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Dynamic State of Food Security in Sub-Saharan Africa

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ABSTRACT— Efforts to attain Sustainable Development Goal second objective, which focuses on ensuring food security and eradicating hunger, appear to fall behind in Africa. Hunger persists in all African sub-regions, despite global and continental commitments and actions to address the issue, particularly following the COVID-19 pandemic. Policymakers need to have a comprehensive understanding of the state of food security in sub-Saharan Africa (SSA) to develop effective strategies to combat this challenge. This study contributes to the ongoing discourse on food security by conducting a thorough examination on the state of food security in SSA at aggregate and disaggregate levels. Analyzing data from the Global Food Security Index (GFSI) spanning from 2012 to 2022, using a stylised facts analysis to provide valuable insights into the region's food security situation. Findings from the study reveal that food security in the SSA region lags significantly behind other global regions. Notably, food affordability poses a significant challenge in SSA, as reflected in the region's lowest score in these aspects of food security. The study also highlights that South Africa, Ghana, Botswana, and Kenya have achieved more favorable levels of food security among SSA countries. To address these challenges, the study recommends substantial investments in agriculture, infrastructure, and climate-resilient agricultural strategies to boost domestic production. Additionally, efforts to promote political stability and conflict resolution are crucial. The success of these endeavors ultimately hinges on the commitment and political will of policymakers in SSA, necessitating rigorous efforts to reduce corruption within the region.

KEYWORDS: Sustainable Development Goal, Food Security, Sub-Saharan Africa, COVID-19, Food Insecurity

1. INTRODUCTION

The concept of food security gained prominence during the 1970s when it was globally recognized as a significant issue at the Rome World Food Conference in 1974. Since then, the understanding of food security has evolved, matured, and expanded [1], [2]. The term "food (in)security" pertains to the fundamental question of whether individuals have consistent access to an adequate supply of food that meets both quality and quantity requirements [3]. Food security is achieved when all individuals enjoy continuous physical, social, and economic access to a sufficient quantity of food that is safe, nutritious and aligns with their dietary preferences, promoting an active and healthy life [4], [5]. Food security is influenced by several factors, with food availability (production, distribution, and exchange) being just one of them. Other crucial factors include access (preference, allocation, and affordability) and usage (safety, sociocultural values, and nutritional considerations) [6].

The issue of food (in)security has become a major source of concern recently, for instance, global hunger in 2022, as measured by the prevalence of chronic undernourishment, remained significantly higher than pre-pandemic levels. The proportion of the world's population experiencing persistent hunger was approximately 9.2%, a notable increase from 7.9% in 2019. After a substantial surge in 2020 during the height of the global

pandemic, hunger continued to rise at a slower pace in 2021, reaching 9.3%, and then stabilized from 2021 to 2022. Efforts to reduce hunger showed progress in most subregions of Asia and Latin America, but its prevalence continued to escalate in Western Asia, the Caribbean, and all subregions of Africa. It is estimated that in 2022, between 691 million and 783 million people worldwide were impacted by hunger. Notably, the proportion of the population facing hunger is significantly higher in Africa compared to other regions, with nearly 20% affected, as opposed to 8.5% in Asia, 6.5% in Latin America and the Caribbean, and 7.0% in Oceania [7].

As noted by [8], SSA is home to over one billion people, yet it harbors the highest concentration of food-insecure individuals and the largest proportion of people lacking access to food. The COVID-19-induced GDP shock is expected to lead to a significant increase in the number of food-insecure individuals, with the majority of this increase concentrated in East Africa (14 million) and West Africa (12.7 million). This issue is further exacerbated by the relatively high cost of food in Africa compared to the rest of the world. In addition to the already expensive nutrient-dense foods, food costs in SSA are 30 to 40 percent higher than those in regions with similar income levels [9]. Figures 1a and 1b visually present the trend of food price inflation. Figure 1a illustrates food price inflation (averaged from 2000 to 2020) in SSA countries, while Figure 1b depicts the overall trend in SSA countries from 2000 to 2020.

