

Analysis of the impact of global oil price volatility on Algeria's foreign trade efficiency indicators in the context of the COVID-19 crisis

Phd: Bahlouli Ahmed *¹, Dr:Hamza Ali ²

¹ Nour bachir University Center elbayadh, Algeria, a.bahlouli@cu-elbayadh.dz,

² Nour bachir University Center elbayadh, Algeria, a.hamza@cu-elbayadh.dz,

Received: 30/12/2023

Accepted: 12/12/2024

Published:19/12/2024

Abstract:

The objective of this study is to examine the effects of the COVID-19 global health crisis on Algeria's foreign trade efficiency measures, specifically focusing on the influence of global oil price volatility. Based on various indicators related to the efficacy of international commerce, such as the level of involvement in foreign trade, engagement in international trade activities, the per capita foreign trade index, and other pertinent metrics, as well as an analysis of Algeria's external commodity and geographical trade framework.

Algeria is inherently vulnerable to the influence of its import policy due to its substantial reliance on imports for various products and materials. This policy is molded by the negative consequences of reduced income resulting from the devaluation of oil exports.

Keywords: Oil prices - Trade - Covid-19 - Exports and imports.

Jel Classification Codes : F10, I1, F1

1. INTRODUCTION:

The COVID-19 pandemic has significantly impacted the foreign trade activities of nations involved in oil extraction and distribution, affecting the broader dynamics of global trade. The virus has caused adverse supply and demand shocks throughout the Middle East and North Africa region, resulting in a decrease in demand for goods and services, particularly in the domains of oil and tourism. The primary causes of a negative supply shock can be traced to the reduction in the labor force due to individuals contracting the coronavirus, as well as the enforcement of travel limitations, quarantine protocols, and the requirement for individuals to stay at home to care for their sick family members or children.

* *Corresponding author*

The decline in oil prices has had a significant impact on Algeria's economic growth, as oil serves as the predominant source of revenue and exports for the nation. Algeria's reliance on imports to meet its diversified needs for goods and materials necessitates that the import strategy employed in reaction to the resulting loss in revenues will inevitably be influenced.

The central research focus pertains to the extent can variations in global oil prices impact Algeria's foreign commerce, as measured by efficiency indicators, export earnings may exceed ninety-eight per cent of the total export earnings and public budgets in most of those countries, including Algeria.

Algeria has witnessed a significant development in the petroleum industry in terms of exploration and export capacity. In view of this, the main problem of research is the question:

What is the impact of global oil price volatility on Algeria's foreign trade through efficiency indicators in the context of the global health crisis - COVID-19?

Amidst the ongoing global health crisis, specifically the COVID-19 pandemic.

The current matter can be delineated as a reaction to the ensuing sub-questions:

- What is the influence of the COVID-19 health catastrophe on global oil prices?
- What is the impact of variations in global oil prices on the economic growth of Algeria during the COVID-19 pandemic?
- What is the impact of worldwide oil price changes on the dynamics of international trade between Algeria, a nation that produces and exports oil, and oil-importing and consuming countries within the global COVID-19 pandemic?
- What is the impact of global oil price changes on Algeria's foreign trade efficiency indicators in the context of the global COVID-19 pandemic?

2. The corona virus pandemic's implications on the world economy:

2.1 The concept of coronavirus pandemic:

The wide variety of viruses known as corona viruses cause respiratory disorders in both humans and animals, ranging in severity from simple colds to more serious conditions like the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS).

2.1.1 The coronavirus definition:

The most recent virus from the coronavirus strain Wuhan, COVID-19, was first identified on December 31, 2019, following a large number of cases of what is known as viral pneumonia that were reported in Johan, People's Republic of China. This virus had no prior knowledge of its mode of action prior to the start of its outbreak in the Chinese city of Wuhan. (World Health Organisation, 2020)

2.1.2 The classification of COVID-19 as either a pandemic or a global pandemic.

The COVID-19 pandemic has been classified by the World Health Organization as a global phenomenon, affecting numerous countries simultaneously, due to the rapid and extensive transmission of infections among individuals and the failure of countries to effectively contain the spread of the virus (World Health Organisation, 2020)

The COVID-19 epidemic has had a significant influence on the functioning of the global economy.

The world economy has seen severe repercussions as a result of the coronavirus pandemic. According to the Asian Development Bank's mid-May 2020 update, the estimated economic losses caused by the outbreak range from \$5.8 trillion to \$8.8 trillion. The losses incurred by the People's Republic of China, which is the largest global economy in terms of output and energy consumption, were projected to range from \$1.1 trillion to \$1.6 trillion. This amounts to around 6.4% to 9.7% of the world's GDP. Given China's significant influence on the global economy, these losses have a direct impact on the overall economic landscape. The World Investment

Report 2020 provides an enumeration of many channels via which the global economy is impacted by the coronavirus.

Trade can have negative effects on production, world supply, and global demand, especially global energy demand (Baldwin, 6,2020).

The persistence of financial interdependence has had both material and moral repercussions for the global financial markets, which have witnessed significant downturns and underperformance subsequent to the 2008 global financial crisis. This observation provides financial markets with a pessimistic signal on investors' assessment of the implications of the virus's transmission on the worldwide economy.

