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Outlook

GFA-35

August 2024

International Food Security Assessment, 2024–34

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Economic Research Service
www.ers.usda.gov

Recommended citation format for this publication:

Cardell, L., Zereyesus, Y. A., Ajewole, K., Farris, J., Johnson, M. E., Lin, J., Valdes, C., & Zeng, W. (2024). *International food security assessment, 2024–34* (GFA-35). U.S. Department of Agriculture, Economic Research Service.

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Abstract

Millions of people worldwide face food insecurity and do not have access to sufficient, safe, and nutritious food that meets their dietary needs for an active and healthy life. This report utilizes the demand-driven International Food Security Assessment (IFSA) model to assist the U.S. Department of Agriculture (USDA) and its stakeholders in estimating food security trends in 83 low- and middle-income countries. Compared with 2023, there is now a substantial improvement in food security across the countries covered in the IFSA report. There are 313.0 million fewer people estimated to experience food insecurity in 2024, associated with an average of 3.4 percent growth in per capita income in these countries and the easing of price inflation. However, lingering effects of high food commodity prices and risks associated with ongoing conflicts in key shipping areas contribute to sustained food insecurity levels. The estimated number of food insecure people in 2024 is 824.6 million in the 83 low- and middle-income countries covered by this assessment, representing a 27.5 percent decrease from the 2023 estimate. Overall, 19.0 percent of the IFSA population may be unable to consume the recommended 2,100 kilocalories a day necessary to sustain a healthy and active lifestyle. While facing challenges in the short term, gains in per capita income and lower food commodity prices are projected to improve food accessibility, with the outlook for food security projected to improve in the next 10 years in all countries included in this assessment. By 2034, the number of food insecure people in the 83 IFSA countries is projected to be 274.6 million (5.5 percent of the population), marking a 66.7 percent reduction, compared to the estimated number in 2023. Note that the results presented in this report are based on the macroeconomic assumptions, completed as of August 2023.

Keywords: Calories, food demand, food insecurity, food prices, income, inflation, caloric threshold, Sub-Saharan Africa, Middle East and North Africa, Former Soviet Union, Asia, Latin America and the Caribbean.

Acknowledgments

The authors thank Felix Baquedano, Utpal Vasavada, Jen Bond, Kegan O'Connor, Gregory Astill, and Kelly Maguire for their review and guidance at different stages of this report. We would also like to thank Jonathan Pound, Food and Agriculture Organization of the United Nations, Global Information Early Warning Systems, Mark Jekanowski from the USDA's Office of the Chief Economist, and anonymous reviewers from the Foreign Agricultural Service. We also thank Christopher Whitney and Grant Wall for editorial assistance and Jeremy Bell for layout and cover design.

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Preface

This report continues the series of Global Food Assessments (GFA) in low- and middle-income countries that began in the late 1970s by the U.S. Department of Agriculture, Economic Research Service (ERS). In 1993, the title of the series was changed to Food Aid Needs Assessment (FANA) to reflect the report's contents more accurately, which assessed select low- and middle-income countries with recent or ongoing food deficits. However, not all countries experiencing significant food deficits are included in the assessment due to a lack of data on key metrics, such as average caloric consumption, prices, or macroeconomic figures. In 1997, USDA, ERS widened the analysis beyond the assessment of aggregate food availability to include more dimensions of food security and the title was revised to Food Security Assessment (FSA). Starting in July 2011, USDA, ERS changed the report's name to International Food Security Assessment (IFSA) to clarify the geographic scope of the analysis.

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USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

A report summary from the Economic Research Service *August 2024*

International Food Security Assessment, 2024–34

Lila Cardell, Yacob Abrehe Zereyesus, Kayode Ajewole, Jarrad Farris, Michael E. Johnson, Jessie Lin, Constanza Valdes, and Wendy Zeng

What Is the Issue?

Millions of people around the world lack access to sufficient, safe, and nutritious food. Several factors affect the prevalence of food security including food availability (agricultural production and market conditions), access to food (economic and physical), stability (price and income shocks), and utilization (food safety and nutritional knowledge). Food security can be worsened by declining income levels, high food prices, and food supply shocks. Using a demand-driven model that integrates income, food prices, and food supply, the International Food Security Assessment (IFSA) analysis helps the U.S. Department of Agriculture (USDA) and its stakeholders assess the availability and access dimensions of food security for 83 countries in 5 regions: Asia, the Former Soviet Union, Latin American and the Caribbean, the Middle East and North Africa, and Sub-Saharan Africa. The 2024 report is based on observed country-level domestic commodity prices up to December 2023 and macroeconomic and international agricultural commodity price projections completed as of August 2023, to estimate and project the potential impact on present and future food insecurity levels.

What Did the Study Find?

The main findings for the 83 countries covered by this report are:

- Food security is estimated to improve in 2024 relative to 2023 for most of the 83 countries covered by the IFSA report due to an average of 3.4 percent growth in per capita Gross Domestic Product (GDP) and easing of international and domestic food price levels for most commodities, including vegetable oils, wheat, sorghum, and corn. In 2024, an estimated 19.0 percent of the population included in IFSA, or 824.6 million people, may be unable to consume the 2,100[1] kilocalories (kcal) per day considered necessary for a healthy and active lifestyle. This represents a 27.5 percent decrease (313.0 million fewer people) from the estimated number of food-insecure people in 2023.

[1] The caloric threshold considered in the assessment is an average across sex, age, region, and activity level.

- However, food security is estimated to worsen for nine countries: Syria, Iran, Laos, Egypt, Gambia, Moldova, Liberia, Bangladesh, and Haiti due to elevated consumer price inflation in certain countries in the Middle East and North Africa region and high rice prices in some countries in the South Asia and West Africa subregions. Persistently high food insecurity in Haiti is associated with food and fuel shortages, rising inflation, weather-related shocks, and conflict.
- Food insecurity is projected to significantly decline by 2034 in IFSA countries, with 274.6 million people projected to be food insecure (a 66.7-percent reduction from the 2024 estimate). The share of the population that is unable to consume 2,100 kcal a day is projected to fall to 5.5 percent by 2034 (71.1 percent lower than the 2024 estimate). This decline is driven by projected improvements in per capita GDP, particularly in the Former Soviet Union region and the South and South East Asia subregions.
- Grain demand is projected to increase by 2.4 percent across the 83 IFSA countries in the next 10 years, mainly due to per capita income growth in Asia and population growth in Sub-Saharan Africa. However, grain production is only projected to increase an average of 1.7 percent annually through 2034, resulting in a significant shortfall in food and feed availability in both Asia and Sub-Saharan Africa.

The 2024 food insecurity estimates are based on per capita Gross Domestic Product (GDP) and international price projections completed in August 2023. These projections are influenced by the recovery from multiple global shocks, including the Coronavirus (COVID-19) pandemic and the Russian invasion of Ukraine, and the enactment of tighter monetary policies that are associated with both lower price inflation and slower GDP growth.

How Was the Study Conducted?

The USDA, Economic Research Service (ERS) demand-driven IFSA model (described in appendix A) projects food demand and food gaps in 83 low- and middle-income countries. Food security is evaluated for each country by estimating the share of the population unable to reach a caloric threshold of 2,100 kcal per person per day. The intensity of food insecurity for those falling below the minimum caloric target is measured by the gap between projected food demand and this caloric threshold. Food demand is expressed in grain equivalents and is based on caloric content to allow aggregation across four separate food groups: the primary grain consumed in the country, other grains, roots and tubers, and all other food. Average per capita food consumption data are from the United Nations' Food and Agriculture Organization (FAO) Food Balance Sheets and FAO's Global Information Early Warning System's (GIEWS), Country Cereal Balance Sheet, January 2024 dataset. Observed domestic prices are from the FAO-GIEWS Food Price Monitoring and Analysis Tool. Tariff data are from the World Bank's World Integrated Trade Solution. Incomes, exchange rates, and Consumer Price Indexes are from the USDA, ERS International Macroeconomic Data Set (USDA, 2023). World prices are from the *USDA Agricultural Projections to 2033* report (USDA, 2024).

International Food Security Assessment, 2024–34

Introduction

The U.S. Department of Agriculture, Economic Research Service (ERS) International Food Security Assessment (IFSA)[2] estimates per capita food demand and compares the estimations against a global caloric threshold of 2,100 kilocalories[3] (kcal) per person per day. The caloric threshold set by the United Nations[4] is an average calorie level necessary to sustain a healthy and active lifestyle. The aim of IFSA is to anticipate food security trends for the current year and 10 years out in 83 low- and middle-income countries for USDA and its stakeholders.

The current report incorporates assumptions for key macroeconomic variables (e.g., income growth, inflation, and exchange rates) and populations, as reflected in USDA, ERS's International Macroeconomic Data Set, and international and domestic food price trends in the short and medium term.[5] Nearly all economies included in the assessment sharply contracted in 2020 due to the Coronavirus (COVID-19) pandemic. The pandemic resulted in lockdowns and other control measures impacting business activity,[6] employment, and incomes. The total population in the 83 countries included in the IFSA report is estimated to be 4.3 billion in 2024. In 2024, the average per capita Gross Domestic Product (GDP) level for the IFSA countries ($2,483 U.S. dollars in 2015 prices) exceeded the average for the 2021–23 period ($2,337 U.S. dollars in 2015 prices). This change suggests a global recovery is underway, despite ongoing challenges associated with the COVID-19 pandemic, food and input price inflation, and the Russian military invasion of Ukraine. Growth in per capita GDP and lower inflation in most of the 83 assessed countries are contributing to a significant decrease in food insecurity in the IFSA countries in 2024, compared to 2023. However, inflation remains above prepandemic levels and tighter monetary policy can disincentivize investment. Over the next decade, food security is projected to improve for most countries covered by the assessment. Key findings for IFSA countries include:

- Food security is estimated to improve in 2024 (relative to 2023) for most of the 83 countries covered by IFSA. This is due to an average of 3.4 percent growth in per capita GDP and easing of international and domestic food price levels for most commodities, including vegetable oils, wheat, sorghum, and

[2] The results from the IFSA model are not directly comparable with other analyses, such as the United Nations' Food and Agriculture Organization's (FAO) modeling work for its report on the State of Food Insecurity (SOFI), which has a broader country coverage and different methodology. Because IFSA also uses aggregate data, IFSA cannot be directly compared with evaluations using household-level surveys. It is also difficult to extrapolate results to the Food Security Information Network's (FSIN) report on global crises, which uses the five-phase food insecurity measure, which is a consensus approach across international organizations and development practitioners directly responding to major crises. For a more in-depth discussion and comparison of USDA's IFSA model with other modeling approaches, see Tandon et al. (2017).

[3] A kilocalorie is the same as 1 Calorie. A kilocalorie is the amount of heat required to raise the temperature of 1 kilogram of water 1 degree Celsius.

[4] The 2,100-kilocalorie per capita per day threshold was an internationally agreed upon level set by the United Nations as the recommended level of dietary energy intake for a healthy, well-nourished individual and is an average across sex, age, region, and activity level (FAO, 2004).

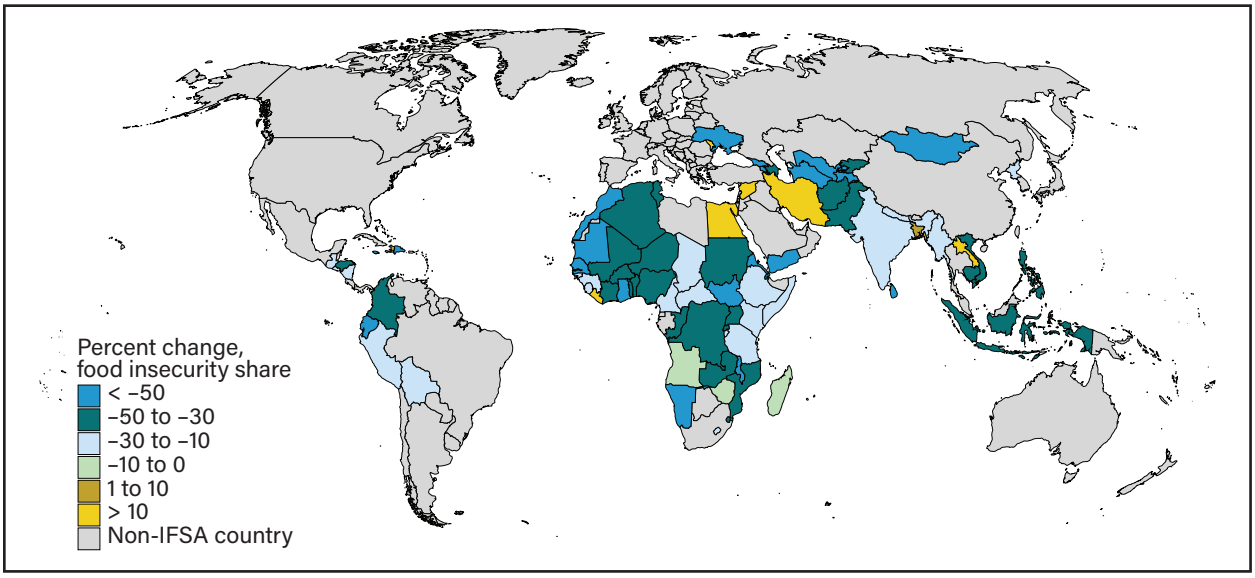
[5] Long-term price projections are taken from the *USDA Agricultural Projections to 2033* report (OCE-2024-1). These projections are used to project medium-term domestic price trends using data from the Global Information and Early Warning System (GIEWS) country cereal balance sheet dataset of the United Nations Food and Agriculture Organization.

[6] Some of the control measures that impacted business included (but were not limited to) curfews, closures of large venues, restrictions on operations of hotels and restaurants, and closures of borders.

corn. In 2024, an estimated 19.0 percent of the population included in IFSA, or 824.6 million people, are unable to consume the 2,100[7] kcal per day considered necessary for a healthy and active lifestyle. This represents a 27.5 percent decrease (313.0 million fewer people) from the estimated number of food-insecure people in 2023.

- However, food security is estimated to worsen for nine countries: Syria, Iran, Laos, Egypt, Gambia, Moldova, Liberia, Bangladesh, and Haiti. Consumer price inflation is estimated to remain elevated in certain countries in the Middle East and North Africa region, reducing purchasing power. High international and domestic rice prices are associated with an increase in food insecurity in some countries in the South Asia and West Africa subregions. Persistently high food insecurity in Haiti is associated with food and fuel shortages, rising inflation, weather-related shocks, and conflict.
- Food insecurity is projected to significantly decline by 2034 in IFSA countries, with 274.6 million people projected to be food insecure (a 66.7-percent reduction from the 2024 IFSA estimate). The share of the population unable to consume 2,100 kcal of food a day is projected to fall to 5.5 percent by 2034 (71.1 percent lower than the 2024 estimate). This decline is driven by projected improvements in per capita GDP, particularly in the Former Soviet Union region and the South and South East Asia subregions.
- The food gap—defined as the amount of food needed for all food insecure people to reach the caloric threshold of 2,100 kcal per day—indicates the intensity of food insecurity. For the 83 countries examined, the daily caloric food gap is projected to decline over the next 10 years by 4.1 percent, on average, from 342 kcal in 2024 to 328 kcal in 2034.
- Grain demand is projected to increase by 2.4 percent across the 83 IFSA countries in the next 10 years, mainly due to per capita income growth in the Asia region and population growth in Sub-Saharan Africa. However, grain production is only projected to increase an average of 1.7 percent annually through 2034, resulting in a significant shortfall in food and feed availability in both Asia and Sub-Saharan Africa.

Figure 1
Improved food security rates in most IFSA countries in 2024, relative to 2023, are associated with an increase in per capita GDP and a decrease in food price inflation

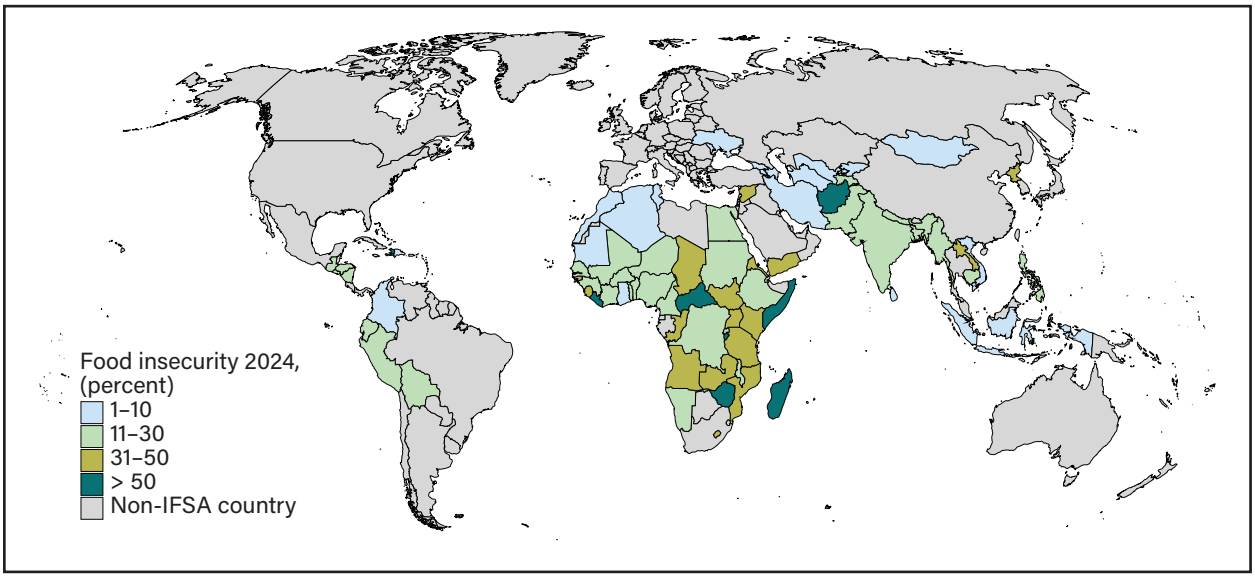


IFSA = International Food Security Assessment. GDP = Gross Domestic Product.

Source: USDA, Economic Research Service based on results from the International Food Security Assessment model.

[7] The caloric threshold considered in the assessment is an average across sex, age, region, and activity level.

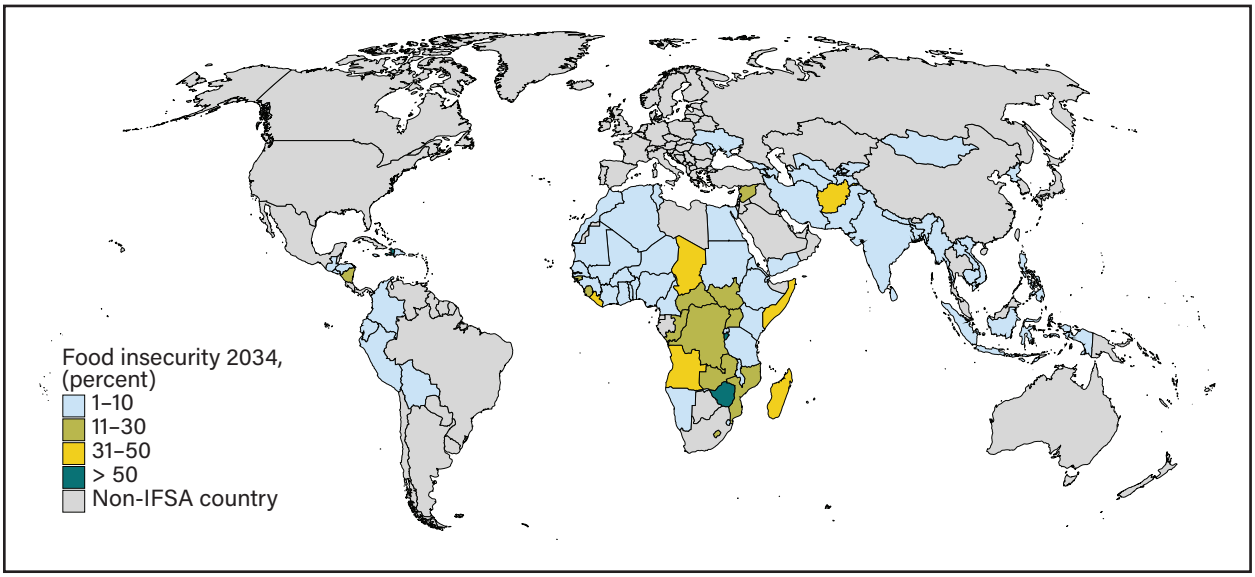
Figure 2
Share of IFSA population estimated to be food insecure, 2024



IFSA = International Food Security Assessment.

Source: USDA, Economic Research Service based on results from the International Food Security Assessment model.

Figure 3
Share of IFSA population estimated to be food insecure, 2034



IFSA = International Food Security Assessment.

Source: USDA, Economic Research Service based on results from the International Food Security Assessment model.

