



THE OIL MARKET FROM THE MONOPOLY OF PRODUCERS TO THE MONOPOLY OF CONSUMERS

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Article history:	Abstract:
<p>Received: 10th October 2022 Accepted: 10th November 2022 Published: 20th December 2022</p>	<p>Preamble The oil market is characterized by several characteristics that make the oil market different from the rest of the markets, although the economic theory provided us with a general concept of the markets as a place or the field in which various economic activities are carried out and based on the idea of multiple types of markets according to the different degree of dominance of one of its parties, whether consumers or producers over price or quantities. Due to the peculiarity of the oil market and through this vision and analysis of market data in which the activities related to crude oil are practiced, the research topic came to analyze the reality of the oil market in its different directions.</p> <p>The importance of research The importance of the research stems from the importance of crude oil at the international level from the political, economic, and social aspects and the complexity of its circulation between producers and consumers, as this commodity came out of its consideration as a commodity that meets the needs of individuals and societies to consider it as a strategic commodity in which the satisfaction of a need is not only achieved but to be considered a strategic commodity that involves drawing economic and social policies, for which strategies are drawn and to understand the perceptions of what transpires on them, all of the above was chosen for this topic.</p> <p>The problem of Research The research problem is determined by the relationship between the groups composed of the parties involved in the oil market, whether they are producers or consumers, and the change of the position of the two parties during a different period of rotation of their roles by controlling price or quantity.</p> <p>The hypothesis of Research The monopoly of producers is achieved when the oil market leads to the dominance of the produced quantities of crude oil over consumption flows and price changes take into account the interests of consumers greater than the interests of producers. The oil market data applies to the path that achieves the interests of the parties. Otherwise, it means a state of turmoil in the market. For this purpose, the researcher proceeds from the following hypotheses:</p> <ol style="list-style-type: none">1. The difference in the price elasticity of demand for some regional groups from the logic of economic theory in demand and supply of crude oil, reflects the state of turmoil in the oil market.2. The price elasticity of demand for the same groups is inconsistent with the logic of economic theory in some years, which reflects the turmoil of the global oil market during the period.3. Not following the demand for oil in the markets on the price index of



crude oil for most regional groups, but in general at the world level, the effect of the price was clear in determining the demand for oil, which is in line with the logic of the economic theory.

4. The presence of a strong trend towards consumption, enhances consumers' control over determining the monopoly power over the global oil market more than it is in relation to production.

5. The high degrees of flexibility for most groups indicate that the global oil market is moving away from the state of monopolistic competition for each group in favor of strengthening the state of monopoly in the oil market.

Research structure

In order for the researcher to reach his goal, he relied on a structure consisting of three main sections:

The first section: the theoretical economic model of the oil market.

The second section: the oil market from the side of oil demand (consumer market)

The third section: the oil market from the side of oil supply (producers' market).

Previous studies

1- The study presented by Jamid, Dr. Muhammad Ali (analysis of oil price trends and the factors affecting it) dealt with the relationship between elasticity of demand and its impact on supply and its relationship to the power of monopolists. The focus was on the demand side in determining the strength of monopolists. (Published in Issue 24 / Journal of the College of Administration and Economics / Volume 46/2017).

2- The study (Estemi Berk and Eren Caim) entitled (The Shift in Global Crude Oil Market Structure: A model-based analysis of the period 2013-2017/ working paper no19/05), deals with the structural changes that cause disruptions in the crude oil market due to the impact of these changes, especially in the first decade of the twenty-first century, and the extent of recovery affecting crude oil-producing economies in contrast to the turmoil in oil-consuming economies, where a partial equilibrium model was presented for the spatial structure of the global crude oil market and market simulation for the period (2013-2017) towards the economic blocs that began to dominate on the oil market regardless of whether the cartels take into account the interests of producers or consumers. The market is heading towards oligopoly in favor of these blocs. The strength of the monopoly of the blocs has begun to align with the results and repercussions of the crude oil market.

3- The study that was presented by (Kolomeytseva Angalina) under the title (Global Oil Market Trends) and published in (ESPA CIOS / Vol:40/N0:3 the year 2019), focused on the current trends in the crude oil market with economic and statistical analysis of the main factors that constitute the structure of the crude oil market, indicating that the attempts of the main parties to take and formulate various economic policies to stabilize prices at levels below 50 dollars per barrel. It is controlled by price changes and its instability makes the market subject to fluctuations, and there is a need to restrict the dominance of producers on the crude oil market in order to regulate the oil derivatives market. It is a clear indication that the market is under the domination of the monopoly of producers.

4- The report presented by the Asia Pacific Risk Center under the title (The Impact Oil Prices On Asia) and published in (Marsh and Mclennan Companies / 2017) showed that the rate of domestic oil production in Asia has been largely stable during the past three decades compared to an acceleration and rise in consumption rates with a clear discrepancy between production and consumption, which made the Asian countries also net importers of oil. This reflects the change in the structure of the oil



market from production to consumption for the group and evidence that the power of monopoly tends to favor the consumption side.

5- The study presented by (Kathleen King, Ail Dena and David Mets) under the title (The Role of Political Events and Economic News, Financial Trading, and Fundamentals: An Economic Analysis Oil Movements) and published in (Bates White prices-Economic Consulting, January 2012) in analyzing the main drivers of long-term trends in changing oil prices by diagnosing two main indicators of the basic market factors, the supply factor, which is the impact of OPEC production decisions on oil prices, and the second factor relates to news about stock levels that are issued in strategic storage reports when talking about environmental impact assessment, which reflects weekly and monthly stock levels, with an explanation that the impact of changes in crude oil prices in the markets with stock reports is not as large as the influence of factors on news events about decisions, storage and consumption regarding production, which supports that the consumption side represented by stock and consumption decisions is what controls the oil market.

6- The summary of the study of the executive report presented by (Ken Koyama, The Recent High Oil Prices, Its Background, and Future Prospects, Executive Summary) and published in the Institute of Energy Economics, Japan, 2005) concluded that the repercussions of the high demand for crude oil and the difference in economic growth rates especially by the group of economic cooperation and development countries, which represents the consumption pole over oil and the emergence of crude oil transactions in the spot and futures markets and the possibilities of risks and hedging them gave the formula of monopolistic competition for the crude oil market and without defining the dominance of monopolistic competition on the part of consumption or production, with the dominance of the price trend towards the rise and the uncertainty in the state of the market and all of this portends the strengthening of the state of monopolistic competition.

7- As for the research paper in the study (Kjell Berger and Michael Hole of the oil market as oligopoly discussion /paper central bureau of statistics /28-March 1988), it showed that the function of oil demand and cost are two main factors in determining the oligopoly in the oil market of the producing countries inside OPEC and Outside of OPEC, they are also the strongest in the degree of monopoly and others in the marginal degree away from the case of oligopoly. The study summarized that oligopoly in the oil market is on the production side, but what enhances the degree of monopoly is a function of the demand for oil among consumers.

