

PhD-dissertation theses
Doctoral School of Earth Sciences

**The Role of Oil Market Geoeconomic Tools
in Economic Warfare**

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1. Introduction

Since the great powers of the world possess an arsenal of nuclear weapons capable of immeasurable destruction, the probability of direct armed conflict between them has decreased to a minimum level. The catastrophic consequences of a direct military confrontation are kept in mind by the great powers and they try to avoid it by all possible means.¹

Since the possibility of direct military confrontation has essentially been pushed out of the arsenal of the superpowers' mutual struggles, other means had to be found to assert their geopolitical interests in the international geopolitical space. Thus, in recent decades, alternative means of geopolitical struggles became more and more important: such as IT warfare, hybrid warfare, intelligence and diplomatic struggles, proxy warfare, psychological warfare, geophysical warfare, domestic political destabilization, influencing elections, and also non-military means include economic warfare.

The research of these alternative geopolitical tools now has a prestigious literary background, this is especially true for economic warfare, which is the chosen topic of this PhD-dissertation.

Economic warfare is practically as old as human history. We know from historical writings that even in ancient times economic warfare tools were used by opposing powers. B.C. VII-VIII. the Chinese politician and strategist Guan Zhong (723-645 BC) in his works presented the methods of successful "economic-statistical" warfare (Horváth, 2021)², while Thucydides gives several examples of the means of economic warfare used in the Peloponnesian War that broke out between Athens and Sparta. In 405 BC, in the final phase of the three-decade-long war, the Spartan leadership chose a new strategy and – in the hope of a final victory – tried to cut off Athens' grain supply trade route in the north in the Dardanelles region. Therefore, Spartans grouped the bulk of their warships there and destroyed the Athenian fleet arriving to protect the grain trade route (naval battle of Aigospotamos) and took the naval control over the Dardanelles. Without adequate grain supplies, Athens lost the Peloponnesian War within one year.

So, we see that economic warfare has accompanied the history of mankind since ancient times. Typically, however, this was not the primary geopolitical tool in the hands of strategists. The conscious great power strategy of economic warfare appeared about a hundred years ago in the theory of American President Woodrow Wilson (Padover, 2010). According to Wilson's vision, in the future, the United States will achieve its geopolitical goals without using weapons, primarily through economic means. Wilson received the Nobel Peace Prize in 1919, officially for his efforts to found the League of Nations, but the award was obviously a reflection on his entire life's work. Although Wilson's idealist theory was later disputed by many people – and the Second World War also disproved it – throughout the 20th century, the strengthening of the view of economic warfare was felt in geopolitical thinking. At the outbreak of World War I, the United States had not consciously associated economic means with military operations. In World War II, even before Pearl Harbour, the Economic Defense Board – created specifically for this purpose – directed American economic operations worldwide aimed at weakening the Axis powers and strengthening the Allies. Economic-oriented geopolitical thinking continued

¹ In April 2017, for example, the Pentagon informed Russia in advance when it launched a missile attack on the Sajrat military base in Syria from the destroyers USS Porter and USS Ross, because the Syrian military base was also used by the Russian armed forces. Furthermore, in connection with the Russian-Ukrainian war, both Western and Russian politicians regularly emphasize that a direct military confrontation between NATO and Russia must be avoided.

² The sources cited in the thesis booklet are listed in the bibliography of the dissertation.

to strengthen during the Cold War, because the huge nuclear arsenal available to the Soviet Union made it impossible for the United States to use military means to stop the global spread of communism, so it had to find other, alternative means to assert its geopolitical interests. Among these alternative tools, the toolbox of economic warfare has gained a prominent role. In this period, the United States began to develop – and test – the sophisticated system of modern economic warfare during its geopolitical struggles with the Soviet Union. Such tools were, for example Marshall Plan, the COCOM system, the arms race, grain embargo, the debt spiral of the countries of the Soviet bloc or manipulation of oil prices (CIA, 1951; CIA, 1977a; CIA, 1977b; CIA, 1982; CIA, 1983).

