

**UNRAVELING THE RIPPLE EFFECTS OF BUTTERFLY EFFECTS: HOW THE RUSSIA-UKRAINE
CONFLICT SHAPES THE GLOBAL ECONOMY**

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Abstract

Butterfly effect, a study of non-linear effects caused by a disturbance, part of chaos theory, Butterfly effect follows the principle of determinism. Due to Globalization, every major and minor economic country is interconnected with each other and a slight disturbance or irregularities in any one country, irrespective of whether the country is minor or major economy and the effects can be found in each and every country that is connected with them, this paper aims to highlight the butterfly effects and highlight the disturbances experienced on a global scale due to the ongoing war.

Introduction

Since the dawn of civilization, wars have been part of humanity for as long as the civilization tracks back, but in the modern world where every country is inter connected due to trade and borders, an all-out war would essentially mean Global economic collapse and especially with Globalization, any minor problems within a country could be felt by other countries due to the trade being halted, and one such incident that is making the entire planet turn heads is the ongoing war between Russia and Ukraine. Post Covid-19, many countries were struggling to re-establish the collapsed order within their countries and many establishments were financially struggling, in this delicate time frame an all-out war was the last thing that was needed and even though the majority of war was happening in Europe, the effects were felt all around the world.

Butterfly effect is a concept in Chaos theory that basically explain how small events can lead to major events, major events which were triggered by the small events, Butterfly effect follows the law of Determinism and the butterfly effect also rests on the notion that the world is deeply interconnected, interconnected in such a way that one small occurrence or incident can influence a much larger event or incident on a much larger system, Butterfly effects can be seen on everyday basis, and one popular example of it is, a butterfly flapping its wings in the opposite direction of the wind currents in India can cause a massive tornado in U.S.A, though just an example, this example perfectly sums up the butterfly effects.

Objectives

Globalization was touted to revolutionize the global trade flow and create a complex network of trade systems, though the objective has been achieved, Self-sustainability has been completely ignored by many nations around the world and in this research paper we aim to highlight how a small incident can disrupt the entire trade system and how the repelling butterfly effects could be felt all around the world, this research paper takes the ongoing Russia and Ukraine war into account to highlight how countries are also feeling the wrath of the war even though they are not even from the same continent.

Keywords

Butterfly effect, self-sustainability, Russia-Ukraine war, Globalization

Review of literature

1. <https://ideas.repec.org/a/cmj/networ/y2023i21p29-32.html>

The domino effect of the war in Ukraine: the way global food industry has been affected by the armed conflict

In addition to having a profound effect on millions of lives, the war in Ukraine has shocked the world's food supply. The violence has seriously damaged the agricultural sector of Ukraine, a major player in the world food market. This deregulation's effects are being seen globally, which has raised questions about long-term food security, shortages of food, and price unpredictability. In this piece, we examine the consequences that the war in Ukraine has had and is still having on the food sector, as well as possible ways to lessen these effects. The greatest exporter of sunflower oil worldwide is Ukraine. Ukraine is the fifth-largest wheat exporter in the world, whereas Russia leads the world in wheat exports at the same time.

2. <https://insider.finology.in/investing/significance-of-butterfly-effect#:~:text=This%20connectivity%20and%20dependability%20would,and%20caused%20The%20GREAT%20Recession>

What's the significance of Butterfly Effect in the Financial World?

It is human nature to seek out patterns and predictability, even in seemingly random circumstances. But certain things in our universe are not meant to be guessed or theorized. The Butterfly Effect and the Chaos Theory are the results of this uncertainty. This theory's central claim is that everything in life is unpredictable and that even seemingly insignificant events can have significant consequences. There are many historical examples of this phenomenon.

Professor Edward Lorenz came up with this hypothesis after researching how even minor adjustments could have a significant impact on the outcome. He investigated in 1961 how inputting a single beginning value into a weather model—0.506 rather than 0.506127—produced a radically different outcome.

3. <https://www.morganstanley.com.au/ideas/finance-and-the-butterfly-effect>

The cause and effect of Investing with Impact.

