

Impacts of the Ukraine Conflict on Energy and Food Shortages & Price Increase in UK and EU

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Abstract. The presence of Russia-Ukraine war impacts world's energy and food markets and influenced the world's economy directly. UK & European Union suffered a lot due to this war's impacts. UK and EU's energy and food market fluctuated, which affected UK and EU's inflation rate skyrocketed and a significant increase on the cost of living. The reasons caused the high inflation rate, and the increasing cost of living can be seen as a basic supply and demand issue. The core inflation products are the key that determines the rate of inflation as well as the cost of living. While there are less supplies of energy and food to the market and demand remains the same, the price of them increases, which caused inflation rate and daily essential expenses to rise. Through research and deductive reasoning, the impacts that Russia-Ukraine war guided UK and EU's economy to worsen, and the cost of living (which represents people's daily expenses) to increase rapidly.

Keywords: Inflation; cost of living; CPI; interest rate.

1. Introduction

The Russia-Ukraine war happened on February 24, 2022, which the armies of Russia quickly invaded Ukraine. The consequence of this war has a direct impact of the world's economy. Due to the war that Russia imposed on Ukraine, lots of countries such as US, UK, and their allies set embargos and sanctions to Russia.

Often, people might thought the influence of this war would be limited in a specific region, the impacts of this war can only be regional not global. However, due to Russia and Ukraine's significant contribution to food and energy supplies, the actions made by the involviing countries made the global economy and market to flucuate. The world's supply chain got disturbed, made core inflated products and their derivative products as well, caused serious inflations in some countries and made some companies related to bankruptcy. European Union, as a group of countires that imports majorities of their energy supply from Russia was severely influenced. And UK, a developed country that is not a part of the EU, and doesn't have lots of connections with Russia, was effected in a certain extent as well.

Since this is a new topic, there are lots of blank spaces about this topic waiting to be filled. This topic can be analyzed in both complicated and simple ways, and there are tons of different perspectives to analyze, doesn't matter from the main participants' (US, Russia, Ukraine etc.) perspective or from the relative bystander perspective (China, Kenya etc), people need these perspectives to understand this topic. Hence, it is worthwhile to find the reasons and use basic concepts to explain the impacts, so more people can understand why would the economy fluctuate so much, and how to improve the current condition by using which method.

By researching and analyzing this topic can enhance people's understanding about how the concepts of supply and demand can influence the world's economy. Inflation and the cost of living are the two common phrases people talked about, which do not require lots of academic backgrouds to be familiar with them. A very simple but practical model "Supply and Demand" model, is well presented in terms of impacts the war brought to UK and EU. It would be interesting to discover the reasons of the high inflation, and some actions governments took to minimize the impacts. This is very meaningful since this is a new case study that can be analyzed through simple models and concept, may let more economic beginners to understand some concepts further and develop some critical thinking skills. The three perspectives- inflation, cost of living, and interest rate-indicate two analytical directions, analyzing with the causes and impacts (inflation and cost of living), and

analyzing with the instrument to solve the impacts (interest rate). In this analytical method, people can use both deductive reasoning and inductive reasoning to understand the logic behind this topic, because people can follow the analysis by going it through step by step. After that, when they finished and look over again, they can put the ideas together like puzzles, to have a big clear picture about this topic and understand this topic in detail.

2. Inflation & Cost of Living

2.1 Inflation & Cost of Living in UK

UK's inflation rate increased from 0.7% to 5.4% last year. The cause of this increase was due to the COVID-19 strike and climate impacts. Currently in 2022, the inflation rate reached 10.1% and was predicted to reach higher figures. This increase in inflation rate was mainly due to increasing oil and gas prices, rising cost of transportation, shortages on raw materials (so caused an increase on price), and increasing price of food products (caused by shortages). Russia-Ukraine war sped up the increase of core inflation rate in UK due to energy and food supply shortages the war brought. Last year, UK imported 4% of gas, 9% of oil and 27% of coal from Russia for energy [1]. Now due to political issues, the UK imported none of these from Russia at all. However, the war's impacted most of the world's energy supply which directly caused the price of energy and food products to rise rapidly in a short period of time.

As presented in Figure 1, the CPI for all items in UK rose over 6% in 6 months' time, but in Figure 2, the CPI for all items excluding food and energy (core inflation products) only rose by 3%. The comparison of the two Figures indicates how severe the impact that core inflation products brought to UK, 3% more increase on the CPI scale that is. The reason for this is the same as mentioned in the last paragraph, which is energy and food supply shortages caused by war.

