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CHANGES OF EUROPEAN UNION COUNTRIES POSITIONS IN THE INTERNATIONAL TRADE OF RAW MATERIALS IN 2016, 2019 AND 2021. IMPORTANCE FOR AGRICULTURE

Key words: raw materials, EU economy, strategic security, international trade,
Covid-19 pandemic, Dutch paradox, importance for agriculture

ABSTRACT. The purpose of this paper is an explanation of a strategic independency or dependency of particular countries of the European Union on raw materials imports. A strategic importance of raw materials for the EU and world economy is connected with the necessity of these materials for the production, including agricultural production and industrial production for agriculture. The design is finding the threats for the further development of most EU economies which results from their dependency on raw materials imports. There were fifteen net importers of raw materials in 2016. Most important of them were: Germany, Italy, Belgium and Spain. These first four countries did not change their positions in 2019 and 2021. The quantity of EU net importers decreased to fourteen member-states in 2019 and to thirteen countries in 2021. However, many EU net importers deepened their trade deficits of raw materials in 2021. The Dutch paradox explains the Netherlands position of the first EU net exporter in spite of this country dependency on imports of raw materials. Practical implications of the results can be considered to elaborate the short-term and long-term EU economic and trade policy.

INTRODUCTION

This paper explains a strategic independency or dependency of particular countries of the European Union on raw materials imports. For this purpose, Author analyzes changes of exports, imports and trade balance in raw materials of EU country-members in 2016, 2019 and 2021. The economies of the most important EU countries depend on imports of many raw materials. The analysis excludes Britain because of Brexit in 2020.

A participation of EU countries in international trade of raw materials is necessary to ensure the delivery chains for production of a variety of products, including high technology goods, especially machinery for agriculture (e.g. iron ore,) electronics for agricultural machinery (e.g. platinum, palladium) and other goods for agriculture, e.g. fertilizers (e.g. phosphate, limestone) and plant protection products (e.g. silica, sulphur). Moreover, Author considers an influence of the end of Covid-19 pandemic on changes of positions of particular EU member-countries in the international trade of raw materials. The importance of raw materials in exports and imports of all products are considered too.

European and especially Polish agriculture depends on the critical imports of phosphates for fertilizers and plant protection products [Smol 2019, Massey et al. 2009]. Another but insufficient solution is obtain phosphorus from secondary raw materials [Huygens, Saveyn 2018]. There is a possibility to recycling phosphorus from wastewater and this method can reduce but not subside the imports. The global problem is a decrease of phosphate export-market regions and an increase of import-dependent regions including Poland and the whole European Union [Geissler et al. 2019]. Phosphates that is used to produce agricultural fertilizers originate from limited volume of countries, especially from China, U.S.A., Morocco and Russia and this mining is limited to a small volume of transnational corporations [Geissler et al. 2015]. Moreover, the new Chinese economic policy promotes a lower extraction of phosphates because of the environmental protection [Shang et al. 2015].

There were twelve net exporters of raw materials in 2016. Most important of them were: Netherlands, Sweden, Finland and Latvia. These first four countries did not change their positions in 2019 and 2021. However, the quantity of EU net exporters rose to thirteen countries in 2019 and to fourteen member-states in 2021. The Dutch paradox, that is connected with the statistics of this country, explains the Netherlands position of the first EU net exporter in spite of this country dependency on imports of raw materials.

However, European Union and the most important EU country-members depend on imports of the critical raw materials, e.g. gadolinium, scandium, platinum, palladium, iridium, rhodium, magnesium, niobium, silicon, tungsten, beryllium, phosphorus, gallium. However, other raw materials are also needed. A mining over world is dominated by six minerals as follows: iron ore (67% of total global mining), limestone (11%), gypsum (5%), silica (5%) bauxite (4%), phosphate rock (3%). A share of other minerals in the global mining accounts for 5%. Netherlands are identified as EU import-dependent country in raw materials. Therefore, this country is encouraged to identify the supply risk for its economy. A dominant strategy is the reduction of the need for raw materials in the circular economy. Moreover, the mining is limited to more effectiveness of existing extraction in EU because of ecological requirements [TNO 2015].

Therefore, the Netherlands is a dominating country in the EU policy to achieve a climate neutrality and circular economy to recover resources like biomass, bioplastics, cellulose, phosphate and alginate-like exopolymers from aerobic granular sludge (so named bio-ALE), [Leeuwen et al. 2018].