Since the great powers still have a significant arsenal of nuclear weapons in the post-Cold War period, direct military confrontation between them is still not a realistic option, therefore even today the tools of economic warfare have particular importance in the geopolitical space. Therefore, the scientific research of this area is very important nowadays, since the geopolitical struggles of today and the future are increasingly being decided on economic "battlefields". However, during the research of economic warfare, it is a difficulty that a significant part of the developed and implemented geoeconomic "operations" are – in part or in whole – secret, because their disclosure would endanger the success of similar geoeconomic steps planned in the future. This thesis examines two special segments within the topic of economic warfare: on the one hand, can geoeconomic tools be used to reduce the military potential of geopolitical adversaries, and on the other hand, can influencing the world market price of crude oil be a suitable geoeconomic tool – and if so, under what conditions – to curb Russia's military and geopolitical activity.

2. Objectives

This chapter describes the objectives of the research through the presentation of the main hypotheses of the dissertation.

1. With the tools of economic warfare, the military budget of individual countries can be reduced even in short term by reducing macroeconomic income.
2. During the Cold War, the United States deliberately waged economic warfare against the Soviet Union in order to moderate its geopolitical expansion while avoiding military confrontation.
3. Oil price plunge in the mid-1980s can be attributed primarily to the oil market behaviour of the United States.
4. The plunge in oil prices between 2014 and 2016 can be attributed to the oil market behaviour of the United States and contributed to the reduction of Russia's geopolitical activity.
5. In case of Russia, the decrease in GDP results in decrease in the military budget even in short term.
6. Europe does not have enough weight on the oil market to protect itself against Russian geopolitical activity by artificially influencing (reducing) the price of oil on the world market.

3. Research methods

In the course of research, I used four groups of sources, which included both primary and secondary sources.

1. Primary sources of the research were American government (mainly CIA) archive documents related to the Cold War. A significant number of CIA documents were declassified – at least partially – after 2010, 20 years after the breakup of the Soviet Union, so these documents have become widely researchable in the past decade. Other primary sources were UN resolutions in connection with economic warfare, the UN Charter, international treaties dealing with the legal framework of economic warfare (e.g. Hague and Geneva Treaties) and documents prepared for the United States Congress and Government on economic warfare.
2. Secondary sources of the research were numerical databases used to characterize the military, oil market and economic processes of the countries. To present the military potential of the examined countries, I used the annually updated "SIPRI Military Expenditure Database - MILEX" database of the Stockholm International Peace Research Institute (SIPRI, 2022), as well as the "Global Fire Power" database showing the order of military power (Global Firepower, 2022). I analysed oil market processes on the basis of British Petrol's annually updated "Statistical Review of World Energy" database (British Petrol, 2022). United Nations (UN, 2022) database was the source for the GDP data of the countries. These databases are considered secondary sources.
3. Additional secondary sources of the research were books dealing with economic warfare, the history of the oil market and the Cold War period, such as Daniel Yergin's "The Prize: The Epic Quest for Oil, Money & Power" (Yergin, 2018), David Baldwin's classic "Economic Statecraft" (Baldwin, 2020), Firth and Noren's "Soviet "Defense Spending" (Firth & Noren, 1998) or "War by Other Means" by Blackwill and Harris (Blackwill & Harris, 2017).
4. Secondary sources were also journal articles, newspaper reports, and political analyses related to the research area, which dealt with the relations of the oil market and geopolitical processes – especially regarding to the Cold War period – and economic warfare, as well as its legal background.

In the research I used both quantitative and qualitative methods. Among the quantitative methods, the application of linear regression models was the most important. Using the linear regression method, I analysed the relationship between macro-level income (GDP) and military expenditures (ME) covering 41 countries. I obtained GDP data from the United Nations database (UN, 2022) and military expenditures from the SIPRI-MILEX database (SIPRI, 2022). Detailed calculations can be found in the Appendix of the dissertation. The main conditions of the regression analysis according to Osborne and Waters (2019): the variables follow a normal distribution, there is a linear relationship between the explanatory and outcome variables, the measurement of the variables does not contain a systematic error and the standard deviation of the estimation error is constant. I also used quantitative methods to analyse oil market events and the evolution of military spending over time. During the research, I obtained the oil market data from the database of British Petrol (British Petrol, 2022). In the analysis of the economic warfare of the Cold War I also provided numerical estimates – where possible – of the burden that each geoeconomic instrument had on the Soviet economy.