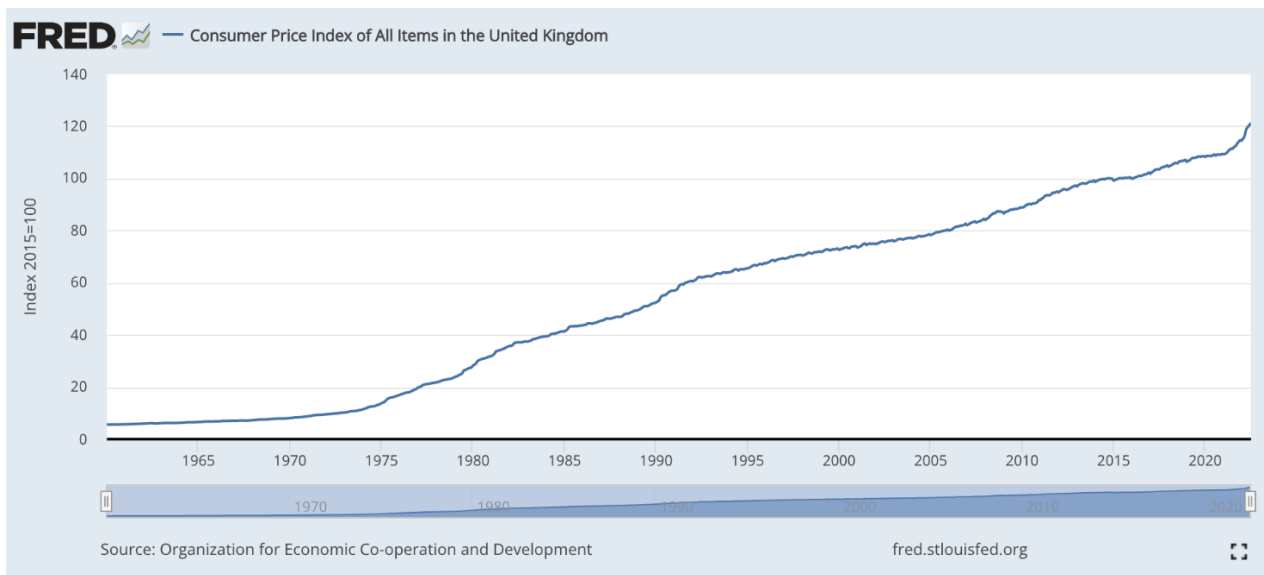


Fig. 1 CPI for all items in UK [2]

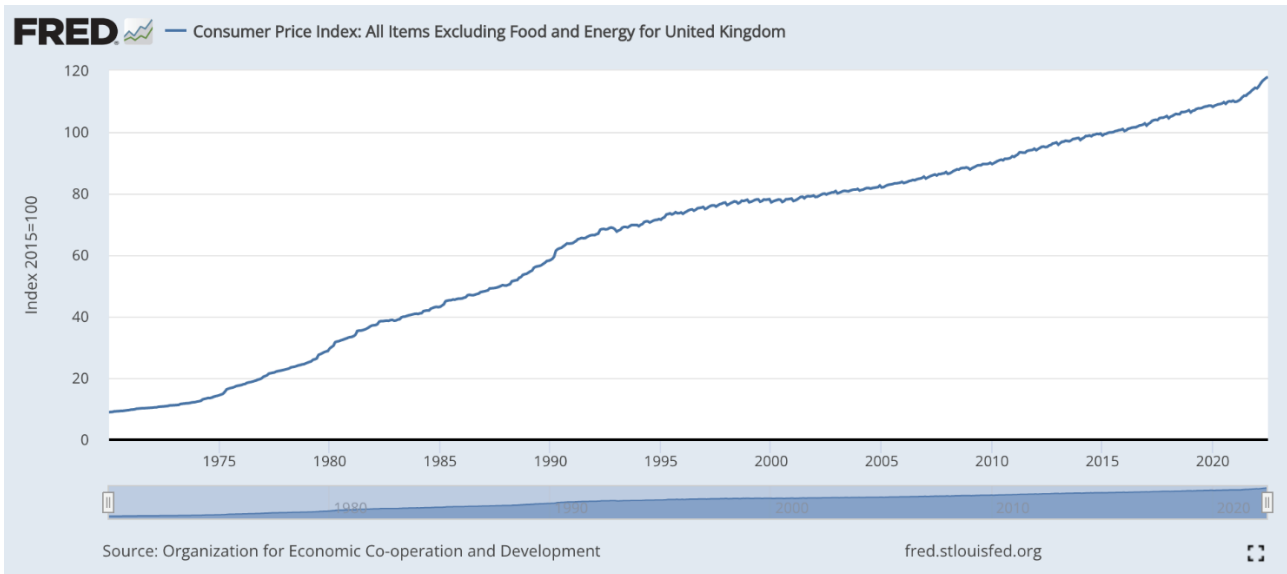


Fig. 2 CPI for all items excluding food and energy for UK [3]

