Impact Of Oil Consumption on China's National Economy

Yang Hu *

The Affiliated International School of Shenzhen University, Shenzhen, 518000, China

* Corresponding Author Email: jjoneszgg51722@student.napavalley.edu

Abstract. China as a large energy-consuming country in the oil industry is particularly significant, and its economy has been affected by oil consumption to a certain extent. The purpose of this paper is to explore the impact of China's oil consumption on the national economy, and whether oil is the center of China's future development. Under the carbon-reducing background, oil in transport will gradually be replaced by new energy sources, and the transition from oil vehicles to trams is inevitable. However, China's economic development so far cannot be separated from oil, and it is very important to guarantee energy security. During the epidemic, the Chinese government's self-imposed quarantine policy led to a significant drop in the number of people traveling, reducing the demand for oil and significantly slowing economic growth. However, as the epidemic is gradually brought under control in 2022, the demand for oil, consumption and investment will gradually rise. This has led to an acceleration of economic growth. This paper analyses the impact of China's oil price volatility, policy and industrial structure changes on a number of national economic factors, namely consumption, taxation, investment and international trade, and finds that oil consumption has so far been on the rise, and accounts for a very large proportion of the economy - excluding transport, oil is also very important in other areas and cannot be fully replaced. It has been found that oil consumption is still on the rise and represents a very large part of the economy - in addition to transport, oil is also very important in other areas and cannot be completely replaced, and consumption will continue to rise, with positive effects on the economy.

Keywords: Oil consumption; oil demand; international trade.

1. Introduction

Petroleum resources are currently one of the most important fossil energy sources in the world. As an important material for our survival, it can increase the productivity of labour, capital operation and other factors of production [1]. The diverse applications of petroleum can be used as an important raw material for various fertilizers, chemical plastics, pesticides and other chemical products, as well as an indispensable material for the production industry [2]. At the same time, petroleum as an energy fuel has significant uses in transport, which is a major focus of national economic development and is inextricably linked to the trade of products and the movement of people. Although petroleum is a polluting energy source, it has a high combustion value [2]. It is efficient and easy to transport, and can be used in all types of machinery, thus accounting for an increasing proportion of the country's energy mix [2]. In 2003, China became the second-largest energy consumer and the third-largest importer of crude oil [1]. In 2017, China surpassed the United States to become the world's largest importer of crude oil [3]. In recent years, China's rapid development, increasing business size and population growth have increased the demand for oil, leading to a scarcity of fossil resources such as oil. Geographically, China's oil resources are poor, unevenly distributed, and poorly explored [1]. Per capita oil production and per capita ownership of recoverable oil resources are far below the world level [1]. Although China's oil production is on the rise, the amount of oil recovered from oil fields is getting smaller and smaller [1]. China's rapid development has led to an increasing demand for oil, and it faces problems such as low oil resource reserves, high dependence on oil imports, damage to the ecological environment caused by oil consumption, and the efficiency of oil consumption that still needs to be improved [2]. According to the results of the dynamic evaluation of national oil and gas resources published on the website of the Ministry of Land and Resources, China's conventional oil geological resources are only 108.5 billion tonnes, accounting for less than 3% of the world's reserves, of which the recoverable resources are even less, only 26.8 billion tonnes [2]. China's

