Rural-Urban Transition and Food Security in India

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Abstract

As a growing proportion of world's population lives in cities and towns, food security is increasingly acquiring an urban character. The locus of food security research and policy agendas has correspondingly expanded from rural areas to include cities and towns in the past few years. However, the dominant discourse on urbanization-food security relationship appears to be shaped by perspectives from the Global North and large cities, and shows a lack of adequate understanding of the urbanization-food security nexus in the small towns of the Global South. This paper aims to correct this bias. With a focus on India where urban growth is increasingly concentrated in small, former rural regions, this paper reviews the food and nutrition security implications of the country's rural-urban transition. It identifies three conceptual pathways through which to understand the bearing of rural-urban transition on food and nutrition security that include: *livelihood change, land use change*, and *dietary change*. The evidence reviewed suggests the overall worsening of food and nutrition security for people in this rural-urban transition, particularly for the poor populations. The paper also identifies several key research questions and calls for more research on the urbanization-food security nexus in India.

Keywords

food security, urbanization, India, rural-urban transition

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Cover Photo

Snack cart, Bengaluru/Bangalore. Photo Credit: Jonathan Crush

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Introduction

More than half of the global human population now lives in urban areas, and the share of urban residents in the global population is projected to increase continually in the future. This projected trend has led the recent *World Urbanization Prospects* report to declare that "the future of the world's population is urban" (UN 2019, p. 1). As a growing proportion of the world's population lives in cities and towns, the issue of food and nutrition security is increasingly acquiring an urban character. The locus of food security research and policy agendas in the past few years has expanded correspondingly from rural areas to include cities and towns. The Food and Agriculture Organization (FAO) of the United Nations, which leads the international efforts to improve global food and nutrition security, has recently issued an *Urban Food Agenda* framework to focus on the urbanization-food security relationship (FAO 2019). Similarly, the 2022 edition of the *World Cities Report* of the United Nations Human Settlements Programme (UN-Habitat), which presents a vision of creating sustainable cities and resilient urban communities, points to the importance of food security for sustainable urban futures (UN-Habitat 2022). Despite this increasing attention to the issue of urban food security, a close reading of academic and policy discourse on the subject shows a lack of adequate understanding of the urbanization-food security nexus in the Global South (Crush 2016; Crush, Frayne, and Haysom 2020). The primary reasons for this disregard lie in the prevailing frames of enquiry. The dominant discourse on food security tends to take a *productivist* view and therefore focuses invariably more on strengthening food production. Urban agriculture has emerged as a dominant theme in this discourse and is increasingly viewed as a "multifunctional nature-based solution" to improve food and nutrition security in cities (Langemeyer et al. 2021, p. 6). However, the discourse on urban agriculture and urban food security more generally is typically informed by perspective from the Global North and large cities (Davies et al. 2021). In urban studies, the uncritical celebration of cities as offering distinct advantages in terms of better incomes, infrastructure, food, nutrition, and health outcomes is also largely informed by the Northern experience (Glaeser 2012) which further obfuscates the challenges of urban food security in the Global South. The nature of the urban transition currently underway requires a rethink of the urbanization-food security relationship.

In many parts of the Global South, where much of current and future growth is concentrated, accelerating urbanization is fundamentally reshaping food systems and their ability to ensure food secure futures for growing urban populations. Urban expansion in the developing world is not accompanied by gainful livelihood opportunities for the vast majority of urban dwellers, as has been observed in the historical experience of Western countries (Henderson 2010, Nijman 2019). Rather, there has been an increase in urban poverty and undernourishment in many parts of the developing world. Concurrently, dietary and lifestyle changes associated with urban ways of life are also leading to increased overweight and obesity (IFPRI 2017, Ruel et al. 2017). Moreover, urbanization in developing countries is increasingly led by smaller places, usually involving former rural regions adjacent to cities and economic corridors that transform into urban centres (Balakrishnan 2019, van Duijne and Nijman 2019, Randolph and Deuskar 2020). This urban spread that incorporates former agrarian zones is leading to the spatial disconnect of cities from traditional food sources that adds to the challenge of improving the nutritional well-being of urban dwellers. Indeed, urbanization in developing countries is leading to multiple burdens of malnutrition whereby overweight and obesity are rising, along with persistently high levels of food insecurity and hunger (IFPRI 2017, pp. 15-16).

In this paper, we focus on the implications for food and nutrition security of urbanization processes in India, which is in the midst of a major rural-urban transition. Following the economic liberalization reforms since the early 1990s, India has achieved rapid economic growth. Economic liberalization has been accompanied by structural economic change in which the importance of the farm sector has markedly declined, and recent economic growth has been led by urban-based non-farm sectors. As a result, the past few decades have seen millions of rural households transition their dependency away from farm-based livelihoods to urban nonfarm jobs. This livelihood transition also parallels substantial urban growth in former agrarian regions (Choithani, Van Duijne, and Nijman 2021). This rural-urban transition is changing the sources of food security, as well as instigating dietary changes that require a detailed understanding, but very little is known about these processes. In what follows, we review the influence of India's rural-urban transition on food and nutrition security.

The structure of the paper is as follows: The next section places India in the global urban transition. The following section teases out the pathways of linkages between urbanization and food security in the context of India's rural-urban transition. The evidence on these pathways is then reviewed, followed by the conclusions.

India in the Global Urban Transition

Urbanization is considered as one of the defining demographic "mega-trends" of the 21st century (UN 2019, p.1). In fact, we now live in what is referred to as an *urban age* because, for the first time in human history, more than half of the world's population resides in cities and towns. In 2018, there were 4.2 billion urban dwellers compared to 3.4 billion people who lived in the countryside. And future population projections show that this global urban transition will accelerate in the coming years, and humanity is ultimately headed towards an urban future (Figure 1). Between 2018 and 2050, the number of urban dwellers will increase by 2.5 billion people (from 4.2 billion to 6.7 billion), accounting for almost all the increase in global population during this period. While the high-income countries in the Global North will witness an increase in their urbanization levels, much of the future projected urban growth will occur in the countries in the Global South. Indeed, it is the towns and cities of the developing regions that will contain most of urban humanity. In particular, the continents of Africa and Asia, which are currently home to 90 percent of global rural population,

will witness rapid urbanization and absorb 90 percent of all increase in urban population between now and 2050 (UN 2018, 2019). These numbers have led to growing interest among academics and policymakers in the questions of global urban conditions, particularly focused on the future of city dwellers in the developing world. Historically, cities have acted as important catalysts for economic development and innovation. However, the kind and nature of urbanization in the cities of the Global South limits opportunities for urban populations to improve their life chances (Crush 2016, UN 2016). This is due to the apparent decoupling of urbanization and income growth in many developing countries, deviating from the established pattern (Glaeser 2014, Gollin et al. 2016).

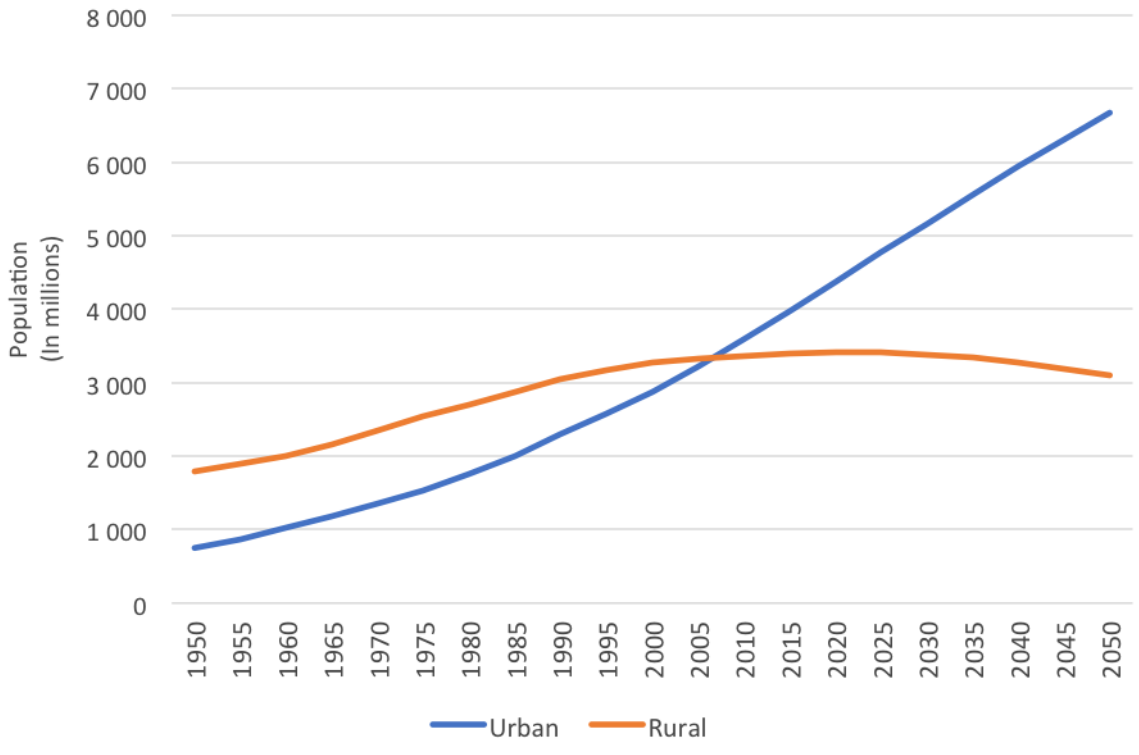
Conventional wisdom suggests that urbanization and development share a positive association, reinforcing each other (e.g. Glaeser, 2012, Henderson, 2010, Scott 2017). The key causal pathway underpinning this relationship is that economic growth leads to sectoral and spatial shifts of workers from lower-productivity, farm-based work in rural areas to higher-productivity economic activities in urban-based manufacturing and service sectors (Kuznets 1973). These sectors benefit from agglomeration dynamics that include specialised firms of similar sort locating near one another in cities to allow economic production at reduced costs and generate scale economies (Glaesar 2010, p. 1). This also leads to an increase in population densities as economic opportunities attract people to migrate to towns and cities. Thus, employment shifts out of farming and into industrial and service jobs tend to involve rural-urban migration and urban growth. This has been observed in the historical experience of West Europe, North America, Japan, and China more recently, where economic progress was accompanied by migration to towns and cities (Bairoch 1988, Nijman 2019). The 2018 *World Urbanization Prospects* report summarised this two-way urbanization-development relationship:

> *Historically, the urban transition has been linked closely to economic development… economic development fuels urbanization. People are drawn to cities that offer varied opportunities for education and employment, particularly in the industry and services sectors. Urbanization, in turn, has generally been a positive force for economic growth, poverty reduction and human development (UN 2019, 3).*

But, as noted earlier, this expected relationship does not seem to hold in a large number of developing countries today in Asia and Africa (Collier and Venables 2017, Henderson and Turner 2020) where the bulk of present and future urban growth is concentrated (UN 2018, 2019). In many developing nations, rapid urbanization has continued unabated even in the absence of significant urban-based economic growth (Fay and Opal 2000, Gollin et al. 2016).