The two main reasons for UK’s food market to suffer are from the domestic supply side (farmer) and import side. The cost of growing crops increases due to the fact that Russia provides lots of the raw ingredients to produce fertilizers, and the fuel needed to produce fertilizers. The shortage and rising cost of fertilizers made farmers to grow less crops, which caused a decrease on the domestic supply of food to the local UK food market, and increased prices on the food products as well. Regarding to the import side, there is a huge amount of portion of the food import missing since Ukraine and Russia are responsible for 60% of the world’s sunflower oil and more than 20% of world’s wheats supply. Therefore, UK must import from the rest 40% of the sunflower oil market and 80% of rest 80% of the wheat market to purchase these two products. The sunflower oil plays an important role in the rising price of the food market because it is very essential to produce some common food products.

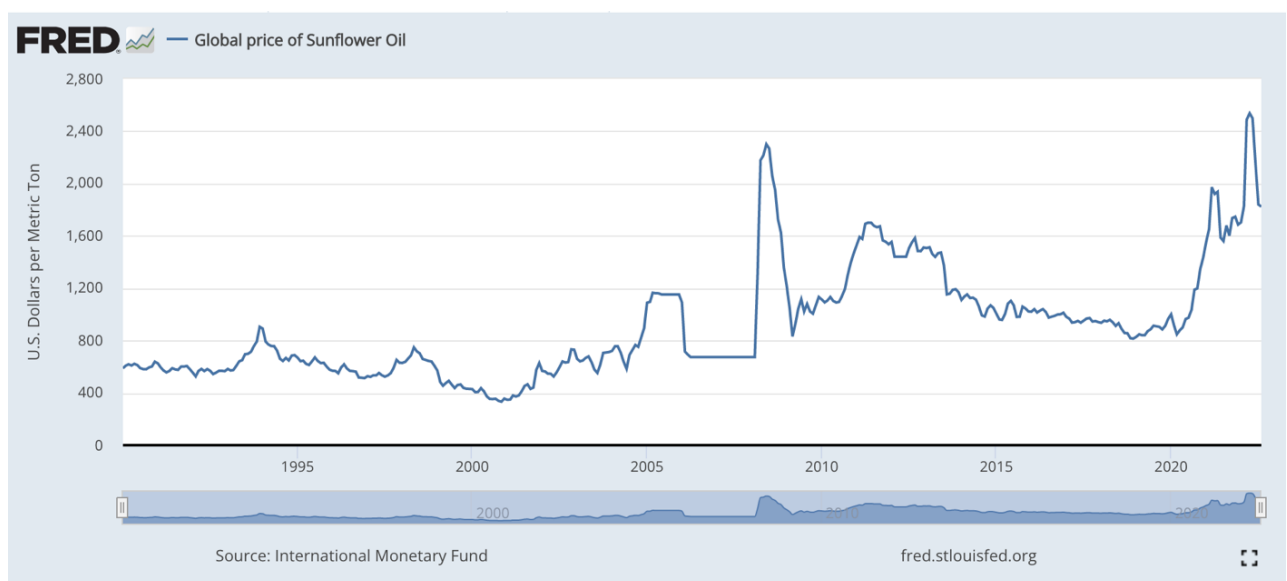


Fig. 3 Global price of sunflower oil [4]

As shown in Figure 3, sunflower oil price was about 1700 dollars per metric tons but now it’s over 2100, experienced an increase that is more than 19%. Why would sunflower oil price increase (which is due to shortage) effect UK then? The data indicates that the demand of sunflower oil is steadily increasing, gradually reaching the level before COVID-19 [5]. But now due to the conflict, the supply

of sunflower oil decreased a lot (almost 60% as mentioned before). Sunflower oil is a key ingredient to produce mayonnaise, a crucial element for multiple food products. Mayonnaise is used in pizza, burger, and salad, which middle and low-income people would consume a lot in their daily life in order to decrease their cost of living. However, the increase on sunflower oil directly affected the price of food products that use mayonnaise, the increase on the cost has been transferred to the consumers, which led to the outcome that the cost of living of middle, low-income people increased significantly.

