</td>
<td>35.2</td>
<td>35.2</td>
<td>15-60†</td>
<td>35.2</td>
</tr>
<tr>
<td>2003-04</td>
<td>30.6</td>
<td>5</td>
<td>30.6</td>
<td>30.6</td>
<td>30</td>
<td>15-60†</td>
<td>30</td>
</tr>
<tr>
<td>2004-05</td>
<td>30.6</td>
<td>5.1</td>
<td>30.6</td>
<td>30.6</td>
<td>30.6</td>
<td>15-60†</td>
<td>30.6</td>
</tr>
<tr>
<td>2005-06</td>
<td>30.6</td>
<td>5</td>
<td>30.6</td>
<td>30.6</td>
<td>30.6</td>
<td>15-60†</td>
<td>30.6</td>
</tr>
<tr>
<td>2006-07</td>
<td>30.6</td>
<td>5.1</td>
<td>30</td>
<td>30.6</td>
<td>35.9</td>
<td>15-60†</td>
<td>35.9</td>
</tr>
<tr>
<td>2007-08</td>
<td>30.9</td>
<td>5.15</td>
<td>30</td>
<td>30.9</td>
<td>36.1</td>
<td>20.1-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2008-09</td>
<td>30.9</td>
<td>5.15</td>
<td>30</td>
<td>30.9</td>
<td>36.1</td>
<td>9.4-20.1-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2009-10</td>
<td>30.9</td>
<td>5.15</td>
<td>30</td>
<td>30.9</td>
<td>36.1</td>
<td>9.4-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2010-11</td>
<td>30.9</td>
<td>5.15</td>
<td>30</td>
<td>30.9</td>
<td>36.1</td>
<td>9.4-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2011-12</td>
<td>30.9</td>
<td>5.15</td>
<td>30</td>
<td>30.9</td>
<td>36.1</td>
<td>9.4-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2012-13</td>
<td>30.9</td>
<td>0</td>
<td>36.1</td>
<td>30.9</td>
<td>36.1</td>
<td>0-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2013-14</td>
<td>30.9</td>
<td>0</td>
<td>36.1</td>
<td>30.9</td>
<td>36.1</td>
<td>15-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2014-15</td>
<td>30.9</td>
<td>0</td>
<td>36.1</td>
<td>30.9</td>
<td>36.1</td>
<td>15-68.3†</td>
<td>30.1</td>
</tr>
<tr>
<td>2015-16</td>
<td>30.9</td>
<td>0</td>
<td>36.1</td>
<td>30.9</td>
<td>36.1</td>
<td>15-68.3†</td>
<td>30.1</td>
</tr>
</tbody>
</table>

1. TRQ for import up to 10 000 tonnes; normal duties apply beyond TRQ.
2. Duty exemption up to January 2008; normal TRQ duty applicable beyond.

**Source:** Saini and Gulati (2017), drawing on Goyal (various issues). Includes basic duty and, where applicable, educational cess, countervailing duties, and special countervailing duties.

### Annex Table 3.A.8. Summary of stock limits for pulses, oilseeds and oils by state

<table>
<thead>
<tr>
<th>State</th>
<th>Type of dealer</th>
<th>Stock limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>Wholesalers and retailers in given cities</td>
<td>Pulses No limit, Edible oilseeds Different specific limits between 7.5 and 225 tonnes, No limit</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>Not specified</td>
<td>100 tonnes, 100 tonnes, 50 tonnes</td>
</tr>
<tr>
<td>Gujarat</td>
<td>Not specified</td>
<td>No stock limit on any commodity under ECA but limit applies when price fluctuates in the market. Government may decide when it is required under ECA.</td>
</tr>
<tr>
<td>Haryana</td>
<td>Dal mills</td>
<td>1/24th of grinding capacity (raw); 1/48th of grinding capacity (finished), No limit, 1/24th of grinding capacity (raw); 1/48th of grinding capacity (finished)</td>
</tr>
<tr>
<td>Dealers</td>
<td>25 tonnes</td>
<td>150 tonnes, 150 tonnes</td>
</tr>
<tr>
<td>Retailers</td>
<td>No limit</td>
<td>2.5 tonnes, No limit</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>Wholesalers and retailers in given types of cities</td>
<td>Different specific limits between 15 and 350 tonnes, Different specific limits between 200 and 2 000 tonnes, Different specific limits between 2 and 100 tonnes</td>
</tr>
<tr>
<td>Odisha</td>
<td>Producer</td>
<td>1/6th of quantity used in earlier years</td>
</tr>
<tr>
<td>Dealers</td>
<td>75 tonnes</td>
<td>50 tonnes, 75 tonnes</td>
</tr>
<tr>
<td>Punjab</td>
<td>Dealers, wholesalers, distributors, retailers</td>
<td>50 tonnes or 1 000 tonnes, No limit, 4 tonnes or 100 tonnes</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Wholesalers</td>
<td>200 tonnes, No limit</td>
</tr>
<tr>
<td>Retailers</td>
<td>2.5 tonnes</td>
<td>No limit, No limit</td>
</tr>
</tbody>
</table>

**Note:** Source does not indicate applicable year but is likely around 2015.

**Source:** Government of India (2016o).
### Annex Table 3.A.9. Descriptions of legal provisions regarding slaughter of cow and buffalo, selected states