Time and place limits

In his analysis, the researcher relied on data and statistics issued by institutions concerned with oil and energy affairs, such as the British Petroleum Corporation, the Intonation Energy Agency, the International Energy Agency, and the OPEC Corporation for oil-producing countries. The researcher tried to adapt the requirements for providing research data in a way that corresponds to the data settings that were presented in the statistics of these institutions. For this purpose, the temporal and spatial limits of the research came as follows:

- 1) Time Limits: A Time-Series (2000-2020)
- 2) Spatial boundaries: regional groups (America - European group - Middle East group - Asian group - OPEC group).

Keywords: for crude oil, monopoly, elasticity, demand, supply



THE FIRST SECTION

The theoretical economic model of the oil market

The economic studies and within the fields of the philosophy of economic theory for the purposes of economic research for markets followed the microeconomic theory when the market is characterized by economic variables with partial variables represented by price, consumption, and production in addition to the fact that these variables are addressed within the theories presented at the microeconomic level, whether the theory of production or consumption or prices or elasticities.

The concept of the market is strengthened by the realization of its basic components, represented by the integration of the four main dimensions of place, time, commodity or service, and the dealers in the market, whether the consumer or the producer. Or the presence of sellers in front of consumers, and time involves a specific period or date in which the conduct of economic activity is determined between the two. Consensual trading is achieved between the mutual parties without compliance with the use of payment and receipt methods available for the circulation of goods and services based on weights, measures, and measures that achieve the desired by the two parties represented by untainted consent from the defects of dissatisfaction.¹

The term market has been mentioned in some Qur'anic texts, where it was mentioned in the Almighty's saying (what is the matter with this Messenger that he eats food and walks in the markets)² where it is understood from the text of the verse that the market is an organizational problem that does not submit to the will of its dealers and vice versa, and we understand from that that individuals organize their situation according to data of the market, not the other way around, is far from absolute ideals and close to the innate behavior of man. And the Almighty's saying: (O you who believe, do not eat your money among yourselves unjustly unless it is a trade by mutual consent of you)³ inference that a market is a place for the circulation of money and all that falls under it that are residents of money. It is the satisfaction of the parties. In order to ensure the interest of all.

The research hypothesis came that the oil market applies according to the compatibility rule for the

¹ Sami Mazhar Muntiqji, *The concept of the market in Islamic jurisprudence*, PP. 2-7.

² Al-Furqan Verse 7.

³ Women Verse 29.

benefit of all, and the word "market" is the real place in which the interactions between demand and supply or interaction between sellers who are called traders or classified and between consumers from the general public or special categories and the oil market as a spatial-temporal situation that includes categories of governments and companies classified as producers versus individuals, governments and companies classified as consumers, and the development of this concept with the development and complexity of economic operations and activities following the progress of technologies and the achievement of luxuries and financial capabilities.

Markets have three main components, sellers, and buyers, and the commodity is the subject of economic activity in the market. The markets can be divided into perfect competition markets and imperfect competition markets. The latter is divided into pure monopoly and monopolistic.

These theories are presented within the microeconomic analysis because crude oil, with different degrees of density and close homogeneity between types of oil, makes the oil market The most important components of the global market for crude oil are the producers consisting of OPEC and non-OPEC member countries and consumers from industrialized countries and developing countries according to different groups, and the market is affected positively and negatively by a number of factors.⁴

A distinction must be made between the concept of the market as we understand it and the market as presented by economic theories. The market is a place of commercial operations between producers and consumers in the real reality of the two groups, respectively, between sellers and buyers or customers, with the assumption that one of the parties does not take the character of the other party, meaning that we distinguish in this regard the consumer who is the buyer and has the demand function (demand) and the seller who is the producer and has the function of

⁴ Prof. Dr. Nabil Mahdi al-Janabi Prof. Dr. Karim Salem Hussein, *the relationship between crude oil prices and the dollar exchange rate (Granger) using joint integration and causation*, Journal of the College of Administration and Economics Issue 1 Year 2011, p. 6, <https://www.iasj.net/iasj/download/3dd82932bde42817>



supply (supply), excluding the idea of the merchant who may take two positions at the same time. ¹

The oil market at the present time is excluded from this abstract concept of the market, especially after the emergence of strategic oil storage policies and the revival of the activities of oil stock markets in different countries of the world. The development of the oil market came after the development of needs and the increase in global demand for oil and the restriction of consumption after the world shifted from a dependence on solid energy consumption (coal) to dependence on liquid energy (oil), as global demand expanded in America and the group of Asian countries for crude oil and petroleum products² which was reflected in the growing oil supply in the major producing countries (OPEC countries), led by Saudi Arabia.

According to the simple terms and concepts of the market that refer to how the transactions between sellers and buyers, (the main parties in the market), determine the prices and quantities of various goods and services from the interaction between the two that belong to these parties, and as many economists from the schools of the seventeenth and eighteenth century believed, including Karl Marx that the price of a commodity in the market is determined by cost, but the fact that cost does not often explain the high prices of some cases of high price hike for commodities that are characterized by low costs. in determining the value of goods. ³

Accordingly, the price of oil in the market may not be caused only by cost, which determines supply, but also by the great need for it, and the importance of use may be a factor in determining the price. Thus, the position of the consumer has taken a large part in

the equation of determining the price of oil in the market, **similar to the importance of the cost that** determines the role of producers in Determining the price.

The balance between the position of the producer and the consumer is important in the analysis of market mechanics, and the importance of each role in the management of the market mechanism may alternate, and the market is attracted between a monopoly party to producers or a monopoly to consumers.

Most studies and theories that are concerned with energy and oil affairs agree that the oil market is an oligopolistic market where companies and oil-consuming countries meet with companies and oil-producing countries within the framework of prior agreements or immediate transactions within open, immediate, or, future markets, and the meeting of consuming companies and producers together in order to participate in the market. Determining the break-even price results in the state of a non-competitive market structure or the state of weak competition, and thus, they enjoy large profits through an agreement to raise the price or reduce the price to attract more customers. In this case, the demand curve for the produced oil takes on skewed demand curves and consists of two parts (elastic and inelastic). ⁴

The question is who is the flexible department, the producers or the consumers? The same question for the inflexible section, is it for producers or consumers? The answer to the question determines the role and dominance of either party on the market, and this can be inferred by researching the response of quantitative changes produced from oil to price changes, as well as the response of quantitative changes consumed to price changes.

What happened and what is happening now is controlling the quantities in order to influence the price. If the producer controls the quantity of production in order to determine the price, then consumers in the oil markets began to influence the consumed quantities in order to curb the price flux in emergency times and times that call for the interests of consuming companies to reduce the price.