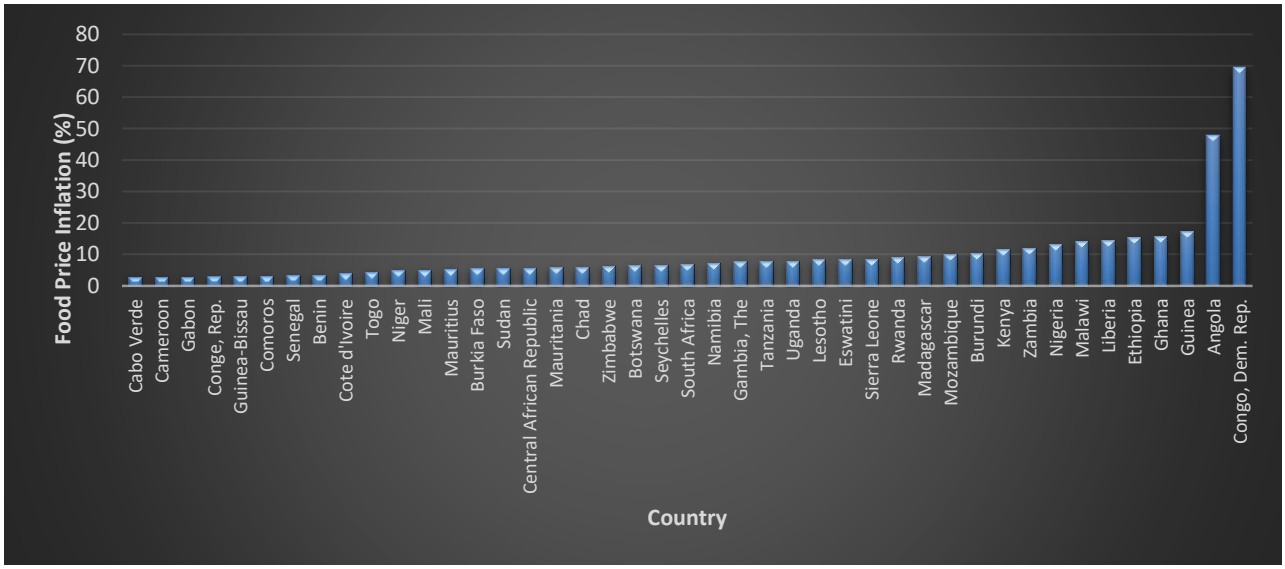

Figure 1a: Distribution of SSA countries' food price inflation

Source: Author's computation and analysis of data from FAOSAT, 2022

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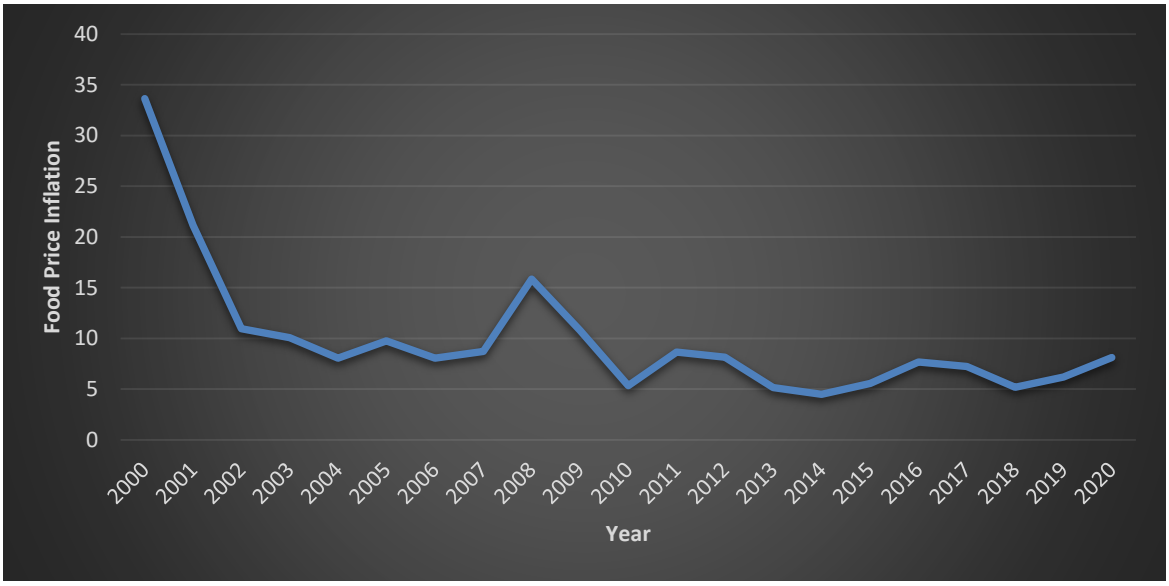

Figure 1b: Aggregate trend of SSA countries' food price inflation
Source: Author's computation and analysis of data from FAOSAT, 2022

Figure 1a shows that the top five countries in SSA with the highest food price inflation in descending order are the Congo Democratic Republic, Angola, Guinea, and Ghana at 69.47, 47.80, 17.17, and 15.54 percent respectively. On the other hand, the last five countries with the lowest food price inflation, when averaging over 2000 to 2020, are Cabo Verde, Comoros, Gabon, Congo Republic, and Guinea-Bissau at 2.75, 2.75, 2.76, 2.85, and 3.17 percent respectively.

Figure 1b shows a downward trend for the food price inflation from 2000 to 2002 and maintains an up-and-down gyration till 2018 except in 2008 when it rose sharply and fell in the subsequent year. It continued to record a slight up-and-down gyration until 2019 where it maintained an upward trend till 2020. Generally, this shows that SSA countries have recorded a downward and unsteady trend in food price inflation before COVID-19 but this has maintained an upward trend thereafter.

In numerous SSA countries, particularly those with low incomes, a substantial portion of household income is allocated to food expenses. The escalation of food prices and stagnant household incomes is expected to result in a reduction in the quality and quantity of food consumed. Consequently, this could increase the likelihood of hunger, undernourishment, and malnutrition. The prevalence of chronic undernourishment among individuals is presented in Tables 1a and 1b.

