

THE KINKS OF OIL DEMAND CURVE AND OLIGOPOLY MARKET

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ABSTRACT

Oil is a strategic commodity with low elasticity and cheap fuel for most activities in the world which means increasing demand for it. However, this demand has been subjected to numerous ups and down, especially since the oil supply is not elastic in proportion to any significant increase in the volume of demand, and this led to economic problems for oil countries and fluctuation of their fiscal revenues dependent mainly on oil production and export.

The global oil market is considered an oligopoly market and oil revenues are high compared to the costs of its production because the average fixed costs are higher than the average variable costs. Also, considering the oil market as an oligopoly market is due to the high value of the equipment and the small number of manpower employed to extract oil compared to the rest of the industries and this is an advantage for large companies and small companies cannot compete with or enter the market and therefore they achieve great profits due to higher returns compared to production costs, The OPEC founded in 1960 is an example of an oligopoly market.

Key words: Oil Market, High Oil Prices, Demand For Oil, Shock Of Oil Prices Collapse.

INTRODUCTION

This study concluded that the demand for oil depends mainly on the rate of global growth, in addition to other factors, and is positively proportional to it. Therefore the oil exporting countries should strive to diversify their exports so that their fiscal revenues do not depend solely on oil Demand for oil plays a major role in economics worldwide and is affected and influenced by many factors related to the growth of the global economy and other economic, political ,and environmental factors.

Demonstrate the evolution of the global demand for oil, the shocks it has suffered, and the accompanying economic developments worldwide. Since the Petroleum exporting Countries (Opec first exerted its market power, crude oil prices have been less steady and marked by upward shocks, and global economic development , he asserted his control Prior to it, big oil corporations like as In collaboration with the Texas Railroad Commission, the "Seven Sisters" Using covert cooperation and tacit collusion, the price was kept above marginal cost agreements to evade the US Department of Justice's Antitrust Division The log real price of West Texas Intermediate is shown by Justice (WTI) crude oil and the global economy's actual growth rate from 1951 and 2010. Why has the price of oil been so volatile throughout the "OPEC what is the situation? What impact does it have on the macro economy, and what policy solutions are available?

Would macroeconomic growth and employment be stabilized and increased? This paper's major contribution is to assist in answering the first question.

It includes anticipated net demand to OPEC, as well as the impact of oil prices. Pricing on global GDP that account for variations in reaction to rises As well as price reductions multiple asymmetric effects are implied by estimated asymmetric effects. Equilibrium pricing and the spectrum of equilibrium in a cartelized market offers a gauge of anticipated price volatility. Because of the higher the price volatility of crude oil, the larger the imbalance. Macroeconomic growth and employment are on the decline. Nationally, the situation is bleak. Because developing economies use more oil than developed economies, the consequences are more severe. Poor nations bear a disproportionate share of the imbalance. (I regressed log petroleum consumption by using IEA and IMF3 data.)

Country's log GDP in 2013 and calculated a coefficient of 0.95, with a Policies that restrict and decrease the range of possible outcomes (standard error of 0.02.)

Equilibrium oil prices, on the other hand, boost GDP and employment, particularly in the United States. Countries that are impoverished. Policies that increase net demand for OPEC are among them. Policies that are more price-elastic, policies that lower net demand for OPEC, and policies that are more price-elastic

OPEC's rate of time preference will be lowered as a result. As a consequence to the above, is that monetary policy is more successful in speeding up or slowing down economic growth. When OPEC has a bigger market share, economic activity increases.

Bloom's key welfare criteria in this essay is global GDP. Canning (2007) both agree that there is a positive link between the two variables. Preston identified national income and life expectancy (1975) continues to be stable. According to Ensor et al., (2010), recessions increase unemployment. In the early phases of a country's development, maternal and newborn mortality are high. Development of the economy Pugh Yi (2011) presents a review of the literature. According to research from the United States, poverty is caused by both cyclical and structural factors. It finds that increasing employment and stabilizing the economy are the best ways to prevent abortion.

Abortion would be reduced if the macro economy were to improve.

