

FOOD SECURITY IN MALAWI

After providing a conceptual overview of food security and how it contributes to improved nutrition, this chapter examines recent food security trends in Malawi at both the aggregate national level and the household and individual levels. This is done by focusing on maize, the principal staple. Because the country depends largely on rainfed domestic production of maize, the amount available annually is quite variable. The incidence of annual food crises affecting more than 10 percent of the population has increased in recent years. Variation in maize prices across the years, though decreasing, remains high, and seasonal price movements are not always predictable. At the household level, more than half of Malawian households have a level of consumption below the poverty line, which is defined by consumption of a basket of basic goods dominated by food. This poverty rate has been relatively unchanged for the past 20 years. At the individual level, although nutritional outcomes in Malawi are improving along several dimensions, food security and dietary factors have not been important in driving these recent changes, but will be critical for achieving any further advances.

The leaders of Malawi have repeatedly demonstrated that they recognize their obligation to meet the food needs of all citizens. Within the public sector, the agriculture ministry has been the line ministry that has had the heaviest responsibility for doing so, particularly through efforts to increase maize production. However, food security is not synonymous with agriculture. Both improving the employment choices of Malawi's workers and strengthening the markets upon which their households rely for their food are critical food security challenges facing the country. Food security policies and the institutions that implement them should be guided by an understanding of how to ensure food security in Malawi that extends the concept beyond agricultural approaches alone.

The Concept of Food Security

The conceptual framework that guides the discussion around food security here is that of the 1996 World Food Summit Plan of Action: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996). This widely accepted definition has two noteworthy points for our purposes.

First, although the World Food Summit Plan of Action notes that food security is a relevant development objective at the national, regional, and

global levels, the definition operates at the household and individual levels. General discussions of food-secure and food-insecure countries are aggregations that do not reflect the considerable variations in the food security of households within a country. Moreover, within the households themselves, the degree to which individuals have access to sufficient food may vary by their sex, age, or labor contribution. Consequently, a clearer understanding of the determinants of and risks to food security in a specific context are best achieved through a disaggregated approach.

Second, food production alone does not equal food security. Rather, food security entails reliable access to food and its proper use to meet dietary needs. Four distinct dimensions are central to the attainment of food security:

- **Availability**—Sufficient quantities of appropriate foods from own production, domestic production, or imports are available within reasonable proximity to all individuals.
- **Access**—Individuals have adequate incomes or other resources to buy, barter, or otherwise obtain enough appropriate foods to maintain an adequate diet. This dimension draws from the observations of Sen (1981) on the critical importance of entitlements to food to ensure food security, rather than food availability alone.
- **Stability**—Stability exists in the availability of food supplies and in access to those supplies. This is the temporal and risk-related dimension of food security (Gross et al. 2000).
- **Utilization**—“Food is properly used; proper food processing and storage techniques are employed; adequate knowledge of nutrition and child care techniques exists and is applied; and adequate health and sanitation services exist” (USAID 1992). This dimension reflects dietary intake as an immediate determinant of the nutritional well-being of an individual, with food security as one of several underlying determinants of nutritional status (UNICEF 1990).

It is the second dimension, that of ensuring reliable access to food, that is the food security focus here. The availability dimension has motivated food security policy in Malawi since the colonial period (Vaughan 1985; Chilowa 1998). That conceptualization of how Malawians can be food secure has resulted in a production-based focus in food security strategies. It also has resulted in the view that household own production of food for themselves should be the dominant means by which Malawians are to be adequately

fed and that the agriculture sector, under the leadership of the Ministry of Agriculture and Food Security (hereafter Ministry of Agriculture), has the principal responsibility for assuring the country's food security. Government policy statements that touch on food security, including the current master development strategy, the Malawi Growth and Development Strategy III, conceptualize food security primarily as an outcome of sectoral action around food production, rather than an outcome of a coordinated approach across several sectors to significantly improve the access all Malawians have to the food they require.