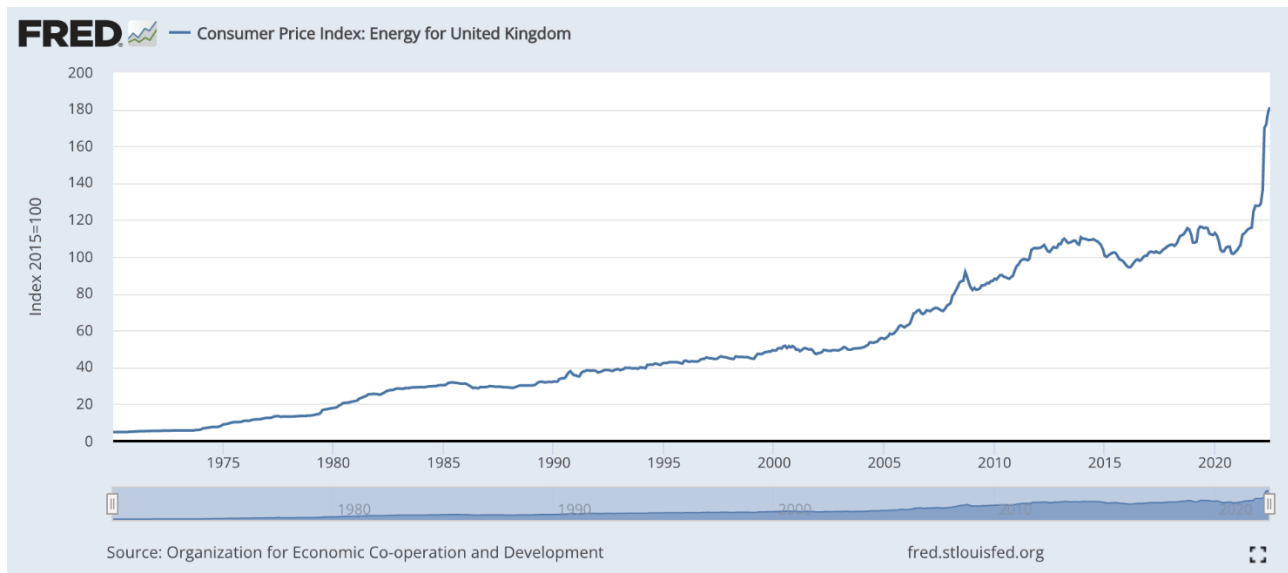


Fig. 4 CPI for energy in UK [5]

Currently, UK's natural gas supply to the market is severely below demand. 42% of the UK's electricity is produced by burning natural gas, which suggests that UK has to import more natural gas to make sure UK citizens' daily needs [6]. Even though UK only imports 3% of natural gas from Russia, but Russia holds approximately 24% of world's natural gas supply, and Russia limits its natural gas exports to the Western countries (sanctions) which pushed the natural gas price to a further level [7]. Thus, UK still suffers with the impacts of Russia-Ukraine War, presented by the CPI for energy rose over 20% from February to July (shown in Figure 4, 129 to 181). As a result, the cost of electricity increases by more than 50%, which added another economic burden on the UK citizens' cost of living. UK will soon enter the cold season, and the needs of residents using natural gas will increase a step further, how to ensure the daily electricity supply for all residents can be a tough question to solve.

2.2 Inflation & Cost of Living in EU

At the end of 2021, the inflation rate of EU was 5.3% and it went up to 9.8% in July 2022, experienced an increase of 4.5% on the inflation rate [8, 9]. As the statistics provided in Table 1 (which indicates the contributions to the euro area annual inflation rate), before the Russian-Ukraine war, the contribution to inflation that Food, alcohol & tobacco made was 0.90 on February, currently in July it was 2.08. This figure indicates how severe the effect that Russia-Ukraine war caused, 1.18% more on the inflation rate. The cause of this was mainly due to lacking food supply from Russia and Ukraine, the food prices rise rapidly. Hence, this will lead to a significant increase in on the costs for EU users on food expenditure, and a decrease in the real purchasing power of downstream purchasers (EU, Middle East and African countries). In other words, this will cause a currency depreciation on EU, and this process is called imported inflation.

Same thing goes for the energy as well. Due to the fact that Russia currently supplies 27% of the EU's imported oil and 40% of its gas, EU has a huge reliance on Russia's energy supply. Recently, due to political factors, Russia increased the prices and reduced the amounts (compare to the time

period before the war) of its energy export to EU, the contribution to inflation that energy section made was 1.34 on July 2021, 3.14 on February 2022, 4.02 on July 2022, exceeds an increase of 2.68%. The energy inflation strikes even harder than the food inflation for EU and will impact the cost of living of EU residents to rise.