Urbanization without industrialization also characterised the Indian development experience in the first few decades following the country's independence in 1947. India's megacities including Chennai, Delhi, Kolkata and Mumbai grew through in-migration from rural areas despite slow overall national economic growth and inadequate employment opportunities in secondary and tertiary sectors, leading to concerns about 'urban decay' (Mukherji 2006). However, more recent trends in urbanization and economic growth show an inverse relationship. Following economic liberalization since the early 1990s, the Indian economy has witnessed rapid

Figure 1: Trends in global population distribution, 1950-2050



Source: UN (2018)

economic growth. This growth is also largely urban-centric, with cities and towns contributing to about two-thirds of national income (Planning Commission 2011, p. 378). But this growth has not resulted in a concomitant rise in urbanization levels. Although the absolute number of urban dwellers increased by 91 million in the last decade alone, *only* 31 percent of India's population lived in urban areas in 2011. Furthermore, contrary to expectations, the period coinciding with rapid economic growth has witnessed a decline in urban population growth rates (Table 1 and Figure 2). The fall in urban growth rate has been steepest in some of the large cities in India with dynamic economies such as Delhi, Kolkata, and Mumbai which have seen their growth rates plummet by more than half; at the extreme, the core regions of cities such as Kolkata have lost populations in recent times (Bhagat 2012).

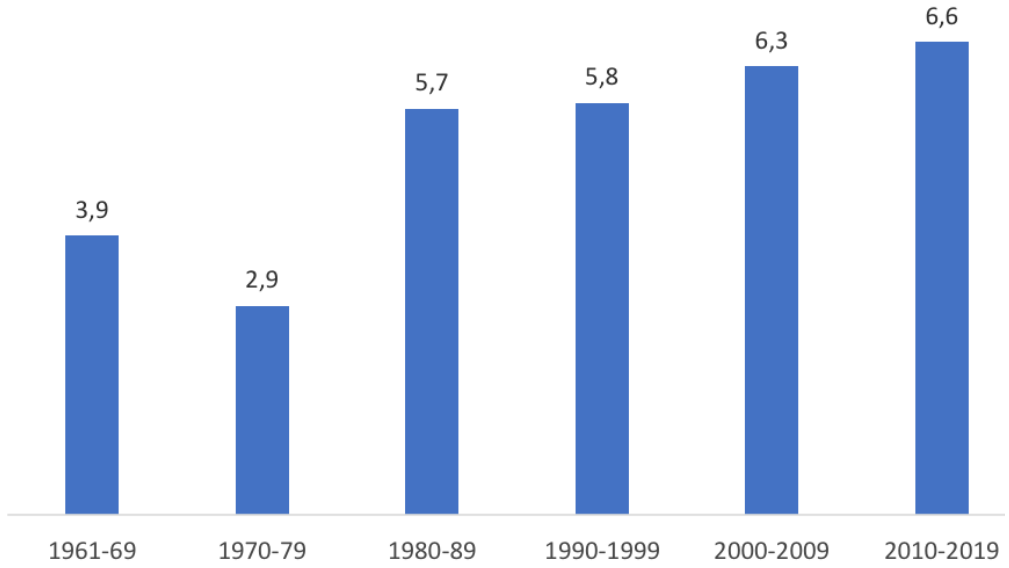
This decline in urban growth does not reconcile with two major trends associated with structural transformation of Indian economy: that of massive shift of employment out of agriculture and significant rise in rural-urban labour migration (Choithani, Van Duijne and Nijman 2021). While the agriculture sector still remains the largest employment provider in the country, it has been under significant duress to support livelihoods (Pani 2022). In the past three decades (1990-2021), the share of agriculture sector in national income has declined from 33 percent to 16.8 percent (Mehrotra et al. 2013, World Bank 2022). Moreover, progressive reductions in already small landholdings in the country due to demographic pressures have added to the challenge of farm-dependent livelihoods. Data from successive agriculture censuses show that the average landholding in India reduced from 2.28 hectares in 1970-71 to 1.08 hectares in 2015-16 (Government of India 2020). These pressures on agriculture are shrinking farm employment opportunities for millions of households in the country. Between 2004 and 2016, nearly 40 million farm jobs were lost. And if we consider the fact that livelihood construction in India occurs in the broader context of family, the effects of these shifts out of faming potentially extend to nearly 200 million people, assuming an average family size of 5 persons (Choithani, Van Duijne and Nijman 2021). On the other hand, structural economic change in India has also resulted in cities and towns becoming more important drivers of economic activity and national income. This has also propelled significant increases in rural-urban labour migration (Choithani 2017, Deshingkar and Akter 2009, Government of India 2017, Nayyar and Kim 2018). But urbanization has not followed as expected.

Table 1: Urbanization in India, 1951-2011

	Urban population (millions)	Percent urban	Annual exponential growth rate of urban population
1951	62.44	17.29	
1961	78.94	17.98	2.34
1971	109.11	19.91	3.24
1981	159.46	23.34	3.79
1991	217.18	25.72	3.09
2001	286.12	27.86	2.75
2011	377.10	31.16	2.76

Source: Bhagat (2012, p. 28)

Figure 2: Average annual Gross Domestic Product growth rate in India, 1961-2019

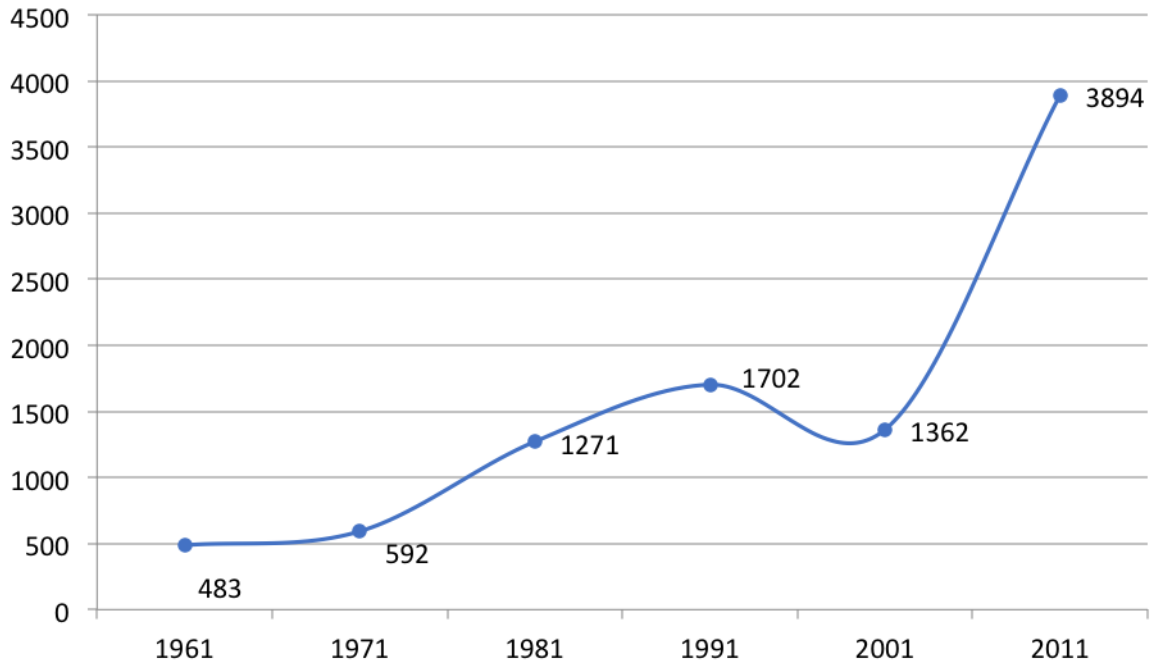


Source: Authors' computation using data from World Bank's World Development Indicators, 2022. GDP at constant 2015 US$ prices

There are two broad sets of interrelated explanations for this India's urbanization puzzle (Van Duijne 2017). First, the slowing of urbanization despite high economic growth indicates the *exclusionary* nature of the country's recent economic growth. While India's economic growth post-1990 has been urban-centric dominated by large agglomerations, it is driven primarily by capital- and skills-intensive sectors, such as information technology and finance (Kotwal, Ramaswami and Wadhwa 2011, Nijman 2012). This has created formal, decent employment options for a small section of urban educated workers with skills to participate in this new economy. At the same time, unskilled and low-skilled populations (which make up a large majority) moving to cities to make up for livelihood deficits in rural areas are left out of India's economic boom (Choithani 2021). Job growth in urban manufacturing industries that tend to absorb low-skilled populations transitioning their dependency away from farming has been modest and shrinking (Nijman 2015, 2019), setting in motion the process of what Rodrik (2016, p. 2) refers to as "premature deindustrialisation". Some less skill-intensive urban sectors, such as construction, have witnessed employment growth in the recent past (Kotwal, Ramaswami and Wadhwa 2011); however, most jobs are informal. Indeed, the share of formal, salaried jobs in overall urban employment in India is very low and the urban workforce is becoming increasingly informal, with almost all new jobs being created in the low-wage, high-precarity informal sector; and more than 40 percent of urban jobs involve self-employment of various types such as street vending (Breman 2010, Chen and Ravindran 2014, Mehrotra 2019). While these informal urban jobs often provide an important alternative for millions of people leaving agriculture, they curtail the prospects for migrants to carve out more permanent and secure urban lives. Added to this are prohibitively rising costs of urban living, which further contribute to exclusionary urbanization (Kundu 2003, 2014). The resultant effect of these processes is that while a growing number of people in India are moving to cities for work, labour migration is predominantly circular, in which migrants earn in cities while remaining embedded with their natal places. This circular migration has kept overall urbanization low in India.

If India's large cities exhibit exclusionary tendencies, the lower echelons of the urban system show growing dynamism. Therein lies another major explanation for the slowing of urban population growth related to the way urban is defined and measured in the country. Since 1961, the official definition used in India includes two criteria to classify places as urban (and the residual units are then categorised as rural). These include: a) all places with a statutory administration such as municipality, corporation, cantonment board, or notified town area committee; b) for other settlements without statutory administration, they have to meet three criteria simultaneously to be classified as urban including i) minimum population of 5000 people, ii) population density of 400 persons or more per square kilometre, and iii) 75 percent or more of male workers engaged in non-farm activity (Census of India 2011a, p. 1). The latter are classified as *census towns*. These are small(est) urban units that lack formal urban governance structures, although they meet the urban population and density thresholds and have an economic structure that is non-agrarian. This definition of small urban towns requiring these three conditions to be met has been perceived as being too stringent and considered to be the main reason for lower levels of urbanization in official reports. Alternative estimates based on one or two of these three indicators yield urbanization estimates of between 40 percent and 70 percent (Tandel, Hiranandani and Kapoor 2016, Sen 2017). Added to this is arbitrariness in setting village boundaries in census enumeration, which often misses the spatial contiguity. This means that several large settlements with requisite population and occupational structures that should ideally render them urban status as per census definition are often classified as separate, individual rural units (Choithani, Van Duijne and Nijman 2021, Van Duijne and Nijman 2019). As those who have conducted field research in remote areas of India would testify, village boundaries are hard to delineate so much so that sometimes a house or a farm plot can administratively fall under two villages. These definitional issues notwithstanding, data from the last two population censuses conducted in 2001 and 2011 show that 2532 former rural settlements acquired the status of census towns in this decade alone (Figure 3). This figure is nearly equal to the number of census towns added in the past century (1901-2001) (Kundu 2011, Roy 2013, Roy and Pradhan 2018). This classification of the former rural areas into urban towns contributed to one-third of the total urban growth rate in India between 2001 and 2011 (Bhagat 2012). It also ended the trend of decline in growth rate of urban population that began in the 1990s (Table 1; also see Van Duijne and Nijman 2019 for a useful synthesis of India's urbanization puzzle).