Analytical-descriptive qualitative analyses are based on the one hand on the interpretation of the quantitative analyses, and on the other hand, they are based on the referred primary and secondary literature sources. Considering that the English-language literature on

economic warfare and geoeconomics is largely linked to Western authors, I basically relied on the Western interpretation of geoeconomics during my analysis, but I also used a smaller number of Iranian, Arabic and Russian secondary sources as well.

4. Summary of results

In modern geopolitics the tools of economic warfare and the theory of geoeconomics have gained a special importance. The thesis summarizing the theoretical background, the system of geoeconomic instruments and legal aspects of economic warfare. Later it examines on the one hand, whether it is possible to reduce the military budget of enemy countries with geoeconomic means in short term, and on the other hand, it elaborates on the topic of economic warfare in the oil market, emphasizing the geoeconomic struggles of the Cold War period. The thesis compares three periods – the decade of 1980, the period between 2014-2016 and the beginning of 2020 – when the price of oil began to fall and important geopolitical antecedents and consequences occurred regarding to the geopolitical struggles of the United States and the Soviet Union/Russia. Finally, the thesis examines Europe's possibilities for influencing world market oil prices.

To conclude my research and draw conclusions, I will present my research findings through the main hypotheses I set out at the beginning of my thesis.

1. With the tools of economic warfare, the military budget of individual countries can be reduced even in short term by reducing macroeconomic income. – TRUE.

Based on the regression analysis carried out during the research covering 41 countries, it can be stated that in the case of 35 countries where the applied regression model had sufficiently high explanatory power, there was everywhere positive relationship between the change of GDP and the change of military expenditures (ME).

The average slope of the regression line is 0,86, it means, when the GDP of a country changes by 1%, the military budget of the average country usually changes by 0,86%, in the same direction. (The slope of the regression line was above 0,5 for all 35 countries). Among the 35 countries, in Saudi Arabia, the change in GDP has a stronger impact on the following year's military budget than on the current year's, but in the case of the other countries, the current year's GDP change has a greater impact on the current year's military budget. Based on the results I classified the countries into three groups according to sensitivity.

Table 1.: „Highly sensitive” countries

Country	Slope of regression line	R ²	Value of F-test	Critical F-value (at 5% probability level)
Venezuela	1,76	0,50	23,90	4,26
Slovakia	1,16	0,33	12,59	4,24
Slovenia	1,07	0,68	54,47	4,23
Brazil	1,06	0,79	106,99	4,20
Switzerland	1,04	0,59	41,03	4,20
Netherlands	0,99	0,77	93,63	4,20

Country	Slope of regression line	R ²	Value of F-test	Critical F-value (at 5% probability level)
Japan	0,99	0,93	364,64	4,20
Croatia	0,97	0,40	17,70	4,23
Portugal	0,97	0,65	51,70	4,20
Italy	0,96	0,70	66,10	4,20
Denmark	0,92	0,69	61,05	4,20
Israel	0,91	0,31	12,78	4,20
France	0,9	0,81	115,72	4,20
Hungary	0,87	0,35	14,93	4,20
Germany	0,87	0,59	41,03	4,20
Spain	0,87	0,76	88,04	4,20
Pakistan	0,86	0,72	71,26	4,20

Source: own edition

Table 2.: „Sensitive” countries

Country	Slope of regression line	R ²	Value of F-test	Critical F-value (at 5% probability level)
Greece	0,82	0,61	43,78	4,20
Egypt	0,81	0,50	27,95	4,20
Ukraine	0,81	0,50	24,05	4,26
Russia	0,80	0,70	57,34	4,26
Syria*	0,79	0,17	3,90	4,41
South Korea	0,78	0,86	176,63	4,20
United Kingdom	0,77	0,61	44,44	4,20
India	0,77	0,55	34,47	4,20
Czech Republic	0,75	0,52	26,80	4,24
China	0,75	0,49	27,23	4,20
Mexico	0,75	0,38	17,33	4,20
Bulgaria	0,74	0,28	11,06	4,20
Romania	0,72	0,49	27,21	4,20
Canada	0,69	0,37	16,29	4,20
Ireland	0,68	0,47	24,63	4,20
Norway	0,64	0,40	18,35	4,20
Sweden	0,64	0,48	25,68	4,20
Turkey	0,62	0,57	36,39	4,20
Saudi Arabia*	0,56	0,23	8,14	4,21