<table>
<thead>
<tr>
<th>State</th>
<th>Law</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>The Andhra Pradesh Prohibition of Cow Slaughter and Animal Preservation Act, 1977</td>
<td>Slaughter of cows (includes a heifer or a calf, male or female of a cow) or calves of she buffaloes is prohibited. No certificate shall be granted to slaughter if the animal is fit for: breeding, draught or any kind of agricultural operations, giving milk or bearing offspring. Buffalos below age of 8 are not allowed.</td>
</tr>
<tr>
<td>Assam</td>
<td>Assam Cattle Preservation Act, 1951, amended in 1963</td>
<td>Prohibits slaughter of cattle. No certificate shall be issued unless: the cattle is over 14 years, unfit for working or breeding, the animal has become permanently incapacitated.</td>
</tr>
<tr>
<td>Gujarat</td>
<td>The Bombay Animal Preservation Act, 1954 (applied to Gujarat)</td>
<td>No certificate for slaughter shall be granted in respect of a cow, the calf of a cow, whether male or female and if male, whether castrated or not, a bull or a bullock; total ban on slaughter of bull and bullock was not upheld by the honourable Gujarat high court.</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>Cow Slaughter Act, 1979</td>
<td>Cow slaughter is banned.</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>The Ranbir Penal Court, 1932</td>
<td>Cow slaughter is banned. Buffalo allowed for slaughter and industrial production of meat for domestic and export of meat.</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>There is no law related to beef consumption</td>
<td>Cow slaughter is permitted.</td>
</tr>
<tr>
<td>Karnataka</td>
<td>Prevention of Cow Slaughter and Cattle Preservation Act, 1964, Amended in 1975</td>
<td>Prohibits the slaughter of cow or calf of she buffalo. A certificate for slaughter shall be granted if (a) the animal is over the age of twelve years or (b) the animal has become permanently incapacitated for breeding, draught or giving milk due to injury, deformity or any other cause.</td>
</tr>
<tr>
<td>Kerala</td>
<td>No state legislation – only Panchayat Act and Rules</td>
<td>Beef is widely consumed in Kerala and is the cheapest meat available.</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Gauvansh Vadh Pratisheth (Sanshodhan) Vidheyak, 2007</td>
<td>Total ban on cow slaughter.</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>Maharashtra Animal Preservation Act, 1976</td>
<td>Permits slaughtering and production of beef through authorised abattoirs set up by local municipal corporations. Buffalo and bullocks above the age of 12-13 years can be slaughtered.</td>
</tr>
<tr>
<td>Odisha</td>
<td>Prevention of Cow Slaughter Act, 1960</td>
<td>Killing of cows totally prohibited; bull, bullock is allowed on production of fit for slaughter certificate if the animal is over 14 years of age or has become permanently unfit for breeding.</td>
</tr>
<tr>
<td>Punjab</td>
<td>Cow Slaughter Act, 1965</td>
<td>Complete ban on cow slaughter in Punjab.</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Rajasthan Bovine Animal Act, 1995</td>
<td>Slaughter of “bovines” is prohibited. Section 2(b) of the Act defines a “Bovine animal” to mean and include Cow, Calf, Heifer, Bull or Bullock. Section 2(e) defines “Calf” to mean a castrated or uncastrated male of the age of three years and below belonging to the species of bovine animal. (Bovine literally includes cow and buffalo. But in Rajasthan buffalo slaughter is permitted whereas cow slaughter is banned).</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>Tamil Nadu Animal Prevention Act, 1958</td>
<td>Slaughter of cows and heifers is banned in all slaughterhouses in Tamil Nadu.</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>The Uttar Pradesh Cow Slaughter (Prevention) Act, 1955, Amended in 2002</td>
<td>Blanket ban on cow slaughter; no person shall slaughter or cause to be slaughtered or offer or cause to be offered for slaughter a cow, bull or bullock in any place in Uttar Pradesh.</td>
</tr>
<tr>
<td>West Bengal</td>
<td>The West Bengal Animal Slaughter Act, 1950</td>
<td>Fit for slaughter certificate is required. Animals included in the Act are bulls, bullocks, cows, calves and buffaloes of all types/ages. Animal must be over 14 years of age and unfit for work or breeding, or have become permanently incapacitated for work and breeding due to age, injury, deformity, or any incurable disease.</td>
</tr>
</tbody>
</table>
### State Laws and Details

<table>
<thead>
<tr>
<th>State</th>
<th>Law</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>Delhi Agricultural Cattle Preservation Act, 1994</td>
<td>Cow slaughter is banned. Total prohibition on the slaughter of cows, calves, bulls and bullocks defined as “agriculture cattle”.</td>
</tr>
<tr>
<td>Goa</td>
<td>The Goa, Daman &amp; Diu Prevention of Cow Slaughter Act, 1978 &amp; Goa Animal Preservation Act, 1995, amended in 2010.</td>
<td>No person shall slaughter or cause to be slaughtered any scheduled animal in any place in Goa, unless he has obtained in respect of such animal a certificate in writing from the competent authority that the animal is fit for slaughter. No certificate shall be provided if in the opinion of the competent authority 1) the scheduled animal, if male is likely to become economical for the purpose of draught or any kind of agricultural operation, 2) for breeding, if male, 3) if female, milking, bearing offspring.</td>
</tr>
</tbody>
</table>

*Note: Interpretations and imprecision in source are reproduced without further clarification. Source: FICCI (2013), referring to NABCONS report, Report of the National Commission on Cattle, Chapter III, Annex III (1), and Annex II (8).*
Annex 3.B. Policy review for other commodities than food grains

Pulses and oilseeds

A large share of India’s crop production consists of protein rich crops, such as pulses (dry beans, dry peas, and lentils). Pulses are relatively rich in protein and are therefore a major component of the diet of many consumers who do not consume protein in the form of meat or eggs. India’s production of chickpeas has increased considerably since the mid-2000s, accounting for between 43% and 48% of India’s yearly pulse production in 2013-14, 2014-15 and 2015-16. Oilseeds production is dominated by soybeans, accounting in some years for close to half of the quantity produced, with groundnuts and rapeseed making up most of the rest.

