Executive Summary

- India is forecast to experience the largest increase in urban population of any country in the world. India’s cities could have another 404 million mouths to feed by the year 2050.

- Cities will generate 70 percent of India’s new jobs and gross domestic product (GDP). India’s $360 billion food market will grow significantly as urban employment and rising incomes support increased consumption and access to quality food options.

- Against this backdrop of growth and opportunity, much of urban India is considered highly or moderately food insecure, reflecting differences in nutritional status among urban residents and communities.

- The majority of urban residents do not achieve the daily intake of nutrition recommended by India’s National Institute of Nutrition. The poorest urban residents consume on average 55 percent less than the wealthiest urban residents.

- For the most vulnerable urban residents, a variety of public health interventions and social safety nets are required. But growing demand in urban food markets also necessitates significant transformation of India’s food supply chain.

- Today, India’s food system is largely unorganized and highly fragmented, inhibiting large-scale procurement, distribution, and retail sales.

- Substantial public investments are needed to expand and increase the quality of storage, handling, and transportation infrastructure.

- Value-added processing offers opportunities to mainstream micronutrients into the diet by fortifying widely consumed staples with vitamins, minerals, and iron to help address deficiencies.

- The government of India must continue improving the regulatory environment as a prerequisite to private-sector investments in vertically integrated sourcing, modern logistics services, large-scale food processing, and retail efficiencies—four critical routes to improving urban nutrition and food security in India.
Introduction

India is an agriculture powerhouse. It is also home to roughly one-quarter of the world's undernourished people. India's vibrant cities are driving the nation's economic growth. But conditions in India’s sprawling urban slums may worsen under the strain to provide basic services to its increasing number of residents. Malnutrition in urban areas reflects the widening income gap between the urban wealthy and urban poor.

Achieving urban food and nutrition security against these headwinds is one of India's greatest challenges. The solutions are as multifaceted and complex as the challenge. Public health interventions are required to provide effective food safety nets, improve nutrition literacy, and induce changes in behavior such as to eliminate the widespread practice of open defecation. Alongside these traditional approaches, nothing short of supply chain transformation in India will deliver the prospect of meeting increased demand for safe, affordable, and nutritious food in urban areas.\(^2\)

The private sector has a central role to play in this transformation and will be instrumental in applying technologies and best practices to build out modern infrastructure and processes for delivering perishable, nutritious foods from the rural farm to the urban table. But the onus is on policymakers to create an enabling environment for these critical private-sector investments to succeed. Many initiatives have already begun. Building on the successes already achieved can provide momentum for further—and faster—change.

This paper focuses on the journey of food in India from the farm to the urban markets where India's city residents buy their food, highlighting the commercial challenges, the public and private investments required, and the policy frameworks needed to improve the delivery of higher quality food options to India's cities and all of its residents. It extends the discussion of feeding the world's growing cities presented in the Chicago Council on Global Affairs' 2016 report *Growing Food for Growing Cities* by looking at the specific case of India, which by 2050 is projected to have three of world's five largest cities, alone encompassing 112 million people.\(^4\)

Evolving consumption and nutrition in urbanizing India

The definition of urban food markets is expanding.

India added nearly 230 million people to its urban population over the last 40 years. In the next 40 years, another 404 million people will migrate to India's cities, doubling the urban population. Of India's 1.3 billion people today, about 32 percent live in urban areas. By 2050, half of India will live in cities.\(^5\)

But what is “urban” in India? India is home to the global megacities of Delhi (population 25 million), Mumbai (population 21 million), and Kolkata (population 15 million). Four more are not far behind. Bangalore, Chennai, Hyderabad, and Ahmadabad are all projected to join megacity status as soon as 2030. Beyond the megacities, India's 2011 Census counted an additional 7,935 cities and towns it also defines as urban based on population size, density, and economic activity. These include over 400 cities with a population of 100,000 or more.\(^6\)

Fifty-five percent of India's urban population lives within 12 “urban clusters” that encompass two or more big cities and the closely connected towns that surround them.\(^7\) These are important growth markets for food producers and retailers, as they include increasingly affluent residents in semi-urban and “transition” districts outside India's large metropolitan cities.
The state of food and nutrition security for urban residents is uneven across India.