There may be subtle demand and cost shocks in the market that affect not only prices but also the competitive market structure. Unexpectedly high costs are likely to lead to higher prices, but higher prices do not attract many companies to deal with the high

¹ C. T. Kurien [Madras Institute of Development Studies, India], **The market economy: theory, ideology and reality/ real world economic review, word press com page 78.** <http://rwer.wordpress.com/comments-on-rwer-issue-no-71>

² Kathleen King, Ai Deng, and David Metz, **An Econometric Analysis of Oil Price Movements, The Role of Political Events and Economic News, Financial Trading, and Market Fundamentals January 2012 / www.batewhite Economic Consulting com, pdf.**

³ Robert. H. Frank and Ben S. Bernanke, **Principles of Economic , 3 edition , Mc –Graw-Hill Irwin 2007,page 62.**

⁴ **Oligopolistic market model and oil prices ,12th,dc ,2017, UKESSAYS,COM** <https://www.ukessays.com/essays/economics/t>



price, so the effect of competition on prices will be less.¹

So what matters is not price changes, but rather the competition that appears on the variables that would affect the price that satisfies both producers and consumers. As it is known, the nature of the oligopolistic market is characterized by the following characteristics:²

1- The presence of a small number of establishments and the establishment of a large share of the market. The size of the firm's market share can be measured by estimating the volume of production or sales.

2- There is competition in quantities in addition to competition in price.

3- The presence of obstacles that prevent the entry of new producers, and that guarantee granting "monopolistic power to producers in this market, in addition to the existence of "reciprocal relations" between producers. Incentives for agreement between producers in the market to sell at a certain price in the market, in addition to the existence of "reciprocal relations." between producers.

Finally, in this market, there are incentives to agree between the producers in the market to sell at a certain price or to divide the selling areas between the two producers. There are two main sections of the strategy behaviors that the organization can follow:

First: Collusion with each other, and in this case, the market becomes close to the market of total monopoly in terms of prices, quantities and profits.

Second: is the case of non-complicity, which in turn is divided into two parts, competition in prices and competition in quantities.

Both of the above cases can be seen in the oil market. An agreement may be achieved between the two parties, producers and consumers, to set a price that meets the desire of the two parties, which is a case of collusion or a state of non-collusion between the two parties through determining the volume of production

¹ Vishal Singh and Ting Zha, pricing and market concentration in oligopoly market, *Marketing sciences*, vol. 27 no6, Nov- Dec 2008, PP1020-1035, ISSN -0732-2399, EISSN 11526-54BX/08/2706/1020.

² Market Structure and Sector Profitability A Case Study of the Algerian Banking Sector, Introduction Thesis of the Faculty of Economic, Commercial and Management Sciences, Department of Economics, Mohamed Khider University of Biskra, As requirements for obtaining a master's degree in economic sciences by student Ben Taher Ali, 2011-2010, p. 11.

to control the price by producers or determining the quantities consumed to curb the price by consumers.

The second section

The oil market from the side of oil demand (consumer market)

The demand side in the crude oil market represents the economy of the oil consumption stage. The researcher relies on the variety of demand for crude oil without going into a demand for oil derivatives, depending on the idea that crude oil is the basic material from which oil derivatives are produced, and as a logical result, the demand for crude oil is a derivative demand of the demand for petroleum products.

The demand for crude oil is determined by the consuming countries, and the influence of the advanced industrial countries is more dominant in shaping the level of this demand, and it depends on a set of variables:

1. The global demand for oil is determined by global economic growth and population growth. The global demand for oil reflects global oil consumption. According to the consumption theory in macroeconomic theory, consumption depends on income on the one hand, and on the other hand, consumption that reflects demand depends on price, with reference to that technical progress is closely related to economic growth.

Technical progress at the aggregate level of the economy may include shifts in the composition of the goods and services produced in the economy as light manufacturing replaces heavy and more energy-intensive manufacturing, and where service activities replace manufacturing. These trends have persisted in many industrialized economies even though overall economic growth has declined significantly in recent decades. It is very difficult to separate these two effects because economic growth and technical progress occur simultaneously.³

2. The price of crude oil in the global markets, which is published by international institutions and international oil companies with their various classifications. The researcher relied on the price of each regional group on the price of the closest in its dealings in the oil market. As if the transactions of the American group were according to the price of West Texas crude, the European group according to the price of Brent, the Middle East, according to the price of the OPEC crude

³ Hillard Huntingtona, Zhuo Huangb, Saud M. Al-Fattahc, Michael Gucwaa, and Ali Nouria , *Oil Markets and Price Movements: A Survey of Determinants*, p. 12.



basket, and the African group according to the price of Nigerian forcados.

In his analysis, the researcher is satisfied with the second indicator, which is the price that is dominant in determining the demand for crude oil, especially in the short term, represented by the changes that occur

during one year. As for the impact of growth, this appears in a period of more than a year. The price elasticity coefficients for the different regional groups, as shown in Table No. 1 for the North American group, are:

Table (1): The value of the elasticity of demand for the regional groups of North America for the period (2001 to 2019)

years	North America	
	Price elasticity of demand	
	Positive	Negative
2001	0.009	
2002	0.442	
2003	0.088	
2004	0.129	
2005	0.008	
2006		-0.068
2007	0.020	
2008		-0.219
2009	0.072	
2010	0.092	
2011		-0.068
2012	2.065	
2013	0.429	
2014		-0.086
2015		-0.016
2016		-0.388
2017		-0.236
2018	0.102	
2019	0.046	
Net	3.503	-1.082
The difference	2.421	

Source: From the researcher's calculation based on Appendix No. 1.

Table 1 shows that the price elasticity of demand for the North American group for the period (2001-2019) was different between the positive and negative trend toward changes in prices, noting that the economic theory stresses the necessity of a negative sign of the elasticity of demand.

The elasticity sign alternated between positive and negative during the period, which gives an indication that the consumed quantities of crude oil with price changes did not come in line with the logic of economic theory in some years and as shown in the table, which states that every decrease in price leads to an increase in demand, and some years it recorded an inverse change with changes in prices, which indicates the compatibility of the change with the

economic logic, and the sum of the positive values of the elasticities amounted to (3.503) and the negative value (1.082) so that the difference is positive (2.421), which indicates the outcome of a decrease in the price that did not lead to an increase in demand, but rather a decrease in demand and vice versa with the increase in the price, and accordingly, the elasticity index for the North American group may not be sufficient to analyze the path of demand for oil.

This reinforces the first hypothesis of the research, which is represented in the lack of realization of the logic of the economic theory due to the existence of a state of turmoil in the market.

For a group of European countries, we present Table (2).

