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The War in Ukraine and Inflation Drivers in the GCC: Evidence from Dubai

By Ahmed Shoukry Rashad,¹ Mona El-Sholkamy,² and Muhamad Olimat³

Abstract

The war in Ukraine has led to a surge in commodity prices. Energy and food prices have skyrocketed after the Russian invasion of Ukraine. The acceleration in worldwide fuel prices delivered positive fiscal balances to major oil-rich countries, particularly the Gulf states. Nevertheless, the positive current account balances did not leave these countries immune to inflation. This study uses up-to-date inflation numbers to determine the drivers of inflation in the Gulf region by examining the case of Dubai, as one of the most popular cities in the region. The study uses monthly inflation numbers that cover the year 2022 and applies an element-by-element analysis to identify the drivers of the accelerated inflation. Our findings suggest that Dubai’s inflation is mainly driven by the transport component in the consumer basket, while food items had a modest impact on Dubai’s inflation.

Keywords: Inflation, UAE, Dubai, Ukraine, Russia, Russia-Ukraine War

Introduction

Russia and Ukraine are both major food and energy producers. Many countries are heavily dependent on them to satisfy their food and energy needs, and the conflict threatens their economies and food security. For example, in 2020, 82% of Egypt’s wheat imports came from Russia and Ukraine (Abay et al., 2022; Lin et al., 2023). Similarly, Germany relied heavily on Russia for gas supplies (55% of its gas imports) (Halser & Paraschiv, 2022). Therefore, the war in Ukraine and the associated economic sanctions have been a huge additional shock to the global economy that was slowly recovering from the COVID-19 pandemic (Kammer et al., 2022). Beyond the suffering and humanitarian crises caused by the conflict, it has also threatened the recovery of the global economy from the pandemic, increased commodity prices, increased the level of food insecurity around the world, and raised social tensions. The conflict has also brought a significant level of uncertainty to global energy markets. Prices for food and energy skyrocketed since the invasion of Ukraine before returning to pre-invasion levels (Figure 1). Several factors eased price pressures on commodities, such

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as central banks synchronizing a tightening of financial conditions and interest rate hikes around the world. The Black Sea grain corridor has enabled grain exports from Ukraine, increasing the supply on the market and pushing down prices to pre-war levels.

The effect of the invasion on the Middle East is mixed. Oil importing countries in the region experienced dire consequences from the conflict, and high commodity prices quickened inflation to record levels in these countries. On the other hand, oil-exporting countries have benefited from high oil prices, boosting the fiscal and current account balances. According to the IMF, the overall fiscal surplus in Gulf Cooperation Council (GCC) countries in 2022 is expected to exceed $100 billion (Mati & Vacher, 2022). Nevertheless, the positive current account fiscal balances did not make these nations immune to inflation. Surging commodity prices fueled inflation rates in the GCC countries, which are now translated into elevated CPI numbers. In GCC, import food dependence is one of the highest in the world, exceeding 80% as a share of consumption (Ianchovichina et al., 2014). Most of the GCC countries allow fluctuations in global commodities prices to pass through to domestic prices. This is partly due to demographics in the GCC countries because they depend heavily on a foreign workforce.

**Figure 1: Brent Oil Price and Food Price Index**

![Brent Oil Price and Food Price Index](source: FRED database)

In some GCC countries, the percentage of expatriates reaches 90% of the total population. Additionally, the GCC countries allow price signals and relative prices to rebalance the food and energy markets. Therefore, economic policies such as generalized price subsidies on food are rarely adopted. Such policies would weigh on government budgets and are not the most efficient way to channel aid to their citizens. For example, to avoid market inefficiency and speed up a transition to clean energy, the United Arab Emirates (UAE) follows a market mechanism in the pricing of petroleum products, and international prices are allowed to pass through to domestic ones (See Figure 2). According to UAE’s National Bank of Dubai (NBD) Research Center, effective July 2022, 95-octane fuel with a cost of 4.52 UAE dirhams (AED)
per liter soared 92.3% higher than the same time last year, while the cost of Super 98 petrol increased to 4.63 per liter, up by 87.5 per cent compared to June 2021, before it slid down near the pre-war levels in the last quarter of 2022. Thus, it is expected that the war-driven surge in commodity prices will be significant in the GCC region, as high commodities can build up inflationary pressures. On the other hand, given the dependence on oil exports, most of the GCC countries have pegged their currencies to the US dollar. In fact, the peg was also useful in curbing imported inflation, as the strength of the US dollar (and accordingly transferred to GCC currencies) against other currencies in 2022, which gained from the monetary tightening, reduced the import bill, and contributed to reducing imported food prices.

**Figure 2: The Co-movement of Oil Brent and Fuel Price in UAE**

![Oil Brent Price and Petrol Price in UAE](Source: FRED database)

This study focuses on inflation in one of the most popular cities in the GCC region and the world, Dubai, where timely data is publicly accessible. In the Emirate of Dubai, consumer prices rose to their highest level since December 2015 with the year-on-year headline inflation index climbing to 7.1% in July 2022 (see Figure 3) after deep deflation in the preceding years.

The process of designing public policies to address such elevated inflation requires first identifying its main drivers, and this is the contribution of this study. More specifically, we attempt to test two hypotheses. 1) Dubai’s inflation is driven by inflation in the food component in the CPI, and 2) Dubai’s inflation is driven by the transport component in the CPI. To test these hypotheses, we use inflation contribution analysis where we look at the contribution element by element in comparison to inflation. Thus, we decompose the headline inflation and identify the contribution of each element to inflation during the year 2022.
Figures

Figure 3: Inflation in Dubai Before and After the Invasion of Ukraine

Provided that the uncertainty in the global environment and the risk of commodity prices increasing again in 2023 remains high, policymakers might be interested to know to what degree the fluctuations in commodity prices affect the consumer basket prices in Dubai and the UAE. This paper attempts to explore the inflation drivers in Dubai based on element-by-element analysis. To the best of our knowledge, this study is the first attempt to analyze the inflation numbers in the year 2022. The next section provides a political background on the implications of the Russian-Ukrainian conflict on the food market, and Section 3 describes the past literature. In Section 4, the data and method are presented, Section 5 presents the results of the analysis followed by Section 6, which discusses the findings and concludes the study.