India is home to some of the highest levels of child undernutrition in the world. As India rapidly urbanizes, understanding the challenges to providing affordable, accessible, and nutritious food and the potential drivers of positive change for urban residents is crucial.

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Access to nutritious food is critical for children’s growth and development. Around half of children in the urban poor population are stunted or underweight. Children in urban slums are at high risk for protein energy malnutrition, vitamin A deficiency, and iron deficiency anemia.

In 2011 the M.S. Swaminathan Research Foundation and World Food Programme published the definitive report on *The State of Food Insecurity in Urban India*. Using standardized, weighted indicators across three dimensions of food security—availability, access, and absorption—a picture emerges of high to moderate food insecurity across much of urban India. Progress to address urban food insecurity is uneven across Indian states. Poorer states are reducing malnutrition at faster rates, but they account for a small part of India’s urban population.

A research study published in the journal *Demography India* concludes that undernutrition among the urban poor in most states is worse than among rural poor. Whether or not this shift has fully occurred, most studies show that the condition of the urban poor is not far behind that of the rural poor.

Urban clusters account for 55% of India’s entire urban population and will generate as much as 60% of the country’s urban GDP by 2030.
Low-quality living conditions contribute to illness and poor nutrient absorption.

Datasets on the level and scope of malnutrition in urban areas as well as on the linkages between nutrition and household income are considered unsatisfactory, and many contemporary studies still rely on data that is eight to 10 years old. In general, nutritional performance is expected to increase with economic growth, but income growth has not produced significant reductions in undernutrition in India.

**There’s a growing gap between poor and wealthy urban Indians.**

What does the urban food plate look like? Food consumption in urban India is growing nearly twice as fast as rural food consumption. Yet according to National Sample Survey data, *urban Indians consume fewer calories than their rural counterparts across almost all income levels.*14 Not surprisingly, cereals comprise a higher percentage of calories in the average rural diet compared with the average urban diet. But the heavy reliance on cereals is quite similar between the urban poor and rural poor.

The urban diet incorporates more high-value foods such as fruits, vegetables, and complex proteins.15 This nutrition transition is typical of emerging economies with a growing middle class. Yet almost 70 percent of urban Indians are not getting the average caloric intake of 2,100 kcal per day of nutrition recommended by the National Institute of Nutrition (ICMR). The gap between the poorest urban residents who consume 1,605 kcal per day and the wealthiest urban residents, who consume 2,485 kcal per day, constitutes a 50 percent difference.16

**Building supply chains to deliver urban nutrition**

Meeting the growing demand for food in India’s swelling cities is a major challenge—and an immense opportunity. In addition to continuously investing in agricultural productivity, the supply chains that link farmers to consumers must be further developed to deliver sufficient quantities of affordable, safe, and nutritious foods to urban residents. The private sector will play a primary role in meeting food demand, but the Indian government is also heavily invested and involved in the food sector. While maintaining traditional social safety net programs, public-sector capital investments in basic infrastructure will be critical to support private supply chain development. Public policies must open the door wider for expansion of organized and scaled private investments along the entire supply chain.

**Key government policies affect urban food delivery**

**Public procurement**

With high levels of malnutrition and poverty in the country, public procurement and distribution of wheat and rice is a cornerstone of India’s food security...
policy. The government sets minimum support prices for these commodities to insulate farmers from price fluctuations. A portion of wheat and rice production is purchased by over 7,500 Agricultural Procurement and Marketing Committees, or mandis. The mandis act as buyers for the Food Corporation of India (FCI), storing crops until they are distributed through the public distribution system, which provides subsidized grains to some 800 million poor people through small “fair price” shops throughout the country.

The National Food Security Act of 2013 massively expanded the public distribution system to some 830 million people. Half of the urban population is now entitled to five kilograms of subsidized food grains. While public procurement of grains is designed to help feed the undernourished and protect farmers, the system has huge challenges. According to a 2011 World Bank study, just 41.4 percent of the grain purchased by the states from federal warehouses reaches Indian homes as a result of inefficiency and corruption along the distribution chain. A High Level Commission report on the functioning of the FCI in January 2015 calculated that as much as 47 percent of grains procured by FCI is diverted from the public distribution system.

The committee also calculates that the benefits of rice and wheat procurement have not gone to a large number of farmers (about 6 percent of total farmers). When per-capita consumption of grains is stagnating or declining, minimum support prices may artificially deter farmers from diversifying to higher-value crops such as fruits and vegetables that are important sources of dietary nutrition and are increasingly in demand in urban centers.