India is a major importer of pulses, such that about 75% of the availability of pulses for consumption is met by imports. India’s exports of pulses, dominated by chickpeas, are much smaller than imports. India’s chickpea production consists of Bengal gram and white gram in roughly an 80:20 proportion. India’s chickpeas are exported in the reverse proportion of 20:80. India exports only small quantities of oilseeds but is a significant exporter of oilseeds meal, particularly soybean meal. Some oilseed meal is used in livestock feed rations in India. The situation is different with regard to edible oils, of which about 55% of India’s consumption was supplied by imports in 2016-17. However, more than 60% of India’s imports of edible oil usually consist of palm oil, leaving minor shares for soybean oil and sunflower seed oil.

The policy environment for, especially, pulses has been very dynamic in recent years. The prices of pulses and oilseeds for some farmers occasionally fall below the MSP (Government of India, 2016g, 2017c). Over a period of several years from 2000 onwards, oilseeds (mainly mustard seed) and pulses (mainly chickpeas) in small or very small quantities, such as a few hundred tonnes, were procured under the PSS implemented by NAFED. Larger quantities were procured in 2004 and 2005. In 2007 to 2012, the wholesale prices of several oilseeds and pulses were generally higher than the MSP in key producing states, although occasional time-limited dips below the MSP occurred for pulses. In the 2010-11 to 2015-16 seasons the actual or recommended MSPs for most oilseeds and pulses were raised in most years, as were the MSPs for rice and wheat. When the production of oilseeds and pulses reached new records in 2013-14, the market price of many of these crops stayed below the MSP for several months and also remained low into the following year in many states. Although groundnuts were procured in 2013-14 and chickpeas in 2014-15, no or almost no procurement took place of other oilseeds and pulses in some years in the 2010-11 to 2016-17 period.

Policy attention has been directed towards ways to enhance the incentives for pulse production not only through the MSPs but also through different practices in procuring, stocking, and disposing of pulses, in the treatment of pulses in the ECA and APMC Act, and in the use of trade policy measures, such as export bans, to influence domestic prices (Government of India, 2016g). However, recent years have seen larger price swings and also higher prices of pulses in India than before, and pulses experienced exceptionally
TRENDS AND EVALUATION OF AGRICULTURAL POLICY IN INDIA

In 2015, the government took the following steps to check the increase in the prices of pulses seen in 2015:

- Decided to import pulses through the Metals and Minerals Trading Corporation of India (MMTC) with assistance from the Price Stabilisation Fund (PSF).
- Approved the creation of buffer stock of pulses and procurement of about 150,000 tonnes of pulses at market prices above MSP through FCI, NAFED, and SFAC, the latter through Farmer Producer Organisations (FPOs). The target quantity of 50,000 tonnes of *kharif* pulses (urad and tur) was met in 2015, with 100,000 tonnes of *rabi* pulses (chickpeas and lentils) to be procured in 2016.
- Increased the MSP for *kharif* pulses in 2015-16 and provided an additional bonus of INR 2,000 per tonne.
- Designated FCI as the nodal agency for procurement of pulses and oilseeds.
- SFAC and NAFED the efforts of FCI in procuring pulses and oilseeds.
- Extended the zero import duty on pulses through September 2016.
- Imposed stock holding limits and co-ordinated de-hoarding operations to increase the availability of pulses in the market.

The recommended MSPs for pulses and oilseeds continued to be raised for 2016-17, on grounds that it would help moving towards self-sufficiency in pulses and, it was argued, the domestic price of some oilseeds was below the MSP. For 2017-18 the CACP justified its recommendations for chickpeas and lentils by a need to provide incentives to farmers to grow pulses. In 2015-16, 2016-17, and 2017-18 a bonus was added to the MSP, at levels corresponding to from 2% to 9% of the MSP, depending on the kind of pulse and the season. The CCEA explained that this was expected to give a strong price signal to farmers to increase acreage and invest to increase productivity of pulses.

It has been pointed out that procurement at MSP has favoured rice and wheat in spite of attempts to realign the price incentives in favour of pulses and oilseeds. While the procurement infrastructure for pulses and oilseeds is said to be weak, other factors influencing the extent of procurement at MSP include the limited period when procurement is authorised and the view that procurement was not significant enough to assure farmers of remunerative prices, it has been suggested that decentralised procurement be extended for pulses to state agencies, private agencies and NAFED.

Other policies affecting the pulses and oilseeds sectors include the efforts in the National Food Security Mission from 2007 and the provision of improved seeds. The Accelerated Pulse Production Program was launched in 2010-11, emphasising plant nutrients and plant protection. Many states impose a variety of limits on the stocks of pulses, edible oilseeds and edible oils that may be held by various actors in the marketing chain, such as producers and wholesalers. These limits can take the form of a specified maximum quantity or a maximum proportion of the quantity the actor used in earlier years.

Sugarcane and sugar

Sugarcane is a major crop in India, accounting for almost 5% of the value of output in agriculture. About 64% of the sugarcane is used to produce sugar, with the rest being used to produce primarily gur and khandsari.
Dhiwedi (2010) suggests that a much smaller share of sugarcane is used to produce sugar, with a larger share used for gur. Gur, or jaggery, is a crude non-centrifugal sugar in lump form, and khandsari is a low recovery centrifugal sugar. Both are produced using the open pan evaporation method (Reddy, 2011). Gur is mostly consumed in rural households and for feed use, and most khandsari sugar is consumed by local sweet shops (U.S. Department of Agriculture, 2016a). More than 500 mills produce sugar, while more artisan methods are used to produce gur and khandsari.