Background

The eruption of the Ukraine War on the 24th of February 2021 took the world by surprise. The Post-Soviet Era witnessed a wide range of turbulence in Ukraine-Russian relations that ranged from partnership under the presidency of Victor Yanukovych and descended drastically into an all-out war under President Zelensky. In 2013, President Yanukovych rejected an agreement for greater economic integration of Ukraine with the European Union, leading to popular protest that forced him out of the office a year later. Putin’s reaction was to annex Crimea and support the cessation of Ukrainian territories with a large Russian-speaking population.

Ukraine busied itself during the 1990s with economic reforms, investments, and concentrated on its agricultural sector, which became a main source of foreign exchange and a basket of food to feed millions around the world. Ukraine was a symbol of stability, science, technology, culture, and advancement, which made it a destination for international students seeking affordable higher education. This bright image was shaken by the ethnic strife in its eastern part, which is predominantly Russian speaking.

Russia’s invasion of Ukraine in February 2022 led to the immediate halt of wheat, corn, and other agricultural-commodity shipments to global trading partners. Despite their small-scale participation in global GDP, which stood at 2% at the start of the invasion, both countries are considered breadbaskets of the world as well as major exporters of vital agricultural commodities, minerals, fertilizers, and energy. Being two major agricultural powers, the Russia-Ukraine conflict bore various negative socioeconomic impacts that affected global food
prices, stability, and food security. With dim chances of the war stopping any time soon, food shortages are expected to remain, posing a challenge to many countries, especially heavy food importers like the Middle East, North Africa, and GCC regions.

The gravity of the situation intensified due to the timing at which the war broke out. During the first quarter of 2022, global food markets were barely brushing off the dust from supply chain bottlenecks that rose from the COVID-19 health crisis. Global demand, population pressures, and poor harvests in some countries (due to climate change) exacerbated the situation. The conflict gave rise to other disruptions in fertilizer markets, imposing more pressure on the price and availability of food products, further jeopardizing global food security. Five months into the war, in July of 2022, two United Nations Task Forces, along with Turkey’s mediation, drafted a first-time plan to resume Ukrainian and Russian grain exports via the Black Sea. Regarded as a beacon of hope, the agreement paved the way for Russian and Ukrainian crops and fertilizers to reach famished global markets amid spiraling food prices. Ultimately, the so-called Black Sea Deal created a protected transit corridor between the conflict-stricken area and the rest of the world, and was designed to alleviate shortages of food supplies by facilitating exports from Ukrainian ports. Despite its mandate, the Deal could not guarantee full-fledged solutions to all the spillovers resulting from the war. Nevertheless, in October 2022, the United Nations Conference on Trade and Development (UNCTAD) praised the agreement for helping stabilize and subsequently lower global food prices and facilitate grain provisions to those who needed it the most (UNCTAD, 2023).

Food Price Inflation

The Russia-Ukraine War was one of the various catalysts that led to the global inflation recorded in 2022. Global economic activity since the 2019 pandemic went through an unprecedented slowdown which affected the availability of supply and production levels across countries, putting more pressure on prices. Soaring cost-of-living predicaments and supply chain blockages further aggravated the situation. According to the International Monetary Fund’s World Economic Outlook (2022), global economic growth figures were adjusted to reflect more than a 50% drop (from 6 to 2.3% for 2023). This projection was labeled the weakest since 2001, except for the global financial crisis (GFC) and the COVID-19 pandemic. The outlook also shed light on global inflation figures, which were adjusted from 4.7% in 2021 to 8.8% in 2022 and an optimistic decline yet to be seen to 6.5% in 2023. There is no doubt the conflict continues to powerfully destabilize the global economy, pushing up food prices despite the relative ease brought about by the Black Sea Grain Deal. More broadly, the conflict caused serious hardship not only for low-income households worldwide but also middle and high-income countries that rely heavily on food imports (International Monetary Fund, 2022).

In May of 2022, the European bloc traced existing price pressures in the food sector intensified by the Russian invasion of Ukraine. The repercussions of the war impeded imports of food commodities in the euro area, led to international trade restrictions, and gave rise to unwelcome food inflation. Food prices in the region were already rising before the aggression mainly due to the well-known spillovers from COVID-19, rising energy prices, and related supply constraints. Such hikes in food prices drove headline inflation to a record high of 7.5% only three months into the attack. Given the substantive weight of food in the consumption basket, which could surpass 20%, and the volatility that accompanied the political unrest, the unprecedented rise in food inflation rang bells of danger (Moessner, 2022).

Known as the breadbasket of the world, Ukraine had to announce bans on certain agricultural exports to address local needs. The country’s production capacity was also negatively affected as multiple areas impacted by the war were previously utilized as plantation spots. Damaged infrastructure and the unavailability of workers aggravated the pressure on food supplies and complicated insurance schemes. To make matters worse, Russia being the
largest global exporter of the good, also imposed export bans on its fertilizers, which greatly disturbed world markets. Despite discontinuing the ban in August 2022, an assortment of European sanctions on Russia continued to hike prices and hindered global crop yields from going forward.

