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ASSESSING ROMANIA'S FOOD SECURITY STATUS IN 2022: A COMPARATIVE ANALYSIS WITH REGIONAL PEERS

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Abstract

Food security, defined as the availability, accessibility, utilization, and stability of food, is a critical concern in the context of global sustainability and human well-being. The COVID-19 pandemic has further exacerbated existing challenges, putting additional strain on food systems and exacerbating vulnerabilities. The current world status demands a thorough evaluation of the food security situation in Romania and other Eastern European countries. We must take into account various elements that influence this extremely intricate subject. Our approach involves analyzing data from reputable sources whose main purpose is to support nations in finding solutions for a sustainable future, such as FAO, EU or UN. Our goal is to acquire a detailed insight into how world events impacted the food security of Eastern European countries. Moreover, we investigated the role of social and economic inequalities that contribute to food insecurity, as well as the consequences of climate change on food systems' stability. Through this rigorous analysis, we seek to contribute to the existing body of knowledge and inform policy and decision-making processes towards achieving sustainable and resilient food security in the region.

***Key words*:** *food security, social disparities, food price index, climate changes*

INTRODUCTION

At the end of the XX century, in the Italy capital, within the World Food Summit, the state leaders, United Nation, and FAO pronounced the "Rome Declaration on Food Security" [15]. According to this declaration, we can discuss about food security for people, if they have both physical and economic access to enough safe and nutritious food to acquire their alimentary needs and individual food options for a vivid and joyful life. In other words, food needs to be available to people, to be easily accessed, to be consumed accordingly and all three above should not fluctuate in time and should not have differences among regions [2, 8, 28]. However, in the past 4 years, the course of history took a never-before-seen turn and the dynamic global events that occurred influenced the outlook on food security all over the world [36]. We have seen climate changes and extreme weather events that damaged crops and negatively affected agricultural production. The outburst of the COVID-19 pandemic was an unprecedented crisis that disrupted the supply chains and outlined the vulnerability of millions [24]. Lockdowns directly affected livelihoods, especially for people working in agriculture and food supply chains. The repercussions of the geopolitical turmoil caused by COVID and the rising inflation have had a profound impact on the stability of food systems, exacerbating the already existing challenges. Consequently, the interplay between geopolitical dynamics [34] and food security has become a critical area of concern, necessitating comprehensive analysis and strategic interventions to mitigate the adverse consequences on global sustenance.

The COVID-19 pandemic has not been the only factor contributing to food insecurity in the studied countries. The rising prices of essential food items have also played a significant role, making it harder for families to access nutritious meals. Moreover, climate changes and extreme weather events have had a severe impact on food production, leading to shortages and higher prices. Finally, social

inequality has exacerbated the issue, as vulnerable demographics have been hit the hardest by the pandemic and its aftermath. These elements have added to the complexity of the food security challenge and require a comprehensive approach to address them effectively, which is why we chose this topic for our study as a first step.

MATERIALS AND METHODS

Since food security is a widely interesting topic, numerous private and public institutions provide data and reports on the current world situation. Our paper combines data offered by reports and studies presented by public entities such as the European Union, FAO, World Bank, The Economist, and Food Security Information Network, and offers a multi-faceted perspective on food security. We compared data available for Romania and the neighbouring countries and tried to provide context as to why the situation presents itself as such. We chose for comparison the countries included in the Eastern Europe region by the UN methodology [37] that are also part of the European Union. These countries are Romania, Bulgaria, Hungary, Poland, Slovakia and Czech Republic. National sources such as National Statistics Offices for each country were utilized and data was extracted for this paper.