Proposals to move to cash transfers in cities could provide more choice and diversity in diet. The High Level Commission recommended gradual introduction of cash transfers in the Public Distribution System, starting with large cities with a population of more than 1 million. In March 2016 the Indian government launched a pilot program in Chandigarh and Puducherry, offering direct cash transfers to food subsidy beneficiaries.

**Cascading taxes**

India maintains a highly complicated tax regime. The central government applies interstate taxes to the movement and sale of goods, while each of India’s 29 states levies a variety of taxes, including a value added tax (VAT), service taxes, and excise taxes on sales within their states. VAT rates for the same product vary from 12.5 to 15 percent, depending upon the state. In addition to taxing goods at the point of sale, a number of state governments apply an entry tax on goods entering a local or municipal area in the state.

Most observers believe the environment for large-scale centralized warehousing and distribution centers and pan-India retail operations would be greatly improved under a uniform tax, which would bring down overall food costs for the urban Indian consumer. However, consideration of a nationwide goods and services tax, under which a good is taxed at the point of final sale, has been stalled in the parliament.

**Tariffs on imported food**

India’s bound agricultural tariffs are among the highest in the world, inhibiting the importation of food. India imports only a few agricultural commodities in large volumes such as edible oil and pulses. In 2014 India imported a mere $4 billion in consumer-oriented food products, predominantly nuts, dried fruit, and fresh fruit.

Under the World Trade Organization (WTO) Agreement on Agriculture, India committed to “bind” its agricultural tariffs at rates ranging from 0 to 100 percent for primary products, 150 percent for processed products, and 300 percent for edible oils, but retains the flexibility to adjust the tariffs it actually
Standard import tariffs

<table>
<thead>
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<th>Bound Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>Unbound</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>300%</td>
</tr>
<tr>
<td>Chicken leg</td>
<td>150%</td>
</tr>
<tr>
<td>Potatoes</td>
<td>150%</td>
</tr>
<tr>
<td>Sugar</td>
<td>150%</td>
</tr>
<tr>
<td>Wheat flour</td>
<td>150%</td>
</tr>
<tr>
<td>Milk</td>
<td>100%</td>
</tr>
<tr>
<td>Oilseed</td>
<td>100%</td>
</tr>
<tr>
<td>Onions</td>
<td>100%</td>
</tr>
<tr>
<td>Pulses</td>
<td>100%</td>
</tr>
<tr>
<td>Strawberries</td>
<td>100%</td>
</tr>
<tr>
<td>Wheat</td>
<td>100%</td>
</tr>
<tr>
<td>Whole chicken</td>
<td>100%</td>
</tr>
<tr>
<td>Corn</td>
<td>70%</td>
</tr>
<tr>
<td>Rice (milled)</td>
<td>70%</td>
</tr>
<tr>
<td>Frozen vegetables</td>
<td>55%</td>
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<tr>
<td>Apples</td>
<td>50%</td>
</tr>
<tr>
<td>Cheese</td>
<td>40%</td>
</tr>
</tbody>
</table>

Source: Central Board of Excise and Customs, Department of Revenue, Ministry of Finance, Government of India

As India works to promote the food processing industry, it will need to focus heavily on promoting best-in-class safety and hygiene practices in all facets of food handling, storage, and processing—including by the consumer—to address the many causes of unsafe food.
Reducing regulatory complexity

FSSAI is working to reorient India’s approach from post–market surveillance toward prevention through safety and quality in production. In doing so, however, the new FSSAI overshot with its requirement that all “nonstandardized” food items be approved. FSSAI only standardized a small number of food items, requiring that the agency affirmatively test and approve all others. The impracticality of the product approval requirements caused severe backlogs, which mounted when the regulations were litigated in the courts. During an attenuated period of regulatory uncertainty, food worth millions went to waste at ports when imported food could not be cleared.

Burdensome regulatory requirements can have the adverse effect of hindering the translation of nutrition R&D into product introductions in India. To overcome these concerns, FSSAI recently introduced revised regulations that focus instead on novel ingredients and has announced it is working toward harmonization of standards for another 12,000 foods to conform with Codex Alimentarius. Though producers welcome these initiatives, they remain concerned that onerous packaging and labeling requirements are replacing approvals as the next series of obstacles to selling their products in India.