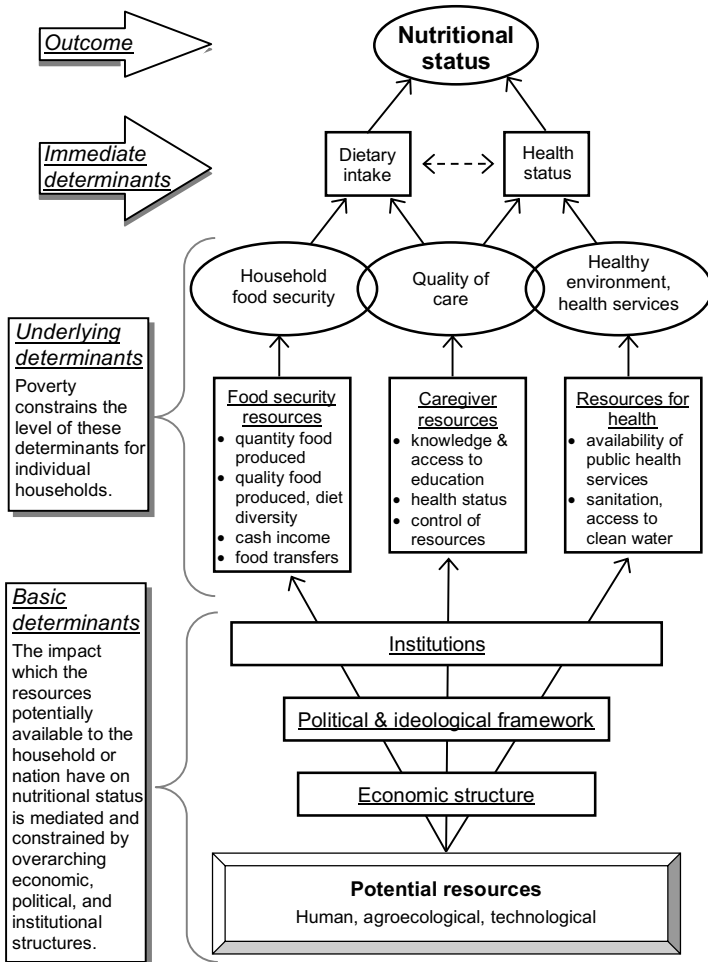
Although own production will remain a central element in Malawian food systems for decades to come, the view advocated here is that a reliably food-secure Malawi should not be heavily dependent on an agriculture sector organized around rural households engaged in production primarily to meet their own food needs. Rather, a broader policy is required—one that ensures that all Malawians are able to reliably access food, regardless of how it is made available, but with a focus on dependable markets as the principal source of food for all.

Stability in food supplies is closely related to the access dimension. The recurring food insecurity crises that have affected southern and central Malawi over the past several years, though they stem principally from shocks to food production and, hence, food availability, fundamentally reflect inadequate means of access to food beyond own production. Expanding the means by which households in Malawi and the nation as a whole obtain the food they require beyond subsistence production will result in more resilient food systems.

Finally, the quality of food utilization is fundamental to ensuring that the nutritionally vulnerable in Malawi are well nourished and are able to reach their physical and cognitive potential. Although good nutrition is a critical component of human development, this book principally focuses on ensuring that households have reliable access to foods in sufficient quantity and of appropriate quality to meet their nutritional needs, rather than on the quality of diets that they consume. However, improved nutrition is the ultimate goal of every effort to ensure that all Malawians are food secure. Improving access to food is a critical step toward achieving good nutritional status for all, but other factors also matter. It is possible for individuals to have deficient or unbalanced diets in spite of having good access to diverse foods. A person may have reliable access to the components of a healthy diet, but because of poor health or care, ignorance, or personal preferences with negative nutritional implications, he or she may not be able to, or may choose not to, use the food that is available in a nutritionally sound manner.

More important, to significantly and sustainably reduce malnutrition requires attention to a broad range of issues outside of food systems and how those food systems operate. As shown in the UNICEF conceptual framework of the determinants of nutritional status in young children (Figure 2.1), food security is just one of several underlying determinants of improved nutrition. The UNICEF framework shows that nutritional status is immediately determined by the level and quality of dietary intake and the health status of the young child. The quality of these immediate determinants, in turn, is

FIGURE 2.1 UNICEF conceptual framework of the determinants of young child nutritional status



Source: Adapted from UNICEF (1990).

determined by several underlying factors. These include not only food security but also, of equal importance, the availability of health services and a healthy local environment—clean water, good sanitation, adequate housing, and so on—and the quality of care the individual child receives, particularly feeding practices. Food security alone is insufficient to achieve sustained improvements in nutrition. Consequently, food-centered approaches will not be sufficient and food-centered government agencies will not be capable on their own of ending all forms of malnutrition in Malawi. A coordinated approach across multiple sectors of government together with other stakeholders outside of government will be required.

The UNICEF framework also links the availability of nutrition resources to a set of basic determinants. These reflect how society is organized in terms of economic structure, political and ideological expectations, and the institutions through which activities within society are regulated, social values are met, and potential resources are converted into actual resources. Prevailing cultural beliefs and practices around food and the nutritional care of young children are among these basic determinants. Consequently, achieving good nutritional status for all is identified in the framework as a subject for political and social debate and an issue of concern for any national development strategy.