RESULTS AND DISCUSSIONS

Disruption of food supply chains – the aftermath of COVID-19

In December 2019, the city of Wuhan, China reported an outbreak of pneumonia cases of unknown origin. On January 5, 2020, WHO made the first public international media report [38] of what would become one of the greatest challenges of the 21st century so far. Nobody could have predicted the intricate implications of this global event. According to the IMF, since the beginning of the pandemic by the end of 2022, more than 272 billion EUR were infused in world economies to rebalance the economic environment with an additional 461 billion EUR approved for providing liquidities to countries in need of financial recovery [15]. According to the same report, Romania spent around 7.59 % of its GDP on COVID-related fiscal measures. Romania's percentage is significantly lower than its regional counterparts, but in terms of value, almost 3 times larger than Bulgaria's. Even with the quick global response to the pandemic, lockdowns and travel restrictions led to supply chain blockages. The migrant workforce was stuck in their respective countries, which caused a labor market shortage. Circulation restrictions led to discontinuation in the transport of goods, which in turn led to a shortage of products available on the markets. International trade in agriculture faced disruptions due to border closures and restrictions, affecting both the importation of essential inputs (such as seeds, fertilizers, and pesticides) and the export of agricultural products. Fluctuations in demand and supply, combined with market uncertainty, led to price volatility for various agricultural commodities. With the shutting of sectors like tourism or HORECA, many people faced a sudden drop in their income.

Table 1. Cost of fiscal measures to minimize COVID-19 impact on the selected countries

	GDP 2021 (bil. EUR)	% of GDP spent for COVID-19 fiscal measures	Value of COVID-19 fiscal measures (Bil. EUR)
Poland	574.7	11.28	64.8
Czech Republic	238.25	24.7	58.8
Romania	241.3	7.59	18.3
Bulgaria	71.1	9.19	6.5

Source: IMF, Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, Oct.2021 [25].

As a result, the drop in income coupled with the rise in food prices led to food insecurity for a large share of the population.

However big the share of funds allotted to counteract the effects of COVID-19, the impact on the food supply chain and subsequently on food security was significant. The inflation took a quick turn upward, the evolution of the Harmonized Index of Consumer Prices (HICP) pictured in Figure 1 being the most relevant proof.

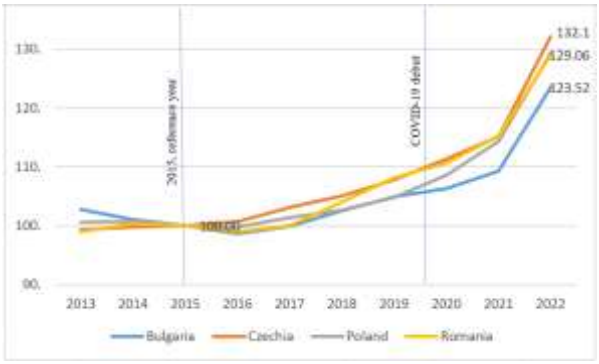

Fig. 1. Evolution of HICP between 2013 and 2022
Source: European Commission, Harmonized Index of Consumer Prices (HICP) annual data, Sept 2023 [13].

Changes in consumer behavior, such as increased demand for locally produced food and a surge in online sales, influenced the way agricultural products were distributed and marketed. There was tremendous support for locally produced goods, and those who saw the opportunity thrived. Therefore, the pandemic accelerated the adoption of technology in agriculture, including the use of automation, drones, and digital platforms for marketing and sales. Still, many small-scale and subsistence farmers faced heightened economic vulnerability, as they lacked the resources to adapt to the rapidly changing circumstances even with governments around the world implementing various policies to support farmers and stabilize the agricultural sector. The pandemic underscored the importance of building resilience in the agricultural sector. Some farmers adapted by diversifying crops, adopting sustainable practices, and exploring new markets or even by increasing awareness in their own local communities. This global event emphasized the vulnerability of food systems and their dependence on the well-oiled machine that is international trade. Cheaper products, coming from countries like Ukraine, Turkey, Moldova, or other Balkan Countries outside of the EU lower the demand for their European counterparts [22]. Farmers from Eastern Europe expressed their discontent with the excessive quantities of food imports, thereby illustrating the challenges encountered in upholding unity and effectively managing the surplus. This situation sheds light on the interdependencies within the agricultural dynamics of the region. Although food insecurity is not currently a pressing concern in Europe, the potential failure or financial unattractiveness of European farmers, if left unprotected, could have far-reaching consequences. Over time, this could lead to escalating prices, and inflation, ultimately contributing to food insecurity [23][31][9].

The impact of rising prices of essential food items on food security for Romania and its regional peers

As we have seen in Figure 1, all around Europe the cost of living increased due to inflation and the abrupt rise of prices. Romania and its neighbors were no exceptions, and as we see below in Table 2, the increased cost of a healthy diet caused larger percentages of people who cannot afford a healthy diet.