A butterfly in New Mexico can trigger a cyclone in China, according to the theory of the butterfly effect. There is a genuine connection between the two occurrences, even though it can take a very long period. If the butterfly had not fluttered its wings at precisely the perfect moment and place, there would not have been a hurricane. Fundamentally, the theory holds that even minor modifications to the starting circumstances can have a significant impact on the outcome.

We can also apply a variation of the Butterfly Effect to our investing choices. This is due to the fact that every dollar that people or organizations donate to charity or invest in the world makes an impact.

4. <https://www.sciencedirect.com/science/article/abs/pii/S0165188910000369>

The butterfly effect of small open economies

If the Taylor principle is not satisfied by foreign monetary policy, the rational expectations equilibrium in a small open economy may become indeterminate. We examine the consequences of foreign-induced indeterminacy in the two-country variant of the small open economy model with sticky prices. Our major conclusion is that "smallness" is not a generic quality of the small open economy model, but rather a feature of the unique rational expectations equilibrium of the huge economy. Shocks to the small sector might have an impact on the large economy if the large economy is unable to stabilize expectations. The result of this kind of ambiguity is the "butterfly effect." It takes further presumptions to maintain the little economy's "smallness."

5. <https://www.linkedin.com/pulse/butterfly-effect-indian-economics-anuj-agrawal>

The Butterfly Effect of Indian Economics

The horrific events of 26/11, which are well-known to all Indians, claimed lives and caused widespread destruction, but who would have imagined the domino effect it had? The death of Ashok Kapur, the founder of Yes Bank, in the Mumbai attack 11 years ago has today destroyed the Indian banking system and, despite this, people's confidence in it. Millions of families are in despair, the stock market plummeted, billions of dollars were lost, and who knows what lies next. Imagine how everything would alter if only one minor aspect of the original occurrence had changed. This is how hilarious the world is—there are countless butterfly effects occurring all around us, most of which go unnoticed because we are unable to comprehend them.

The butterfly effects experienced by the Global economy

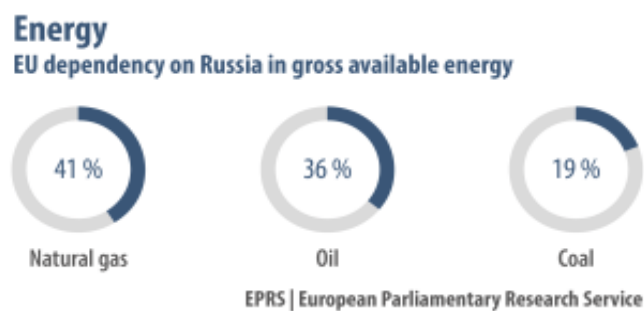
Since the dawn of civilization, men have fought with each other for food, land, water and for many trivial things, but no matter what the cause of war was, the death of many innocents was always a part of it, and those who survived the war faced the consequences of it, lack of labor, lack of food and above all the victims of war's loved ones were the ones who suffered the most, but this didn't stop wars, and even though the humanity has evolved to unprecedented heights and the society has achieved advancements in many different sectors all to increase the quality of our day to day life and standard of it.

Even with all the things humanity has achieved, we still cannot let go of the concept called “War”, the turn of the twentieth century saw 2 major world wars break loose between the Axis and Allies, who fought for their beliefs and rights and by the end of the second world war, humanity faced the largest economic crisis since the dawn of the modern world, countries were scrapping together the remaining coffers they had to give its citizens basic commodities, there were no jobs and the cultivation and harvest rates were at an all-time low, right after this, the world leaders came together and established U.N.O, U.N.O replaced the league of nations and it became the nominal head of the globe, the effects of the wars can be seen to this day and it took decades to recover from the great depression and many nations were sunk in debt while doing so, and on 26 December 1991, one of the world’s most powerful country and an strong participant of both the World wars, the Great Soviet Union was dissolved and split into 15 different nations, with Russia being the largest and the most powerful one.

