

## CHANGES OF EU COUNTRIES POSITIONS IN INTERNATIONAL TRADE OF MINERAL FUELS IN 2006–2015

Dariusz E. Staszczak✉

University of Life Sciences in Lublin

### ABSTRACT

This paper analyzes changes of exports, imports and trade balance in mineral fuels, lubricants, and related materials (named fuels in this article) of EU member states in 2006–2015. Fuels are specific commodities because the most of the EU countries are dependent on fuel imports. Moreover, trade balance in fuels is important for EU countries because of its significant importance for trade balance in all goods. Author illustrated a dominating position of net importer of fuels in this period. There were the following most important net importers of fuels in 2015: Germany, France, Italy, Spain, United Kingdom, Belgium, Austria and Poland. In 2006, Germany was also the first net importer but Italy was the second one and France the third one. Poland obtained the ninth position in 2006. Denmark was the EU net exporter of fuels in the researched period. Moreover, trade deficit in fuels of most EU net importers improved, i.e. decreased in 2015 in comparison to the situation in 2006 because of the lower oil prices and undertaking of ecological innovations in production, including the agriculture. In the researched analyzed period, the biggest imports and trade deficits in fuels of the majority of EU countries were in 2008. Such a situation was connected with the third oil shock.

**Key words:** European Union, international trade, fuels, net exporters, net importers, third oil shock

### AIM, RESEARCH METHOD, CHARACTERISTIC OF SUBJECT, HYPOTHESIS AND THEORETICAL BASIS

The aim is an indication of changes of EU countries positions in international trade of mineral fuels, lubricants, and related materials (named fuels in this article) in 2006–2015. The research method is a describing analysis based on statistical data from Eurostat. Subject of the analysis, i.e. fuels have been chosen because of their big importance for the EU economy and dependency of member states from fuel imports. Moreover, deficits in fuel trade balance influenced trade balance in all goods of EU countries. Fuels also are important factors in the agricultural production. Author verifies the hypothesis that the third oil shock in 2008 caused the biggest trade deficits in fuels of a majority of EU countries in the examined period.

The theoretical interpretations of advantages achieved from the international trade in fuels will be based on neo factors (or supply) theories, elaborated by G. Haufbauer, R. Baldwin, P. Keesing, J. Vanek. These theories claim that each country should specialize in exports of relatively abundant, i.e. cheaper commodities and in imports of relatively rare, i.e. expensive goods. Prices of exported and imported goods depend on rarity or abundance of productive factors, (i.e. natural sources, ordinary work, qualified work [so called human capital] and material capital) that can be used for their production. Therefore, high developed countries should export high technology goods and import raw materials and fuels [Bożyk 2008].

✉dariusz.staszczak@up.lublin.pl

Moreover, I include a theoretical interpretation of political and economic reasons of changing oil price which influenced trade deficits in fuels of EU countries in particular years, especially during the third oil shock. This shock will be interpreted according to the paradigm of the global political-economic spiral. According to this paradigm, the influences of political and economic factors cause changes of the world system. These factors influence this system on the same scale but on various directions. The global system is disturbed during domination of political factors. Whereas, it is balanced relatively during domination of economic factors [Staszczak 2002, 2011].

A relatively rarity of fuels and activity of Organization of Petroleum Exporting Countries (OPEC) and Russia promote extraordinary high prices of these raw materials. OPEC caused three oil shocks in 1973–1974, 1979–1980 and in 2008, i.e. a drastic reductions of oil production and supply which caused a big growths of the oil prices. The third oil shock in 2008 was caused by OPEC and Saudi Arabia especially which limited the oil deliveries during the unstable political situation in Iraq. In the result, the nominal annual average oil price in 2008 was the highest in the history [InflationData.com 2015]. An initial growth of oil prices was connected with the end of the global economic prosperity and it was the additional reason of the world economic recession in 2008–2009, except the major reason, i.e. the financial crisis caused by transnational banks. According to the global political-economic spiral, the third oil shock was an example of the OPEC politics in the international scale that disturbed the world system. The next important reason of the global destabilization was ineffective state control over the activities of transnational banks and other corporations.

The global economic recession limited the world demand for fuels and, in this way, it forced a drastic reduction of their prices in 2009 [Staszczak 2009, 2011, 2012; InflationData.com 2015]. Oil prices increased again in 2009–2013 and decreased in 2013–2015 [InflationData.com 2015, Statista 2016]. Moreover, a growth of the U.S. production and exports of natural (especially shale) gas and petroleum products decreased the fuel prices in the last years [Barbe 2015]. Other factors influencing the final fuel prices were changes of the U.S. dollar exchange rates versus other currencies. It is connected with the fact that the oil prices are presented in American currency in the global market [Staszczak 2015].