Sugarcane and sugar are essential commodities under the ECA. They are subject to the Sugarcane (Control) Order, 1966, the Sugar (Control) Order, 1966 and numerous other central and state government regulations. Before 2009 the central government fixed a Statutory Minimum Price (SMP) for sugarcane, and farmers were entitled to half of the profit of sugar mills. However, the profit sharing remained virtually unimplemented and the SMP was replaced by a Fair and Remunerative Price (FRP), established by the CCEA on the recommendation of the CACP. The FRP in 2009-10 was 60% higher than the SMP in 2008-09, which had previously been raised only slowly. The FRP was subsequently raised from INR 1 298.4 per tonne in 2009-10 to INR 2 550 per tonne in 2017-18 (recommended).

Some states announce a State Advised Price (SAP) for sugarcane, usually much higher than the FRP. This is the price sugar mills are required to pay sugarcane producers. For example, in 2012-13, when the FRP price was INR 1 700 per tonne, the SAP in Andhra Pradesh was INR 2 500 per tonne. The SAPs in other states were lower or higher.

Sugar mills have often fallen short in how much of the full price, such as the SAP, they pay to sugarcane producers. This shortfall, called cane price arrears, was 3% of the price payable in 2009-10 but increased to 30% in 2014-15 (observed on 31 May; the percentage is higher on 31 December). In later years the arrears have declined. While the Sugar (Control) Order, 1966 requires payments of interest on arrears, it appears interest has not been paid (Government of India, 2016p). Almost all of the arrears due to farmers were subsequently cleared through several central government policy decisions assisting sugar mills (Government of India, 2017a). Loans were extended through banks on behalf of sugar mills, credited directly to farmers’ accounts, along with interest subsidies. Contingent on sugar mills exporting and supplying ethanol, they received a subsidy (INR 45 per tonne of sugarcane) which was payable to farmers against the arrears due to them. Sugar mills were also relieved of excise duty on supply of ethanol for a limited period.

For many years a central government policy required sugar mills to supply 10% of their production to meet the need of the PDS. The release of sugar on the open market was regulated. After a partial deregulation of the sugar sector in 2013, sugar mills are free to sell their total production commercially. State governments are required to purchase sugar for their TPDS needs in the open market. Since the states sell TPDS sugar at a policy-determined Retail Issue Price (INR 13.5 per kg) that is lower than their purchase price, the central government provides a subsidy to the states of INR 18.5 per kg. From 2017 only AAY families (households) are entitled to TPDS sugar (Government of India, 2017aa).

The sugarcane and sugar sectors remain subject to many kinds of regulations (Government of India, 2014g, 2016p). For instance, every designated mill is obligated to purchase sugarcane from farmers within a specified cane reservation area and, conversely, farmers are bound to sell to that mill. The central government has prescribed a minimum radial distance of 15 km between any two sugar mills. A limit on the stock of
sugar a sugar mill can hold applied in certain months in 2016. The central government’s Sugar Development Fund supports the development of sugarcane and the industry using sugarcane, including ethanol production. It receives revenue from a levy and a cess imposed on sugar. The centrally sponsored scheme, National Food Security Mission-Commercial crops (sugarcane), operates in many states from 2014-15, aiming to enhance production and productivity in sugarcane based cropping systems.

Exports of sugar have at various times been supported through export subsidies and restricted or prohibited (Saini and Gulati, 2017). An export duty of 20% applied in 2016 (Government of India, 2017a). Import duties on sugar have varied greatly (Annex Table 3.B.1). Duty free imports of 0.5 million tonnes of raw sugar were allowed in 2016-17 (Government of India, 2017a).

### Annex Table 3.B.1. Import duty on sugar

<table>
<thead>
<tr>
<th>Starting date</th>
<th>Duty (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2000</td>
<td>60+</td>
</tr>
<tr>
<td>June 2006</td>
<td>0</td>
</tr>
<tr>
<td>October 2006</td>
<td>60+</td>
</tr>
<tr>
<td>April 2009</td>
<td>0</td>
</tr>
<tr>
<td>July 2012</td>
<td>10</td>
</tr>
<tr>
<td>July 2013</td>
<td>15</td>
</tr>
<tr>
<td>July 2014</td>
<td>25</td>
</tr>
<tr>
<td>April 2015</td>
<td>40</td>
</tr>
</tbody>
</table>

*Source: Saini and Gulati (2017) (from Indian Sugar Mills Association).*

**Cotton and jute**

Between 2000-01 and 2013-14, India’s cotton production increased by 184% from 2.4 to 6.0 million tonnes, a result of area increasing by 39% and yield by 104% (Growth of Indian Cotton, Government of India, 2017a). Although yield stayed about the same in 2013-14 and 2016-17, India’s cotton area declined, such that 2016-17 production was projected to fall below its 2013-14 peak. India was the world’s largest producer and second largest exporter of cotton in 2014-16, accounting for about 26% of world production and 13% of world exports (OECD/FAO, 2017). While India imports significant quantities of cotton, its share in world imports is much smaller than that of exports.

The doubling in cotton yield is in large measure related to the adoption of Bt (*Bacillus thuringiensis*) cotton. In early 2002 India’s Genetic Engineering Appraisal Committee (GEAC), under the Ministry of Environment, Forest and Climate Change, approved the use of three Bt hybrids for commercial cultivation, followed by the approval of additional Bt hybrids (Government of India, no date; Shah, 2012). Adoption of insect-resistant Bt cotton was rapid, such that already by 2008 Bt cotton was grown on about 80% of the total cotton area (ISAAA, 2016). The Bt share reached 96% of total cotton area in 2016. The total cotton area and Bt cotton area had peaked in 2014 and 2015, respectively, but the adoption rates in those years were lower than in 2016.