Gross Domestic Product (GDP) Expectations in the International Food Security Assessment (IFSA) Countries

The macroeconomic projections for the 83 countries covered in the IFSA report[8] show a positive outlook for real GDP[9] growth in 2024 and over the next 10 years. In 2023, tighter monetary policies helped reduce global inflationary pressures, meaning prices were no longer rising as rapidly as during the inflation peak in 2022. While tighter monetary policy helped reduce inflation, these policies also somewhat slowed GDP growth in 2023 through 2024, as higher interest rates can disincentivize investment in both the public and private sector. Regardless, in 2024 global GDP growth is estimated to continue recovering and remain stable over the next decade after suffering setbacks in 2021–22. These setbacks include shocks such as the Russian invasion of Ukraine, supply chain issues, and high fuel and fertilizer prices (Zeng et al., 2024).

Aggregate GDP for the countries included in the IFSA report is projected to reach $10.8 trillion in 2024 and grow to $17.2 trillion by the end of the decade in 2034. This represents an average annual GDP growth rate of 4.8 percent throughout the decade, including 2024,[10] which is a slight increase of 0.3 percentage points compared to GDP growth during 2021–23 (appendix C). Regionally, GDP growth rates in four of the five IFSA regions are estimated to remain steady or rise in 2024 compared to the 2021–23 period. The region projected to experience the largest increase in GDP growth in 2024 is the Former Soviet Union (FSU), with a growth rate of 5.3 percent compared to an average global growth rate of 0.3 percent during 2021–23 (appendix C). Higher estimated growth in the FSU region is primarily driven by recovery in Ukraine. After a significant contraction of 14.4 percent annually between 2021 and 2023, Ukraine's GDP is estimated to grow by 9.6 percent in 2024 and 7.7 percent annually over the next decade. Ukraine's growth rate recovery is likely due to rebuilding after the initial losses of the war, as well as from international support and financial aid (Zeng et al., 2024).

The Latin America and the Caribbean (LAC) region is the exception of the five IFSA regions, with GDP growth falling to 2.6 in 2024, a decrease of 0.7 percentage points compared to GDP growth in the previous 2 years. In the South America subregion, Colombia drives the downward trend, with GDP growth falling to 1.8 percent in 2024, less than half the growth rate experienced during 2021–23. This decrease is due to persistently high inflation and tighter monetary policy, as well as political uncertainties (International Monetary Fund (IMF), 2023a). In the Caribbean subregion, the Dominican Republic's marginal decline in growth and its considerably larger GDP compared to other countries in the subregion, along with Jamaica's GDP growth dropping to less than half of the growth observed during 2021–23, primarily account for most of the subregion's growth reduction. While GDP growth temporarily spiked in the Dominican Republic and Jamaica due to post-pandemic tourism, GDP growth in 2024 and through the next decade is expected to return to prepandemic trends. In the Central America subregion, Guatemala is a major contributor to the region's slowdown in growth, with GDP growth estimated to fall by 0.9 percentage points to 3.0 percent in 2024 as high inflation persists (IMF, 2023b; appendix C).

The total population for all IFSA countries is estimated to be 4.3 billion, with a 1.3 percent growth rate in 2024, and the total population is projected to reach 5.0 billion in 2034 (appendix C). Ukraine is expected to have one of the largest drops in population in 2024 due to the Russian invasion and outward migration (Operational Data Portal (ODP), 2023). Other countries projected to have negative population growth rates in 2024 are all located in the Former Soviet Union region, including Moldova, Armenia, and Georgia.

[8] A full list of the IFSA countries and respective macroeconomic variables is provided in appendix C.

[9] Gross Domestic Product (GDP) and per capita GDP are expressed in real terms, specifically in 2015 U.S. dollars, throughout the IFSA report.

[10] All growth estimates over the decade or past 2-year periods are calculated using the compound annual growth rate (CAGR) to provide a smoothed annual rate of return throughout the period.

In 2024, average per capita GDP across all ISFA countries is projected to increase to $2,483. Per capita GDP growth is estimated to be 3.4 percent in 2024, an increase of 0.4 percentage points compared to growth during 2021–23. Over the next decade, per capita GDP growth is expected to remain at 3.4 percent annually with per capita GDP reaching $3,472 in 2034 (table 1; appendix C). In the Asia region, per capita GDP is estimated to be $2,548 in 2024 with a growth rate of 4.7 percent, a slight increase of 0.3 percentage points compared to 2021–23. This is projected to remain stable over the next decade, with a 4.6 percent annual growth rate. In the FSU region, which is comprised primarily of middle-income countries, per capita GDP is higher than the IFSA average at $3,375 in 2024. Per capita GDP in the FSU region is estimated to grow 5.1 percent in 2024, a large increase compared to the previous 2-years' average of 0.1 percent growth and is projected to decline back to trend at 4.4 percent annual growth over the next decade. In the LAC region, per capita GDP growth is estimated to drop to 1.8 percent in 2024 before returning to 2.6 percent on average annually over the next decade. The LAC region remains the highest in terms of per capita GDP, at an estimated $5,727 in 2024. In the Middle East and North Africa (MENA) region, per capita GDP remains above the IFSA average at $3,787 in 2024 and is projected to grow 1.9 percent in 2024 before increasing to 2.3 percent over the next decade. Finally, the Sub-Saharan Africa (SSA) region shows the lowest per capita GDP levels at $1,387 in 2024. While SSA's per capita GDP growth is the lowest among the five regions at 1.4 percent in 2024, this rate has been improving, with an increase of 0.5 percentage points in per capita GDP growth compared to 2021–23 and is projected to increase slightly to 1.5 percent over the next decade.

The macroeconomic projections for GDP, inflation, and exchange rates are developed using several forecasting services, including the publicly available projections from the World Bank's World Development Indicators and the IMF's World Economic Outlook. Additional sources of data include the U.S. Government and international agency projections, USDA, Economic Research Service regional and country experts, and private forecast services. The projections do not consider the impacts of certain types of possible unknown events in the future, such as climate change, armed conflict, and political and economic instability. These macroeconomic projections were completed using data from August 2023 based on expectations at that time.

Table 1
Inflation-adjusted per capita Gross Domestic Product (GDP) in IFSA regions, 2024 and 2034

Region	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–34)
	U.S. dollars, 2015			Percent	
IFSA total	**2,337**	**2,483**	**3,472**	**3.4**	**3.4**
Asia	2,338	2,548	3,982	4.7	4.6
Former Soviet Union	3,167	3,375	5,194	5.1	4.4
Latin America and the Caribbean	5,520	5,727	7,425	1.8	2.6
Middle East and North Africa	3,657	3,787	4,777	1.9	2.3
Sub-Saharan Africa	1,355	1,387	1,610	1.4	1.5

IFSA = International Food Security Assessment.

Note: Regions include only countries that are covered by the International Food Security Assessment.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

International Food Price Projections and Trends

With the exception of rice, USDA's international agricultural commodity price projections[11] are estimated to decline in 2024, as the price of inputs, including fuel, oil, and fertilizer, are projected to decrease relative to 2021–23. All international commodity prices in 2024 are projected to remain above long-term averages due to inflation, severe weather events (such as El Nino), and supply chain disruptions due to military/political conflicts in both Black Sea and Red Sea shipping lanes. However, international wheat, corn, sorghum, and vegetable oils prices have fallen from highs reached during the COVID-19 pandemic and are estimated to continue declining through 2034 (figure 4; Agricultural Market Information System (AMIS), 2024; USDA, Office of the Chief Economist (OCE), 2024a). Rice prices are projected to remain elevated in 2024 due to export restrictions by the Indian government and production shortfalls due to El Nino (AMIS, 2024). Over the next 10 years, international agricultural commodity prices are projected to trend downward and remain relatively stable due to a projected food supply that will outweigh global demand and lower food and feed costs (figure 4; USDA, OCE, 2024a). International rice prices are projected to rise in 2024 and then decline slightly over the next 10 years (World Bank, 2024). High global demand for rice, driven by population growth in Sub-Saharan Africa, is projected to maintain rice prices through 2034 above prepandemic levels (USDA, OCE, 2024a).

Global rice production for the 2023/24 market year is projected to be 520.0 million tons, slightly above estimates for the 2022/23 market year when both Pakistan and the United States had smaller rice harvests due to poor weather (USDA, OCE, 2024b). However, due to export restrictions implemented by India in July 2023, the international price for rice has remained above $600 U.S. dollars per ton for the other four large exporting countries: United States, Thailand, Vietnam, and Argentina and is projected to maintain close to those levels during 2024 (Childs & LeBeau, 2024). Wheat prices are projected to decline in 2024, associated with global production remaining high in the 2023/24 market year at 787.6 million tons (World Bank, 2024; USDA, OCE, 2024b). Corn prices are also projected to decline in 2024, with projected production of 1,228.1 million tons for the 2023/24 market year (World Bank, 2024; USDA, OCE, 2024b).

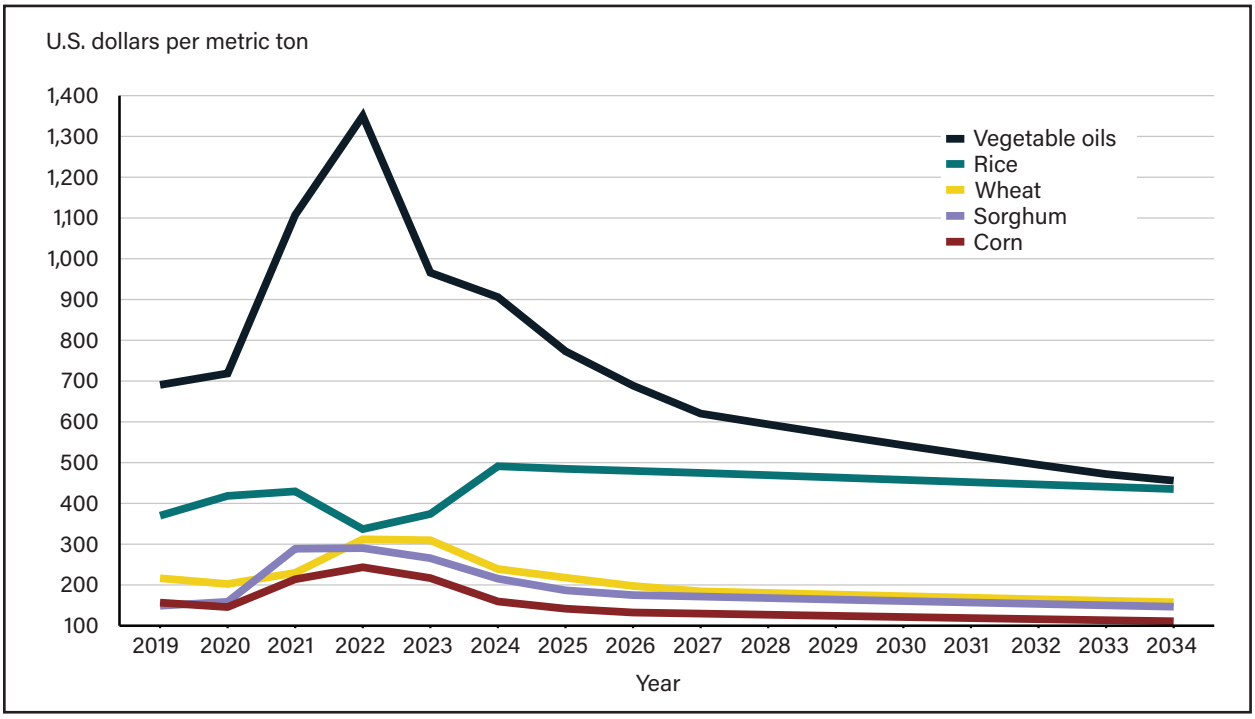
International commodity prices are transmitted to domestic markets through trade.[12] Access to food by vulnerable households is constrained when food commodity prices are high. High food-price inflation, in turn, negatively affects food security, particularly in lower income households that spend a relatively higher proportion of their budget on food. Although farmers might benefit from higher commodity prices, many vulnerable smallholder farmers are net food buyers (i.e., purchase more food than they sell) and, therefore, are constrained by higher food prices. In IFSA countries, world and domestic food prices are integrated through trade, although the degree of market integration may vary from one country to another. In 2024, overall lower real domestic food prices are estimated to increase the purchasing power for (net buyer) consumers and may be associated with lower food security estimates across IFSA countries. In 2022, many IFSA countries experienced high domestic commodity and food price inflation due to high energy and fertilizer prices, supply chain disruptions associated with the COVID-19 pandemic, and the Russian invasion of Ukraine. These trends continued in 2023 as high inflation persisted (Zereysus et al., 2023). However, inflation is estimated to remain above prepandemic levels. In addition, weak currencies may reduce purchasing power for countries that rely on imports, including many countries in Sub-Saharan Africa.

[11] Price projections come from the *USDA Agricultural Projections to 2033* long-term projections report (USDA, OCE, 2024) and are expressed in 2015 prices, adjusted for inflation.

[12] See appendix A for details about the international price transmission equations used for the IFSA countries in the IFSA demand modeling.

Rice is the predominant grain for 31 of the 83 IFSA countries. As a result of rising rice prices, the real domestic price of the major grain is estimated to increase in 2024 in those countries, between 0 percent and 26 percent. For 28 countries where wheat is the major grain, the real domestic price of wheat is estimated to decrease between 5 percent and 35 percent in 2024. For 21 countries where corn is the principal grain, real domestic corn prices are estimated to decrease between 3 percent and 25 percent in 2024 (appendix D). For the remaining three countries that predominantly consume sorghum, prices are expected to stay flat or decrease in 2024 (appendix D). Other than rice, prices of various food categories (measured in grain equivalent prices) are also estimated to decline in 2024.[13] Vegetable oils prices peaked in 2022 and began declining in 2023. In 2024, the average change in the real domestic price of vegetable oils (representing "other foods" in the IFSA model) is estimated to be 11 percent across IFSA countries. However, there is significant variation within countries, with estimated decreases between 0 percent and 26 percent in the domestic price of vegetable oils (appendix D).

Figure 4
Food price increases are estimated to ease in 2024, with the exception of rice



Note: Value is in 2015 U.S. dollars.

Source: USDA, Economic Research Service using data from *USDA Agricultural Projections to 2033* long-term projections report (OCE-2024-1).

[13] See the box "How Food Security Is Assessed: Method and Definitions" for more on the four food group categories and grain equivalent conversions and prices.

Grain Demand, Production Trends, and the Implied Additional Supply Required

The difference between total grain demand and grain production in IFSA countries provides an estimate of the shortfall/surplus in food and feed availability, which is referred to as the Implied Additional Supply Required (IASR). Total grain demand has two components: food demand and other grain demand (which includes seed and feed use, processing, and waste). The total grain demand for IFSA countries is estimated to be nearly 1.1 billion metric tons in 2024. In the next 10 years, total grain demand is projected to increase by 2.4 percent per year across all 83 IFSA countries to reach 1.4 billion metric tons by 2034. Food demand, which forms the largest share of total grain demand in the IFSA countries, is projected to grow at 2.8 percent per year while other grain demand is projected to grow at 1.5 percent per year by 2024 (table 2).

From 2024 to 2034, grain production across the countries covered by the IFSA report is projected to grow by 1.7 percent per year. While growth in grain production is less than growth in total grain demand (2.4 percent) across all IFSA countries, this relationship varies by region. Over the next 10 years, both the Former Soviet Union (FSU) and Latin American and Caribbean (LAC) regions are projected to have strong growth in grain production, with annual growth rates of 3.9 percent and 4.1 percent respectively, outpacing growth in both food demand and total demand in those regions. In the FSU region, growth in grain production is projected to result in excess food availability in the region. In contrast, projected annual grain-production growth in the Asia and Sub-Saharan Africa (SSA) regions will fall below the growth of demand for grains for food and other uses (table 2).

The gap between domestic grain production and demand for grain is projected to widen for all regions in the assessment during the next 10 years, except the FSU. The IASR as a whole—which provides an estimate of the gap between demand and supply for grains—is projected to increase by 5.0 percent per year between 2024 and 2034, driven by growth in grain shortfalls of 9.9 percent in the Asia region and 5.2 percent in SSA region (table 2).

Table 2
Demand for grains is projected to outpace grain production over the 2024–34 period, driven mainly by food demand in the Sub-Saharan Africa region

Region	Food demand		Other demand		Grain production		Implied additional supply required[1]	
	2024	2034	2024	2034	2024	2034	2024	2034
	Million tons							
IFSA total	**800.2**	**1,050.9**	**286.6**	**331.7**	**882.1**	**1,048.7**	**204.6**	**333.9**
Asia	504.6	638.8	138.3	162.3	573.3	622.4	69.6	178.7
Former Soviet Union	20.8	29.0	31.1	35.7	84.6	124.5	-32.6	-59.7
Latin America and the Caribbean	26.2	31.2	25.1	30.1	17.6	26.2	33.6	35.1
Middle East and North Africa	79.3	104.4	55.6	61.0	61.2	83.7	73.8	81.8
Sub-Saharan Africa	169.2	247.5	37.7	46.7	145.4	192.0	61.5	102.2

IFSA = International Food Security Assessment.

[1] The implied additional supply required is the gap between total grain demand (food demand plus other demand) and domestic grain production.

Note: Other grain demand includes grain used for seed, feed, waste, and processing.

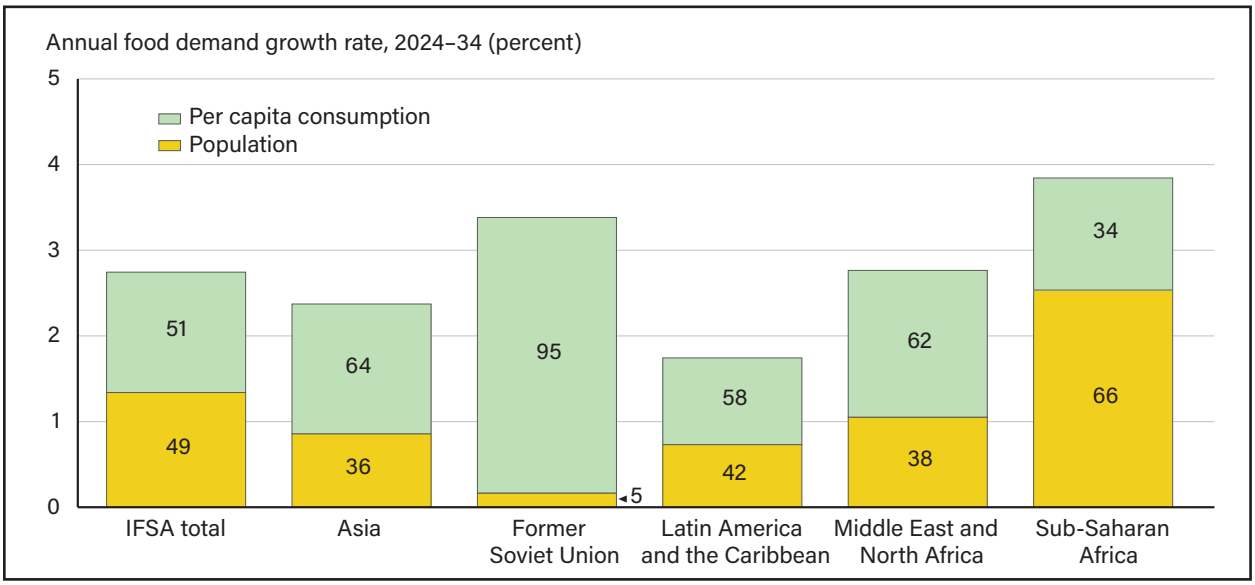
Source: USDA, Economic Research Service estimation using the International Food Security Assessment model.

Decomposition of Regional Food Demand Growth

Results in figure 5 show the overall annual growth rate of food demand by region for the countries covered by IFSA. The average annual food demand across the IFSA population is projected to grow during the next decade at an annual rate of 2.8 percent, from 800.2 million metric tons in 2024 to 1,050.9 million metric tons in 2034. The Sub-Saharan Africa (SSA) region is projected to have the fastest growth in food demand of 3.9 percent per year for the next 10 years, which projects demand growth from 169.2 million metric tons in 2024 to 247.5 million metric tons in 2034. The Middle East and North Africa (MENA) and Former Soviet Union (FSU) regions are projected to have annual growth rates of 2.8 percent and 3.4 percent, respectively. In absolute terms, the Asia region is projected to grow the most from 573.3 million metric tons in 2024 to 622.4 million metric tons in 2034, equivalent to an annual growth rate of 2.4 percent. Meanwhile, the Latin America and the Caribbean region (with a 1.8 percent annual growth rate) is projected to have the lowest food demand growth across all regions (table 2).

The total food demand growth rate can be decomposed into per capita food consumption and population growth rates. The average annual per capita food consumption for the IFSA countries is projected to grow 1.4 percent per year from 184.4 kilograms in 2024 to 212.0 kilograms in 2034, comprising half of the 2.8 percent total annual IFSA food demand growth rate, with the other half due to projected population growth. By region, growth in total food demand is driven mainly by per capita food consumption rather than population growth rate in all regions except SSA. For the FSU region, 95 percent of the overall food demand growth in the next 10 years is driven by growth in per capita food consumption because of the significant growth in per capita income, which is higher than the average population growth rate of the region. In addition to the SSA region having the highest annual food demand growth rate of 3.9 percent, 66 percent of the growth rate in food demand in SSA is due to population growth (figure 5).

Figure 5
Sub-Saharan Africa has the highest total annual food demand growth rate between 2024 and 2034, mainly driven by higher population growth



IFSA = International Food Security Assessment.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model.