internal scarcity of petroleum resources has led to most of its petroleum energy being imported from abroad, accounting for 73 per cent of total petroleum [3]. According to the data published by the General Administration of Customs in 2016-2021, there was an upward trend from 2016-2020. Among them,China imported 506 million tonnes of crude oil in 2019 and 540 million tonnes of crude oil in 2020, a year-on-year increase of 7.3% [3]. When international oil prices fluctuate, China's domestic economy receives a corresponding impact. The Chinese government has begun to develop renewable energy sources, such as wind and solar power, in order to reduce environmental pollution and achieve zero carbon emissions. Due to the government's strong focus on clean energy, the energy transition has been successful so far, and the reduction of fossil energy is imminent. However, changes in the industrial structure of the country have also pushed the demand for petroleum energy to a peak, and the massive expansion of the manufacturing industry has made petroleum irreplaceable in terms of transport and output, but also a significant contributor to economic growth. Economic development has led to a sharp increase in the demand for fossil energy such as oil, and the relationship between the two more and more closely, but the contradiction also exists [3]. Oil consumption and national economic growth rate are usually proportional to the relationship between energy consumption can promote economic development, but if governments want to maintain stable economic development still need a lot of energy support, which is one of the major difficulties we are currently facing [3]. Under the combination of the Chinese government's sustainable development policy, the structural changes in the national market and the actual situation, it is not yet known whether oil is the centre of future development, and it is necessary to analyse and compare the data to make a prediction. This paper is dedicated to the study of the relationship between oil consumption and the national economy; changes in market structure; government finance and taxation. The aim is to analyse the development of oil-related industries through China's recent oil consumption; to what extent oil has influenced the country's economic development; whether oil is the centre of the future economy; and whether it will enable China to maintain a stable economic growth.

2. Gross Domestic Product

China's National Development and Reform Commission (NDRC), the Ministry of Finance and the Ministry of Natural Resources (MNR) have issued the "14th Five-Year Plan for Promoting High-Quality Development of Resource-Based Regions", which points out the establishment of a safe and reliable resource and energy reserve, supply and guarantee system, and the increase of petroleum and mineral resources exploration [4]. The programme makes it clear that by 2025, the resource-based regions will have significantly improved resource and energy security capacity, given full play to their economic development potential, and basically established a modern industrial system led by innovation, accelerated transformation and diversified support [5]. By 2035, the development goals of strong resource security and a vibrant economy will be basically achieved. It can be seen that China's economic development at this stage cannot be separated from oil and other fossil energy sources [6]. A stable economy needs to be supported by a sufficient amount of oil, or at least it can be concluded that oil can unilaterally promote economic growth, especially in industrial development and corporate consumption.

3. Consumption

Nearly half of the global oil trade is used for transport, and China is no exception. In China's oil consumption structure, as a transport fuel, oil accounts for 55.29 percent of consumption. Of this, motor fuels account for 22.87 per cent of total consumption, aviation fuels for 6.31 percent and diesel fuel for 26.11 percent [7]. However, in recent years, the Chinese government has embarked on a major effort to develop clean energy in order to achieve carbon neutrality and has achieved a large degree of success. With the strong support of the Chinese government, the electric vehicle industry is growing. In 2022, domestic production of new energy vehicles nearly skyrocketed, and annual sales

has been the world's largest for eight consecutive years [4]. With new energy vehicles fuelled by non-fossil fuels, it will account for a significant portion of the transport sector in the future, which is in line with the world's common goal of carbon neutrality. The overall environment for the development of new energy vehicles in China is favourable and will accelerate the development and replacement of conventional fuel vehicles. 2025, 2030 and 2060, the proportion of non-fossil energy consumption in the country will reach about 20%, 25% and more than 80%, respectively [8]. With the rapid development of new energy vehicles, the energy structure of vehicles will continue to change significantly, and electric power and hydrogen energy will accelerate the substitution of conventional petrol and diesel [8]. As a result, oil will inevitably be replaced by cleaner energy sources in the transport sector, and future consumption in this area will be significantly reduced.