Table 2: The value of the price elasticity of demand for the European group of countries for the period (2001-2019)

years	Total Europe
	Price elasticity of demand



	Positive	Negative
2001	1.059	
2002	2.463	
2003	0.042	
2004	0.030	
2005	0.027	
2006	0.012	
2007		-0.189
2008		-0.051
2009	0.082	
2010		-0.044
2011		-0.101
2012		-9.662
2013	0.409	
2014	0.192	
2015		-0.026
2016		-0.106
2017	0.111	
2018		-0.015
2019	0.024	
	4.451	-10.195
Net	-5.743	

Source: From the researcher's calculation based on Appendix No. 1.

We conclude from Table 2 that the net price elasticity of demand values appeared in line with the logic of economic theory during the period (2001-2019), where it was recorded (-5.743), which reflects that the relative percentage decrease in prices by the amount above causes the percentage increase in the quantities demanded by the same amount during Duration (2001-2019), which represents the elasticity of the period and is similar to the elasticity of the straight line.

It is known that elasticity is a measure used to indicate the degree of response to the quantity required of a good or service according to its price changes. More precisely, it presents the percentage change in

quantity demanded in response to a change in price with the assumption that other variables determining demand remain constant. As it appears from the absolute numerical value, which is greater than one, it is true that the demand in the oil market of the European group was characterized by flexibility, which reflects the state of monopoly in the market, and that any small change in the price leads to a change in quantities with a percentage of the change in price. This reinforces the case of the monopoly power of the European group over the group's oil market and reinforces the content of the fifth hypothesis.

As for the Middle East group, we can use Table (3).

Table 3: Price elasticity of demand for the Middle East group for the period (2000-2019)

years	Total Middle East	
	Price elasticity of demand	
	Positive	Negative
2001		-0.295
2002	0.636	
2003	0.338	
2004	0.265	
2005	0.221	
2006	0.203	
2007	0.367	
2008	0.203	
2009		-0.081
2010	0.151	
2011	0.139	



2012	1.519	
2013		-0.745
2014		-.0161
2015	0.001	
2016		-0.091
2017		-0.017
2018	0.008	
2019		-0.268
	4.052	-1.658
Net	2.394	

Source: From the researcher's calculation based on Appendix No. 1.

The table shows that the summary of the price elasticity of demand reading during the period (2000-2019) for the countries of the Middle East is 2.394, with a positive value and greater than one, which indicates the characteristic of the market in the case of monopoly.

Prices are a direct trend, and that the percentage relative increase in price reflects the relative increase in quantities of (2.594) and the path of change between price and quantities may be contrary to economic theory and in a direct direction between them due to the increase in global demand for oil in a way that pressures the rise in prices and where demand growth was clear Since 2004, according to the International Energy Reports, as the cause of the rise in crude oil prices, there has been an increase in global demand for oil, as global demand for oil expanded in 2004 from 2.7 million barrels per day or 3.4% from (the previous year) to 82.50 million barrels per day, and the significant growth in demand was concentrated in Asian developing countries and the United States, where the increase in demand in China alone came to 850 thousand barrels per day, which represents 31% growth in demand for the oil in the world. ¹

Table (4) shows a summary of the readings, the elasticity of price demand for the group of Asian countries, as it appears from the table similar cases to the aforementioned tables, which are represented by a case difference between the direction of change in the two variables, where years appeared that the change was compatible with economic theory, especially the years (2001, 2008, 2009, 2019, 2016, 2015, 2014, 2013) where the elasticities were negative, and it is worth noting that oil consumption is growing more rapidly in Asia and the Pacific than anywhere else in the world.

¹ Ken Koyama, /The Recent High Oil Price: Its Background and future prospects, Executive Summary /IEEJ: October 2005, page 4, Oil Market (oxford).

The region accounted for 15 percent of global oil consumption in 1970. By 2006, its share had doubled to more than 30 percent of the world's total. Increasing oil consumption is linked to economic growth and rising living standards, primarily in the largest developing economies region - China and India. ²

² Research Report ,EAST-WEST CENTER ,Asian Pacific Issues ,No 85, august –Sep.2008 ,Oil in Asian and the Pacific Production ,consumption ,import ,and policy option , Stable URL:

<http://www.jstor.com/stable/resrep16009/page>

Table 4: Price elasticity of demand for the Asian group of countries for the period (2000-2019)

years	Total Asia Pacific	
	Price elasticity of demand	
	Positive	Negative
2001		-0.06947
2002	0.866	
2003	0.350	
2004	0.245	
2005	0.037	
2006	0.122	
2007	0.340	
2008		-0.024
2009		-0.025
2010	0.283	
2011	0.116	
2012	1.424	
2013		-0.598
2014		-0.202
2015		-0.043
2016		-0.144
2017	0.148	
2018	0.094	
2019		-0.208
	4.025	-1.313
Net	2.712	

Source: From the researcher's calculation based on Appendix No. 1.

By comparing the negative and positive values during the mentioned period and as an absolute value, we note that the net price elasticity of demand was recorded (2.712), which gives an indication that the demand for crude oil in this group is an elastic demand and that the oil market is an oligopolistic market with an exception to the logic of the economic theory which

states that the inverse relationship between price and quantity changes, which lies in the turbulence factor that affects the oil market more than the price factor. This fact reinforces the first and second hypotheses. We take a study of the elasticities of price demand in a group of countries of the world, as shown in Table (5).

Table 5: Price elasticity of demand for all countries of the world for the period (2000-2019)

years	Total World	
	Price elasticity of demand	
	Positive	Negative
2001		-0.057
2002	0.321	
2003	0.239	
2004	0.147	
2005	0.054	
2006	0.089	
2007	0.185	
2008		-0.155
2009		-0.019
2010	0.151	
2011	0.042	
2012		-0.643
2013		-0.355
2014		-0.071
2015		-0.021



2016		-0.089
2017	0.095	
2018	0.062	
2019		-0.072
	1.384	-1.482
Net	-0.098	

Source: From the researcher's calculation based on Appendix No. 1.

The table shows that the overall elasticity at the world level recorded a negative elasticity index for years: (2001, 2008, 2009, 2012-2016, 2019), while it came with a positive sign for the rest of the years, contrary to economic theory. The final result is less than one integer, which is (-0.098), with a negative sign, and it is compatible with the economic theory, which indicates that the oil market in the global perspective is the monopoly market.

We conclude from the above tables that the oil market is closer to monopoly than it is to competing with the different degrees of monopoly between groups. This conclusion reinforces the fifth hypothesis.

Table (6) represents a summary of the elasticities of the aggregates, as the elasticity of price demand for the aforementioned regional groups was in violation of the economic theory, as it did not give indications that

the quantities of demand for crude oil are going against the direction of price change, and the reason is that the crude oil market during the past period It was in the same direction as the price changes, meaning that the increase in prices was an indication of the increase in the required quantities and vice versa, while the indicator showed worldwide agreement with the economic theory and the degree of flexibility is close to one, which gives indications.

The oil market is a monopoly market and is closer to monopolistic competition on the part of consumption, i.e. the demand side for oil, and the monopoly control of the European group is more than it is for other groups. The change in quantities as a result of the change in price appears from the European group.