How Food Security Is Assessed: Method and Definitions

The International Food Security Assessment (IFSA) projects food demand for 83 low- and middle-income countries—14 in Asia, 9 in the Former Soviet Union, 11 in Latin America and the Caribbean, 8 in the Middle East and North Africa, and 41 in Sub-Saharan Africa. Food is divided into four groups: (1) the major grain consumed in the country; (2) other grains; (3) root crops; and (4) all other food. The IFSA model's projections of food demand are expressed in grain equivalents, based on the caloric content of food items to allow for aggregation across food groups. A grain equivalent may be expressed in either kilograms or kilocalories. For example, grains have roughly 3.5 kilocalories per gram, and tubers have about 1 calorie per gram. One ton of tubers is therefore equivalent to 0.29 tons of grain.

The real domestic price in a grain equivalent (expressed per kilocalories) is used to generate price indices for the four food groups: price for the major grain is the same as its own price, whereas the prices of 'other grains,' and 'roots and tubers' are the weighted average prices expressed in grain equivalents of each of the food items consumed in the food groups. Prices for 'all other foods' (in grain equivalents) are obtained by using vegetable oil prices as a proxy for the food group.

The IFSA model analyzes the gap between projected food demand, which is a function of per capita income and food prices, and a caloric threshold of 2,100 kilocalories per capita per day. This report uses three indicators of food insecurity.

1. The **food gap** measures the food needed to raise consumption at every income level to the caloric threshold. In many countries, per capita consumption in the lower income deciles is significantly less than the per capita consumption for the country. In these countries, the distribution gap provides a measure of the intensity of hunger—the extent to which the food security of already hungry people deteriorates because of income declines or other negative economic conditions. This measure can be expressed on a per capita basis (in kilocalories per day) or as an aggregate measure (the total tons of food needed to fill the gap in each country).
2. The **share of the population that is food insecure**. Food demand is assumed to be met and equal to consumption. Consumption is not assessed by income decile but instead in a continuous manner across all income levels.
3. The **number of food insecure people**—those who cannot meet the caloric threshold—is based on the total population and the population share that consumes less than the caloric threshold.

Terms commonly used in this report include:

Food consumption—equal to food demand if we assume demand is met.

Food access—depends on a consumer's purchasing power. Food access is estimated based on income level and food prices within each country, according to an income-consumption relationship.

Food insecurity—occurs when estimated per capita food consumption for a consumer at a certain income level falls short of the caloric threshold of 2,100 kilocalories per person per day.

For more detailed information on the model, see appendix A.

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Regional Coverage and Estimated Food Security Trends

The 83 countries[14] covered by this International Food Security Assessment (IFSA) report are sub-divided across 5 regions: 14 countries and 3 subregions in Asia, 9 countries in the Former Soviet Union (FSU), 11 countries and 3 subregions in Latin America and the Caribbean (LAC), 8 countries and 2 subregions in the Middle East and North Africa (MENA) and 41 countries and 4 subregions in Sub-Saharan Africa (SSA). Estimated levels of food insecurity for 2024 vary across these regions. Asia (383.6 million people) and SSA (351.4 million people) account for 89 percent of the total number of food insecure people in 2024 (figure 6). LAC (29.9 million people), MENA (52.8 million people), and the FSU (7.1 million people) account for the remaining 11 percent of food insecure people. In 2024, SSA has the highest estimated share of the population that is food insecure at 29.3 percent, followed by LAC (16.6 percent), Asia (15.4 percent), and MENA (14.9 percent). The FSU region (6.0 percent), which is comprised primarily of middle-income countries, is estimated to have the lowest prevalence of food insecurity in 2024 (table 3).

Despite significant improvements in food security metrics across the 5 regions, by 2034 SSA is projected to have the highest number of food insecure people, with 193.3 million people (equal to 70.4 percent of the food insecure people covered by the IFSA report in 2034) potentially unable to consume 2,100 calories per day. Conversely, Asia is projected to have 54.2 million food insecure people, which is equal to 19.7 percent of the food insecure people in IFSA in 2034 (table 3). The daily caloric food gap measures the intensity of food insecurity; however, the regional averages do not capture the full distribution of country level food gaps. While the median food gap is projected to decline in all regions by 2034, certain countries, predominantly in SSA, are projected to have caloric deficits above 400 calories per capita per day (figure 7).

Table 3
Food security results in IFSA countries, 2024 and 2034

Region	Population		Population food insecure		Share of population food insecure	
	2024	2034	2024	2034	2024	2034
	Million		Million		Percent	
IFSA total	**4,340.0**	**4,957.6**	**824.6**	**274.6**	**19.0**	**5.5**
Asia	2,489.6	2,711.5	383.6	54.2	15.4	2.0
Former Soviet Union	117.6	119.6	7.1	0.4	6.0	0.3
Latin America and the Caribbean	179.6	193.2	29.9	12.1	16.6	6.3
Middle East and North Africa	355.1	394.3	52.8	14.6	14.9	3.7
Sub-Saharan Africa	1,198.2	1,539.1	351.4	193.3	29.3	12.6

IFSA = International Food Security Assessment.

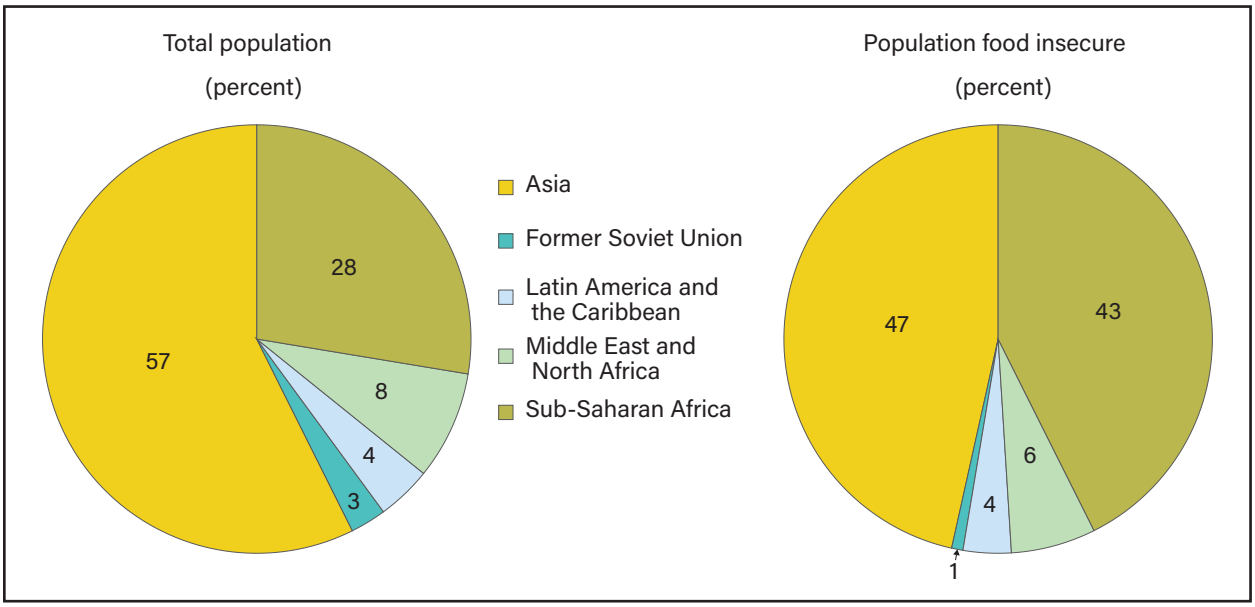
Note: Regions only include countries that are in the International Food Security Assessment.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model.

[14] IFSA covers major drivers of food security at a global, regional, subregional, or country level. Country-level discussions are included to highlight the importance of specific countries in food security trends (e.g., India, which comprises 31.4 percent of the IFSA population, significantly shapes global food security projections). Additional data on income, prices, and food security for each of the 83 countries are provided in the appendix.

Figure 6

Asia is estimated to have the highest number of food insecure people in 2024

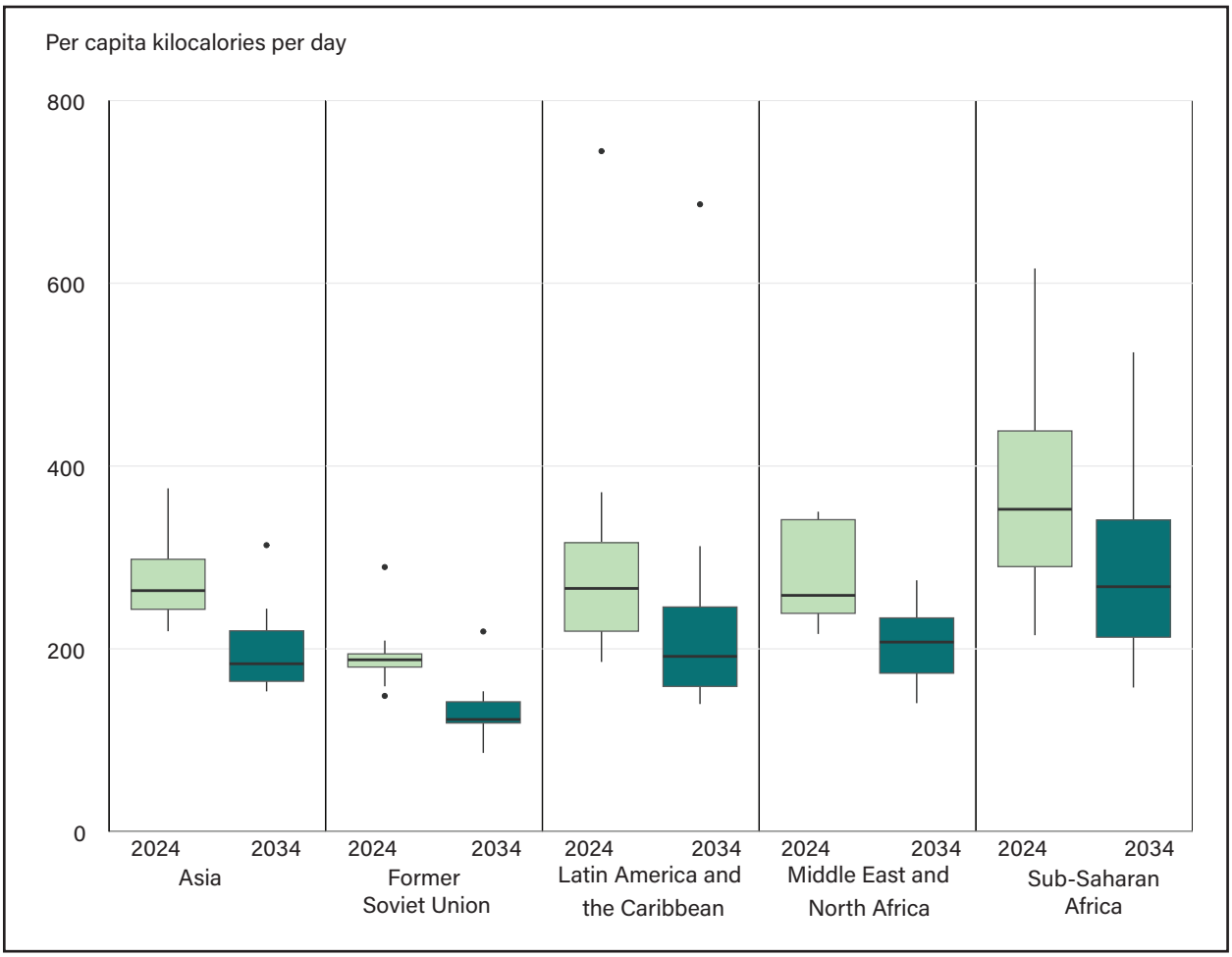


Note: Regions only include countries that are in the International Food Security Assessment. Percentages may not add up to 100 due to rounding.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model.

Figure 7

For both 2024 and 2034, the largest food gap is estimated in Sub-Saharan Africa, although there is significant variability within each region



IFSA = International Food Security Assessment.

Note: Regions only include countries that are in the International Food Security Assessment. The boxplot shows the distribution of the food gap in each region, where the black line represents the median food gap, and the points show any countries in the region above the interquartile range (25–75 percent of the distribution). A kilocalorie is the same as 1 Calorie. A kilocalorie is the amount of heat required to raise the temperature of 1 kilogram of water 1 degree Celsius.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model.

Asia

Although export prices for major agricultural commodities like wheat, maize, and soybeans are estimated to decline in 2024 relative to 2021–23, food inflation continues to be a major driver of food insecurity in Asia and the rest of the world (AMIS, 2024). Rice export bans and tariffs by India, starting in 2022 and expanded in July 2023, have hindered the easing of food price inflation across the region. The Food and Agriculture Organization of the United Nations (FAO) rice price index for May 2024 is 5 percent above the previous year, and 26 percent above 2 years earlier (FAO, 2024). A wheat export ban is also in place in India (World Bank, 2024). India's ban on broken rice, non-basmati white rice, and other export restrictions are associated with higher global prices outside of India (World Bank, 2024). Major drivers of inflation in 2024 in Asia are geopolitical conflicts, extreme weather events such as El Nino, and export restrictions by large food producers (World Food Program (WFP), 2023a).

On average, food insecurity in the Asia region is estimated to improve in 2024 relative to 2023 (appendix B). Global commodity prices have declined from their peak in early 2022 and are expected to decline further due to higher forecasted grain output and increased trade prospects (FAO, 2024). The Asia region is a significant importer of food with a food trade deficit of $250 billion U.S. dollars in 2021 (FAO, 2023). As both populations and incomes rise, the Asia region is expected to continue to rely on other parts of the world to meet food demand and will be susceptible to global shocks to commodity production and prices.

Per capita Gross Domestic Product (GDP) growth in Asia in 2024 is estimated at 4.7 percent, above the average annual growth rate of 4.4 percent during 2021–23. While on average, most countries in Asia are expected to experience higher GDP growth in 2024 relative to the last 3 years (2021–23), GDP growth is estimated to be lower in Burma, Indonesia, the Philippines, and Vietnam (appendix C). Over the next 10 years, per capita GDP in the Asia region is projected to rise from the 2024 estimate of $2,548 to $3,982 by year 2034, an average growth rate of 4.6 percent per annum (table 5). This growth rate is projected to be the fastest among all the regions covered by the IFSA report, driven by projected economic growth in India, Nepal, and Bangladesh (table 1).

In 2024, the Asia region is estimated to see a significant improvement in the prevalence of food insecurity. In 2024, 15.4 percent of the population of the Asia region is estimated to be food insecure, which is an improvement from 21.8 percent of Asia's population categorized as food insecure in 2023. However, food insecurity is estimated to worsen in 2024 (relative to 2023) in Bangladesh and Laos due to high prices and low per capita GDP reducing purchasing power. In 2034, Asia is projected to have 54.2 million food insecure people, representing only 2.0 percent of the population of the region (table 4, appendix B).

The South Asia subregion includes India, which accounts for 47.3 percent of the total number of food insecure people in Asia. India is the most populous country in this subregion and with 13.3 percent of India's population classified as food insecure in 2024, it has the largest number of food insecure people (181.5 million) of the countries covered by the IFSA report. Food insecurity in India is projected to improve by the end of the decade, with 7.7 million people in India projected to be food insecure by 2034—representing only 0.5 percent of India's population. By 2034, India is projected to account for 14.2 percent of food insecure people in the Asia region—a major improvement relative to other countries in the South Asia subregion (table 4).

The highest prevalence of food insecure people across the Asia region is in Afghanistan, with 53.7 percent of that population estimated to be food insecure in 2024. Major contributors to the high level of food insecurity in Afghanistan include internal displacement, extreme weather events, and cumulative effects of conflict (USAID, 2023). Among the countries in the Asia region covered by the IFSA report, Afghanistan is estimated to have the highest food gap of 376 calories per capita per day. The prevalence of food insecurity is projected to persist, with 36.3 percent of the population projected to be food insecure in 2034, due to sluggish economic growth and recurrent conflict (table 4).

In 2024, Bangladesh's food security situation is estimated to worsen. The share of the food insecure population in Bangladesh increased from 17.0 percent in 2023 to 18.6 percent in 2024, with 31 million people estimated to be food insecure in 2024 (table 4, appendix B). Low food supply due to extreme weather events and high food prices continue to be major challenges in combating food insecurity in Bangladesh (WFP, 2023b).

In Sri Lanka, the prevalence of food insecurity is estimated to be 9.2 percent in 2024, a sharp decrease from an estimated 25.3 prevalence in 2023 (appendix B). Per capita GDP is estimated to grow 7.2 percent in 2024, after experiencing average annual declines of 2.6 percent during 2021–23 (appendix C). The decline in estimated food security prevalence is also correlated with inflation estimated to decrease to 5.4 percent in 2024 after rising 38.2 percent annually during 2021–23 (appendix D). The Government of Sri Lanka is increasing welfare benefits to low-income households to combat the pressure from price escalation (World Bank, 2024).

The South East Asia subregion has the lowest share of the population considered to be food insecure among the subregions covered by IFSA in Asia. In 2024, 10.6 percent of the South East Asia population is classified as food insecure. The food insecure number is projected to improve by the end of the decade, with 1.8 percent of the region's population projected to be food insecure in 2034 (table 4). Within the South East Asia subregion, Laos has the highest population share estimated to be food insecure, with 31.6 percent of its population estimated to be food insecure in 2024, a sharp increase from the 21.8 percent of the population estimated to be food insecure in 2023 (appendix B). Major contributors to food insecurity in Laos are limited access to food markets, high food prices, and reliance on climate-sensitive natural resources (World Food Program, 2024a). Persistently high inflation (due to the depreciation of its currency and a reliance on imports) is associated with reduced purchasing power and worsening food insecurity in 2024 (Global Information Early Warning System (GIEWS), 2023). While Laos' GDP is estimated to grow 3.7 percent in 2024, per capita GDP is only estimated to grow 2.4 percent (appendix C).

Burma is estimated to have a 20.3-percent prevalence of food insecurity in 2024 and is projected to see the least improvement in the South East Asia subregion by 2034, with 9.2 percent of Burma's population projected to be food insecure (table 4). Major drivers of food insecurity in Burma are political and economic crisis, high inflation, and weather shocks (World Food Program, 2024b).

The East Asia subregion covers Mongolia and the Democratic People's Republic of Korea (DPRK). The East Asia subregion is projected to have the slowest per capita GDP growth in the next 10 years, among the subregions in Asia. Close to 40 percent of the subregion population is estimated to be food insecure in 2024. Major threats to food production and nutrition in Mongolia are expected to be changes in precipitation and surface area temperatures and increased drought severity (FAO & UNICEF, 2023).[15] The DPRK is estimated to have a prevalence of food insecurity of 44.1 percent, equivalent to 11.6 million people (table 4). GDP per capita in the DPRK is estimated to increase by 1.2 percent from 2024 to 2034, the second-slowest growth of the countries in the Asia region (appendix C). Some of the major challenges to food security in the DPRK include lack of arable land and inefficient agricultural systems that depend on industrial inputs such as chemical fertilizer (Ward, 2023). Real domestic prices of rice, the major grain in the DPRK, are projected to increase by 13 percent in 2024 (appendix D). In 2023, the DPRK Government continued border control measures implemented during the COVID-19 pandemic, hampering the country's access to aid and supplies (Human Rights Watch, 2023).

[15] Mongolia experienced severe cold in the winter of 2023/24, which led to significant livestock losses and affected pastoralist livelihoods. This event occurred after the macroeconomic projections for this report were completed (United Nations Office for the Coordination of Humanitarian Affairs, 2024).

Table 4

Food security results in the Asia region, 2024 and 2034

Region/ subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
Asia	**Region total**	**2,489.6**	**2,711.5**	**383.6**	**54.2**	**15.4**	**2.0**	**281**	**243**
East Asia	**Subregion total**	**29.5**	**30.1**	**11.7**	**1.0**	**39.8**	**3.4**	**363**	**204**
	Democratic People's Republic of Korea	26.2	26.6	11.6	1.0	44.1	3.8	365	205
	Mongolia	3.3	3.5	0.2	0.0	5.5	0.2	224	154
South Asia	**Subregion total**	**1,878.8**	**2,050.1**	**310.2**	**42.1**	**16.5**	**2.1**	**280**	**249**
	Afghanistan	40.1	49.3	21.6	17.9	53.7	36.3	376	313
	Bangladesh	168.8	182.3	31.4	4.2	18.6	2.3	274	192
	India	1,362.8	1,462.0	181.5	7.7	13.3	0.5	245	158
	Nepal	31.2	33.1	3.3	0.1	10.7	0.3	243	156
	Pakistan	252.4	298.6	70.2	11.8	27.8	4.0	348	234
	Sri Lanka	23.5	24.7	2.2	0.4	9.2	1.5	219	169
South East Asia	**Subregion total**	**581.3**	**631.3**	**61.7**	**11.1**	**10.6**	**1.8**	**271**	**225**
	Burma	58.4	62.2	11.8	5.7	20.3	9.2	290	244
	Cambodia	17.7	19.2	2.0	0.1	11.2	0.6	253	171
	Indonesia	276.3	294.6	24.2	1.6	8.8	0.5	250	176
	Laos	7.9	8.8	2.5	0.7	31.6	7.6	298	211
	Philippines	117.5	135.0	15.9	2.9	13.5	2.1	298	223
	Vietnam	103.5	111.5	5.3	0.2	5.1	0.1	236	163

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

Table 5

Inflation-adjusted per capita Gross Domestic Product (GDP) in the Asia region, 2024 and 2034

Region/subregion	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–24)
	U.S. dollars, 2015			Percent	
Asia	**2,338**	**2,548**	**3,982**	**4.7**	**4.6**
East Asia	1,028	1,100	1,476	3.8	3.0
South Asia	2,034	2,221	3,551	4.9	4.8
South East Asia	3,386	3,682	5,503	4.3	4.1

Note: Values are expressed in 2015 U.S. dollars. Regions include only countries that are covered by the International Food Security Assessment. For full country statistics, see appendix C.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

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Former Soviet Union

The Former Soviet Union (FSU) region is one of the most important regions in the world for food supply. Prior to the Russian invasion of Ukraine, both countries were among the top five global exporters of wheat, barley, sunflower seeds, and maize, accounting for 30 percent of global wheat and barley exports and 12 percent of total calories exported globally (Glauber et al., 2023). More than 50 percent of the cereal needs, such as wheat and barley, in the Middle East and North Africa are supplied by Ukraine and Russia (Glauber et al., 2023). The ongoing Russian military invasion of Ukraine continues to threaten the global supply of major food commodities from the Black Sea region. These supply issues include interruptions in the marine shipping routes out of Ukraine, including the suspension of the Black Sea Grain Initiative in July 2023 (International Monetary Fund, 2023). However, despite ongoing challenges and threats to its export capabilities, grain exports from Ukraine in 2024 have grown to near pre-war levels (USDA, Office of the Chief Economist (OCE), 2024).