Figure 3: Census towns in India, 1961-2011



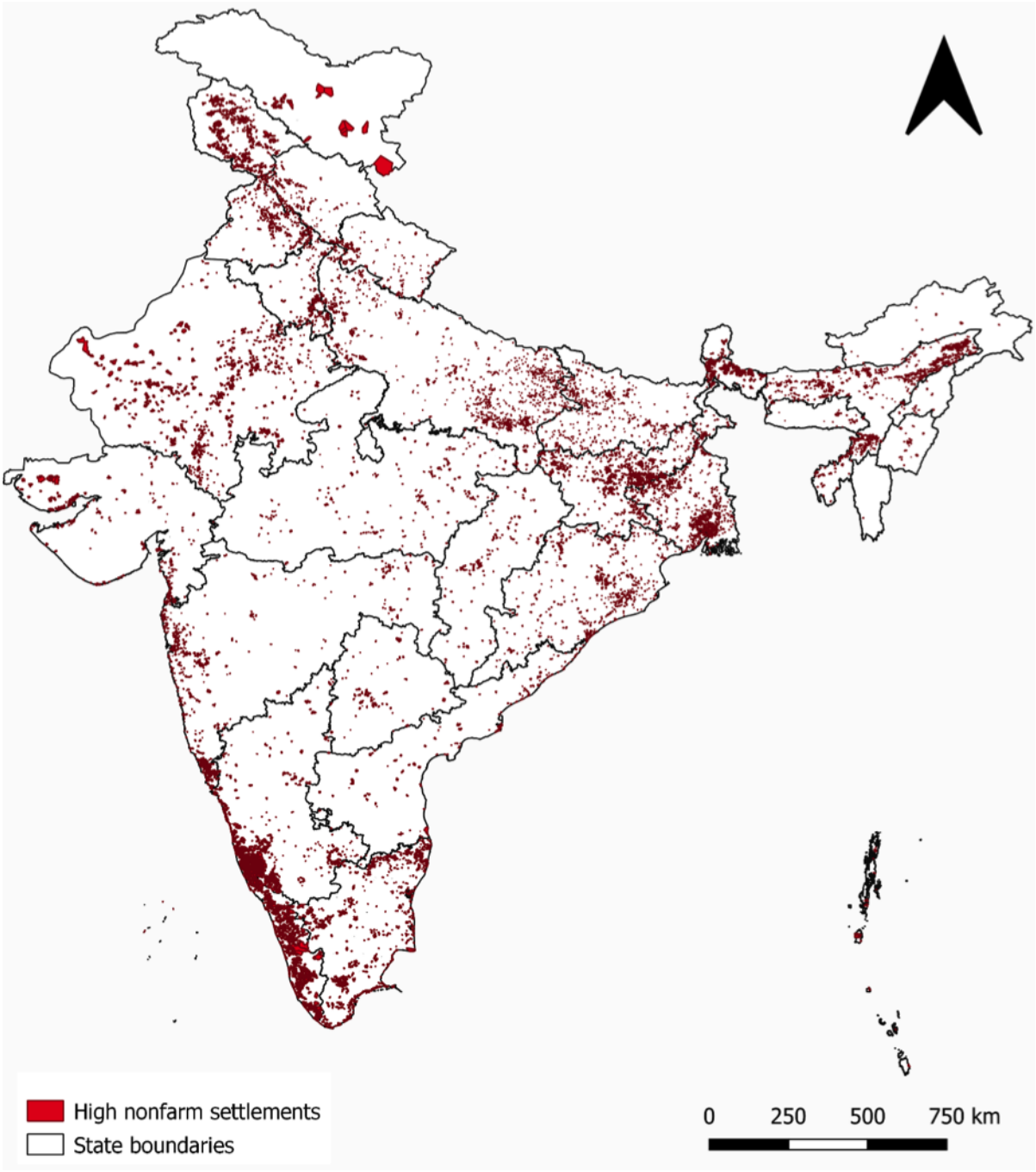
Source: Various Indian censuses

Although phenomenal, even this growth at the base of India's urban system does not fully capture the true extent of the country's rural-urban transition. As noted above, India is in the midst of a structural transformation, characterized by massive shifts of employment out of agriculture and a parallel increase in rural-urban labour migration. India's economic growth after the1990s has been highly urban-centric. This has come at the expense of the rural farm sector, which is under tremendous duress. Incomes and livelihoods are becoming progressively detached from farming, with millions of households transitioning their dependency away from agriculture (Choithani, Van Duijne and Nijman 2021).

This is corroborated by village-level data on changing occupational structure. Figure 4 presents the 2011 Indian census data on villages with a population of 1,500 people and more where at least *two-thirds* of the male main workers are in non-farm jobs (one of the three conditions for settlements to be classified as urban). In 2011, there were more than 13,500 of these high non-agricultural settlements with a combined population of nearly 55.3 million (Census of India 2011). These numbers indicate that the magnitude of the rural-urban transition in terms of number of people involved is much higher than what the figures in census towns suggest. Detailed, fine-scale spatial analysis of these high non-agricultural settlements also shows that many of them amalgamate to constitute large urban formations but are classified as rural due to arbitrary census boundaries, as noted earlier (Choithani, Van Duijne and Nijman, 2021).

This rural-urban transition has major implications for food and nutrition security in India. It is fundamentally reconfiguring food and livelihood systems and presenting a new set of challenges. The next section examines the conceptual links between rural-urban transition and food security in India, and identifies a set of key issues which are then empirically reviewed through available evidence.

Figure 4: High nonfarm settlements with a population of 1,500 and above



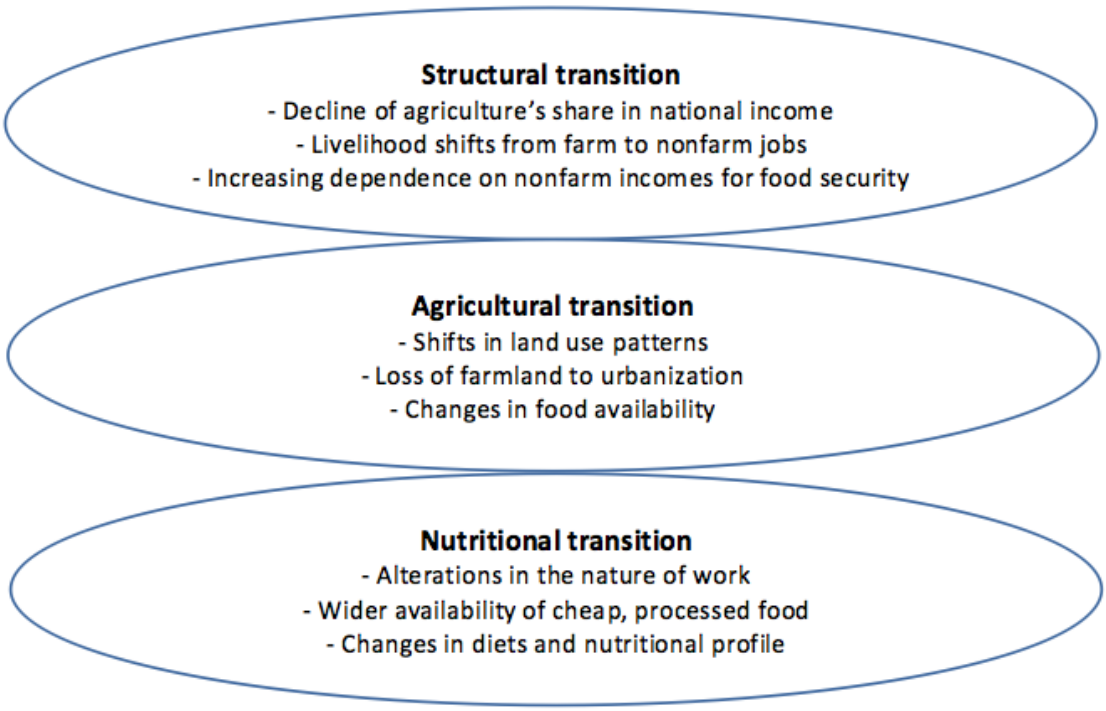
Source: Authors' work based on village level 2011 Primary Census Abstract data (Census of India 2011b). The base map is from the Survey of India (2022)

Conceptualizing the Links Between India's Rural-Urban Transition and Food Security

The nature of India's urban transition has forged new dynamics for food security. As noted earlier, this transition is not neat and does not fit into the existing theoretical models on urbanization-development relationship that assume a linear, one-way permanent shift of rural populations to cities (Harris and Todaro 1970, Kuznets 1973, Lewis 1954, Todaro 1969). Indian cities, particularly large agglomerations, have witnessed a growing concentration of employment and income opportunities in recent years, but permanent rural-urban migration is low. Urban growth in large cities has stagnated and some areas within them are also beginning to lose population. However, recent urban growth has occurred in peripheral regions of the country that include former rural and agrarian zones being classified as urban: these places accounted for one-third of all urban growth during 2001-2011, and projections show that they will continue to act as an important anchor for future urban growth in India (Pradhan 2013, Roy and Pradhan, 2018). Given the growing importance of these emerging urban spaces in India's urbanization story, these places are also becoming central to understanding the issue of urban food security. At the same time, little is known about urbanization-food security linkages in these rural-urban transition geographies.

The distinct nature of India's urban transition notwithstanding, the key underlying driver of urbanization in country's periphery is structural economic transformation and related dynamics. Historically, structural transformation has been observed to drive economic growth, shift labour from farm to non-farm occupations, reshape agricultural systems, and change dietary patterns. As highlighted in the career-long work of Timmer (inter alia, 1988, 2000, 2009, 2015, 2017), connections between economic development and food security are shaped by three interlinked transformations, namely *structural, agricultural*, and *nutritional* (on this specific point, see Timmer 2017, p. 7; italics added). These interlinked transitions provide useful guide to conceptualise interactions between economic growth, urbanization, and food security in India, and we use these foundational connections to inform our conceptual framework on food security in emerging urban spaces (Figure 5).

Figure 5: Rural-urban transition and food security



Source: Authors' work

It is well established that the process of structural transformation reconfigures the sectoral composition of the economy. As the economy advances, the share of the rural-farm sector in national income decreases, while the urban nonfarm sectors comprising various industries and services gain importance in terms of their share in the overall economic output and income. This transformation has also led to livelihood shifts from farm to nonfarm occupations, as people respond to changes in the economic environment. Given that urban non-farm jobs are generally associated with higher incomes, structural transformation also provides a powerful force to reduce poverty and improve living standards. However, these outcomes of improved incomes and living standards do not occur automatically. They require public policies that enhance the productivity growth in both rural and urban sectors. The absence of such policies results in the growth of less productive informal jobs and threatens the viability of the transition itself (Timmer 2009, 2017). In India, these latter outcomes of slow productivity and growth of the informal sector are more visible, leading some analysts to characterise India's structural transformation as "stunted" (Binswanger-Mkhize 2013, p. 5). At the same time, the declining fortunes of the farm sector in the overall framework of the national economy have induced employment shifts out of farming. Agriculture now plays a reduced role in households' livelihoods, and it is non-farm incomes earned locally and distant labour markets that now constitute a major component of income portfolios for a large majority of households in India. From the perspective of food security, these shifts imply that a growing number of households now depend on non-farm income to source their food and nutrition needs. Although households often hold onto land that acts as an important economic (and cultural) asset, it does not adequately meet households' income and food security needs (Choithani 2023). Households in these rural-urban transition geographies represent what De Janvry and Sadoulet (2011, p. 476) call "net food buyers", whose production of basic food staples from their land falls short of their food needs and who now depend on market purchases to source their food needs. These changes can be positive and negative. If non-farm jobs are more remunerative, they can improve food security and dietary diversity. At the same time, reliance on the market for food can also have adverse effects on food consumption when food prices increase. The effect can be particularly severe for poor households who depend on low-paid jobs in the informal sector for whom even minor upward changes in food prices can adversely affect their nutritional wellbeing. Whether and how these outcomes play out in India's rural-urban transition geographies is an important question, and we investigate these linkages using available evidence.

