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Some global economic realities and environmental impact in the context of the pandemic: causes and trends

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Abstract. The article examines some of the world's economic realities in the context of a pandemic. It is noted that the world will experience the economic consequences of the pandemic for several more years. Well-established supply chains have been disrupted, some cranes have fallen into deep recessions, and the recovery of some of the world's leading economic sectors is still in doubt. No one could have imagined that such a large industry as the oil industry, in the literal sense, will go into negative territory, and the air carriers will remain practically out of work. However, this took place in real life and was reflected in economic history. Therefore, in order to overcome these negative trends in the future, it is necessary to learn from the mistakes of today, this will make it possible to prevent the shutdown of economically important industries in the future and allow the economy to develop, even if not at a high pace, but still within the framework of a certain progressive development.The purpose of the work is to analyze some of the economic events that took place during the pandemic in order to identify the causes of their occurrence and further development trends.

1 Introduction

The coronavirus pandemic has caused unprecedented damage to the lives of every person in the world. The virus has spread to almost all countries, infecting more than 50 million people, and its spread is still not stopped [1].

Countries have taken serious measures to combat the spread of the coronavirus. Thus, at the initial stage of the development of the pandemic, countries experienced a shortage of some resources and products, universities, schools, restaurants and other businesses were closed for a long period of time. Governments have passed various laws to support manufacturers, but the increase in unemployment has been unprecedented: in the United

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States alone, it reached the highest level since the Great Depression, at 14.70% as of April 2020. Some industries (such as airlines, oil, and sports) have been hit the hardest, while others have received incentives to grow (online shopping, collaboration technologies, and distance learning).

The economic events that occurred during the pandemic provide excellent opportunities to study certain economic trends. Firstly, these events are "tangible" and relevant. Everyone can "feel" the events and connect them with their daily lives. Secondly, these events are "acute" in the sense that everyone hears and talks about them during the global COVID-19 pandemic. These events directly or indirectly affect everyone. Thirdly, these are rare and extreme events that represent some milestones in the development of the economy as a whole.

The purpose of the work is to analyze some of the economic events that took place during the pandemic in order to identify the causes of their occurrence and further development trends.

2 Materials and methods

In the process of writing the study, the periodical literature within the framework of the research topic was studied, and comparative, comparative and analytical methods were applied.

3 Results

Every person in the modern world has experienced the negative impact of the pandemic. In economics, this influence sometimes manifested itself in completely unexpected aspects, and sometimes had a programmed character. We are going to consider these trends in detail.

One of the unexpected economically significant negative trends is the shortage of toilet paper that occurred during a certain period. There may be several reasons for this situation. First, according to the standard free-market approach, deficits are allegedly caused by government intervention in the market through price regulation. Second, using a more holistic approach, it is possible to investigate crowd behavior and the specific supply chain conditions that lead to shortages. It must be said that the above reasons may not exclude each other [2].

If we consider the influence of the factor of herd behavior or crowd behavior, we can see the following. As has been pointed out by behavioral economists, herd behavior is a phenomenon in which people follow the behavior of others without thinking about what might be best for themselves or for a larger group. This refers to events that we all heard about and may have personally participated in in the early days of the pandemic. In the news and newspapers, there were images of shoppers pulling several carts with large bags of toilet paper. The very sight of these reports made other people follow their example. Memes on social media soon followed, as well as stories that began to spread through news sources. Many realized the absurdity of this behavior and openly joked about it. This, however, did not prevent the same people from buying their own toilet paper supplies. The jokes stopped when they arrived at the store and found the shelves empty.

The herd behavior observed as a result of increased consumer demand for toilet paper can be understood using game theory. The Prisoner's Dilemma game is well suited for simulating the behavior of consumers who make the decision to accumulate or not accumulate toilet paper. Amid the panic buying of toilet paper in the early stages of the pandemic, consumers faced not only the consequences of their own choices, but also the actions of other market participants. Simply put, consumers were able to buy more than they needed to save, or buy only what they needed, not save. The dilemma arises in the fact that a joint action in which all participants do not save, which ensures that everyone has what they need, is undermined by the accumulation of even one consumer. Even if the consumer understands that saving is not profitable for the group, they can continue this action, because they believe that others will also be engaged in saving. This unfortunately leads to widespread hoarding, where most participants act as if others are going to hoard. Such actions lead not only to difficulties in obtaining enough toilet paper for some, but also to significant losses caused by an excessive supply of toilet paper by others [3].