Enhancing food testing capacity

Another area targeted for improvement is the expansion of qualified food testing laboratories, as testing capacity currently remains insufficient to meet growing demand. Producers continue to seek that FSSAI become more open to adopting modern test method reference standards, which would reduce the opportunity for inaccurate test results if laboratory personnel are properly trained. The Ministry of Food Processing is providing assistance to state organizations and universities, including implementing partners in the private sector, to strengthen India’s food safety testing laboratory network, recognizing that collaboration with the private sector is critical to improving food safety.

Fragmented, inefficient supply chains

India’s agricultural supply chains are largely unorganized and highly fragmented, with food passing between many sets of hands from farmer to urban consumer. Many local traders and agents play an important role supporting workers and connecting small farmers to markets by facilitating collection of output and providing capital to farmers who are outside of the formal banking system. But the large unorganized economy has its trade-offs, adding complexity to procurement and distribution as well as inhibiting scale.

After the long journey from farm to urban market, urban consumers pay a price for distribution...
inefficiencies, including markups along the way by middlemen and differential pricing among small neighborhood retailers. By some estimates, long marketing channels with many intermediaries inflate the cost of food by as much as 100 to 250 percent over the cost of production. Figure 5 shows an example of the value chain price buildup for fruits and vegetables in Andhra Pradesh, where the final price has been marked up 100 percent between farm and table due to three or four extra intermediaries in the transaction.

### Lack of modern food system infrastructure

Legal and regulatory restrictions, inadequate transportation infrastructure, suboptimal storage and handling for perishables, and barriers to expanding food retail outlets in India are all factors that compound the challenges to increasing the availability of affordable, high-quality nutrition in India's swelling cities.

### Connecting farmers to buyers

It is not enough to simply increase production to meet food demand. Agricultural and food products must reach the food markets in India's urban centers while
retaining quality, safety, and affordability, a process that begins with the purchase of inputs from farmers. The marketing of agriculture products is regulated under state-by-state Agricultural Procurement Marketing Acts (APMAs). Over 650,000 licensed traders and commission agents serve as middlemen for larger private buyers. Only a few states currently permit direct procurement from farmers, though by most accounts enforcement of the APMAs varies considerably.

Contract farming, corporate farming, and cooperative farming can reduce the risk to farmers, offering them opportunities to seek volume guarantees, diversify to higher-value production, and improve price realization per unit sale. With a stable buyer, farmers have incentives to adopt new technologies and production practices and acquire the means to access finance by using contracts as collateral. For example, in the case of dairy cooperatives, increased efficiencies from these practices enabled farmers to shift the balance from local consumption and sales to the production of marketable surpluses, feeding and benefitting the urban consumer.

Greater private participation in procurement is also being enabled by the emergence of electronic platforms that connect farmers directly with buyers and provide spot market information to farmers. Some of the largest Indian retailers such as Reliance are establishing collection centers to bypass auctions and middlemen.

Most private buyers, however, continue to procure mainly from large traders and mandis, citing high transaction costs and difficulty collecting from small farmers whose production is dispersed. Traders and agents also remain important intermediaries between buyers and millions of farmers outside of the financial system.

Until more states both amend the Agricultural Procurement and Marketing Act and invest in agriculture marketing infrastructure to facilitate direct purchase, the existing system of wholesalers will continue to be the most important link—or obstacle—to more efficient distribution between rural producers and urban consumers.24

Lost in transit

Logistics costs account for 6 to 10 percent of average retail prices in India compared with a global average of 4 to 5 percent.25 India is the second largest producer of fruits and vegetables in the world, but anywhere from 30 to 40 percent—over $8 billion in value—is estimated to be wasted or lost in transit every year.26 Produce may be loaded, sorted, or repacked four or five times before consumption, each time increasing the possibility of degradation, contamination, and physical loss. India relies heavily on its roads for freight transport, with just seven long-haul corridors carrying half of the country’s freight. Last mile links are often poor quality or absent, causing bottlenecks, increasing cost, and leaving areas underserved. Poor logistics infrastructure costs the Indian economy as much as $65 billion each year.27

According to McKinsey & Company, over two-thirds of India’s requirements for infrastructure network capacity has yet to be built.28 The Indian government committed to $1 trillion in infrastructure investment in the current Five Year Plan.29 However, even with the planned public investment, analysts expect growth in freight traffic to rapidly outstrip the increased capacity. The government is increasingly engaging in public-private partnerships in an attempt to accelerate road expansion.