Author tries to prove the hypothesis that the Dutch statistics of international trade is responsible for interpretation of data analysis which indicates Netherlands as the first EU net exporter of raw materials in spite of the dependency of this country on raw materials imports. This phenomenon is named the Dutch paradox.

MATERIAL AND RESEARCH METHOD

The purpose of this paper is an explanation of a strategic independency or dependency of particular countries of the European Union on raw materials imports. The subjects of the research are EU-27 country-members and their results in the international trade of raw materials according to data of Eurostat. The research method is a describing political-economic analysis which bases on statistical data. Author chose the years 2016, 2019 and 2021 to show the dependency or independency of particular EU countries on imports of raw materials before the Covid-19 pandemic and in the last year of the pandemic. The results in the ending pandemic time period of 2021 after the panic of 2020 showed the real situation in particular countries and made it possible to avoid the instability of temporary period.

EU-27 NET EXPORTERS OF RAW MATERIALS WITHIN THE BACKGROUND OF INTERNATIONAL TRADE BALANCE IN ALL GOODS

There were twelve net exporters of raw materials in 2016. Netherlands, Denmark and Ireland increased the trade surplus in all goods by the surplus in trade of raw materials. Sweden, Finland and Latvia reduced the trade deficit in all goods by the trade surplus in raw materials in 2016.

There were thirteen net exporters of raw materials in 2019. The first five countries did not change their positions from 2016 to 2019. However, Netherlands and Denmark dropped their surplus. Whereas, Sweden, Finland and Latvia increased their surplus in raw materials. Czech Republic advanced from ninth to sixth position with a growth of raw materials trade surplus. Ireland dropped from sixth to ninth position with a drop of raw materials trade surplus. Lithuania advanced from fifteenth net importer in 2016 to twelfth net exporter in 2019. Netherlands was the second EU net exporter of all products after Germany in 2019. Sweden advances from the EU net importer in 2016 to net exporter of all products in 2019.

Table 1. Changes of positions of EU net exporters of raw materials in 2016, 2019 and 2021

position	2016				2019				2021			
	country	trade balance in raw materials	trade balance in all products	position	country	trade balance in raw materials	trade balance in all products	position	country	trade balance in raw materials	trade balance in all products	
		billions euro				billions euro				billions euro		
1	Netherlands	5.33	63.17	1	Netherlands	5.23	65.16	1	Netherlands	6.95	66.10	
2	Sweden	3.74	-1.6	2	Sweden	5.09	1.41	2	Sweden	8.59	2.32	
3	Finland	1.04	-2.7	3	Finland	1.58	-0.23	3	Finland	1.75	-3.40	
4	Latvia	0.93	-1.9	4	Latvia	1.11	-2.91	4	Latvia	1.54	-3.04	
5	Denmark	0.91	8.84	5	Denmark	0.70		5	Czech Rep/	1.20		
6	Ireland	0.54	44.85	6	Czech Rep.	0.70		6	Croatia	1.20		
7	Estonia	0.53		7	Estonia	0.65		7	Ireland	0.77		
8	Croatia	0.52		8	Croatia	0.62		8	Denmark	0.72		
9	Czech Rep.	0.38		9	Ireland	0.48		9	Estonia	0.69		
10	Romania	0.36		10	Greece	0.24		10	Greece	0.41		
11	Greece	0.33		11	Hungary	0.21		11	Hungary	0.37		
12	Hungary	0.29		12	Lithuania	0.09		12	Lithuania	0.36		
				13	Romania	0.08		13	Romania	0.09		
				14	Portugal			14	Portugal	0.07		

Trade balance in all products is indicated for the most important net exporters of raw materials only

Source: [Eurostat 2022]

There were fourteen net exporters of raw materials in 2021. The first four countries did not change their positions and increased their surplus in raw materials from 2019 to 2021. Czech Republic advanced from sixth to fifth position with a growth of raw materials trade surplus. Denmark dropped from fifth to eighth position in spite of a small growth of raw materials trade surplus. The ending Covid-19 pandemic had no important influence on changes of positions of most EU net exporters in raw materials.

Netherlands maintained the second place of EU net exporter of all products after Germany in 2021. Sweden remained the EU net exporter of all products in 2021.