The decline in air travel and the closure of numerous airports worldwide have significant implications for global tourism and transportation, impacting both the demand and supply dynamics in these sectors. (w.Al-khater & s.Al-maadeed, 2020)

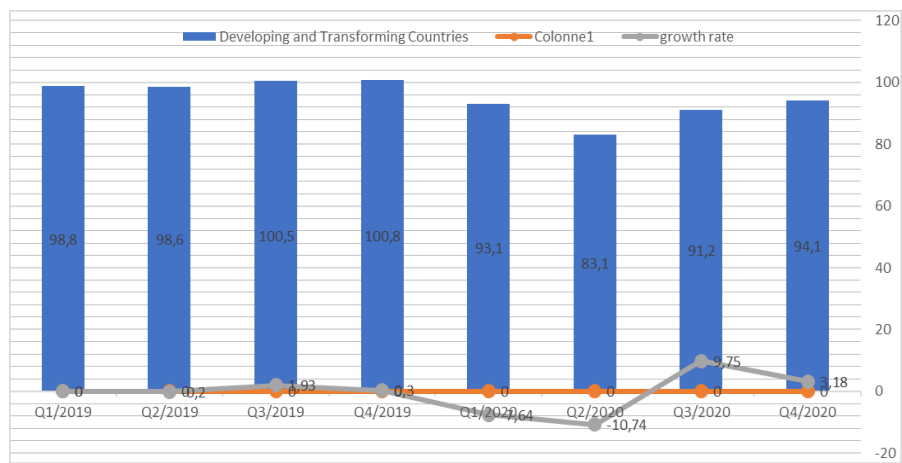
2.2. The pandemic's influence on global trade:

The global outbreak of the coronavirus pandemic, often known as COVID-19, has had significant adverse impacts on the domain of international trade. This sector encompasses a wide range of activities, including the production, supply, and importation of products and services. It is particularly vulnerable to the consequences of lockdown measures implemented by numerous nations worldwide.

Based on the 2020 report by the World Trade Organization (WTO), the presence of the coronavirus has posed a significant risk to international trade, resulting in a decline ranging from 13% to 32% in the current fiscal year. This study examines the trajectory of oil prices during the coronavirus epidemic. Prior to delving into the fluctuations of oil prices pre and post the coronavirus pandemic, it is imperative to examine the changes in global oil demand and supply from 2019 to 2020. This analysis will shed light on the developments observed during the pandemic and their subsequent effects on the volatility of oil prices, encompassing both positive and negative impacts. The global demand for oil underwent changes over the period encompassing 2019 and 2020, both prior to and subsequent to the outbreak of the coronavirus pandemic. (Repport world Trade Organization, 2020)

This paper aims to provide an analysis of the global oil demand's evolution in the pre and post-coronavirus pandemic era.

Figure.1. world demand for oil and natural gas liquids during the 2019-2020 period (millions barrels/day)



Source: Prepared by the researcher, based on Annex 01 and 02

Upon analyzing the diagram mentioned above, it becomes evident that there has been a consistent upward trend in global oil consumption over the course of 2019, despite the emergence of the coronavirus in China towards the end of the same year. Nevertheless, the lack of proliferation and the absence of effective preventative measures in several countries globally have not had an impact on the market. However, there was a noticeable decrease in global oil consumption at the onset of 2020, with a decline to 93.1 million barrels per day in the first quarter, as opposed to 100.8 million barrels per day in the preceding quarter, or a decrease of 7.64%. The decrease can be attributed to the adverse effects of the coronavirus pandemic on many economic sectors that heavily rely on energy consumption. The occurrence of a recession subsequent to the emergence of a virus inevitably results in a corresponding decrease in the demand for various types of oil and fuel.

During the second quarter of 2020, there was a persistent decrease in global oil demand, amounting to a reduction of 10.74%. The drop-in oil consumption has been significantly influenced by the development of the

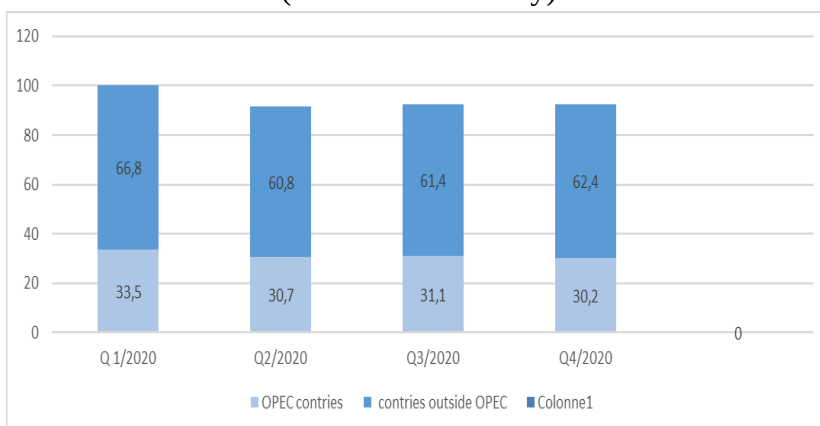
coronavirus pandemic and the implementation of strict measures aimed at preventing its further escalation, when compared to the previous quarter. Several measures can be implemented in this particular scenario to mitigate oil consumption and decrease demand.

The suspension of flights leads to a decrease in demand for aircraft due to the resulting reduction in fuel consumption.

The implementation of quarantine measures, which led to the cessation of vehicular movement (including buses, cars, trains, etc.) and the subsequent reduction in fuel consumption, along with other interventions aimed at containing the spread of the coronavirus, have made a modest impact on the decrease in oil demand.

The data presented in the aforementioned figure demonstrate a modest recovery in global oil demand during the third quarter of 2020, with an estimated increase of 9.75% compared to the preceding quarter. The demand during this period was assessed to be 91.2 million barrels per day. Furthermore, the recovery trend persisted in the fourth quarter of 2020, albeit with a more modest increase of 3%. The increase in cases can be attributed to the progressive relaxation of precautions implemented to mitigate the spread of the coronavirus, alongside the dissemination of information regarding the development of a vaccine.