Food Security in Malawi

Food self-sufficiency has been a constant element of agricultural policy in Malawi since the colonial period. The leaders of Malawi, whether colonial governors (Vaughan 1987), the first president of independent Malawi, Kamuzu Banda (Harrigan 2001), or the presidents who succeeded Banda following the advent of multiparty democracy in 1994, all understood that the state they led has an obligation to its citizens to facilitate their access to adequate food. Each successive government has put agricultural activities at the center of its development programs. More recently, nascent social safety net programs have been added to support access to food for vulnerable Malawian households. Moreover, when crop production problems have led to food shortages for vulnerable households, the government has always worked with its development partners to provide those households with food directly.

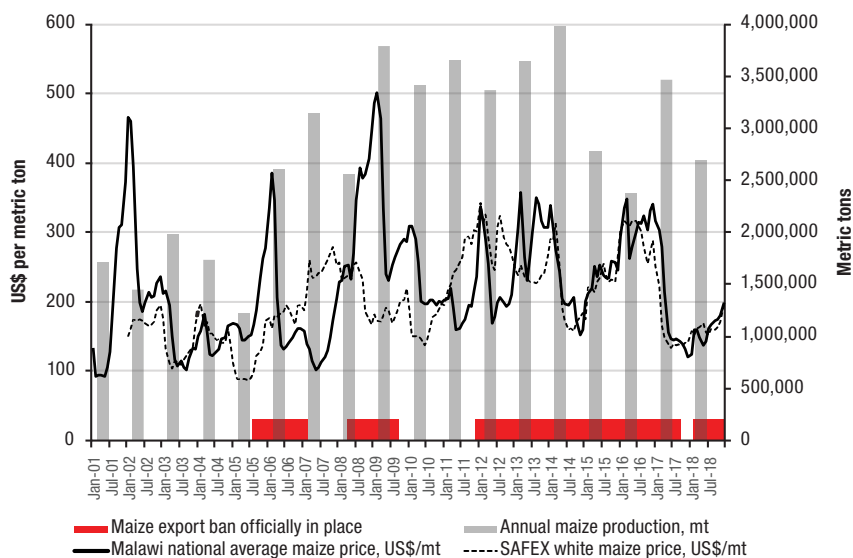
Within the public sector, the Ministry of Agriculture has been the line ministry with the heaviest responsibility for ensuring the country's food security. Although the narrative has been modified somewhat in recent years, with some attention to the production and consumption of micronutrient-dense crops, for the most part the Ministry of Agriculture has sought to meet the

food needs of the population through efforts to sustainably and significantly increase maize productivity. This focus on maize is logical—estimates from the fourth Integrated Household Survey (IHS 4), conducted in 2016/17, are that 74 percent of calories consumed by Malawians come from cereals, primarily maize, with the percentages being somewhat more for rural Malawians, at about 77 percent, and rather less for urban Malawians, at about 65 percent (Gilbert, Benson, and Ecker 2019). No other food group supplies more than 10 percent of calories consumed overall—the second most important food group for calories is pulses, legumes, and nuts, which is estimated to provide 6.5 percent of calories consumed.

Aggregate food security

Consequently, national maize production serves as a suitable measure of food self-sufficiency in Malawi, at least for calorie consumption. Recent national food balance sheet computations assume Malawi's annual maize consumption

FIGURE 2.2 Maize, annual total production for Malawi, average monthly maize prices for Malawi and SAFEX, and maize export ban periods, 2001–2018



Source: Production: Ministry of Agriculture, Irrigation, and Water Development (MoAIWD) annual production estimates; Prices: MoAIWD to October 2017; International Food Policy Research Institute, Lilongwe, from November 2017; SAFEX data online (https://www.sagis.org.za/safex_historic.html).

Note: SAFEX white maize price series starts January 2002. mt = metric ton; SAFEX = South African Futures Exchange.

requirement is about 2.75 million metric tons,¹ about 150 kg per person per year (Babu et al. 2018). Similarly, maize prices provide a suitable measure of the degree to which food is accessible to all Malawians. Using data series primarily drawn from government sources, annual maize production patterns and monthly average maize prices are shown in Figure 2.2 for the period 2001 to 2018.