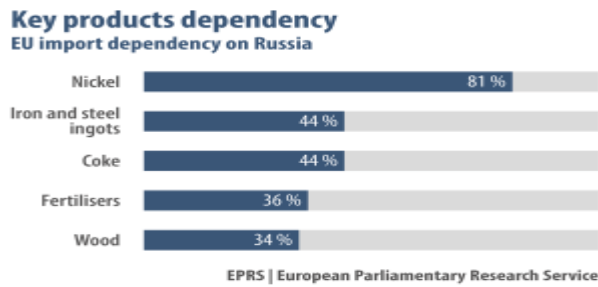
Post world war, many countries came together and initiated the second phase of Globalization program, and in 1989 the third era of the Globalization was started, the intention behind the program was to interconnect each and every country and to create a global trade network, where every country had a platform to trade and to overcome its poverty, and to increase the integration of advance technological systems, Digitalization was the core concept behind the third phase of Globalization, but in a such an complex interconnected trade system, every Country was a cog that keeps the machine running, but even a slight disturbance can cause an catastrophic collapse in the trade system and imports and exports ratio in many countries has affected the overall G.D.P of the country and its foreign exchange reserves, more than that, any sudden stoppage of trade can cause an entire country and an entire continent to tremble at worse, this interconnected system is an live example of the butterfly effect, where even small mishaps can cause a Global trade flow disruption.

Butterfly effect is ametaphorical theory within the chaos theory, where it is believed that a small incident can influence a large outcome either directly or indirectly, the best example for the theory is, when a butterfly flaps its wings, it creates an opposing wind currents, when millions of butterflies flap their wings and create opposing wind currents in India a storm is born in Iowa, USA, when the millions of butterflies create the opposing currents to the naturally flowing current winds and when they collide a storm is born, this is the most commonly used example for Butterfly effect.

Post COVID-19, the entire Global economicstructure was fragile, with millions losingjobs and millions of low income families entering poverty, the entire planet was on red alert, both the pandemic and the problems aroused due to it was going to take at least a couple of years to recover from and some countries might even need decades to recover from, on February 24, 2022, when the world was still holding it together and was trying its best to rebuild, the Russian federation, formerly part Soviet union, attacked Ukraine, another country that was once a part of Soviet union, the World, as we know came to a standstill and on the very same day the Russian forces began their ground invasion and the Russian navy started the Naval Blockade to stop all the imports and exports through the sea. The attack sent a series of shockwaves throughout the European continent and the globe, as Russia and Ukraine were foodbaskets and Russia was also one of the biggest exporters of natural resources and energy.

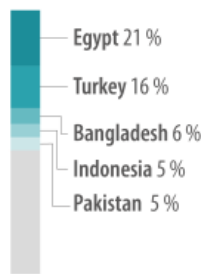


Russia was one of the largest Natural gas, oil and coal exported in the world and the European union were one of the biggest clients of them, replacing such quantities with another global trader was not an easy task by any means and due to the sanctions imposed by U.S.A and E.U countries Russia halted its trade with many countries and trade halts in energy products has indirectly affected the European countries, with inflation already sky high post COVID-19 and due to reduction in energy supply, the inflation increased even more, and in only 2 years the prices were increased by 25% and the overall prices have been increased by 41% cumulatively from end of 2020 to August 2023 and the unemployment rate stands at 5.9%, thanks to a well planned economic recovery post COVID-19.



Russia is the largest country in the world by size and it is gifted with large amounts of Natural sources, Russia was the world’s third largest Nickel producer, producing a total of 9% of world’s nickel, which is commonly used in creating stainless steel, a range of alloys, electroplating and in the batteries of Electric vehicles and Russia was also the largest exporter of Nickel to the European Union, above all this, Russia was the largest exporter of Nitrogen fertilizers all the while being the most forested country in the world.

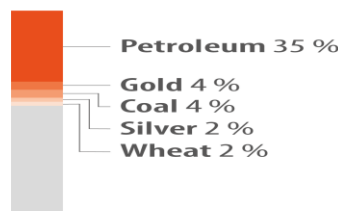
Exports of wheat by Russia and Ukraine



EPRS | European Parliamentary Research Service

Russia and Ukraine are two of the biggest wheat producers in the world and they’re also the biggest exporters in the world, while being the biggest exporters of the wheat, Russia and Ukraine, together, supply around 90% of cereal imports in eastern African countries and over 50% in north Africa and the middle east, although the sanctions imposed by the U.S.A and EU does not involve agricultural commodities, the overall exports of Russia has been halted by Putin, and the naval blockade ran by the Russian navy makes it impossible for Ukraine to export pretty much any thing through the sea ways.