The second pathway of linkages between urban transition and food security manifests itself through agricultural transformation, which generally results in improved farm productivity. Structural transition often provides the early trigger for this change, but agricultural transformation is driven by a wide range of factors, including domestic food requirements, nature of the country's agri-food system, international trade opportunities, and change in production technologies. There are wide spatial and temporal variations of agricultural transformation across countries, but historical experience shows two common paths to increasing farm productivity. The first is through enhancing *land productivity* via technologies such as high-yield varieties seeds, synthetic fertilizers, and pesticides, as was achieved through the Green Revolution in many land-scare Asian countries, including India. The second common way is by raising *labour productivity* through farm mechanization, as was witnessed in land-abundant countries such as the United States and Canada (Timmer 2017, p. 10). In India, the Green Revolution reforms in the northwest of the country in the 1960s and 1970s led to tremendous gains in domestic agricultural productivity, helped the country achieve food self-sufficiency, and boosted farm incomes (Pingali, Mitra and Rahman 2017). However, land productivity appears to have reached the upper limit in northwestern states, making further gains difficult. Environmental stressors are adding to the challenge of improving productive capacity of land resources (Pritchard et al. 2014). One way around this challenge is to increase the land under cultivation. But this is difficult in many land-scarce contexts where there is very little unutilised productive land available for farming (Timmer 2017). In fact, agricultural holdings in low- and lower-middle-income countries are getting progressively smaller in size, and India is no exception to this trend (Government of India, 2020, Lowder, Skoet, and Raney 2016). The absence of permanent migration to cities due to the pervasive urban informal sector means that the rural population continues to increase in India, placing demands on agricultural land for housing and developmental needs. In fact, this also explains India's rural-urban transition, which is characterised by huge changes in land use patterns and the built environment, with agricultural land increasingly being converted for urban uses (Balakrishnan 2019, Van Duijne and Nijman, 2019). In terms of food security, urbanization-induced land demands can intensify pressure on rural agricultural land, and the reduced land available for agriculture can potentially also result in high food prices, which can affect poor populations. How these processes weigh on food security in new urban geographies is another issue we examine.

Finally, the urban transition is generally associated with the nutrition transition involving "large shifts in the structure of diet" (Popkin 1999, p. 1905). Compared to rural diets, urban diets typically involve greater consumption of milled gains such as rice and wheat, animal products, foods higher in fat and sugar, processed foods, and out-of-home eating (Popkin and Bisgrove 1988; d'Amour et al. 2020). Structural economic change plays an important role in this process. The shift from farm to non-farm jobs generally improves incomes, which in turn leads to increased demand for calories and dietary diversity (Pingali and Sunder 2017). These livelihood shifts also reduce the need for strenuous manual labour, promote more sedentary lifestyles and are also linked with changes in time allocation patterns, including less time spent cooking, which promotes greater consumption of processed food and more food eaten outside of the home (d'Amour et al. 2020, Popkin 1999). Urban transition is also linked to wider availability of cheap, processed food through supermarkets (Reardon et al. 2003). The effects of these dietary, livelihood and lifestyle changes manifest themselves

in a changing nutritional profile, with an increasing incidence of overweight and obesity. Whether and how urbanization in India's former rural geographies is driving these changes, and what are the outcomes of these processes for different socioeconomic groups are another set of questions we investigate.

Urban Transition and Food Security: Pathways of Linkages

These processes provide pathways through which the urban transition can have a significant impact on the outcomes of food security in India. The next section builds on these conceptual links and reviews evidence on these pathways.

Urban transition and households as net food buyers

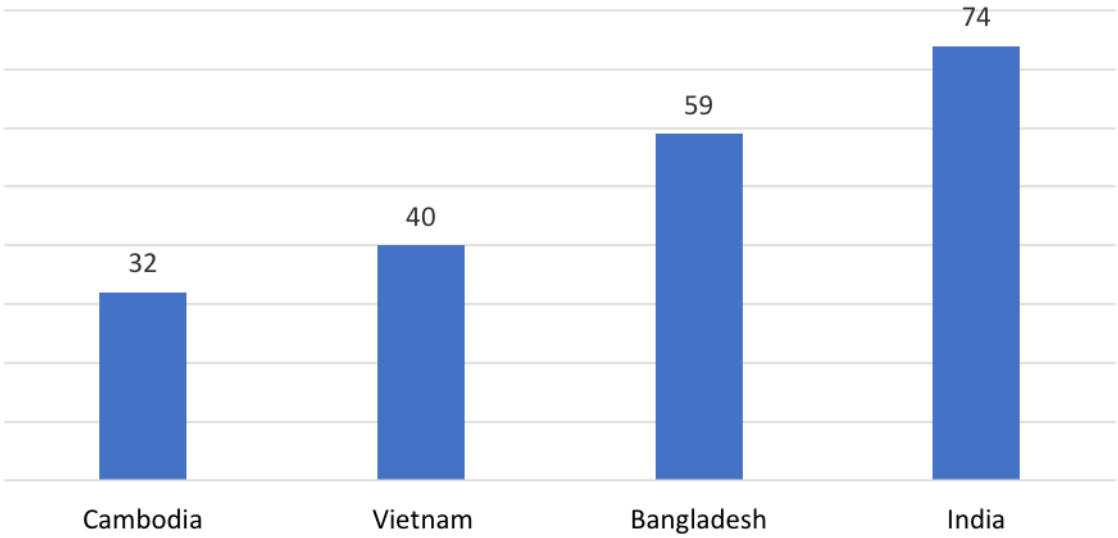
As noted earlier, at the heart of this rural-urban transition in India lies the structural economic change, which involves a massive shift of employment out of agriculture to non-farm jobs. While the agriculture sector in the country has always suffered from the problem of disguised unemployment with several individual members of smallholder households working on tiny land parcels, the past few decades have witnessed an intensification of pressures on farm-based livelihoods. For millions of people in rural-urban transition, it is the nonfarm jobs, pursued in the nearby town and distant urban markets, that now provide alternative livelihoods.

From the perspective of food security, this livelihood change also means that agriculture's capacity as a source of income and food provisioning has decreased significantly for a large majority of Indian households. Indeed, the available research shows that there exists a disconnect between agriculture and nutrition in India (Headey, Chiu and Kadiyala 2011). It is important to note that despite growing pressure on farm-based livelihoods in India, many households hold onto land as a source of security and agriculture still forms a part of a broad livelihood portfolio. But land and agriculture no longer adequately meet household food and nutrition security needs. Landholdings in India are generally very small and have witnessed a further diminution over time. More than 85 percent of landholdings in India are less than 2 hectares (Government of India 2020). Not surprisingly, nearly two-thirds of smallholders in India are *net food buyers* (Figure 6), meaning "they produce less [of their staple food] than they need and purchase the remainder on the market" (De Janvry and Sadoulet 2011, p. 476). This also means that cash incomes earned outside agriculture provide a more important anchor for food security. This can have both positive and negative effects on food and nutrition.

On the one hand, this nonfarm livelihood diversification can provide an important cushion to deal with dwindling agrarian prospects and improve living standards and food security (Barret, Reardon and Webb 2001, Pritchard et al. 2014). Research in India shows that in the wake of agrarian decline, non-farm incomes often equip the migrant communities with purchasing power to gain food access (Choithani 2017) and improve dietary diversity (Rahman and Mishra 2021). On the other hand, the detachment of agriculture from food provisioning also means a greater reliance on market for food purchase among urban migrant communities.

This issue is relevant in the context of food price volatility that has characterised the global food system since 2006. The spike in food prices between 2006 and 2008 that resulted in the global food crisis added more than 100 million people to the ranks of undernourished (FAO 2009), and poor populations dependent on the market for their food needs were the most hit as they saw the real value of their already meagre incomes decline. In 2022, global food prices in real terms were 45 percent higher (FAO 2022). Supply chain disruption due to the COVID-19 pandemic and the ongoing Russia-Ukraine war have compounded the challenge of persistently high food prices in recent times, and food price inflation will likely persist for a foreseeable future. As the recent International Monetary Fund's (2022, p. xvi) *World Economic Outlook* report focused on rising costs of living warned: "More energy and food price shocks might cause

Figure 6: Net buyers among smallholder households in select Asian countries (%)

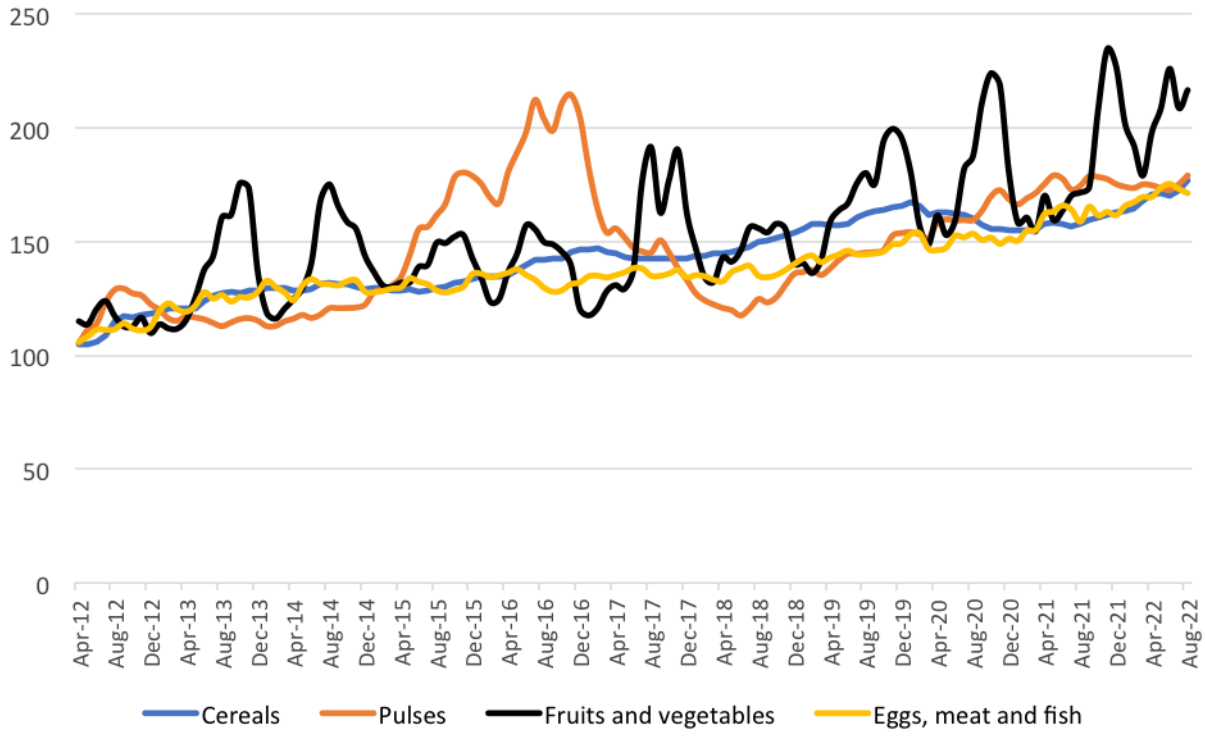


Source: De Janvry and Sadoulet (2011, p. 475)

inflation to persist for longer." Many countries across the world are fighting price spikes in basic commodities, and food inflation is a major contributor to rising costs of living. In India, the prices of food items have remained high for the past 10 years from their base (Figure 7).