The expected relationship between maize production levels and national maize prices—with higher production levels reflected in lower prices and vice versa—is not consistently seen. Although maize prices sometimes spike following years of poor production, then quickly decline once the harvest of the following cropping season starts, for other periods of higher maize prices, this expected pattern is not seen. This inconsistency may reflect deficiencies in production statistics, which falsely suggest sufficient maize production to meet national needs (Box 2.1), political considerations that delay recognition of emerging crises, and often ineffective, poorly managed, or even harmful responses to emerging food crises on the part of government (Ellis and Manda 2012; Chirwa and Chinsinga 2013). Such government responses include placing generally unnecessary export bans on maize (Figure 2.2) and at times directly or indirectly imposing restrictions on private firms' importation or domestic purchase of maize to supply Malawian markets. Many of the government responses to food crises over this period have been made in an unpredictable fashion that raises the level of risk for other participants in maize markets in Malawi and increases the price of maize for all (Pauw and Edelman 2015).

International humanitarian responses to food crises also shape the pattern of maize production and national maize prices. This is most clearly seen in the months following the poor harvest of the 2015/16 cropping season (Figure 2.2). Over this period, the government and its international development partners mobilized the distribution of food to 5.4 million individuals and cash to 1.4 million beneficiaries at a total cost of around US\$290 million² (Babu et al. 2018). In consequence, what should have been a sharp rise in prices in the months before the 2016/17 harvest was blunted, with prices then falling sharply as the 2016/17 maize was harvested.

We also see in Figure 2.2 that national maize supply in Malawi generally is produced domestically, with limited impact from formal interregional trade. At the aggregate national level, Malawi's maize market remains weakly linked to the southern Africa regional maize market, with small flows of maize under

1 Tons refers to metric tons throughout.

2 All dollar amounts are in US dollars.

BOX 2.1 Obtaining accurate agricultural statistics in Malawi: A continuing challenge

Both the Ministry of Agriculture and the National Statistical Office collect information on agriculture in Malawi. The ministry has an annual three-round Agricultural Production Estimates System (APES) for collecting data on crop production and area, and on the number of farmers. The ministry also collects prices for agricultural commodities through the Agriculture Market Information System. The National Statistical Office implements the national Integrated Household Survey (IHS) every three to four years. The IHS questionnaire includes a comprehensive set of modules on agricultural activities and production, as well as on food consumption.

However, the estimates that each agency generates differ significantly or are otherwise inconsistent. For example:

- The 2015 APES estimated that there were 4.12 million farm households nationally. However, the 2018 Malawi Population and Housing Census, conducted by the National Statistical Office three years later, counted 3.33 million rural households and 3.98 million households nationally.
- The 2018/19 APES estimated that total national production of maize was 3.36 million tons; cassava, 5.70 million tons; and sweet potatoes, 6.46 million tons. However, household survey analysis shows that 74 percent of calories consumed by Malawians were from maize (Gilbert, Benson, and Ecker 2019). No other crop was found to supply more than 7 percent. Yet we know that cassava and sweet potatoes are almost exclusively used as food crops.
- Maize prices were significantly higher than normal from mid-2013 until the harvest in 2014 despite an APES estimate that national production from the 2012/13 season was above consumption requirements. Price trends for commodities following harvest often do not correlate closely with production estimates.

formal trade.³ As shown in the figure, the South African Futures Exchange (SAFEX) spot price for maize—an indicator of maize market conditions in the southern Africa region—was poorly correlated with the average monthly Malawi maize price for the period 2002 to 2014 (with a correlation coefficient

3 Analysis of the Trade Map dataset of the International Trade Centre on the value of Malawi's formal imports and exports for the period 2010 to 2019 shows that, on average, 23 percent of Malawi's exports by value annually went to its neighbors Mozambique, South Africa, Tanzania, Zambia, and Zimbabwe (Malawi, NSO 2020). Similar levels of exports were made to each country each year. Maize made up 1.3 percent of exports to these neighboring countries on average annually over this period. Tea, tobacco, macadamia, sugar, and oilseeds were the largest commodity export categories.

With regard to imports over the same period, 33 percent, on average, of Malawi's formal imports by value came from these same neighboring countries annually. South Africa was the origin of 63 percent of imports from the five countries between 2010 and 2019. Maize made up 2.6 percent of these regional imports over this period. However, in most years, maize imports made up less than 1 percent of regional imports, but they spiked in years of food insecurity in Malawi, such as 2016. In terms of food imports from the region, processed foods from South Africa made up the largest category.

The unreliability of the agricultural statistics in Malawi, particularly those produced by the Ministry of Agriculture, reflect both technical capacity limitations on accuracy and operationally induced biases in the estimates.