The real situation of the Netherlands, i.e. the first EU net exporter of raw materials is not strictly clear because the Dutch international trade data does not diverse nor country imports and retained imports neither total exports and re-exports. There are estimations that the share of Dutch re-exports account for about 50% of total exports [Gehlhar 2010]. Therefore, the Dutch re-exports of raw materials are an important but strictly unknown part of the Dutch raw materials exports.

The position of the Netherlands as the first EU net exporter of raw materials can be result of differences in prices of imports and exports of raw materials. Author claims that Dutch traders pay lower prices for imported raw materials and obtain higher prices for re-exported ones. In this way, this country maintains the surplus of trade balance in raw materials in spite of its real dependency on raw materials imports that confirms the hypothesis and is named the Dutch paradox.

EU-27 NET IMPORTERS OF RAW MATERIALS WITHIN THE BACKGROUND OF INTERNATIONAL TRADE BALANCE IN ALL GOODS

There were fifteen net importers of raw materials in 2016. Germany, Italy, Belgium and Poland reduced the trade surplus in all goods by the deficit on trade in raw materials in 2016. Spain and France deepened the trade deficit in all goods by the deficit on trade in raw materials in 2016.

There were fourteen net importers of raw materials in 2019. The first four countries did not change their positions in 2016-2019. However, Germany, Italy, Belgium, France and Poland deepened their deficits. Whereas, Spain decreased its deficit in raw materials. France advanced from sixth to fifth position with a growth of raw materials trade deficit. Poland dropped from fifth to sixth position with a growth of raw materials trade deficit in 2016-2019. Germany was the first EU net exporter of all products in 2019. Germany, Belgium and Poland reduced the trade surplus in all goods in 2019 compares to 2016. Italy increased the trade surplus in all goods. Spain and France deepened the trade deficit in all goods.

Table 2. Changes of positions of EU net importers of raw materials in 2016, 2019 and 2021

position	2016			2019			2021				
	country	trade balance in raw materials	trade balance in all products	position	country	trade balance in raw materials	trade balance in all products	position	country	trade balance in raw materials	trade balance in all products
		billions euro	billions euro		billions euro	billions euro	billions euro		billions euro		
1	Germany	-15.45	251.72	1	Germany	-18.16	228.26	1	Germany	-24.38	178.39
2	Italy	-11.24	49.64	2	Italy	-12.67	56.11	2	Italy	-15.45	44.91
3	Belgium	-4.33	16.92	3	Belgium	-5.92	16.03	3	Belgium	-11.15	29.55
4	Spain	-3.07	-19.01	4	Spain	-2.74	-34.62	4	Spain	-4.72	-30.95
5	Poland	-1.94	3.88	5	France	-2.07	-74.73	5	Austria	-2.71	-14.19
6	France	-1.71	-60.02	6	Poland	-2.06	1.19	6	Poland	-2.42	-0.58
7	Austria	-1.39		7	Austria	-1.52		7	France	-1.63	-109.65
8	Luxembourg	-0.87		8	Luxembourg	-1.08		8	Luxembourg	-1.50	
9	Slovakia	-0.40		9	Slovakia	-0.57		9	Slovakia	-0.88	
10	Portugal	-0.15		10	Bulgaria	-0.51		10	Bulgaria	-0.38	
11	Bulgaria	-0.13		11	Slovenia	-0.19		11	Slovenia	-0.29	
12	Slovenia	-0.10		12	Portugal	-0.06		12	Cyprus	-0.06	
13	Malta	-0.02		13	Malta	-0.03		13	Malta	-0.02	
14	Cyprus	-0.02		14	Cyprus	-0.02					
15	Lithuania	-0.02									

Trade balance in all products is indicated for the most important net importers of raw materials only

Source: [Eurostat 2022]

There were thirteen net importers of raw materials in 2021. The first four countries did not change their positions of net importers of raw materials in 2019-2021. Austria advanced from seventh to fifth position. France dropped from fifth to seventh position. Poland maintained the sixth position of raw materials trade deficit in 2019-2021. Portugal advanced from twelfth net importer in 2019 to fourteenth net exporter of raw materials in 2021. Germany, Italy, Belgium, Spain, Austria and Poland deepened their deficits. Whereas, France decreased its deficit in raw materials in 2019-2021.