In 2024, the estimated prevalence of food insecurity in the FSU region is 6.0 percent, equivalent to 7.1 million people. Within the region, the estimated share of the population that is food insecure in 2024 varies from 0.6 percent in Armenia to 15.5 percent in Tajikistan. Five out of nine of the FSU countries covered by the IFSA report are estimated to have under 5 percent of their populations considered to be food insecure in 2024 (table 6). This is associated with an estimated 15 percent decrease in the average price of major grains in the FSU region and estimated growth in average per capita Gross Domestic Product (GDP) of 5.1 percent in 2024 (table 7; appendix D).

The FSU region's population is estimated to increase at an annual rate of 0.2 percent, from 117.6 million in 2024 to 119.6 million people in 2034. This regional population growth is the lowest among the regions covered in this report, while per capita GDP is one of the highest. Per capita GDP in the FSU region is estimated to increase at an annual rate of 4.4 percent, from $3,375 in 2024 to $5,194 in 2034 (table 7). By 2034, the FSU region is estimated to have the lowest food insecurity level among the five IFSA regions, with 0.3 percent of the population in the region estimated to be unable to consume 2,100 kilocalories per day (table 6).

Tajikistan is estimated to have the highest share of food insecure people in the FSU region in 2024 (table 6). In 2024, 15.5 percent of the population of Tajikistan (1.5 million) is estimated to be food insecure. This is 60.7 percent lower than the 2023 estimate of the prevalence of food insecurity in Tajikistan (appendix B). In 2024, the country's per capita GDP is projected to increase by 3.0 percent and the real domestic price of the major grain, wheat, is projected to decrease by 10 percent (appendix C and D). Despite these improvements, economic access to food for households continues to be a major driver of food insecurity in Tajikistan (FAO, 2023a). The agricultural sector in Tajikistan remains underdeveloped, making the country dependent on imports to cover its basic food requirements. Tajikistan imports 65 percent of its food needs (in particular wheat imports from Kazakhstan) and Tajikistan's households spend around 50 percent to 60 percent of their total expenditures on food (World Food Program, 2022). Thus, any supply shocks and disruptions could negatively affect the food security status in the country.

Moldova is estimated to have the second-highest share of food insecure people in the FSU region in 2024 and is one of the nine countries covered by the IFSA report that is estimated to see food insecurity worsen relative to 2023 (appendix B). In 2024, 9.2 percent of the Moldovan population (0.3 million people) are estimated to be food insecure (table 6). Although Moldova's economic performance has improved greatly over the last 20 years, its per capita GDP remains the second-lowest in the FSU region. The Russian invasion of Ukraine has affected Moldova's economy through the tightening of domestic monetary policies, decreased foreign investments, an increased number of refugees, and remittance outlets (European Commission, 2023; FAO, 2022). Moldova's GDP contracted by 2.3 percent during 2021–23 due to decreased private consumption caused by food and energy price inflations (European Commission, 2023). Moldova is projected to have annual growth in GDP of 3.5 percent between 2024 and 2034 (appendix C).

Ukraine is projected to have the highest number of food insecure people in the region in 2024, with 3.2 million people (7.5 percent of the population) estimated to be food insecure (table 6). GDP in Ukraine contracted by 14.4 percent during 2021–23, as the Russian invasion of the country in 2022 adversely impacted its economy. Ukraine remains a major supplier of food commodities in the world. In October 2023, Ukraine began shipping goods out of the Ukrainian corridor of the Black Sea Ports, ensuring Ukraine's exports of grains and other agricultural products. If this route allows Ukraine to maintain average monthly exports of around 4 million metric tons for all grain, they would be able to export most of their harvest in 2024 (USDA, FAS, 2024). Despite lower levels of cereal production, domestic food availability is reported to be sufficient, though access to food continues to be a key challenge for Ukrainians (FAO, 2023b). Ukraine's long-term economic outlook is positive despite the current geopolitical conflict. Per capita Ukrainian GDP is estimated to grow by an annual rate of 8.3 percent until 2034, the highest increase among the countries in the FSU region included in IFSA (appendix C).

Table 6
Food security results in the Former Soviet Union region, 2024 and 2034

Region/ subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
Former Soviet Union	**Region total**	**117.6**	**119.6**	**7.1**	**0.4**	**6.0**	**0.3**	**207**	**202**
Former Soviet Union	Armenia	3.0	2.8	0.0	0.0	0.6	0.0	148	103
	Azerbaijan	10.5	11.0	0.3	0.0	2.6	0.2	159	123
	Georgia	4.9	4.9	0.2	0.0	3.4	0.1	195	142
	Kyrgyzstan	6.2	6.6	0.3	0.0	5.6	0.4	209	154
	Moldova	3.2	2.8	0.3	0.0	9.2	0.1	194	119
	Tajikistan	9.4	10.5	1.5	0.3	15.5	3.0	289	219
	Turkmenistan	5.7	6.2	0.2	0.0	3.5	0.2	188	139
	Ukraine	43.1	40.9	3.2	0.0	7.5	0.0	186	86
	Uzbekistan	31.6	33.7	1.1	0.0	3.4	0.1	180	122

Note: Countries with relatively small food insecure populations may appear as 0 due to rounding.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

Table 7
Inflation-adjusted per capita Gross Domestic Product (GDP) in the Former Soviet Union region, 2024 and 2034

Region/subregion	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–34)
	U.S. dollars, 2015			Percent	
Former Soviet Union	**3,167**	**3,375**	**5,194**	**5.1**	**4.4**

Note: Values are expressed in 2015 U.S. dollars. Regions include only countries that covered by the International Food Security Assessment. For full country statistics, see appendix C.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

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Latin America and the Caribbean

The Latin America and Caribbean (LAC) region is projected to remain on the path of low economic growth in the near term, reflecting continued, yet diminished, inflationary pressures. The LAC region is estimated to have lower Gross Domestic Product (GDP) growth in 2024 (projected at 2.6 percent) than during 2021–23 (average growth rate of 3.3 percent). However, over the next 10 years GDP is projected to grow on average at a slightly higher rate of 3.4 percent (appendix C). Countries leading the 2024 economic growth in the region include Bolivia, Ecuador, Honduras, and Peru—and to a lesser extent Colombia. These countries continue to benefit from global commodities demand and favorable exchange rates for their agricultural exports. Other key drivers include lower inflation rates and the recovery of the agriculture sector after the drought in 2022. Increased exports of tourism services in the Dominican Republic and in Jamaica also contributed the regional growth (U.S. Department of Agriculture, Office of the Chief Economist, World Agricultural Outlook Board, 2024; International Monetary Fund (IMF) 2023a; IMF 2023b; IMF 2023c; Food and Agriculture Organization of the United Nations (FAO), Global Information Early Warning Systems (GIEWS), 2023).

In 2024, per capita GDP in the LAC region is estimated to be $5,727—more than twice as high as the IFSA total average of $2,483 (table 2). Over the next decade, per capita GDP in the LAC region is projected to grow by 2.6 percent per year, to reach $7,425 in 2034 (table 9). With the advances in the region's economic recovery, food security in 2024—in the aggregate—shows significant improvement as the combined effects of lower inflation, higher remittances, increased labor opportunities, and new targeted domestic food assistance programs in selected countries contribute to lower the prevalence of food insecurity (World Bank, 2024c). The prevalence of food insecurity in the LAC region is estimated to be 16.6 percent in 2024, which is 26.5 percent lower than the average prevalence of food insecurity of 22.6 percent in 2023 (appendix B). The estimated prevalence of food insecurity for 2024 ranges from a high level of acute food insecurity of 64.1 percent in Haiti to a low of 3.2 percent in the Dominican Republic (table 8).

Over the next decade, food insecurity in the LAC region is projected to fall to 6.3 percent in 2034 (table 8). The number of food insecure people in the region will decline from an estimated 29.9 million in 2024 to 12.1 million in 2034 (table 8). The LAC population in 2024 is estimated at 179.6 million and is projected to reach 193.2 million by 2034, with an annual growth projected at 0.7 percent per year. Population growth varies by average income level, with higher income countries associated with lower population growth rates than those with lower incomes (appendix C).

The heterogeneity among countries in the LAC region in terms of income inequality, labor informality, migration, prevalence of conflict, and the availability of government food assistance programs to benefit vulnerable populations means the number of people facing food insecurity also diverge across countries (table 8; appendix C). These factors all contribute to food insecurity conditions. Other key drivers of food insecurity in the LAC region include rising fuel and farm input costs and extreme weather events, which have the potential to reduce incomes, agricultural production, and food availability (USDA, OCE, 2024; FAO GIEWS, 2023). While consumer price inflation is projected to fall in almost all countries across the LAC region (with the exception of Bolivia) in 2024 relative to 2021–23, the effects of food inflation on individual LAC countries are mixed and related to the major grains, roots, and tubers prevalent in the diet (appendix D). Domestic main staple grain prices for most LAC countries (except Colombia, the Dominican Republic, Ecuador, Nicaragua, and Peru) are projected to fall in 2024, while domestic prices of other grains and roots and tubers are projected to fall across all countries in the region (appendix D; Childs & LeBeau, 2024).

The economies of the Central America subregion (El Salvador, Guatemala, Honduras, and Nicaragua) were adversely affected by 3 consecutive years of a La Niña extreme-weather event which began in September 2020 and ended in early 2023—an event that has occurred only twice since 1973 (GIEWS, 2023). The above-

average rainfall from La Niña led to increased flooding and landslides and resulted in partial losses of crop and livestock production in the Central America subregion. La Niña was followed by a transition to El Niño, where drier conditions reduced the availability of food. In 2024, 20.7 percent of the population (8.5 million people) in Central America are estimated to be food insecure (table 8). Central America has the lowest per capita GDP in LAC, estimated at $3,728 in 2024 (table 9). With a population of 41 million in 2024, the subregion is projected to have the fastest population growth rate in LAC (1.0 percent) in 2024–34, and the lowest per capita GDP growth rate (1.6 percent) in the LAC region (appendix C).

The Caribbean subregion is diverse in terms of economic performance, population, and the prevalence of food insecurity. Strong tourism-based economic growth in the Dominican Republic and Jamaica drove an estimated 4.3 percent GDP growth in the subregion in 2021–23 (USDA, OCE, 2024; IMF 2023b; IMF 2023c.) These countries also exhibit the lowest levels of food insecurity in the subregion (table 8). In contrast, Haiti—considered one of the most food-insecure nations in the world and the poorest country in the LAC region—has historically been recurrently afflicted by high levels of food insecurity from acute food and fuel shortages, soaring inflation, weather-related shocks, and conflict (WFP & FAO, 2023). The Haitian economy has been sustained by increased inflows of international aid and remittances, which account for more than 20 percent of its GDP (World Bank, 2024a). The country's per capita GDP, which has been declining since 2015, is projected to stay flat in 2023–24 and only slightly rise to 1.3 percent per year in 2024–34 (appendix C). In 2024, Haiti's per capita GDP is estimated at $733, with 7.4 million people (64.1 percent of the country's total population) estimated to be food insecure (table 8; appendix C). Haiti is projected to make the least progress in terms of its food security metrics in the LAC region, despite a projected drop to 55.8 percent in the prevalence of food insecurity by 2034. Haiti also has the highest estimated per capita food gap of 745 kilocalories per capita per day in 2024 (table 8).

In South America, the economic slowdown (with the exception of Peru) is widespread, but due to its economic size the subregion remains the leader in terms of absolute GDP, accounting for three-quarters of LAC's GDP (appendix C). Colombia saw a steep deceleration in GDP growth from 4.0 percent in 2021–23 to 1.8 percent projected in 2024, resulting from persistent high inflation and political and policy uncertainty (International Monetary Fund, 2023). Internal conflict continues to affect the economy, with an estimated 8.4 million people displaced by conflict and vulnerable to food insecurity (World Food Program, 2024). Colombia's per capita GDP is estimated to grow 1.3 percent in 2024 and is projected to increase to 3.2 percent per year on average in 2024–34 (appendix C). In 2022–23, Colombia expanded its food and cash transfer programs to households living in extreme poverty in urban and rural areas, which also benefited nearly 1.5 million Venezuelan migrants (World Food Program, 2023). In 2024, 5.5 percent of Colombia's population is estimated to be food insecure (table 8). Peru's economy continues to recover from the Coronavirus (COVID-19) pandemic with GDP growth of 3.1 percent projected in 2024 (appendix C). The country's GDP is projected to grow 3.6 percent per year in 2024–34, driven by agricultural export goods and remittances (USDA, OCE, 2024; World Bank, 2024c). However, this economic growth has not translated into a more rapid narrowing of the food insecure population. About 16.4 percent of the population in Peru is estimated to be food insecure in 2024 (table 8).

Table 8

Food Security results in the Latin America and Caribbean region, 2024 and 2034

Region/subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
Latin America and the Caribbean	**Region total**	**179.6**	**193.2**	**29.9**	**12.1**	**16.6**	**6.3**	**394**	**505**
Caribbean	**Subregion total**	**25.3**	**27.5**	**8.0**	**7.2**	**31.6**	**26.3**	**706**	**683**
	Dominican Republic	10.9	11.7	0.4	0.0	3.2	0.2	186	140
	Haiti	11.6	12.9	7.4	7.2	64.1	55.8	745	686
	Jamaica	2.8	2.9	0.2	0.0	7.5	0.8	203	153
Central America	**Subregion total**	**41.0**	**45.3**	**8.5**	**3.1**	**20.7**	**6.9**	**325**	**269**
	El Salvador	6.6	6.7	1.0	0.2	15.1	2.4	261	192
	Guatemala	18.3	20.9	4.2	1.7	22.9	8.1	329	262
	Honduras	9.7	10.7	1.6	0.4	16.6	3.4	303	229
	Nicaragua	6.4	6.9	1.7	0.9	26.1	13.0	371	312
South America	**Subregion total**	**113.3**	**120.3**	**13.4**	**1.7**	**11.8**	**1.4**	**251**	**182**
	Bolivia	12.2	13.3	3.0	0.5	24.7	4.1	275	192
	Colombia	50.7	52.6	2.8	0.2	5.5	0.4	224	165
	Ecuador	17.7	19.5	2.2	0.2	12.6	1.2	215	152
	Peru	32.8	35.0	5.4	0.7	16.4	2.1	266	190

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

Table 9

Inflation-adjusted per capita Gross Domestic Product (GDP) in Latin America and Caribbean region, 2024 and 2034

Region/subregion	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–34)
	U.S. dollars, 2015			Percent	
Latin America and the Caribbean	**5,520**	**5,727**	**7,425**	**1.8**	**2.6**
Caribbean	4,876	5,170	6,955	2.7	3.0
Central America	3,605	3,728	4,388	1.6	1.6
South America	6,350	6,575	8,676	1.7	2.8

Note: Values are expressed in 2015 U.S. dollars. Regions include only countries that covered by the International Food Security Assessment. For full country statistics, see appendix C.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

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Middle East and North Africa

Food insecurity in the Middle East and North Africa (MENA) region is projected to decline to 14.9 percent in 2024, from a previous estimate of 17.4 percent in 2023 (table 10; appendix B). The reduction in food insecurity is partially due to small income gains based on estimated growth in the real per capita Gross Domestic Product (GDP) of 1.9 percent in 2024, with average projected growth of 2.3 percent per year over the next decade (table 11). However, for three countries (Syria, Iran, and Egypt), food insecurity is estimated to worsen in 2024 relative to 2023 (appendix B). Over the next 10 years, 2.3 percent annual growth in per capita GDP combined with moderate annual population growth of 1.1 percent is estimated to reduce the prevalence of food insecurity to 3.7 percent in the MENA region in 2034 (table 11).

Key drivers of food security trends in the MENA region are a high reliance on food imports and susceptibility to global price shocks. A combination of lackluster economic growth, rising global food prices following the Russian military invasion of Ukraine, and growing public indebtedness will likely have far reaching consequences for food security in the International Food Security Assessment (IFSA) countries in this region (Gatti et al., 2023). In addition to macroeconomic factors and high prices, conflict is another factor affecting the high prevalence of food insecurity in the region, especially in the Middle East subregion.

Conflict in the Middle East has been a key driver behind the increased number of people facing acute food insecurity, as many civilians become internally displaced and humanitarian assistance becomes more difficult, as has been occurring in the IFSA countries of Syria and Yemen.[16] In Yemen, for example, more than half of the population was estimated to be food insecure in 2021–23 (appendix B). An estimated 10.9 million people are considered to be food insecure in 2024, representing 33.8 percent of the country's population (table 10). This marked reduction from the 2023 estimate of 81.8 percent (appendix B) is associated with improved purchasing power due to higher incomes and lower prices. Yemen's GDP growth rate is expected to be 1.8 percent in 2024, which is 1.6 percentage points higher than in 2023. Yemen's consumer price index (CPI) annual growth rate is also estimated to decrease to 12.7 percent in 2024, which is 21.2 percentage points lower than in 2021–23 (appendix C and D). These improved economic projections are associated with the aftermath of a truce in the country's civil war in 2022. However, much of the population remains vulnerable to acute food insecurity, as the conflict continues to shift and affect the availability of humanitarian assistance (Famine Early Warning Systems Network (FEWS NET), 2023c). Similarly, Syria is also projected to have a high prevalence of food insecurity in the region in 2024, affecting 38.9 percent of the population and nearly twice as high as the prior year's estimates (table 10; appendix B). Worsening food security in Syria is associated with protracted conflict, persistent inflation, the depreciating Syrian pound amidst a reliance on food imports, and earthquakes which struck northern and western Syria in February 2023 (FEWS NET, 2023b; Gunasekera et al., 2023; WFP, 2023).

In the North Africa (NAF) subregion, Tunisia, Algeria, and Morocco are each expected to have food insecurity prevalence rates of 5 percent or less in 2024 (table 10). These estimates represent improvements in each country's food security outlook relative to 2023 (appendix B). These improvements are partially due to falling inflation rates in these countries. The annual growth rate in the CPI in Morocco is estimated to be 3.9 percent in 2024, compared to 6.2 percent over the 2021–23 period (appendix D).[17] Similarly, the CPI annual growth rate in Algeria and Tunisia is estimated to be 6.5 percent and 7.5 percent, respectively, in 2024, with each country's estimate representing a decline relative to the 2021–23 period (appendix D). In addition to declines in the overall

[16] Although not covered by IFSA, the Israel-Hamas war in the Gaza Strip is raising the risk of famine (IPC Phase 5) occurring in 2024, should conditions deteriorate further (FEWS NET, 2023a).

[17] Localized impacts persist from a magnitude 7 earthquake which struck Morocco's High Atlas region in September 2023, but widespread macroeconomic impacts are expected to be limited (World Bank, 2023). This event occurred after the macroeconomic projections for this report were completed.

rate of inflation, the price of wheat, a major grain and food import in the region, is also expected to decline. Across the NAF subregion the inflation-adjusted price of wheat is estimated to fall by 16 percent in 2024 (appendix D). This decline may also contribute to increasing overall food security in the subregion.

Egypt is an exception to the trend of an improving food security outlook among NAF countries covered by the IFSA report. As the largest country by population in the NAF subregion and the largest wheat importer in the world, Egypt relies heavily on imports of wheat to meet its food security needs (table 10; USDA, 2024). However, the heavy reliance of consumers on bread and other commodity subsidies places a heavy weight on the country's fiscal outlays and overall debt, especially as global wheat prices spiked following the Russian invasion of Ukraine.[18] Due to this reliance on wheat, the estimated 14-percent decline in the inflation-adjusted wheat price in Egypt in 2024 is associated with an improvement in the country's food security (appendix D). However, the overall food security outlook in Egypt is projected to worsen in 2024. Egypt's estimated 2024 food insecurity prevalence rate of 20.9 percent is 27.4 percent higher than in 2023 (table 10; appendix B). This rising food insecurity is associated with Egypt's sustained double-digit inflation rates. Egypt's annual CPI growth rate is projected to be 16.8 percent in 2024, substantially higher than the other countries in the NAF subregion (appendix D). Moreover, the weakened Egyptian pound and the country's reliance on food imports constrain food affordability (FEWS NET, 2023b). The prevalence of food insecurity in Egypt is projected to decline to 6.0 percent in 2034, due to GDP growth outpacing population growth over the next 10 years (appendix C).