Table (6): Summary of price elasticity of demand for regional groups for the period (2001-2019)

GROUPS	E.P.D
North America	2.421
Total European	-23,893
Total Asia Pacific	2.712
The total Middle East	2.394
Total world	-0.098

Source: The researcher's calculation from Table (1-5).

The third section

The oil market from the supply side of oil (producers market)

The oil supply side represents the economy of the oil production stage, and as in the second section, the researcher relies on the variety of crude oil supply without going into the presentation of crude oil products. It is worth noting that the impact of crude oil-producing countries is more exciting than those dependent on consumption. The supply of crude oil is determined in global markets. on a number of factors, including:

1. The role of OPEC, as this group enjoys the large production and export capacity of most of the members of OPEC, as it includes the countries of the Kingdom of Saudi Arabia, Iran, Iraq, Venezuela, Libya, UAE, Kuwait, Qatar, Algeria, Nigeria, and Angola. The goal of this bloc is to confront major oil companies and control oil prices and production arrangements. This group has specific means of influencing the global oil

market, especially the method of determining production quotas for members in the extraction stage, a method that differs from the cartel of oil companies.¹

2. A role outside OPEC, which includes all countries outside the first group, led by the group of North and Latin American countries and some Asian and European countries, and on top of these countries (America, Britain, Norway, the Netherlands, Japan, Germany, China, and India), which are basic countries from a group outside OPEC.

It is worth noting that the countries of the first group are among the countries that are at the fore in their

¹ Ali Mirza, OPEC's Dilemma between Market Share and Production Determining, Series of Studies, Arab Center for Research and Policy Studies, March 2017, p. 1.



production in the global production structure. The researcher will rely on the same source of data and statistics quotation as the same in the first section,

which is data issued by the British Corporation (British Petroleum), and Table 7 shows us the flexibility of production for the North American group of countries.

Table (7): Price elasticity of supply values for the North American group of countries for the period (2001-2019)

years	North America	
	Price elasticity of supply	
	Positive	Negative
2001		-0.025
2002	0.766	
2003	0.041	
2004		-0.003
2005		-0.123
2006	0.010	
2007		-0.089
2008		-0.129
2009		-0.034
2010	0.129	
2011	0.205	
2012		-8.157
2013	2.081	
2014		-1.983
2015		-0.051
2016	0.199	
2017	0.313	
2018	0.500	
2019		-0.478
	4.243	-11.073
Net	-6.830	

Source: From the researcher's calculation based on Appendix No. 1.

The table shows that the price elasticity of demand data for the North American group came in the years (2002, 2003, 2006, 2010, 2011, 2013, 2019, 2017, 2017, 2018, and 2019) is a positive sign that is consistent with the economic theory, which reflects the behavior of countries in North American regions by taking advantage of price changes in determining their production of crude oil to serve their interests from changes in quantities according to price changes, and it amounted to (4,243). While the values of the price elasticity of supply for the **rest of the years were negative, and contrary to the theoretical logic of supply elasticity, the total during the period was (-11,073).**

Table No. (8) shows that the values of the price elasticity of supply for a group of European countries in net appeared in contrast to the economic theory during the period (2001-2019), where it was recorded (-23.893), which reflects that the relative percentage decrease in prices by the amount above causes the percentage increase in quantities by the same amount during the period (2001-2019), or vice versa, the relative increase in the price causes a decrease in the quantity of supply, and it represents the net elasticity during the period and is similar to the elasticity of the straight line.

Table (8): The values of the price elasticity of supply for the group of European countries for the period (2001 to 2019)

years	Total Europe	
	Price elasticity of supply	
	Positive	Negative
2001	0.508	
2002		-0.200
2003		-0.322



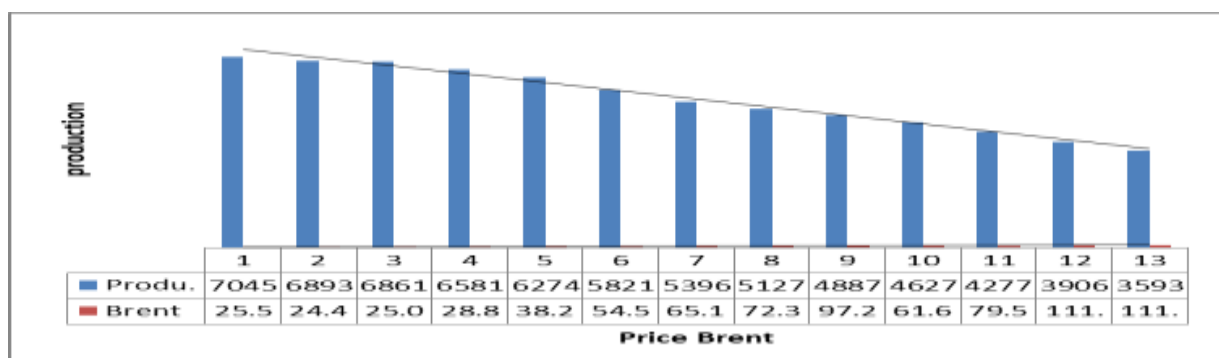
2004		-0.198
2005		-0.261
2006		-0.483
2007		-0.524
2008		-0.192
2009	0.097	
2010		-0.365
2011		-0.333
2012		-23.492
2013	1.825	
2014		-0.071
2015		-0.046
2016		-0.039
2017		-0.065
2018		-0.048
2019	0.315	
	2.747	-26.640
Net	-23.893	

Source: From the researcher's calculation based on Appendix No. 1.

It seems that this is due to the decline in production in the European group countries for the period (2002-2008) and also for the period (2010-2012) as well as (2014-2018) and the absolute numerical value, which is greater than one integer (-23.893) that the resilience of the oil market in the European group It was characterized by flexibility, which reflects a state of monopoly in the market, and that any small change in the price leads to a change in quantities by a greater percentage than the change in price.

As shown in Figure (1) that every increase in price was not accompanied by an increase in supply as expected, but was accompanied by a decrease in production, contrary to the theoretical logic of supply, especially in the years from (2000-to 2012), while the period (2013-2019) was the direction of change in quantities reverse the change in price. This reflects that a group of European countries may not constitute a strong variable in the oil market on the production side, and every increase in price is offset by a decrease in production or vice versa.

Figure (1): Production of the European group of crude oil according to Brent price changes for the period (2000-2012)



Source: Prepared by the researcher from Appendix No. 1.