Raw cotton (seed cotton, kapas) is an essential commodity under the ECA. It is subject to the APMC Acts of various states, requiring producers to sell through designated market yards. Cotton seed, an oilseed that is a joint product with cotton lint, has at various times been an essential commodity under the ECA (Government of India, 2009). The Cotton
Corporation of India (CCI), operating under the Ministry of Textiles, buys seed cotton directly from cotton farmers through auctions conducted by APMCs in APMC yards (Operations, Government of India, 2017s). Operating in all eleven cotton growing states in 341 (in 2017) procurement centres and satellite centres, the CCI purchases seed cotton through open auction in competition with other traders under the supervision of APMC officials. The CCI purchases seed cotton either at MSP or in commercial operations (Procurement, Government of India, 2017s). In 2015-16, the CCI undertook a “massive MSP operation in all the cotton growing states and there was no commercial operation” (Government of India, 2016a). It is reported that the CCI was not involved in any MSP procurement in early 2016-17 but it made some commercial purchases (U.S. Department of Agriculture, 2017). The CCI sells the processed or baled cotton at market prices. Any losses incurred in the operation are borne by the government.

The CCEA determines the MSP for two basic varieties of seed cotton. The Office of the Textile Commissioner then fixes the MSP for other varieties of seed cotton. When the price of seed cotton touches the MSP, the CCI immediately purchases seed cotton at the MSP without any quantitative limits (Procurement, Government of India, 2017s). When the quality grade of the raw cotton offered falls below the prescribed grade for MSP, the CCI purchases it at reduced prices. While the CCI purchases most of the procured raw cotton, procurement of smaller quantities at MSP is also carried out by NAFED and the Maharashtra State Cooperative Cotton Growers’ Marketing Federation, acting as a sub-agent of the CCI (Government of India, 2017e). State government officials, including APMC officials, have been requested to ensure that only bona fide cotton farmers sell cotton to the designated agencies, without involving agents, middlemen or traders (Government of India, 2017e).

A Price Deficiency Payment System (PDPS) to ensure the provision of MSP to cotton farmers was under consideration in 2016, pending pilot testing and study to ensure its operational feasibility (Government of India, 2016n). It would require tracking of market prices, prices realised by farmers and the quality of cotton. A mechanism to transfer the deficit payment to farmers would be needed.

The CCI has carried out a variety of activities to develop cotton production (Developmental Activities, Government of India, 2017s). While most such activities have been shifted into the Technology Mission on Cotton, the CCI supplements the efforts of other central government schemes and of state agricultural departments. The CCI activities have included development of contract farming and supply of inputs, such as seeds and fertiliser. Against a background of several states having fixed different levels of sales price of Bt cotton seed, the central government in December 2015 issued a control order under the ECA, authorising the fixing of a uniform India-wide maximum sales price of Bt cotton seed to farmers (Government of India, 2015d). A decision in March 2016 then fixed the price of cotton seed slightly below the price earlier observed (Government of India, 2016e; Gulati and Sarkar, 2016). The decision also regulates how much a seed producing company would need to pay to the company holding the patent on the technology.

From 2001 India’s quantity restrictions on exports of cotton were removed, and exports of raw cotton were free, needing only registration with the Textile Commissioner. A large increase in MSP in 2008-09 raised domestic prices, which made India’s cotton less competitive in export markets. An export duty was imposed in April 2010, and cotton exports were restricted in May 2010. Exports were allowed at zero export duty in August 2010, with the restriction that export contracts be registered with DGFT. A ban on
cotton exports applied for a week in 2012. Exports of cotton have since been free and the registration requirement has been lifted. India’s applied import duties on cotton (H-4 variety) were 5.5% in 2000-01, then rising to a high of 14.7% in 2007-08 and 2008-09. From 2012-13 they were set at zero (Saini and Gulati, 2017).

India produces more than half of the world’s jute. Jute is produced in the eastern and north-eastern regions of India, where it can be an important rainfed crop. While yields per hectare have increased from 2000-01 to 2016-17, hectarage and production have followed a declining trend (Government of India, 2016m). A major policy interest in jute comes from the requirement that 90% of food grains, such as wheat and rice, and 20% of sugar be packed in jute bags under the Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987, as amended. In recent years sacking has accounted for more than 70% of the total production of jute goods. Most of the sacking required for food grains packing is purchased by the government directly from jute mills.

The Jute Corporation of India (JCI) undertakes procurement of jute from producers at MSP set by the CCEA. Since market prices have generally been above the MSP, procurement has ranged only from zero to 3.7% of market arrivals of total raw jute in the 2010-11 to 2015-16 period (Government of India, 2016m). Somewhat larger shares of arrivals were procured in the early 2000s. Several jute development programmes aim at increasing jute production and enhancing productivity, including the Jute Technology Mission and a part of the National Food Security Mission. India is a net importer of raw jute and net exporter of jute products. Exports of both commodities are free and no export duty applies. The import duties on raw jute and on jute products have been reduced over time to the 5% and 10% applying in 2017.

**Fruit and vegetables**

Fruit and vegetables account for as much as 16% of the value of output in India’s agriculture (average 2011-12 to 2013-14). The number of different fruits and vegetables produced is large: the Government of India tracks value of output of 53 individual fruits and vegetables, not counting floriculture (Government of India, 2016s). The individual vegetables with the largest values of production are potatoes, onion, tomatoes and eggplant (brinjal), each accounting for roughly 1% of value of production in agriculture on average in 2011-12 to 2013-14. The individual fruits with the largest values are mango (2%) and bananas (1%). India ranks as the second largest producer in the world in terms of quantity of potatoes, onion, tomatoes and eggplant, and the largest producer of mango and bananas. The quantity of production in horticulture has over many years increased more rapidly than the production of food grain, a result of increases in both area and yield (Government of India, 2016r).