Table 10
Food security results in the Middle East and North Africa region, 2024 and 2034

Region/ subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
Middle East and North Africa	**Region total**	**355.1**	**394.3**	**52.8**	**14.6**	**14.9**	**3.7**	**324**	**261**
Middle East	**Subregion total**	**149.8**	**166.0**	**25.0**	**5.7**	**16.7**	**3.4**	**325**	**270**
	Iran	88.4	94.7	3.9	0.0	4.4	0.0	216	141
	Lebanon	5.4	5.7	0.9	0.4	16.7	6.8	267	224
	Syria	23.9	27.8	9.3	5.2	38.9	18.8	346	275
	Yemen	32.2	37.8	10.9	0.0	33.8	0.1	350	148
North Africa	**Subregion total**	**205.3**	**228.3**	**27.8**	**9.0**	**13.6**	**3.9**	**324**	**256**
	Algeria	45.3	50.0	2.2	0.9	4.8	1.9	241	213
	Egypt	111.0	126.0	23.2	7.6	20.9	6.0	340	264
	Morocco	36.9	39.7	1.9	0.3	5.0	0.9	250	202
	Tunisia	12.0	12.5	0.6	0.1	4.6	0.5	233	182

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

[18] Approximately two-thirds of the Egyptian population receives the bread subsidy, which allots 150 discounted loaves of bread per month (USDA, 2024). As of June 1, 2024, the Egyptian government raised the price of subsidized bread for the first time in 36 years. While this change is projected to reduce the government share of expenditures, it will also increase the burden on recipients (USDA Foreign Agricultural Service (FAS), 2024).

Table 11

Inflation-adjusted per capita Gross Domestic Product (GDP) in the Middle East and North Africa region, 2024 and 2034

Region/subregion	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–34)
	U.S. dollars, 2015			Percent	
Middle East and North Africa	**3,657**	**3,787**	**4,777**	**1.9**	**2.3**
Middle East	3,213	3,281	4,056	1.8	2.1
North Africa	3,978	4,156	5,301	2.1	2.5

Note: Values are expressed in 2015 U.S. dollars. Regions include only countries that covered by the International Food Security Assessment. For full country statistics, see appendix C.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

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Sub-Saharan Africa

In 2024, the food security outlook in the Sub-Saharan Africa (SSA) region is projected to improve, on average, relative to 2023. An estimated 29.3 percent of the population in SSA is expected to be food insecure in 2024 (table 12), a decline of 28.9 percent from the region's 2023 estimate (appendix B). This trend is projected to continue over the next decade, with 193.3 million people in the region projected to be food insecure in 2034, representing 12.6 percent of the population (table 12). Despite this substantial anticipated improvement, the region is expected to continue facing food security challenges. Of the five regions covered by the International Food Security Assessment (IFSA) report, SSA is projected to be the most food insecure, in terms of the share of the regional population that is food insecure, in both the near term (2024) and long term (2034) (table 3). Moreover, the region's expected annual population growth rate of 2.5 percent over the next 10 years is the highest of the five IFSA regions, increasing the region's food demand (appendix C). The population of SSA is projected to increase by 340.9 million over the next decade, to more than 1.5 billion in 2034 (table 12).

The high population growth rate in SSA contributes to the challenge of reaching enough economic growth across the region to meet increasing food security needs. Per capita Gross Domestic Product (GDP) in the SSA region is estimated to be $1,387 in 2024. Over the next decade, per capita GDP in the SSA region is projected to grow on average by 1.5 percent per year (table 13). Both 2024 per capita GDP in SSA and the projected growth rate over the next decade are the lowest among the five regions covered in the IFSA report. Furthermore, the region's projected average GDP per capita of $1,610 in 2034 is lower than the current year (2024) estimates of average GDP per capita in the four other IFSA regions, implying that average economic output per person in SSA is projected to persistently lag that of other regions (table 1).

Elevated, albeit falling, average inflation rates contribute to lower economic growth prospects in SSA (appendix C and D). Annual average growth in the consumer price index (CPI) in most countries in the region is projected to fall relative to the 2021–23 period. However, high annual CPI growth rates are projected in 2024 in Sudan (100 percent), Zimbabwe (58.9 percent), and Ethiopia (25.2 percent) (appendix D). Sudan's high projected CPI growth rate is related to macroeconomic instability resulting from its ongoing civil conflict which began in April 2023 (FEWS NET, 2023d, 2024). Food price inflation varies by the major grain consumed in each country. Across most of SSA, domestic prices for countries' main staple grain are expected to fall in 2024; however, for SSA countries where rice is a main staple grain, such as throughout most of the West Africa (WAF) subregion, the major grain domestic price is expected to increase in 2024 (appendix D). This increase is associated with India's restrictions on rice exports, coupled with SSA countries' reliance on imports to meet domestic rice demand (Childs & LeBeau, 2024; World Bank, 2024b).

In addition to macroeconomic pressures, food security in the region faces increasing risks from political instability and conflict, such as the 2023 coups in Niger and Gabon, which resulted in the suspension of most U.S. assistance to these countries (Miller, 2023a; 2023b). Moreover, weather-related shocks also continue to impact food security in SSA by posing risks to agricultural outputs and livelihoods across the region (WFP & FAO, 2023). While the average prevalence of food insecurity in SSA is estimated to improve in 2024 compared to 2023, food insecurity varies widely across subregions and countries in SSA, depending on the presence and frequency of drivers such as inflation, climate, and conflict.

Food security is expected to improve, on average, in the Central Africa (CAF) subregion in 2024. In 2023, an estimated 90.5 million people in CAF were estimated to be food insecure, representing 48.8 percent of the subregion's population (appendix B). In 2024, however, the food insecure population in CAF is expected to fall to 65.4 million people, or approximately 1 out of every 3 persons in the subregion (table 12). All six CAF countries covered by the IFSA report are estimated to experience declines in this measure of food insecurity

in 2024. The Democratic Republic of the Congo (DRC), as the most populous country in CAF, accounts for most of the estimated reduction in the number of food insecure people in the subregion—from 53.2 million in 2023 to 34.6 million in 2024 (appendix B). This improvement is due in part to an expected reduction in the DRC's rate of inflation and an increase in per capita GDP (appendix C and D). These estimates, however, remain uncertain, as evidenced by an increase in violence in select DRC provinces in 2023 amidst the country's ongoing conflict (FAO & WFP, 2023; FEWS NET, 2023a). In Chad the prevalence of food insecurity in 2024 is estimated to be 48.1 percent, associated with conflict-induced displacement, high food inflation, and weather shocks (WFP, 2024). Such areas of acute need also contribute to the CAF subregion having the highest intensity of food insecurity, as measured by the food gap, out of the four subregions in SSA covered by the IFSA report (table 12). In 2024, the CAF subregion is estimated to have an average food gap of 497 kilocalories per capita per day (table 12). Burundi is expected to have the highest food gap out of the CAF countries, with an estimated 2024 food gap of 554 kilocalories per capita per day (table 12). This acute food insecurity is related to Burundi's per capita GDP of $264 in 2024, the lowest among all countries covered in the IFSA report, as well as the country's high population of refugees from the neighboring DRC conflict (appendix C; WFP, 2023). Over the next decade, the food insecurity prevalence in the CAF subregion is projected to decline to 17.1 percent, due to annual GDP growth of 4.9 percent outpacing population growth (table 12; appendix C).

As in the CAF subregion, the overall food security outlook in the East Africa (EAF) subregion is expected to improve in 2024, relative to 2023. An estimated 147.1 million people are estimated to be food insecure in 2024, representing 34.7 percent of the population of the EAF countries covered in the IFSA report (table 12). This is a decrease of 48.4 million food-insecure people and 12.6 percentage points in overall food insecurity prevalence over the subregion's 2023 estimates (appendix B). These expected improvements in food security are associated with a favorable economic outlook, on average, in the subregion. Eight of the 11 EAF countries covered in the IFSA report are estimated to have per capita GDP annual growth rates of more than 2 percent in 2024 (appendix C). Rwanda is expected to experience the fastest economic growth, with an estimated per capita GDP annual growth rate of 5.7 percent in 2024, the second-highest among all SSA countries included in the IFSA report (appendix C). The two EAF countries with the lowest expected growth in per capita GDP in 2024 are Somalia (0.6 percent) and Sudan (-3.5 percent) (appendix C). These difficulties are related to protracted conflict in Somalia and the recent civil conflict and associated persistent high inflation in Sudan (appendix D; WFP & FAO, 2023; FEWS NET, 2024). Despite Sudan's expected reduction in per capita GDP, the prevalence of food security is expected to improve in 2024 related to a substantial deceleration in inflation. Sudan's annual CPI growth rate was 209.1 percent annually during 2021–23; in 2024 CPI growth is estimated to remain elevated but roughly halve to 100 percent (appendix D).[19] Similarly, Somalia's food security outlook is also expected to improve in 2024 relative to 2023 while remaining the most food insecure among the EAF countries covered in the IFSA report, with an estimated food insecurity prevalence of 69.5 percent (table 12). Moreover, Somalia's estimated 2024 food gap of 598 kilocalories per capita per day is the second highest of all SSA countries covered in the IFSA report, indicating the country's acute food insecurity needs (table 12). Somalia's estimated improvement in food security coincides with a reduction in inflation, as well as the ending of a multi-year drought in the Horn of Africa which includes Ethiopia, Kenya, and Somalia (appendix D, WFP & FAO, 2023). The ending of the drought is also associated with overall food security improvements in Ethiopia and Kenya. However, while the rains have increased agricultural production in some areas, they have also caused extensive flooding in low-lying areas, which has disrupted livelihoods and poses further food security risks (FEWS NET, 2023b). Over the next decade, the share of the population that is food insecure in the EAF subregion is projected to decline to 11.6 percent, as annual GDP growth of 5.3 percent outpaces the population growth rate of 2.4 percent (table 12; appendix C).

[19] Sudan's civil conflict has intensified since the macroeconomic projections were completed in August 2023, raising the risk of acute food insecurity (FEWS NET 2023b; 2023d; 2024).

Although food security in the Southern Africa (SAF) subregion is also expected to improve in 2024 relative to 2023, the subregion continues to have the highest prevalence of food insecurity in SSA. In 2024, 38.1 percent of the population of the eight SAF countries covered in the IFSA report are expected to be food insecure (table 12). Zimbabwe is expected to experience the highest prevalence of food insecurity in SAF, with 66.8 percent of its population estimated to be food insecure in 2024. Together with Mozambique and Angola, three-out-of-four people estimated to be food insecure in SAF in 2024 reside in these three countries (table 12). Along with food insecurity prevalence, the SAF subregion is also estimated to have relatively high food insecurity intensity, as measured by the food gap. SAF's expected 2024 food gap of 442 kilocalories per capita per day is the second highest of SSA's subregions, behind only CAF (table 12). The three SAF countries with the highest estimated 2024 food gaps are Zimbabwe (553 kilocalories per capita per day), Zambia (492 kilocalories per capita per day), and Mozambique (423 kilocalories per capita per day) (table 12).

Persistent food insecurity in SAF is associated with a lower overall economic outlook among the SAF countries covered in the IFSA report. In 2024, the per capita GDP growth rate in SAF is estimated to be 0.7 percent, the lowest of the four subregions in SSA (table 13). Of the eight SAF countries covered in the IFSA report, only Mozambique is projected to experience growth in per capita GDP of more than 2 percent in 2024 (appendix C). Elevated prices for food and other goods also continue to contribute to food insecurity in the SAF subregion. In Zimbabwe, the overall CPI grew an average of 152.6 percent annually from 2021–23 and is projected to grow by 58.9 percent in 2024 (appendix D). Angola, Malawi, and Zambia each also had average annual CPI growth rates of more than 10 percent from 2021–23 (appendix D). Moreover, Zimbabwe and Malawi have faced some of the highest rates of food price inflation in the world, defined as the food component of the CPI. Each were ranked among the world's top-10 countries experiencing high food price inflation during the latter part of 2023 (World Bank, 2024b). In addition to these macroeconomic pressures, weather-related shocks also pose a risk to food insecurity in SAF. The subregion is experiencing an ongoing El Niño weather event, with much of SAF expected to experience abnormally dry conditions, leading to below-average harvests (FEWS NET, 2023c). Food insecurity prevalence in the SAF subregion is projected to decline to 25.3 percent in 2034, due to annual GDP growth of 3.6 percent outpacing population growth (table 12; appendix C).

The West Africa (WAF) subregion is the most food secure subregion in SSA due to relatively strong economies in the subregion such as Nigeria, Ghana, Cote d'Ivoire, and Senegal. In 2024, an estimated 19.5 percent of the subregion's population is expected to be food insecure, compared to the SSA regional average of 29.3 percent (table 12). Most of the food insecure people in the subregion are in Nigeria, given the substantial size of its population, with an estimated 52.3 million food insecure people in 2024. This is followed by 5.8 million in Niger and 5.6 million in Burkina Faso (table 12). Along with low food insecurity prevalence, WAF is also estimated to have the lowest food insecurity intensity among the four subregions in SSA, with a 2024 food gap of 337 kilocalories per capita per day (table 12). WAF's estimated average per capita GDP of $1,926 in 2024 is the highest among SSA's subregions (table 13). Over the next decade, the share of the population that is food insecure in the WAF subregion is projected to decline to 7.6 percent, as annual GDP growth of 3.4 percent outpaces population growth (table 12; appendix C).

While the average prevalence of food insecurity in WAF is the lowest of the four subregions in SSA, conditions vary across the 16 countries in the subregion. Relative to 2023, food insecurity prevalence is estimated to increase in 2024 by 20.6 percent in Gambia and 12.9 percent in Liberia (appendix B); both countries rely heavily on rice imports to meet their food needs and experienced double digit increases in real domestic rice prices (appendix D; U.S. Agency for International Development (USAID), 2022; FAO et al., 2022).[20] Moreover, some countries in the WAF subregion are increasingly threatened with acute food insecurity, espe-

[20] Higher rice prices are associated with India's restrictions on rice exports (see Asia section).

cially in communities where violence in the form of attacks by extremist groups is common, such as in the Sahelian countries of Burkina Faso, Mali, Niger, and the northeastern and western parts of Nigeria (World Bank, 2024b). The political unrest and violence have led to the internal displacement of populations in these countries and a high prevalence of acutely food insecure people in affected areas (Cadre Harmonise, 2023). Countrywide statistics mask some of these trends, as increases in food insecurity in affected communities may be more than offset by reductions in food insecurity in other areas of a country. While the share of the population that is food insecure is estimated to decline in Burkina Faso and Niger in 2024 relative to 2023, the intensity of food insecurity in both countries is estimated to remain above the WAF subregion estimate of 337 kilocalories per capita per day (table 12).

In addition to ongoing conflicts in some countries in the WAF subregion, double digit inflation has persisted in several domestic markets despite global agricultural commodity prices falling from their peak in 2022 (appendix D). Between 2021 and 2023, consumer price indices were estimated to grow in Ghana (31.8 percent), Nigeria (21.2 percent), and Sierra Leone (18.5 percent), and each are estimated to remain nearly 10 percent or higher in 2024 (appendix D). The food component of the CPI has also been high in these countries. All three countries experienced year-over-year food inflation rates of more than 30 percent in November 2023, partially driven by macroeconomic pressures from rising import costs and high debt burdens (appendix D; International Food Policy Research Institute (IFPRI), 2024; World Bank, 2024a).

Table 12
Food security results in the Sub-Saharan Africa region, 2024 and 2034

Region/ subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
Sub-Saharan Africa	**Region total**	**1,198.2**	**1,539.1**	**351.4**	**193.3**	**29.3**	**12.6**	**410**	**347**
Central Africa	**Subregion total**	**191.1**	**255.0**	**65.4**	**43.5**	**34.2**	**17.1**	**497**	**398**
	Burundi	13.6	17.9	10.3	9.5	76.0	53.1	554	427
	Cameroon	31.0	40.2	4.8	3.6	15.6	8.9	281	251
	Central African Republic	6.3	7.4	4.1	2.1	66.2	28.5	506	341
	Chad	19.1	25.5	9.2	7.7	48.1	30.2	501	418
	Congo	5.8	7.3	2.3	1.2	40.2	16.1	338	256
	Democratic Republic of the Congo	115.4	156.7	34.6	19.5	29.9	12.4	518	417

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Region/ subregion	Country	Population		Population food insecure		Share of population food insecure		Food gap (per capita)	
		2024	2034	2024	2034	2024	2034	2024	2034
		Million		Million		Percent		Kilocalories per day	
East Africa	**Subregion total**	**423.8**	**535.0**	**147.1**	**62.1**	**34.7**	**11.6**	**405**	**319**
	Djibouti	1.0	1.2	0.1	0.0	13.6	0.6	290	191
	Eritrea	6.3	7.2	2.1	0.4	33.2	5.0	326	213
	Ethiopia	119.3	148.5	34.5	10.2	28.9	6.8	322	232
	Kenya	58.3	70.7	23.8	3.8	40.8	5.4	353	215
	Madagascar	29.5	35.9	19.2	11.0	65.0	30.6	485	338
	Rwanda	13.6	15.9	3.0	0.4	22.2	2.4	336	226
	Somalia	18.7	24.9	13.0	10.1	69.5	40.4	598	443
	South Sudan	11.3	13.6	4.5	2.0	39.7	15.1	395	297
	Sudan	50.5	65.0	6.6	4.7	13.0	7.2	287	257
	Tanzania	66.1	85.8	20.1	8.0	30.4	9.3	438	331
	Uganda	49.3	66.3	20.2	11.6	41.0	17.5	434	334
Southern Africa	**Subregion total**	**134.6**	**173.8**	**51.2**	**43.9**	**38.1**	**25.3**	**442**	**396**
	Angola	37.2	51.7	15.3	19.6	41.1	38.0	401	388
	Eswatini	1.1	1.2	0.2	0.1	20.6	4.8	272	204
	Lesotho	2.1	2.2	1.0	0.4	48.3	16.5	394	276
	Malawi	22.6	27.6	3.6	0.4	15.7	1.3	308	210
	Mozambique	33.4	43.1	12.8	8.8	38.3	20.3	423	346
	Namibia	2.8	3.4	0.5	0.1	16.8	1.8	239	166
	Zambia	19.7	25.7	7.4	4.9	37.6	19.3	492	403
	Zimbabwe	15.7	19.0	10.5	9.7	66.8	51.2	553	469
West Africa	**Subregion total**	**448.7**	**575.2**	**87.7**	**43.7**	**19.5**	**7.6**	**337**	**285**
	Benin	14.7	20.2	1.9	0.4	13.0	1.8	287	211
	Burkina Faso	23.0	28.6	5.6	2.0	24.2	6.9	427	328
	Cabo Verde	0.6	0.7	0.0	0.0	5.7	0.3	217	158
	Cote d'Ivoire	30.0	36.7	4.5	1.8	15.1	4.9	372	305
	Gambia	2.4	2.9	0.6	0.1	24.0	4.1	304	214
	Ghana	32.4	39.6	1.1	0.1	3.3	0.3	215	169
	Guinea	14.0	18.3	2.1	1.2	14.9	6.5	322	275
	Guinea-Bissau	2.1	2.8	0.9	0.7	42.7	26.6	384	323
	Liberia	5.7	7.3	3.3	3.1	58.5	42.0	616	524
	Mali	22.0	29.0	2.8	1.2	12.5	4.0	293	242
	Mauritania	4.3	5.2	0.3	0.0	7.8	0.9	261	198
	Niger	26.3	37.7	5.8	1.2	21.9	3.2	381	268
	Nigeria	236.8	303.4	52.3	29.5	22.1	9.7	307	255
	Senegal	17.5	21.8	1.8	0.3	10.1	1.5	232	175
	Sierra Leone	7.3	9.0	3.1	1.9	41.6	20.5	481	383
	Togo	9.5	12.0	1.6	0.2	17.2	2.0	288	201

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

Table 13

Inflation-adjusted per capita Gross Domestic Product (GDP) in the Sub-Saharan Africa region, 2024 and 2034

Region/subregion	2021–23 (average)	2024	2034	Annual growth rate (2023–24)	Annual growth rate (2024–34)
	U.S. dollars, 2015			Percent	
Sub-Saharan Africa	**1,355**	**1,387**	**1,610**	**1.4**	**1.5**
Central Africa	633	658	795	2.3	1.9
East Africa	1,053	1,083	1,432	2.1	2.8
Southern Africa	1,564	1,583	1,738	0.7	0.9
West Africa	1,883	1,926	2,098	1.2	0.9

Note: Values are expressed in 2015 U.S. dollars. Regions include only countries that are covered by the International Food Security Assessment. For full country statistics, see appendix C.