- The APES system relies on aggregating estimates within the government's agricultural extension system from the field assistant level to the subdistrict extension planning area and up to the district and national levels. Given the relatively limited training and time that extension field assistants have to make accurate production estimates, considerable imprecision should be expected.
- The ministry is not immune to generating statistics that shed a positive light on its own performance. Notably, APES estimates of maize production immediately following the launch of the Farm Input Subsidy Program (FISP) in 2005/06 were significantly higher than those obtained from other sources (Lunduka, Ricker-Gilbert, and Fisher 2013). In a similar vein, FISP was designed to reach about half of smallholder producers. Consequently, the ministry's estimates of farm household numbers directly affect the size of the budget allocated to the program. (Chirwa and Dorward [2013] discuss in detail the problem of inconsistent or unreasonable statistics in the design and implementation of FISP.)

The deficiencies in Malawi's annual agricultural production statistics make it difficult to accurately identify deficits in food production, particularly for maize, and to plan responses to emerging food insecurity crises at a proper scale. These statistics can be reasonably used only for triangulating with data on other factors pertinent to seasonal agricultural production to estimate what actual production levels and trends might be. To ascribe more accuracy and precision to these statistics could be dangerous, particularly when using them in isolation to determine whether and at what scale to respond to food crises.

of 0.19). However, since 2015, the two price series have tracked each other more closely (correlation coefficient 0.89). Why this is the case is not clear. Restrictions on maize exports from Malawi have been in place over much of this period. Official annual imports of maize into Malawi are small—1.4 kg per person per year over the period 2010 to 2014 (Malawi, NSO 2020). Although official maize imports rose in 2016 to 17.8 kg per person, reflecting the humanitarian operations following the poor 2015/16 cropping season, 2017 imports reverted to close to longer-term levels, at 1.8 kg per person, or about 35,000 tons in total.

However, informal imports of maize into Malawi from border areas of Mozambique—much of it shipped across the border in sacks on the back-racks of bicycles—are more significant. Demand for maize in heavily populated southern Malawi is relatively high, so maize produced in the border areas of Mozambique is traded informally into southern Malawi relatively efficiently (Burke and Myers 2014). There also are important marketplaces

along the borders with Zambia and Tanzania that rely, in part, on flows of commodities, including maize, when cross-border price differences with central and northern Malawi provide sufficient incentive for this largely informal trade. However, because maize production in these regions is more likely to be sufficient to meet local demand than in more densely populated southern Malawi, the bulk of informally imported maize flows into southern Malawi (Whiteside 2003). The Famine Early Warning Systems Network (FEWS NET) estimated that 53,000 tons of maize annually on average came in from Mozambique informally over the period 2005/06 to 2011/12 (FEWS NET 2012). This is more than double the average annual quantity of formally imported maize reported between 2010 and 2014 (Malawi, NSO 2020). However, total annual commercial (not humanitarian) imports, including both formal and informal trade, on average constitute less than 5 percent of total maize consumption requirements in Malawi.

Household- and individual-level food security patterns

However, the reasonable levels of national maize self-sufficiency that the relatively low levels of maize imports in recent years suggest are not reflected at the disaggregated level of the Malawian household. The consumption-based poverty analysis of nationally representative data from the regular Malawi IHS includes an assessment of the ultra poor in the population, defined as those whose value of total consumption does not exceed a specific food poverty line. This ultra poverty line is the cost of a food bundle providing 2,400 kilocalories per person per day, with no nonfood consumption (Malawi, NSO and World Bank 2007b). Based on data from the IHS4 of 2016/17, 20.1 percent of the population of Malawi was estimated to be ultra poor, with total consumption valued at less than the food poverty line. There is considerable variation in the ultra poverty headcount by area: urban, 4 percent; Northern region rural, 23 percent; Central region rural, 19 percent; and Southern region rural, 29 percent. The proportion of the population whose consumption level is below the food poverty line is not changing very quickly. The IHS3 of 2010/11 showed that 24.5 percent of the total population was estimated to be ultra poor, slightly higher than the 22.4 percent found in the analysis of the IHS2 of 2004/05 (Malawi, NSO 2012).

The IHS4 also allows for categorizing households according to the severity of their recent experience with household food insecurity—61.4 percent of households in Malawi were estimated at the time of the survey in 2016/17 to have “very low food security,” such that during the week prior to the interview

the household experienced disrupted eating patterns and reduced food intake (Malawi, NSO 2017). The IHS⁴ enumeration from April 2016 to April 2017 coincided with the food crisis in the Southern and Central regions of Malawi following the poor 2015/16 harvest, so this high value should be understood in light of the widespread acute food insecurity during that period. The IHS³ of 2010/11 estimated 32.5 percent of households to have “very low food security,” a value likely more reflective of chronic levels of food insecurity among Malawian households.

