

**FORMATION OF OIL PRICES IN THE WORLD ECONOMY AND
PECULIARITIES IN THE REPUBLIC OF MOLDOVA
(FORMAREA PREȚURILOR LA PETROL ÎN ECONOMIA MONDIALĂ ȘI
PARTICULARITĂȚI ÎN R. MOLDOVA)**

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Аннотация: Целью данной статьи является освещение главных и самых существенных факторов, влияющих на формирование цен на сырую нефть в мировой экономике. В связи с глобальным контролем нефти над развитием человечества в настоящее время, цена «чёрного золота» связана как с фундаментальными законами спроса и предложения, так и с экономическими, природными и политическими аспектами. Также в работе описаны особенности формирования цен на нефтенные продукты в Республике Молдова и степень их взаимосвязи с ведущими брендами нефти.

Ключевые слова: нефть, ОПЕК, потребители, экономический рост, финансовый рынок, баррель, НАРЭ.

JEL CLASSIFICATION: F13, F17, Q21, Q31, Q34, Q35, Q37

INTRODUCTION. For the past 40 years the world has managed to see the oil price at below 10 USA dollars per barrel, but also at almost 150 USD. This fact makes people wonder what can cause such significant fluctuations of oil prices and how it is determined. As any other product, oil obeys the supply and demand laws, however standing completely apart from simple commodities, being fuel not only for automobiles, but also for the whole humanity – its economy, policy, everyday routine and further development. Besides, the article examines the specificity of shale oil extraction and its impact upon the competitiveness of this product. This paper clarifies the formation system of oil prices in the World Economy and its peculiarities in the Republic of Moldova.

MAIN CONTENT. At the beginning of oil industry development, the term “black gold” was just a phrase that emphasized the value of the product, now it really deserves special attitude. Oil has become another type of currency, ranked with the dollar, gold and securities. It accounts for more than 30% of the world's assets. Crude oil is the largest segment of the global oil and gas market, accounting for 62.9% of the markets total volume and the most sizeable sector in the world in terms of dollar value. Every day, the world consumes 97 million barrels of oil, which is worth \$4.4 billion, “equivalent to **35,442,913,090 barrels** of oil per year as in 2016” [10]. Due to its almost total indispensability and high importance in industrial civilization, the formation of oil prices is also special and complicated.

The basis for this shaping is physical market and natural interrelationship of **supply and demand**. If there is an increase in supply while demand remains the same, prices tend to fall to a lower price and a higher quantity. If there is a decrease in supply while demand remains the same, prices rise. The same inverse relationship holds for the demand of oil. Prices will rise in line with demand, when supply remains static. This *supply – demand* correlation is closely connected with the following factors, analysed in this work: cartels, economic growth or economic decline, weather and geopolitics.

In global oil industry the supply part is represented by oil exporting countries: first of all – OPEC, The **Organization of the Petroleum Exporting Countries** including 13 countries: Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia, the United Arab Emirates and Venezuela. This *cartel* has significant role in formation of oil prices, despite its members control not the biggest part of the production - 40% of the world's supply of oil. This is stated as being due to legal bases to restrict or increase the amount of oil production and to set targets or quotas. In turn, such members of OPEC, as Saudi Arabia – one of the biggest influencers in this sphere, can afford lower prices, owing to low production cost, in contrast

to Non-OPEC exporters, for example Russia or USA. If red line for Russian oil is 35-40\$/barrel, then the Saudis can stand the price about 15\$ [4].

The demand part is represented by oil importing countries and us – consumers, as well. The amount of oil that is needed depends on global economic development. Nowadays the biggest buyers of crude oil are USA, China, India, Japan and South Korea (Figure 1). A sharp increase of economic growth in China and India in the past two decades could provoke supply “crunch”, but by present day exporters, especially Middle Eastern regions on which Asia depends, are able to provide sufficient amount of petroleum. Development in **Asian countries** makes higher not only their own revenues, but also leads to an increase in oil prices what affects other countries, including those with weaker economies which difficultly deals with additional financial wastes.

Figure 1. Crude oil importers

Rank	Country	Oil - imports (barrel/day)
1	United States	7,969,000
2	China	6,710,000
3	India	4,057,000
4	Japan	3,208,000
5	South Korea	3,057,000
6	Germany	1,836,000
7	Italy	1,341,000
8	Spain	1,325,000
9	France	1,147,000
10	Netherlands	1,094,000

Source: Crude oil, Stock Market Indicators, 2020 [11]

Economic growth and decline are among the biggest reasons why petroleum prices fluctuate. Analysing **World GDP Growth** and changes of **Brent** petroleum prices (% y/y) for the last 35 years (Figure 2), we observe relatively similar tendency of oil prices and World GDP over the years in the long-run. During prosperity years, consuming economies – a large number of importers, are characterized by accordingly rising industrial evolution, active operation of factories, higher purchasing power and bigger revenues of government and people, in total. Active economic behaviour calls for big volumes of energy, meaning oil in any of its form.