Table 1a: The proportion of malnourished people in the world, in Africa, and its sub-regions, 2000 – 2020 (Million)

Regions/Sub-regions	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020
World	808.6	809.4	810.3	782.2	725.2	668.2	648.6	628.9	657.6	678.1	768
Africa	200.9	199.9	205.5	194.6	198.3	187.4	199.1	192.5	212	227.1	281.6
SSA	191.5	191.2	195.7	185.3	189.5	178.5	189.1	183.6	202.4	216.7	270.1
Central Africa	39.8	39.8	40.5	41.7	42.7	38	42.4	41.8	47.1	49.7	57.1
Eastern Africa	102.7	102.7	107	98.7	101.9	96.3	101.8	93.6	102.5	109.6	125.1
Northern Africa	9.2	8.6	9.7	9.2	8.7	8.8	10	8.9	9.6	10.4	11.5
Southern Africa	3	2.9	2.7	3	3.3	3.6	3.7	4.2	5.1	5	6.8
Western Africa	39.6	40	39.4	36.4	36.2	34.7	36.5	39.8	43.2	47.8	75.2

Data Source: FAOSTAT, 2022

Table 1b: The number of Undernourished in the World, Africa, and its Sub-regions, 2000 – 2020 (Percent)

Regions/Sub-regions	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020
World	15.6	14.32	13.04	11.76	10.48	9.20	8.84	8.48	8.3	8.3	9.9
Africa	24.8	23.5	23	20.7	20.1	18	18.2	16.7	17.5	17.8	21
SSA	28.9	27.5	26.7	24	23.3	20.6	20.9	19.2	20.1	20.4	24.1
Central Africa	41.4	39.1	37.3	36.1	34.6	28.9	30.2	27.9	29.6	29.4	31.8
Eastern Africa	39.9	37.8	37.3	32.5	31.8	28.4	28.4	24.7	25.6	25.9	28.1
Northern Africa	6.4	5.8	6.3	5.8	5.3	5.2	5.7	4.9	5.1	5.3	5.7
Southern Africa	5.8	5.6	5	5.4	5.8	6.2	6.1	6.8	7.9	7.6	10.1
Western Africa	16.9	16.2	15.1	13.2	12.5	11.3	11.3	11.6	11.9	12.5	18.7

Data Source: FAOSTAT, 2022

Table 1a shows that the number of global people that are undernourished has decreased by 5.3 percent (i.e. 768 million in 2020, down from 808.6 million in 2000), even though the trend of the decrease stopped in 2014 when the lowest number was recorded, beyond 2014, it shows that the global undernourished maintained an upward increment till 2020. The same feature is recorded in the case of Africa and its sub-regions. To do justice to the comparison in Table 1a, the data is also captured in terms of the proportion of the people that are undernourished people to the overall population in each sub-region which is presented in Table 1b. Table 1b shows that the global undernourished people has also reduced from 15.6 percent in 2000 to 9.9 percent in 2020, even though the trend of the decrease stopped in 2018 when the lowest percentage was recorded, beyond 2018, it shows that the global undernourished maintained an upward increment till 2020. Almost the same feature is also recorded in the case of Africa and its sub-regions.

To attain food security, it is imperative for SSA countries to actively pursue strategies aimed at fostering economic growth and addressing issues of poverty and inequality. The evidence strongly suggests that poverty plays a pivotal role in driving food insecurity in SSA, underscoring the futility of discussing food security in isolation from poverty alleviation efforts [10]. Notably, the population living in extreme poverty in SSA has been on the rise, increasing from 278 million in 1990 to 437 million in 2020. It is even possible that Nigeria has already, or is on the verge of, surpassing India in having the highest number of people living in severe poverty. In stark contrast to other regions where the average poverty rate in 2015 was less than 13%, SSA had an average poverty rate of around 41% [11].

Within the African continent, the most extreme poverty is concentrated in the SSA region. Central Africa exhibits the highest extreme poverty rate at 54.8%, followed by Southern Africa at 45.1%. Western and Eastern Africa have rates of 36.8% and 33.8%, respectively. In contrast, North Africa achieved the SDG target of a poverty rate below 3% in 2019 [12]. Figure 2 illustrates the proportions of individuals living in extreme poverty, both on a global and SSA scale.

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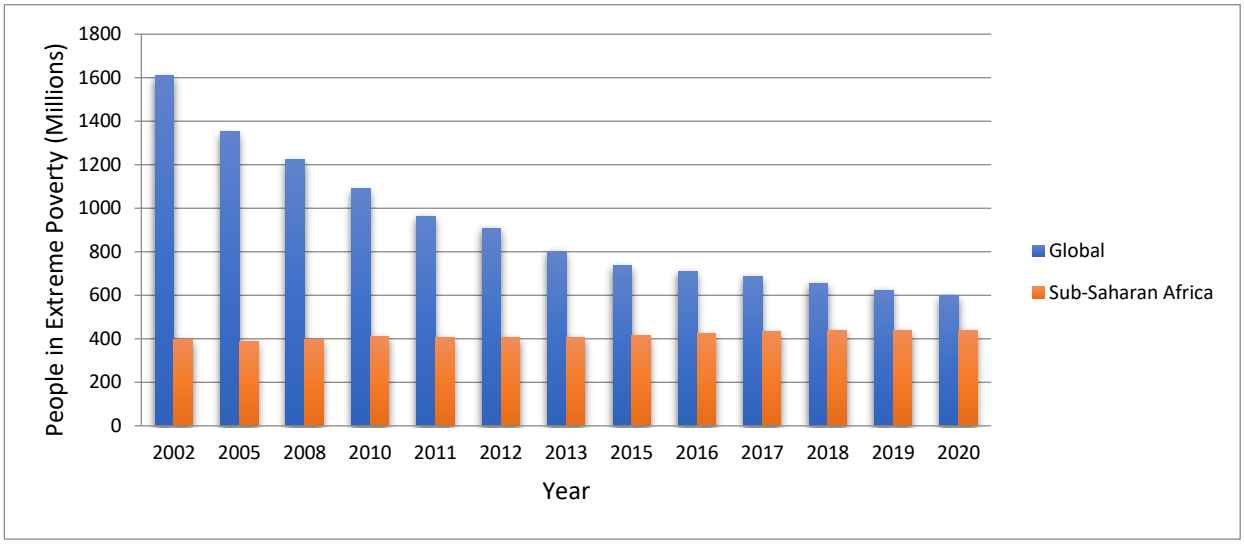