Both the quantity of food to which households have access and the quality of that food are food security challenges that Malawian households continue to face. Global reviews of diets show that people with lower welfare levels generally have lower dietary diversity and lower intakes of important nutrients, which adversely affect their nutritional status (Mayén et al. 2014). This is the case in Malawi. The Household Dietary Diversity Score is based on the number of food groups out of 12 from which a household reports consuming food (Swindale and Bilinsky 2006). The average score over the previous seven days for Malawian households as a whole in 2016/17, based on the IHS⁴, was 7.8, down slightly from 7.9 in 2010/11 (Gilbert, Benson, and Ecker 2019). Consumption of animal-sourced foods, in particular, is low—whereas about three-quarters of households reported consuming some fish, less than 40 percent consumed any meat, eggs, or dairy products. Similarly, fruit, a potentially important source of micronutrients, was reported to be consumed by only about half of all households in 2016/17.

Though not solely determined by diet quality, food security is an underlying determinant of nutritional status. The greater human development goal toward which food security is to contribute is a healthy and well-nourished population with the physical and cognitive capacity necessary to live long, creative, and productive lives. Figure 2.1 presents recent estimates of the aggregate nutritional status of young children and women of childbearing age in Malawi, along with some indications of trends. Important progress has been made in reducing the burden of malnutrition in Malawi along multiple dimensions over the past decade or so. Improved nutrition is part of what is driving important reductions in Malawi’s child mortality rates—the under-five mortality rate fell from 107 deaths per 1,000 live births in 2010 to 63 deaths in 2016. More children in Malawi are growing up healthy and well nourished now than in the past. In addition to reductions in the prevalence of stunting in young children, a continuing decrease is seen in the share of women who are too thin, particularly in rural households.

TABLE 2.1 Nutritional status of young children and women in Malawi

Indicator	Malawi	North	Central	South	Rural	Urban
Stunted (low height-for-age) under-fives, 2016, %	37.1	35.1	38.2	36.6	38.9	25.0
Change 2010 to 2016, percentage points	-10.0***	-9.6***	-9.0***	-11.0***	-9.3***	-15.7***
Under-five mortality, per 1,000 live births for the 10 years preceding the survey, 2016	63	57	81	73	77	60
Change 2010 to 2016, rate	-44***	-47***	-37***	-44***	-41***	-47***
Thin women ages 15 to 49, 2016, %	7.2	5.9	6.6	8.0	7.4	6.2
Change 2010 to 2016, percentage points	-1.6**	-0.5	-1.9**	-1.6 *	-1.7***	-1.1
Overweight or obese women ages 15 to 49, 2016, %	20.7	24.1	20.4	20.2	17.2	36.2
Change 2010 to 2016, percentage points	+3.6***	+6.6***	+2.2	+3.8***	+2.9***	+8.2***

Source: Malawi Demographic and Health Survey 2010 (Malawi, NSO and ICF Macro 2011), Malawi Demographic and Health Survey 2015/16 (Malawi, NSO and ICF 2017).

Note: Asterisks show whether difference in measure between 2010 and 2016 is significantly different from zero: * = $p < 0.10$, ** = $p < 0.05$, *** = $p < 0.01$.

An emerging nutritional concern, however, is the rising numbers of adult Malawians who are overweight, as seen for women in Table 2.1. Rising overweight and obesity rates globally have contributed to increases in the prevalence of noncommunicable diseases, such as coronary heart disease, diabetes, hypertension and stroke, asthma, and some cancers. These are now among the leading causes of death in many developing regions (Shekar and Popkin 2020). The rising rate of overweight seen in Malawi replicates patterns observed in other developing countries undergoing demographic transitions, including urbanization; changes in activity levels as people are increasingly able to adopt more sedentary livelihoods; and changes in diets toward foods with more sugar, fats, and oils (Popkin, Adair, and Ng 2012; Gowshall and Taylor-Robinson 2018). Though overweight prevalence rates are rising most rapidly in Malawi's urban population, rural communities are also seeing increasing numbers of overweight and obese adults (Price et al. 2018).