However, the measurements of GDP relationship with oil prices looks contradictory to some extent in specific periods, particularly in the short-run. Significant sudden increase in demand for oil relative to GDP, leads to substantial rise in prices relative to demand. Maximal petroleum prices predate the lowest values of world GDP and vice versa. In these cases, financial-economic crisis emerges. It leads to inflation, surplus of oil and any other goods, because oil serves as an integral part in any manufacturing and transporting processes.

India’s oil demand is expected to reach 6 million barrels per day by 2024 from 4.4 million barrels in 2017 [7]. This country is the fourth-largest exporter of refined fuel (gasoline and diesel), what makes its plans, to lift its refining capacity to about 8 million bpd by 2025 from about 5 million barrels/day today, rather real. China’s and India’s net oil imports are expected to top 19.1 million barrels per day in 2030 from 5.4 million barrels in 2006 (each), more than any other nations are importing now [12]. Alleged spike in demand of **leading countries** means a risk of fairly high oil price in future all over the world.

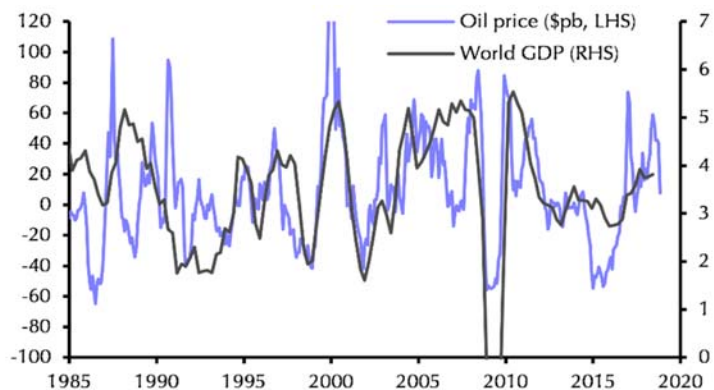


Figure 2. Analyzing World GDP Growth and changes of Brent petroleum prices (% y/y)

Source: Capital Economics. World Bank Data [8]

The oil price can fall in spite of a growing economy, because “*The price is also determined by other factors like taxation, weather, and environmental regulations,*” says Johannes Benigni, the founder of the JBC Energy Company - Oil & Gas Market's Independent Research Centre [2].

- Weather on the Earth plays import role in formation of crude oil price. **Seasonal factor** determines demand. For example, from one hand, the demand for petroleum in winter is higher – as heating is needed. From another hand, we can mention the Republic of Moldova, as an agriculture country. Warm seasons is the time of harvesting which requires big amount of fuel for machineries. This fact means that Moldavian resellers of petroleum (as any other agriculture nation) set higher prices in spring due to increase in demand.

- The cost directly depends on the depth of reserves. Most often for oil extraction first of all are used natural forces which “push out” the petroleum, and later the secondary and tertiary oil production method are needed - pumps and hot steam. The process of using this equipment requires spending and proportionally rises crude oil prices. This way, the production of American **shale oil** is high, but cumulative yield is not that justified. The best oil well in America brings 250-400 thousand barrels of shale oil for all the time of operation, when the richest well, for example in Russia (Samotlor Field), brought 1 million barrels of **conventional oil** [3]. At the same time, 5% of production in USA is spent on diesel for drilling rigs, what accounts as a high expense in comparison to other exporters. Complicated extraction process of *shale oil* makes its cost higher and consequently less competitive on the international market. This fact explains the worry of American oil producers about sharp fall in prices and demand.

- Geopolitical events often cause supply disruptions and price shocks. Bright examples are: the Arab Oil Embargo in 1973–1974, the Iran-Iraq war in the 1980s, the Iranian revolution and the Persian Gulf War in 1990–1991. In recent years, conflicts in the Middle East, the Persian Gulf, Libya, and Venezuela.. During **wars** government is mostly occupied in protection of its country and people, spending a part of petroleum on military hardware what leads to expensive oil due to higher demand combined with limited supply.