Underdeveloped warehousing

A KPMG report summarized the state of the industry this way: “Until a decade ago, warehousing in India was a synonym for basic four-walled structures with suboptimal sizes, inadequate ventilation and lighting, lack of racking systems, poor hygiene conditions, and lack of inventory management.”30 A decade later, the Indian warehousing industry has improved only incre-

Technology for price discovery

Poor price information reduces farmers’ bargaining power with traders and prevents them from selling their product in the most lucrative market if options are available. Services like those offered by IFFCO Kisan Sanchar Ltd. provide information on market prices via voice messages in local languages or dialects.

mentally, remaining mostly local, mostly unorganized, and mostly inadequate.

India’s Planning Commission estimates the gap between supply and demand for agricultural warehousing at 35 million metric tons. Companies cite the need to arbitrage differences in state taxes and establish multiple small warehouses in different states to minimize their tax bill rather than invest in large, centrally located facilities that would incur repeated taxation when moving goods across state borders. The Indian parliament has been debating a uniform goods and service tax. If implemented, uniform taxation would support consolidation and encourage the rational allocation of larger-scale warehouses suited to perishable goods since these warehouses would be taxed the same in all states and only at the point of sale. 

Cold chain: a weak link
Demand for perishable foods is growing among middle-class consumers and urban residents in India, underscoring the need for increased investment in cold chain infrastructure. Livestock products, fish, fruit, and vegetables incur the most risk due to lack of or poor refrigeration on the long journey to market.

Approximately 104 million tons of perishable food are transported to cities throughout India every year, but only about 4 percent is transported in refrigerated vehicles that struggle to contend with India’s poor roads. Surprisingly, India has the largest total refrigerated warehouse capacity in the world, with 131 million cubic meters, but that figure does not tell the whole story. On a per-capita basis, India requires more cold chain infrastructure to meet demand.

In 2015 the National Center for Cold-Chain Development (NCCD), an autonomous body of India’s Ministry of Agriculture, conducted an assessment of the status and gaps in India’s cold chain infrastructure. The NCCD estimated an additional 70,000 pack houses, 8.25 million metric tons of cold storage space, and almost 53,000 refrigerated vehicles are required to meet the existing demand for perishable food products in India, excluding milk. The Indian Institute of Management in Kolkata estimates that cold-storage facilities are available for only 10 percent of perishable food products, leaving around 370 million tons of perishable products at risk.

Farmers need access to pre-cooling centers near the farm that can be integrated with facilities for weighing, sorting, grading, and other minimal processing activities. In the absence of storage, farmers face losses from selling at substandard prices or suffering spoilage of output that could otherwise generate more income for the farmer.

Adequate cold storage warehousing would ideally be developed in a hub-and-spoke model with refrigerated transportation to ensure food products are kept at controlled temperatures between precooling centers on the farm and cold storage and between cold storage...
and the processing plant, wholesaler, or retailer. At the retail store, perishable food products must be stored at low temperatures in refrigeration units. Multiple breaks in the cold chain create risks for contamination and denigrate the nutritional value of food.

Investments in India’s cold chain have been dampened by costly and unpredictable energy supply, constraints in securing sufficiently large tracts of land, and difficulty optimizing usage due to the seasonality of production. The Ministry of Food Processing Industries is redoubling in its effort to champion expanded investment in quality food processing infrastructure.

As of December 2015 the ministry had approved 138 cold chain projects across the country. Seventy of these projects have been completed or are operational, creating 295,933 metric tons of cold storage capacity.

Priority lending and tax breaks are among the incentives being offered to induce more private-sector investment in preservation technologies, modern warehousing, and logistics services. The Indian government is forecast to invest $15 billion in the next five years and recently relaxed regulations to allow 100 percent foreign direct investment (FDI) in cold chain infrastructure to boost opportunities for private and government partnerships. The 2016-17 Union Budget also calls for reducing the customs duty on imported refrigerated containers from 10 to 5 percent and reducing the excise duty from 12.5 to 6 percent.