## **CHARACTERISTIC OF INTERNATIONAL FUEL TRADE, EU GLOBAL POSITION AND IMPORTANCE FOR THE AGRICULTURE**

European Union was the first importer of natural resources over the world in 2008 with 22.9% share in the global imports. Other leading importers of natural resources were as follows: USA (17.4%), Japan (10.5%) and China (9.9) [Ruta and Venables 2012]. Energy imports of European Union achieves 53%, crude oil (i.e. the major component of diesel and petrol) 90% and natural gas 66% of total EU consumption [European Commission 2017]. Fuels achieved 29.0% share in extra EU imports of all products in 2008 in comparison to 15.5% share in 2016. A drop of fuel share in total EU imports can be connected with modern technologies and lower fuel prices. Major suppliers of fuels to European Union in 2016 were as follows: Russia (with 29.6% share in EU fuel imports), OPEC (28.1%) and Norway (11.6%). Positions of fuel suppliers in EU imports were relatively stable in comparison to 28.6% share of OPEC, Russia (27.4%) and Norway (12.3%) in 2008, (Eurostat data base).

Nowadays, bioenergy and biofuels continue a small share in the in the world energy supply. However, biofuels can achieve 10% share of the global transportation fuels, except air transport in 2020–2030 [Bescu 2012]. EU will continue imports of fossil fuels in the coming decades but there are plans of a long-term energy transition toward the economy of renewable sources. The phenomenon of EU fuel dependency is still important and partially solved problem by attempts to limit using a fossil fuels (oil, gas and coal), [European Parliament 2015] and warrants to implement biofuels. Such regulations, on the one hand, influence on using fuels by agriculture but, on the other, promote agricultural production of biofuel components [Vergano and Laurenz 2012]. Moreover, a modern equipment of good technical condition in production, including agriculture, limits intake

of fuels [Wielewska and Kacprzak 2016] and promote a production of better quality [Olejniczuk-Merta 2016, Forgacs 2017].

However, the agricultural system is still dependent on non-renewable fossil fuel energy, i.e. chemicals, petroleum powered production and distribution equipment [Tomczak 2006]. Food and Agriculture Organizations of the United Nations promotes the global food system that both requires and produces energy [FAO 2011]. Therefore, economic policy of the EU, the USA and Brazil promotes a production of bioethanol and biodiesel [Hamulczuk 2014].

Ethanol is a prospective fuel that can be produced and used by agriculture because of a low costs of production and total biodegradability. It is made by a fermentation of sugar beets and cereals. Vegetable oil from rapeseed, soya and cocoa can be used to produce natural solvents as methyl esters of fatty acids [Chemat et al. 2012]. Fermentable sugars obtained from bagasse can be used to produce ethanol as fuel [Bhatia et al. 2012]. In the connection with the above mentioned facts, agricultural producers shall be prepared for changes of food system in the near future. Beet and rape seem to be the most important vegetables to be used for fuel production by Polish agricultural producers.

## **CHANGES OF POSITIONS OF EU NET EXPORTERS AND NET IMPORTERS OF MINERAL FUELS, LUBRICANTS, AND RELATED MATERIALS IN 2006–2015**

Among EU member states, Denmark was exporter of fuels in 2015 (Table 1).

There were twenty seven net importers of fuels in 2015 as follows: (1) Germany, (2) France, (3) Italy, (4) Spain, (5) United Kingdom, (6) Belgium, (7) Austria, (8) Poland, (9) Netherlands, (10) Hungary, (11) Czech Republic, (12) Ireland, (13) Portugal, (14) Greece, (15) Sweden, (16) Finland, (17) Slovakia, (18) Bulgaria, (19) Luxembourg, (20) Croatia, (21) Romania, (22) Lithuania, (23) Slovenia, (24) Malta, (25) Cyprus, (26) Latvia and (27) Estonia – Table 1.

Whereas, there were two net exporters of fuels in 2006 as follows: Denmark that trade balance amounted to 4.5 billion euro and Bulgaria that trade balance amounted to 0.6 billion euro. However, Bulgaria was net importer since 2007, whereas Denmark was net exporter of fuels in all particular years of the examined period, except 2014 (Table 1).