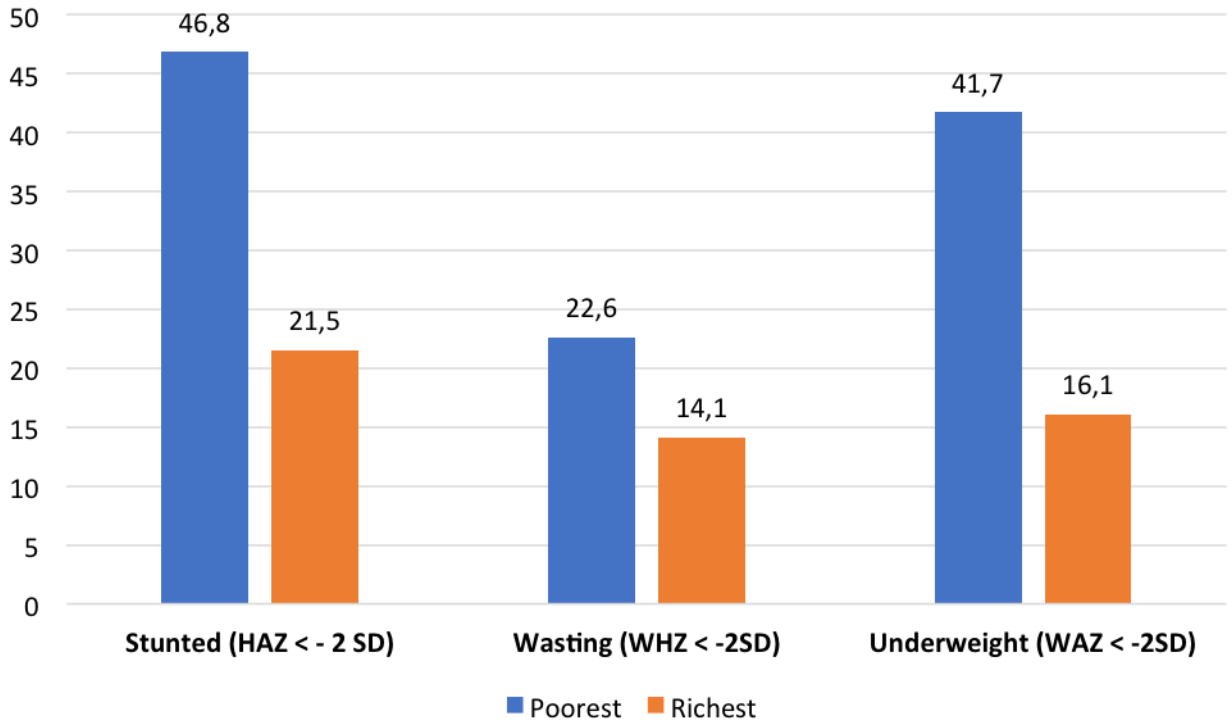
The urban poor are the worst affected by the rise in food inflation due to their informal jobs and excessive reliance on market purchases. Research in Africa shows that the circular nature of migration creates complex rural-urban linkages, and urban migrants receive food remittances from their rural families to cope with income and livelihood deficits in cities (Onyango, Crush and Owuor 2021, Tawodzera 2010). The evidence on this in an Indian context is not clear. But with livelihoods becoming deagrarianised in India (reflected in the fact that even smallholders now purchase most of their food), food remittances are perhaps not as significant in India. The way the urban poor in the country cope with these food shocks is to cut their consumption or reduce dietary diversity. Recent research on the impact of COVID-19 on food security in India suggests that among urban communities, urban poor saw the greatest decline in their dietary diversity (Gupta and Kaicker 2022). Another recent analysis by Crisil India (2021) of the impact of price rise by living standard and place of residence in 2020 and 2021 (up to September 2021) showed that while the 'food and beverages' accounted for almost 60 percent of expenditure of the bottom 20 percent of the population in both rural and urban areas, the urban poor felt the most impact of inflation. Our analysis of India's recent round of National Family Health Survey (2019-21) also shows that India's rural-urban transition is also relocating food and nutritional deficits from villages to cities, particularly affecting the urban poor. Urban children under 5 years are significantly more likely to experience any form of anthropometric failure than their rural peers. Within urban areas, the prevalence of childhood undernutrition varies substantially by wealth: compared to wealthy households, more than twice as many urban children from poor families are stunted (21.5 percent vs 46.8 percent) and underweight (16.1 percent vs 41.7 percent) (Figure 8). These outcomes point to exclusionary urbanization.

Figure 7: Wholesale price index of food commodities in India, 2012-2022 (base value of 100 at 2011-2012 prices)



Source: Authors' work based on Government of India (2022)

Figure 8: Undernutrition prevalence among children aged 0-59 months by economic class in urban India (percent of children)



Source: Authors' work based on NFHS-5 2019-2021 data (IIPS and ICF 2021)

Land use changes and food security

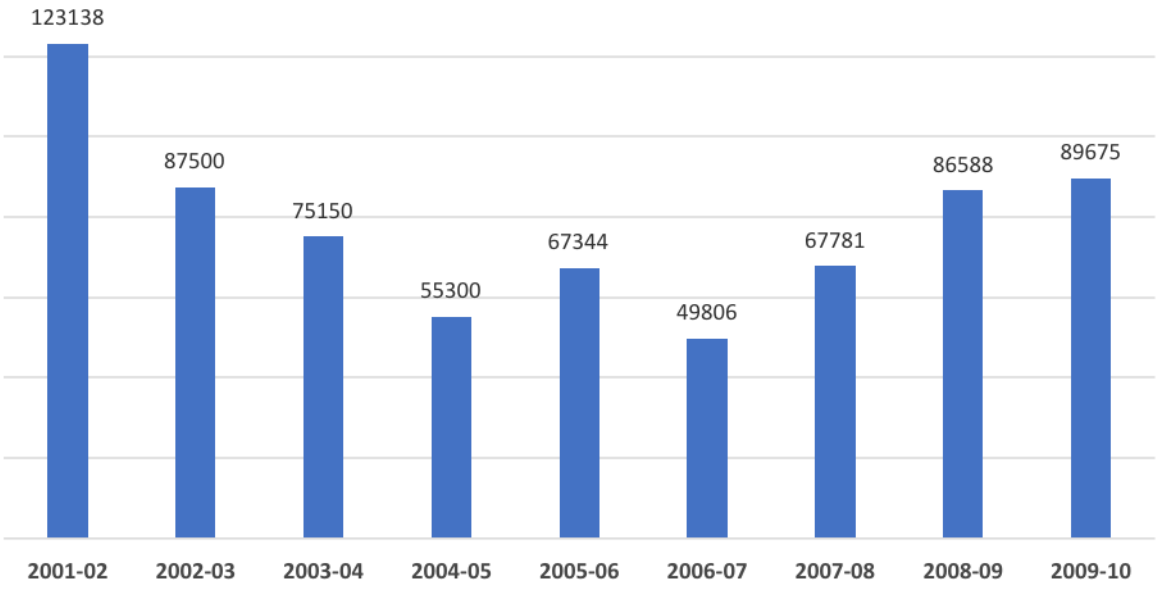
Another way in which India's urban transition is adding to the food security challenge is through changes in land use pattern, with farmland increasingly being converted to support urban growth. In an insightful study of these dynamics, Pandey and Seto (2015) showed that during 2001-10 (a period coinciding with rapid rural-urban transition), India lost a total of 7,00,000 hectares of agricultural land (Figure 9). This is a "very conservative" estimate of farmland loss in India due to difficulties associated with capturing conversion of agricultural land for non-farm use in its entirety (p. 63). But even if we take this figure at its face value, urbanization is a leading driver of these changing land use dynamics. The authors found that while the extent of farmland loss varied across different parts of the country, with agricultural land conversion being concentrated in Indian states witnessing economic growth, urban population growth explained more than half (53.8 percent) of the variation in state-level farmland loss estimates. Two other important findings of this study were as follows: i) smaller cities witnessed faster farmland conversion compared to big cities, which indicates greater growth at smaller places, as noted earlier (this is perhaps also a function of the fact that scope for urban expansion is greater in smaller places); ii) agriculture land loss was predominantly in states with higher agricultural land suitability. In other words, the states that had the suitable agricultural land lost this land to nonfarm uses.

In 2001, the Indian government launched an ambitious initiative to develop economic corridors which were to be supported by highway infrastructure throughout country; these developments have required (and accompanied) massive land acquisitions in former agricultural regions. While these changes have instigated new politics around land, the economic opportunities and road infrastructure have also led to massive urban growth in these heretofore rural regions (Balakrishnan 2019, Levien 2018, Van Duijne, Choithani and Pfeffer 2020, Van Duijne and Nijman 2019). As noted earlier, these places are not fully urban and retain elements of the rural, but the livelihoods in these rural-urban transition zones are increasingly detached from farming. A growing number of households now earn their living mainly from non-farm jobs, pursued locally and in distant urban places. Regarding the latter, circular labour migration to large cities is a key livelihood strategy of households in the rural-urban transition which is further propelling urbanization processes in these regions. One key aspect of this is the growth of housing. A study in rural Karnataka (a southern state of India), showed that circular labour migration fuelled the incipient urbanization process, with migrants working in the construction industry using their money and skills to build better houses in their sending areas (Iyer 2017). Similarly, another study on remote urbanization fuelled by circular labour migration in eastern India, which involved surveys with 645 households in the states of Bihar and West Bengal, showed that nearly half of households had built their current house in the past 10 years (Choithani, Van Duijne and Nijman 2021). Many of these households use their agriculture land for their housing needs.

These changes in land use patterns have implications for food security. First, the conversion of farmland to urban use poses a threat to overall food availability. The study by Pandey and Seto (2015), quoted above, found no adverse effects of agricultural land conversion on food production in

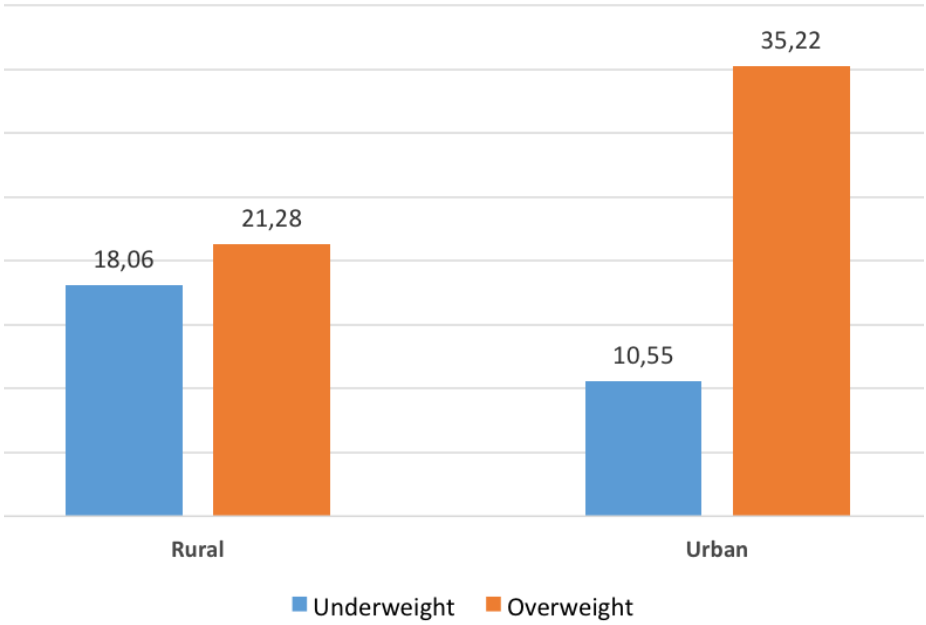
India, perhaps due to intensification of agriculture. Research in other parts of the world also suggests that food production continues at these rural-urban transition places due to increased demand for food from growth in urban population as well as cultural values associated with land and farming (Lerner and Etkin 2011). At the same time, urban growth in the rural-urban transition raises important questions about the future of food production. While farm intensification may enable the same output from less land, this may not hold when the positive benefits of technological interventions subside. India's "food bowl" states of Punjab and Haryana are examples where excessive farm intensification through Green Revolution reforms, while boosting overall food production, has also resulted in serious depletion of groundwater tables, making any future gains impossible (Pritchard et al. 2014). This loss of farmland assumes greater significance in the context of climate change, which will (and already does) have negative impacts on food production (IPCC 2014, 2022). Secondly, urbanization and non-farm jobs can also lead to a shift in cultural values towards farming, particularly among youth, who may withdraw from farming altogether, which can pose a challenge to long-term sustainability of food production (Craven and Gartaula 2015). Indeed, a recent study in India shows that rural families with working adults living close to economically dynamic cities send their members as migrants to work in cities and do not replace lost family labour in agriculture. Instead, they reduce their labour (and financial) investment in farming and cultivate less land, which reduces overall food production. While this leads non-migrant households to live in villages farther from high-growth cities to deepen their engagement with agriculture, this does not fully compensate for the loss of food production (Madhok et al. 2022). Third, this urban growth is also fuelling land speculation in which traditionally disadvantaged communities are being further dispossessed of their land-based resources (Levien 2018). These processes can result in a decline in overall food availability, particularly in the long run, which can in turn hurt the urban poor through increased food prices. These flow-through food security implications of urban land conversion are perhaps already hurting the urban poor in India, but this issue requires a more systematic investigation.