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Retail: where kiranas are king

Organized food retailers account for 72 percent of global food sales. In India, however, 98 percent of the food retail market is made up of 10 to 12 million small traders and grocers. They are curbside stalls, pushcarts, kiosks, and kiranas—small neighborhood mom-and-pop stores. Compare this figure with China, where over half of grocery sales are now within the modern trade.

According to a Boston Consulting Group survey in September 2012, 80 percent of urban consumers prefer traditional outlets to supermarkets. They buy the bulk of their fresh produce from vendors with pushcarts. They frequent small hawkers in wet markets for animal and fish proteins.

Kiranas are neighborhood fixtures that make it easy for Indian consumers to shop more frequently for perishable foods such as fruits, vegetables, and dairy products. The kiranas have captive customers, but they work for customer loyalty, offering special treatment such as credit for repeat customers, home delivery, and extended hours. Indian consumers are accustomed to patronizing different kiranas to overcome limited choice and supply at these small outlets.

Since 2006 several large Indian retailers have sought to build hypermarket and supermarket chains, but profitability is challenging. India’s top 10 food retailers have lost an accumulated $2 billion in recent years and struggle to expand on margins of 2 to 2.5 percent. Their scale advantage is diminished by comparatively high costs of doing business and high attrition rates among store workers and retail managers. The lack of available quality retail space also poses a challenge to expansion. In contrast, kiranas operate in the informal economy. They pay no taxes or license fees. They

### Eighty percent of urban consumers prefer traditional outlets to supermarkets.

#### According to the World Bank, more than 70 million rural households in India depend on dairy to varying degrees for their livelihood. The world’s largest dairy producer, India is forecast to produce over 150 million metric tons in 2016. Most of the dairy produced is consumed domestically by India’s largely vegetarian population, for whom milk, and milk products, are an important part of food and nutrition security.

When Abbott built a plant in Jhagadia, it pledged to source up to 80 percent of its nutrition product ingredients locally. To help achieve this goal while raising the quality of the milk it procures, Abbott is providing 1,500 small and rural dairy farmers with training on animal care and business skills. With local investors, Abbott is also building new milk chillers in 10 villages to help farmers with efficient transport and storage of milk.

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**Bibliographic Note:**

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**Box 3**

### Investing to source locally

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employ relatives and are not bound to wage requirements. They maintain small inventory and operate no-frills, low-cost stores.

Reliance is among the most successful Indian retailers. Reliance grew quickly to 1,000 stores in 2009, but subsequently slowed expansion, closed stores, and stopped development of cash-and-carry stores. In fiscal year 2012, Reliance Retail lost money on its hyper-and supermarket chain, but began to regroup and expand stores in this segment by mid-2013. Reliance Fresh small supermarkets have been contracting, citing difficulty competing with kiranas.

Enter foreign multibrand retail?

India is an approximately $360 billion grocery market, but a history of limitations and changing requirements for FDI in the retail sector has deterred penetration of large-scale foreign discount stores.

Beginning in September 2012, the government opened the door to 51 percent foreign ownership in multibrand retail, but individual states could opt out. Just nine states and two union territories allowed FDI in multi-brand retail. States could also limit multibrand FDI from establishing in cities or towns with populations of less than 1 million people.

Foreign retailers were required to invest a minimum of $100 million to enter the Indian market, with at least half of that investment directed to back-end infrastructure within three years. In addition, 30 percent of all goods sold by multibrand retailers had to be sourced from local small- and medium-sized enterprises. These conditions on FDI effectively relegated all of the major multinationals except Tesco to the wholesale market (B2B trade), where their operations could be wholly owned.

Tesco entered a joint venture with Tata Group in March 2014 in Trent Supermarkets. Wal-Mart’s 2009 venture into a retail partnership with Bharti was dissolved after four years, after which Wal-Mart India focused on growing its cash and carry and B2B e-commerce businesses across the country.

Per the 2016-17 Union Budget, 100 percent of FDI will be allowed with the approval of the Foreign Investment Promotion Board for the marketing of food products produced and manufactured in India. Time will tell whether these changes will open the door wide enough for the establishment of foreign multibrand retail in India.