Figure 2: Global and SSA people living in extreme poverty from 2002 to 2020
Data Source: World Bank, 2022

According to details from the multiple bar chart in Figure 2, while the number of persons experiencing extreme poverty worldwide decreased from 1.609 billion in 2002 to 596 million in 2020, SSA's number climbed from 398 million to 437 million in 2002 and 2020 respectively. This shows that more than 73 percent of the world's population lives below the poverty line in SSA countries, which may be one of the causes of the region's continually high rate of food insecurity (accessibility). Without taking into account the level of poverty in SSA, it will be difficult if not impossible to find a solution to the food crisis in the region [13].

To address the problem of food crises, numerous initiatives and commitments have been undertaken on both a global and continental scale. Notable commitments include various World Food Summits, where pledges to achieve food security were made. The Maputo Declaration on Food Security stands out as it mandated member countries to allocate a minimum of 10% of their national budgetary resources to the implementation of agriculture and rural development policies within a five-year timeframe [14]. Furthermore, the United Nations' Millennium Development Goals (MDGs) declaration from 2000 set a specific objective of reducing by half the proportion of the world's impoverished and hungry population by 2015. This commitment was followed by the establishment of SDGs by the UN.

Under the framework provided by these commitments, many countries in SSA have undertaken various reforms, including macroeconomic stabilization, trade liberalization, and reductions in the public sector. These reforms were expected to result in increased food production, sustainable growth, and overall development in SSA countries [15]. However, despite these concerted efforts and the preferential attention often accorded to SSA countries in global initiatives, significant regional disparities persist, with Africa bearing the most substantial burden, particularly in SSA. In 2021, a staggering 20.2% of the African population faced food insecurity, in stark contrast to 9.1% in Asia, 8.6% in Latin America and the Caribbean, 5.8% in Oceania, and less than 2.5% in North America and Europe [16].

Numerous prior studies have also diligently examined the primary causes of enduring food insecurity in SSA, highlighting variables such as climate change, youth unemployment, conflicts, rapid population growth, corruption, and high poverty rates, among others [17- 19]. Furthermore, in addition to these prevalent factors, recent global events such as the COVID-19 pandemic and the ongoing Russia-Ukraine conflict continue to disrupt the global food market and influence food prices [20], [21].

To effectively tackle the aforementioned challenge in the SSA region, policymakers must have a comprehensive understanding of the food security status in the region. Such understanding serves as a critical foundation for addressing this issue. This study contributes to the ongoing discourse by conducting a thorough examination of the food security status among SSA countries, enabling a deeper comprehension of the matter and facilitating the identification of essential steps for enhancing food security in the region.

This examination is underpinned by a specific focus on the performance of SSA countries in comparison to other regions worldwide. Additionally, the study evaluates variations in food security levels among individual SSA countries. Notably, prior studies on this subject have sparked debates due to discrepancies in measuring food security. These studies have often relied on single or dual indicators as proxies for food security, particularly in the context of SSA. The present study expands upon the measurement framework by introducing a composite index comprising multiple food security indicators. Food security is inherently a multidimensional concept encompassing various critical indicators. The use of a single or dual indicator, while overlooking other components, can lead to incomplete and inaccurate conclusions. In this study, we address this limitation by employing the global food security index (GFSI), offering a more holistic and comprehensive perspective on food security in SSA.

Furthermore, it is noteworthy that a substantial portion of prior research on food security in SSA primarily relies on primary data derived from country-specific studies. This study makes a valuable contribution by delving into the comparatively limited body of research on food security in SSA that leverages secondary data sources. This approach is crucial for achieving a comprehensive understanding of the food security landscape. To have a proper understanding of the status of food security in SSA, the present study also conducts this by examining the state of food security from both the aggregate or overall food security and its components (accessibility, affordability, quality and safety, sustainability & adaptation) using the descriptive analytical framework (bar chart, line graphs, percentage, and average index computation) which has largely been neglected by the previous studies. The study addresses these gaps to enrich the ongoing discourse on the subject matter. Subsequent sections of this study, covering sections two to four, delve further into the discussion.