Research Problem

The rapid fluctuations in oil prices, up and down, result in an increase or decrease in the fiscal revenues of the exporting countries. This happens as a result of multiple reasons, some of which are major and must be taken into consideration, especially for countries that rely mainly on this fiscal resource in their public budgets.

Research Hypothesis

There is a close link between economic developments, growth of global economy, economic, political and environmental factors, and between demand for oil , its prices and fiscal revenues of its exporting countries.

Research structure

The research has been divided into three sections. First, the theoretical aspect of oligopoly market and its demand curve kinks. Second, the global oil market .Third, the development of oil demand. Finally, conclusions and recommendation.

THE FIRST SECTION: OLIGOPOLY MARKET

FIRST/The Nature of Imperfect competition and Oligopoly Market

The market of monopolistic competition, unlike the extreme cases of the monopoly market and the market of complete competition, represents the prevailing situation in the economic activity that is achieved when a number of producers produce goods that are distinguished from what other competitors produce in order to convince the consumers that they have specifications that differ from those in the market.

This market will be called the oligopoly market whenever the number of producers in the market that produce similar goods¹. (Somewhat homogeneous) decreases and its characteristics include:

- 1- There are a few number of producers, but it is difficult to determine that number in order to distinguish the oligopoly market from the monopolistic market. But nevertheless, if the share of four producers in a particular industry reaches (50%) of the total production, then the market is considered an oligopoly market² and the production of those producers who control the market is either homogeneous or somewhat differentiated.
- 2- Competition between producers is a non-price competition but rather through following a specific production policy because price competition leads to very negative results for all related parties.³
- 3- There is a difficulty in the entry of new producers into industry because of many obstacles, the most important of which is the existence of producers for a long time in that advantage of economies of scale that reduce costs while this feature is not available for new producers⁴.
- 4- There are no specific condition related to demand and costs to achieve equilibrium at the level of economic entity or entities. Likewise, predictions are lower in relation to reactions of other producers because any producer in industry does not change the price of a product without taking into account the reactions of competitor, and therefore, the principle of common or mutual interest plays an important role in this market⁵.
- 5- The demand curve in this market is more elastic compared to the monopoly market due the presence of substitute goods and their absence in the monopoly market.
- 6- Economists consider that oligopoly market is the most complicated when analyzing price and production policy compared to other markets.

SECOND / OLIGOPOLY MARKET MODELS

The price and production are determined by the economic entity based on the price and production policy of competitors who produce the same or similar product.

Therefore, economists have found it very difficult to present a specific theory of pricing and production in the oligopoly market. Maurice has made it clear that there is no theory of oligopoly market as in the case of perfect competition market or monopoly market because of the different models of produce behavior.⁶

Accordingly, economists have developed different analytical models based on assumptions of different behaviors for the purpose of setting prices and production, including:

Nash Equilibrium⁷

This model shows that producers depend in making strategic decisions on the nature of relation between sellers and buyers in terms of being a long or short term relation. A particular producer when he has large stores that buyers are in an indication of a long-term relation that the producer can rely on in the decision-making process about prices and production, but when the relation is short or transitory, the producer cannot rely on it , but depends on a previous period of time to make a decision .

Also, this model shows that when any of the producers thinks about making a decision related to prices or production, then such a decision is seen as a strategic decision that the rest of the producers will interact with gradually and that maximizing the profit for any producer depends not only on the decision he made, but also depends on other producer reactions.

THE SECOND SECTION: The World Oil Market

FIRST / the Nature of Oil Market

After the Second World War. the world oil market witnessed fundamental changes after the emergence of the competition of large companies for the production and marketing of oil and the emergence of the so-called major companies (the seven sisters), and the activities of these monopolistic companies covered most of the oil regions in the world. In addition, the increase in world consumption of oil in a very large way was one of the most prominent features of that era that followed the Second World War compared to the period before the war.

As for the oil exporting countries. Each country tries to maintain its market share through its proven oil reserves and proportion of its production in the supply on the world market or amount of crude oil it exports daily. The countries with the smallest share in oil market follow the countries with the largest share (price leadership) that possesses larger reserves such as Saudi Arabia and Russia as the two largest oil producing and exporting countries and the rest of oil exporting countries are trying to get along with them by following an oil policy appropriate to the market situation.