There were twenty six net importers of fuels in 2006 as follows: (1) Germany, (2) Italy, (3) France, (4) Spain, (5) Belgium, (6) Austria, (7) United Kingdom, (8), Greece, (9) Poland, (10) Netherlands, (11) Portugal, (12) Sweden, (13) Hungary, (14) Finland, (15) Czech Republic, (16) Ireland, (17) Romania, (18) Slovakia, (19) Lithuania, (20) Luxembourg, (21) Slovenia, (22) Croatia, (23) Latvia, (24) Cyprus, (25) Estonia and (26) Malta – Table 1.

Germany was the first net importer of fuels in the searched period. France and Italy changes their positions in 2015 in comparison to the situation in 2006. Poland was the eight fuel net importer in 2015 and it was the ninth in 2006. Moreover, European Union was a net importer of

fuels in all particular years of the examined period and therefore, there is European dependency on fuel imports. However, the trade deficits in fuels of the European Union and the majority of the EU country-members were lower in 2015 than in 2006. It could be connected with the above mentioned cheaper oil in this year and with the innovative technology which let to save fuels. United Kingdom was an example of the country with deeper fuel trade deficit in 2015 than in 2006. This country was seventh fuel net importer in 2006 and the fifth one in 2015. There were deficits of the EU international trade in fuels in 2006 and 2015 and in all particular years of the examined period and the absolute majority of EU fuel net importers in a comparison to fuel net exporters.

However, the biggest trade deficits in fuels of the majority of the EU countries were in 2008. Such a situation was connected with the above mentioned third oil shock, i.e. a big increase of the oil prices in this year. The

**Table 1.** Trade balance in international trade of mineral fuels, lubricants and related materials (in milliards euro – current prices)

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2006–15
EU-28	-285.9	-275.2	-375.4	-241.2	-306.0	-394.6	-421.4	-377.5	-334.8	-243.2	-3 255.3
Belgium	-14.8	-12.6	-18.7	-11.3	-13.5	-17.6	-19.4	-17.8	-15.4	-11.3	-152.4
Bulgaria	0.6	-2.4	-3.0	-1.9	-2.2	-2.6	-2.9	-2.6	-2.4	-1.7	-21.1
Czech Republic	-4.9	-4.5	-6.6	-4.0	-5.4	-7.2	-7.5	-7.5	-6.2	-4.2	-58.1
Denmark	4.5	4.2	4.0	2.3	2.2	1.6	1.3	0.3	-0.1	0.2	2.5
Germany	-67.2	-60.1	-87.7	-60.4	-73.6	-95.7	-98.1	-96.4	-83.2	-59.2	-781.7
Estonia	-0.5	-0.6	-0.7	-0.3	-0.2	-0.1	-0.2	-0.4	-0.4	-0.3	-3.7
Ireland	-3.7	-4.6	-5.7	-3.8	-4.7	-5.6	-5.3	-5.7	-5.3	-4.1	-48.6
Greece	-7.5	-6.6	-9.3	-5.3	-6.9	-7.4	-7.6	-6.3	-5.7	-3.9	-66.5
Spain	-32.3	-32.3	-40.7	-24.7	-31.6	-40.1	-39.1	-34.5	-30.1	-22.1	-327.6
France	-44.5	-43.4	-56.5	-38.3	-47.3	-62.1	-68.2	-64.6	-54.1	-39.4	-518.4
Croatia	-1.5	-1.7	-2.4	-1.6	-1.7	-2.4	-2.4	-2.2	-1.7	-1.5	-19.3
Italy	-49.3	-46.3	-58.4	-41.2	-51.4	-59.8	-61.5	-53.2	-42.4	-32.9	-496.5
Cyprus	-0.8	-0.9	-1.2	-0.8	-1.2	-1.3	-1.5	-1.2	-1.0	-0.7	-10.6
Latvia	-0.9	-1.0	-1.3	-0.8	-0.9	-1.1	-1.3	-1.3	-1.0	-0.7	-10.3
Lithuania	-0.8	-1.2	-1.9	-1.1	-2.0	-2.4	-2.5	-2.1	-1.7	-1.3	-17.0
Luxembourg	-2.0	-2.0	-2.5	-1.5	-1.9	-2.5	-2.8	-2.5	-2.2	-1.6	-21.5
Hungary	-5.7	-4.7	-6.7	-4.6	-5.1	-6.1	-6.3	-6.4	-6.5	-4.6	-56.6
Malta	-0.2	-0.1	-0.1	0.0	0.1	-0.2	-0.9	-0.7	-1.3	-0.8	-4.2
Netherlands	-6.4	-7.3	-4.4	-4.5	-9.3	-12.5	-16.8	-9.0	-10.5	-6.9	-87.4
Austria	-9.3	-7.9	-10.2	-6.8	-8.6	-11.4	-12.5	-11.3	-9.8	-7.7	-95.5
Poland	-6.6	-8.1	-11.1	-7.1	-9.4	-12.4	-13.3	-10.7	-10.8	-7.0	-96.4
Portugal	-6.3	-6.4	-8.2	-5.0	-6.0	-7.4	-7.9	-6.2	-6.1	-4.1	-63.6
Romania	-2.9	-3.3	-4.0	-1.9	-2.8	-3.6	-4.1	-2.7	-2.1	-1.5	-28.9
Slovenia	-1.6	-1.6	-2.3	-1.4	-1.8	-2.3	-2.4	-2.0	-1.5	-1.1	-18.2
Slovakia	-2.9	-2.7	-3.9	-2.8	-3.8	-4.5	-4.3	-4.4	-3.2	-2.8	-35.3
Finland	-5.2	-4.7	-6.4	-4.3	-5.3	-7.4	-5.2	-5.2	-5.0	-3.2	-51.8
Sweden	-5.7	-5.6	-6.7	-3.8	-6.1	-7.3	-7.2	-6.7	-5.7	-3.9	-58.7
United Kingdom	-7.6	-8.8	-12.9	-6.5	-8.0	-19.5	-25.4	-22.6	-18.8	-16.0	-146.1