2. MATERIALS AND METHODS

This research employs comprehensive descriptive statistical methods to assess the state of food security among sub-Saharan African (SSA) countries. The data on food security is drawn from the Global Food Security Index (GFSI) by Economist Impact, supported by Corteva Agriscience since 2012. This index is founded on a dynamic benchmarking model that incorporates 68 qualitative and quantitative determinants of food security. The GFSI assesses food security in 113 nations, focusing on four primary pillars: affordability, availability, quality and safety, as well as sustainability and adaptation. Availability examines factors such as agricultural production and on-farm capabilities, the risk of supply disruptions, a nation's capacity to distribute food, and research endeavors aimed at increasing agricultural output. Affordability scrutinizes consumers' ability to afford food, their susceptibility to price fluctuations, and the existence of programs and policies to support consumers during economic shocks. Quality and safety evaluate the diversity and nutritional quality of average diets and the overall safety of food products. Sustainability and adaptation gauge a country's vulnerability to climate change impacts, susceptibility to natural resource-related risks, and the nation's efforts in adapting to these risks.

The GFSI is designed to track advancements in food security at the national level, with a focus on the determinants of food security rather than specific outcomes such as food consumption or the nutritional well-being of the population. Its data aggregation method offers a macroeconomic perspective on food security,

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avoiding distinctions in food security levels among households within a given country. Simultaneously, the use of standardized data enables both static and dynamic international comparisons, eliminating the subjectivity of assessments [22]. The study employed stylised fact analysis based on GFSI data for 28 SSA countries spanning from 2012 to 2022, which aligns with data availability.

3. PRESENTATION OF RESULTS AND DISCUSSION

3.1 Comparison of global and regional food security level

To gain a comprehensive insight into the food security status in sub-Saharan Africa (SSA), this study presents the most recent food security index and its components for the year 2022. This is done in comparison to global and other regions worldwide, utilizing the Global Food Security Index (GFSI) data. An examination of the GFSI details in Table 2 reveals that the SSA region not only exhibits the lowest food security level among the regions but also falls below the global average of 62.2 percent, with an average score below 50 percent. This signifies a comparatively lower level of food security within this region. Furthermore, North America and Europe demonstrate the highest overall food security levels, indicating a notably higher state of food security in these regions. Their respective scores of 78.6 and 74.8 percent are nearly double the level of food security observed in SSA.

Assessing the performance of the SSA region in comparison to global and other regions worldwide at disaggregate levels reveals that the region also exhibits the lowest levels across all components of food security. Particularly, the region recorded the lowest score in affordability, standing at 44.8 percent. This underscores a critical challenge in food security within SSA, primarily associated with the high cost of food. This high cost, as noted by [9], [23], limits access to nutrient-dense foods for many individuals in this region. This observation signifies that SSA grapples with multifaceted food security challenges, prominently in the domains of affordability and availability. The only component where SSA exhibits relatively favorable performance is quality and safety, with a score of 50.3 percent. Nonetheless, it remains the lowest among all the regions.

Table 2: Global and regional food security level in 2022

Group	Food security index	Affordability	Availability	Quality & safety	Sustainability & adaptation
All Countries	62.2	69.0	57.8	65.9	54.1
Asian & Pacific	63.4	73.4	61.9	63.7	51.4
Europe	74.8	87.2	64.9	80.2	63.7
Golf Cooperation Council	70.7	86.4	66.9	73.7	51.1
Latin America	63.4	68.5	59.2	69.1	55.3
Middle East & North Africa	63.0	74.0	57.0	66.3	51.6
North America	78.6	87.7	70.4	89.2	64.8
Sub-Saharan Africa	47.0	44.8	46.4	50.3	47.5

Sources: Global Food Security Index, 2023

Similarly, Table 3 presents the global and regional performance trends spanning from 2012 to 2022. Notably, nearly all regions displayed improvements in absolute food security values between 2012 and 2019 (pre-COVID-19 era). However, in the subsequent period, encompassing 2020 to 2022 (post-COVID-19), they all encountered setbacks in food security levels at one point or another. Specifically, despite the SSA region consistently having the lowest food security level throughout the timeframe, it managed to enhance its food security between 2012 and 2020. This notable rate of change can be attributed to both the baseline conditions and the relatively favorable economic circumstances that prevailed in many African countries before the onset of COVID-19. Additionally, the Asian and Pacific regions, along with the Gulf Cooperation Council,

experienced percentage changes of 13.0 and 11.9 in food security levels, respectively, closely followed by the SSA region, which exhibited a change of 10.8 percent.

However, the decline in the level of food security in 2021 and 2022, in comparison to the previous year, can be attributed to various factors, including the lingering impacts of COVID-19, the ongoing conflict in Ukraine, high levels of poverty, population growth, and an upsurge in internal conflicts in certain SSA countries. This unfavorable shift in the trajectory toward achieving SDGs' second objective aligns with findings from prior studies and research conducted by different metrics [7], [21], [22].