However, in the short term and taking costs into account, the oil industry is not going to be replaced, with oil consumption showing an uptick so far. According to statistics from the International Energy Agency IEA data, about two-thirds of the increase in global oil consumption by 2019 will come from China. China's apparent oil consumption is 136,100, 000bbl/d.China's good control of the Covid 19 has resulted in it no longer affecting national travel, and industries are gradually recovering, with consumption of oil gradually increasing towards its pre-epidemic state. China's oil by preliminary seasonal adjustment, 2022 first half of the oil industry operating income of 3.1 trillion yuan, an increase of 27.2%. The oil industry achieved a profit of 285.02 billion yuan, up 26.4 percent year-on-year, the growth rate accelerated by 9.0 percentage points over the first quarter. The profitability of the petroleum industry had improved, at 9.2 percent. By the end of the second quarter, the output of the oil industry was 214.54 billion yuan, up 37.7 percent year-on-year, with a growth rate of 17.7 percentage points higher than that at the end of the first quarter. For economic development, a portion of the profit enters the state treasury through taxes, which is then used to subsidise the market and enhance national welfare, undoubtedly promoting economic development and improving the quality of life of the nation. But at the same time, high oil prices also lead to an increase in the cost of living. From the production to the sale of an item, oil is needed for its transport and even manufacture. Considering the cost and the profit, the producers prefer to use fuel trucks rather than trams for transporting goods, which results in the related costs being added to the price and borne by the consumers.

4. Investment

After preliminary seasonal adjustment, the 2022 first half of the energy industry investment in fixed assets totalled 631.74 billion yuan, higher than the average growth rate of all industrial investments [9]. The oil industry for 229.32 billion yuan, an increase of 13.1% year-on-year, the growth rate in the first quarter fell 14.7 percentage points [9]. Since March, the domestic epidemic presents more points, wide, frequent characteristics, some areas of the enterprise shutdown face expansion, the domestic fixed asset investment project construction progress slowed down in late May, with the State Council to stabilise the economy a package of policies and measures introduced, the enterprise resumption of work and resumption of production progress improved significantly, the investment The pace of project construction accelerated, the energy industry investment confidence is expected to gradually restore, help investment to maintain faster growth [9].

5. Tax

According to China National Petroleum Corporation, China's petroleum tax rate is a compound tax rate, including resource tax, consumption tax and value-added tax. Specifically, resource tax is calculated according to the sales of petroleum products, consumption tax is calculated according to the production of petroleum products, and value-added tax is calculated according to the value-added amount. In addition, there are some other taxes and fees, such as enterprise income tax, urban maintenance and construction tax and education surcharge. Overall, the petroleum tax rate in China

is about 34 percent. In addition, China has a starting point for oil special revenue contributions. The special income tax on oil is an important means of balancing the distribution of interests among industries and has been collected and paid in an orderly manner since its inception, effectively balancing the interests of the market and the industry and is an important means of national energy and economic regulation and control [10]. In determining the starting point, comprehensive consideration will be given to the cost of crude oil extraction, changes in RMB exchange rates and the financial situation of oil enterprises, etc[10]. The starting point has been raised twice since the commencement of the levy and is currently at USD 65/barrel [10]. Subsequent studies will continue to be strengthened, taking into account changes in the costs of oil extraction enterprises, the trend of crude oil prices in the international market, the overall financial situation of oil enterprises and changes in the burden of resource taxes and fees [10]. The creation of taxes increases the cost of oil, which further leads to higher prices for consumers and affects economic growth to some extent. However, at the same time, taxes also increase economic growth through government spending on national expenditures such as construction, subsidies, etc. In addition, where oil is formed, natural gas can be co-generated, and environmental security is equally important in the context of vigorous energy development to ensure adequate reserves. The Chinese government supports the economic and intensive development and utilisation of oil and gas resources. At present, there are a number of policy arrangements for tax reduction in resource tax. First, crude oil extracted from low-abundance oil and gas fields is subject to a 20 percent reduction in resource tax; second, natural gas with high sulphur content, is three times oil extraction and crude oil and natural gas extracted from deep-water oil and gas fields are subject to a 30 percent reduction in resource tax; and third, thick and highly condensable oil is subject to a 40 percent reduction in resource tax [10]. As a result, the energy and environmental crisis has been relatively mitigated, while at the same time ensuring hydrocarbon energy security and laying the cornerstone for China's economic growth.