Source: USDA, Economic Research Service estimation using the International Food Security Assessment model and *USDA Agricultural Projections to 2033* long-term projections report OCE-2024–1.

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Appendix A: Food Security Assessment Model: Definitions and Methodology

The International Food Security Assessment (IFSA) model[21] used in this report projects food consumption (food demand), food access, and food gaps in 83 low- and middle-income countries. Each country's food security metrics are estimated for 2024 and projected to 2034. Food is divided into four groups, covering 100 percent of food consumption: the major grain (determined by calorie share), other grains, root crops, and all other food.

The food security of a country is evaluated based on the gap between estimated domestic food consumption (food demand) and a caloric threshold necessary to sustain life at a moderate level of activity, set at 2,100 kilocalories (kcal) per capita per day. The modeling projections of food demand are expressed in a grain equivalent based on each food group's caloric content to allow aggregation across food groups, which allows this grain equivalent to be easily expressed in kilocalories (kcal).

Three food security indicators are provided: (1) the share of food insecure, which is the share of the total population unable to reach the caloric threshold; (2) the number of food insecure people; and (3) the food gap, which is the amount of food needed to allow each individual consuming below the threshold level to reach the caloric target. This caloric threshold indicates the relative well-being of a country's population and helps to quantify unequal food access within a country. Projection results provide a baseline for the food security situation in each country and the results depend on the model's specification and underlying assumptions. The simulation framework used to project food demand is based on partial-equilibrium models for each country in the assessment. Beghin et al. (2015) introduced the methodology and Beghin et al. (2017) provided more detail on price transmission and food security projections.

Each country model comprises a price-independent generalized log-linear (PIGLOG)[22] demand system for each of the four food groups (Deaton & Muellbauer, 1980; Muellbauer, 1975). The demand system is calibrated on a 3-year-average of prices and incomes (2021–23), observed consumption levels, a measure of inequality, and income and price elasticities. Demand projections are based on projected prices and incomes; the model implicitly assumes that the demand system represents preferences and that the projections are constant over time.

The distribution of consumption used to calculate food security measures is described by a constant coefficient of variation, which implies an increasing standard deviation of consumption as consumption rises over the projection period. But this does not account for potential structural changes in an economy. The implied price and income elasticities evolve over the projection period as prices and incomes change; generally, food groups become more income-inelastic because incomes rise.

[21] The methodology used to estimate the IFSA model indicators was replaced in 2016. To understand the changes to the model and their impact on food security estimates, see Rosen et al. (2016).

[22] PIGLOG refers to a class of demand systems that provide flexible structure with a nonlinear income response and exact aggregation of individual demand into a representative consumer demand function of per capita income and, as shown later, the Theil entropy measure of income inequality.

Definition and Calibration

The demand q_i^h for a given food group *i*, for income-decile *h* is specified as:

(1) $$q_i^h = \left(\frac{x^h}{p_i}\right)\left(A_i(p_i) + B_i(p_i)\, ln\left(x^h\right)\right)$$

Where p_i is the price (expressed in real local currency), and x^h is the decile-level income.[23] $A_i(p_i) = a_{i0} + a_{i1}p_i$ and $B_i(p_i) = b_{i0} + b_{i1}p_i$.

The PIGLOG demand formulation allows for aggregation of income decile-level demands in (1) into average per capita market demand for each food group *i*, as shown in (2).

(2) $$\bar{q}_i = \left(\frac{\bar{x}}{p_i}\right)\left((a_{i0} + a_{i1}p_i) + (b_{i0} + b_{i1}p_i)\,(ln(\bar{x}) + ln\,(\frac{10}{z})\right)$$

The latter in equation (2) is a function of average per capita income $\bar{x}$ and Theil's entropy measure of income inequality *z*.

The average expenditure share for good category *i* is also defined as:

(3) $$\bar{w}_i = (a_{i0} + a_{i1}p_i) + \left((b_{i0} + b_{i1}p_i)\,(ln(\bar{x}) + ln(\frac{10}{z}))\right)$$

The elasticity of average demand for good *i*, with respect to average income (or total expenditure), is:

(4) $$\varepsilon_{\bar{q}_i\bar{x}} = 1 + \frac{(b_{i0} + b_{i1})}{\bar{w}_i}.$$

The own-price elasticity of the average demand is:

(5) $$\varepsilon_{\bar{q}_i p_i} = -1 + \left(\frac{p_i}{\bar{w}_i}\right)\left(a_{i1} + b_{i1}\,(ln(\bar{x}) + ln(\frac{10}{z}))\right)$$

In each country, consumers at different income levels have similar underlying preferences over good *i*, as embodied in parameters a_{i0}, a_{i1}, b_{i0}, b_{i1}, but their respective consumptions vary because their respective incomes vary.

With a system of three linear equations (equations 3, 4, and 5), with four unknown variables, one parameter remains free. The free parameter (chosen to be b_{i0}) is used to ensure that decile demands behave consistently with stylized facts of food security as follows: price sensitivity and income responsiveness decline with income levels, own-price elasticities must be negative, and food expenditure shares tend to fall with increasing income. A range of values of the free parameters allows can ensure these stylized facts are satisfied by the cali-

[23] The combined impacts of supply side factors (such as input and fertilizer prices, weather and climate changes, and uncertainties with agricultural production) are expected to drive prices and income.

brated demand system. Here b_{i0} is pinned down such that the ratio of price elasticities for the bottom and top deciles is equal to the ratio of the natural logarithm of their national income shares.

For any given free parameter value, the system of equations is solved for parameters b_{i1}, a_{i1}, and a_{i0} as a function of the free parameter. Once these three parameters are recovered, parameters $\tilde{a}_{i0}$, $\tilde{a}_{i1}$, $\tilde{b}_{i0}$, and $\tilde{b}_{i1}$, along with income x^h and price p_i, are used to generate the consumption level of good i for each decile specified in equation (1). In this initial calibration, the quality of any good i is assumed to be constant across the income distribution.

For each country, a demand system is calibrated for each of the four food groups—based on income, consumption levels, and prices from the 3 years preceding the projection period (2021–23). The major grain (which varies across countries) is determined, based on caloric share in the diet. The other grains food group contains all other grains; the prices for this food group are weighted by its components' caloric shares. At the calibration stage, domestic food prices are either observed (including the components of a price index for other grains that is weighted by caloric share), or synthetic prices are created.

For the food prices not observed in the calibration stage, a synthetic domestic price, p_i^{ds}, that is linked to the world price, p_i^w, is created and expressed in local currency. The parameter θ is the price transmission slope, which is assumed 0.7. The parameter trc^{int} represents international transportation and market costs (e.g., cost, insurance and freight (CIF) and free on board (FOB)), which are assumed 10 percent, and trc^{dom} are domestic trade costs, which are assumed $20 per ton in real terms:

$$(6)\quad p_i^{ds} = \theta^* p_i^w * \left(1 + trc^{int}/\theta\right) * (1 + tariff/\theta) + trc^{dom}$$

At this stage, the calibration also includes a price transmission equation that links the domestic price p_i^{dom} (either observed or synthetic) to the world price. The generic price transmission equation is:

$$(7)\quad p_i^{dom} = \theta^* p_i^w + \hat{I}$$

During the calibration stage, the intercept, I, is solved in real terms and is held constant during the projection period.

Projection of Food Demand Calculation and Food Security Indicators

The IFSA food security indicators (share of food insecure population, number of food insecure people, and food-gap) are derived from the levels of food demand projected, using the calibrated demand system.

For each country, the demand parameters and projected income, x_t, and prices, p_{it}, are used to project food demand, q_{it}, for each of the four food groups i in each year t so that $q_{it} = \widehat{A}_i(x_t/p_{it})((p_{it}) + \widehat{B}_i(p_{it})\ln(x_t))$. The demand for the four food groups is aggregated into total food demand expressed in calories, so that $\sum q_{it} = Q_t$, which is also referred as food or calorie consumption. This measure of total demand is used to calculate food security indicators.

The Food and Agriculture Organization of the United Nations (FAO) (2019) is followed to estimate the distribution of calorie consumption—beginning with a coefficient of variation (CV) of food availability—which characterizes consumption distributed with a mean m and variance v, so that $CV = (\sqrt{v}/m)$.[24]

[24] See the appendix of Beghin et al. (2015b) for more detail.

Given the CV and the projected mean caloric consumption (Q_t), the variance (v) of the empirical distribution for a given year t can be recovered.

Assuming food consumption Q_t is distributed lognormal, then $ln\ (Q_t)$ is distributed $N\ (\mu,\ \sigma^2)$ with and $\sigma^2 = \ln\ (1 + v/m^2)$. Once μ and σ^2 are computed, the proportion of the population that falls below the calorie threshold (2,100 kcal per capita per day) is recovered using the standard normal CDF, Φ: $\Phi^{insecure} = \Phi((\frac{\ln(2{,}100 - \mu)}{\sigma})$. Here, $\Phi^{insecure}$ indicates the share of the population that is food insecure. Using this share and total population in the respective country, the total number of food insecure people in this country is calculated.

Next, the expected average food intake of food insecure people, $q_{cal\ average}^{food\ insecure}$, can be recovered using the partial mean of the calorie availability below the threshold (2,100 kcal), which is calculated as $q_{cal}^{food} = e^{\mu-\sigma/\Phi\text{^}2100[\phi((\ln(2100)-\mu)/\sigma]}$, where ϕ is the standard normal density function.

The food gap is the difference between the caloric threshold of 2,100 kcal and the average calorie availability for food insecure people. This gap provides a measure of the food gap in kcal per day per food insecure person. The latter, multiplied by the number of food insecure people and converted into grain equivalent per year, yields a food-gap measure based on annual grain volume.

Data

The model is calibrated for each of the four food groups, based on average prices and income from 2021–23. Prices are expressed in real local currency units. Quantities are expressed in grain-equivalent units.

Calibrated Parameters and Variables

Demand parameters ($\tilde{a}_{i0}$, $\tilde{a}_{i1}$, $\tilde{b}_{i0}$, and $\tilde{b}_{i1}$), price intercepts, and domestic prices (synthetic) projections are based on data from the USDA, Economic Research Service (ERS) International Macroeconomic Data Set and the *USDA Agricultural Projections* to 2033 report. They utilize the calibrated demand parameters and price transmission between world and domestic prices.

Endogenous Projection Variables:

- Food demand, domestic prices

Exogenous Variables Used in Calibration and Projection:

- Average consumption per capita–Food and Agriculture Organization (FAO) of the United Nations Food Balance Sheet (most recent available)[25]
- Grain shares: FAO Food Balance Sheet[26]

[25] Food Balance Sheets (FBS) are from 2021. There are no current FBS for Somalia, South Sudan, and Eritrea. In order to generate per capita consumption for each food group, grain consumption levels and share of grains in total calories were used, as reported in the Food Agriculture Organization of the United Nation' (FAO) Global Information Early Warning Systems (GIEWS) Cereal Supply and Demand Balance for Sub-Saharan African Countries from January 2024. The reported consumption of all food groups uses information from FAO's grain supply data and changes in caloric intake.

[26] For Somalia, an FBS from the original FAO Statistical Database was used, which is no longer maintained. The FBS of neighboring countries used (Burundi–Rwanda; Democratic Republic of Congo–Congo; Eritrea–Ethiopia) to approximate the shares of grains and roots and tubers in total calories for the other countries.

- Elasticities of price and income calculations: 2011 International Comparison Program (ICP) data, following the methodology in Muhammad et al. (2011)[27]
- Domestic prices (observed): FAO Global Information and Early Warning System (GIEWS), annual average; market depends on reporting
- Tariffs: World Bank's World Integrated Trade Solution (WITS)[28]
- Exchange Rates and Consumer Price Indices (CPIs): USDA, ERS's International Macroeconomic Data Set[29]
- Population: U.S. Department of Commerce, Bureau of the Census.
- World prices: *USDA Agricultural Projections* to 2033 report[30]
- Per capita income: generated using GDP and population from USDA, ERS's International Macroeconomic Data Set[31]
- Income distribution: World Bank Data Bank.[32]
- Coefficient of variation (CV) of food consumption: FAO State of Food Insecurity (FAO, 2019)[33]

Modeling Staple Cereal Production

The current production module of the IFSA model aggregates a panel of agricultural production data for all 83 countries in the assessment to provide a model-based estimation for the current year and a projection for 10 years out for yield and area dynamics. Agricultural production is decomposed into yield (production per hectare) and area for grains. Production (*PR*) for a given country *c* in year *t* is obtained by multiplying projected yield (*YL*) and area (*AR*).

$$PR_{ct} = AR_{ct} * YL_{ct}$$

[27] Elasticities are not available for all countries. Estimates are used from neighboring countries (Somalia, Eritrea, Djibouti, and South Sudan–Ethiopia; Lebanon–Jordan; Syria–Iraq; Algeria—average Tunisia and Morocco; Afghanistan—average Tajikistan and Pakistan; Turkmenistan—average Tajikistan, Kyrgyzstan, Kazakhstan; Uzbekistan-average Tajikistan, Kyrgyzstan, Kazakhstan). Less elastic values were used for major grain in Vietnam, Philippines, Indonesia, India, Pakistan, and Bangladesh, and for other grain in India.

[28] Tariff rates are available through 2021. Tariff rates are not available for Somalia, Turkmenistan, Eritrea, and North Korea. For Eritrea, the Common Market for Eastern and Southern Africa (COMESA) average was used. Somalia has imposed a 12.3 percent tariff on commercial imports (LCS Logistics). Turkmenistan has no tariffs but imposes excise taxes that have historically been 10 percent. North Korea does not import on the open market, so calculations assume there are zero tariffs and do not quantify other trade frictions.

[29] Ecuador and El Salvador are modeled in the currency of U.S. dollars (instead of local currency), as in the USDA, ERS International Macroeconomic Data Set, which is based on data from the International Monetary Fund (IMF) and Oxford Economics. Projections are constructed for South Sudan, Somalia, North Korea, and Zimbabwe using data from the International Monetary Fund, IHS Markit, and Oxford Economics.

[30] The world price series include the following: corn (U.S. gulf #2 yellow); rice (Thai, B, freight on board (FOB) Bangkok, Thailand); sorghum (U.S. Gulf, #2 yellow); wheat (U.S. Gulf, #2 Hard Red Wheat); barley (E.C., Rouen, France); Oats (U.S. farm); other food (represented by soybean oil, Dutch FOB, ex-mill Rotterdam, Netherlands). World price projections are not available for all cereals represented in the Food and Agriculture Organization of the United Nations (FAO) Food Balance Sheets and the FAO Global Information Early Warning System (GIEWS) price database. The world price of wheat to represent rye; and sorghum to represent all other cereals (e.g., millet, teff, fonio) was used. The world price for cassava (tapioca, hard pellets, FOB, Rotterdam, Netherlands)—representing roots and tubers— was predicted based on historical trends for corn.

[31] Projections were constructed using information from the International Monetary Fund, Oxford Economics, and IHS Markit for Zimbabwe, South Sudan, Somalia, and North Korea.

[32] Income distributions are not available for all countries. Report used Djibouti, Eritrea, South Sudan, and Somalia-Ethiopia; Zimbabwe–Zambia; North Korea–Mongolia; and Afghanistan—average Uzbekistan, Pakistan, Tajikistan.

[33] The coefficient of variation and the income distribution parameters are assumed to be constant throughout the projection period.

The projections cover the period 2023–2033, based on producer price projections in local currency units and world price projections from the USDA Agricultural Projections to 2033 report.

Yield

Yield parameters are estimated econometrically using panel data consisting of observations for each country and are calibrated to observed yields for the immediate past 3 years (e.g., 2021–23 yields). The calibration procedure involves in-sample prediction using observed yield data and consensus estimates for the expected return ratio, an indicator of the relative profitability of fertilizer use. Yields respond to expected relative return ratios per hectare (RR), autonomous technical change over time (T), and include a country-specific effect.

$$YL_{ct} = f(RR_{ct}, T_t)$$

The return ratios are the ratio of the return per hectare—revenue from yield divided by the price of fertilizer—$RR_{ct} = (yp_{ct} * Y_{ct})/fp_{ct}$), where yp and fp are yield and fertilizer prices, respectively. The expected return ratios include a current-year component and a long-term expectation component, expressed in the real local currency unit. In these calculations, the *USDA Agricultural Projections to 2033* prices for superphosphate and the major grain by production volume (for grain) were used.

The domestic price for each grain is linked to its world reference price, expressed in real local currency unit, through the following price transmission equation:

$$P^{domestic} = 0.7 \times P^{world} + 0.3 \times I$$

The expected domestic price is a weighted average of 70 percent of the current-year world price (P^{world}) and 30 percent of the mean domestic price (I) over the analysis time period. The grain production data used in the estimation come from USDA, Foreign Agricultural Service's *Production, Supply and Distribution* (*PSD*) database and from the Food and Agriculture Organization of the United Nations (FAO). The intercept, I, is the mean of the price over the regression time period.

Modeling Area

Crop area, AR_{ct}, is modeled with the widely used Nerlovian specification—in which lagged area, expected crop and fertilizer prices, and a time trend—enter into the equation as follows:

$$AR_{ct} = f(yp_{ct}, fp_{ct}, AR_{ct-1}, T)$$

The expected prices are averages of contemporaneous and lagged relative prices. A time trend is included in the area equation to capture non-price factors in area, and a country fixed effect. The area equation is numerically calibrated to the base year average of the preceding 3 years of the report (e.g., 2021–23), using consensus estimates for price and lagged acreage responses. Regional and subregional models are fitted to allow for heterogeneity among diverse countries included in the IFSA model. The regional specification disaggregates the estimation of area and yield by the five regional classifications of the IFSA countries: Sub-Saharan Africa (SSA), Asia, Latin America and the Caribbean (LAC), Middle East and North Africa (MENA), and the Former Soviet Union (FSU). The subregional specification disaggregates the model to 13 subregions of the IFSA countries: Central Africa, East Africa, Southern Africa, West Africa, North Africa, Middle East, Central America, South America, the Caribbean, the Former Soviet Union, South Asia, South East Asia, and East Asia.

A model-based projection performance is assessed in terms of how well the specified model can be expected to perform on an independent (out-of-sample) data set, often assessed by the actual estimate of the out-of-sample Mean Squared Error (MSE). When an independent out-of-sample dataset is not available, a Cross-Validation (CV) approach (used in this report) can be used to choose the best model by estimating the out-of-sample MSE using an in-sample dataset. The out-of-sample error (often referred to as the test error) is the average error that results from using the regression method to predict the response on a new observation that was not used in regression estimation. Given an in-sample dataset, the choice of a particular specification (e.g., in this report, the regional and subregional model specifications) is warranted if the model results in a low test error (James et al., 2017). The models are assessed with a "leave-one-out-cross-validation" (LOOCV) to simulate their out-of-sample prediction performance (James et al., 2017). The performances of regional and subregional model specifications are assessed using the overall out-of-sample MSE scores. The model with the smallest out-of-sample MSE is selected for estimation.

Modeling Implied Additional Supply Required

The Implied Additional Supply Required (IASR) quantifies the total grain demand in each country that is not projected to be met through domestic production. Total grain demand (*TD*) is comprised of food demand (*FD*) generated by our demand-driven model and nonfood use (*NFD*), which is comprised of seed, feed, processing, and other uses. The IASR for grains thus can be expressed as: $IASR=TD-PR$.

The demand for grain for processing, seed, and other uses is assumed to grow at the same rate as production. The demand for grain feed grows at the average rate observed during 2006–21.