Figure.2. world supply for oil and natural gas liquids during the 2020 period
(millions barrels/day)



Source: Prepared by the researcher, based on Annex 03 and 04.

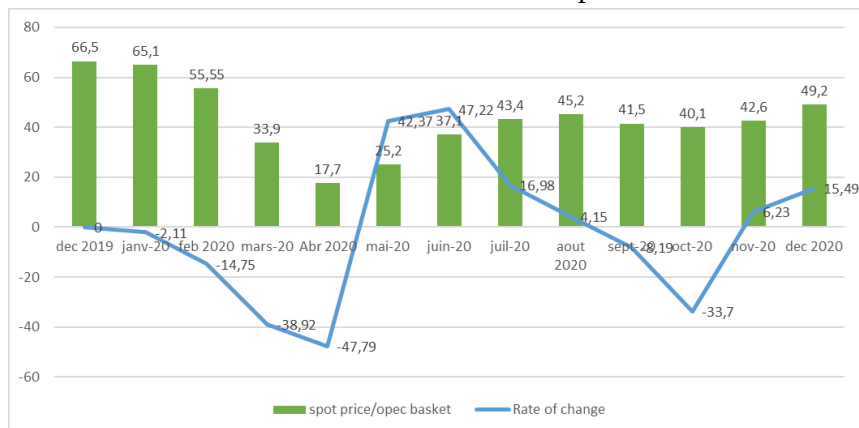
Analysis of the impact of global oil price volatility on Algeria's foreign trade efficiency indicators in the context of the COVID-19 crisis

Based on the depicted graph, it is evident that the global oil supply saw a dip during the second quarter of 2020 in comparison to the preceding quarter within the same year. Specifically, the supply decreased from 100.3 million barrels per day in the first quarter to 91.6 million barrels per day in the second quarter, indicating a reduction of 8.7%. Please refer to Annex 03/04 for further details. The decrease in oil prices can be attributed to a reduction in OPEC production following the decision made by the Organization of Petroleum Exporting Countries (OPEC) to decrease oil production by approximately 10 million barrels per day in response to the global impact of the coronavirus pandemic, which began in February 2020.

During the third quarter of 2020, there was a persistent decrease in the global oil supply, with a reduction of 1.20%, resulting in a daily output of 90.5 million barrels. This decline can be attributed to the lower oil supply implemented by OPEC members, as a consequence of the aforementioned agreement to curtail production throughout three distinct periods. During the months of May, June, July, and August in the year 2020, there was a daily production rate of 10 million barrels. The oil supplies to countries within the Organization of the Petroleum Exporting Countries (OPEC) experienced a decline during the third quarter of 2020, decreasing from 30.7 million barrels per day to 29.1 million barrels per day. During the fourth quarter of 2020, there was an increase in global oil supply, reaching a daily average of 92.4 million barrels, which is a 2.1% growth compared to the preceding quarter. The global demand for oil experiences an increase due to the relaxation or removal of certain limitations pertaining to the resumption of transportation services and the resurgence of the COVID-19 epidemic.

After addressing oil demand and supply, we will try to analyze the evolution of oil prices under the previous circumstances of the coronavirus crisis.

Figure.3. The development of global oil prices during the period (2020/2019) before and after the coronavirus pandemic.



Source: Prepared by the researcher, based on Annex 05 and 06.

Based on the data presented in the figure above, it is observed that oil prices experienced a significant decline in April 2020, reaching a record low of \$17.7 per barrel. This decline can be attributed to the adverse impact of the global spread of the coronavirus pandemic during that period, which consequently led to reduced demand for oil, as previously elucidated.

In January 2020, the price of oil experienced a decline, reaching \$65.1 per barrel, which was lower than the previous month's forecast of \$66.5 per barrel, representing a decrease of 2.11%. This downward trend continued in February and March, with the price dropping by 14.75% and 38.92% respectively. Consequently, the price of oil reached \$55.5 per barrel in February and further declined to \$33.9 per barrel in March.

In April 2020, the price of oil experienced a significant decline, reaching a low point of \$17.7 per barrel. This decrease in price was mostly attributed to a decrease in demand, which in turn was driven by reduced oil consumption resulting from preventive steps implemented to mitigate the spread of the coronavirus. (World Bank's Annual Report, 2020)

The oil price drop is likely to have been further exacerbated by the breakdown of discussions between the Organization of the Petroleum Exporting Countries (OPEC) and its allies, in addition to the shock induced by the coronavirus outbreak. On March 5th, the Organization of the

Analysis of the impact of global oil price volatility on Algeria's foreign trade efficiency indicators in the context of the COVID-19 crisis

Petroleum Exporting Countries (OPEC) put forth a proposition to decrease production levels to 1.5 million barrels per day during the second quarter of 2020. This reduction would consist of 1 million barrels from OPEC member countries and half a million barrels from non-OPEC nations, with Russia being particularly notable. However, Russia declined the proposal the next day, leading to Saudi Arabia, the largest global oil exporter, increasing its production to 12.3 million barrels per day, which represents its maximum production capacity. The Kingdom has also proclaimed exceptional reductions of up to 20% in the primary markets. The outcome manifested as an instant decrease, followed by sustained price reductions exceeding 30% in the subsequent period. (world bank group.report, 2020) In May 2020, there was a modest increase in oil prices to \$25.2 per barrel, representing a growth of 42.37%. This rise can be attributed to a combination of heightened demand and reduced oil output during that period. Subsequently, in September 2020, oil prices reverted back to \$41.5 per barrel.