Table 3: Performance of global and regional food security level from 2012 to 2022

Group	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% Change
All Countries	56.9	58.2	59.5	60.4	60.9	61.6	62.2	62.6	62.6	62.2	62.2	9.3
Asian & Pacific	56.1	58.6	59.8	60.5	61.7	62.3	63.2	63.5	62.9	62.2	63.4	13.0
Europe	70.0	70.8	72.0	73.1	73.5	74.7	74.7	75.1	75.1	74.6	74.8	6.9
Golf Cooperation Council	63.2	63.9	65.9	65.5	65.9	67.5	70.5	70.3	71.0	71.0	70.7	11.9
Latin America	58.6	60.8	61.7	62.3	63.1	63.9	65.1	64.8	64.5	64.0	63.4	8.2
Middle East & North Africa	58.2	58.3	59.4	60.6	60.7	61.2	62.5	62.7	63.0	63.5	63.0	8.2
North America	74.4	75.1	75.3	73.8	75.8	76.7	77.5	78.3	78.4	79.1	78.6	5.6
Sub-Saharan Africa	42.4	43.4	45.1	46.4	46.3	46.3	46.4	47.8	48.1	47.5	47.0	10.8

Sources: Authors' computations based on the Global Food Security Index, 2023

3.2 Performance of food security among sub-Saharan African counties

Beyond the global and regional comparisons, this study delves into an examination of the food security status of individual sub-Saharan African (SSA) countries. This assessment is visually presented through bar and line charts in Figures 3 and 4, respectively. Figure 3 portrays the average food security levels for SSA countries spanning from 2012 to 2022. The results reveal that South Africa stands out with the most favorable food security level at 63.1 percent, followed by Ghana, Botswana, and Kenya at 54.0, 52.8, and 50.2 percent respectively. These favorable outcomes may be attributed to the relatively robust and stable economies of these countries compared to many of their regional counterparts. Economic stability and growth play a pivotal role in increasing income and purchasing power, thus enhancing food affordability for their populations.

Conversely, the countries facing the most challenging level of food security comprise Burundi, Chad, Madagascar, and Sudan, with respective scores of 40.6, 40.6, 40.0, and 38.7 percent respectively. These unfavorable outcomes can be ascribed to a myriad of factors. These nations often grapple with high levels of poverty and income inequality, which can significantly limit access to affordable and nutritious food. Many individuals within these countries may lack the financial means to procure an adequate and diverse diet. Moreover, several of these nations have been plagued by protracted conflicts and political instability, which disrupt the entire food supply chain, from production to distribution and access. The displacement of populations due to these conflicts further exacerbates the problem of food insecurity, compounding the challenges these countries face.

The result reveals a striking pattern among SSA countries, only South Africa attains a level of food security above the global average, yet it falls short of regions like North America, Europe, and the Golf Cooperation Council. Conversely, all other SSA countries exhibit levels of food security below the global average. This stark contrast underscores that the majority of SSA countries contend with severe food insecurity. Furthermore, when we consider the SSA's average food security score of 46.0, a closer examination of this shows that just twelve countries (South Africa, Ghana, Botswana, Kenya, Mali, Côte d'Ivoire, Senegal, Niger, Burkina Faso, Mozambique, Uganda, and Togo) surpass this average, boasting a higher level of food security.

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Meanwhile, the remaining sixteen countries fall short of the SSA's average food security level.

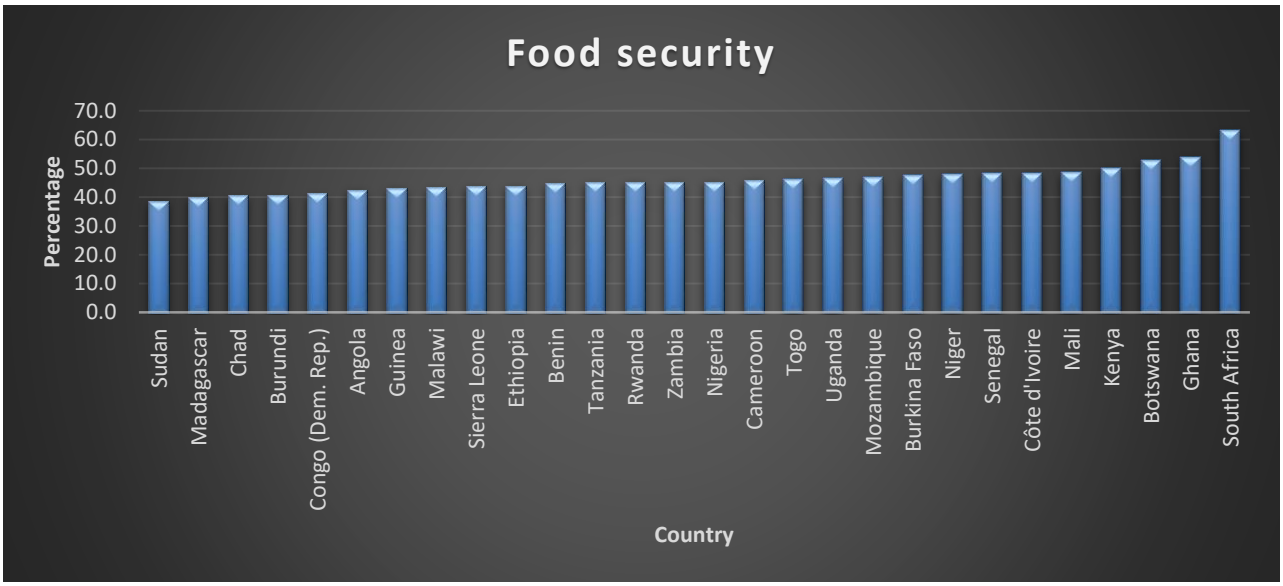

Figure 3: Average level of food security among sub-Saharan African counties
Source: Authors' computation