The government has encouraged the production of fruit and vegetables, especially from 2005-06 when the National Horticulture Mission (NHM) was launched. This was a centrally sponsored scheme to promote growth of the horticulture sector through regionally differentiated strategies. These involved diversification from traditional crops, extension of appropriate technology, and improved post-harvest management and capacity building. In 2010 the mission was reformulated such that, in addition to research, extension and farmer training, financial assistance and subsidies were provided for numerous activities: nurseries for production of seeds and planting materials, infrastructure for production of vegetable seeds, rejuvenating out-of-date plantations, creating water sources and protected cultivation (greenhouses etc.), developing precision farming, setting up post-harvest facilities, and many more.
In 2014-15 the NHM was subsumed as part of another centrally sponsored scheme, the Mission for Integrated Development of Horticulture (MIDH). This scheme includes also the National Horticulture Board (NHB) and several minor missions. As well as carrying out many activities similar to those of the NHM, the MIDH provides assistance for cold storage and market infrastructure (Government of India, 2014e). The NHB develops and promotes horticulture, subsidises investment in cold storage facilities, and operates a market information service.

In contrast to other crops, government-set minimum support prices do not apply for horticultural crops. The prices producers receive are conditioned by the structure and conduct of the marketing chain from producers to consumers, whether in India or abroad. Numerous studies have identified shortcomings, including poor transport and storage infrastructure and fragmentation of the supply chain attributable to policies that inhibit integration and competition (e.g. Mattoo et al., 2007). Low market efficiency in horticulture has been attributed to factors such as the large number of intermediaries, malpractices in auctions, inadequate storage and marketing facilities, and high market fees (NCAP, 2010). Such factors could be behind the phenomenon that the producer prices of the fruits and vegetables studied here mostly fall below the border price adjusted downwards by a standard margin.

While India imports only minuscule quantities of most fruit and vegetables, tariff protection against imports applies at levels somewhat higher than 30% for potato, mango, and banana (Annex Table 3.A.7; also section 3.4). Tariffs on onion imports, while having been much lower at around 5% and even set to nil since 2012-13, have varied over time. In contrast to other vegetables, exports of onion are affected by a variety of policy measures, applied differently in different years (Table 3.10). They include minimum export prices, export restrictions, export bans, state trading requirements, and other measures.

Commodity boards are active with regard to plantation crops (tea, coffee, rubber, spices, cardamom, cashew nut, and coconut), coir, silk, and tobacco. These boards have a broad range of functions relating to the production, processing and marketing of the respective commodities.

**Milk and dairy**

India is the world’s largest producer and consumer of milk and has by far the world’s largest milking herd. Milk accounts for as much as 20% of the value of output in India’s agriculture. India’s herd of milk producing bovine animals consists of an exotic/crossbred category, an indigenous category, and buffaloes (Annex Table 3.B.2). The herd of exotic/crossbred animals is expanding faster than the other categories. The exotic/crossbred category, comprising many crosses, has in general higher milk yield per cow per day than buffalo and, in particular, indigenous breeds. Buffalo milk has considerably higher contents of fat and somewhat higher contents of protein than milk from the other categories of animals. Buffalo cows account for more than half India’s bovine milk production. A few per cent of total milk production derives from goats, sheep and camels.
Annex Table 3.B.2. Share of bovine herd and milk production, by breed category, 2014-15

<table>
<thead>
<tr>
<th></th>
<th>Exotic/crossbred</th>
<th>Indigenous</th>
<th>Buffalo</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of bovine milk animals</td>
<td>16.5</td>
<td>37.1</td>
<td>46.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Share of bovine milk production</td>
<td>26.2</td>
<td>20.9</td>
<td>52.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note:* Some observers with industry experience indicate that the share of buffalo in bovine milk production is a couple of percentage points larger than shown here. *Source:* Calculated from Table 89, Government of India (2015b).

An enabling institutional and policy environment stimulated rapid growth in milk production from about 1970. This initiative emphasised farmers’ access to markets, and animal productivity. A three-tier co-operative structure developed, where co-operative societies at the village-level form a milk union at the district level, which form a federation of milk unions at the state level. Almost half of India’s milk production is consumed by the household in which it is produced and is not marketed (Landes et al., 2017). About 33% of milk production is channelled to consumers through the small and informal sector, such as local sweet shops and other retail (Government of India, 2017w). Most of the marketed milk is thus handled by small-scale vendors. Cooperatives and private firms each handle, respectively, about 8% and 7% of all milk produced (Landes et al., 2017). Milk prices are determined by the co-operative and private dairy sectors on the basis of market conditions and are not regulated by the central government (Singh, 2014).

Improved animal productivity is now pursued under the National Dairy Plan (NDP), in effect until 2019. It emphasises genetic improvement through high genetic merit cattle, high-quality semen, and artificial insemination delivery and animal nutrition through feed development and balanced rations. A very large share of dairy animal feed in India consists of crop residues rather than the compound feeds used in many other countries (Landes et al., 2017). The NDP also seeks to strengthen village milk collection through milk weighing, testing, and cooling, and to develop milk-producer companies in order to improve the business orientation of the milk purchasing network.

The National Dairy Development Board (NDDB) is primarily responsible for implementing the NDP, along with numerous initiatives under the Department of Animal Husbandry, Dairying, and Fisheries (DAHDF) of the MAFW. These include the Livestock Health and Disease Control, which provides financial assistance to state governments to support animal disease control through immunisation and improve veterinary capacity and diagnostic laboratories for many animal diseases. The NDDB was created in 1965 to promote, finance and support producer-owned and controlled organisations. Operating under the DAHDF, it seeks to strengthen farmer co-operatives and support national policies that are favourable to the growth of such institutions. Cooperative principles and strategies are fundamental to NDDB’s efforts.