In terms of manufacturers, the leading toilet paper companies are classified as multinational corporations with global supply chains. Three toilet paper manufacturers-Proctor and Gamble, Kimberly Clark Corp. and Georgia Pacific Consumer Product-own a combined 78% of the U.S. market. The challenges faced by the global supply chains used by these companies explain the sudden reduction in the supply of toilet paper. When countries around the world began to systematically shut down cities and economic activity in the regions, production abruptly stopped. Since the factories could not operate, both because of real health risks and because of government directives, the subsequent production processes could not provide their resources for production. Later, when the downstream production processes were reopened, the upstream production processes were blocked. These disruptions in the timing and operation of various parts of the supply chain significantly hamper the ability of companies to meet the surge in demand. In addition, due to the significant reduction in international traffic, it has become more difficult for companies to provide a "normal" amount of toilet paper,

Another economic phenomenon of the pandemic period is the establishment of negative prices for crude oil. (fig. 1)

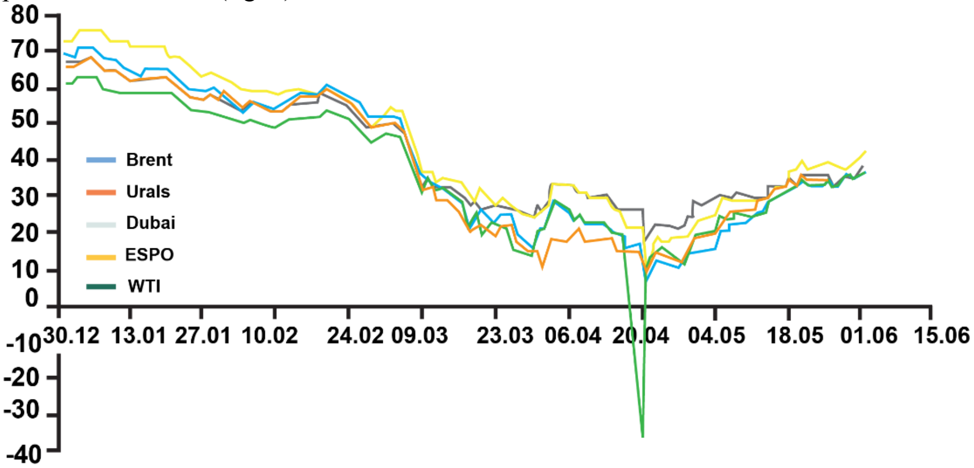

Fig. 1. Quotations of Urlas, Brent, WTI, ESPO, and Dubai ($/bbl) [3].

The economy we are experiencing now is unprecedented in the modern era. Negative interest rates, although strange, have occurred in the European Union and Japan. Negative prices now also took place. The recent drop in US oil prices to negative $ 37.63 has shocked many. This shock is certainly justified, as this is an unprecedented case. However, there really are logical and clear explanations for why this can happen under certain circumstances.

The S&D model is useful for understanding the broader context. As officials began shutting down economies around the world in response to concerns about COVID-19, global oil demand plummeted. Not only were secondary production facilities shut down, but most workers no longer needed to go to work or make work trips. Among those who are lucky enough to work remotely, and those who are unlucky enough to lose their jobs, the majority stay at home.

Simultaneous and unrelated to the sharp drop in demand in early March 2020, the breakdown of negotiations between the Organization of the Petroleum Exporting Countries (OPEC), led by Saudi Arabia and Russia, led to a sharp increase in global crude oil supplies. It is important to remember that the global oil industry is not a very competitive market, and therefore it may have some shortcomings in describing the market behavior characteristic of the oil industry. In introductory economics courses, OPEC is often used as an example of a cartel. Individual firms, often state-owned, certainly have market power, which they often exercise. It is in this context that we should consider the sharp increase in global crude oil supplies, when Saudi Arabia and other OPEC countries tried to lower oil prices and win a competitive war against Russia. A sharp increase in the total supply of crude oil in the market has sharply reduced the price.