Comments: the last column means a total balance for 2006–2015 – Author’s calculations; the sequence of states in the table according to the sequence in Eurostat, i.e. alphabetically but relatedly to the names of countries in their own languages, e.g. Germany in German language means Deutschland and Finland in Finnish language means Suomi.

Source: Eurostat database.

only net exporter Denmark obtained the surplus on trade balance in 2008. The biggest net importers of fuels, i.e. Germany, Italy, France and Spain obtained deeper trade deficits in 2008 than in any other particular year of the examined period from 2006 to 2015 (Table 1) and such a situation confirmed the hypothesis.

### **EU NET EXPORTERS AND NET IMPORTERS OF MINERAL FUELS, LUBRICANTS, AND RELATED MATERIALS ACCORDING TO THE BALANCE IN THE PERIOD FROM 2006 TO 2015**

Aiming at presentation of situation in international trade of EU fuel net exporters and net importers in the examined period, their trade balance is analyzed below. The European Union was the net importer of fuels in the period from 2006 to (Table 1).

There was only net exporter of fuels in the period from 2006 to 2015, i.e. Denmark (Table 1).

There were twenty seven net importers of fuels in the period from 2006 to 2015 as follows: (1) Germany, (2) France, (3) Italy, (4) Spain, (5) Belgium, (6) United Kingdom, (7) Poland, (8) Austria, (9) Netherlands, (10) Portugal, (11) Greece, (12) Sweden, (13) Czech Republic, (14) Hungary, (15) Finland, (16) Ireland, (17) Slovakia, (18) Romania, (19) Luxembourg, (20) Bulgaria, (21) Croatia, (22) Slovenia, (23) Lithuania, (24) Cyprus, (25) Latvia, (26) Malta and (27) Estonia – Table 1.

The first four net importers of fuels in the period from 2006 to 2015 were the same as net importers in 2015. Poland achieved the seventh position in this period, i.e. a better one than in 2006 and in 2015.

### **IMPORTANCE OF EXPORTS AND IMPORTS FOR THE MAJOR EU NET EXPORTERS AND NET IMPORTERS OF MINERAL FUELS, LUBRICANTS, AND RELATED MATERIALS**

According to the value of exports of mineral fuels, lubricants, and related materials in 2015, the EU countries obtained the following positions (Eurostat database):