Table 1. EU inflation rate [9]

	Jul 21	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22
Food, alcohol & tobacco	0.35	0.90	1.07	1.35	1.59	1.88	2.08
Energy	1.34	3.12	4.35	3.70	3.87	4.19	4.02

The importance of the energy supply is huge for EU, because during wintertime, EU's residents would consume lots of energy to function their heating system. The cool season of EU lasts for 3.9 months, from November 21 to March 17, which means during this period of time, the demand of heating would rise to a very high extent. Maybe not all residents would consume heating for 3.9 months, but in the coldest month of the year in EU (February, with an average low of 37°F and high of 45°F) they must purchase the heating to keep themselves warm. This indicates the energy bill that EU pay would be a large number, especially when they are facing an energy supply shortage. Thus, the cost of living of EU residents would increase a lot due to the fluctuation of energy market in EU which caused by the Russia-Ukraine war.

3. Interest Rate

On the 5th of May, the Bank of England increased its prime interest rate from 0.75% to 1%. Currently, the inflation rate is over 9% which is a very high number, the high inflation rate decreases the purchasing power of British currency and increased the cost of living. Hence, the government must find a way to minimize the impacts of inflation, and to settle their residents. Thus, the Bank of England increased the interest rate to encourage British residents to spend less (in other words to save more) to cool the economy down, try to decrease the aggregate demand in order to decrease inflation.

The European Central Bank announced to increase their prime refinancing rate, marginal lending rate, and deposit facility rate to 1.25%, 1.5%, and 0.75% respectively [10]. The reason for this is to minimize the impacts of inflation and prevent inflation to rise further, which is the same as UK. The increase on the marginal lending rate discourages people to borrow more money from the bank, because this means they have to pay back more money to the bank, which helps to ease inflation by letting people to 'spend less'. Another interest rate, the increase on deposit facility rate, encourages people to save more to the bank, because this means people can have more money if they put their money to the bank now than before, which helps to ease inflation by letting people to 'save more'.

While people are saving their money to the banks, the demand on the market would be reduced. This can be explained by that when there is less money flowing in the market, this indicates there would be less trades happening, which decreases the aggregate demand. The cause of inflation is because there are too many demands, and the number of supplies cannot catch up to meet equilibrium. In this case, if the aggregate demand decreases, the supply remains the same, the inflation rate would be reduced. This is why the Bank of England, and the European Central Bank increased their interest rates.

4. Suggestion

Since the high inflation and cost of living caused by the war, UK and EU can use contractionary monetary policies and contractionary fiscal policies to reduce the impacts. As the central banks of UK and EU already increased their interest rates, UK and EU may further minimize the impacts by reducing the public expenditure, to decrease the aggregate demand to lower prices which slows inflation. By reducing money supply, so less demand would appear in the market, whereas the supply

stays the same, closer to the equilibrium point which slows inflation. To reduce the impacts of high cost of living, UK and EU can provide subsidies for their citizens on electricity bills, so people can be motivated (which ensures their working efficiency to some extent), and subsidies on purchasing the ingredients of fertilizers to encourage farmers to grow more crops, so there would be more crops on the food market which ease the price of some food products.

Moreover, the central banks may further reduce the interest rates to let more people to save their money, to decrease inflation and cost of living in a shorter period of time, and the governments can increase taxes in some criteria (that won't let the majority to reject) to decrease inflation as well. By following the demand side policies (fiscal and monetary) to reduce the aggregate demand, and by following some supply side policies (subsidies) to increase the aggregate supply, the UK and EU market can reduce inflation in an efficient way. While the inflation got reduced, the cost of living would be influenced, and decrease at the mean time.

5. Conclusion

Overall, the Russia-Ukraine war made UK's food and energy market in a medium-large extent, achieved a 6% increase of UK's CPI for all items, more than 20% increase on the UK's CPI for energy, and a strong disturbance on UK's food supply chain. The cost of living in UK rose dramatically due to the rising cost of food and energy, which is letting middle-low income residents in UK to suffer more. The purchasing power of UK's currency is still decreasing due to inflation, if the trend continues, it is likely that to let the cost of living and inflation keep rising, which might lead to a collapse on UK's economy.

The Russia-Ukraine war made the EU to suffer on both food and energy markets, but the energy got effected more in comparison. The inflation caused by the war is severe and the huge reliance of fuel supply on Russia caused energy shortages. Nevertheless, the war caused the cost of living in EU to rise in a high extent, and forced EU to face a possible cold winter without a fully functioned heating system. Recently, EU and Russia are negotiating about the natural gas supply so the residents in EU can pass the cold winter period. If Russia refused to supply any more energy to EU, there is a high possibility that EU's residents would experience 9 degrees celsius everyday in the winter period, causing possible death and low incentives to work. In short, the war impacts both UK and EU in a high extent.

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