The global oil market is considered an oligopoly market because the oil revenues are high compared to the costs of its production because the average fixed costs are higher than the average of variable costs. Despite the high value of the equipment used to extract oil and the small number of manpower used in production compared to the rest of industries and this makes an advantage for the large companies that own that equipment and small companies cannot compete with them and therefore they achieve large profits and huge returns compared to production costs, This means that it is not easy to enter this market by small companies that can compete either in production or in prices.

According to the above, the world oil market is considered an oligopoly market and that is why OPEC, founded in 1960, is a practical example of this.

Second/ Extractive Oil Industry

The extractive oil industry has features that distinguish it from other industries due to the nature of the strategic material that deals with it, and among these features:

- 1- The large amount of capital invested in heavy equipment, machinery and expertise.

- 2- The dependence on the fixed factors of production (machinery and equipment) by a large percentage compared to the variable factor of production (labor) that constitutes (20%) or less.⁸
- 3- The continuous development of the technology used and the huge investment in scientific research in these industries for the purpose of increasing production and increasing returns profits.
- 4- As long as oil a non-renewable resource, it must be harmonized between the size of reserves and production. Countries with large reserves have large production and vice versa for countries with less oil reserves.
- 5- Despite clear technological development, there are potential risks that crude oil will not be available in sufficient quantities, which means incurring costs and losses without achieving returns and profits.
- 6- Most of the economics of oil exporting countries are largely related to the oil sector as a major source of financing for their public budgets because most of these countries did not have before the oil discovery important industries to rely on in providing fiscal resource.

THE THIRD SECTION

The Development of Oil Demand

The global demand for oil has evolved considerably in recent decades in conjunction with economic growth rates worldwide. Global economic growth is almost the main factor in increasing oil demand.

The development of oil demand during the period 2000-2019 can be divided into two phases on the basis that each stage has its own characteristics as follows:

First The period 2000-2012

As shown in Table -1- the daily demand rate was (75.8) million barrels in the year 2000 and then increased to (76.4) million barrels in the year 2001 despite the existence of a supply surplus of (1.1) million barrels in the year 2000, which led to a price drop from (28.32) to (24.35) dollars per barrel in 2001.

As a result of the price drop in 2001, the exporting countries reduced the oil supply from (77.3) to (76.7) million barrels per day in 2002, increasing the price by a slight amount that does not exceed a few cents.

As shown in figure -1-, some years (2002, 2003, 2006, 2007) witnessed a deficit in the oil supply compared to demand, which led to the continuation of the price increase from 2002 to 2007.

The demand for oil has decreased from (86.6) million in 2007 to (86.1) million barrels /day in 2008, but despite this decrease, the oil supply was (85.3) million barrels/day, that is, less than the demand level for the year 2008, which contributed to the increase in the price of a barrel to reach (96.99) dollars.

The global financial crisis (the mortgage crisis) led to a decline in demand to (84.8) million barrels per day in 2009 and the oil supply was (84.2) million barrels per day.

As a result of the sensitivity of the oil price to political and economic events in the world, the price of oil fell in 2009 to (61.76) dollars/barrel.

During the period (2009-2011) , OPEC countries committed to a certain production ceiling and the demand for oil continued to rise, which led to an increase in the price of a barrel of oil to maximum of (105.01) dollars in 2012 (Table -1-).

years	World oil demand million barrels/day	World oil supply million barrels/day	Surplus(deficient) million barrels/day	Oil price US dollars
2000	75.8	76.9	1.1	28.32
2001	76.4	77.3	0.9	24.35
2002	77	76.7	0.3-	24.93
2003	79.5	79.3	0.2-	28.9
2004	82.1	83	0.8-	37.73
2005	84.1	84.2	0.1	53.39
2006	85.2	84.4	0.8-	64.29
2007	86.6	84.6	0.2-	71.12
2008	86.1	85.3	0.3-	96.99
2009	84.8	84.2	0.6-	61.76
2010	87.2	86.6	0.6-	79.04
2011	88	87.6	0.4-	104.01
2012	89	89.6	0.6	105.01
2013	90	90.1	0.1	104.8
2014	91.4	92.4	1	96.24
2015	93	95	2	50.75
2016	94.2	95.3	1.1	62
2017	96.9	97	0.1	52.81
2018	98.2	97.8	0.4-	68.33