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Appendix B: Food Security Measures for International Food Security Assessment (IFSA) Countries, 2024–34

Country	Food insecure (percent)				Population insecure (million)				Food gap (kcal per capita per day)			
	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034
Total IFSA countries	**25.3**	**26.6**	**19.0**	**5.5**	**1,069.7**	**1,137.6**	**824.6**	**274.6**	**363**	**387**	**342**	**328**
Asia region	**20.8**	**21.8**	**15.4**	**2.0**	**508.8**	**537.3**	**383.6**	**54.2**	**298**	**316**	**281**	**243**
East Asia sub-region	58.9	55.1	39.8	3.4	17.3	16.2	11.7	1.0	450	424	363	204
Democratic People's Republic of Korea	64.8	59.8	44.1	3.8	16.9	15.6	11.6	1.0	454	430	365	205
Mongolia	11.1	17.2	5.5	0.2	0.4	0.6	0.2	0.0	253	279	224	154
South Asia subregion	22.2	22.9	16.5	2.1	408.8	426.5	310.2	42.1	294	316	280	249
Afghanistan	56.4	79.1	53.7	36.3	21.6	31.0	21.6	17.9	387	509	376	313
Bangladesh	19.1	17.0	18.6	2.3	31.7	28.5	31.4	4.2	276	268	274	192
India	20.0	18.8	13.3	0.5	269.5	253.7	181.5	7.7	270	265	245	158
Nepal	16.4	14.1	10.7	0.3	5.0	4.4	3.3	0.1	266	257	243	156
Pakistan	32.1	41.6	27.8	4.0	77.9	103.0	70.2	11.8	365	403	348	234
Sri Lanka	13.0	25.3	9.2	1.5	3.0	5.9	2.2	0.4	235	277	219	169
South East Asia subregion	14.5	16.4	10.6	1.8	82.8	94.7	61.7	11.1	286	294	271	225
Burma	19.7	22.9	20.3	9.2	11.4	13.3	11.8	5.7	288	300	290	244
Cambodia	15.1	17.7	11.2	0.6	2.6	3.1	2.0	0.1	270	280	253	171
Indonesia	13.3	16.3	8.8	0.5	36.3	44.6	24.2	1.6	271	284	250	176
Laos	37.1	21.8	31.6	7.6	2.8	1.7	2.5	0.7	316	266	298	211
Philippines	18.8	20.7	13.5	2.1	21.4	23.9	15.9	2.9	322	330	298	223
Vietnam	8.2	7.9	5.1	0.1	8.3	8.1	5.3	0.2	255	253	236	163
Former Soviet Union region	**13.3**	**15.2**	**6.0**	**0.3**	**15.5**	**17.8**	**7.1**	**0.4**	**236**	**258**	**207**	**202**
Armenia	3.7	6.1	0.6	0.0	0.1	0.2	0.0	0.0	182	196	148	103
Azerbaijan	5.8	3.7	2.6	0.2	0.6	0.4	0.3	0.0	179	167	159	123
Georgia	11.4	10.2	3.4	0.1	0.6	0.5	0.2	0.0	237	232	195	142
Kyrgyzstan	21.3	9.7	5.6	0.4	1.3	0.6	0.3	0.0	274	230	209	154
Moldova	19.3	8.1	9.2	0.1	0.6	0.3	0.3	0.0	228	189	194	119
Tajikistan	25.4	39.4	15.5	3.0	2.3	3.7	1.5	0.3	329	383	289	219
Turkmenistan	9.6	10.3	3.5	0.2	0.5	0.6	0.2	0.0	221	224	188	139
Ukraine	15.4	21.7	7.5	0.0	6.7	9.4	3.2	0.0	215	235	186	86
Uzbekistan	8.9	7.2	3.4	0.1	2.8	2.3	1.1	0.0	209	202	180	122

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Country	Food insecure (percent)				Population insecure (million)				Food gap (kcal per capita per day)			
	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034
Latin America and the Caribbean region	**22.1**	**22.6**	**16.6**	**6.3**	**39.1**	**40.3**	**29.9**	**12.1**	**381**	**372**	**394**	**505**
Caribbean subregion	33.6	32.9	31.6	26.3	8.4	8.3	8.0	7.2	672	643	706	683
Dominican Republic	7.1	8.0	3.2	0.2	0.8	0.9	0.4	0.0	209	213	186	140
Haiti	63.8	60.8	64.1	55.8	7.2	7.0	7.4	7.2	743	721	745	686
Jamaica	12.8	15.1	7.5	0.8	0.4	0.4	0.2	0.0	225	233	203	153
Central America subregion	27.7	28.0	20.7	6.9	11.1	11.4	8.5	3.1	351	352	325	269
El Salvador	22.1	20.7	15.1	2.4	1.5	1.4	1.0	0.2	287	282	261	192
Guatemala	30.4	29.8	22.9	8.1	5.4	5.4	4.2	1.7	359	356	329	262
Honduras	23.4	26.8	16.6	3.4	2.2	2.6	1.6	0.4	331	344	303	229
Nicaragua	32.1	32.4	26.1	13.0	2.0	2.1	1.7	0.9	396	397	371	312
South America subregion	17.6	18.3	11.8	1.4	19.6	20.6	13.4	1.7	274	275	251	182
Bolivia	31.5	34.3	24.7	4.1	3.7	4.1	3.0	0.5	298	307	275	192
Colombia	9.1	9.3	5.5	0.4	4.5	4.7	2.8	0.2	243	244	224	165
Ecuador	20.4	27.1	12.6	1.2	3.5	4.7	2.2	0.2	241	262	215	152
Peru	24.1	21.7	16.4	2.1	7.8	7.1	5.4	0.7	294	286	266	190
Middle East and North Africa region	**19.6**	**17.4**	**14.9**	**3.7**	**67.4**	**60.9**	**52.8**	**14.6**	**345**	**425**	**324**	**261**
Middle East subregion	26.5	23.1	16.7	3.4	38.4	34.0	25.0	5.7	363	520	325	270
Iran	13.2	2.9	4.4	0.0	11.5	2.5	3.9	0.0	262	204	216	141
Lebanon	19.1	19.3	16.7	6.8	1.0	1.0	0.9	0.4	276	277	267	224
Syria	38.2	20.0	38.9	18.8	8.3	4.6	9.3	5.2	344	279	346	275
Yemen	56.8	81.8	33.8	0.1	17.6	25.9	10.9	0.0	443	603	350	148
North Africa subregion	14.5	13.3	13.6	3.9	29.0	26.9	27.8	9.0	321	305	324	256
Algeria	6.3	8.1	4.8	1.9	2.8	3.6	2.2	0.9	252	262	241	213
Egypt	20.7	16.4	20.9	6.0	22.2	18.0	23.2	7.6	339	320	340	264
Morocco	8.9	11.9	5.0	0.9	3.2	4.3	1.9	0.3	275	290	250	202
Tunisia	6.4	8.1	4.6	0.5	0.8	1.0	0.6	0.1	245	254	233	182

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Country	Food insecure (percent)				Population insecure (million)				Food gap (kcal per capita per day)			
	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034
Sub-Saharan Africa region	**38.6**	**41.2**	**29.3**	**12.6**	**438.9**	**481.2**	**351.4**	**193.3**	**443**	**468**	**410**	**347**
Central Africa subregion	42.1	48.8	34.2	17.1	75.8	90.5	65.4	43.5	541	580	497	398
Burundi	79.6	85.2	76.0	53.1	10.1	11.2	10.3	9.5	583	638	554	427
Cameroon	18.1	21.5	15.6	8.9	5.3	6.5	4.8	3.6	291	304	281	251
Central African Republic	77.3	76.2	66.2	28.5	4.7	4.7	4.1	2.1	580	572	506	341
Chad	54.6	59.1	48.1	30.2	9.8	10.9	9.2	7.7	535	559	501	418
Congo	52.3	69.7	40.2	16.1	2.9	4.0	2.3	1.2	384	465	338	256
Democratic Republic of the Congo	39.6	47.6	29.9	12.4	43.0	53.2	34.6	19.5	571	615	518	417
East Africa subregion	45.6	47.3	34.7	11.6	183.9	195.5	147.1	62.1	437	470	405	319
Djibouti	19.4	20.2	13.6	0.6	0.2	0.2	0.1	0.0	315	318	290	191
Eritrea	49.9	68.4	33.2	5.0	3.1	4.3	2.1	0.4	387	473	326	213
Ethiopia	40.2	36.2	28.9	6.8	45.7	42.1	34.5	10.2	362	348	322	232
Kenya	53.6	54.8	40.8	5.4	29.9	31.2	23.8	3.8	402	407	353	215
Madagascar	66.2	70.8	65.0	30.6	18.7	20.4	19.2	11.0	491	519	485	338
Rwanda	39.5	41.0	22.2	2.4	5.2	5.5	3.0	0.4	405	412	336	226
Somalia	77.8	85.7	69.5	40.4	13.7	15.5	13.0	10.1	663	747	598	443
South Sudan	41.2	81.1	39.7	15.1	4.5	9.0	4.5	2.0	401	630	395	297
Sudan	32.0	23.1	13.0	7.2	15.3	11.4	6.6	4.7	365	330	287	257
Tanzania	39.3	42.6	30.4	9.3	24.6	27.4	20.1	8.0	480	496	438	331
Uganda	49.8	59.6	41.0	17.5	23.0	28.4	20.2	11.6	474	524	434	334
Southern Africa subregion	46.8	51.8	38.1	25.3	59.8	67.9	51.2	43.9	484	503	442	396
Angola	41.7	44.2	41.1	38.0	14.5	15.9	15.3	19.6	403	414	401	388
Eswatini	26.9	31.0	20.6	4.8	0.3	0.4	0.2	0.1	293	307	272	204
Lesotho	59.3	56.2	48.3	16.5	1.2	1.2	1.0	0.4	441	427	394	276
Malawi	27.7	32.6	15.7	1.3	6.0	7.2	3.6	0.4	358	378	308	210
Mozambique	50.8	62.0	38.3	20.3	16.1	20.1	12.8	8.8	479	537	423	346
Namibia	23.3	38.3	16.8	1.8	0.6	1.1	0.5	0.1	260	308	239	166
Zambia	51.5	56.6	37.6	19.3	9.6	10.8	7.4	4.9	564	593	492	403
Zimbabwe	75.7	72.8	66.8	51.2	11.5	11.2	10.5	9.7	615	593	553	469

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Country	Food insecure (percent)				Population insecure (million)				Food gap (kcal per capita per day)			
	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034	2021–23*	2023	2024	2034
West Africa subregion	28.0	29.1	19.5	7.6	119.4	127.4	87.7	43.7	368	367	337	285
Benin	18.7	22.2	13.0	1.8	2.6	3.2	1.9	0.4	312	326	287	211
Burkina Faso	34.6	35.8	24.2	6.9	7.6	8.0	5.6	2.0	478	483	427	328
Cabo Verde	18.9	19.4	5.7	0.3	0.1	0.1	0.0	0.0	275	277	217	158
Cote d'Ivoire	20.7	21.9	15.1	4.9	5.9	6.4	4.5	1.8	401	407	372	305
Gambia	40.0	19.9	24.0	4.1	0.9	0.5	0.6	0.1	362	289	304	214
Ghana	6.5	10.5	3.3	0.3	2.0	3.3	1.1	0.1	237	258	215	169
Guinea	18.9	20.0	14.9	6.5	2.5	2.7	2.1	1.2	340	345	322	275
Guinea-Bissau	46.6	48.7	42.7	26.6	0.9	1.0	0.9	0.7	399	408	384	323
Liberia	61.4	51.8	58.5	42.0	3.3	2.9	3.3	3.1	634	577	616	524
Mali	18.6	24.4	12.5	4.0	3.9	5.2	2.8	1.2	321	345	293	242
Mauritania	13.7	16.2	7.8	0.9	0.6	0.7	0.3	0.0	291	302	261	198
Niger	34.5	31.8	21.9	3.2	8.4	8.1	5.8	1.2	437	425	381	268
Nigeria	31.8	32.7	22.1	9.7	71.7	75.5	52.3	29.5	343	346	307	255
Senegal	20.4	20.5	10.1	1.5	3.4	3.5	1.8	0.3	271	271	232	175
Sierra Leone	45.1	48.0	41.6	20.5	3.2	3.4	3.1	1.9	498	512	481	383
Togo	27.0	31.6	17.2	2.0	2.4	2.9	1.6	0.2	325	342	288	201

Kcal = Kilocalories.

*These are the estimated calibrated average results for 2021, 2022, 2023.

Source: USDA, Economic Research Service based on results from the International Food Security Assessment model.

Appendix C: Macroeconomic Measures for the International Food Security Assessment (IFSA) Countries, 2024–34

Country	Population (million)		Popula-tion annual growth rate (percent)	GDP (million 2015 U.S. dollars)			GDP: Annual growth rate (percent)			Per capita GDP (2015 U.S. dollars)			Per capita GDP: Annual growth rate (percent)		
	2024	2034	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34
Total IFSA countries	**4,340.0**	**4,957.6**	**1.3**	**9,860,834**	**10,776,669**	**17,214,332**	**4.5**	**4.8**	**4.8**	**2,337**	**2,483**	**3,472**	**3.0**	**3.4**	**3.4**
Asia region	**2,489.6**	**2,711.5**	**0.9**	**5,714,159**	**6,344,654**	**10,798,251**	**5.4**	**5.7**	**5.5**	**2,338**	**2,548**	**3,982**	**4.4**	**4.7**	**4.6**
East Asia subregion	29.5	30.1	0.2	30,127	32,488	44,402	3.2	4.2	3.2	1,028	1,100	1,476	2.8	3.8	3.0
Democratic People's Republic of Korea	26.2	26.6	0.1	15,750	16,494	18,853	1.6	2.5	1.3	604	628	709	1.2	2.2	1.2
Mongolia	3.3	3.5	0.6	14,377	15,994	25,548	5.0	6.0	4.8	4,453	4,873	7,335	4.1	5.2	4.2
South Asia subregion	1,878.8	2,050.1	0.9	3,753,682	4,172,091	7,279,363	5.3	5.9	5.7	2,034	2,221	3,551	4.4	4.9	4.8
Afghanistan	40.1	49.3	2.1	16,110	15,815	20,341	-5.0	2.5	2.5	420	394	413	-7.2	0.2	0.5
Bangladesh	168.8	182.3	0.8	306,621	340,502	584,137	5.6	5.6	5.5	1,849	2,017	3,204	4.6	4.7	4.7
India	1,362.8	1,462.0	0.7	2,966,689	3,323,687	5,917,348	6.0	6.1	5.9	2,207	2,439	4,047	5.3	5.3	5.2
Nepal	31.2	33.1	0.6	28,465	31,188	53,172	4.8	4.9	5.5	926	1,000	1,604	4.0	4.1	4.8
Pakistan	252.4	298.6	1.7	348,386	366,761	564,750	2.1	4.0	4.4	1,434	1,453	1,891	0.1	2.1	2.7
Sri Lanka	23.5	24.7	0.5	87,412	94,139	139,615	-2.0	7.8	4.0	3,770	4,013	5,657	-2.6	7.2	3.5
South East Asia subregion	581.3	631.3	0.8	1,930,350	2,140,075	3,474,486	5.6	5.3	5.0	3,386	3,682	5,503	4.5	4.3	4.1
Burma	58.4	62.2	0.6	72,885	76,829	97,540	2.8	2.5	2.4	1,267	1,316	1,569	2.0	1.7	1.8
Cambodia	17.7	19.2	0.9	24,961	27,888	50,750	5.3	6.1	6.2	1,443	1,580	2,641	4.2	5.0	5.3
Indonesia	276.3	294.6	0.6	1,120,979	1,231,323	1,972,830	5.0	4.8	4.8	4,118	4,456	6,697	4.2	4.0	4.2
Laos	7.9	8.8	1.1	20,096	21,438	33,612	2.8	3.7	4.6	2,622	2,725	3,832	1.4	2.4	3.5
Philippines	117.5	135.0	1.4	406,209	457,661	725,939	6.8	6.0	4.7	3,565	3,894	5,376	5.1	4.3	3.3
Vietnam	103.5	111.5	0.8	285,222	324,936	593,816	7.2	6.8	6.2	2,807	3,140	5,324	6.1	5.8	5.4

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Country	Population (million)		Popula-tion annual growth rate (percent)	GDP (million 2015 U.S. dollars)			GDP: annual growth rate (percent)			Per capita GDP (2015 U.S. dollars)			Per capita GDP: annual growth rate (percent)		
	2024	2034	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34
Former Soviet Union region	**117.6**	**119.6**	**0.2**	**370,730**	**396,935**	**621,070**	**0.3**	**5.3**	**4.6**	**3,167**	**3,375**	**5,194**	**0.1**	**5.1**	**4.4**
Armenia	3.0	2.8	-0.5	14,028	16,041	25,863	9.9	5.3	4.9	4,676	5,389	9,125	10.3	5.7	5.4
Azerbaijan	10.5	11.0	0.5	56,135	59,026	71,713	3.3	2.3	2.0	5,422	5,630	6,525	2.6	1.6	1.5
Georgia	4.9	4.9	-0.1	19,876	21,951	28,777	7.5	3.8	2.7	4,027	4,447	5,873	7.5	3.7	2.8
Kyrgyzstan	6.2	6.6	0.7	8,177	8,968	12,608	5.7	4.3	3.5	1,346	1,453	1,910	4.8	3.5	2.8
Moldova	3.2	2.8	-1.2	9,296	9,546	13,439	-2.3	3.8	3.5	2,824	2,966	4,728	-1.2	5.0	4.8
Tajikistan	9.4	10.5	1.2	12,710	14,100	19,280	6.8	4.4	3.2	1,392	1,503	1,828	5.3	3.0	2.0
Turkmenistan	5.7	6.2	0.8	51,465	57,604	77,650	6.4	5.3	3.0	9,122	10,021	12,527	5.3	4.3	2.3
Ukraine	43.1	40.9	-0.5	82,491	81,471	171,267	-14.4	9.6	7.7	1,894	1,891	4,183	-13.9	10.2	8.3
Uzbekistan	31.6	33.7	0.6	116,553	128,227	200,472	5.2	4.8	4.6	3,747	4,057	5,946	4.3	4.0	3.9
Latin Amer-ica and the Caribbean region	**179.6**	**193.2**	**0.7**	**975,139**	**1,028,417**	**1,434,215**	**3.3**	**2.6**	**3.4**	**5,520**	**5,727**	**7,425**	**2.4**	**1.8**	**2.6**
Caribbean subregion	25.3	27.5	0.8	121,170	130,893	191,246	4.3	3.7	3.9	4,876	5,170	6,955	3.3	2.7	3.0
Dominican Republic	10.9	11.7	0.8	98,117	107,104	162,268	4.8	4.2	4.2	9,172	9,839	13,822	3.9	3.3	3.5
Haiti	11.6	12.9	1.1	8,452	8,504	10,739	-0.8	1.1	2.4	746	733	833	-2.0	0.0	1.3
Jamaica	2.8	2.9	0.1	14,601	15,285	18,239	3.7	1.5	1.8	5,180	5,413	6,367	3.6	1.4	1.6
Central America subregion	41.0	45.3	1.0	144,376	152,858	198,820	3.0	2.8	2.7	3,605	3,728	4,388	1.8	1.6	1.6
El Salvador	6.6	6.7	0.1	27,038	28,051	35,327	2.2	1.6	2.3	4,117	4,232	5,256	1.6	1.2	2.2
Guatemala	18.3	20.9	1.4	77,781	83,142	108,119	3.9	3.0	2.7	4,392	4,553	5,171	2.2	1.5	1.3
Honduras	9.7	10.7	1.0	25,142	26,542	36,751	1.5	3.4	3.3	2,658	2,741	3,422	0.3	2.2	2.2
Nicaragua	6.4	6.9	0.8	14,414	15,123	18,624	2.9	2.3	2.1	2,282	2,351	2,683	1.9	1.4	1.3

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Country	Population (million)		Popula-tion annual growth rate (percent)	GDP (million 2015 U.S. dollars)			GDP: annual growth rate (percent)			Per capita GDP (2015 U.S. dollars)			Per capita GDP: annual growth rate (percent)		
	2024	2034	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34
South America subregion	113.3	120.3	0.6	709,593	744,666	1,044,148	3.2	2.4	3.4	6,350	6,575	8,676	2.5	1.7	2.8
Bolivia	12.2	13.3	0.9	38,201	40,436	55,410	3.1	2.8	3.2	3,211	3,328	4,178	2.0	1.7	2.3
Colombia	50.7	52.6	0.4	348,438	364,607	517,636	4.0	1.8	3.6	6,954	7,199	9,836	3.4	1.3	3.2
Ecuador	17.7	19.5	1.0	100,500	105,533	137,976	2.6	2.4	2.7	5,809	5,968	7,092	1.5	1.3	1.7
Peru	32.8	35.0	0.7	222,454	234,089	333,127	2.3	3.1	3.6	6,855	7,142	9,517	1.7	2.6	2.9
Middle East and North Africa region	**355.1**	**394.3**	**1.1**	**1,259,962**	**1,344,785**	**1,883,355**	**3.4**	**3.4**	**3.4**	**3,657**	**3,787**	**4,777**	**1.8**	**1.9**	**2.3**
Middle East subregion	149.8	166.0	1.0	464,935	491,579	673,269	2.2	3.4	3.2	3,213	3,281	4,056	0.3	1.8	2.1
Iran	88.4	94.7	0.7	398,743	423,466	577,322	2.5	3.5	3.1	4,597	4,792	6,095	1.5	2.6	2.4
Lebanon	5.4	5.7	0.5	30,324	31,018	42,473	-1.3	3.0	3.2	5,721	5,777	7,513	-1.9	2.4	2.7
Syria	23.9	27.8	1.5	19,465	20,334	28,757	2.6	2.0	3.5	901	852	1,033	-3.3	-2.0	1.9
Yemen	32.2	37.8	1.6	16,404	16,761	24,716	0.2	1.8	4.0	529	521	655	-1.6	0.0	2.3
North Africa subregion	205.3	228.3	1.1	795,027	853,206	1,210,085	4.1	3.4	3.6	3,978	4,156	5,301	2.7	2.1	2.5
Algeria	45.3	50.0	1.0	180,127	188,678	224,427	3.2	1.8	1.8	4,076	4,162	4,486	1.9	0.5	0.8
Egypt	111.0	126.0	1.3	455,178	496,716	757,808	5.3	4.2	4.3	4,231	4,474	6,013	3.5	2.6	3.0
Morocco	36.9	39.7	0.7	114,765	121,003	166,213	1.9	3.2	3.2	3,167	3,281	4,185	0.9	2.3	2.5
Tunisia	12.0	12.5	0.4	44,958	46,808	61,638	2.1	2.1	2.8	3,779	3,885	4,923	1.4	1.5	2.4