It is known that either the demand side or the supply side can cause a significant decrease in the market price, but how can the price fall below zero? A negative price means that manufacturers are willing to pay consumers for their products. Negative oil prices mean that oil suppliers pay someone else to take their oil, and that sounds like an absurdity. Why not just turn off the pumps? Here it is necessary to refer to the most basic knowledge of oil production technology [4].

Like many manufacturing processes, stopping and starting production is expensive. American oil is primarily produced using hydraulic fracturing technology and requires the injection of liquid into shale formations under pressure. Stopping and starting this process is expensive, and so the crude oil producer is likely to suffer short-term losses instead of paying for the costly shutdown and resumption of production. Even if the oil producers decided to stop production, having almost all potential storage facilities at maximum capacity,

Another phenomenal economic aspect is the unprecedented government incentives for people, businesses, and companies in various countries. Let's consider this phenomenon on the example of the United States.

On March 27, 2020, President Donald Trump signed the historic $ 2 trillion Economic Stimulus Bill (the CARES Act) to combat the economic impact of the coronavirus outbreak. Where did the money for the biggest stimulus package in U.S. history come from? In an interview for the 60 minutes show, former Federal Reserve Chairman Ben Bernanke said: "To lend to a bank, we just use a computer to mark up the size of their Fed account."

It is known that the government receives financial income from two sources: taxes and government loans. During a crisis, the government will find it counterproductive to raise taxes, because it will simply reduce the costs of those who are taxed. The alternative-government loans-is the preferred method of financing government spending during an economic downturn. This is somewhat deceptive. Where did the money come from in general? Because of the legal framework of the US federal government and its ability to create a sovereign currency, the government can pay now and borrow or pay taxes later. Decisions to change borrowing and tax rates are always made separately from the initial expenditure. Unlike households, which are limited in their spending by the amount they receive in income or can borrow, governments that issue a sovereign currency do not have financial restrictions [5].

After the CARES Act was signed into law in late March 2020, Congress directed the Federal Reserve to lend to certain accounts specified in the legislation on behalf of the U.S. Treasury. The U.S. Treasury's account with the Federal Reserve is debited through these transactions. The Federal Government is not required to allocate certain tax revenues or borrowed funds to its expenditures. The possible issuance of Treasury securities by the U.S. Treasury does not create additional government debt, since their account has already been debited under a congressional directive to the Federal Reserve. Rather, the idea of issuing these securities serves to stabilize monetary policy to divert excess savings from the private sector - both businesses and households.

The US Congress has the so-called "power of the purse". This means that when Congress passes laws, it has the legal authority to fund these programs without taking into account changes in taxation or government debt obligations (treasury securities). The Federal Reserve, as an account holder for the U.S. Federal Government, is authorized to credit and debit accounts as directed by Congress. In its role as a monetary authority, the Federal Reserve can buy and sell securities. However, expansionary monetary policy applied in times of deteriorating economic conditions will always be accompanied by net purchases of securities that will inject money into the financial sector.

Private equity groups buy large amounts of treasury securities during the financial crisis as they seek refuge for their funds, and the Federal Reserve regularly intervenes to provide additional liquidity or cash availability by buying large securities from primary dealers. Thus, the Federal Government, through the Federal Reserve, buys its own debt issued by the Treasury [6].

In an effort to curb the negative impact of the sudden drop in output, government agencies around the world, including the United States, have done everything possible to implement economic stabilization policies to increase spending and inject liquidity into the economy. The CARES Act is a form of fiscal policy designed to provide funds to both households and businesses to stimulate spending. Monetary policy is related to government actions aimed at supporting the financial system. This is most often achieved through open market operations, where the Federal Reserve buys bonds so that financial institutions have access to more credit. While it was theoretically possible that such stabilization policies would lead to higher prices, most macroeconomists agreed that the measures taken during this pandemic crisis would not lead to higher prices in the near future.

However, the economic measures mentioned above still led to a negative economic scenario in the country: it can be compared with the crisis of 2008-2010 heads (fig. 2).