Besides the European continent, developing and emerging countries were profoundly affected by the food shortages of the war. For instance, top importers of wheat in 2021 included Indonesia (where the value of its imports mounted to 3.55 billion dollars), accounting for 5.69% of the world’s wheat imports, followed by China, Turkey, Algeria, and Iran collectively amounting to 22.98% (Bankova et al., 2022). The world’s total wheat imports were estimated at 62.3 billion US dollars in 2021. Uncertain agricultural resources threatened food supplies and prices in these nations, but the hardest hit were the poorest developing countries such as Zimbabwe, Venezuela, and Lebanon (Bankova et al., 2022).

The FAO Food Price Index

According to the Food and Agriculture Organization (FAO), the global FAO Food Price Index (FFPI) is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices weighted by the average export shares of each of the groups. The first ever base year set used in the first index recorded was 2014-2016. The set was then revised in 2020 in the respective editions of the Food Outlook where an expansion of the price coverage was also introduced in July of that year. The index in March 2022 averaged 159.3 points, up 17.9 points (12.6 percent) from the month before (FAO, 2023). That was the highest to be recorded since the inception of the Index in 1990. The spike in the latest figure was ignited by increases in vegetable oil and cereal prices that rose 238.6 and 170 points, respectively. A country-level report released by the FAO further endorsed the observation and showed that the largest jump in prices occurred during the first month of the war and was felt the most in developing/emerging markets such as sub-Saharan Africa. Countries like Lebanon, Zimbabwe, and Turkey experienced higher food price inflation than the global average (12.6.5) over this period only as follows: Lebanon (396%), Zimbabwe (75%), and Turkey (70%).

According to the World Bank (2023), households in these countries devote a greater portion of their total consumption to food purchases which could reach up to 75% of their income. This compares with 10.8% for the average British household in 2019/20. Accordingly, inflated food prices reduce the purchasing power of these households’ incomes, forcing them into the poverty trap where they are incapable of affording adequate and healthy diets. Situations where food price inflation surpasses tolerable thresholds in some societies have triggered civil unrest in the past (World Bank, 2023).

By December 2022, the FFPI averaged 132.4 points, down 2.6 points (1.9 percent) from November, marking the ninth consecutive monthly decline and standing 1.3 points (1.0 percent) below its value a year ago. The decline in the index in December was driven by a steep drop in the international prices of vegetable oils, together with some declines in cereal and meat prices, but partially counterbalanced by moderate increases in those of sugar and dairy. Nevertheless, the Index stood at 143.7 points, up 18 points (14.3%) compared to 2021.

Energy Prices and Inflation

Energy prices were imposing their own share of turmoil. Although energy prices are expected to drop in 2023 by 11%, there would still be a 75% above-average price level even if these predictions come true. These record-high prices have had severe socioeconomic impacts on many households, including making food unaffordable due to rising transportation expenses, causing blackouts in factories resulting in loss of essential goods, and preventing children from studying due to lack of electricity (Abay et al., 2023). To tackle the
socioeconomic impact of high energy prices, policy makers need to know which segments of society are affected the most. Research conducted by the World Bank in 2022 across 72 countries examined the share of total consumption devoted to energy by decile of consumption plotted against the level of consumption. The study concluded substantial variety across countries and their social segments (World Bank, 2022). Such diversity goes back to the fact that energy consumption is a function of numerous variables such as weather conditions, cost of energy bills, and even cultural norms. The study revealed how households with a daily total consumption of $5-$20 allocate almost 11% of their expenses to energy, while the poorest and wealthiest in the world spend only about 50% of that figure. The common factor among the two social groups is how they are unlikely to spend a large fraction of their consumption on energy despite their very low and very high consumption levels, respectively. Conclusively, it is the middle-class segment on a global scale that is most adversely impacted by energy price inflation. This implies that in countries where low- and middle-income earners are the majority, rising energy prices will hit the wealthiest more than the poorest. On the other hand, in high-income countries where few households have daily consumption levels less than $5, the poorest will be hit the hardest by rising energy prices.

Rising energy prices, especially natural gas, in the second half of 2021 contributed to international food price inflation (Bednář et al., 2022). The pass-through effect of rising energy and gas prices in the food industry is multifold. Being a fuel-intensive process, agricultural production bears the rising costs incurred by price rises in energy almost automatically. Additionally, natural gas—a major import in the euro area—is a key element in the composition of fertilizers, therefore a rise in its price is immediately reflected in the final product. Lastly, rising transportation costs make the substitution of commodities from remote areas more costly, and thus a worse-off conundrum. Ultimately, global fertilizer prices increased from already elevated levels, leading to a 200% spike relative to two years earlier (Bednář et al., 2022).

According to the World Economic Forum (2022), the energy price spike seen in 2022 was the second highest since the oil shock of the 1970s. The WEF’s analysis of such theory goes back to the multiple factors that have caused the 2022 price hike. First, came the supply disruptions from the invasion of Ukraine. Second, were the rising demand levels for energy posing a threat for upcoming winter seasons that followed the war. Third, the low spare oil capacity countries had to deal with, and last were the climate-related pressures to transition to greener, more sustainable sources of energy. What distinguishes the 2022 energy spike is that prices soared across all fuel derivatives. In March 2022, the United States sold a record one million barrels of oil per day from its reserves to make up for the insufficient provisions in local markets. Compared to the price shocks of 1979 and 2008 that were more isolated in terms of their impact, in 2022 countries like Germany and the Netherlands resorted to coal to make up for oil supply disruptions, while natural gas prices hit record high (World Economic Forum, 2022).