Table (9): Price elasticity of supply values for the Asian group (2001-2019)

years	Total Asia Pacific	
	Price elasticity of supply	
	Positive	Negative
2001	0.043	

2002	0.117	
2003		-0.087
2004	0.042	
2005	0.053	
2006		-0.029
2007	0.033	
2008	0.055	
2009	0.010	
2010	0.222	
2011		-0.064
2012	0.398	
2013	0.455	
2014		-0.020
2015		-0.011
2016	0.171	
2017	0.064	
2018	0.109	
2019	0.006	
	5.768	-0.210
Net	5.558	

Source: From the researcher's calculation based on Appendix No. 1.

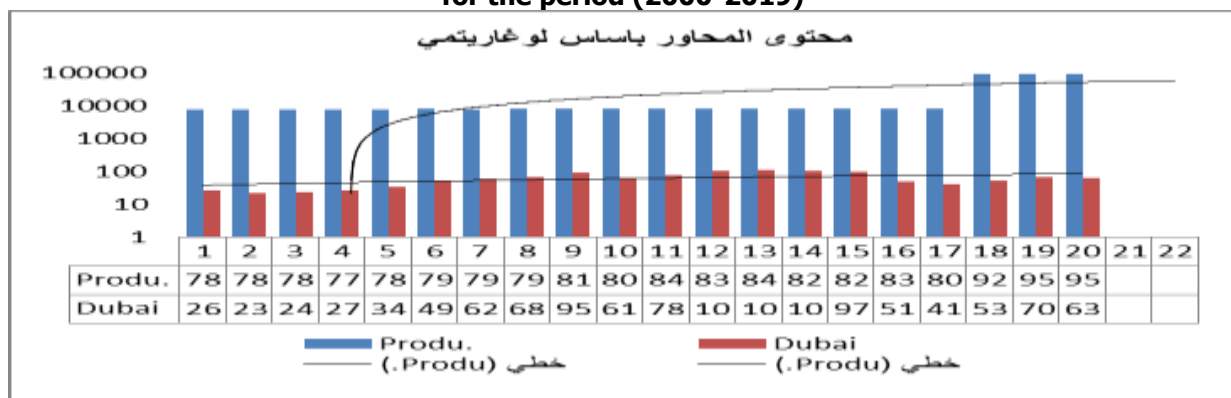
As for the countries of the Asian group, the results can be presented in Table (9) which shows the values of price elasticity of price supply for the countries of the group, where the value of price elasticity for the years (2003, 2006, 2011, 2014, 2015) came with signs that are not compatible with the economic theory and the final result is net elasticity during the period, it amounted to (5.558), with a positive sign, which reflects that every change in the price of crude oil was accompanied by changes in quantities in the same direction as the change.

And because the value of the elasticity is greater than one true, this means that the crude oil market in this group is a monopolistic market and that the group has a significant impact on the oil market during the period. As the price increase by (5.55%) causes an

increase in production by the same percentage, and this means a positive change in the oil supply side.

Figure (2) shows the accompanying changes in quantities as a result of changes in price during the period accompanied by changes in the same direction in quantities, which reflects the compatibility of changes taking place in the market from the logic of the economic theory of the supply function and the power line in the figure suggests that production quantities will continue to trend upward with an increase in the price of crude oil in the oil market. And because the value of the net supply elasticity of the Asian group is greater than one (5.558), which reflects the state of monopoly in the market on the production side. The state of monopoly is reinforced with every increase in production.

Figure (2): Crude oil production according to Dubai crude price changes for the group of Asian countries for the period (2000-2019)



Source: Prepared by the researcher from Appendix No. 1, using the E. program.



If we move to the group of Middle Eastern countries and what is shown in Table (10), we will find that the elasticity of supply for the countries of the Middle East was consistent for all years of the period except for years (2002, 2007, 2014, 2015, 2016, 2017, 2019), where the direction of production was the opposite of a

change in prices and the value of net elasticity during the period recorded (0.861) less than one integer, i.e. little elastic, meaning that the producers in this group responded in changing the supply quantities of crude oil to a lower price change.

Table (10): Elasticity of price supply for a group of Middle East countries

years	Total Middle East	
	Price elasticity of supply	
	Positive	Negative
2001	0.106	
2002		-2.066
2003	0.708	
2004	0.326	
2005	0.095	
2006	0.063	
2007		-0.144
2008	0.146	
2009	0.123	
2010	0.144	
2011	0.317	
2012	0.634	
2013	0.295	
2014		-0.120
2015		-0.057
2016		-0.233
2017		-0.043
2018	0.045	
2019	0.523	
	3.524	-2.663
Net	0.861	

Source: From the researcher's calculation based on Appendix No. 1.

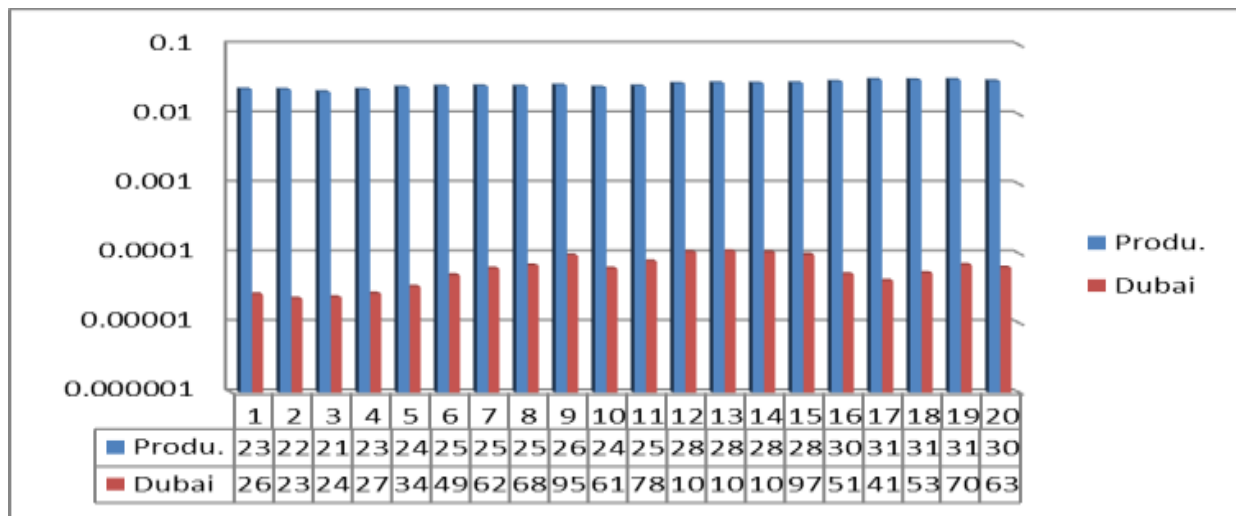
Table (10) shows that the elasticity of supply did not come in line with the economic theory for the years (2017, 2016, 2015, 2014, 2007, 2002, 2019), while it was compatible with the rest of the years.