1) Netherlands that achieved the value of exports amounting to 67.0 billion euro (this country also was the first one in 2006 with the value of exports amounting to 51.4 billion euro and in the period from 2006 to 2015 with the value of exports amounting to 738.5 billion euro), 2) Belgium 30.1 billion euro (this country obtained the third position in 2006 with the value of exports amounting to 23.3 billion euro), 3) United Kingdom 29.8 billion euro (this country obtained the second position in 2006 with the value of exports amounting to 24.7 billion euro), 4) Germany 29.7 billion euro (this country also obtained the fourth position in 2006 with the value of exports amounting to 23.1 billion euro), 5) Spain 16.7 billion euro (this country obtained the seventh position in 2006 with the value of exports amounting to 8.8 billion euro), 6) France 14.8 billion euro (this country obtained the fifth position in 2006 with the value of exports amounting to 16.3 billion euro), 7) Italy 14.1 billion euro, 8) Sweden 8.3 billion euro, 9) Greece 7.6 billion euro, 10) Poland 5.9 billion euro, 11) Denmark (the only EU net exporter) 5.1 billion euro, 12) Czech Republic 4.3 billion euro, 13) Finland 3.9 billion euro, 14) Portugal 3.9 billion euro, 15) Lithuania 3.8 billion euro, 16) Austria 2.7 billion euro, 17) Romania 2.6 billion euro, 18) Slovakia 2.5 billion euro, 19) Bulgaria 2.4 billion euro, 20) Hungary 2.1 billion euro, 21) Slovenia 1.4 billion euro, 22) Croatia 1.3 billion euro, 23) Ireland 1.1 billion euro, 24) Estonia 1.1 billion euro, 25) Latvia 0.7 billion euro, 26) Cyprus 0.4 billion euro 27) Malta 0.3 billion euro and 28) Luxembourg 0.1 billion euro.

According to the value of imports of mineral fuels, lubricants, and related materials in 2015, the EU countries obtained the following positions (Eurostat database):

1) Germany that achieved the value of imports amounting to 88.9 billion euro (this country also was the first one in 2006 with the value of imports amounting to 90.3 billion euro and in the period from 2006 to 2015 with the value of imports amounting to 1,041.4 billion euro), 2) Netherlands 73.9 billion euro (this country obtained the fourth position in 2006 with the value of imports amounting to 57.8 billion euro), 3) France 54.2 billion euro (this country also obtained the third position in 2006 with the value of imports amounting to 60.8 billion euro),

4) Italy 47.1 billion euro (this country obtained the second position in 2006 with the value of imports amounting to 61.5 billion euro), 5) United Kingdom 45.8 billion euro (this country also obtained the fifth position in 2006 with the value of imports amounting to 43.2 billion euro), 6) Belgium 41.4 billion euro (this country obtained the seventh position in 2006 with the value of imports amounting to 38.1 billion euro), 7) Spain 38.8 billion euro, 8) Poland 12.8 billion euro (this country obtained the ninth position in 2006 with the value of imports amounting to 10.5 billion euro), 9) Sweden 12.2 billion euro, 10) Greece 11.5 billion euro, 11) Austria 10.4 billion euro, 12) Czech Republic 8.5 billion euro, 13) Portugal 8.0 billion euro, 14) Finland 7.1 billion euro, 15) Hungary 6.7 billion euro, 16) Ireland 5.1 billion euro, 17) Lithuania 5.1 billion euro, 18) Denmark (the only EU net exporter) 5.0 billion euro, 19) Bulgaria 4.1 billion euro, 20) Romania 4.0 billion euro, 21) Croatia 2.8 billion euro, 22) Slovenia 2.5 billion euro, 23) Luxembourg 1.6 billion euro, 24) Latvia 1.4 billion euro, 25) Estonia 1.4 billion euro, 26) Malta 1.2 billion euro and 28) Cyprus 1.1 billion euro.

The biggest values of fuel imports in the examined period from 2006 to was 2015 were achieved by the majority of EU countries in 2008 and they were connected with the above mentioned third oil shock, i.e. a big growth of the oil prices, e.g.: (1) Germany achieved the value of fuel imports amounting to 114.2 billion euro, (2) France 79.5 billion euro, (3) Netherlands 77.0 billion euro and (4) Italy 76.8 billion euro (Eurostat database).

The importance of the fuel exports and imports for the major EU net exporters and net importers of fuels in 2015 was as follows: The only net exporter, i.e. Denmark obtained the eleventh position in exports and the eighteenth position in imports. The first net importer, i.e. Germany obtained the fourth position in exports (this country also obtained the fourth position in 2006) and the first position in imports (this country also was the first one in 2006). The second net importer, i.e. France obtained the sixth position in exports (this country obtained the fifth position in 2006) and the third position in imports (this country also obtained the third position in 2006). Italy, i.e. the third net importer obtained the seventh position in exports and the fourth position in imports. The fourth net importer, i.e. Spain obtained the fifth position in exports and the seventh position in imports. Poland, i.e. the eighth net importer obtained the tenth position in exports and the eighth position in imports.