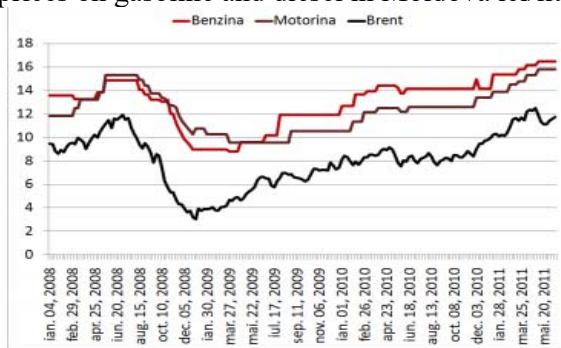
Peculiarities of oil prices formation in R. Moldova. The Republic of Moldova is a part of oil importing countries. More specifically, Moldova is an importer of gasoline, diesel and liquefied gas, - three main products of refined oil. The formation of prices on petroleum products in the R. Moldova differs from the process described above, because Moldovan trade market does not react on global events immediately due to pre-purchased fuel that can be sold according to old prices, and not direct involvement in the world geopolitics and economics, in contrast to leading countries. As well, the price depends on the resellers and their preferences. 99, 94% of all gasoline and 87, 26% of all diesel in the country is imported from Romania via Giurgiulesti International Free Port. It means that the base of petroleum price in Moldova is the price set by Romania and earlier by factories in Russian Federation and Kazakhstan – two big suppliers of oil on the European market.

After the petrol is delivered to Moldova, its price is calculated based on a methodology approved by The National Agency for Energy Regulation – **ANRE** (ro: Agenția Națională pentru Reglementare în Energetică). It provides a formula that sets out the components included in the price and provides for a maximum annual average return of 10%. According to ANRE the prices of petroleum products must cover: import prices, customs duties, excise duties, actual costs of transportation, storage, marketing and payments for environmental protection.

Significant influence on the final price has the exchange rate. For example, the depreciation of Moldavian lei against the international trade currency – American Dollar leads to an increase in import prices expressed in lei. Overall, local prices largely depend on external ones - about 55-60 % of the final price consists of the import price, which, in turn, also depends on the exchange rate. Taxes applied by the state, form about 30% of the price. Therefore, competition between companies is limited, only to those 15% of the price which includes expenses and profit margin which can be directly influenced by management policy.

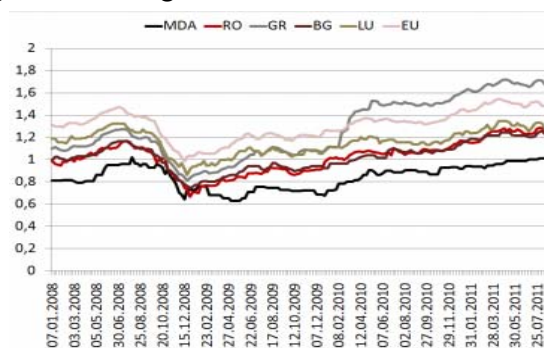
Based on the Figures 3 and 4, showing the weekly evolution of the Brent oil price and of the panel prices on petrol and diesel in Moldova, we can conclude that the evolution of prices on petroleum in the Republic of Moldova coincides with the trends of major oil brand (Brent), but does not react on it quickly and enough strong, like in such countries as Greece. Accordingly, (Figure 4) shows that Moldavian prices are less elastic, reacting with a certain delay and even reluctance to change from the outside

Figure 3. Weekly evolution of Brent oil price and prices on gasoline and diesel in Moldova lei/litter



Source: ANRE and US Energy Information Administration [5]

Figure 4. Weekly petrol prices in Moldova, EU, Greece, Bulgaria, and Lithuania, Romania euro/litter



Source: Oil Bulletin, ANRE and EG calculations [6]

CONCLUSION. Oil is relevant not only for producers and consumers of this industry, but for the entire world economy. With each passing year, oil plays an even greater role in our life. High importance of petroleum products for human development explains the complexity of oil price formation which comes from the interplay between demand and supply that depends on many multidimensional factors. Wealth of economy, prosperity of major powers, surrounding circumstances are crucial aspects and main answers on the question - how oil prices are determined in reality. According to analysts, the world's oil reserves today are 1.726 trillion barrels, what is enough for 53 years more [9]. It causes us to worry about the near future of "lifeblood" of the industrial nations and a very possible deficit that means nothing, but a big price hike. In the meantime, countries with a weak regulatory framework, as Moldova, are weaker correlated with global factors that affect the price of oil. Non-adjustment policy in petroleum sphere leads to inequitable prices and ill-gotten gains in companies with unfair management and fraudulent expenses.

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