Figure 9: Year-wise trends in agricultural land loss in India (in hectares)



Source: Pandey and Seto (2015, p. 57)

Figure 10: Malnutrition in India among women aged 15-49 years by place of residence, 2019-2021



Source: Authors' work based on NFHS-5 2019-21 data (IIPS and ICF 2021)

Dietary changes and nutritional wellbeing

India's rural-urban transition is also changing the food environment in the country, and overweight and obesity are on the rise. Traditionally, caste has played a significant role in determining the food choices of Indians who were very inflexible about their culinary preferences (Achaya 1994). But rapid economic change and urbanization are steadily altering eating patterns (Beinhocker, Farrell and Zainulbhai 2007). Convenience seems to be replacing caste, and foods like pre-cut vegetables, bottled and canned products, frozen meat and snacks, etc. are gaining popularity among urban dwellers (Kaur et al. 2016). Urban diets are also characterised by increased consumption of sugars, fats, oil, and ultra-processed foods (Gulati and Misra 2014; Law et al. 2019; Shetty 2013). Overweight and obesity are also on the rise as a consequence. The results of a study based on data from two nationally representative surveys, the Indian Human Development Survey (2004 and 2012) and National Family Health Survey (2005-06), showed that while in rural areas underweight exceeded overweight in all age groups, overweight was more prevalent in urban areas across age groups, and that overweight was the predominant form of unhealthy weight in urban areas from young adult ages of 29 years and older (Patel et al. 2015). Recent round of NFHS (2019-21) shows that while overweight far exceeds underweight in urban areas, obesity and overweight are also on the rise in rural India. In fact, among some population groups, overweight is now more prevalent than underweight even in rural areas (Figure 10). While information on the dynamics of nutritional transition in India's rural areas is lacking, these trends align with the evidence on the growing urbanization in remote, rural places that are not part of official urban imaginations and discourse in India.

Furthermore, our analysis shows that food consumption patterns also vary between rural and urban areas. Figure 11 presents data on the consumption of various food items by adult women (15-49 years). Although urban diets in general are better than rural diets and a greater proportion of urban women consume fruits, eggs, fish, and meat vis-à-vis their rural counterparts, consumption of unhealthy diets such as fried foods and aerated drinks is also higher in urban areas. It is also important to note that access to healthy food items, such as fruits and vegetables, varies by economic status. For example, the proportion of women who drink milk daily is 33 percent in the poorest quintile, while this proportion in the richest quintile is 66.4 percent. Similarly, daily fruit consumption among women from the poorest and richest quintile is 6 percent and 22.5 percent, respectively. This indicates that income effects often weigh more heavily on diets, and urbanization does not offer the same benefits to the poorest (d'Amour et al. 2020, Pandey et al. 2020). These findings are not surprising, as a large majority of urban poor work in the low-wage, precarious informal sector jobs, as noted previously.

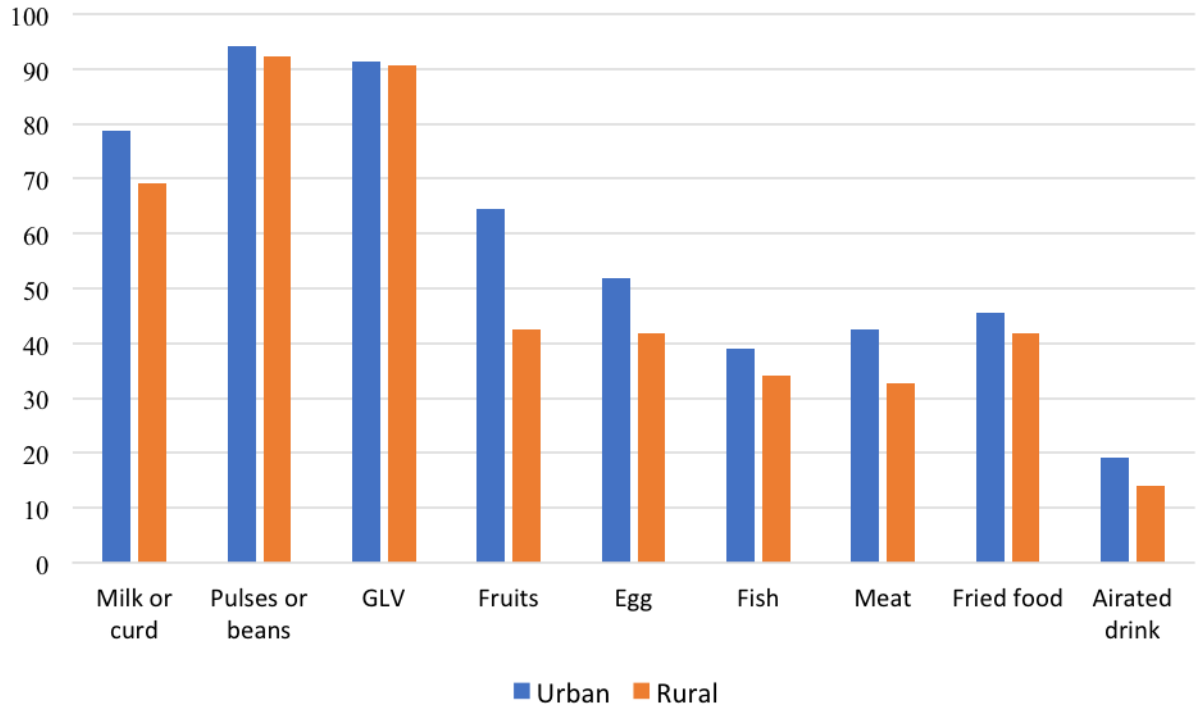
Poor populations in urban areas often find it difficult to afford expensive healthy foods such as fruits and milk, and rely on low-cost cereal-based diets. A National Nutrition Monitoring Bureau report (2017) shows that urban dwellers in India are unable to meet the recommended dietary allowance (RDA) in terms of macronutrients (energy and protein), and micronutrients (iron, thiamine, niacin). The intake of vitamin A and riboflavin was also found to be grossly inadequate among the urban population, especially among the poor. Our analysis of NFHS-5 (2019-20) data shows that only one in every five children aged 6 to 23 months of the poorest wealth quintile receives the minimum acceptable diet recommended by WHO, and urban children of poor economic backgrounds have significantly worse levels of undernutrition than those in better-off families (Figure 8). As noted earlier, structural economic change has not created better paying nonfarm jobs for all sections of the population, and

the persistence of high poverty mean that urban areas are homes to multiple forms of malnutrition, whereby chronic undernourishment persists alongside rising increasing rates of overweight and obesity. Urban poor still suffer from chronic food insecurity, while excesses in diet are making better-off sections overweight.

It is important to note that much of this research reported above on the urbanization-diets-nutrition nexus in India focuses on large cities, and there is very little evidence on nutrition transition in emerging urban spaces. However, limited research shows that the process of structural transformation and its implications for food security are not very different. The newly emerging urban forms appear to have better living standards compared to rural areas (Roy and Pradhan 2018). Livelihood shifts are accompanied by general improvements in well-being, and increased demand for urban forms of consumption (Van Duijne, Nijman and Choithani 2022). The peripheries of large cities are witnessing these changes, but even remote places connected with travel infrastructure are seeing transformations (Mondol and Samata 2021). These changes are also reconfiguring diets, and body composition.

A study on nutrition transition in Indian villages closer to town showed that urban proximity is associated with better livelihoods, dietary changes, and increased overweight and obesity (Aiyar, Rahman and Pingali 2020). At the same time, the outcomes of livelihood changes are not identical for everyone, and low- and middle-income populations still suffer from the lack of adequate access to healthy food. This is highlighted by two recent studies focusing on food and nutrition security in the rural-urban transition zones of large Indian cities. The study by Geetha et al. (2020, pp. 3-5) that looked at food consumption among 300 middle-income men and women residing at the rural-urban interface (sample evenly distributed between *rural, transition* and *urban* areas) of the fast-growing city of Bangalore in southern India documented poor dietary diversity, including lower consumption of "protective food groups" rich in micronutrients, in (rural-urban) *transition* places compared to population in the other two geographies. Similarly, research in another southern Indian city of Hyderabad using 1108 urban and 808 peri-urban respondents showed a significantly low consumption of dark green leafy vegetables, as well as other fruits and vegetables rich in vitamin A among peri-urban populations, particularly among the adult women which is also indicative of the added gender-based disadvantage of women in transition areas (Marla and Padmaja 2023). It is also likely that the very poor in these transition zones suffer from basic calorie deprivation, given their detachment from traditional farm-based livelihoods and precarious urban informal jobs. How the urban transition in these peripheries shapes nutritional outcomes for differently positioned groups is a question that requires further systematic field-based assessment.

Figure 11: Consumption of various food items (daily or weekly) by urban and rural women (15-49 years) in India (NFHS-5, 2019-2021)



Source: Authors' work based on NFHS-5 2019-21 data (IIPS and ICF 2021).
GLV: Green Leafy Vegetables.

Conclusion

This paper looks at the food and nutrition security implications of the rural-urban transition in India, within the wider context of accelerating urbanization at the global scale. A close reading of key policy documents and academic literature on urbanization and food security at the wider global level suggests that the connections between them have not been adequately acknowledged and explored. This neglect seems to emanate from the dominant frames of enquiry that posit food insecurity as a production concern and view cities as having a distinct urban advantage. However, the nature of the global urban transition, as it is currently occurring, defies these dominant logics. In many parts of the Global South, where much of the current and future urban growth is concentrated, urban environments are increasingly hotspots of chronic hunger and undernutrition due to their inability to provide decent, stable livelihoods to the vast majority of urban dwellers (Crush 2016). Worryingly, moreover, recent patterns of urban-centric economic growth in many developing economies have also weakened the traditional role of land and agriculture as a source of income and food security and intensified rural-urban labour migration (Choithani 2017, Pritchard et al. 2016). But a bulk of urban jobs are informal, which, while enabling migrants and their families to make up for the agrarian decline, preclude opportunities for them to carve out permanent urban futures. In other words, rural-urban migrants in developing countries face the double curse of farm decline and deterioration of urban prospects.