This reflects that the oil market in terms of changes between price and supply was turbulent for the aforementioned years, but the severity of the turbulence from the viewpoint of crude oil supply during the period and for the Middle East group, in particular, was not the dominant one, as the market in the net recorded elasticity of supply during the period (0.861) and the net positive elasticity was identical in

terms of sign and less than one true and this is a small degree in flexibility or elasticity gives an understanding of the convergence of the crude oil market in the Middle East group to competition rather than monopoly.

Figure No. (3) shows a comparison between the change in the price of Dubai crude and the production quantities for the group, according to the vertical axis on a logarithmic scale based on (10). Where it is noticed that price changes are not offset by large differences in quantities.

Figure (3): Crude oil production according to Dubai crude price changes for the Middle East group of countries for the period (2000-2019)



Source: Prepared by the researcher from Appendix No. 1.

In order to know the elasticity of price supply at the world level, which reflects the activities of all regional groups, we can use Table (11):

Table (11): Changes in global production of crude oil according to changes in oil prices at the price of 2019 dollars per month (2000-2019)

years	Total World	
	Price elasticity of supply	
	Positive	Negative
2001		-0.015
2002		-0.310
2003	0.468	
2004	0.200	
2005	0.043	
2006	0.067	
2007		-0.023
2008	0.035	
2009	0.036	
2010	0.104	
2011	0.034	
2012		-1.515
2013		-0.115
2014		-0.205
2015		-0.035
2016		-0.017
2017	0.045	
2018	0.116	
2019	0.005	
	1.153	-2.235
Net	-1.082	

Source: From the researcher's calculation based on Appendix No. 1.

The global oil market at the level of regional groups witnessed turmoil according to the elasticity of the price index, where the flexibility came with a negative sign and in violation of the economic logic, which reflects that the decrease in price in the market is not matched by a decrease in production

Rather, the supply showed an expansion in oil production, where the final value of the net elasticity of supply during the period (2001-2019) was (-1.082), which reflects that the global oil market for all regional groups is closer to monopoly than to competition, which indicates that the movement of price fluctuations in dollars (2019) has an effect on



changing quantities. This can be verified if we compare changes in quantities against changes in

prices in dollars (2019), as shown in Table (12) and Figure (4).

Table (12): Changes in global production of crude oil according to changes in oil prices at the price of 2019 dollars per month (2000-2019)

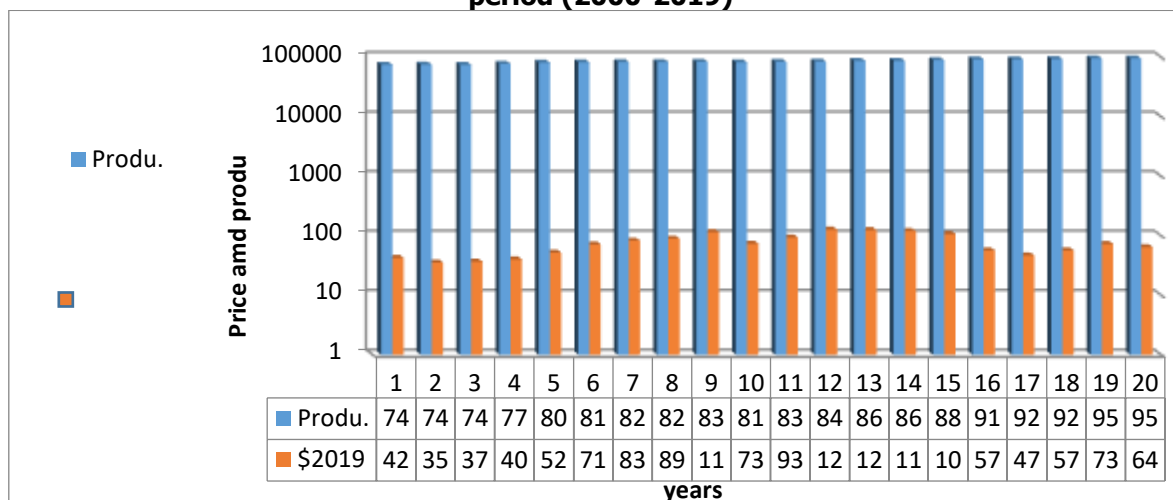
years	Production	\$ 2019
2000	74718	42.31
2001	74943	35.29
2002	74145	36.56
2003	77305	40.06
2004	80979	51.79
2005	81952	71.37
2006	82711	82.61
2007	82570	89.26
2008	83234	115.48
2009	81578	73.49
2010	83409	93.2
2011	84157	126.45
2012	86366	124.35
2013	86794	119.35
2014	88910	106.85
2015	91733	56.51
2016	92072	46.59
2017	92798	56.52
2018	95254	72.6
2019	95192	64.21

Source: Prepared by the researcher from Appendix No. (1).

Table (12) shows that production changes are not in harmony with changes in crude oil prices during the period (2000-2019), according to the assumptions of demand theory in economic theories, where we note the years between (2000 and 2001) the decrease in

prices was offset by the increase in production, as well as the decrease in price between the two years (2011 and 2012), showed an increase in production. The same was true for the period between the two years (2015-2016).

Figure (4): Global crude oil production according to changes in crude oil prices in dollars (2019) for the period (2000-2019)



Source: Prepared by the researcher from Table 12.

The figure shows the truth of what we concluded from Table (12) that price changes towards a decrease or an increase were always accompanied by a change in production quantities towards an increase, meaning

that changes in production during the period are always towards an increase without monitoring the price.



Table (14) of the value and indication of the price elasticity of price supply to the world shows that it was not identical to the economic theory. It reflects that the supply of crude oil in the regional group (North America and Europe) is decreasing with an increase in price or rising with a decrease in price, and the economic explanation for that is that the high price in the market leads to allocating the production of crude oil in these countries for domestic consumption without the flow of production to foreign markets, and

this may be a cause for turmoil in the global production market, which also came with the value of the elasticity of supply with a positive signal. As for the Asia and Middle East group, the value of flexibility is found identical to the economic theory, but the value of flexibility in the Asia group is greater than its value in the Middle East, and thus the group Asian countries are in a stronger monopoly than the rest of the groups, followed by the Middle East.

Table (14): Summary of the price elasticity of demand for the regional groups for the period (2001-2019)

GROUPS	E.P.S
North America	-6.830
Total Europe	-23,893
Total Asia Pacific	5.558
The total Middle East	0.861
Total world	-1.082

Source: The researcher's calculation from Table (7-11).