Nonetheless, the trends presented in Table 2.1 support a generally hopeful outlook for nutrition in Malawi if recent progress in reducing under-nutrition, in particular, can be maintained and even accelerated, and rising rates of overweight individuals are tackled. Encouragingly, reasonable progress has been made since 2010 in reducing child stunting levels—the prevalence of stunted under-fives nationally fell from 47.1 percent in 2010 to 37.1 in 2016. Differences in child stunting across districts are significant, as shown in Figure 2.3 for 2016. Likoma and Karonga districts have the lowest rates, whereas Mangochi and Neno have the highest. Of the 11 countries in eastern Africa that have conducted a Demographic and Health Survey since 2011, Malawi’s stunting level falls at the median value—higher than the stunting levels estimated for Zimbabwe and Tanzania, for example, but lower than those for Zambia and Mozambique.

However, these improvements in nutrition in Malawi are not explained by better food security. As discussed in the next section, aggregate food security conditions in Malawi between 2010 and 2016 have generally been poor, particularly in the populous Southern region. Consequently, improvements in the other underlying determinants of nutritional status (Figure 2.1)—the quality of care the nutritionally vulnerable receive and improved access to public health and medical services—are more likely to have driven these nutritional advances than are changes in food security. Continued efforts are needed to ensure that all Malawians have access to enough food of high nutritional quality if further reductions in chronic undernourishment are to be achieved. Food security is central to eliminating undernutrition in Malawi.

Food Crises and Their Management

Faced with a shortage of food, particularly staples, households deplete their savings, sell assets, seek help from relatives, and change their food consumption patterns, among other coping strategies. The government also tries to help food-insecure households, particularly when there is a shock to national production. Humanitarian assistance is a regular component of the response of Malawi’s government and its development partners to meet the needs of critically food-insecure households.

After each annual cropping season, the Malawi Vulnerability Assessment Committee estimates the number of Malawians likely to need food assistance through the following harvest. The estimates from 2002/03 to 2020/21

FIGURE 2.3 Stunting prevalence in under-fives by district, 2016



Source: Malawi Demographic and Health Survey (MDHS) 2015/16 (Malawi, NSO and ICF 2017).

are listed in Table 2.2. They are primarily based on locally disaggregated annual crop production estimates of the Ministry of Agriculture. Although the number of people in need varies from year to year, on average, 1 of 8 Malawians is judged sufficiently vulnerable to hunger to require humanitarian assistance. We see a sharp drop in the vulnerable population following the start of the Farm Input Subsidy Program (FISP) in 2005/06, a drop that was sustained for several years. In recent years, the number of people requiring food aid each year has risen, primarily reflecting both dry spells and floods, particularly in southern Malawi, which have adversely affected crop production over this period. However, this increase in the vulnerable population also reflects a reduction in the size of the input subsidy program and increasing evidence of poor implementation of the program in terms of the low amounts of maize produced for each kilogram of subsidized fertilizer distributed (Jayne et al. 2018).

Food is the primary form of help offered to food-insecure households in a humanitarian response. The National Food Reserve Agency maintains a strategic grain reserve to cover immediate national food needs following a poor harvest while supplemental imports are organized. Although the agency has more than 280,000 tons of storage space, it generally manages reserves of around 60,000 tons of maize (FEWS NET 2018). For larger food crises, additional grain must be obtained as quickly as possible from maize markets elsewhere, particularly in southern and eastern Africa. However, obtaining grain from these regional sources can be a challenge, because national maize harvests in the region tend to move in concert due to similar rainfall patterns across the region each year. Based on data from the Food and Agriculture

TABLE 2.2 Estimates of population in Malawi vulnerable to hunger, 2002/03 to 2020/21

Year	Estimated size of vulnerable population, '000s	Vulnerable population as percentage of total population of Malawi
2002/03	3,200	28.5
2003/04	400	3.5
2004/05	1,340	11.3
2005/06	5,055	41.2
2006/07	833	6.6
2007/08	63	0.5
2008/09	613	4.6
2009/10	275	2.0
2010/11	508	3.6
2011/12	273	1.9
2012/13	1,973	13.0
2013/14	1,855	11.9
2014/15	1,312	8.2
2015/16	2,833	17.1
2016/17	6,700	39.2
2017/18	837	4.8
2018/19	3,306	18.2
2019/20	1,063	5.7
2020/21	2,642	13.7
Average	1,846	12.4

Source: Various Malawi Vulnerability Assessment Committee and Famine Early Warning Systems Network (FEWS NET) reports; National Statistical Office of Malawi population estimates and projections.