The decrease in pricing can be attributed to the adverse consequences resulting from the widespread transmission of the coronavirus. A similar occurrence had place in October 2020, wherein the price of oil experienced a decline to \$40.1 per barrel, reflecting a reduction of 8.19% in comparison to the preceding month of September.

During the months of November and December, there was an observed increase in oil prices, reaching \$42.6 per barrel and \$49.2 per barrel, respectively. This upward trend can be attributed to the relaxation of quarantine measures. (The Report on Algeria's Foreign Trade Statistic, 2020)

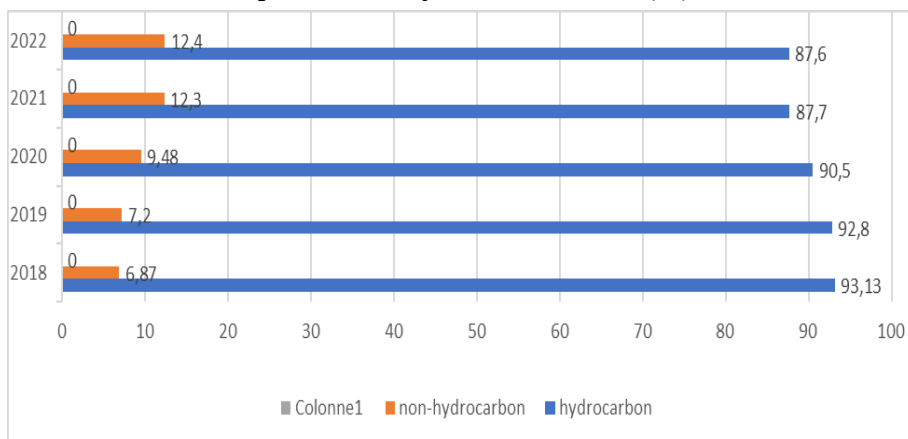
2.3. general trends in Algeria's exports:

Table 1. export development (shars in % years 2018-2022, value in bil doll)

	2018	Shars%	2019	Shars%	2020	Shars%	2021	Shars%	2022	Shars%
Hydrocarbon	38.34	93.13	33.24	92.80	21.54	90.5	35.4	87.7	49.5	87.6
Non- hydrocarbon	2.83	6.87	2.58	7.20	2.25	9.48	3.6	12.3	7	12.4
Total	41.17	100	35.82	100	23.79	100	39	100	56.5	100

Source: (The Report on Algeria's Foreign Trade Statistic , 2020)

Figure.4. The percentage of representation of hydrocarbon product from the total exports for the years 2018-2022 (%).



Source: Prepared by the researcher 'table (01)

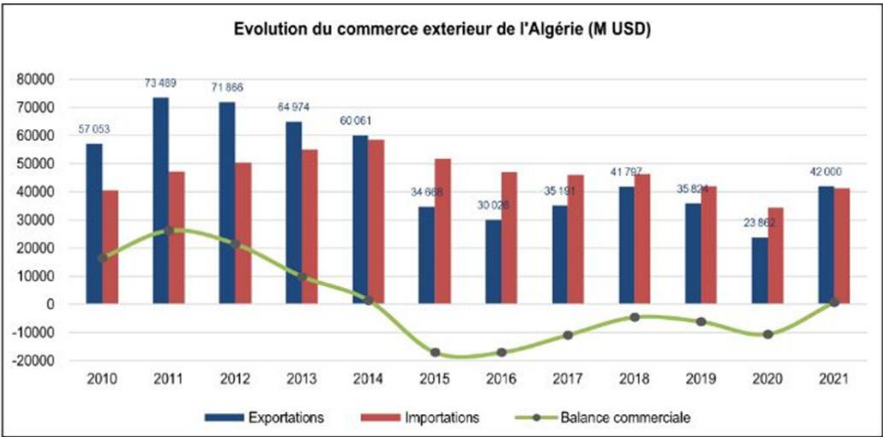
The overall export volume of hydrocarbons had a significant decline of 33.57% in the year 2020, mostly attributed to a substantial decrease of 35.20% in the exportation of incinerators. Due to the decrease in worldwide demand for hydrocarbons within the framework of the global health catastrophe caused by COVID-19.

During the fiscal year, the majority of exports were attributed to incinerators, which constituted 90.52% of the overall value. Subsequently, there was a significant decline of US \$11.70 billion in comparison to the previous year. The proportion of offshore exports in relation to the whole value of exports was merely 9.48%, which is equivalent to \$2.26 billion. This figure experienced a decline of 12.59%. Table 1.

Based on the data presented in Table 01 and Figure 04, it is evident that Algeria's overall exports in 2019 reached a value of 35.82 billion dollars. Among these exports, hydrocarbons accounted for 33.24 billion dollars, constituting about 92.80% of the total. On the other hand, non-hydrocarbon exports amounted to 2.58 billion dollars, representing approximately 7.20% of the total. In the year 2020, the aggregate value of exports reached a sum of 23.79 billion dollars. Among these exports, hydrocarbons accounted for 21.54 billion US dollars, or approximately 90.5% of the total. The remaining 2.25 billion dollars were attributed to non-hydrocarbon exports,

representing approximately 9.5% of the whole export value. It can be inferred that Algeria's export sector is significantly dependent on hydrocarbon earnings. The decline in shipments of this vital commodity by 35.2% between 2019 and 2020, attributed to the global health crisis, has had a significant impact on the overall revenue of the national treasury.