#### **IMPORTANCE OF THE TRADE IN MINERAL FUELS, LUBRICANTS, AND RELATED MATERIALS IN THE TRADE IN ALL GOODS OF THE MAJOR EU FUEL NET EXPORTERS AND NET IMPORTERS**

Analysis covers the only net exporter, i.e. Denmark and major net importers of fuels in 2015. The trade balance in fuels is compared with the trade balance in all goods. Moreover, there are calculated the shares of the fuel exports in the merchandise exports and of the fuel imports in the merchandise imports according to the data from Eurostat.

The European Union was the net importer of fuels in 2015. The EU trade balance in fuels amounted to –243.2 billion euro and the trade balance in all goods amounted to 64.2 billion euro. The EU fuel exports amounted to 85.2 billion euro, i.e. 4.8% EU merchandise exports amounting to 1,790.7 billion euro. The EU fuel imports amounted to 328.4 billion euro, i.e. 19.0% EU total product imports amounting to 1726.5 billion euro [Eurostat 2016; percentage shares – Author’s calculations]. Therefore, the EU deficit of trade in fuels decreased importantly the EU surplus of trade in all goods. The EU exports of fuels was a relatively small part of the EU merchandise exports but the EU fuel imports was a very important share of its imports of all products.

Denmark achieved the trade balance in fuels amounting to 0.2 billion euro and the trade balance in all goods amounting to 8.9 billion euro. Moreover, Danish fuel exports was eleventh in the EU and amounted to 5.2 billion euro, i.e. 6.0% merchandise exports of this country amounting to 85.9 billion euro. Whereas, the fuel imports of Denmark was the eighteenth in the EU and amounted to 5.0 billion euro, i.e. 6.5% Danish merchandise imports amounting to 77.0 billion euro. There is proved that Danish fuel trade surplus improved in a little scale the merchandise surplus of this country [Eurostat 2016; percentage shares – Author’s calculations]. Moreover, there were relatively low shares of fuel exports and imports in trade of all goods of Denmark.

Germany, i.e. the first net importer of fuels with the fuel trade balance amounting to –59.3 billion euro but this country was also the first net exporter of all products with the merchandise trade balance amounting to 251.9 billion euro in 2015. German fuel exports was the fourth in the EU and amounted to 29.7 billion euro, i.e. 2.5% merchandise exports of this country amounting to 1198.3 billion euro. Fuel imports of Germany was the first in the EU and amounted to 88.9 billion euro, i.e. 9.4% merchandise imports of this country amounting to 946.4 billion euro (Eurostat database; percentage shares – Author’s calculations). According to the above indicated data deficit of trade in fuels decreased importantly German surplus of trade in all goods. German exports of fuels was only small share of merchandise exports of this country but fuel imports of this country was an important part of its total product imports. Such a situation confirms a strong economic position of Germany in EU. This country exports mostly high technology goods but it is dependent of fuel imports.

The second net importer of fuels, i.e. France achieved the fuel trade balance amounting to –39.4 billion euro and this country also was the second net importer of all goods with the merchandise trade balance amounting to –59.9 billion euro in 2015. Fuel exports of France was the sixth in the EU and amounted to 14.8 billion euro, i.e. 3.2% French product exports amounting to 456.0 billion euro. Fuel imports of this country was the third in the EU and amounted to 54.2 billion euro, i.e. 10.5% French imports of all goods amounting to 515.9 billion euro (Eurostat database; percentage shares – Author’s calculations). In this way, the deficit of trade in fuels deepened importantly French deficit of trade in all products. French exports of fuels was a small share of merchandise exports of this country but fuel imports of this country was a big part of its total product imports. Such a situation confirms French dependency on fuel imports.

Italy, i.e. the third net importer of fuels achieved the fuel trade balance amounting to –32.9 billion euro but this country was the third net exporter of all goods with the merchandise trade balance amounting to 45.2 billion euro in 2015. Italian fuel exports was the seventh in the EU and amounted to 14.1 billion euro billion euro, i.e. 3.4% total product exports of this country amounting to 413.9 billion euro. Fuel imports of Italy was the fourth in the EU and amounted to 47.1 billion euro, i.e. 12.8% merchandise imports of this country amounting to 368.7 billion euro (Eurostat database; percentage shares – Author’s calculations). According to the above indicated data, the deficit of trade in fuels decreased importantly Italian surplus of trade in all goods. Fuel exports of Italy was a small share of its merchandise exports but fuel imports of this country was a big part of Italian total product imports. Such a situation confirms Italian dependency on fuel imports.