Source: own edition

Table 3.: „Insensitive” countries³

Country	Slope of regression line	R ²	Value of F-test	Critical F-value (at 5% probability level)
Cuba*	0,45	0,06	0,68	4,75
Iran*	0,21	0,01	0,20	4,21
United Arab Emirates	0,21	0,03	0,47	4,54
Kuwait	-0,27	0,11	3,57	4,2
United States*	-0,40	0,01	0,4	4,21

Source: own edition

** In the table above, I have marked with * the countries where the change in GDP has a stronger effect on the next year's military expenditures than on the subject year.*

It can be stated that in the 35 countries where the model has a sufficiently high explanatory power, in the short term (within one year at the most) the size of the military budget tends to decrease appreciably if the GDP decreases. This means that if a geoeconomic attack can reduce the macro-level income of the given country, it is expected that its military budget will also decrease even in short term.

2. During the Cold War, the United States deliberately waged economic warfare against the Soviet Union in order to moderate its geopolitical expansion while avoiding military confrontation. – TRUE.

Cold War CIA documents – declassified in the 2010s – clearly support the fact that the United States waged conscious economic warfare against the Soviet Union, based on thorough information collection and analysis. This economic warfare strategy was developed and directed by the CIA. The main elements of this economic warfare were the Marshall Plan, the COCOM system, arms race, influence of oil prices, the obstruction of Soviet investments in the petroleum and natural gas industry and the "debt trap" of Soviet satellite countries. These economic instruments contributed to the weakening of the Soviet Union's economy and thereby to the reduction of its geopolitical expansion.

3. Oil price plunge in the mid-1980s can be attributed primarily to the oil market behaviour of the United States. – FALSE.

The causes of the drop in oil prices in the mid-1980s can be found on the supply side (primarily caused by Saudi Arabia's actions on the oil market (strong supply expansion)) and not on the demand side of the oil market.

³ In this group, the average of the F-statistic value is 2,3, and none of the countries reach the critical F-value for the 5% probability level, so the regression models do not have sufficient explanatory power in this group of countries.

Figure 1.: Crude oil production of the three largest oil-producing countries and oil price trends (1980-1991)

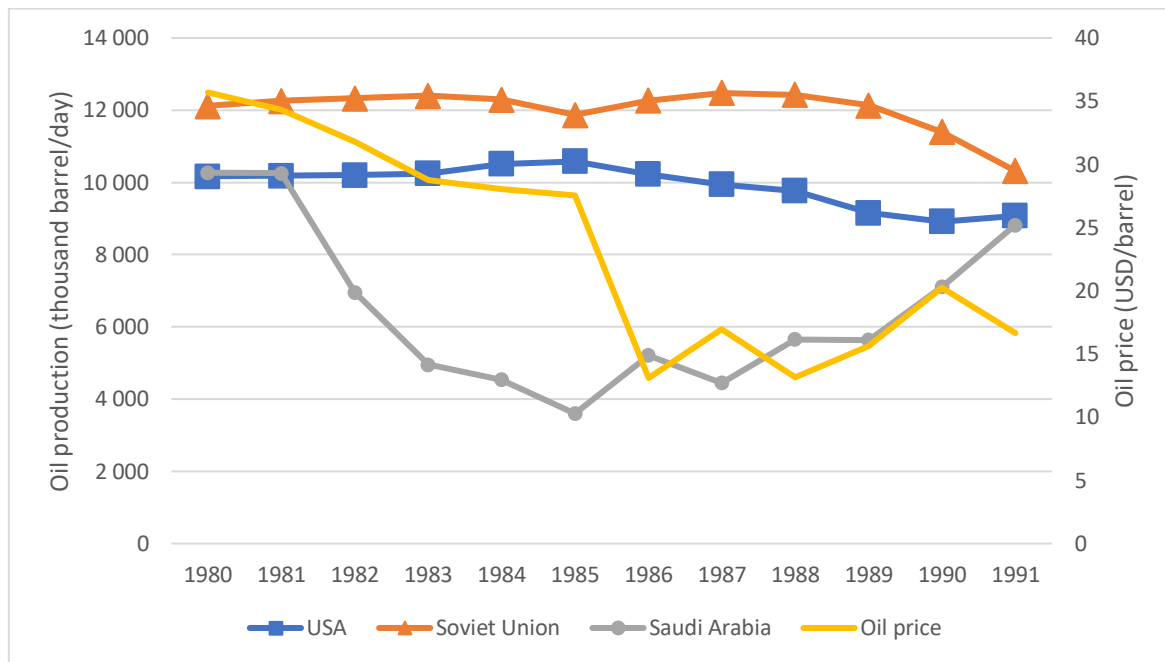


Figure: own edition, source of data: British Petrol (2022)