The rise in oil prices is a clear threat with multiple side effects as it triggers global inflation, slows down global economic growth, and of course, raises food insecurity and social unrest. In 2022, inflation became a global phenomenon impacting 100% of advanced economies and 87% of emerging markets, as recorded by the World Bank (World Bank, 2023). By contrast, two-thirds of advanced economies and just over half of emerging markets experienced inflation above target in 2021. In the same year, energy price shocks added greater headwinds to global growth prospects. Global growth projections for 2023 bore dim scenarios where percentages halved, and contractionary macroeconomic policies did not make expectations any greener. Subsequently, energy price spikes, tightened monetary policies, and COVID-19 continued lockdowns in China negatively impacted global growth expectations and put more pressure on policymakers to ease the way forward.
<table>
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<tr>
<th>Countries with Inflation above Target</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>April-22</th>
</tr>
</thead>
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<td>Emerging Markets &amp; Developing Economies</td>
<td>5%</td>
<td>20%</td>
<td>55%</td>
<td>87%</td>
</tr>
<tr>
<td>Advanced Economies</td>
<td>9%</td>
<td>8%</td>
<td>67%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: World Economic Forum

With respect to the impact of energy and food prices on food security, it would be unfair to claim that they are the only factors to blame. Even before the price shocks on energy and food occurred in 2022, global food insecurity was mounting due to COVID-19 lockdowns and supply chain halts. Food shortages were evident at the height of these lockdowns and millions of households were prone to face acute food insecurity.

There is no doubt the “physical and economic capability of people to access sufficient, safe, and nutritious food to meet their daily dietary needs and food preferences for an active and healthy life” during the previous crises, were adversely impacted (Headey & Hirvonen, 2023). The four dimensions of food security, (availability, accessibility, utilization, and stability of all the above) are essential, yet they need supplementary elements such as sustainability and agency to guarantee the progress towards sustainable food systems to achieve Sustainable Development, particularly goal number 2. Based on the FAO, the spread of wars, natural disasters, health crises, and social unrest are drivers of food insecurity on a global scale. The eruption of the Russia-Ukraine War revealed how two food-export powers caused widespread anxiety among their food customers and led to direct threats of food insecurity. Exportable products concentrated in a few countries – as in this scenario – intensify the vulnerabilities of such nations. According to the International Food Policy Research institute (IFPRI), the war led the world to face a period of volatile and rising food and commodity prices similar to levels witnessed in 2007/08 and 2010/11, and added to pandemic-related disruptions at a time when high levels of poverty and income inequality put healthy diets out of reach for three billion people worldwide (Abay et al., 2022).

To make matters worse, in April 2022, IFPRI traced the food and fertilizer export tracker – first released in 2020 – in response to the trade restrictions that began to emerge back then. As early as 2020, governments implemented export restrictions to secure their food supply and meet domestic demand. This behavior resurfaced as the war began and left food-importers at risk of hunger and food insecurity. For example, in October 2022, China decided to ban exports of corn starch signaling concerns over its local supplies. Likewise, in India, when a month earlier it imposed an export tax on food grains – including wheat and rice – due to inadequate rain that negatively affected seasonal harvests. Within three months of the war, the number of countries – including Russia itself – imposing export restrictions rose from 3 to 16. Notable export bans by country traced in April 2022 included, but were not restricted to, the following: Indonesia (ban on palm oil exports), Argentina (ban on beef exports), and Turkey (bans on a variety of grain products). It is crucial to clarify that many export restrictions were not absolute bans, but rather taxes or other transaction costs that raise the prices of commodity imports but do not prevent them per se. These kinds of restrictions raise commodity prices and are preferential to outright bans that effectively remove those supplies from global markets.

Growth in the GCC food market over the years was due to the growing population in the region and better-informed individuals on healthy eating habits, both of which raised demand for food consumption in general. Although the market growth in the GCC faced similar challenges experienced by Middle East and North African (MENA) countries, such as soaring food and energy prices, supply chain disruptions, lockdowns, unfavorable climate conditions
and persistent reliance on food imports, the fallout was not as profound. One key feature present across GCC countries is their attempt to effectively capitalize on their capacity to employ technological advancement to their favor, particularly with respect to improving food security and raising food production. Reasons behind evident growth in food production were due to initiatives launched by GCC governments to endorse food production. For example, the use of artificial intelligence and other technology-enabled processes mitigated food security concerns across the GCC. Hence, despite surges in commodity prices, the outlook for GCC countries appeared more positive. Even with high reliance on food imports, GCC countries are considered more food secure as per the Global Food Security Index (Economist Impact, 2022).

It is worth noting that twelve percent of all imported goods in the GCC are food commodities, with Kuwait and Saudi Arabia having the highest shares of food imports. GCC countries import about 85 percent of their food consumption, with cereal imports accounting for over 90 percent of the total, whereas all rice consumption is imported. To maintain food security levels, GCC countries launched initiatives such as financial exemptions and credit facilitation to farmers and agri-businesses. They also launched policy measures involving subsidies and price controls for selected food items, wheat, and other cereals. Triggered by the COVID-19 lockdowns, the council of gulf states collaborated to create a common food supply network to cushion them from similar supply shocks in the future. They also embarked on establishing inventory and storage facilities to help avoid extreme situations in the future.

In 2022, the Ministry of Climate Change and Environment (2023) proudly announced that the United Arab Emirates (UAE) was on top of the Index relative to its MENA counterparts, and compared to its third place just a year earlier. According to the index, the UAE ranked first amongst MENA countries in the overall food security index and in the food availability indicator, second in food quality and safety, and fifth in food sustainability and adaptation as well as affordability (MOCCAE, 2023). Being a strategic and national objective of the country, the UAE adopted an integrated approach embedded in a National Food Security Strategy to be fulfilled by 2051. From a global standpoint, the UAE ranked 23rd in the overall food security index, seventh in food availability, and 16th in food safety and quality. The country scored 75.2 points on the general scale of the 100-point index, compared to 71 points recorded in 2021, registering growth by 4.2 points.