Table 2. Cost progress for a healthy diet and the impact on the % of the population that can afford it or not

	Cost of a healthy diet				People unable to afford a healthy diet			
	EUR per person per month				Total number (thousand people) & Percentage of total population			
	2017	2018	2019	2020	2017	2018	2019	2020
Europe	94.8	96.9	96.9	100.5	18,300 (2.6%)	15,200 (2.2%)	13,700 (2%)	14,600 (2.1%)
Bulgaria	119.4	121.8	123	129.6	800 (11.3%)	600 (9%)	600 (8%)	600 (8.5%)
Czechia	91.5	92.1	92.1	93.6	38 (0.4%)	19 (0.2%)	19 (0.2%)	19 (0.2%)
Hungary	104.4	106.8	106.5	110.1	300 (3.3%)	200 (2.3%)	200 (1.9%)	200 (2%)
Poland	91.8	94.2	96	100.2	400 (1%)	500 (1.4%)	300 (0.8%)	400 (1%)
Romania	92.1	93.3	95.1	100.8	2,300 (11.9%)	1,300 (6.9%)	1,600 (8.3%)	1,700 (8.8%)
Slovakia	95.1	98.1	98.1	99.6	100 (2%)	100 (2.4%)	100 (1.2%)	100 (1.2%)

Source: FAO [19].

In 2021, 21% of the total Europeans who could not afford the cost of a healthy diet were from Eastern Europe.

A closer look at the evolution of the real wage growth compared with the yearly inflation (Figure 2) tells us exactly why the financial security of Romanians is currently in jeopardy and subsequently, the affordability in terms of access to food is in danger. The spike in inflation in 2022 did not match with a comparable wage growth. So, while the net income for Romanians grew in 2022, the people did not feel this growth because prices grew even more. Middle and lower-income families are thus forced to choose cheaper and lower-quality foods in order to make ends meet. This creates the perception of a more insecure environment regarding food. Because even though food is readily available in stores, the customer needs to think twice about whether he can afford it or not. Extensive research [27], [1], [3], has firmly established a strong correlation between food insecurity, which arises from the constraints imposed by poverty on accessing nutritious diets, and the heightened prevalence of obesity, particularly among adult females and in affluent nations.

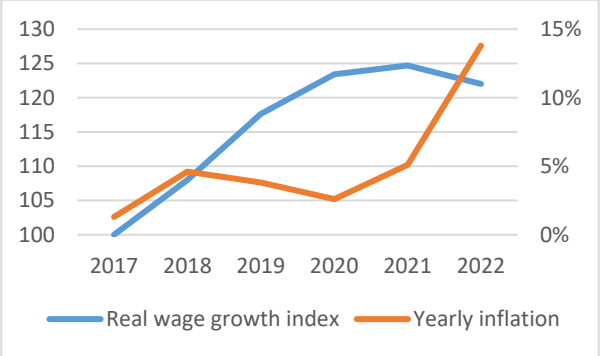

Fig. 2. Comparison between real wage growth index and yearly inflation in Romania
Source: NIS [32].

Climate change and extreme weather events that affected the agricultural productivity and food security in Eastern Europe

Recent years, like 2021 and 2022, have seen record-breaking extreme weather events in Europe, triggering catastrophic flooding and heat waves [17]. These events cause massive damage to the crops, resulting in food scarcity and rising prices. While poorer countries from around the world feel the shock of weather events more powerful, in Europe, the main impact is on the volatility aspect of the food supply chain [29] Floods in Europe have devastated crops, especially in the southern part (Italy and Greece) [20]. In the meanwhile, drought affects the rest of Europe. Figure 3 shows the extent of drought-affected territories in 2022 in Europe. As we can see, Eastern Europe, the area of interest for this study is mostly in the red, with the most damage caused by drought. As of September 2023, 40.4% of Romanian lands are reported as affected by long-lasting drought [12]. Projections of The JRC PESETA II Project [6] state that if we do not fight to limit climate change, by 2100 crop yields will drop by at least 10%. In time, the estimated rise in global temperatures and altered precipitation patterns will reduce crop yields and affect livestock productivity, posing a threat to the global food supply [11]. Water supply will also be impacted, leading to water scarcity, affecting irrigation and water availability for crops and livestock