Germany maintained the position of the first EU net exporter of all products in 2021. Germany, Italy, and Poland reduced the trade surplus in all goods in 2021 in comparison to 2019. Belgium increased the trade surplus. Spain and France deepened the trade deficit in all goods. Poland changed the position of the EU net exporter in 2019 for the position of the EU net importer of all products in 2021. A position of this country in international trade of all products was unstable in the analysed time period. Poland was the EU net exporter in 2016, 2017, 2019 and 2020 but this country was the EU net importer of all products in 2018 and 2021 [Eurostat 2022].

The ending Covid-19 pandemic had no important influence on changes of positions of most EU net importers in raw materials. However, many EU net importers deepened their trade deficits in raw materials in 2021. This situation proved that the growth of the EU economy promoted an increase of EU dependency on imports of raw materials.

IMPORTANCE OF EXPORTS OF RAW MATERIALS IN THE EXPORTS OF ALL GOODS

The EU-27 countries obtained the following positions in the value of exports of raw materials in 2016, 2019 and 2021 (Table 3).

The biggest share of exports of raw materials in total exports was in Finland, Sweden, Netherlands and Denmark. The smallest share of exports of raw materials in total exports was in Italy, Germany, Poland, France, Czech Republic and Belgium in 2016. Netherlands, the first EU-27 exporter of raw materials obtained the second position in exports of all goods. Germany, the second EU exporter of raw materials was the first exporter of all goods. France was the third exporter of raw materials and the third exporter of all goods in 2016.

The first two countries did not change their positions in exports of raw materials and of all goods in 2019. Spain advanced from fourth to third position. France dropped from third to fourth position in exports of raw materials but this country maintained the third place in exports of all goods. Countries from fifth, sixth, seventh and eighth positions did not change their places in exports of raw materials in 2019. Poland advanced from tenth to ninth place. Austria dropped from ninth to tenth place. Countries from eleventh and twelfth places did not change their positions in exports of raw materials in 2016-2019.

Table 3. Changes of positions of EU-27 major countries in the value of exports of raw materials in 2016, 2019 and 2021

position	2016				2019				2021					
	country	exports		share [%]*	position	country	exports		share [%]*	position	country	exports		share [%]*
		raw materials	all products				raw materials	all products				raw materials	all products	
		billions euro				billions euro					billions euro			
1	Netherlands	25.52	515.93	4.9	1	Netherlands	30.39	633.06	4.8	1	Netherlands	39.23	708.11	5.5
2	Germany	21.27	1205.49	1.8	2	Germany	23.40	1330.41	1.7	2	Germany	31.50	1380.14	2.3
3	France	11.05	453.07	2.4	3	Spain	12.44	298.34	4.2	3	France	15.51	494.74	3.1
4	Spain	10.09	262.04	3.8	4	France	12.03	509.95	2.3	4	Spain	15.10	323.49	4.7
5	Belgium	9.64	359.76	2.7	5	Belgium	10.91	399.10	2.7	5	Belgium	13.76	461.62	3.0
6	Sweden	7.85	125.90	7.2	6	Sweden	9.76	143.42	6.8	6	Sweden	14.17	160.51	8.8
7	Italy	7.10	417.27	1.7	7	Italy	7.56	480.35	1.6	7	Italy	9.52	516.26	1.8
8	Finland	4.72	52.32	8.0	8	Finland	6.14	65.61	9.3	8	Finland	8.25	69.47	11.9
9	Austria	4.45	137.41	3.2	9	Poland	5.67	238.18	2.4	9	Poland	7.44	285.83	2.6
10	Poland	4.39	184.17	2.4	10	Austria	5.12	159.59	3.2	10	Czech Rep.	5.58	191.57	2.9
11	Denmark	3.83	86.14	4.4	11	Denmark	4.11	99.24	4.1	11	Denmark	4.75	106.53	4.4
12	Czech Rep.	3.49	146.98	2.4	12	Czech Rep.	4.10	177.90	2.3	12	Portugal	4.03	63.62	6.3

* Share of exports of raw materials in total exports

Source: [Eurostat 2022] and own calculations – percentage shares

All major EU-27 countries increased their value of exports of raw materials in 2019 in comparison to 2016. The biggest share of exports of raw materials in total exports was in Finland, Sweden, Netherlands, Spain and Denmark. The smallest share of exports of raw materials in total exports was in Italy, Germany, France, Czech Republic, Poland and Belgium in 2019.