6. International Trade

6.1. China as an Exporter

The high demand for refined oil products in the international market has led China to continue to export to foreign countries. China has a large production capacity for refined oil products, and its huge land area allows it to have several large refineries and to be at the forefront of the world in terms of technology. This ensures China's energy security and also allows it to satisfy foreign demand through export trade, which is economically rewarding, strengthens international cooperation, and promotes the development of trade and good relations between countries. Over the past thirty years, China has formed an international layout of five major oil and gas cooperation zones, three major oil and gas operation centres and four major oil and gas corridors, namely, five major oil and gas cooperation zones in Central Asia-Russia, the Middle East, Africa, the Americas and the Asia-Pacific region; three major oil and gas operation centres in Asia, Europe and the Americas centred on Singapore, London and Houston; and four major oil and gas corridors spanning across China's northwestern, northeastern, southwestern and eastern oceans[11]. Four major oil and gas corridors spanning northwest, northeast, southwest and east China's offshore. At present, China National Petroleum Corporation is involved in the management and operation of 88 petroleum and petrochemical cooperation projects in 32 countries, has set up trade and marketing networks in 31 countries and regions, has 1,200 overseas engineering service teams, and has operations in more than 80 countries, with an internationalization index of 25% [12].

In 2019, China National Petroleum Corporation's overseas oil and gas equity production equivalent exceeded 100 million tonnes for the first time, and in 2022, overseas oil and gas equity production equivalent exceeded 100 million tonnes for the fourth consecutive year [12]. In 2022, the overseas oil and gas equity production equivalent will exceed 100 million tonnes for the fourth consecutive year [12]. Among them, the oil and gas equity production along the "Belt and Road" accounts for more than 80% of the total overseas equity production and has become the core overseas oil and gas

cooperation area [12]. Meanwhile, China National Petroleum Corporation's international trade volume exceeded 500 million tonnes. 2022, as one of the world's major oil and gas producers and suppliers, China National Petroleum Corporation has been ranked as the fourth of the Fortune 500 for six consecutive years, and the third of the world's 50 largest oil companies for nine consecutive years [12]. With 100 million tonnes of overseas oil and gas equity production and a good brand of overseas cooperation, China National Petroleum Corporation has been ranked first in the "Top 100 Chinese Multinational Corporations and Multinational Index" list for 11 consecutive years, and China's oil and gas trade volume will reach 440 million tonnes in 2022, which will greatly contribute to the development of the "Belt and Road" along the countries and regions [12]. Chen Yideng, co-founder and president of Brand Finance China, said, "China National Petroleum Corporation brand value has been growing steadily, with room for continuous improvement and a promising future [12]."

6.2. China as an Importer

In 2018, the trade value of China's crude oil imports was US$239.22 billion and 46,190,800 tonnes, making it the country's top imported commodity, accounting for 21.64% [11]. According to the 2019 NBS data, domestic production and imports of crude oil amounted to about 690000000 t, accounting for 13.57 percent of the world total [7]. In 2022, China's oil imports reached 196.8 million tonnes and its dependence on foreign oil is too high.

As a result of the Covid 19, the world economy is in a severe recession, oil demand has fallen, and prices have continued to decline. At the beginning of 2020, the continued turmoil in the international oil market led to low oil prices, and the international price of crude oil continued to fall. On 30 January 2022, the international price of oil plummeted by 2 percent, the lowest level in three months, a decline of 2.5 percent [7]. OPEC+, in an effort to secure oil prices, has agreed to reduce its total production target from January 2024 by a further 1.4 million b/d from the current target to 40.46 million b/d, in addition to extending the existing 3.66 million b/d production cut agreement and has also agreed to reduce its total production target from January 2024 by a further 1.4 million b/d from the current target [6]. However, the international crude oil market does not look favourably on the OPEC+ production cut deal and trying to raise oil prices remains problematic with crude oil demand falling during the epidemic and inventories still further elevated [7]. However, the fall in international oil prices does not mean that domestic oil prices will follow suit. This is because China's imported oil consumption in addition to bearing the price of oil, also pays a variety of additional taxes and fees. The domestic production of oil, its costs have not been reduced, extraction fees, transport costs, production costs, etc. still exist or even have the possibility of rising, which leads to high domestic oil prices, high cost of living will cause a certain degree of economic problems.