The line chart provided in Figure 4 illustrates the trajectory of average food security levels in SSA from 2012 to 2022 across 28 SSA countries. The result indicates that in 2012, the region's average food security level stood at 42.4 percent. It then exhibited a generally upward trend, reaching 48.1 percent in 2020, with minor dips in 2016 and 2017, which were subsequently offset by an increase in 2018. However, beginning in 2020, there was a persistent decline, ultimately reaching 47.0 percent in 2022. This decline in food security in the region beyond 2020 can be attributed to a blend of internal and external factors that have adversely affected the region's capacity to ensure sufficient food access. Such factors include the ramifications of the COVID-19 pandemic and its economic fallout, which have had a substantial impact on numerous economies in the region. The resultant decrease in income levels and increased unemployment rates have made it increasingly challenging for people to afford food, thereby contributing to the decline in food security. This is compounded by factors such as climate change, ongoing conflicts, population growth, and insufficient investments in critical sectors.

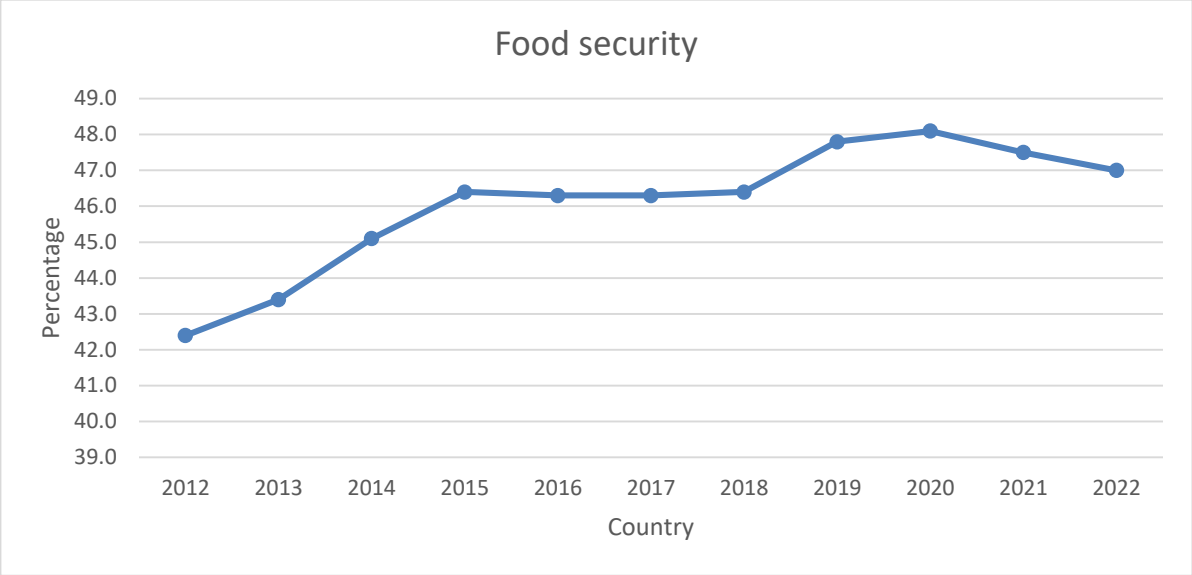

Figure 4: Trend of average food security in sub-Saharan African region
Source: Authors' computation

3.3 Ranking of food security level in sub-Sahara Africa

This section assesses the food security status of individual sub-Saharan African (SSA) countries using the average values of the food security index from 2012 to 2022. The analysis also takes into account the rankings of the four food security components: affordability, availability, quality and safety, and sustainability and adaptation. Table 4 provides an overview of the average food security levels and the rankings of these components for selected SSA countries, along with their corresponding rank positions.

Table 4: Food security level and rank for sub-Sahara African countries

Country	Food security		Affordability		Availability		Quality & safety		Sustainability & adaptation	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Angola	42.5	23	42.3	16	36.1	26	47.7	21	44.7	13
Benin	44.8	18	50.1	8	45.3	12	46.2	23	35.9	25
Botswana	52.8	3	73.2	1	48.2	6	52.8	7	30.6	28
Burkina Faso	47.5	9	49.2	10	48.1	7	51.2	11	40.9	20
Burundi	40.6	26	37.0	25	35.3	27	49.9	14	41.8	18
Cameroon	46.0	13	52.5	6	32.9	28	53.2	6	44.7	14
Chad	40.6	25	47.8	11	37.2	25	42.3	25	33.2	27
Congo (Dem. Rep.)	41.2	24	40.2	20	37.4	24	47.5	22	40.3	22
Côte d'Ivoire	48.4	7	54.9	5	43.4	15	50.0	13	43.9	17
Ethiopia	43.9	19	38.4	23	41.5	18	53.7	5	44.2	16
Ghana	54.0	2	64.6	3	47.0	10	57.1	2	44.5	15
Guinea	43.2	22	37.1	24	42.8	16	41.8	27	53.2	1
Kenya	50.2	4	45.7	14	50.2	4	56.0	3	50.3	5
Madagascar	40.0	27	39.3	21	39.7	22	36.4	28	45.1	12
Malawi	43.3	21	30.4	28	45.3	13	48.9	16	52.9	2
Mali	48.5	5	50.7	7	48.2	5	54.2	4	40.1	23
Mozambique	46.7	10	45.7	13	51.5	3	42.2	26	47.2	10
Niger	48.0	8	47.5	12	44.1	14	52.2	9	48.8	7
Nigeria	45.3	16	41.3	17	40.3	21	52.8	8	48.6	8
Rwanda	45.3	14	40.7	19	45.9	11	48.0	20	47.9	9
Senegal	48.4	6	57.7	4	42.2	17	50.3	12	41.1	19
Sierra Leone	43.8	20	40.9	18	40.8	20	48.6	18	46.1	11