From 1985 to 1991 (until the collapse of the Soviet Union), Saudi Arabia increased its oil production by 2,5 times, causing a significant drop in the price of crude oil on the world market. In addition to Saudi Arabia, but to a lesser extent, Kuwait and the United Arab Emirates also implemented a significant supply expansion during this period, so these countries also significantly contributed to the drop in the world market price of oil. In the second half of the 1980s, the United States' oil production decreased slightly, and its consumption increased slightly, so the American actions on the oil market did not induce a drop in oil prices.

4. The plunge in oil prices between 2014 and 2016 can be attributed to the oil market behaviour of the United States and contributed to the reduction of Russia's geopolitical activity. – PARTLY TRUE.

Between 2014 and 2016, the plunge in oil prices can again only be explained from the supply side, there were no movements on the demand side that would have resulted in a significant drop in oil prices. On the supply side, the increase of the American oil production was the most significant factor of the price plunge. Nevertheless during this period, Russia's geopolitical activity did not decrease significantly.

Figure 2.: Crude oil production of the three largest oil-producing countries and oil price trends (2008-2021)

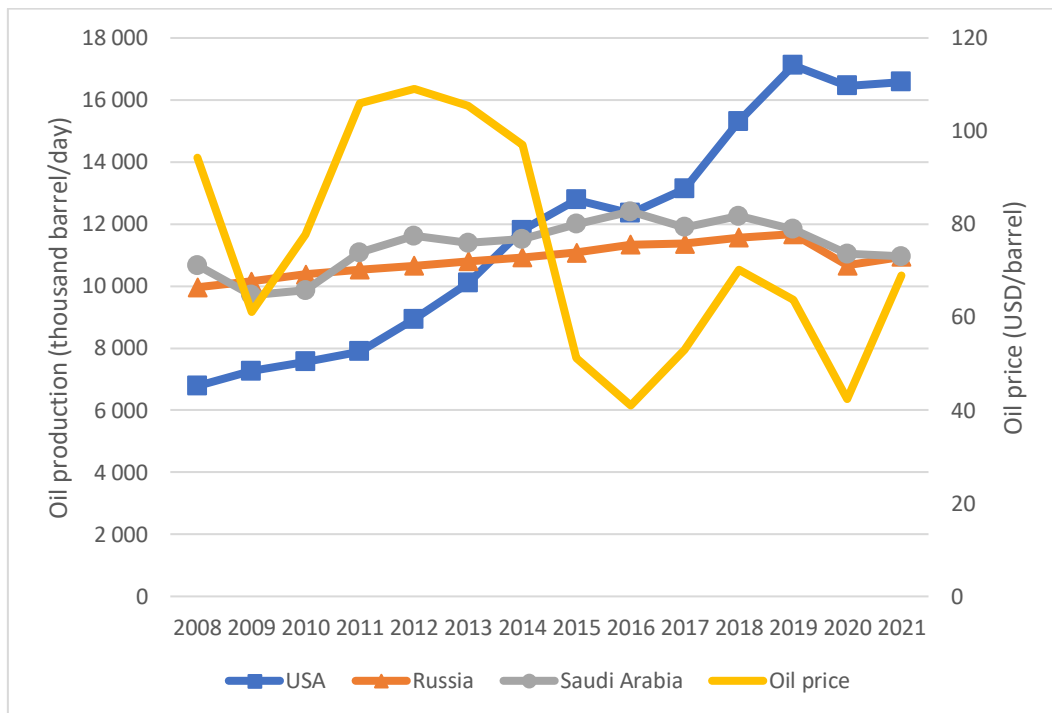


Figure: own edition, source of data: British Petrol (2022)

Between 2010 and 2014, US crude oil production increased by 56%, making the US the world's largest oil producer (overtaking Saudi Arabia). This continuous growth did not cause a price drop on the world oil market until 2014, because due to the global economy boom, the consumption of crude oil increased dynamically worldwide, and economic actors were also optimistic about future economic growth. However, after 2014, the participants of the oil market saw that there are no limits to the further dynamic growth of American oil production in short term and the world market will no longer be able to absorb this dynamically increasing amount of crude oil at a price of around 100 USD/barrel in the near future. In this increasingly pessimistic global economic environment, by 2015 the impact of the increase in American oil supply had reached the oil market: oil prices began to fall. The falling oil price was, of course, favourable for the United States in connection with its geopolitical goals in relation to Russia, although it cannot be stated that the main reason for the increase in American production was to curb Russia's geopolitical activity.