Comparing the values of the elasticity of price demand with the elasticity of price supply for the two groups as shown in Table (15), we conclude that the following:

Table (15): Summary of the elasticity of demand and price supply for the regional groups for the period (2001-2019)

GROUPS	E.P.D	E.P.S
North America	2.421	-6.830
Total Europe	-5.743	-23,893
Total Asia Pacific	2.712	5.558
The total Middle East	2.394	0.861
Total world	-0.098	-1.082

Source: The researcher's calculation from Table (1-5) (7-11)

- The global oil market is turbulent on the supply side, which reflects the incompatibility of changing quantities with a change in production (-1.082), and a quasi-monopoly that approaches monopolistic competition from the demand side (-0.098).
- Crude oil production is not in harmony with the price according to the economic theory in the global oil market, especially in the North American and European groups, as the flow of crude oil from the two groups is heading towards deflation even in the event of an increase in prices, and this indicates the disconnection of the relationship between crude oil production and price changes for these two groups.
- The price elasticity of the Asia Pacific group (5.558) is greater than its value in the Middle East, and this is evidence that the producing countries within the Asian group enjoy monopoly control in the crude oil market more than the rest of the groups in terms of production.
- The global oil market did not witness stability in the price elasticity index of the crude oil market, as the market witnessed an increase in demand with price changes rise, as the elasticity index for the countries of the world came (-0.098) with a negative sign that is

identical with the economic theory and is close to the correct one. It reflects the semi-stable state on the demand side, as it is closer to monopolistic competition.

- The European group dominated the state of the crude oil market monopoly in the world, as it represents the largest group consuming crude oil compared to the rest of the groups. While the consumption of the other groups did not correspond to the price changes, as the consumption of oil was towards expansion with the increase or decrease in the price, and in contrast to the disconnection of the relationship of production ranges with price changes, even the two groups, Asia and the Middle East.
- The European group's consumption of crude oil is negatively affected by increases in price and positively with a decrease in price.

CONCLUSIONS

1. The outcome of a decrease in price did not lead to an increase in demand, but rather led to a decrease in demand and vice versa with an increase in price in some regional groups, as the elasticity index regarding



the North American group may not be sufficient to analyze the path of demand for oil.

2. Expansion of global demand for oil and the significant growth in demand was concentrated in Asian developing countries and the United States, where the increase in demand came in China, which represents 31% growth in demand for oil in the world.

3. The oil market was characterized as an oligopoly market with an exception from the logic of economic theory which states the inverse relationship between price and quantity changes, which lies in the factor of disturbances that affect the oil market more than the price factor. The oil market is closer to monopoly than it is to competing with the different degrees of monopoly between groups

4. The oil market is a monopoly market and is closer to monopolistic competition on the part of consumption compared to the demand side for oil, and the monopoly control of the European group is more than it is for other groups. The change in quantities as a result of the change in price appears on the part of the European group.

5. The net price elasticity of the European group of countries appeared in contrast to the economic theory during the period (2001-2019) and reflects that the relative percentage decrease in prices by an amount above causes the percentage relative increase in quantities by the same amount during the period (2001-2019) or vice versa that the relative increase in the price causes a decrease in the quantity supplied.

6. The value of the net elasticity of supply for the group of Asian countries is greater than one (5.558), which reflects the state of monopoly in the market on the production side. The state of monopoly is reinforced with every increase in production

7. The global oil market witnessed turmoil at the level of regional groups according to the price elasticity index, where the flexibility came with a negative sign and in violation of the economic theory, which reflects that the low price in the market is not matched by a decrease in production, which reflects that the global oil market for all regional groups is closer to monopoly than to the competition. Changes in production are not in harmony with changes in crude oil prices during the period (2000-2019), according to the assumptions of demand theory in economic theories.

8. Changes in prices towards a decrease or an increase were always accompanied by a change in the quantities of global production of crude oil towards an increase, meaning that production changes during the period always towards an increase without the effect or cause of price changes, and it means that the monopoly authority tends in the market in favor of consumption.

9. The elasticity of the price supply to the world was not identical with the economic theory, and the matter

reflects that the supply of crude oil in the regional group (North America and Europe) tends to decrease with an increase in price or rise with a decrease in price. Crude oil is produced in these countries for domestic consumption without the flow of production to foreign markets.

10. The global oil market is characterized by turbulence on the supply side, which reflects the incompatibility of changing quantities with a change in production, and a quasi-monopoly that approaches monopolistic competition on the demand side.

11. Crude oil production is not in harmony with the price according to the economic theory in the global oil market, especially in the North American and European groups, as the flow of crude oil from the two groups is heading towards deflation even in the event of an increase in prices, and this reflects that the European group may not constitute a strong variable in the oil market on the production side, and every increase in the price is offset by a decrease in production or vice versa. This indicates a disconnect between crude oil production and price changes for these two groups.

12. The price elasticity of the Asia Pacific group is greater than its value in the Middle East, and this is evidence that the producing countries within the Asian group enjoy monopoly power in the crude oil market more than the rest of the groups in terms of production.

13. The global oil market did not witness stability in the price demand elasticity index, as the market witnessed an increase in demand with price changes rise, as the elasticity index for the countries of the world came with a negative sign that is identical to the economic theory and is close to the correct one, and it reflects the semi-stable state on the demand side, as it is closer to monopolistic competition.

14. The European group dominated the world's crude oil market monopoly on the consumption side, as it represented the largest group consuming crude oil compared to the rest of the groups. While the consumption of the other groups was not consistent with price changes, as the consumption of oil was towards expansion, whether with the increase or decrease in the price, while the consumption of the European group of crude oil was negatively affected by the increases in the price and positively with the decrease in the price.

RECOMMENDATIONS

1. Monitoring changes in oil demand in Asian countries, especially China, as it is dominant in the composition of global demand for oil. As a result, the Asian group will have a major role in determining the monopoly power over the crude oil market in the near future.



2. The producing countries should pay attention to the situation of the monopoly power in the crude oil market and the direction of the monopoly power of the consuming party, which strengthens the monopoly power of the countries consuming crude oil at the expense of removing the power of producers from the monopoly power in the oil market, which leads as a result that consumers are the ones who decide the quantities of oil traded in The market, which will be reflected indirectly on prices.

3. The imbalance in the quantities of crude oil in the oil market, from the side of consumption, comes at an accelerating rate and is reflected in positive and negative price changes, which requires producers to adopt flexible policies and effective and sufficient production programs to confront the immediate and rapid changes in consumption, which limits the power of the monopoly of consuming countries to control the oil market.

4. Research and inventory of non-traditional means and factors, other than the factor of price and costs in building and adopting the production policy, such as political and climatic factors, especially that modern science and strategic and future studies give features of changes that may appear as a result of these changes. If these factors were in the past accidental, they are no longer so at the time of the present.

5. Enhancing agreements between producers that serve to control the oil market and ensure that the monopoly power of consumers is restricted over the oil market, which shows its features day after day through their control and influence over the consumed quantities more than the producers' control over the produced quantities.

6. The producing countries should be aware that the tools for controlling the oil market through the production policy have become ineffective, and that the monopoly power of the consuming countries in the oil market has begun to undermine the will of the producing countries to dominate the oil market, so why is the price the strongest factor in the fluctuations of the oil market. Rather, it is the consumed quantities that determine the price.

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