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South Africa	63.1	1	68.5	2	62.3	1	69.6	1	50.4	4
Sudan	38.7	28	32.0	27	39.2	23	51.5	10	34.1	26
Tanzania	45.1	17	39.2	22	53.3	2	49.5	15	39.7	24
Togo	46.3	12	49.8	9	47.6	9	45.7	24	40.7	21
Uganda	46.5	11	45.2	15	41.1	19	48.3	19	52.3	3
Zambia	45.3	15	36.7	26	48.1	8	48.7	17	50.1	6

Source: Authors' computation.

The results presented in Table 4 indicate that South Africa consistently held the top position in overall food security with an average level of 63.1 percent over the period. Ghana followed closely with an average of 54.0 percent, securing the second rank, and Botswana, Kenya, and Mali maintained the third, fourth, and fifth positions with average levels of 52.8, 50.2, and 48.5 percent, respectively, in SSA between 2012 and 2020. Regarding the affordability ranking, Botswana maintained the highest average level at 73.2 over the given period, securing the top spot. South Africa followed closely with an average of 68.5. The third, fourth, and fifth positions were held by Ghana, Senegal, and Côte d'Ivoire, with average levels of 64.6, 57.7, and 54.9 percent, respectively.

When considering the availability of food, South Africa also claimed the top position with an average level of 62.3 percent, followed by Tanzania at 53.3 percent. Mozambique, Kenya, and Mali secured the third, fourth, and fifth positions with averages of 51.5, 50.2, and 48.2 percent, respectively. In terms of the quality and safety of food, South Africa held the leading position with an average level of 69.6 percent, followed by Ghana with an average of 57.1 percent. Kenya, Mali, and Ethiopia took the third, fourth, and fifth spots with averages of 56.0, 54.2, and 53.7 percent, respectively. For sustainability and adaptation, Guinea emerged at the forefront with an average level of 53.2 percent, earning the first rank in the ranking. Malawi secured the second position with 52.9 percent. Uganda, South Africa, and Kenya held the third, fourth, and fifth positions, with averages of 52.3, 50.4, and 50.3 percent, respectively.

4. CONCLUSION AND POLICY RECOMMENDATIONS

This study contributes to the ongoing discourse on food security by conducting a thorough examination of the state of food security in SSA. The analysis is based on data from the Global Food Security Index (GFSI) covering the period from 2012 to 2022, using a stylised facts analysis to provide valuable insights into the state of food security in the region. The findings of the study indicate that the level of food security in the SSA region is notably lower compared to other global regions. Moreover, the affordability of food presents a significant challenge in SSA, reflected in the region's lowest score in this aspect of food security. The high cost of food has hindered access to nutrient-rich foods for many individuals in the region. SSA encounters various complexities in achieving food security, with affordability and availability emerging as prominent concerns. Despite a modest improvement in food security from 2012 to 2020, the progress remains insufficient, largely due to persisting factors such as the escalating cost of food, widespread poverty, population growth, internal conflicts in certain SSA countries, as well as the enduring repercussions of the COVID-19 pandemic and the ongoing Russia-Ukraine war.

The findings further indicate that South Africa, Ghana, Botswana, and Kenya have achieved a more favorable level of food security, potentially owing to their relatively robust and stable economies in comparison to other nations in the region. Conversely, Burundi, Chad, Madagascar, and Sudan exhibit the least favorable level of food security, primarily attributed to prevalent challenges such as high poverty levels, income disparities, prolonged conflicts, and political instability. These factors significantly disrupt the production, distribution, and accessibility of food in these countries.

Based on the conclusions from the study, it is imperative to recommend several key actions. First, there should be a concerted effort to enhance food affordability, involving the implementation of policies that reduce the cost of essential food items and the introduction of income support programs for vulnerable demographics. Additionally, significant investments in modern agricultural practices, technology, and infrastructure are essential to boost domestic agricultural productivity. Implementation of climate-resilient agricultural strategies can further promote domestic food production, reducing dependence on food imports and ensuring a stable food supply. Moreover, addressing political stability and conflict resolution is crucial to mitigate disruptions in food production and distribution in conflict-affected regions. Ultimately, success in these endeavors hinges on the commitment and political will of policymakers in SSA, necessitating rigorous efforts to reduce corruption within the region.

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