Source: 1- OPEC; Monthly Oil Market Indicators several years

2-IEA

1- IMF ;World Economic Outlook, April,2019 , p170

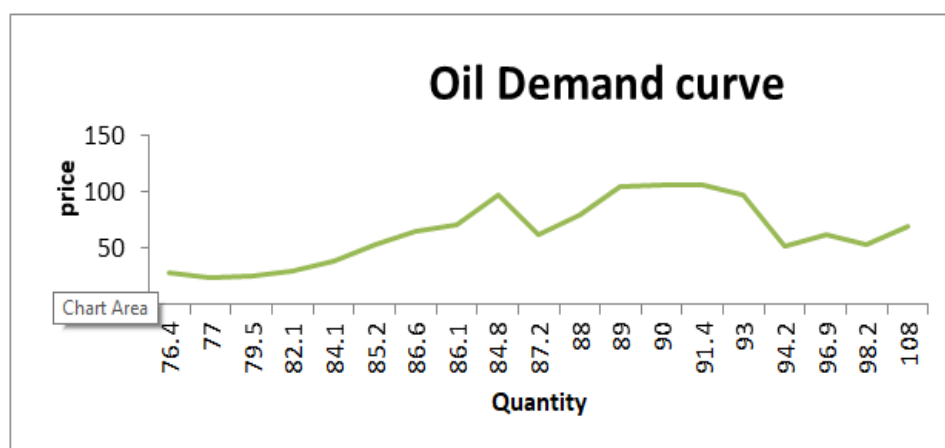


FIGURE 1
KINKS OF OIL DEMAND CURVE FOR YEARS 2000-2019

Prepared by researcher reference to Table -1

Second / The period 2013-2019

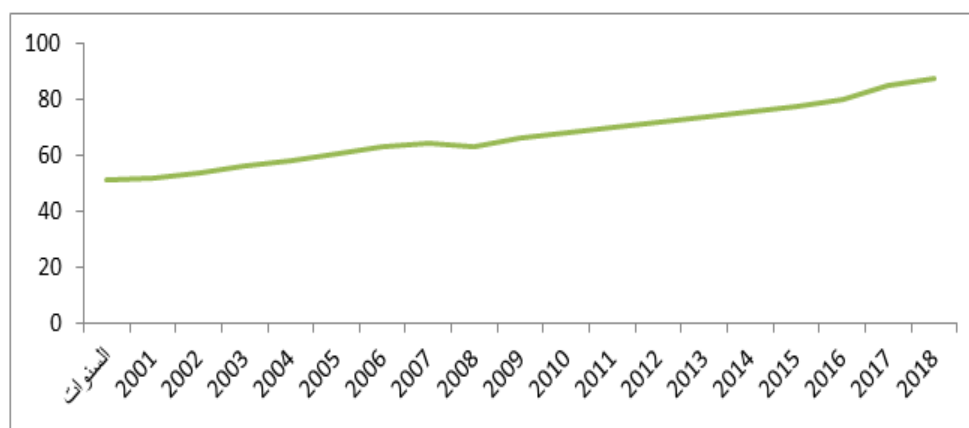
During the period (2013-2019) the slowdown in the growth rates of the global economy (Figure -2-) resulted in a significant decline in oil prices and reached in 2017 to (52.81) dollars, which is the lowest level in twelve years (Table-1-). According to Table -2-, the global gross domestic product achieved varying growth rates for the years (2001-2019) with an average annual growth rate(2.8%), whereas the growth rate of global oil demand during the same period was around (1%). This indicates that the rates of global production growth are going at a higher rate than oil demand, but in parallel, meaning that the higher rates of production growth worldwide the greater the demand for oil and there are price jumps when there is no increase in the supply of oil and vice versa(Figur-2-)