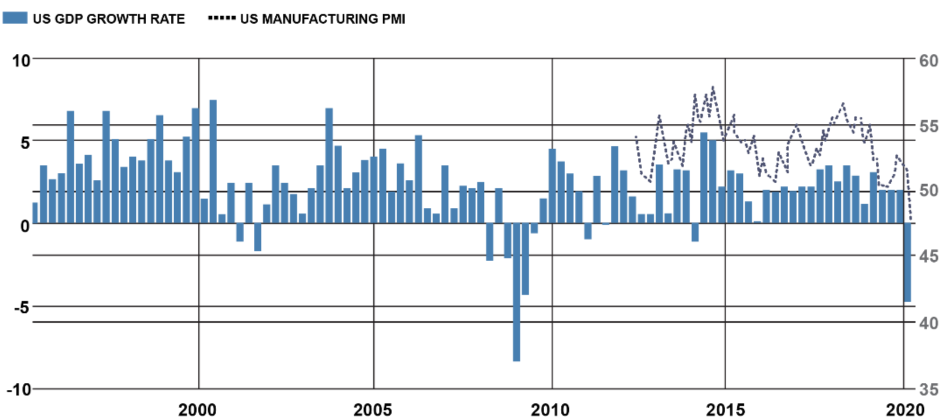

Fig. 2. Dynamics of US stock indices from 2000 to 2020 [7].

The increase in the unemployment rate at the beginning of the pandemic was also a record. The unemployment rate was close to a record low of just 3.5% in February 2020. Such a low unemployment rate has not been seen in the United States since the late 1960s. In the last two weeks of March, this exceptional employment picture was turned on its head. In the week leading up to Saturday, March 21, 3.3 million people filed initial claims for unemployment benefits.

The following week, nearly 7 million people submitted initial applications. Weekly initial claims remained above 3 million a week through the end of April. The unemployment rate rose from a historic low in February to a historic high in April at 14.7%. Although this is the highest official unemployment rate on record, unofficial unemployment rates were much worse during the Great Depression.

In the fall of 2020, the unemployment picture improved significantly from its worst point in April, but still remains at an unhealthy 7.9% in September. These numbers may give a better picture than what people are actually experiencing. The" Employment Situation Report " for September 2020, published by the Bureau of Labor Statistics (BLS), states that 4.5 million people were unable to join the labor force due to the pandemic. These people, who are not part of the labor force, are not included in the official unemployment rate of 7.9%. Although these measures are interesting in themselves, in this section we discuss the driving forces behind these historical indicators [7].

The key driver of this sudden surge in unemployment can be reduced to the simple principle that one person's expenses are another person's income. This basic principle is a fundamental concept in economics. As most of the world's population has been forced to adopt social distancing measures and stay at home due to the health problems associated with COVID-19, spending in many industries has stopped.

According to the BLS, the leisure and hospitality sector was the most affected industry, while several other individual industries were also severely affected: air transport, film and sound recording, and automobile and parts manufacturing. These are businesses that require personal consumption of their goods and services. As spending on these various goods and services has declined dramatically and significantly, so has the cash flow of businesses that employ millions of workers.

The pandemic illustrates the importance of consumer access to markets. Business models that were already built on remote grocery delivery (like Amazon) have thrived during this economic crisis, while those businesses that depend on face-to-face exchanges have faced greater challenges. Businesses need cash flows to survive, because the workers who support that business need income just to exist in the modern economy. So when consumers stop spending money on businesses, those businesses can't maintain their employment levels.

In addition to an important principle regarding the fundamental relationship between spending and income, this pandemic has created some unique conditions that have led to the persistence of high unemployment. In the US, directly related to the above topic, the CARES Act included special unemployment benefit programs that were designed to provide unique assistance to those who faced unemployment during the pandemic. The three programs provided assistance in different ways. First, the Federal Pandemic Unemployment Compensation Program (FPUC) was designed to provide those receiving unemployment benefits with an additional $ 600 each week. The Pandemic Unemployment Compensation Program (PEUC) has provided access to additional federal unemployment benefits for those who have exhausted their existing state benefits. Finally, the Pandemic Unemployment Assistance Program (PUA) provided benefits to those who would not normally qualify for them – self-employed, contract workers, or concert workers.