After many years as a net importer of milk powder and butter oil, India is since the early 2000s a growing net exporter of mainly milk powder and casein products as well as some butterfat products and infant formula. The main imports have in recent years shifted from milk powders to lactose and whey products.

Dairy import policy has been subject to change based on domestic market conditions. Most dairy products face a basic tariff of either 30% or 60%, and also require import permits and sanitary certificates. Imports of skimmed milk powder (SMP) and butter oil
imports are regulated by tariff rate quotas (TRQs). In early 2017, the TRQ for SMP was 10,000 tonnes at a tariff of 15%, with an above-quota tariff of 60%. The TRQ for butter oil was 15,000 tonnes at a tariff of zero% and an above-quota tariff of 40% (Annex Table 3.B.3). For SMP, the import quantity allowed under the TRQ has been raised, and the in-quota tariff reduced to zero when domestic supplies are tight. Designated public and private Indian organisations can apply to the Ministry of Commerce and Industry for TRQ allocations.

### Annex Table 3.B.3. Tariff rate quotas (TRQ) on skimmed milk powder and butter oil, early 2017

<table>
<thead>
<tr>
<th>Product</th>
<th>TRQ</th>
<th>In-quota tariff</th>
<th>Out-of-quota tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skimmed milk powder</td>
<td>10,000</td>
<td>15%</td>
<td>60%</td>
</tr>
<tr>
<td>Butter oil</td>
<td>15,000</td>
<td>0%</td>
<td>40%</td>
</tr>
</tbody>
</table>

*Source: Saini and Gulati (2017).*

Import policies for animals and genetics to upgrade India’s bovine herd give preference to import of semen and embryos rather than live animals. The MAFW requires strict health, progeny testing, and animal traceability standards for imports of bovine semen and embryos. Some state governments impose additional requirements. Imports of dairy products from some countries can be affected by India’s rules on the feed used to produce the milk, such as excluding ingredients of certain animal origin. A ban on imports of milk and dairy products from China was imposed in 2008 and remains in place. Exports of dairy products are regulated under the Export (Quality Control and Inspection) Act of 1963, its Export (Quality Control and Inspection) Rules (1964), and the Export of Milk Products (Quality Control, Inspection, and Monitoring) Rules set in 2000. Exporters require a certificate from the Export Inspection Council of India approving the manufacturing unit, and a health certificate by an Export Inspection Agency for the products processed in the approved plant, in addition to which exported dairy products must meet various central and state government statutory requirements. While there are no tariffs, taxes, levies, or quantitative restrictions on exports, *ad hoc* changes in export policy are made. A ban on exports of SMP and certain other dairy products, which applied from February 2011 in an effort to curb increases in the price of milk, was partially lifted in June 2012 and completely lifted in November 2012. In June 2012, the government included SMP under the VKGUY export support scheme concerning transport costs. However, when the possibility of lower milk production due to a feed shortage emerged because of deficient monsoons, this support was withdrawn in July 2014 due (Saini and Gulati, 2017).

### Bovine meat

The bovine meat sector in India separates into two distinct components, based on genus: cattle (*Bos* spp.) and water buffalo (*Bubalus* spp.). In 2015 buffalo meat accounted for 90% of India’s total production of buffalo meat and cattle meat (Landes et al., 2016). Slightly more than half of India’s production of buffalo meat was exported, making India the world’s largest exporter of bovine meat. Particularly restrictive rules apply to the production and exports of cattle meat (beef). India’s Constitution assigns specific responsibilities to the states, as opposed to the
centre. The Constitution articulates as a “Directive Principle” that the states shall take steps to prohibit the slaughter of cows, calves, and other milk and draught cattle. Among the responsibilities assigned to the states are the “Preservation, protection and improvement of stock and prevention of animal diseases; veterinary training and practice.” It has been interpreted as giving the states the legislative power to prevent slaughter. The Constitution also gives the centre and the states the concurrent responsibility to prevent cruelty to animals.¹

Many Indian states and union territories have policies addressing cattle slaughter and the interstate movement and trade of live cattle and animal products. However, the legislation is often dissimilar across states, including the legal definitions for calves, bulls, and bullocks, which makes it difficult to generalise (Annex Table 3.A.9). One source indicates that cow slaughter is banned in 17 states, while cow slaughter is allowed in three other states with a certificate of fitness for slaughter (U.S. Department of Agriculture, 2015). Slaughter of bulls and bullocks is allowed in a larger number of states with such a certificate. The criteria for a certificate vary across states but can require, e.g. that the animal be over 14 years of age, unfit for work or breeding, or permanently incapacitated for work and breeding due to age, injury, deformity, or any incurable disease.

Buffalo meat produced in India is primarily from animals raised by dairy farmers, not on dedicated farms for meat production. Feed materials consist of dry roughage supplemented with seasonal green fodder and concentrates. Farmers rear buffalo until they reach an unproductive age and thereafter sell them at the livestock market or, more commonly, to traders who also buy at livestock markets. Traders use the services of butchers at municipal slaughterhouses. For domestic sales, the buffalo meat is collected by wholesale meat dealers or directly by retailers. For export sales, traders sell animals to exporters for slaughter at the exporter’s unit from where the meat is shipped. The rules for meat exports are summarised in the trade policy section below.