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Country	Population (million)		Population annual growth rate (percent)	GDP (million 2015 U.S. dollars)			GDP: annual growth rate (percent)			Per capita GDP (2015 U.S. dollars)			Per capita GDP: annual growth rate (percent)		
	2024	2034	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34
Sub-Saharan Africa region	**1,198.2**	**1,539.1**	**2.5**	**1,540,844**	**1,661,877**	**2,477,441**	**3.6**	**4.1**	**4.1**	**1,355**	**1,387**	**1,610**	**0.9**	**1.4**	**1.5**
Central Africa subregion	191.1	255.0	2.9	113,908	125,855	202,837	4.8	5.4	4.9	633	658	795	1.7	2.3	1.9
Burundi	13.6	17.9	2.8	3,355	3,591	5,811	2.5	4.3	4.9	264	264	325	-1.2	1.0	2.1
Cameroon	31.0	40.2	2.6	39,306	42,729	62,769	4.0	4.4	3.9	1,340	1,380	1,561	1.2	1.6	1.2
Central African Republic	6.3	7.4	1.7	2,045	2,161	2,899	1.3	4.0	3.0	338	345	392	-0.4	2.2	1.3
Chad	19.1	25.5	2.9	10,535	11,287	15,732	3.4	3.6	3.4	586	591	616	0.3	0.5	0.4
Congo	5.8	7.3	2.3	7,795	8,400	10,880	3.2	4.5	2.6	1,405	1,445	1,490	0.9	2.1	0.3
Democratic Republic of the Congo	115.4	156.7	3.1	50,874	57,685	104,746	6.2	6.8	6.1	469	500	668	3.0	3.5	2.9
East Africa subregion	423.8	535.0	2.4	424,626	458,845	765,911	3.4	4.6	5.3	1,053	1,083	1,432	0.8	2.1	2.8
Djibouti	1.0	1.2	1.7	3,410	3,781	7,756	4.4	6.0	7.4	3,555	3,793	6,579	2.4	4.0	5.7
Eritrea	6.3	7.2	1.3	5,135	5,439	7,511	2.6	3.2	3.3	828	858	1,041	1.6	2.1	1.9
Ethiopia	119.3	148.5	2.2	104,700	116,339	214,105	4.5	6.1	6.3	921	975	1,442	2.0	3.6	4.0
Kenya	58.3	70.7	2.0	89,426	98,669	164,005	4.7	5.5	5.2	1,600	1,694	2,318	2.5	3.4	3.2
Madagascar	29.5	35.9	2.0	13,720	14,956	23,494	4.1	4.8	4.6	486	507	654	1.8	2.5	2.6
Rwanda	13.6	15.9	1.6	12,957	14,843	29,034	7.1	7.5	6.9	983	1,089	1,827	5.3	5.7	5.3
Somalia	18.7	24.9	2.9	6,769	7,189	10,752	2.2	3.7	4.1	385	384	431	-0.8	0.6	1.2
South Sudan	11.3	13.6	1.9	3,844	4,076	5,809	3.5	3.0	3.6	352	361	427	1.9	1.3	1.7
Sudan	50.5	65.0	2.6	71,399	68,103	83,912	-2.9	-1.0	2.1	1,490	1,349	1,291	-5.4	-3.5	-0.4
Tanzania	66.1	85.8	2.6	69,564	76,881	134,043	4.8	5.5	5.7	1,112	1,164	1,563	1.9	2.7	3.0
Uganda	49.3	66.3	3.0	43,701	48,569	85,490	5.1	5.7	5.8	945	985	1,289	1.7	2.4	2.7

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Country	Population (million)		Popula-tion annual growth rate (percent)	GDP (million 2015 U.S. dollars)			GDP: annual growth rate (percent)			Per capita GDP (2015 U.S. dollars)			Per capita GDP: annual growth rate (percent)		
	2024	2034	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34	2021–23*	2024	2034	2021–23*	2023–24	2024–34
Southern Africa subregion	134.6	173.8	2.6	199,758	213,011	302,131	3.2	3.4	3.6	1,564	1,583	1,738	0.5	0.7	0.9
Angola	37.2	51.7	3.3	107,912	114,062	158,080	2.9	2.9	3.3	3,101	3,066	3,060	-0.5	-0.5	0.0
Eswatini	1.1	1.2	0.6	4,674	4,882	6,148	1.6	2.5	2.3	4,165	4,288	5,078	0.9	1.7	1.7
Lesotho	2.1	2.2	0.8	2,427	2,530	3,273	1.9	2.3	2.6	1,188	1,220	1,458	1.1	1.5	1.8
Malawi	22.6	27.6	2.0	7,688	8,067	12,140	1.6	3.1	4.2	356	357	440	-0.7	0.8	2.1
Mozambique	33.4	43.1	2.6	19,185	21,478	33,517	4.5	7.0	4.6	605	644	778	1.9	4.3	1.9
Namibia	2.8	3.4	1.7	11,016	11,552	15,752	3.3	2.0	3.1	4,038	4,085	4,694	1.4	0.2	1.4
Zambia	19.7	25.7	2.7	25,619	27,574	40,898	4.1	3.7	4.0	1,379	1,403	1,594	1.1	0.8	1.3
Zimbabwe	15.7	19.0	1.9	21,238	22,864	32,322	3.9	3.7	3.5	1,404	1,454	1,701	1.9	1.7	1.6
West Africa subregion	448.7	575.2	2.5	802,552	864,167	1,206,562	3.7	3.8	3.4	1,883	1,926	2,098	1.1	1.2	0.9
Benin	14.7	20.2	3.2	16,734	18,758	33,533	5.9	6.0	6.0	1,216	1,276	1,660	2.4	2.6	2.7
Burkina Faso	23.0	28.6	2.2	16,900	18,552	28,537	3.5	5.7	4.4	770	805	997	0.9	3.2	2.2
Cabo Verde	0.6	0.7	1.0	1,982	2,248	3,565	10.9	4.8	4.7	3,314	3,673	5,250	9.5	3.6	3.6
Cote d'Ivoire	30.0	36.7	2.0	69,794	78,253	121,365	6.1	5.8	4.5	2,429	2,609	3,309	3.9	3.6	2.4
Gambia	2.4	2.9	1.9	1,799	2,000	3,303	5.0	5.7	5.1	784	834	1,139	2.7	3.4	3.2
Ghana	32.4	39.6	2.0	67,495	72,496	111,510	3.5	4.0	4.4	2,179	2,241	2,814	1.2	1.8	2.3
Guinea	14.0	18.3	2.7	13,735	15,004	22,391	4.6	4.5	4.1	1,037	1,073	1,222	1.8	1.7	1.3
Guinea-Bissau	2.1	2.8	2.6	1,414	1,526	2,099	3.7	3.9	3.2	697	716	762	1.2	1.3	0.6
Liberia	5.7	7.3	2.6	2,855	3,121	4,685	4.4	4.8	4.1	532	552	638	1.6	2.0	1.5
Mali	22.0	29.0	2.8	17,372	18,822	26,756	3.8	4.2	3.6	837	856	924	0.8	1.2	0.8
Mauritania	4.3	5.2	1.8	7,407	8,347	12,264	5.2	7.3	3.9	1,776	1,926	2,369	3.1	5.2	2.1
Niger	26.3	37.7	3.7	13,941	16,501	31,242	10.0	7.0	6.6	568	626	828	6.0	3.2	2.8
Nigeria	236.8	303.4	2.5	534,082	565,714	739,706	3.0	2.9	2.7	2,372	2,389	2,438	0.4	0.3	0.2
Senegal	17.5	21.8	2.2	25,895	30,508	45,369	6.4	10.3	4.0	1,554	1,743	2,079	3.7	7.6	1.8
Sierra Leone	7.3	9.0	2.1	5,383	5,820	8,548	3.5	4.5	3.9	770	793	947	1.0	2.1	1.8
Togo	9.5	12.0	2.3	5,765	6,497	11,688	5.8	6.5	6.0	637	684	977	3.2	3.9	3.6

GDP = Gross Domestic Product. USD = U.S. dollars.

*These are the estimated calibrated average results for 2021, 2022, 2023.

Source: USDA, Economic Research Service, International Macroeconomic Data Set.

Appendix D: Exchange Rate and Price Measures for the International Food Security Assessment (IFSA) Countries, 2024–34

Country	Consumer price index: Annual growth rate (percent)			Real exchange rate: Annual growth rate (percent)			Real domestic price of major grain: Annual growth rate (percent)		Real domestic price of food groups: 2023–24 growth rate (percent)**			
	2021–23	2023–24	2024–34	2021–23	2023–24	2024–34	2021–23	2024–34	MG	OG	RT	OF
Total IFSA countries									**-3**	**-5**	**-11**	**-11**
Asia region									**14**	**-12**	**-9**	**-3**
East Asia subregion									-11	2	-6	-6
Democratic People's Republic of Korea	12.9	9.3	4.0	-7.0	-11.1	-6.6	-11.1	-5.9	13	-26	-17	-13
Mongolia	13.0	9.0	6.0	4.0	-1.2	-0.6	8.5	-1.7	-11	3	-6	-6
South Asia subregion									9	-5	-11	-4
Afghanistan	12.3	6.4	6.7	-2.4	1.0	2.2	6.6	-0.9	-12	18	-10	-4
Bangladesh	8.6	6.7	6.0	11.7	-0.5	-0.1	2.7	-0.9	20	-14	-13	-4
India	5.7	4.8	4.8	5.8	-1.9	-1.3	-0.9	-1.9	21	-13	-8	-5
Nepal	6.1	5.5	4.9	5.7	-2.8	-1.4	-1.1	-2.1	21	-14	-14	-6
Pakistan	23.7	8.9	6.2	12.7	-1.4	-1.6	21.0	-3.7	-18	10	-12	-5
Sri Lanka	38.2	5.4	5.8	-1.2	0.3	-0.1	-4.3	-0.7	17	-9	-12	-3
South East Asia subregion									15	-14	-10	-3
Burma	12.4	7.8	7.1	7.2	-0.5	1.4	0.0	0.2	20	-17	-12	-2
Cambodia	4.5	3.5	3.2	1.9	-0.7	-0.8	-3.6	-1.5	22	-19	-11	-4
Indonesia	4.0	3.7	4.1	4.3	-1.5	-1.8	-0.9	-1.1	10	-9	-12	-5
Laos	15.8	4.0	3.8	18.7	6.2	0.9	3.4	-0.1	14	-14	-7	0
Philippines	5.7	3.1	2.8	6.0	-2.0	-1.3	-0.5	-1.1	12	-17	-13	-6
Vietnam	2.8	3.6	3.4	4.2	0.5	0.0	-2.1	-0.9	24	-18	-11	-4
Former Soviet Union region									**-15**	**3**	**-6**	**-4**
Armenia	5.9	5.7	4.1	-12.3	-1.4	-1.0	0.5	-1.0	-7	-6	-3	-6
Azerbaijan	12.6	6.1	3.9	-5.8	-2.9	-0.5	2.5	-0.9	-7	-3	-4	-7
Georgia	7.7	3.5	3.0	-13.5	-3.4	-0.8	0.1	-0.6	-5	-14	-5	-7
Kyrgyzstan	12.5	7.1	5.2	-4.1	-0.1	0.8	3.9	-1.0	-9	-4	-4	-4
Moldova	21.1	5.5	4.6	-10.9	1.9	-3.0	1.6	-2.4	-10	-3	-4	-2
Tajikistan	5.9	5.9	5.0	-1.6	3.8	1.3	6.6	-1.2	-10	13	-5	-2
Turkmenistan	9.4	7.6	5.4	-3.1	1.7	0.4	5.7	-1.5	-11	22	-11	-3
Ukraine	18.2	11.4	7.9	3.9	-10.6	-8.0	23.2	-15.3	-34	-22	-21	-10
Uzbekistan	10.9	8.5	6.6	-0.3	0.2	0.0	10.5	-2.5	-16	3	-6	-4

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Country	Consumer price index: Annual growth rate (percent)			Real exchange rate: Annual growth rate (percent)			Real domestic price of major grain: Annual growth rate (percent)		Real domestic price of food groups: 2023–24 growth rate (percent)**			
	2021–23	2023–24	2024–34	2021–23	2023–24	2024–34	2021–23	2024–34	MG	OG	RT	OF
Latin America and the Caribbean region									**5**	**-5**	**-15**	**-6**
Caribbean subregion									0	0	-11	-1
Dominican Republic	6.7	3.9	3.4	-2.3	1.4	2.1	-3.1	0.3	11	-17	-12	-4
Haiti	36.0	11.0	6.3	1.2	0.5	-2.0	0.0	0.0	0	0	-11	-1
Jamaica	8.1	6.3	5.0	-1.0	-1.0	-1.7	11.7	-4.1	-19	12	-11	-3
Central America subregion									5	-5	-10	-3
El Salvador	5.9	2.5	2.2	0.0	0.0	0.0	0.2	-0.7	-7	-3	-13	-5
Guatemala	6.2	3.4	3.0	0.6	1.1	-0.2	0.4	-1.0	-9	-7	-12	-3
Honduras	7.9	4.3	5.1	0.1	1.8	0.3	0.3	-1.0	-10	2	-10	-3
Nicaragua	7.7	2.0	2.5	0.2	2.4	1.8	-2.5	0.3	12	-12	-10	-2
South America subregion									10	-11	-15	-6
Bolivia	2.6	3.3	4.3	4.9	2.7	-0.3	5.0	-0.9	-6	5	-3	-2
Colombia	10.8	6.6	2.6	6.0	-4.2	-0.6	-0.4	-0.8	10	-11	-15	-6
Ecuador	2.9	2.8	3.1	0.0	0.0	0.0	-1.9	-0.4	8	-11	-6	-5
Peru	7.3	4.0	1.9	-2.2	1.5	0.1	-4.6	-0.6	16	-8	-8	-4
Middle East and North Africa region									**-33**	**-4**	**-28**	**-21**
Middle East subregion									-33	-4	-28	-21
Iran	41.7	15.6	13.8	1.8	-30.5	-9.3	12.9	-6.1	-35	-4	-29	-26
Lebanon	203.7	100.0	9.1	-9.6	-21.7	-0.3	0.9	-0.5	-8	-1	-29	-1
Syria	105.4	19.8	6.8	-5.7	-10.2	-0.8	2.1	-0.7	-7	1	-7	-4
Yemen	33.9	12.7	5.1	-14.5	-3.2	-1.4	-0.5	-3.2	-18	9	-6	-12
North Africa subregion									-16	-6	-4	-1
Algeria	8.9	6.5	4.4	0.0	2.9	-0.9	11.9	-3.4	-16	-7	-4	-1
Egypt	23.9	16.8	5.6	28.8	0.4	-2.1	23.5	-3.0	-14	5	-8	-5
Morocco	6.2	3.9	2.0	5.1	-5.1	1.0	13.6	-1.8	-18	-20	-16	-8
Tunisia	8.7	7.5	3.9	8.2	2.4	0.4	19.8	-2.8	-17	-7	-4	-3

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Country	Consumer price index: Annual growth rate (percent)			Real exchange rate: Annual growth rate (percent)			Real domestic price of major grain: Annual growth rate (percent)		Real domestic price of food groups: 2023–24 growth rate (percent)**			
	2021–23	2023–24	2024–34	2021–23	2023–24	2024–34	2021–23	2024–34	MG	OG	RT	OF
Sub-Saharan Africa region									**4**	**-2**	**-1**	**-3**
Central Africa subregion									-6	1	0	-1
Burundi	18.3	9.9	5.9	-7.5	-0.9	0.4	-1.8	-0.5	-7	2	-3	-1
Cameroon	6.3	4.2	2.7	3.4	-4.4	-0.9	-1.2	-0.7	8	-9	0	0
Central African Republic	5.9	4.5	4.3	3.7	-4.6	-2.3	2.1	-2.0	-15	-1	-9	-7
Chad	4.0	3.0	2.7	6.2	-2.6	-1.0	1.1	-2.2	-12	-4	-11	-5
Congo	3.1	3.0	2.9	7.2	-2.6	-1.2	17.5	-3.5	-19	16	-13	-5
Democratic Republic of the Congo	13.8	8.5	5.7	-4.7	-2.7	0.7	-1.9	-1.0	-13	6	-5	-5
East Africa sub-region									0	0	-6	-3
Djibouti	5.0	1.9	2.2	1.0	1.0	0.1	5.3	-1.1	-8	15	-13	-2
Eritrea	6.9	3.2	2.5	-0.8	-0.3	-0.3	10.8	-2.8	-17	-12	-11	-4
Ethiopia	31.4	25.2	15.2	-8.5	-2.0	0.8	-2.2	-0.5	-7	-4	-14	-2
Kenya	7.5	5.5	4.9	8.9	-2.5	-0.1	3.7	-1.1	-12	-4	-13	-7
Madagascar	8.8	8.8	6.2	3.3	0.4	-0.1	-3.0	-1.1	26	-18	-11	-4
Rwanda	15.0	7.4	5.4	-2.3	-1.3	3.0	-0.7	-0.2	-12	3	-13	-5
Somalia	18.0	11.5	6.7	-10.0	2.9	-0.3	0.0	0.0	0	0	-10	-2
South Sudan	-1.9	10.0	6.7	19.2	5.5	-0.2	0.4	-0.1	-1	0	0	-1
Sudan	209.1	100.0	12.9	-43.2	-17.4	-3.4	-13.3	-1.0	-9	-10	-16	-9
Tanzania	4.1	3.7	3.7	2.2	0.0	0.5	1.4	-1.2	-13	6	-11	-4
Uganda	7.1	5.0	4.7	1.1	0.3	2.0	0.8	-0.6	-12	4	-5	-2
Southern Africa subregion									-10	-1	-4	-5
Angola	16.7	8.5	5.7	-11.7	9.2	0.5	-1.8	-0.3	-3	2	-1	0
Eswatini	5.3	4.6	4.0	10.9	-3.4	0.6	2.7	-0.5	-8	1	-16	-8
Lesotho	7.4	6.3	5.2	8.7	-4.9	-0.5	3.7	-1.2	-13	-2	-17	-8
Malawi	23.5	14.8	7.7	-2.7	-10.1	-5.0	-1.2	-3.1	-19	-4	-5	-11
Mozambique	9.3	7.7	4.9	-4.2	-0.9	1.5	-1.6	-0.7	-12	4	-12	-4
Namibia	5.9	4.6	4.8	10.2	-3.4	-0.4	4.9	-0.7	-6	-3	-16	-8
Zambia	10.6	6.1	5.2	-7.9	-4.1	0.9	-6.3	-2.1	-25	-8	-14	-8
Zimbabwe	152.6	58.9	8.6	-8.9	-33.2	-5.5	-1.4	-0.5	-8	-5	-21	-4

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Country	Consumer price index: Annual growth rate (percent)			Real exchange rate: Annual growth rate (percent)			Real domestic price of major grain: Annual growth rate (percent)		Real domestic price of food groups: 2023–24 growth rate (percent)**			
	2021–23	2023–24	2024–34	2021–23	2023–24	2024–34	2021–23	2024–34	MG	OG	RT	OF
West Africa sub-region									10	-10	-5	-4
Benin	2.7	3.7	3.4	7.6	-3.3	-1.7	0.1	-1.2	10	-13	-4	-6
Burkina Faso	10.2	3.9	2.8	-0.3	-4.0	-0.9	0.2	-2.2	-19	-3	-13	-6
Cabo Verde	6.8	4.2	1.8	2.9	-4.3	0.0	-1.0	-0.3	6	-6	-3	-7
Cote d'Ivoire	4.4	1.9	2.1	5.2	-2.2	-0.2	-0.8	-0.6	11	-20	-6	-5
Gambia	10.2	8.6	8.2	1.9	0.6	-0.2	-2.0	-0.6	13	-9	-8	-2
Ghana	31.8	9.6	7.9	6.2	-11.7	-0.6	-0.3	-0.6	5	-18	-10	-11
Guinea	9.7	8.5	7.4	-7.4	-0.4	0.1	-5.3	-0.4	10	-8	-4	-3
Guinea-Bissau	7.0	3.6	3.0	3.2	-3.2	-1.2	-1.7	-1.2	12	-6	-12	-3
Liberia	8.1	5.2	4.7	-3.9	1.4	1.6	-7.8	0.3	24	-17	-9	-3
Mali	6.7	2.6	2.0	3.5	-2.8	-0.3	-1.7	-0.8	13	-15	-13	-5
Mauritania	5.0	5.3	5.0	0.8	0.1	0.0	5.4	-1.1	-8	7	-13	-5
Niger	3.6	5.3	4.4	6.7	-4.7	-2.6	-0.2	-1.5	10	-11	-15	-7
Nigeria	21.2	17.5	6.7	-5.7	-9.5	-2.0	-1.6	-1.0	-10	-3	-8	-9
Senegal	7.9	2.0	2.4	1.8	-2.3	-0.6	-2.8	-1.0	15	-12	-7	-5
Sierra Leone	18.5	10.3	8.6	7.3	0.0	-0.8	0.0	-0.7	10	-17	-6	-4
Togo	5.2	0.3	2.1	2.1	0.1	-0.7	1.2	-1.4	-12	4	-4	-4

MG = Major grain. OG = Other grains. RT = Roots and tubers. OF = Other foods.

**Real domestic price in grain equivalents is expressed per kilocalories is used to generate price indices for the four food groups (i.e., major grains, other grains, other food, and roots and tubers) used in the IFSA demand model.

Source: USDA, Economic Research Service, International Macroeconomic Data Set.