The first two countries did not change their positions in exports of raw materials and in total exports in 2021. France advanced from fourth to third position in exports of raw materials but dropped from the third to the fourth place in exports of all goods. Italy advanced from the fourth to the third position in exports of all goods in 2021 in comparison to 2019.

Spain dropped from third to fourth position in exports of raw materials. Countries from fifth, sixth, seventh, eighth, ninth and tenth positions did not change their places. Czech Republic advanced from twelfth to eleventh place. Denmark dropped from eleventh to twelfth place in exports of raw materials in 2019-2021. All major EU countries increased their value of exports of raw materials in 2021 in comparison to 2019.

The growing economy in the ending Covid-19 pandemic promoted a growth of the EU exports of raw materials. However, the growing inflation in the European Union in 2021 caused a growth of prices of raw materials. Therefore, the growth of value of the EU exports of raw materials is not strictly parallel to the increase of their real volume.

The biggest share of exports of raw materials in total exports was in Finland, Sweden, Portugal, Netherlands, Spain and Denmark. The smallest share of exports of raw materials in total exports was in Italy, Germany, Poland and Czech Republic in 2021.

IMPORTANCE OF IMPORTS OF RAW MATERIALS IN THE IMPORTS OF ALL GOODS

The EU-27 countries obtained the following positions in the value of imports of raw materials in 2016, 2019 and 2021 (Table 4). The biggest share of imports of raw materials in total imports was in Finland, Italy, Spain, Netherlands, Austria and Belgium.

The smallest share of imports of raw materials in total imports was in Czech Republic and France in 2016. Germany, the first importer of raw materials was the first importer of all goods. Netherlands obtained the second place in imports of raw materials and the third place in total imports in 2016.

The first ten countries did not change their positions. Denmark advanced from twelfth to eleventh position. Czech Republic dropped from eleventh to twelfth place in imports of raw materials in 2016-2019. However, Denmark and Czech Republic obtained almost the same value of imports in raw materials in 2019. All major EU-27 countries increased their value of imports of raw materials in 2019 in comparison to 2016. Germany maintained the

Table 4. Changes of positions of EU-27 major countries in the value of imports of raw materials in 2016, 2019 and 2021

position	2016				2019				2021					
	country	imports		share [%]*	position	country	imports		share [%]*	position	country	imports		share [%]*
		raw materials	all products				raw materials	all products				raw materials	all products	
		billions euro				billions euro					billions euro			
1	Germany	36.72	953.76	3.8	1	Germany	41.56	1102.15	3.8	1	Germany	55.88	1201.74	4.6
2	Netherlands	20.18	452.76	4.4	2	Netherlands	25.15	567.89	4.4	2	Netherlands	32.29	642.01	5.0
3	Italy	18.34	367.62	5.0	3	Italy	20.23	424.24	4.8	3	Italy	24.97	472.07	5.3
4	Belgium	13.97	342.83	4.1	4	Belgium	16.83	383.06	4.4	4	Belgium	24.91	432.07	5.8
5	Spain	13.15	281.06	4.7	5	Spain	15.18	332.96	4.5	5	Spain	19.82	354.44	5.6
6	France	12.76	513.10	2.5	6	France	14.11	584.68	3.4	6	France	17.14	604.39	2.8
7	Poland	6.34	180.28	3.5	7	Poland	7.73	236.99	3.3	7	Poland	9.87	286.41	3.4
8	Austria	5.84	142.51	4.1	8	Austria	6.65	165.01	4.0	8	Austria	9.14	185.73	4.9
9	Sweden	4.11	127.46	3.2	9	Sweden	4.67	142.01	3.3	9	Finland	6.50	72.87	8.9
10	Finland	3.67	54.99	6.7	10	Finland	4.57	65.85	6.9	10	Sweden	5.58	158.19	3.5
11	Czech Rep.	3.12	129.27	2.4	11	Denmark	3.41	87.71	3.9	11	Czech Rep.	4.38	179.33	2.4
12	Denmark	2.92	77.29	3.8	12	Czech Rep.	3.40	159.96	2.1	12	Denmark	4.03	101.81	3.9

* Share of imports of raw materials in total imports

Source: [Eurostat 2022] and own calculations – percentage shares

first place in imports of all goods in 2019. The biggest share of imports of raw materials in total imports was in Finland, Italy, Spain, Netherlands, Belgium and Austria. The smallest share of imports of raw materials in total imports was in Czech Republic and France in 2019.