5. In case of Russia, the decrease in GDP results in decrease in the military budget even in short term. – TRUE.

The statistical analysis of Russia's military expenditures received special emphasis in the thesis. Based on data from the period 1995-2020, it can be established that when Russian GDP changes by 1%, Russian military budget changes by an average of 0,8% in the same direction. In case of the regression model $R^2 = 0,7$, which value indicates a strong relationship compared to similar researches.

Figure 3.: Relationship between changes in Russian GDP and changes in Russian military spending (1995-2020)

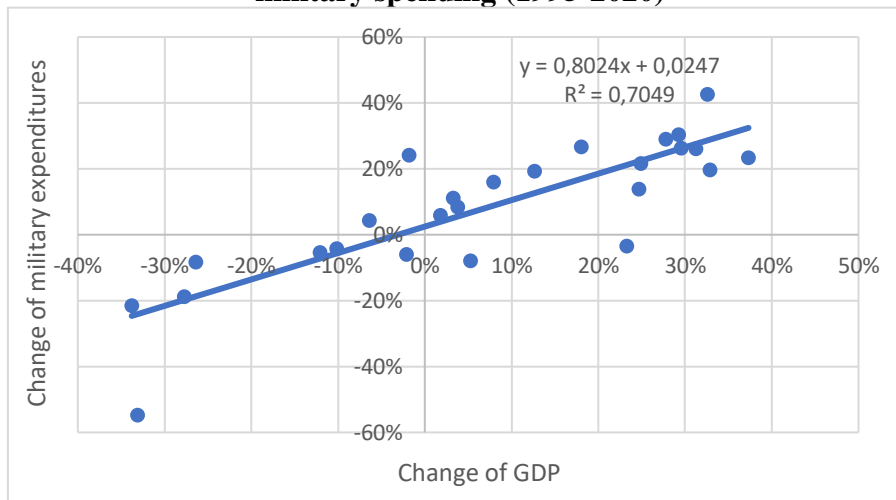


Figure: own edition, source of data: UN (2022), SIPRI (2022)

It should be noted that between 1995-2014 the relationship between the two variables was really strong, in the period 2015-2020 (after the annexation of Crimea) the relationship between the two variables definitely weakened.

6. Europe does not have enough weight on the oil market to protect itself against Russian geopolitical activity by artificially influencing (reducing) the price of oil on the world market. – TRUE.

I added the crude oil production of two major European oil-producing countries, United Kingdom and Norway, to the oil production of the European Union. It can be concluded that in the past half century, Europe has always used much more crude oil than it produced. European oil production reached its peak at the turn of the millennium, with an average production level of 7 million barrels per day, but this amount has covered only 43% of its own consumption (in 2021, this value was only 25%).

Figure 4.: Crude oil production and consumption of Europe (1965-2021)