In connection with the observations that farmers do not see raising male buffalo calves as remunerative and that the mortality of male buffalo calves is high, the central government funds the programme for Salvaging of Male Buffalo Calves (Government of India, 2016l). Implemented by state governments or by APEDA (for industrial scale rearing units), it seeks to increase the availability of meat for exports and the domestic market and enlarge the raw material base for the leather industry. The beneficiary is required to take a bank loan and the subsidy is thus channelled through NABARD.

About 4 000 registered slaughterhouses, along with more than 25 000 unregistered slaughtering premises, serve the domestic market (Government of India, 2017α). The export market is served by 27 integrated meat processing plants (abattoir and processing), along with 67 plants for processing only.² Plants are required to meet the standards of APEDA, including slaughter according to halal standards. Since 2008 the central government’s Ministry of Food Processing Industries has operated a scheme to set up and modernise abattoirs, first as a central scheme and from 2014 as a centrally sponsored scheme in co-operation with state governments (Government of India, 2013c, 2016j). The National Livestock Mission of the MAFW operates a scheme to establish, modernise and expand rural slaughterhouses.

The prevention of cruelty to animals is a central government subject, administered by the Ministry of Environment, Forest and Climate Change. In May 2017 it issued new rules restricting the sale and purchase of animals through livestock markets for slaughter (Government of India, 2017x). The owner of the animal (or his agent) must state in
writing that the animal is not brought to the market for sale for slaughter. The purchaser of the animal, who must be a farmer (“agriculturist”), is not allowed to sell the animal for the purpose of slaughter. The restrictions apply to both cattle and buffaloes and could have significant implications for the structure of India’s meat and milk industries.

Sheep meat, poultry meat and eggs

For this report, sheep meat and goat meat are treated as one under the heading ‘sheep meat’. Sheep and goats together accounted for as much as 20% of India’s meat production in 2015-16 (Government of India, 2015b). In contrast to the corresponding sectors in many other countries, goat meat production was almost twice as large as sheep meat production. The production of meat from sheep and goats is combined with the production of milk and wool from these animals. Support for the production of sheep and goats under the National Livestock Mission focuses on the improvement of breeds and strengthening of the animal health status. The applied MFN tariff on imports of sheep meat and goat meat is 30%, while the bound rate on most such imports is 100%. The Merchandise Export from India Scheme (MEIS) and duty drawbacks through APEDA do not apply to exports of sheep meat and goat meat. Between 1% and 2% of the total production of sheep meat and goat meat is exported.

Poultry accounts for a major and growing part of all meat production in India. In 2013-14 poultry meat made up 36% of all meat production and in 2015-16 that share was 46% (Government of India, 2015b). This large share resulted from several decades of rapid production growth. The industry structure in poultry meat differs in several ways from that of other agricultural commodities in India. More than 80% of India’s chicken output is produced by organised commercial farms, among which vertically integrated operations produce 60-70% of India’s total chicken production (U.S. Department of Agriculture, 2016b). The vertical integration encompasses hatcheries, feed mills, and slaughter facilities and can also include the provision of credit, veterinary medicines and extension services. An integrator contracts the raising of chicks to slaughter weight with multiple, sometimes hundreds, of farmers ranging in size from a couple of hundred to 50 000 birds. Maize and soybean meal make up about three-quarters and one-quarter, respectively, of all poultry feed, and it is estimated that more than half of India’s maize production is used for poultry feed (U.S. Department of Agriculture, 2016b). More than 90% of the sales of poultry meat is in the form of live birds rather than freshly slaughtered meat. In the egg sector, production more than doubled between 2000-01 and 2015-16 (Government of India, 2017v).

A part of the central government’s National Livestock Mission, operating since 2014-15, supports the poultry sector through the development and modernisation of breeding infrastructure and central poultry development organisations offering training for productivity improvement, with some focus on backyard production. The Ministry of Food Processing Industries’ scheme for Modernization of Abattoirs assists the establishment of modern abattoirs and the modernisation of existing ones through financial grants, and the ministry also assists the creation of integrated cold chain and cold storage facilities (U.S. Department of Agriculture, 2016b). Some states support the establishment and operation of egg and broiler production. For example, Uttar Pradesh supports such enterprises by means of interest subsidies and exemption from several duties and taxes, while Andhra Pradesh and Odisha support both poultry producers and processors through similar means as well as through capital subsidies or loan guarantees. The FSSAI regulates the poultry slaughter and processing sector through, e.g., the
enforcement of sanitary standards. India permits 100% foreign direct investment in the food processing sector.
Imports of poultry meat to India face applied MFN tariffs ranging between 30% (whole chicken, fresh or chilled) and 100% (fresh and frozen cuts) (WTO, 2015b). Sanitary import permits, issued by the Department of Animal Husbandry, Dairy and Fisheries, must be obtained prior to shipment from the country of origin. The bound rate on most poultry meat imports is 100%. India’s exports of poultry meat are small, having been hindered by weak standards in slaughtering and processing, inadequate cold chains, and periodic outbreaks of avian influenza. APEDA is charged with promoting and developing exports of poultry and poultry products. APEDA supports the exports of certain egg products through the MEIS and duty drawbacks.

Notes

1 The Directive Principle about slaughter is Article 48 of the Constitution: “The State shall endeavour to organise agriculture and animal husbandry on modern and scientific lines and shall, in particular, take steps for preserving and improving the breeds, and prohibiting the slaughter, of cows and calves and other milch and draught cattle.” The states’ responsibility for preserving stock is item 15 of the constitution’s “List II – State List”. The item about preventing cruelty is item 17 of “List III–Concurrent List”.

2 It is also reported that there are 49 registered export-oriented buffalo slaughter and processing facilities, along with 39 facilities that handle only processing and 11 that handle only slaughter (Landes et al., 2016).