Top 5 products exported by Russia worldwide



EPRS | European Parliamentary Research Service

Russia, being the largest country in the world, is also blessed with natural resources and is one of the largest petroleum exporters in the world and amasses 4% of Gold and coal, 2% silver and wheat throughout the world. Now with the sanctions in place, the flow of trade is difficult to continue and the number of traders willing to trade with Russia is also drastically reduced.

Russia currently has over 2700 sanctions placed on them and more than \$300 billion of its gold and foreign reserves have been frozen and the oil and energy embargo placed on them pushed the global crude oil prices to record high in the following months, further proving how Butterfly effect takes place in the scenario. Due to the war, the supply chain management has also taken a hit, especially since Russia and Ukraine’s sea ways were two of the major trade routes. Though European Union is a culmination of many countries and maintains strong relationships with other countries, it is still difficult to predict how EU will replace Ukrainian and Russian imports and how the world will move forward.

The current war also pushed more than 47 million people in 87 different countries into poverty, according to world food program. The inflation rate was also affected in many countries due to the ongoing war and Somalia; an east African country has seen 30% increase in food prices and in many rural areas, the food has nearly doubled, the on-going war between the Russians and Ukrainians highlights the problems within the Globalization program and it also highlights how many countries, in the name of trade and imports, have failed to develop alternatives and a self- sustainable system.

Effects of War on Indian Economy

One of the biggest problems that arouse due to the war was increase in fuel prices, which in turn increased the inflation rate throughout the globe, and India was no exception to it, but due to India's neutral position on the war on the global stage and its reluctance to impose any sanctions on Russia, India was better positioned to face the inflation rate when compared to other countries, especially since India traded the crude oil directly with Russia without any problems.

Though, many countries expected India to condemn Russia on global stage, India's stance on the matter right from the beginning was firm and called for cease fire, as India did not want to alienate the former Soviets and push it towards improving the relationship with the Chinese.

The basic commodities are the most affected products due to ongoing war, with Vanaspati oil's price being increased by 26.6%, wheat being increased by 14.4% and sugar seeing a increase in 4.1%, at the beginning of the war, the price for a barrel crude oil was set at \$80 and post the war, the price has rouse to \$122.8 and within the first couple of months of war, nearly Rs. 1 lakh crore foreign portfolio investments were pulled out from the Indian market, that has ultimately led to Rupees depreciation against the dollar and in 2022, the inflation rose to 7.79%, the highest since 2014, due to the war.

Discussions

The post pandemic world was always walking on a thin line and it was expected to do so but the war between Russia and Ukraine made things even more severe, though most of the developed countries were effected, they came out of the rubble swiftly but most of the developing and third world countries were the ones who were the most affected by the war, and this war accurately shows how delicate the world is and how even if something unrelated to their country takes place on the other side of the globe it still affects them, Globalization was started to help the countries connect together and trade more easily and efficiently, but with the Globalization started the trend of countries only developing the resources they currently possessed instead of developing new or alternate sources, the entire concept of Self-sustainability was forgotten with the globalization and it might be the high time that countries actually improve their imports and exports ratio to slowly turn towards self-sustenance and if not, at least make sure that the exports outweigh and out ratio the imports.

The 21st century is a complicated world with more unpredictability and chaos compared to other centuries and concepts like butterfly effects are demonstrated on large scale every day, creating order out of chaos might seem impossible but maintaining the existing order to reduce the risk of unpredictable events taking place because of the chaos born out of the disrupted order is very much possible, and this event is one of several examples of how Globalization is reducing the self-sustainability of many countries...

Limitation

This paper is purely based on existing data, data that has been published by U.S, European and other countries, some of this data might have been altered for propaganda reasons and the entire paper is based on the law of determinism and the data used in this paper is limited to 15 December 2023

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