The first eight countries did not change their positions in imports of raw materials in 2021. Germany maintained the first place in imports of all products in 2021. Finland advanced from tenth to ninth position in imports of raw materials. Sweden dropped from ninth to tenth place. Czech Republic advanced from twelfth to eleventh position. Denmark dropped from eleventh to twelfth place in imports of raw materials in 2019-2021.

All major EU-27 countries increased their value of imports in raw materials in 2021 in comparison to 2019. However, the growing inflation in the EU in 2021 caused a growth of prices of raw materials. Therefore, the growth of value of the EU imports of raw materials is not strictly parallel to the increase of their real volume.

The biggest share of imports of raw materials in total imports was in Finland, Belgium, Spain, Italy, Netherlands and Austria. The smallest share of imports of raw materials in total imports was in Czech Republic and France in 2021.

The share of imports of raw materials in total imports of major eleven EU importers increased in 2021 in comparison to 2019. Therefore, the growing economy in the ending Covid-19 pandemic needed bigger growth of imports in raw materials than growth of imports in other goods. The above proved the dependency of European Union on imports of raw materials. Imports of raw materials is necessary to produce and exports of high technology and other goods, including a variety of products for agriculture.

CONCLUSIONS AND PERSPECTIVES

Most of EU-27 net exporters and net importers had a relatively stable positions and changes were not so important. The end of Covid-19 pandemic had no important influence on changes positions of net exporters and net importers in raw materials. but the growing economy promoted a growth of exports and imports value. Many EU net importers deepened their trade deficits in raw materials in 2021. This situation proved that the growth of the EU economy in the ending the Covid-19 pandemic promoted an increase of EU dependency on imports of raw materials.

The strongest EU economies, i.e. Germany, Netherlands, Italy, Belgium, Spain and France imported the most raw materials in the analyzed time period. The above mentioned countries, with exception of the Netherlands, are EU net importers of raw materials. The Dutch paradox explains the net exporter position of the Netherlands in spite of this country dependency on imports of raw materials.

Many of imported raw materials are important factors for the agricultural production of the European Union including Poland. Particular imported raw materials can be used in agriculture indirectly, e.g. platinum or palladium which are necessary for electronic systems at agricultural machinery. However, other imported raw materials, e.g. phosphates are components used in productions of fertilizers and plant protection products. Moreover, EU is dependent on the phosphate imports.

According to the Author's opinion, the most important EU economies will deepen their dependency on imports of raw materials in the near future. This situation can be changed with a develop of the EU circular economy in a longer time period.

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ZMIANY POZYCJI KRAJÓW UNII EUROPEJSKIEJ
W HANDLU MIĘDZYNARODOWYM SUROWCAMI
W LATACH 2016, 2019 i 2021. ZNACZENIE DLA ROLNICTWA

Słowa kluczowe: surowce, gospodarka UE, bezpieczeństwo strategiczne, handel międzynarodowy, pandemia Covid-19, paradoks holenderski, znaczenie dla rolnictwa

ABSTRAKT

Celem artykułu jest wyjaśnienie strategicznej niezależności lub zależności poszczególnych krajów Unii Europejskiej od importu surowców. Strategiczne znaczenie surowców dla UE i światowej gospodarki związane jest z ich niezbędnością dla produkcji, włączając produkcję rolną i produkcję przemysłową dla rolnictwa. Ten projekt ma na celu znalezienie przyszłych zagrożeń dla rozwoju najważniejszych gospodarek Unii Europejskiej, które są rezultatem ich zależności od importu surowców. W 2016 roku było piętnastu importerów netto surowców. Najważniejszymi z nich były: Niemcy, Włochy, Belgia i Hiszpania. Te cztery kraje nie zmieniły swoich pozycji w 2019 i 2021 roku. Liczba importerów netto UE zmniejszyła się do czternastu w 2019 roku i do trzynastu w 2021 roku. Jednak wiele krajów UE pogłębiło swoje deficyty w handlu surowcami w 2021 roku. Paradoks holenderski wyjaśnia pozycję Holandii jako pierwszego eksportera netto surowców w UE, pomimo że kraj ten jest uzależniony od importu surowców. Można rozważyć praktyczne zastosowanie rezultatów badań przy opracowywaniu długo- i krótkookresowej polityki gospodarczej i handlowej UE.

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