It is also important to analyze a situation in Poland, that was the eighth net importer of fuels which achieved the fuel trade balance amounting to –7.0 billion euro but this country was the net exporter of all goods with the merchandise trade balance amounting to 3.7 billion euro in 2015. Polish fuel exports was the tenth in the EU and amounted to 5.9 billion euro, i.e. 3.3% merchandise exports of this country amounting to 178.7 billion euro. Fuel imports of Poland was the eighth in the EU and amounted to 12.8 billion euro, i.e. 7.3% Polish merchandise imports amounting to 175.0 billion euro (Eurostat database; percentage shares – Author’s calculations). According to the data indicated above, the deficit of trade in fuels decreased significantly Polish surplus of trade in all goods. Fuel exports of Poland was a small share of its merchandise exports but fuel imports of this country was a relatively big part of Polish merchandise imports. Such a situation confirms Polish dependency on fuel imports. The above analysis proves that net importers have bigger influence on EU trade balance in fuels than net exporters.

## **CONCLUSIONS AND PERSPECTIVES**

European Union and the absolute most of EU countries were net importers of mineral fuels in the period from 2006 to 2015. Such a situation proves the fuel dependency of the European Union and confirms the hypothesis that net importers have bigger influence on EU trade balance in fuels than net exporters. The third oil shock in 2008 caused the biggest fuel trade deficits of the most of EU countries in the researched period and such a situation confirmed the hypothesis.

Deficits of trade in fuels influenced importantly merchandise trade balance of most important EU net importers. Exports of fuels achieved only small share of merchandise exports but fuel imports of was an important part of total product imports of most important country-members.

Germany was the first EU net exporter in 2006 and in 2015. Whereas, France was the second net importer and Italy was the third one in 2015. These countries changed their positions in accordance to their positions in 2006. Poland was the ninth EU fuel net importer in 2006 and the eighth one in 2016. The only EU fuel net exporter in 2015 was Denmark and this country also was the first net exporter in 2006. Author forecasts that the EU countries will continue the tendency to reduce their dependency on mineral fuel imports through using renewable sources and agricultural production of fuels.

## REFERENCES

- Barbe, A. (2015). Emerging international trade issues for fossil fuels. Working Papers ID-041, June. United States International Trade Commission (USITC), Office of Industries. Washington, D.C.
- Bescu, C., Ferchaud, F., Gabrielle, B., Mary, B. (2012). Biofuels, greenhouse gases and climate change. A review. *Agronomy for Sustainable Development*. Springer. Verlag, 1–79. Retrieved from <http://hal.cirad.fr/cirad-00749753> [accessed: 07.03.2017].
- Bhatia, L., Johri, S., Ahmad, R. (2012). An economic and ecological perspective of thanol production from renewable agro waste: a review. *AMB Express, SpringerOpen Journal*, 2 (65). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3547755/> [accessed: 07.03.2017].
- Bożyk, P. (2008). *Międzynarodowe stosunki ekonomiczne. Teoria i polityka* (International economic relations. Theory and practice). PWE, Warszawa.
- Chemat, F., Vian, M. A., Cravotto, G. (2012). Green extraction of natural products: concept and principles. *International Journal of Molecular Sciences*, 13 (7), 8615–8627.
- European Commission (2017). Energy Imports and secure supplies. Diverse, affordable and reliable energy from abroad. Retrieved from <https://ec.europa.eu/energy/en/topics/imports-and-secure-supplies> [accessed: 07.07.2017].
- European Parliament (2015). Trade and investment in energy in the context of the EU common commercial policy. Directorate-General for External Policies. Policy Department. Brussels.
- FAO (2011). “Energy-smart” agriculture needed to escape fossil fuel trap. Retrieved from <http://www.fao.org/news/story/en/item/95161/icode/> [accessed: 07.12.2016].
- Forgacs, C. (2017). Growth and productivity advantages of specialized farms in Central and Eastern European Countries in 2005–2013. *Acta Sci. Pol. Oeconomia* 16 (1), 13–23.
- Hamulczuk, M. (2014). Polityka biopaliwowa a ceny surowców rolnych – wybrane problemy (Biofuel policy and agricultural commodity prices – selected issues). *Roczniki Naukowe SERiA*, 16, 2, 82–87.
- InflationData.com (2015). Historical oil prices. Retrieved from [http://inflationdata.com/Inflation/Inflation\\_Rate/Historical\\_Oil\\_Prices\\_Table.asp](http://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp) [accessed: 21.10.2015].
- Olejniczuk-Merta, A. (2016). Innovations and consumption versus raising the quality of life or society. *Acta Sci. Pol. Oeconomia*, 15 (3), 91–100.
- Ruta, M., Venables, A.J. (2012). International trade in natural resources: practice and policy. Staff Working Paper (World Trade Organization. Economic Research and Statistics Division), ERSD-2012-07, 1–33.
- Staszczak, D.E. (2002). Global political-economic spiral as a model of the world changes. *Studia Polityczne*, 13, 329–352.
- Staszczak, D.E. (2009). Znaczenie szoków naftowych dla gospodarki światowej. Perspektywy dla producentów rolnych. (Importance of the oil shocks for the world economy. Perspectives for agricultural producers). *Zeszyty Problemowe Postępów Nauk Rolniczych*, 542, 1095–1101.
- Staszczak, D.E. (2011). Theoretical interpretations of the European Union enlargement: Perspectives from a new global paradigm. *Journal of Knowledge Globalization*, 4 (1), 71–92.
- Staszczak, D.E. (2012). International trade and capital flows as the sources of the nations poverty or richness; Knowledge Globalization Conference, Boston, Massachusetts. Conference Proceedings, 5 (1), 146–165.