Figure .5. Algerian Foreign Trade Balance Movement (2010-2021) value in million dollars



Source : (Rapport Commerce extérieur de l'Algérie, 2022)

Based on the data presented in Figure 05, it can be inferred that the COVID-19 pandemic significantly affected foreign trade, specifically in terms of exports, imports, and the balance of trade. The figures indicate a notable decline in exports, which decreased from 41.16 billion dollars in 2018 to 35.82 billion dollars in 2019, and further dropped to 23.79 billion dollars in 2020. Similarly, imports experienced a decline from 46.19 billion dollars in 2018 to 41.93 billion dollars in 2019, and further decreased to 34.39 billion dollars in 2020. The deficit in the balance of trade exhibited an upward trend, rising successively from -5.2 billion dollars to -6.11 billion dollars and eventually reaching -10.6 billion dollars within the corresponding time frame.

In the year 2021, the commercial exchanges of Algeria reached a total value of 83 billion USD, representing a notable growth of 43% in comparison to the previous year, 2020. Algerian exports exhibited a positive correlation

with the upward trajectory of hydrocarbon prices, culminating in a noteworthy surge to 42 billion USD in 2021. This was a substantial growth of 76% compared to the preceding year. The primary factor contributing to this rise may be attributed to an upsurge in both the price and volume of hydrocarbons traded. These hydrocarbons account for a significant proportion of Algeria's overall exports, constituting 91% of the total. Specifically, natural gas comprises 39% of the exports, followed by crude oil at 37%, and fuels at 17%. The remaining portion of exports, which experienced a notable increase of 69% in 2021, primarily comprises various derivatives stemming from the oil and gas sectors, such as fertilizers, ammonia, and oils derived from tar distillation. Additionally, agri-food goods, such as dates and sugar, also contribute to this portion of exports.

3. Indicators of the efficiency of Algerian foreign trade:

Here are some key indicators related to the efficiency of Algerian foreign trade from 2018 to 2022:

3.1. Total export coverage rate for total imports:

The overall coverage rate of exports to total imports is the ratio of exports to imports for a specific country. It reflects the country's ability to finance its imports from its own exports. To calculate this rate, divide the total exports by the total imports.

Table.2. Export coverage ratio of total exports to total imports during the period (2018/2022):

Period	2018	2019	2020	2021	2022
Coverage rate	0.98	0.85	0.69	0.92	1.28

Source: Prepared by the researcher (Rapport Commerce extérieur de l'Algérie, 2022)

After studying the provided table, it becomes evident that there are several stages of coverage rate. Notably, the years 2018-2019 and 2020-2021 had the most unfavorable coverage rates, which were recorded as 0.89%, 0.85%, 0.69%, and 0.92%, respectively. The most severe occurrence took place in the year 2020, with a percentage of 0.69%.

The trade balance had a deficit as a result of the repercussions of the COVID-19 pandemic.

As of the year 2022, there was an observed rise in the poor coverage rate by a factor of 1.28%. The worldwide oil demand has experienced a significant increase due to the revival of the global economy following the downturn caused by the COVID-19 pandemic.

3.2. Average per capita foreign trade:

The assessment of Algerian foreign trade's significance in the economy of any given country often relies on the examination of the individual's proportionate contribution to both exports and imports. The presented table illustrates the distribution of an individual's portion in Algerian exports and imports from 2018 to 2022, a period marked by the influence of the worldwide health crisis. The impact of the COVID-19 pandemic on the global economy, with a specific focus on the Algerian economy.

Table .3. Average per capita foreign trade:

Period	2018	2019	2020	2021	2022
Per capita export%	0.996	0.838	0.549	0.95	1.236
Per capita import%	1.104	0.97	0.791	0.765	0.846

Source: Prepared by the researcher, (data world bank, 2023)

Based on the provided table, it can be observed that the per capita proportion of exports during the period from 2018 to 2021 exhibited a notable decline. Notably, the year 2020 recorded the lowest rate at 0.549%. This decline can be attributed to the decrease in the value of Algeria's fuel exports, which constitute a significant 95% of the country's total exports, as indicated in table03. This reduction in export value can be attributed to the overall global decline in oil prices. The aforementioned phenomenon can be attributed to the repercussions of the worldwide health crisis on international markets and the global economy. The per capita proportion of exports had a notable rise to 1.236% in 2022, mostly driven by a substantial surge in fuel exports subsequent to the resumption of global economic operations. However, it should be noted that the per capita proportion of imports experienced a decline in the period spanning from 2019 to 2022. This decline may be attributed to the implementation of various policies by the Algerian government, aimed at curbing imports in order to safeguard foreign currency

reserves and stimulate domestic production. It is worth mentioning that the per capita share of imports stood at 1.104% in 2018.

3.3. The share of Algeria's foreign trade value in world trade:

Table.4. The share of Algeria's foreign trade value in world trade period (2018/2022):

Period	2018	2019	2020	2021	2022
Contribution of exports%	0.021	0.017	0.01	0.015	0.02
Contribution of imports%	0.023	0.02	0.015	0.012	0.013

Source: Prepared by the researcher, (L'Organisation mondiale du commerce (OMC), 2022)

The provided table illustrates a decrease in the proportion of Algerian international trade in relation to global commerce from 2018 to 2022, coinciding with the emergence of the COVID-19 pandemic in 2020. Consequently, the share of Algerian exports in world trade reached its nadir at 0.1%, while the corresponding figure for Algerian imports also stood at 0.1%. The dip in question can be related to a reduction in the rate of growth of Algerian foreign commerce. This decline is mostly associated with the export of petroleum, which experienced adverse effects due to the COVID-19 pandemic.