However, economists have noted that increased unemployment benefits can create perverse incentives and cause unintended consequences. As indicated above, the FPUC program provided an additional $ 600 in unemployment benefits on top of the benefits provided by individual states, which can be equal to some percentage of their past salary up to a weekly maximum. For example, before losing his job, a person earned $ 500 a week. If this person became unemployed and received benefits, he would receive some share, for example, 1/3 of the $ 500 per week, which is equal to $ 167 in benefits from his state. Since they earn much less than they earned while working, they have a strong incentive to find a job again. Under the FPUC program, a person will be paid an unemployment benefit of $ 767 per week ($167 from the state plus $ 600 from the FPUC program). It's easy to see that this person earns more on unemployment benefits than they did on their job. Thus, they have a stronger incentive to continue receiving unemployment than to look for work [8].

The underlying relationship between spending and income means that when an economy experiences a significant drop in total spending, it is almost inevitable that income and employment will fall. This COVID-19 pandemic has led to a unique situation where spending has fallen at a rate never seen before. In addition, the CARES Act, which increases the amount of unemployment benefits, creates an incentive for those who receive unemployment to remain unemployed, rather than take a job with the same pay.

4 Discussion

Standard approaches to economics generally promote the free market position, suggesting that if markets can provide optimal and efficient outcomes for society, then state involvement is not necessary or justified. The caveat, then, is that if markets do not produce optimal or efficient outcomes, governments may intervene to promote the well-being of society. In this particular situation, it is not known what the markets can achieve on their own or what government intervention might look like. In short, this is a recession unlike any in modern history.

It is necessary to refer once again to the principle that the expenses of one person are the income of another person. As the US federal government tries to get out of this economic crisis as soon as possible, it advocates the resumption of large-scale economic exchange so that spending recovers and thus keeps as many people employed as possible. The drive for economic recovery is balanced by the ever-growing responsibility to maintain a healthy public and functional health system. While technology is such that many things can be done remotely, a significant number of services are still only available in the context of close physical proximity.

Many services, from restaurants to hairdressers, face restrictions imposed by the state. Although some argue that these government-ordered closed territories are the main obstacle to a return to normal economic life.

There are differences of opinion about the risks that some are willing to take to reopen the economy. These opinions reflect differences in the relative values of economic well-being and public health and safety. The differences in values illustrate the classic and long-standing principle of opportunity costs. While we can all value both economic performance and public health, prioritizing one over the other certainly has an opportunity cost. Data from the last months of 2020 showed that as states in the United States, as well as in some regions of Europe, begin phasing out the opening, the number of COVID-19 cases has increased dramatically. Many states have again resorted to stricter measures to control infection rates, including closing restaurants and bars and mandating the use of face masks. However, some states have maintained re-opening processes despite a surge in the number of cases. The trade-off between free economic exchange and public health continues to be an important lesson, not only for state leaders, but for everyone living in this historic period.

After the pandemic, the world changed. Since its beginning, several extraordinary events have occurred. Most people, especially young students, have never seen such dramatic changes in all aspects of their daily lives because of these events. Because the price of oil, toilet paper, the unemployment rate, stimulus checks, and the economic recovery are all relevant, and behind each of these hot topics are important economic principles and theories, they serve as an excellent teaching and learning tool in the field of economics.

Whether we are affected by a sudden shortage of toilet paper due to herd behavior and a sudden increase in demand, or whether we are enjoying exceptionally low gas prices due to a sharp drop in oil prices, these are memorable economic times. As the health crisis continues and pushes economic uncertainty into uncharted territory, unemployment is taking a toll on many millions of people. These impacts are reflected in the economy as spending decreases.

The consequences of spending cuts are no secret to those who have studied economics. During this sudden downturn, governments around the world took steps to provide countercyclical stimulus. However, this did not always lead to the expected positive results, since the forecast for the development of the pandemic was unfavorable.

5 Conclusions

The world will experience the economic consequences of the pandemic for several more years. Well-established supply chains have been disrupted, some countries have fallen into deep recessions, and the recovery of some of the world's leading economic sectors is still in doubt. No one could have imagined that such a large industry as the oil industry, in the literal sense, will go into negative territory, and the air carriers will remain practically out of work. However, this took place in real life and was reflected in economic history. Therefore, in order to overcome these negative trends in the future, it is necessary to learn from the mistakes of today, this will make it possible to prevent the shutdown of economically important industries in the future and allow the economy to develop, even if not at a high pace, but still within the framework of a certain progressive development.

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