Missing ingredients—The food processing industry

Indians have a strong preference for fresh foods and home preparation. Urban diets are shifting toward a

Figure 7

Milk production is high, but share of milk processing is low

India is the world’s largest milk producer. Since the processing industry is relatively nascent, and milk is both widely available and consumed locally, only a small portion of production is further processed. In contrast, Australia processes more than 80 percent of its milk production into dairy products.
larger portion of perishable foods for energy and protein such as fish, meats, dairy, fruits, and vegetables. On average, a little over half of the food consumed in India is processed, mostly as packed fruits and vegetables, packed milk, edible oils, milled rice, and flour. The fastest growth is in the gradual shift toward packaged tea, coffee, salt, pulses, and spices, which are traditionally sold loose.

Expanding the food processing industry will be critical to increasing access to high-quality foods through preservation and packaging, which can lengthen shelf life while retaining nutrients. Food processing companies can foster increased use of standard scientific methods for sorting and grading, help diffuse quality control measures, and accelerate demand for investment in storage and transportation capabilities, while increasing economic opportunity and employment in local economies. The growth of processors can also create positive linkages to farming practices through B2B extension services offered by buyers.

In its Vision Document 2015, the Ministry of Food Processing Industries set a goal of growing the level of food processing of perishables from 6 to 20 percent. The 12th Five Year Plan calls for policies and incentives to build 42 mega food processing parks in the next three to four years by providing access to cheaper credit, reducing duties on imported machinery, and technical training. The creation of industrial clusters should stimulate vertical integration of supply chains and enable improved oversight of quality and safety compliance by both producers and the government.

**Mainstreaming micronutrients**

Growing the food processing industry can drive supply chain modernization and deliver more nutrition and variety to urban Indian residents. Low-quality produce that would otherwise be thrown away could be turned into pastes or sauces. In the case of pulses and grains, improvements to food processing could result in higher nutrient retention and purity and greater use of whole grains in processed foods. It is estimated that during the processing of 15 to 18 million tons of wheat to flour in India, nearly 60 percent of iron is lost. If re-captured, this amount could ensure a daily availability of 40 to 50 milligrams of iron per capita, almost double the recommended daily allowance.

Industry leaders are partnering with nonprofit organizations to deliver fortified foods to underserved populations.

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**Figure 8**

<table>
<thead>
<tr>
<th>Food Processing Segments</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and vegetables</td>
<td>Cleaning, cutting, sorting</td>
<td>Pulps, pastes, slices</td>
<td>Jams, juices, pickles</td>
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<tr>
<td>Grains and cereals</td>
<td>Sorting and grading</td>
<td>Flour, malt, milling</td>
<td>Biscuits, noodles, cakes</td>
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<tr>
<td>Dairy products</td>
<td>Grading and refrigeration</td>
<td>Cottage, cream, dried</td>
<td>Yogurts, spreadable</td>
</tr>
<tr>
<td>Meat and poultry</td>
<td>Sorting and refrigeration</td>
<td>Cut, frozen</td>
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<td>Marine products</td>
<td>Chilling and freezing</td>
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<td>Edible oils</td>
<td>Sorting and grading</td>
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<td>Fortified oils</td>
</tr>
</tbody>
</table>


*The Chicago Council on Global Affairs*
communities, and fortified foods are a growing portion of manufacturers’ product offerings. Britannia, known for its iron-fortified Tiger biscuits distributed by the Naandi Foundation, has now fortified more than half of its product portfolio. Cargill India took the initiative to fortify its refined edible oils with vitamins A, D, and E.

Debated for years in India, the government has recently renewed discussions across ministries and with nonprofit organizations and private producers about mandating fortification of all staple food items including rice, wheat, flour, edible oils, and milk sold on the open market. FSSAI regulates flour fortification but would need to put in place a more comprehensive regulatory framework to standardize universal food fortification, and work to overcome historical barriers to consumer acceptance in India.

Continuing transformation
Public policies to encourage private investment

The journey of food from rural farm to urban fork in India is a complex, dynamic, and evolving process. As the administration of Prime Minister Narendra Modi works to reform policies to enable and stimulate domestic and foreign investments in the agriculture, animal husbandry, and manufacturing sectors, private sector groups such as the Confederation of Indian Industry are calling for a comprehensive national farm-gate to market infrastructure.

To improve the state of urban nutrition and meet growing demand for food in India’s cities, India must also target public investments to reduce the infrastructure deficit and eliminate regulatory complexity in the food value chain. Both are prerequisites to private-sector investments in more vertically integrated sourcing, the emergence of modern logistics services, large-scale food processing, and retail efficiencies—four critical routes to improving urban nutrition and food security.