3.4. Degree of economic exposure to the value of Algeria's foreign trade for the period 2018-2022:

Table.5. Degree of economic exposure to the value of Algeria's foreign trade for the period 2018-2022:

Period	2018	2019	2020	2021	2022
Export	41.79	35.8	23.86	42	56.5
Import	46.33	41.39	34.39	33.8	38.7
GDP/BILL DOLLARS	174.91	171.77	145.01	163	187
Degree exposure	0.5	0.44	0.4	0.46	0.5

Source: Prepared by the researcher, (data world bank, 2023)

Based on the data presented in table 05, it can be observed that the Algerian

economy exhibits a significant reliance on the global economy. This is evident from the range of 0.5% to 0.4% for the ratio of foreign trade to GDP, which represents the measure of economic exposure, throughout the period spanning from 2018 to 2022. In the year 2020, the recorded percentage was 0.4%. The significant level of exposure can be attributed to the Algerian economy's dependence on imported commodities and medical services for mitigating the impacts of the COVID-19 pandemic. Moreover, Algeria is dependent on imported consumer goods, as its local production capability is inadequate, resulting in a predominant export of raw resources.

4. Conclusion:

The coronavirus pandemic was declared a pandemic on January 30, 2020, with the outbreak occurring in China, specifically Wuhan. The Chinese government implemented measures to mitigate the virus's spread, leading to a 25% reduction in oil consumption and a collapse in oil market pricing. This led to a phase of economic contraction and a collapse in oil prices. Saudi Arabia, the leader of the Organization of the Petroleum Exporting Countries (OPEC), convened a conference in Vienna to discuss supplementary measures to curtail oil production. However, the summit was unsuccessful in achieving a consensus, resulting in a significant decline in oil prices. The decline in crude oil demand and the global spread of the coronavirus have resulted in oil prices reaching levels not seen since 2002. Brent crude oil and West Texas Intermediate crude oil prices have declined, reaching \$22.58 per barrel and dropping below \$20 per barrel. The ongoing production of low-cost crude oil by Moscow has escalated tensions between Saudi Arabia and Russia, undermining Riyadh's efforts to increase oil prices. The Algerian oil exports, which account for 94% of Algeria's overall exports and 60% of its budgetary revenue, pose significant risks to the country's economy.

The effects of the pandemic have extended to the global oil and gas markets, causing unprecedented collapses in oil prices that fell to as low as \$25 per barrel in 2020. It is worth noting that Algerian oil exports represent 94% of the country's total exports and 60% of its budget. This confirms that

any decline in oil prices in global markets will have significant risks on the Algerian economy, which remains dependent on petroleum and its derivatives exports, threatening the stability of society and the security of the country as a whole. Algeria's proven oil reserves are estimated at about 12.2 billion barrels, making it the third-largest oil reserve in Africa after Libya and Nigeria, with gas reserves estimated at 4.5 trillion cubic meters (about 160 trillion cubic feet). This has made Algeria heavily reliant on oil to finance and implement its various development policies and programs.

The years 2018, 2019, 2020, and 2021 witnessed the worst coverage rates, which were (0.89%, 0.85%, 0.69%, 0.92%) respectively, with the worst being in 2020 (0.69%), due to the impact of the COVID-19 pandemic on the trade balance, which witnessed a deficit. By 2022, the low coverage rate increased by 1.28% due to the high global demand for oil and the activity of the global economy after the decline caused by the COVID-19 crisis.

The per capita share of exports for the years 2018 to 2021 was low, with the lowest rate for the year 2020 at 0.549%, due to the decrease in the value of Algeria's fuel exports, which represent 95% of total exports (table03), due to the general decline in global oil prices. This is due to the impact of the global health crisis on global markets and the global economy. The per capita share of exports increased to 1.236% in 2022 due to the significant increase in fuel exports after the global economy returned to activity. On the other hand, the per capita share of imports was low from 2019 to 2022 due to measures taken by the Algerian government to reduce imports to preserve foreign currency and encourage local production, after the rate was 1.104% in 2018.

Decline in the contribution of Algerian foreign trade to global trade during the period 2018-2022, which was marked by the outbreak of the COVID-19 pandemic in 2020. This resulted in the lowest percentage of Algerian exports in global trade at 0.1%, and the lowest percentage of Algerian imports in global trade at 0.1%. This decline is attributed to the decrease in the growth of Algerian foreign trade, which is mainly linked to fuel exports that were negatively affected by the COVID-19 pandemic.

Analysis of the impact of global oil price volatility on Algeria's foreign trade efficiency indicators in the context of the COVID-19 crisis

The Algerian economy is highly dependent on the global economy, as the ratio of foreign trade to GDP (economic exposure) was between 0.5% and 0.4% between 2018 and 2022. In 2020, it was 0.4%. This high degree of exposure is due to the Algerian economy's reliance on imports of goods and medical services to address the effects of the COVID-19 crisis. Additionally, Algeria relies on imported consumer goods, while its exports are mainly raw materials due to weak local production capacity.