7. Conclusion

The study shows that oil consumption has a positive relationship with the national economy, i.e., a rise in consumption leads to an increase in the level of the national economy. Moreover, due to the low cost and high output of oil for the manufacturing industry, it is difficult to be replaced by new energy sources. In the future, the oil industry will remain a top priority for China's development. China imports oil to ensure domestic economic development, but also exports refined oil products to foreign countries and promotes inter-country interests and cooperation. The high price of oil in China will also increase the popularity of trams, although, in light of international carbon-neutral targets, the future of the transport industry is likely to be replaced by new energy sources. But if oil prices fall in the future, more people will choose cars over new energy vehicles, and oil price regulation needs to be taken seriously. In addition, oil tax accounts for a large proportion of government revenue, the government will spend on people's welfare, infrastructure and security also further improve the level of the national economy. Thus, the positive impact of oil consumption on the economy cannot be ignored, although the price is at a relatively high state, which will lead to a burden on people's lives and increase the level of consumption, the overall impact is positive.

References

[1] Zeng Jingjing. Research on the relationship between oil consumption and economic growth in China. Wuhan University of Technology Journal, 2011 34(1): 29.

[2] Xue Jiao. Research on the impact of China's oil consumption on economic growth at the current stage. China University of Geosciences Journal, 2017, 290(1):211.

[3] Yuan Sixuan, Chen Linshan, He Zhengguo. Exploration of the impact of China's oil import problems and countermeasures based on the background of Russia-Ukraine conflict. China Business Journal, 2023, 20(09): 62-65.

[4] Yu Dongyang, Luo Yantuo, Liu Xin et al. Development trend of new energy vehicle industry and its impact on oil and gas enterprises. Oil and Gas and New Energy, 291(08): 15-39.

[5] Xue Jieqiong. Oil Economy Highlights. International Petroleum Economics, 2023, 31(07): 102-104.

[6] Fang Binnan, Zhao Tianshu. OPEC+ cuts production to protect oil prices. Beijing Business News, 2023, 06(06): 08.

[7] Wang Yue. Analysing the impact of the new crown epidemic on China's oil industry from a global perspective. China and foreign energy, 2020, 25(03): 1-5.

[8] Yu Dongyang,Luo Yantuo,Liu Xin et al. Development trend of new energy vehicle industry and its impact on oil and gas enterprises. Oil and Gas and New Energy, 2023, 11(8): 21.

[9] Chinese National Energy Administration. Energy continues to play a fundamental industrial role [EB/OL]. (2022-07-29) [2023-07-29]. http://www.nea.gov.cn/2022-07/29/c_1310647944.htm

[10] Chinese National Energy Administration, Summary of replies to proposal. 00686 (No. 087 in the category of industry, transport, post and telecommunications) of the Fifth Session of the Thirteenth Committee of the Chinese People's Political Consultative Conference (CPPCC). [EB/OL]. (2011-20-02) [2022-08-30]. http://zfxxgk.nea.gov.cn/2022-08/30/c_1310664827.htm

[11] Li Zheng. Analysis of the impact of international oil price fluctuations on China's macroeconomy. Shanghai University of Finance and Economics Journal, 2020, 43(02): 29.

[12] Xinhua, Petrochina. Petroleum Pioneer in Building the Dream of One Belt, One Road. [EB/OL]. (2023-07-24) [2023-08-25]. http://www.nea.gov.cn/2023-07/24/c_1310733789.htm