**Figure 4: GCC Food Security Overall Scores, 2022**

![GCC Food Security Overall Scores, 2022](image)

Source: Economist Impact data; and IMF staff calculations based on the Global Food Security Index (GFSI) 2022.
Based on the Global Food Security Index (GFSI) released in 2022 (Economist Impact, 2022), the report showed how the overall food security environment continued to deteriorate for the 113 countries in the index. The biggest strides in the index were witnessed in 2012-2015 where improvements recorded a 6 percent increase on average. Unfortunately, slower improvements prevailed after 2015 and worsened further after 2019 as the world faced highest-ever food prices and hunger. The drop seen in 2022 was attributed to hits in two of its most crucial pillars – affordability, and food quality and safety – whereas availability and sustainability continued to weaken. Affordability alone fell by 4 percent in 2022, from 71.9 to 69 between 2019 and 2022 as shocks like COVID-19 and the war led to rising costs of food. Furthermore, weakening trade facilitation and an inability to finance safety nets for the most vulnerable made it harder for the latter to secure food for their families (Akter, 2022).

The confluence of these issues has weakened the overall resilience of the world’s food system. Availability of food, accessibility and sustainability of the environment all contribute to how vulnerable food systems can be. Stakeholders and policy makers recognize the importance of reassessing the resilience of the food industry infrastructure that supports farmers and consumers alike. More attention has been given to political and social barriers that jeopardize food security particularly to vulnerable societies and social groups. According to the GFSI, production bottlenecks hit food systems negatively especially when systematic inequalities in the system prevail. For example, women are considered key contributors to the agricultural sector, yet despite their key role, are marginalized and not given the status they deserve. Their weak status is manifested through 1) the inadequate channels to raw materials they face on a daily basis, 2) the lack of social and financial inclusion they miss out on, and 3) the absence of strategic agencies to empower them. The confluence of these impediments drives down their food security and makes them the most fragile in the face of crises. The average score on the “Empowering women farmers” metric among the 113 nations in the 2022 GFSI stood at only 28.3, and few countries have a national policy to support women and improve their access to inputs even as shocks threaten the system. The GFSI showed how social and political barriers to access impede progress in food security. This has led to over-reliance on food aid and stifles any progress with respect to the attainment of related SDGs.

Review of Literature

Inflation has always been a major nuisance for economists and policymakers, and with the volatility of food and energy prices happening around the world, updated evidence is needed to identify their real impact. Variations in inflation across advanced and emerging markets raise questions about the different triggers behind each, and how differing economies act and react accordingly. The GCC region was not immune to drivers of inflation commonly found in more advanced markets, yet the impact certainly resonates differently. As a start, in November 2022, the inflation records for the GCC nations stood strikingly diverse as follows: Qatar 6.5%, whereas Bahrain recorded a -0.4% deflation. Both Oman and Kuwait reported an average of 2.2% when weighed using 2020 non-oil GDP, which was the highest since 2018 (PwC, 2022).

Empirical studies that provide underlying knowledge and common facts on the topic of inflation and its main drivers are plentiful. However, the unique characteristics of emerging and developing markets render themselves valuable and possess ample room for further research and investigation.

According to the literature, inflation is mainly a monetary phenomenon driving prices upwards due to a collection of direct and/or indirect elements in these countries (Asfuroğlu, 2021; Ben Hassen & El Bilali, 2022). However, the significance of these determinants depends on the countries themselves and the periods in which they are examined. Furthermore, the obstinacy of inflation often implies a backward-looking behavior in the dynamics of these
countries. Conclusively, the importance of domestic determinants in understanding inflation has shifted towards external ones implying a greater role for global determinants in the last two decades.

According to Kinlaw et al. (2022), eight economic variables help clarify what elements drive inflation. These include cost push, demand pull factors, inflation expectations, and fiscal and monetary policies. Kinlaw’s methodology verified how the relative importance of the variables is not constant in terms of their impact on inflation rates. For example, in 2022, it was observed that expansionary fiscal policies rendering increases in government spending were the most prominent determinants of inflation in a particular environment. In others, and depending on the circumstances, inflation expectations had a more direct effect.

Cottarelli (1998) examined inflation fluctuations in a sample of industrial and transition economies by studying how policymakers attempted to induce inflation. The study found a significant impact of fiscal deficits on inflation, especially where securities markets were not fully developed. Other determinants identified included the prevailing unemployment rate, trade and price liberalization, private sector involvement in economic activity, central banks’ autonomy, and exchange rate regimes.

An empirical study by Morsy and Kandil (2009) focused on the determinants of inflation in GCC countries. The study encompassed both domestic and international factors with potential impact on GCC economies that were witnessing inflationary pressures since 2003. From the Gulf context, it seemed that the inflationary stances in major trading partners created substantial pass-throughs in them. In addition to inflation in major trading partners, oil revenues catalyzed inflation through growth of credit facilitation and aggregate demand spikes. To meet the rise in aggregate spending, Gulf states pushed government expenditures to address supply shortages, adding to the inflation mix along the way, particularly in the short run. However, long run data shows easing of inflation alongside increases in government expenditures.