5.Bibliography list:

- The Report on Algeria's Foreign Trade Statistic , 2. (2020, 06 20). *Algeria's Foreign Trade Statistics*. Retrieved from douane.gov.dz:
<https://www.douane.gov.dz/spip.php?page=breves>
- Baldwin, R. W. (6,2020). *Economics in the Time of COVID-19*. Australian: CEPR Press.
- data world bank . (2023, 06 03). *Fuel exports (% of merchandise exports) - Algeria*. Retrieved from data.albankaldawli:
<https://data.albankaldawli.org/indicateur/TX.VAL.FUEL.ZS.UN?locations=DZ>
- L'Organisation mondiale du commerce (OMC). (2022). *Examen statistique du commerce mondial 2020*. L'Organisation mondiale du commerce (OMC).
- Petroleum Exporting Organization of Arab Countries. (2021). *Monthly Bulletin on petroleum developments in global market*.
- Rapport Commerce extérieur de l'Algérie. (2022, 10 05). *commerce exterieur de l'algerie*. Récupéré sur tresor economie :
<https://www.tresor.economie.gouv.fr/Pays/DZ/commerce-exterieur-de-l-algerie>
- Report world Trade Organization. (2020). WTO.
- w.Al-khater, & s.Al-maadeed. (2020). *Comprehensive Review of Cybercrime Detection Techniques*. jornal IEEE Access.
- world bank group.report. (2020). *Annual Reports 2020*. world bank group;.
- World Bank's Annual Report. (2020). *suppoting in unpercedented times*.
- World Health Organisation. (2020). *Working for Health Multi-Partner Trust Fund*. who.

6. Appendices:

Appendix.1. world oil demand 2019/2020 (millions barrels/day)

	2020					2019	
	Average	*IVQ	IIIQ	IIQ	IQ	Average	
	المعدل	الربع الرابع*	الربع الثالث	الربع الثاني	الربع الأول	المعدل	
Arab Countries		24.7	23.6	24.9	27.2	27.8	الدول العربية
OAPEC	25.1	23.6	22.5	23.8	25.9	26.5	الدول الأعضاء في أوبك
Other Arab	1.2	1.1	1.1	1.1	1.3	1.3	الدول العربية الأخرى
OPEC:	30.8	30.2	29.1	30.7	33.5	35.2	الأوبك
Crude Oil	25.7	24.9	23.9	25.6	28.4	29.9	النفط الخام
NGLs + non-conventional oils	5.1	5.1	5.1	5.1	5.1	5.3	سوائل الغاز الطبيعي والنفط غير تقليدية
OECD	29.1	29.0	28.4	28.0	31.2	30.0	منظمة التعاون الاقتصادي والتنمية
Americas	14.7	14.6	14.1	13.6	16.6	15.8	الأمريكتين
Europe	3.9	3.9	3.8	3.9	4.0	3.7	أوروبا
Asia Pacific	0.5	0.5	0.5	0.5	0.5	0.5	آسيا الهادئ
Non- OECD	31.6	31.0	30.9	31.2	33.5	32.9	خارج منظمة التعاون الاقتصادي والتنمية
Middle East & Other Asia	6.4	6.4	6.4	6.4	6.6	6.7	الشرق الأوسط ودول آسيا الأخرى
Africa	1.4	1.4	1.4	1.4	1.4	1.5	أفريقيا
Latin America	6.1	5.9	6.1	5.8	6.4	6.1	أمريكا اللاتينية
China	4.1	4.1	4.1	4.1	4.1	4.1	الصين
Eurasia	13.6	13.3	12.9	13.4	15.0	14.5	أوروبا آسيا
Processing Gains	2.1	2.2	2.2	1.9	2.2	2.3	عوائد التكرير
World	93.7	92.4	90.5	91.8	100.3	100.3	العالم

* Estimates
 Sources: OAPEC - Economics Department and Oil Industry Reports. المصنف: منظمة الأقطار العربية المصدرة للبترول، الإدارة الاقتصادية وتقرير الصناعة النفطية.

Source: (Petroleum Exporting Organization of Arab Countries, 2021, p. 11)

Appendix.3. world oil/gas supply 2019/2020 (millions barrels/day)

	*2021	2020					2019	
	IQ	Average	IVQ	IIIQ	IIQ	IQ	Average	
	الربع الأول	المعدل	الربع الرابع	الربع الثالث	الربع الثاني	الربع الأول	المعدل	
Arab Countries	6.9	6.5	6.5	6.7	6.1	6.6	6.9	الدول العربية
OAPEC	5.8	5.4	5.4	5.6	5.1	5.5	5.8	الدول الأعضاء في أوبك
Other Arab	1.1	1.1	1.1	1.1	1.0	1.1	1.1	الدول العربية الأخرى
OECD	44.3	42.2	43.4	42.3	37.5	45.4	47.7	منظمة التعاون الاقتصادي والتنمية
Americas	24.3	22.8	24.1	22.8	20.0	24.3	25.7	الأمريكتين
Europe	12.4	12.3	12.0	12.8	11.0	13.4	14.3	أوروبا
Asia Pacific	7.6	7.1	7.2	6.7	6.5	7.8	7.8	آسيا الهادئ
Non- OECD	49.9	47.9	50.2	48.7	45.0	47.5	52.0	خارج منظمة التعاون الاقتصادي والتنمية
Middle East & Asia	21.4	19.9	20.5	20.0	18.2	21.0	22.1	الشرق الأوسط ودول آسيا الأخرى
Africa	4.5	4.1	4.2	4.0	3.8	4.4	4.5	أفريقيا
Latin America	6.2	6.0	6.1	6.2	5.6	6.1	6.6	أمريكا اللاتينية
China	12.5	12.9	14.2	13.7	12.9	10.8	13.3	الصين
Eurasia	5.4	5.0	5.2	4.9	4.6	5.2	5.6	أوروبا آسيا
World	94.2	90.0	93.6	91.0	82.6	92.9	99.8	العالم

* Projections
 Sources: OAPEC - Economics Department and Oil Industry Reports. المصنف: منظمة الأقطار العربية المصدرة للبترول، الإدارة الاقتصادية وتقرير الصناعة النفطية.