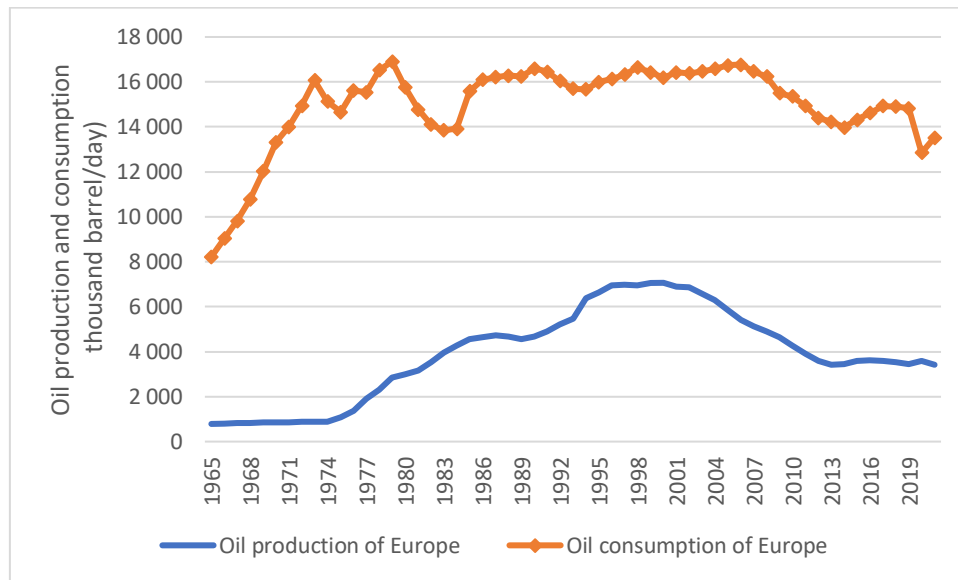


Figure: own edition, source of data: British Petrol (2022)

Under such conditions, Europe alone has no realistic possibility to cause oil prices to drop on the global crude oil market to such an extent that it would substantially curb Russia's geopolitical activity. Europe may only be able to do this if it receives substantial support in this area from its allies (mainly the United States).

5. The applicability of the results and further research directions

Practical applicability of the results of the research is possible in the following areas. On the one hand elaborating geopolitical/geoeconomic strategies and forecasting geopolitical processes. On the other hand, research results can be useful for petroleum companies, oil market analysts and investors forecasting the evolution of oil prices. Identifying the relevant geopolitical/geoeconomic driving factors behind oil market movements, might be helpful in predicting the evolution of the oil prices in the future.

The dissertation deals with the topic of economic warfare, primarily with the topic of economic warfare in the oil market. Another important field of the dissertation is investigating how to reduce the size of the military budget of geopolitical opponents with the toolbox of geoeconomics. Further possible research directions should be outlined in relation to both topics.

The world has arrived to the new era of economic warfare on the oil market. The Western economic sanctions imposed on Russia – following the Russian-Ukrainian war – are applied to an unprecedented volume of crude oil (and natural gas). For now, it is difficult to estimate how much damage these sanctions will cause to Russia and Western (primarily European) countries. In this regard, it is worthwhile to carry out further research and to examine who the potential losers and winners of these sanctions could be. Among the oil market sanctions against Russia, we also find new types of instruments (e.g.: application of price caps, differentiation of crude oil transported by pipeline and by ship). Examination of these new types of geoeconomic tools can be an important area of further research, as the application and effectiveness of these new tools are currently accompanied by great uncertainty and heated debates in political disputes and academic literature.

Dissertation examines the relationship between GDP and military expenditures, specifically for short term. A further research direction could be the examination of the possibilities for reducing the military budget of geopolitical opponents through the reduction of GDP in medium and long term. It would be important to identify the critical conditions for such geoeconomic attacks to be successful in the medium and long term, and investigating, what kind of possibilities do the attacked countries have to defend themselves (Russia's geoeconomic defence after 2014 may be worth analysing in depth).

The above investigations can contribute to predicting the future evolution of military budget of certain countries as accurately as possible, thereby helping the development of geopolitical and geoeconomic strategies.

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Tables

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List of publications in the topic:

1. **SCIMAGO Q3:** Reményi, P., Glofák, P. (2023). Oil price manipulation as a geoeconomic weapon against the Soviet Union/Russia. *Geopolitics Quarterly*. https://journal.iag.ir/article_157149_4035bc1d5ad34369bed0c9e7b9f9cb45.pdf?lang=en
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3. „A” category national journal: Glofák, P. (2022a). Gazdasági hadviselés és geopolitika küzdelmek az olaj világpiacán. *Geopolitikai Szemle Vol. III., no. 2021/1-2*, 55-76. <https://ojs.bibl.u-szeged.hu/index.php/geopolitikai-szemle/article/view/43950/42855> (utolsó letöltés: 2023.02.26.)
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7. Glofák, P. (2019a). Az olajár és a katonai kiadások összefüggéseinek jelentősége a geoökonómiában. In: Horváth, B., Kápolnai, Zs., Földi P. (Szerk.), *Konferenciakötet, Közgazdász Doktoranduszok és Kutatók V. Nemzetközi Téli Konferenciája*, 254-260.
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