On a similar note, Alharthi (2019) shed light on similar research that explored drivers of inflation in the same region. According to Alharthi, the GCC’s main inflationary triggers revolve around foreign direct investment influxes (having an inverse effect on inflation), oil price surges, and corruption. Alharthi’s study targeted the period between 1996 and 2016 and thus did not overlap with the ongoing Russia-Ukraine War. Nonetheless, the time span his study explores witnessed major crises such as the food price inflation in 2003, the GFC in 2008, and the Asian stock market collapse in 1998-1999. In his research, he argues that GCC governments tapped on their manufacturing potential to address basic goods’ shortages instead of relying heavily on imports, something that has not been ratified by officially published statistics just yet. According to the literature available, the importance of keeping inflation under control in the GCC is directly linked with the region’s economic stability and attraction of investors.

Alsheikh and Rana (2021) examined the determinants of inflation in the GCC region from a different standpoint. In their narrative, money supply and GDP growth stood as independent variables with direct impact on inflation, the dependent variable. Their findings coincide with those presented by Osman et al. (2019), whose empirical Auto Regressive Distributed Lag model (ARDL) applied in the Kingdom of Saudi Arabia between 1980-2018 confirmed how, in the short run, inflation is affected by oil price hikes and real GDP growth, whereas in the long run it is affected by broad money supply and world inflation rates. The study acknowledged how the Kingdom witnessed unprecedented inflation rates starting the year 2000 up to 2008 when it hit the highest figure (exceeding 9.8 percent). This was attributed to a collection of internal and external reasons such as raising reserve requirements in 2007-2008 four consecutive times after twenty-seven years of stagnant rates, as well as the decline in worldwide stock markets and shocks in food and oil prices in the same period.
Basher and Elsamadisy (2012) found similar results pertaining to the GCC. These confirmed the positive causality between money supply and inflation in both the short and the long run. In the long run, foreign prices and nominal effective exchange rates explain inflation better.

Islam (2022), in agreement with others, highlighted how GDP and broad money supply are major influencers of inflation. His study also confirmed that export and import growth along with rising population densities add to the pressures of inflation. Subsequently, despite the varying levels of impact from each of these determinants, the study confirmed how price hikes are immediate reactions to their fluctuations.

These findings align with those of Nusair (2019), Alsamara et al. (2018), and Köse and Ünal (2022) who identified how increases in oil revenues from rising oil prices have a positive effect on inflation while a drop in them has an insignificant or negative effect. They explored the influence of import costs on the inflation bill of the GCC between 1994-2014 and concluded that price rises respond to shocks in import expenses rather than to drops in them.

Although there are some common themes in the factors driving inflation, there is also considerable divergence. Al-Jundi (2012) investigated the causes leading to rising inflation in the United Arab Emirates particularly during the decade witnessing the Global Financial Crisis (GFC). The investigation led to the conclusion that rapid growth of money supply, excessive aggregate demand and overdependence on imports as a ratio to GDP were the core determinants of soaring prices. The study delved into the components of the Consumer Price Index and shed light on the three major components bearing the heaviest weights.

Samal et al. (2022) addressed determinants of inflation through a micro lens as their work explores the topic with respect to food prices. Their work emphasized the role of macroeconomic factors, in an Indian context, on food price inflation utilizing the ARDL model as in similar empirical research, and they tested for co-integration. Their main findings confirmed that per capita income, money supply, global food prices, and agricultural wages were positive and significant triggers of food price inflation in both the short and long run. Interestingly, availability of food grain was found to have a negative impact on food price inflation, whereas, in the short run, exchange rate had a positive one. Ultimately, a unidirectional causality was found to run from global food prices to domestic ones, while no causal relationship was confirmed between money supply and agricultural wages to food price inflation in the short run. However, the Granger-causality relationship between real exchange rate increases and food price inflation was confirmed showing how depreciation in the former fueled the latter due to increases in petroleum and fertilizer imports and other agricultural commodities. The rising imports of such inputs promoted food price inflation and accordingly the Indian government announced its inclination to endorse domestic agricultural production to meet local demand and reduce its dependency on external sources.

Baltzer (2014) and Headey and Hirvonen (2022) attempted to articulate solid evidence of price transmission from international markets to domestic ones—the 2007-2008 food crisis experienced by fourteen developing countries. In this study, the investigation involved three grain commodities: maize, wheat, and rice. Results showed that world food price transmission varied across the countries depending on each one’s local macroeconomic arena. For example, local stabilization policies, market imperfections, and poor market integration varied across the countries studied, hence contributing to the apparent variations in the degree of price transmission.

Materials and Method
This study relies mainly on data from the Dubai Statistics Center (DSC). DSC computes many indices such as Consumer Price Index (CPI), Producer Price Index, Industrial Production Index, Foreign Trade Index and Construction Cost Indicator. Dubai CPI, which measures the
periodic changes of goods and services prices during a specific period of time. It is computed monthly and published by the DSC (DSC, 2023). The household budget survey acts as the primary data source for deriving Dubai CPI weight. The survey is conducted every six years, and accordingly the weights are updated at least every six years. Readers can consult the DSC website for methodology details. In household expenditure, goods and services do not possess equal importance nor equal weights. Some items are more important than others and carry greater weight. Hence, price fluctuations for the more important items tend to have greater influence on the average rate of price change. The importance of goods and services in the CPI is determined by the relative amount of personal income spent on them. Prior to January 2022, Dubai’s main CPI components that had a base of 100 for 2014 were housing (44% of the total weight), food and soft drinks (13%), and transportation (11%). Similarly, education accounted for 8.5%; miscellaneous goods and services 5.6%; furniture and household goods 3.7%; communications 5.2%; restaurants and hotels 4%; recreation and culture 5.6%; textiles, clothing, and footwear 2%; medical care 0.8%; and beverages and tobacco 0.3%. Updating weight is a critical process in capturing consumer expenditure patterns or preference. If weights are unchanged over longer periods, the CPI will not reflect the substitution effects or the demographic and technological changes. The Dubai CPI is dominated by three components: food, transport, and housing. Together, they represent more than 60% of consumer spending in Dubai. In 2021, the DSC updated the consumer expenditure shares as shown in the figure, and also modified its CPI base year to 2021. The weights of housing, transportation, and food have declined in the 2021 consumer basket; thus, the weight of the 3 elements combined have contracted from 67% in 2014 to 61.6% in 2021. In fact, the process of updating weights in 2021 makes Dubai CPI less sensitive to the high energy and food prices propelled upwards by the Russian invasion of Ukraine, as their relative importance declines in the index.