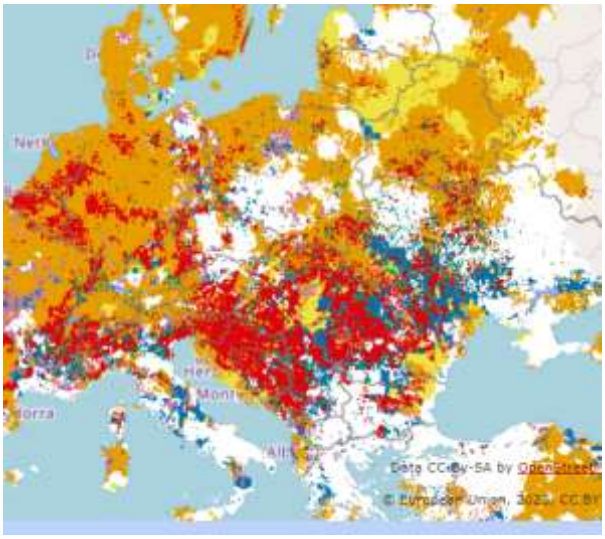

Fig. 3. Drought-affected territories in Eastern Europe in 2022. In red – areas with the most damage.
Source: European Commission Drought Observatory [12].

The phenomenon of climate change has the capacity to engender food insecurity through a range of mechanisms, including the amplification of food costs, the reduction of overall food production, the creation of water scarcity for agricultural purposes, the intensification of land competition, and the

occurrence of sudden declines in agricultural productivity as a consequence of extreme weather events [18].

Social inequality and food security

FIES (Food Insecurity Experience Scale) as a tool developed by FAO, offers great insight into the extent of food insecurity and the damage that it causes. According to the FAO et al. study [21], there is a strong interdependence between the aspect of food insecurity and malnourishment, as measured on the FIES scale. The intensity of this relationship varies from country to country, especially because the magnitude of the malnourishment rate varies greatly as well. While there are multiple studies on this matter, [5] [26] [33], they provide limited but compelling evidence that childhood wasting (observed through a low weight-for-height ratio) is closely attached to food insecurity. Regarding adult obesity, there is persuasive data, with moderate agreement, that food insecurity resulting from poverty and restricted access to nutritious diets is correlated with higher obesity rates. This connection is particularly evident in high-income countries and among adult females [35]. Furthermore, a separate meta-analysis conducted by Kim and von dem Knesebeck [27] focuses on research conducted in Europe and North America, where their findings indicate a negative relationship between income and obesity, suggesting that low income may contribute to obesity, and vice versa.

As part of the European Union, the six countries selected for this study are benefiting from the strategic advantages such as location, climate, social and economic development. This is why, the percentage of the population that is subjected to malnourishment is lower than in other parts of the world. However, between the six, a larger percentage is noted in the two countries that have the lowest rank of Human Development. Low societal and economic development leads to inequalities not only between countries facing similar contexts (Table 3) but within regions of the same country as well (Table 4).

Table 3. Percentage of people as share from the total population facing undernourishment and food insecurity by country

	Undernourishment (%)		Severe food insecurity (%)		Moderate food insecurity (%)	
	2004–2006	2019–2021	2014–2016	2019–2021	2014–2016	2019–2021
Eastern Europe	<2.5	<2.5	1.5	1.3	11.2	9.7
Bulgaria	4.9	3	1.9	2.9	14.9	15.5
Czechia	<2.5	<2.5	0.7	1.6	5.8	5.8
Hungary	<2.5	<2.5	1.4	2.1	11.3	10.6
Poland	<2.5	<2.5	1.8	0.9	8.9	7.4
Romania	<2.5	<2.5	5.6	3.7	19.3	13.4
Slovakia	5.5	3.8	1.1	1.6	6.2	7.7

Source: FAO [21].