Perhaps nowhere in the world are these exclusionary outcomes as prominent as in India. Over the past three decades, the Indian economy has witnessed tremendous growth, and urban areas contribute a large portion of the country's national income (IIHS 2015, Planning Commission 2011). India's urban-centric economic growth also means that livelihoods are increasingly disconnected from farming and millions of former agricultural households now increasingly depend on nonfarm jobs in India's large cities, where income and employment opportunities are concentrated. But these alternative jobs are predominantly in the informal sector and are of low-wage, high-precarity nature, which prevent a complete shift from rural-farm to urban-nonfarm existence for millions in this transition. Add to this the escalating costs of basic amenities in India's big cities, as well as increased attempts of better-off urban denizens to deny the poor migrants space in these cities (Kundu 2003, 2014, Parthasarathy 2011). While rural-urban labour migration has grown significantly, much of it is of circular nature, with migrants earning in cities while maintaining their rural base (Choithani, Van Duijne and Nijman 2021). India's exclusionary urbanization is manifested in national statistics showing a slowing of urban growth despite rapid economic advancement. Crucially, moreover, the exclusionary nature of India's large cities is also driving substantial urban growth in the former agrarian zones. There is a dearth of systematic research on the food and nutrition security implications of this bottom-led urbanization in India. This paper has attempted to conceptualize the links between the rural-urban transition and food security in India, and using available evidence, it has sought to tease out the implications of food security of this transition.

The reviewed evidence suggests an overall worsening of food and nutrition security for people in this rural-urban transition, particularly for the poor populations. First, the decreasing importance of land and agriculture for food security has led to an increased dependence on the market for food purchases, and an increasing number of farm households now depend on cash incomes from non-farm jobs to meet their food needs. However, the generally low cash incomes from informal jobs do not always allow households to improve their nutritional well-being. In India, recent evidence shows that in the period between 2014-15 and 2021-22, the real wages of low-skilled workers, including non-agricultural labourers, barely grew (Dreze 2023). Even when income gains from non-farm sources are significant, their positive effects are often negated by the rise in food prices, which has been a *defining* feature of the global food system in the past few years. Second, the conversion of fertile agricultural land to support urban growth in former rural geographies also appears to hurt the poor through higher food prices. While these changes in land use do not have immediate negative effects on overall food production, they can compound the challenges of food access among the poor in the wake of increasingly volatile food prices. Third, the rural-urban transition also seems to be driving dietary changes which affect the different socioeconomic groups differently: while there is a general increase in overweight and obesity, poor populations still suffer from basic macronutrient deprivation. Finally, there is another major issue that this paper has not addressed due to lack of data which pertains to the implications of rural-urban transition for gender roles and food security. In India, circular labour migration is dominated by men, while women remain behind, reconfiguring gender relations. Male migration often requires women to assume the additional load of productive and reproductive functions of households that can undermine the food security of women and children (Choithani 2023).

These insights have relevance beyond India. Urban expansion in many parts of the developing world is increasingly dominated by smaller places (Randolph and Deuskar 2020). Although the drivers of this bottom-led urbanization are complex and context-specific, it is likely that exclusionary urban processes contribute to peripheral urbanization on a larger scale. Whether and how this rural-urban transition weighs on nutritional outcomes is a pressing policy question. This review presents a conceptual framework on the pathways of linkages between the rural-urban transition and food security that could provide a useful guide to explore these linkages.

References

1. Achaya, K. (1994). *Indian Food: A Historical Companion*. Delhi: Oxford University Press.
2. Aiyar, A., Rahman, A. and Pingali, P. (2021). "India's Rural Transformation and Rising Obesity Burden." *World Development* 138, 105258.
3. Balakrishnan, S. (2019). *Shareholder Cities: Land Transformations along Urban Corridors in India*. Philadelphia: University of Pennsylvania Press.
4. Barrett, C., Reardon, T. and Webb, P. (2001). "Nonfarm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Dynamics, and Policy Implications." *Food Policy* 26(4): 315-331.
5. Beinhocker, E., Farrell, D. and Zainulbhai, A. (2007). "Tracking the growth of India's middle class." *McKinsey Quarterly* 3: 51-61.
6. Bhagat, R. (2012). "A Turnaround in India's Urbanisation." *Asia-Pacific Population Journal* 27(2): 23-39.
7. Binswanger-Mkhize, H. (2013). "The Stunted Structural Transformation of the Indian Economy: Agriculture, Manufacturing and the Rural Non-farm sector." *Economic and Political Weekly* 48(26-27): 5-13.
8. Breman, J. (2010). *Outcast Labour in Asia: Circulation and Informalisation of the Workforce at the Bottom of the Economy*. Oxford: Oxford University Press.
9. Census of India (2011). Provisional Population Totals: Urban Agglomerations and Cities (Paper 2). New Delhi: Registrar General and Census Commissioner of India. At: https://censusindia.gov.in/
10. Census of India (2011a). Provisional population totals: Urban agglomerations and cities. At: https://censusindia.gov.in/
11. Census of India (2011b). Primary Census Abstract (online data). At: https://censusindia.gov.in/
12. Chen, M. and Raveendran, G. (2014). Urban employment in India: Recent trends and patterns. WIEGO Working Paper No. 7, Manchester: WIEGO. At: https://www.wiego.org/sites/default/files/publications/files/Chen-Urban-Employment-India-WIEGO-WP7.pdf.
13. Choithani, C. (2017). "Understanding the Linkages between Migration and Household Food Security in India." *Geographical Research* 55(2): 192-205.
14. Choithani, C. (2021). "Of Left-Behind Places and People: Inequality, Labour Migration and Development in India." NIAS Working Paper Number 22, Bengaluru: National Institute of Advanced Studies. At: http://eprints.nias.res.in/2244/1/WP22-2021-Chetan-Choithani.pdf
15. Choithani, C. (2023). *Migration, Food Security and Development*. Cambridge and New Delhi: Cambridge University Press.
16. Choithani, C., Van Duijne, R. and Nijman, J. (2021). "Changing Livelihoods at India's Rural–Urban Transition." *World Development* 146, 105617.
17. Collier, P. and Venables, A. (2017). "Urbanisation in Developing Economies: The Assessment." *Oxford Review of Economic Policy* 33(3): 355-372.
18. Craven, L. and Gartaula, H. (2015). "Conceptualising the Migration–Food Security Nexus: Lessons from Nepal and Vanuatu." *Australian Geographer* 46(4): 455-471.
19. Crisil India (2021). "Quickonomics: Same Inflation, Different Burdens by Income." At: https://www.crisil.com/en/home/our-analysis/views-and-commentaries/2021/10/same-inflation-different-burdens-by-income.html
20. Crush, J. (2016). "Hungry Cities of the Global South." Hungry Cities Partnership Discussion Paper No. 1, Waterloo, ON: Hungry Cities Partnership.
21. Crush, J., Frayne, B. and Haysom, G. (Eds.). (2020). *Handbook on Urban Food Security in the Global South*. Cheltenham: Edward Elgar Publishing.
22. d'Amour, C., Pandey, B., Reba, M., Ahmad, S., Creutzig, F. and Seto, K. C. (2020). "Urbanisation, Processed Foods, and Eating out in India." *Global Food Security* 25, 100361.
23. Davies, J., Hannah, C., Guido, Z., Zimmer, A., McCann, L., Battersby, J. and Evans, T. (2021). "Barriers to Urban Agriculture in Sub-Saharan Africa." *Food Policy* 103, 101999.
24. De Janvry, A. and Sadoulet, E. (2011). "Subsistence Farming as a Safety Net for Food-Price Shocks." *Development in Practice* 21(4-5): 472-480.
25. Deshingkar, P. and Akhter, S. (2009). "Migration and Human Development in India." Human Development Research Paper No. 2013. New York City, UNDP At: http://hdr.undp.org/sites/default/files/hdrp_2009_13.pdf.
26. Dreze, J. (2023, April 13). Wages of distress. *Indian Express*, p. 11.
27. FAO (2022). *FAO Food Price Index (Base 2014-16)*. At: https://www.fao.org/worldfoodsituation/foodpricesindex/en/
28. FAO. (2019). *FAO Framework for the Urban Food Agenda*. At: https://doi.org/10.4060/ca3151en
29. Fay, M. and Opal, C. (2000). "Urbanisation Without Growth: A Not So Uncommon Phenomenon." World Bank Policy Research Working Paper No. 2412, Washington D.C: The World Bank.
30. Geetha, K., Yatnatti, S., Vijayalakshmi, D. and Dittrich, C. (2020). "Food Consumption Practices of Men and Women Across Rural-Urban Interface of South Indian Megacity Bangalore." *European Journal of Nutrition & Food Safety* 12(5): 1-9
31. Glaeser, E. (2012). *Triumph of the City: How Urban Spaces Make Us Human*. London: Pan Macmillan.
32. Glaeser, E. (2010). "Introduction." In E. L. Glaeser (ed.), *Agglomeration Economics* (Chicago: University of Chicago Press), pp. 1-14.
33. Glaeser, E. (2014). "A World of Cities: The Causes and Consequences of Urbanisation in Poorer Countries." *Journal of the European Economic Association* 12(5): 1154-1199.