Years	Global GDP Growth%	global GDP Trillion us Dollars	World Oil demand Rate%	Average of Oil World million) Demand (barrels/day
2001		51.1		76.4
2002	2.2	52.2	1.0	77
2003	2.9	53.7	1.0	79.5
2004	4.5	56.1	1.0	82.1
2005	3.7	58.2	1.0	84.1
2006	4.3	60.7	1.0	85.2
2007	4.3	63.3	1.0	86.6
2008	1.7	64.4	0.9	86.1
2009	-1.7	63.3	0.9	84.8
2010	4.3	66	1.0	87.2

2011	3.2	68.1	1.0	88
2012	2.5	69.8	1.0	89
2013	2.7	71.7	1.0	90
2014	2.8	73.7	1.0	91.4
2015	2.8	75.8	1.0	93
2016	2.6	77.8	1.0	94.2
2017	3.2	80.3	1.0	96.9
2018	5.6	84.8	1.0	98.2
2019	2.9	87.3	1.1	108

Prepared by researcher reference to:

- 1- OPEC:Monthly Oil Market Indicators , several years
- 2- IMF ;World Economic Outlook, April,2019



**FIGURE-2-
GLOBAL GDP GROWTH, TRILLIONS US DOLLARS**

Prepared by researcher reference to Table -2-

Third /The current and Future Situation of Oil Demand

The world economy is still suffering from trade tension between the United States of America and China, leading to lower economic growth and a pessimistic outlook on future expectations. The decline in global trade growth and the slowdown in global GDP growth in 2019, which is the slowest since the global financial crisis in 2008, led the International Energy Agency to reduce its forecasts for oil demand.

In the same context, the oil consumption of OCED countries decreased by (600) thousand barrels per day due to the following reasons⁹:

- 1- The slowdown in the global economy.
- 2- The decline in the growth of petrochemical industries.

On the other hand, most oil contracts depend on future expectations and current price. In the case of future expectations, consumers will violate the further in the future and vice versa in the case of a price increase. As a result, there may be a surplus in the oil supply and prices continue the rise, or the price drop is not matched by an increase due to the expectation that prices will continue to decline. The speculations that investors make in buying and selling oil contracts depend heavily on expectations, which is an influencing factor in extreme price changes between sharp rises and sharp falls.

At the beginning of the year 2020, the corona pandemic led to a decrease in demand, an over-supply and a very significant drop oil prices.

Saudi Arabia has tried to conclude an agreement with Russia (the largest producer outside OPEC) to reduce production by (1.5) million barrels per day and Russia has not agreed to this, As a result, in April, Saudi Arabia began increasing its production and selling oil at lower prices in response to the Russian position and obtain greater market shares by luring some consumers to give up buying Russian oil.¹⁰

On April 20/ 2020 Texas crude oil prices collapsed to below zero and there was no storage capacity left for consuming countries to absorb cheap oil. As for Brent crude, which is of better quality than Texas crude, it fell by 35%.¹¹

CONCLUSION

- 1- The demand for oil is low elasticity because of the difficulty of quickly and easily converting to other substitutes when oil prices rise.
- 2- The exposure of oil demand to major shocks during the past two decades has led to fluctuations up and down to kinks in the demand curve.
- 3- The economic growth in the world is considered one of the important factors positively affecting oil demand. The political, economic and environmental tensions and crisis, whether in the producing or consuming countries ,are also factors that affect the demand for oil.
- 4- The effect of the strategic oil reserves on prices has diminished at the time of current crisis (corona pandemic) .
- 5- Oil is still considered the cheapest fuel compared to other energy sources.
- 6- The oil industry faced the worst collapse in its history when Texas crude prices decreased to below zero in April 2020 due to measures taken to combat the corona pandemic.

RECOMMENDATIONS

- 1- It is necessary to find additional ways to store the excess oil supply as well as enhance economic cooperation between exporting and importing countries at the present time to prevent a further deterioration in the global oil market due to the corona pandemic.
- 2- As long as oil and global growth rate are affected by the factors, it is necessary to take practical measures by both exporting and importing countries to prevent major shocks in demand and prices.
- 3- The Oil-Exporting countries should make efforts to diversify their exports and increase the level of flexibility of their production system to diversify the source of national income instead of relying mainly on oil revenues that are subject to fluctuation in the event of instability of the oil market

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