Table 4. Regional disparities in Romania – differences in net nominal wages per month

	Romania	North West	Centre	North East	South East	South - Muntenia	Bucharet-Ilfov	South Oltenia	West
Net nominal wage 2022 (RON)	3,801	3,635	3,489	3,349	3,173	3,355	5,110	3,247	3,650

Note: Average Exchange Rate Euro/Leu in 2022 = 4.93127 Lei
Source: NIS [32].

The cost of living at the country level is mostly the same. Usually, prices and inflation have the same tendencies of rising/decreasing. But when disparities in individual incomes are this great as in the example provided in Table 4, it will become inevitable for the whole population to afford the same quantity and quality of food and have the same purchasing power. In Romania's case, the difference in net nominal wage between the highest earning area and the lowest is more than 15% (excluding the capital city region). And if we

take into consideration the capital city region (B-IF) and the lowest income region(South East) then the inequality is even greater, with a 60% difference. This means that people in poorer regions while earning less money have mostly the same expenses as those in richer areas. This will lead to inequality in affordability, directly increasing food insecurity. Another concern when discussing social inequality refers to gender inequality [10]. National and European statistics align with the findings of the FAO, with Bulgaria and Romania ranked among the top European Union member states in terms of food insecurity and poverty risks Furthermore, the data exposes substantial discrepancies in wages and opportunities between genders, leading to a greater number of women experiencing poverty, social exclusion, and consequent food insecurity in contrast to men. Bulgaria has the highest gap between men and women (5.4%) surprisingly followed by the Czech Republic (4.3%). Romania comes in third among the six with 3.1%.

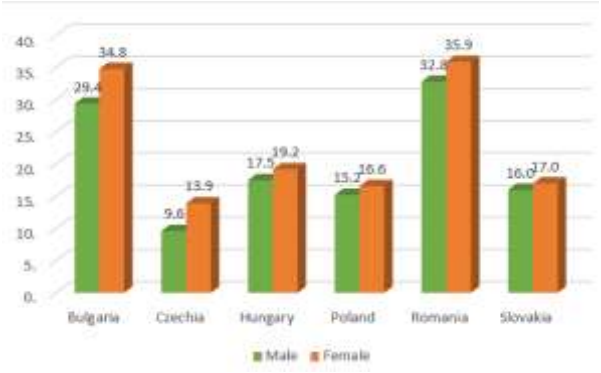

Fig. 4. Persons at risk of poverty or social exclusion by gender
Source: Eurostat [14].

A possible explanation for Czechia's score might be the fact that, even though the economic situation is good overall on a country level, the financial resources for women are quite low, due to lower employment and lower career prospects even though the percentage of educated women is quite large [39]. In the same statistics, Romania is at the bottom of the list, being only slightly above Greece. Food insecurity rooted in gender inequality is also the result of the fact that prevalently, women are in charge of the care aspect of households [4]. Traditionally, women procure groceries, cook, and are mostly in charge of growing their own food where possible [16]. This leads to a higher impact on them felt directly and acutely when the environment changes. Any issues caused by prices, availability of products, or even climate changes will directly force women to react and adapt the households' food systems [7]. Consequently, the burden of food insecurity falls disproportionately on women, exacerbating the existing gender inequality. This gendered division of labor within households [4][7][30] perpetuates a cycle where women are not only more vulnerable to the impacts of food insecurity but also face limited opportunities for economic empowerment and decision-making power regarding food choices. Thus, addressing gender disparities and promoting gender equality is crucial in tackling the multifaceted challenges of food insecurity and its implications for women's well-being.

CONCLUSIONS

The escalation of food insecurity, heightened by global occurrences such as the COVID-19 pandemic climate change or geopolitical instability, has emerged as a critical matter of concern. Their immediate consequences include notable surges in worldwide food and fertilizer prices, alongside higher volatility of the agricultural supply chain. Effectively addressing these issues necessitates prompt and timely actions, as underscored by insights gleaned from evaluations conducted during the COVID-19 pandemic. These evaluations emphasize the significance of early intervention to prevent the need for costly emergency food responses. In light of the escalating acute food insecurity on a global scale, it is imperative to bolster preparedness responses and prevention strategies. It is important to note that the exacerbation of food insecurity extends beyond conflict zones, exerting ripple effects that impact individuals already grappling with insecurity on a larger scale.

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