Organization of the United Nations (FAO) from 1998 to 2017, the correlation coefficient for the annual national maize harvests of Malawi and those of its neighbors is 0.79 for Zambia, 0.66 for Mozambique, 0.49 for Tanzania, and 0.48 for South Africa (FAO 2020). Thus, when Malawi is looking for maize in regional markets following a poor national harvest, many of its neighbors may also be looking. Consequently, the regional market may be unable to supply enough grain for Malawi to meet its maize needs, and the country may be required to go outside of the region to obtain more maize. For example, according to the trade statistics compiled by the National Statistical Office of Malawi, for the humanitarian response mounted in 2016 following the poor 2015/16 harvest, the largest amount of maize imported came from Zambia, but Mexico was the next most important source (Malawi, NSO 2020).

Policies and Institutions around Food Security in Malawi

Conceptual frameworks in Malawi's food security–focused policy documents are not comprehensive, centering primarily on food production. For example, the government's Food Security Policy of 2006 recognizes that market mechanisms are important for ensuring food security and commits the government to establishing legislation, practices, and mechanisms to ensure competition in the market for food, food products, and agricultural inputs. But no detail then is provided regarding specific actions government will take to deepen and strengthen Malawi's food markets. The policy's principal approach to achieving national food security remains increased own production of food crops.

In terms of the institutional architecture, because food security is commonly perceived as a function of adequate food crop production, the Ministry of Agriculture is considered the center of action to ensure Malawians have reliable access to food. Reflective of this responsibility, the Ministry held the name "Ministry of Agriculture and Food Security" for many years through 2014, and in 2020 this name was restored. The political leadership of the country has consistently considered the ministry responsible for carrying out the government's duty to ensure food security for Malawi's citizens.

However, food security in the country is not synonymous with agriculture. Indeed, as will be discussed, Malawian households pursuing exclusively agricultural livelihoods are more likely to be food insecure by various measures than are households engaged in at least some nonagricultural economic activities. Within the evolving context of food security in Malawi and the demographic pressures the country faces, future policies that bear on

food security will need to pay considerably more attention to how to ensure that households have access to food even if they do not have sufficient land. This requires attention to nonfarm livelihoods and occupations, the income that can be derived from such economic activities, and the strength of the markets that will be used to provide access to food for increasing numbers of predominantly nonfarm households. Malawian households will increasingly need to be able to generate sufficient cash incomes to reliably obtain the food they require from much stronger food markets. Both improving the employment choices of Malawi's workers and strengthening the markets upon which their households rely for their food are significant food security challenges facing the country.

As the importance of subsistence agricultural production for the food security of most Malawian households declines, increased use of multisectoral and multistakeholder processes will provide the broader perspective needed to guide policy reforms for food security. Expertise and perspectives from outside of agriculture can expand the channels through which a food-secure Malawi is developed and better enable coordinated strategies to achieve that vision. Food security policies, and the institutions that formulate and implement those policies, should be guided by an expanded understanding of how to ensure food security in Malawi, extending the concept beyond agricultural approaches alone.

Closely associating food security with agricultural production at a policy level also ignores many food insecurity problems in Malawi. The food security of the most vulnerable households in Malawi can be supported through specific social protection policies and actions. Similarly, to better enable households to access the food they require following significant adverse shocks to their livelihoods, the capacity of the responsible government agencies, such as the Department of Disaster Management Affairs, should be expanded. At the same time, the food security of economically productive households, whether working within or outside of agriculture, can likely best be ensured through broad economic development beyond agriculture to increase employment opportunities in the service and industry sectors of the economy. These productive households would then have a broader range of choices as to how they meet their own food needs—continuing to produce their own food, ideally at a higher level of productivity, or using their labor outside of agriculture to gain income and then relying on deep, reliable markets to obtain the food they require. Finally, trade in foodstuffs with other countries, particularly in the region, can contribute to national food security. Although it is wise for

Malawi to continue to pursue policies and implement programs to increase domestic food production, whether the country should be nationally self-sufficient in food needs to be determined on economic and risk management grounds, rather than accepted as an unexamined doctrine of national policy (Clapp 2017).

In sum, agriculture is a necessary means to household and national food security in Malawi, but neither a sufficient nor an optimal means on its own. Trade, social protection, and systems to support households in responding effectively to and recovering from adverse shocks that restrict their access to food are all required, alongside attention to food production. Moreover, based on context-specific understanding, attention will need to be paid to how particular local food systems across the country can best be strengthened using elements from this range of mechanisms to provide residents in local communities with secure access to food.

However, given the continued primacy of own production in meeting, for better or worse, the food needs of most Malawian households, and the economic importance of agriculture as a source of income, we now examine agricultural production in Malawi in more detail.