34. Gollin, D., Jedwab, R. and Vollrath, D. (2016). "Urbanisation With and Without Industrialisation." *Journal of Economic Growth* 21: 35-70.
35. Government of India (2020). *All India Report on Agriculture Census 2015-16.* New Delhi: Ministry of Agriculture.
36. Government of India (2022). *Index files for WPI Series (Base 2011-12)*. New Delhi: Office of Economic Advisor, Government of India. At: https://eaindustry.nic.in/
37. Government of India. (2017). *Economic Survey 2016-17.* New Delhi: Ministry of Finance.
38. Gulati, S. and Misra, A. (2014). "Sugar Intake, Obesity, and Diabetes in India." *Nutrients* 6(12): 5955-5974.
39. Gupta, A. and Kaicker, N. (2022). "Dietary Diversity During Covid-19 in India." *Economic and Political Weekly* 47(39): 21-24.
40. Harris, J. and Todaro, M. (1970). "Migration, Unemployment and Development: A Two-Sector Analysis." *American Economic Review* 60(1): 126-142.
41. Headey, D., Chiu, A. and Kadiyala, S. (2011). "Agriculture's Role in the Indian Enigma: Help or Hindrance to the Undernutrition Crisis." IFPRI Discussion Paper No. 1085. At: https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/124911/filename/124912.pdf.
42. Henderson, J. (2010). "Cities and Development." *Journal of Regional Science* 50(1): 515-540.
43. Henderson, J. and Turner, M. (2020). "Urbanisation in the Developing World: Too Early or Too Slow?" *Journal of Economic Perspectives* 34(3): 150-173.
44. IFPRI. (2017). *Global Food Policy Report 2017*. Washington, DC: International Food Policy Research Institute.
45. IIPS and ICF. (2021). National Family Health Survey (NFHS-5), 2019-21, Dataset. DHS Program. At: https://dhsprogram.com/data/dataset_admin/login_main.cfm.
46. IMF. (2022). *World Economic Outlook: Countering the Cost-of-Living Crisis (Oct 2022)*. Washington, DC: International Monetary Fund.
47. IPCC. (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability.* Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press.
48. IPCC. (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability.* Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge and New York: Cambridge University Press.
49. Iyer, S. (2017). "Circular Migration and Localised Urbanisation in Rural India." *Environment and Urbanisation ASIA* 8(1): 105-119.
50. Kaur, A., Malik, G., Sharma, N. and Mittal, R. (2016). "The New Indian Middle Class Consumption Preference Towards Convenience Foods: A Grounded theory approach." *Pacific Business Review International* 9(2): 31-38.
51. Kotwal, A., Ramaswami, B. and Wadhwa, W. (2011). "Economic Liberalisation and Indian Economic Growth: What's the Evidence?" *Journal of Economic Literature* 49(4): 1152-1199.
52. Kundu, A. (2003). "Urbanisation and Urban Governance: Search for a Perspective Beyond Neo-Liberalism." *Economic and Political Weekly* 38(29): 3079-3087.
53. Kundu, A. (2011). "Method in Madness: Urban Data from 2011 Census." *Economic and Political Weekly* 46(40): 13-16.
54. Kundu, A. (2014). "Exclusionary Growth, Poverty and India's Emerging Urban Structure." *Social Change* 44(4): 541–566.
55. Kuznets, S. (1973). "Modern Economic Growth: Findings and Reflections." *The American Economic Review* 63(3): 247-258.
56. Langemeyer, J., Madrid-Lopez, C., Beltran, A. and Mendez, G. (2021). "Urban Agriculture: A Necessary Pathway Towards Urban Resilience and Global Sustainability?" *Landscape and Urban Planning* 210, 104055.
57. Lanjouw, P., Quizon, J. and Sparrow, R. (2001). "Non-Agricultural Earnings in Peri-Urban Areas of Tanzania: Evidence from Household Survey Data." *Food Policy* 26(4): 385-403.
58. Law, C., Green, R., Kadiyala, S., Shankar, B., Knai, C., Brown, K. A., ... and Cornelsen, L. (2019). "Purchase Trends of Processed Foods and Beverages in Urban India." *Global Food Security* 23: 191-204.
59. Lerner, A. and Eakin, H. (2011). "An Obsolete Dichotomy? Rethinking the Rural–Urban Interface in Terms of Food Security and Production in the Global South." *The Geographical Journal* 117(4): 311-320.
60. Levien, M. (2018). *Dispossession without Development: Land Grabs in Neoliberal India*. Oxford University Press.
61. Lewis, W. (1954). *Economic Development with Unlimited Supplies of Labour.* Manchester: Manchester School.
62. Lowder, S., Skoet, J. and Raney, T. (2016). "The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide." *World Development* 87: 16-29.
63. Madhok, R., Noack, F., Mobarak, A. and Deschenes, O. (2022). "Rural-Urban Migration and the Re-organization of Agriculture." EGC Discussion Paper No. 1095. At: https://elischolar.library.yale.edu/egcenter-discussion-paper-series/1095
64. Marla, K. and Padmaja, R. (2023). Analyzing gender differentials in dietary diversity across urban and peri-urban areas of Hyderabad, India. *BMC Nutrition*, 9(1), 1-10.
65. Mehrotra, S. (2019). "Informal Employment Trends in the Indian Economy: Persistent Informality but Growing Positive Development." Employment Working Paper No. 254, Geneva, International Labour Organization.

66. Mehrotra, S., Gandhi, A., Saha, P. and Sahoo, B. (2013). "Turnaround in India's Employment Story: Silver Lining Amidst Joblessness and Informalization?" *Economic and Political Weekly*, 48(35), 87-96.
67. Mondal, B. and Samanta, G. (2021). *Mobilities in India: The Experience of Suburban Rail Commuting*. Cham: Springer.
68. Mukherji, S. (2006). *Migration and Urban Decay: Asian Experiences*. Jaipur: Rawat Publication.
69. Nayyar, G. and Kim, K. (2018). "India's Internal Labour Migration Paradox: The Statistical and the Real." World Bank Policy Research Working Paper No. 8356. Washington, DC: World Bank.
70. Nijman, J. (2012). "India's Urban Challenge." *Eurasian Geography and Economics* 53(1): 7-20.
71. Nijman, J. (2015). "India's Urban Future: Views from the Slum." *American Behavioral Scientist* 59(3): 406-423.
72. Nijman, J. (2019). "Urbanization and Economic Development: Comparing the Trajectories of China and the United States." In R. Forrest, J. Ren, and B. Wissink (eds.), *The City in China* (Bristol: Bristol University Press), pp. 101-124.
73. Office of Economic Advisor (2022). Index files for WPI Series (Base: 2011-12). New Delhi: Government of India. Accessed online on September 30, 2022 from https://eaindustry.nic.in/
74. Onyango, E., Crush, J. and Owuor, S. (2021). "Food Remittances, Migration and Rural-Urban Linkages in Kenya." MiFOOD Working Paper No. 2, Waterloo, Hungry Cities Partnership.
75. Pandey, B. and Seto, K. (2015). "Urbanization and Agricultural Land Loss in India: Comparing Satellite Estimates with Census Data." *Journal of Environmental Management* 148: 53-66.
76. Pandey, B., Reba, M., Joshi, P. and Seto, K. (2020). "Urbanization and Food Consumption in India." *Scientific Reports* 10(1), 17241.
77. Pani, N. (Ed.) (2022). *Dynamics of Difference: Inequality and Transformation in Rural India*. New Delhi: Routledge.
78. Parthasarathy, D. (2011). "Hunters, Gatherers and Foragers in a Metropolis: Commonizing the Private and Public in Mumbai." *Economic and Political Weekly* 46(50): 54-63.
79. Patel, S., Narayan, K. and Cunningham, S. (2015). "Unhealthy Weight among Children and Adults in India: Urbanicity and the Crossover in Underweight and Overweight." *Annals of Epidemiology* 25(5): 336–341.e2.
80. Pingali, P. and Sunder, N. (2017). "Transitioning Toward Nutrition-Sensitive Food Systems in Developing Countries." *Annual Review of Resource Economics* 9: 439-459.
81. Pingali, P., Mittra, B. and Rahman, A. (2017). "The Bumpy Road from Food to Nutrition Security: Slow Evolution of India's Food Policy." *Global Food Security* 15: 77-84.
82. Planning Commission (2011). *Eleventh Five Year Plan (2007-12): Mid-term appraisal*. New Delhi: Government of India.
83. Popkin, B. (1999). "Urbanization, Lifestyle Changes and the Nutrition Transition." *World Development* 27(11): 1905-1916.
84. Popkin, B. and Bisgrove, E. (1988) "Urbanization and Nutrition in Low-Income Countries." *Food and Nutrition Bulletin* 10(1): 3-23.
85. Pradhan, K. (2012). "Unacknowledged Urbanisation: The New Census Towns of India." *Economic and Political Weekly* 48(36): 43-51.
86. Pritchard, B., Dixon, J., Hull, E. and Choithani, C. (2016). "Stepping Back and Moving In: The Role of The State in the Contemporary Food Regime." *The Journal of Peasant Studies* 43(3): 693-710.
87. Pritchard, B., Rammohan, A., Sekher, M., Parasuraman, S. and Choithani, C. (2013). *Feeding India: Livelihoods, Entitlements and Capabilities*. Oxon: Routledge.
88. Rahman, A. and Mishra, S. (2020). "Does Non-Farm Income Affect Food Security? Evidence from India." *Journal of Development Studies* 56(6): 1190-1209.
89. Randolph, G. and Storper, M. (2023). "Is Urbanisation in the Global South Fundamentally Different? Comparative Global Urban Analysis for the 21st century." *Urban Studies* 60(1): 3-25.
90. Reardon, T., Timmer, C., Barrett, C. and Berdegué, J. (2003). "The Rise of Supermarkets in Africa, Asia, and Latin America." *American Journal of Agricultural Economics* 85(5): 1140-1146.
91. Roy, S. N. and Pradhan, K. C. (2018). "Predicting the Future of Census Towns." *Economic & Political Weekly* 53(49): 70-79.
92. Ruel, M., Garrett, J., Yosef, S. and Olivier, M. (2017). "Urbanization, Food Security and Nutrition." In de Pee, S. Douglas T. and Martin W. (eds), *Nutrition and Health in a Developing World* (Cham: Springer), pp. 705-735.
93. Scott, A. (2017). *The Constitution of the City: Economy, Society, and Urbanization in the Capitalist Era.* Cham: Palgrave Macmillan.
94. Sen, P. (2017. "The Puzzle of Indian Urbanization." *Livemint*, 4 May 2017. At: https://www.livemint.com/Opinion/tQTbqmQg9cxJgpAKYgkclK/The-puzzle-of-Indian-urbanization.html
95. Shetty, P. (2013). "Nutrition Transition and its Health Outcomes." *The Indian Journal of Pediatrics* 80(Suppl 1): S21–S27.
96. Survey of India (2022). Administrative boundary database. New Delhi: Ministry of Science and Technology. At: https://onlinemaps.surveyofindia.gov.in/Digital_Product_Show.aspx
97. Tandel, V., Hiranandani, K, and Kapoor, M. (2016). "What's in a Definition? A Study on Implications and Suitability of Urban Definitions in India through its Employment Guarantee Program." At: https://www.idfcinstitute.org/site/assets/files/9615/tandel_et_al_28th_july_whats_in_a_definition.pdf

98. Tawodzera, G. (2010). Vulnerability and Resilience in Crisis: Urban Household Food Insecurity in Harare, Zimbabwe. Unpublished PhD thesis. Department of Environment and Geographical Sciences, University of Cape Town.
99. Timmer C. (1988) "The Agricultural Transformation." In Chenery H. and Srinivasan T. (eds), *Handbook of Development Economics* (Amsterdam: North-Holland), pp. 275–331.
100. Timmer C. (2009) A World without Agriculture: The Structural Transformation in Historical Perspective. Wendt Distinguished Lecture. American Enterprise Institute, Washington, DC. At: https://www.aei.org/wp-content/uploads/2014/06/-a-world-without-agriculture-the-structural-transformation-in-historical-perspective_145442400043.pdf
101. Timmer, C. (2000). "The Macro Dimensions of Food Security: Economic Growth, Equitable Distribution, and Food Price Stability." *Food Policy* 25(3): 283-295.
102. Timmer, C. (2015). "Managing Structural Transformation: A Political Economy Approach." WIDER Annual Lecture 018. Helsinki: UNU-Wider. At: https://www.wider.unu.edu/publication/managing-structural-transformation
103. Timmer, C. (2017). "Food Security, Structural Transformation, Markets and Government Policy." *Asia & The Pacific Policy Studies* 4(1): 4-19.
104. Todaro, M. (1969). "A Model of Labour Migration and Urban Unemployment in Less Developed Countries." *American Economic Review* 59(1): 138-148.
105. UN-Habitat (2022). *Envisaging the Future of Cities (World Cities Report 2022)*. Nairobi: United Nations Human Settlements Programme.
106. United Nations (2016). *Habitat III: New Urban Agenda.* Draft outcome document for adoption in Quito. At: https://habitat3.org/the-new-urban-agenda/
107. United Nations (2018). *World Urbanization Prospects: The 2018 revision (data).* At: https://population.un.org/wup/Download/
108. United Nations (2019). *World Urbanization Prospects: The 2018 Revision (report)*. At: https://population.un-.org/wup/Publications/Files/WUP2018-Report.pdf
109. van Duijne, R. (2017). What is India's Urbanisation Riddle." *Economic and Political Weekly* 52(28): 76-77.
110. van Duijne, R. and Nijman, J. (2019). "India's Emergent Urban Formations." *Annals of the American Association of Geographers* 109(6): 1978-1998.
111. van Duijne, R., Choithani, C. and Pfeffer, K. (2020). "New Urban Geographies of West Bengal, East India." *Journal of Maps* 16(1): 172-183.
112. van Duijne, R., Nijman, J. and Choithani, C. (2023). "Injected Urbanism? Exploring India's Urbanising Periphery." *Economic Geography* 99(2): 161-190.
113. World Bank (2022). Poverty and Equity Brief: South Asia (India). At: https://databankfiles.worldbank.org/data/download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_IND.pdf