Source: (Petroleum Exporting Organization of Arab Countries, 2021, p. 12)

Analysis of the impact of global oil price volatility on Algeria's foreign trade efficiency indicators in the context of the COVID-19 crisis

Appendix.4. Rate of change of world supply in year (%) 2020

period	Q 1/2020	Q 2/2020	Q 3/2020	Q 4/2020
Rate of change/world supply	//	- 8.67	- 1.20	2.10

Source: Prepared by the researcher, based on Annex 03.

Appendix.5. spot prices for OPEC basket for crudes 2019 (USD/barrel).

	غرب تكساس	قطر البحري	برنت	دبي	السراة الليبي	موريتان الاماراتي	الكويت	البصرة الخفيف	خطوط الصحراء الجزائري	العربي الخفيف	سلة خامات أوبك	
	WTI	Marine	Brent	Dubai	Es Sider	Murbaan	Kuwait Export	Basra light	Sahara Blend	Arab Light	OPEC Basket	
Average 2019	57.0	65.2	64.2	63.5	63.8	64.7	64.3	63.6	64.5	65.0	64.0	متوسط عام 2019
January 2019	51.6	59.5	59.4	59.1	58.3	60.8	58.7	58.2	59.3	59.6	58.7	يناير 2019
February	55.0	65.1	64.0	64.4	63.2	65.6	63.9	63.3	64.3	64.9	63.8	فبراير
March	58.2	67.6	66.1	66.9	65.4	68.0	66.8	66.1	66.4	67.4	66.4	مارس
April	63.9	71.8	71.2	70.9	70.5	71.5	71.2	70.5	71.2	71.9	70.8	أبريل
May	60.7	71.0	70.9	69.6	70.3	69.7	70.1	69.8	71.2	70.8	70.0	مايو
June	54.7	63.5	64.0	61.6	63.6	62.8	62.6	62.7	64.8	63.5	62.9	يونيو
July	57.5	64.8	63.9	63.2	63.4	64.9	64.9	64.4	63.9	65.6	64.7	يوليو
August	54.8	60.8	58.8	58.9	58.4	60.2	60.4	59.2	58.2	60.8	59.6	أغسطس
September	56.9	63.1	62.6	61.1	62.3	62.4	62.2	61.9	62.5	62.7	62.4	سبتمبر
October	54.0	61.8	59.7	59.5	59.8	60.9	60.5	59.5	60.5	61.0	59.9	أكتوبر
November	57.3	64.9	63.1	61.9	63.5	63.5	63.7	62.5	63.9	64.0	62.9	نوفمبر
December	59.8	68.1	66.9	64.9	67.6	66.7	66.3	65.8	68.1	67.5	66.5	ديسمبر
Average 2020	39.4	41.7	41.6	42.2	40.7	43.6	42.0	42.2	42.7	42.4	41.5	متوسط عام 2020
January 2020	57.6	67.2	63.4	64.1	63.6	66.1	65.4	64.1	65.3	66.6	65.1	يناير 2020
February	50.6	56.0	55.5	54.3	54.7	57.1	55.9	54.8	57.9	56.8	55.5	فبراير
March	29.9	36.0	31.7	33.8							33.9	مارس
April	16.5	17.5	18.8	21.3	14.6	23.9	17.2	16.8	17.1	18.3	17.7	أبريل
May	28.6	23.5	28.8	30.4	24.6	28.2	24.5	24.7	26.3	25.0	25.2	مايو
June	38.3	36.2	40.1	40.7	38.7	39.3	35.6	37.2	40.5	36.1	37.1	يونيو
July	40.8	44.1	43.3	43.2	42.2	43.7	43.3	44.6	44.1	43.5	43.4	يوليو
August	42.4	45.4	44.8	43.9	43.7	45.5	45.1	46.1	45.6	45.3	45.2	أغسطس
September	39.6	42.1	40.6	41.5	39.2	41.9	42.1	42.1	41.0	42.1	41.5	سبتمبر
October	39.5	40.1	40.0	40.7	37.7	41.1	40.4	40.6	39.8	40.3	40.1	أكتوبر
November	41.5	43.0	42.5	43.3	40.2	43.1	43.0	43.1	42.6	43.0	42.6	نوفمبر
December	47.1	49.2	49.7	49.8	48.1	49.5	49.4	50.0	50.0	49.2	49.2	ديسمبر

*OPEC didn't release detailed data for its basket prices during March 2020.
Source: OAPEC - Economics Department, and OPEC Reports.

* لم تصدر أوبك بيانات تفصيلية لأسعار سلة الخامات خلال شهر مارس 2020.
المصدر: منظمة الأقطار العربية المصدرة للبترول، الإدارة الاقتصادية، وبنقاير أوبك.

Source (Petroleum Exporting Organization of Arab Countries, 2021, p. 06)

Appendix.6. spot prices for OPEC basket for crudes 2020 (USD/barrel)

	2021	2020	
January	54.4	65.1	يناير
February*	55.1	55.5	فبراير*
March		33.9	مارس
April		17.7	أبريل
May		25.2	مايو
June		37.1	يونيو
July		43.4	يوليو
August		45.2	أغسطس
September		41.5	سبتمبر
October		40.1	أكتوبر
November		42.6	نوفمبر
December*		49.2	ديسمبر*
First Quarter		51.5	الربع الأول
Second Quarter		26.6	الربع الثاني
Third Quarter		43.4	الربع الثالث
Fourth Quarter		44.0	الربع الرابع
Annual Average*	54.5	41.5	المتوسط السنوي*

*Projections 2021.

* توقعات 2021.
Source: OAPEC - Economics Department, and OPEC Reports.

Source: (Petroleum Exporting Organization of Arab Countries, 2021, p. 06).