- Staszczak, D.E. (2015). Global instability of currencies. Reasons and perspectives according to the state-corporation hegemonic stability theory. *Revista de Economia Politica. Brazilian Journal of Political Economy*, 35, 1 (138), 175–198.
- Statista (2016). OPEC crude oil prices since 1960. Retrieved from <http://www.statista.com/statistics/262858/change-in-opec-crude-oil-prices-since-1960/> [accessed: 25.06.2016].
- Tomczak, J. (2006). Implications of fossil fuel dependence for the food system – <http://www.resilience.org/stories/2006-06-11/implications-fossil-fuel-dependence-food-system> [accessed: 07.12.2016].
- Vergano, R., Laurenz, E. (2012). Fossil fuel “grading” and sustainability criteria for biofuels and bioliquids under the EU Fuel Quality and Renewable Energy Directives: Implications for international trade. *Global Trade and Customs Journal*, 7 (3), 92–103.
- Wielewska, I., Kacprzak, M. (2016). Directions of undertaking ecological innovations in agribusiness companies. *Acta Sci. Pol. Oeconomia* 15 (4), 183–193.

## **ZMIANY POZYCJI KRAJÓW UE W MIĘDZYNARODOWYM HANDLU PALIWAMI MINERALNYMI W LATACH 2006–2015**

### **STRESZCZENIE**

W artykule dokonano analizy zmian eksportu, importu i salda handlu paliwami, smarami i podobnymi materiałami (nazwanymi paliwami w tym artykule) krajów członkowskich UE w latach 2006–2015. Paliwa są specyficznymi towarami, ponieważ większość krajów UE jest uzależniona od ich importu. Ponadto saldo handlu paliwami jest ważne dla krajów UE z powodu jego dużego znaczenia dla salda handlu wszystkimi towarami. Autor wykazał dominującą pozycję importerów netto paliw w tym okresie. Najważniejszymi importerami netto paliw w 2015 roku były: Niemcy, Francja, Włochy, Hiszpania, Wielka Brytania, Belgia, Austria i Polska. W 2006 roku Niemcy również były pierwszym importerem netto, Włochy były drugim, a Francja trzecim. Polska zajęła dziewiąte miejsce w 2006 roku. Dania była eksporterem netto paliw w całym badanym okresie. Ponadto deficyt handlu paliwami najważniejszych unijnych importerów netto poprawił się, tzn. zmniejszył się w 2015 roku w porównaniu do sytuacji z 2006 roku, z powodu niższych cen ropy naftowej i podjęcia ekologicznych innowacji w produkcji, włączając rolnictwo. W badanym okresie największy import i deficyt handlu paliwami większości krajów UE wystąpiły w 2008 roku. Taka sytuacja była związana z trzecim „szokiem” naftowym.

**Słowa kluczowe:** Unia Europejska, handel międzynarodowy, paliwa, eksporterzy netto, importerzy netto, trzeci szok naftowy