Food as an urban priority

In its seminal paper On Global Cities, the Chicago Council on Global Affairs posits, “If the true measure of an economy is the well-being of the people who live within it, the evolution of global cities is the issue of our time.” Prime Minister Modi has vowed to create 100 new smart cities by 2022 featuring Internet connectivity, e-governance, and quality infrastructure such as waste management and efficient public transport. These are important and laudable goals for India’s economic development and quality of life, but there is no more fundamental measure of the well-being of a population than its food and nutrition security.

India’s urban modernization plans must therefore include and prioritize measures and policies to address supply-side constraints in the food sector. Doing so will better position the private sector to deliver higher quality, diverse sources of nutrition accessible to all of India’s growing urban residents.
About the author

Andrea Durkin served as a US government trade negotiator from 1996 to 2004 with the Office of the United States Trade Representative and the International Trade Administration of the US Department of Commerce. Ms. Durkin has taught international trade and investment policy for the past 11 years as an adjunct associate professor at Georgetown University’s Master of Science in Foreign Service program, from which she graduated with distinction. She previously managed a global staff responsible for public policy and external relations at Abbott prior to launching an independent consulting firm, Sparkplug. As principal of Sparkplug, she advises firms in the life sciences, food, and agriculture sectors on government relations strategies that drive both commercial success and corporate citizenship.

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Endnotes


2. Nutritious foods include vegetables, fruits, legumes, and animal-source foods, including meat, dairy, and eggs. For the most part, nutritious foods are defined by a degree of perishability, but whole grains and nuts, which are less perishable, also represent important components of a nutritious diet.


7. Sankhe et al., *India's Urban Awakening."

8. Ibid.

9. M.S. Swaminathan Research Foundation and World Food Programme, *Report on the State of Food Insecurity in Urban India* (Chennai: M.S. Swaminathan Research Foundation, 2011). The 2011 Report on urban food insecurity in India is the most up-to-date version of this analysis. Five years on, the report does not reflect continued migration and changing circumstances, but the Report remains the most comprehensive undertaking to develop and give weight to indicators covering three critical dimensions of food security: access, availability, and absorption.

10. In April 2001, the M.S. Swaminathan Research Foundation collaborated with the World Food Programme to produce the Food Insecurity Atlas of Rural India and the Food Insecurity Atlas of Urban India published subsequently in October 2002. These reports have been painstakingly updated but only every seven to eight years. The authors of those reports acknowledge the data will lag both progress and the pace of urbanization. This paper includes the results of Report on the State of Food Insecurity in Urban India as indicative and because the study offers an important comprehensive approach to examining food and nutrition insecurity in urban India. The International Food Policy Research Institute (IFPRI) more recently examined the linkages between nutrition and household income in India in the discussion paper “Agriculture, Income, and Nutrition Linkages in India: Insights from a Nationally Representative Survey” in 2012, but this publication relied on data from 2004/05 India Human Development Survey.


12. Ibid.


15. Ibid.


19. Ibid.


22. Ibid.

23. “Unorganized” is a term recognized in India's National Accounts Statistics and refers to enterprises that are not incorporated or registered with the government and generally has implications for the rights and security of workers in the enterprise. The term “informal” refers to economic activity is neither regulated nor taxed, and not included in national statistics.

00883 (New Delhi: International Food Policy Research Institute, 2009).


31. At the time of publication, the GST bill was up for a vote in parliament in the Union Budget 2016-17 session.


33. National Centre for Cold-chain Development (NCCD), *All India Cold-chain Infrastructure Capacity (Assessment of Status & Gap)* (New Delhi: NCCD, 2015).


40. Confederation of Indian Industry (CII), “Policy Watch: Agriculture and Food Processing,” *CII*, October 15, 2015, http://www.cii.in/Policy_WatchDetail.aspx?enc=XYBz6saPPEpMgHIm1hKhGEdedM-jkmV6QLPFwIdj2Lomtv1RgypMUOPjS6jl0uy/Ilk57lswpkZqwOuhyA80Ve9LhQvoanOT5bnwy-9d34om7mKwZlt6zM34FgL3llDNNs1tdZzOOG1cP-KrayIG7TxukpFIM4RjiOR1gsGfEADw=.

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