**Figure 5: Dubai CPI Weights**

![Bar chart showing Dubai CPI weights](Source: Dubai Statistics Center)
The food and beverage division in the city’s CPI is made up of the prices of the following goods: bread and cereals; meat, fish, and other seafood; milk, cheese, and eggs; oils and fats; fruits and vegetables; sugar, jam, honey, chocolate, and confectionaries; food products N.E.C.; tea, coffee, and cacao; and mineral water, soft drinks, and juices, while the transport item on the CPI basket is made up of fuel prices, passenger transport cost (air, road, rail), motor vehicles, and their spare parts. However, fuel prices have the largest weight on the transport item, which is around 40% of the transport division.

We can find out which items are driving the city’s inflation by applying the following contribution approach which allows an element-by-element analysis of the CPI to determine the drivers of the accelerated inflation.

\[
w_i \times \frac{p_i^{t-1}}{CPI_{t-1}} \times \frac{p_i^t - p_i^{t-1}}{p_i^{t-1}}
\]

(1)

Where \(w\) is the weight of item \(I\) in the CPI basket adjusted by the ratio of the price of the item \(i\) at \(t-1\) over the CPI index at \(t-1\): \(\frac{p_i^{t-1}}{CPI_{t-1}}\) times the year-on-year inflation on item \(i\): \(\frac{p_i^t - p_i^{t-1}}{p_i^{t-1}}\).

Clearly, the larger the weight of any item in the CPI basket, the larger it will be its contribution to inflation. However, the city’s statistics center has re-referenced it to CPI index to 2021=100. Therefore, it is necessary to create continuous time series data and re-referencing the historical data to 2021=100. We re-reference the CPI historical data to 2021=100 using the following formula:

\[
CPI_{2021=100}^t = \frac{CPI_{2014=100}^t}{T/12} \times \sum_{k=Jan2021}^{Dec2021} CPI_k^t
\]

(2)

**Results**

The analysis focuses on the year 2022, as it is the year of the Russian war and the inflation surge. We perform the contribution analysis on the quarterly inflation data covering the year 2022 and the findings of the contribution approach are presented in the figure below. Figure XYZ shows the absolute contribution of the main items at the CPI basket. The figure indicates that the headline inflation has been surging over the first three quarters of the year and reached its peak at the third quarter of the year 2022, after a year of deep deflation. The accelerated inflation is associated with the global rally in commodity prices caused by the Russian invasion of Ukraine. The headline inflation decelerated in the last quarter of the year to 4.80% in line with the slide in the commodity prices to the pre-war levels. In the first half of the year, the housing item had a deflationary effect on the headline inflation given the oversupply in the real estate market, which helped to keep the overall inflation contained in the first half of the year during the global rally of the commodity prices. Thanks to the rebound in the city’s economy and the growth in the city’s residents with the influx of new residents, the housing item contributed to the inflationary pressures in the second half of the year. In the last quarter, the housing component turned into the biggest contributor to inflation, reflecting its relative importance in the index and the strength of the aggregate demand in the economy.

In spite of its modest weight, the figure clearly shows that the transport item was the main driver of price levels in the first nine months of the year. For example, out of the 2.63% inflation in the first quarter of 2022, 2% is coming from the transport element. With the rise in oil prices, the absolute contribution of the transport component expanded in the second quarter to 2.8%, while its relative contribution shrunk as the inflation became more broad based. Additionally, the impact of the increase in energy prices on consumers is not only limited to its
direct contribution to the transport component in the consumer basket, but also through its indirect impact on the prices of final goods and services, as it is a major input in the production process. In the fourth quarter of the year, oil prices moderated to pre-invasion levels, decelerating inflation in the transport element.

The food element represents a relatively small weight (11.6%) in the consumer basket, in comparison to countries of the region, reflecting the higher standards of living. For example, in Egypt food items had an effect of 40% on the CPI. As shown in Figure 6, the contribution of the food element to the city’s inflation remains moderate. Analyzing inflation, numbers suggest that higher global food prices fed through to inflation numbers in the second quarter to the third quarter of the year before it slid down in the last quarter of the year.

It surged from -1.95% in Q3-2021 to 4.81% in April-May 2022. The contribution of transport to headline inflation is significant. In Q3-2021, its contribution to headline inflation was around 1.5% but as the housing component in Dubai’s CPI faced deflation between 2019 and 2022 (of approximately 3.5%) which helped to keep the headline inflation in the negative territory. With the rise in oil prices, the contribution of transport expanded in Q4-2021 to 2.2%.

Table 2 presents the relative contribution of each element in the CPI basket. The table shows the inflationary pressures stemming from the transport component during the first nine months before they fade in the last quarter of the year. The table results refute the hypothesis that Dubai’s inflation is a food driven one. There are two potential explanations: first, as discussed, is the small weight of food and beverages in the CPI basket. The second is the strong dollar/dirham as the UAE pegged its currency to the dollar, which may reduce the import bill. The deflation in the housing item kept inflation contained in the first half of the year. Yet, as the city’s economy rebounds, the influx of new residents pushed up the rents in the second half of the year. Fortunately, the economic rebound coincided with the slowdown in commodity prices keeping inflation in a single digit number. Finally, the significant weight (40%) of the housing item in the consumer basket hides the trends in the other CPI elements, which can simply go unnoticed when looking at the headline numbers.

**Figure 6: Absolute Contribution (in percentage points)**

![Figure 6: Absolute Contribution (in percentage points)](image)

*Source: Authors’ Calculations*
Table 2: Relative Contribution (in percent)

<table>
<thead>
<tr>
<th>Item</th>
<th>Q1-2022</th>
<th>Q2-2022</th>
<th>Q3-2022</th>
<th>Q4-2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverages</td>
<td>26.0</td>
<td>20.3</td>
<td>14.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Tobacco</td>
<td>0.1</td>
<td>0.1</td>
<td>0.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>Clothing and footwear</td>
<td>10.7</td>
<td>1.5</td>
<td>4.7</td>
<td>7.2</td>
</tr>
<tr>
<td>Housing, water, electricity, gas</td>
<td>-45.2</td>
<td>-4.9</td>
<td>12.0</td>
<td>36.4</td>
</tr>
<tr>
<td>Furnishings, house equipment</td>
<td>1.3</td>
<td>1.7</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Health</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Transport</td>
<td>74.4</td>
<td>56.6</td>
<td>45.8</td>
<td>20.5</td>
</tr>
<tr>
<td>Communication</td>
<td>3.2</td>
<td>1.6</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Recreation and culture</td>
<td>5.6</td>
<td>12.5</td>
<td>15.4</td>
<td>11.6</td>
</tr>
<tr>
<td>Education</td>
<td>0.0</td>
<td>0.6</td>
<td>0.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Restaurants and hotels</td>
<td>14.1</td>
<td>5.6</td>
<td>5.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Miscellaneous goods and services</td>
<td>9.6</td>
<td>4.5</td>
<td>-2.3</td>
<td>-4.4</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations

Discussion and Conclusion

Prior to the current Russian invasion of Ukraine that started in February 2022, supply-side bottlenecks from the global pandemic crisis aftermath were slowly disappearing and international demand was just about displaying a promising comeback when the tension broke. Once again, the global economy was hit by another huge shock wave of supply shortages, only this time in strategic commodities such as food, staples, vegetable oils, and fuel prices. The War in Ukraine and the accompanying economic sanctions most certainly exacerbated inflation and the cost-of-living faced by many countries, especially in the Global South. There is no doubt that some countries are suffering the blow more aggressively than others, depending on several factors such as the availability of social safety nets (SSNs), the dependency on Ukrainian cereals, the presence of food and energy subsidies, and the privilege of a fiscal space that allows governments to stretch their spending schemes according to their own priorities.

The focal emphasis in this study was inflation in the emirate of Dubai that surged in 2022 after deep deflation in the previous years. This confirms that the Emirate is not entirely immune to global inflation arriving with rising global commodity prices, despite being part of the GCC oil producing cartel. Using the contribution approach and the official inflation numbers for the year 2022, this study identified the direct contribution of food and transport components and whether they were the inflation drivers. According to the IMF, low-income countries devote a substantial 44% of their consumption to food expenses. In the case of Emerging Markets (EMs) and more Advanced Economies (AEs), percentages stand at 28% and 16% respectively for the same component. Therefore, food inflation will be more painful in global south countries.

Our findings suggest that inflation in the food component of the Dubai consumer basket was not a major contributor to the accelerated inflation and hence played a minor role (see table 1). There are a number of potential explanations for this finding: first, the strong performance of the UAE currency (pegged to the US dollar) eased the inflationary pressures. Second, unlike the case of developing countries, the weight of the food component in the consumer basket is relatively small (less than 12%). Thus, our findings refute the hypothesis that inflation in Dubai is a food driven one.
The transport component has been the main driver of inflation in Dubai, especially during the first three quarters of the year 2022 before its effect eased in the last quarter of the year. For example, the transport item explains about 75% of the first quarter inflation and more than 55% in the second quarter inflation. There is no ambiguity as inflation in petrol prices exceeded 90% on a year-to-year basis in the summer of 2022 as the pricing of petroleum products is adjusted based on global prices. Beyond its direct impact, the impact of petrol prices also affects other items in the consumer basket, as it is a key input in the production process. We accept the hypothesis that transport costs have been the main driver of the inflation in Dubai in 2022. Our expectations are that the housing cost will play a major role as an inflation driver in 2023 given its large weight and the pressures that are placed on the rental market in Dubai with an influx of Europeans who want to avoid the armed conflict and its consequences.

In the UAE, policies are being implemented to mitigate inflationary pressures. The government has taken drastic measures to mitigate the impact of the war, as it has done in countering the impact of the COVID-19 global crisis. In terms of inflation, the government has instituted several methods to mitigate and lessen the rise of prices in essential commodities. In addition to general subsidies the government provides in staples, it has taken two essential strategies. First, it provides subsidies to UAE nationals with limited income. Second, it controls prices on nine essential consumer products. Included in the Inflation Subsidies are those households of nationals with a monthly income of less than 25,000 AED monthly (equivalent to $6000), in addition to widows, divorced and custodian mothers of income less than 25,000 AED. Also, senior non-married citizens, and widowed women over the age of 45. Moreover, the following commodities are fixed at affordable prices: cooking oils, eggs, bread, wheat, milk, rice, sugar, chicken, and legumes.

This study is not free from limitations on the current analysis. One arises from its purely descriptive nature, revealing Dubai’s inflation drivers. Thus, causal effects—such as the war in Ukraine that pushed inflation by a certain percentage point—cannot be obtained from it. Nevertheless, the analysis may guide policy makers to develop mitigation measures to deal with the cost-of-living crisis.

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