Vilnius University
INSTITUTE OF INTERNATIONAL RELATIONS AND POLITICAL SCIENCE

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LITHUANIA'S INTERDEPENDENCE WITH RUSSIAN FEDERATION IN THE CONTEXT OF WAR IN UKRAINE – SENSITIVITY OR VULNERABILITY?

MASTER THESIS

Supervisor: prof. R.Vilpišauskas

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Bieliūnas A. Lithuania's interdependence with Russian Federation in the context of war in Ukraine – Sensitivity or Vulnerability? Tarptautinių Santykių ir Diplomatijos specialybės, magistro darbas / VU Tarptautinių santykių ir politikos mokslų institutas; darbo vadovas prof. R.Vilpišauskas. – Vilnius, 2019. – 86 p.

Reikšminiai žodžiai: interdependency, sensitivity, vulnerability, international trade, security, migration, energy, issue linkage.

Šiame darbe nagrinėjama Lietuvos tarpusavio priklausomybė su Rusijos Federacija karo Ukrainoje kontekste. Siekiant nustatyti ar Lietuvos tarpusavio priklausomybės pozicija atitiko - *jautrumą* ar *pažeidžiamą*. Darbe išplėtojama koncepcija skirta nagrinėti specifiškai Lietuvos tarpusavio priklausomybei su Rusija. Koncepcija susideda iš keturių sektorių ir dešimties iš sektorių kildinamų kriterijų. Kiekvienas sektorius ir kriterijus yra analizuojamas siekiant nustatyti ar Lietuvos pozicija jame atitiko *jautrumą* ar *pažeidžiamumą*. Darbo pabaigoje pateikiama Lietuvos tarpusavio priklausomybės su Rusija konceptualizacija ir priskiriama priklausomybės pozicija.

PATVIRTINIMAS APIE ATLIKTO DARBO SAVARANKIŠKUMĄ

Patvirtinu, kad įteikiamas darbas yra: *Lithuania's interdependence with Russian Federation in the context of war in Ukraine – Sensitivity or Vulnerability?*

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ALGIRDAS BIELIŪNAS

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Introduction

Interdependence between Lithuania and Russian Federation developed after Soviet Union dissolution. Since integration that was done under soviet occupation created a vast network of dependencies that linked the countries. Subsequently, these dependencies came to characterize the relationship between Lithuania and Russian Federation

In the studies of international relationships, interdependence between Lithuania and Russian Federation has been a topic of ongoing academic discussions. This topic can be approached from a number of different angles and subjects. Among them are small states studies, post-soviet states studies, transitioning economies, Russian Federation's or Lithuania's foreign policy and various forms of security studies. Many of these topics overlap between each other as they are either interrelated or inseparable. As a result, a tendency for convergence of topics can observed when interdependence between Lithuania and Russian Federation is examined.

However, Lithuania is more dependent on Russian Federation than it is on Lithuania. Such configuration means that interdependence between the countries is asymmetrical. This in turn created a number of practical implications for both countries. Mark A. Cichock examined this configuration implications by looking at how Russian Federation acted toward Baltic countries during 1993-1997[1]. According to author Russian Federation during this time still considered Baltic states to be part of *Russia* and by exploiting various dependencies tried to re-establish patron-client relationship.

Margarita Mercedes Balmaceda examined how Russian Federation used energy dependencies for politics in relationship with Ukraine, Belarus and Lithuania[2]. Her book offers a detailed account of how energy imports dependency was exploited to influence various aspects of Lithuanian state. Matúš Mišík and Veronika Prachárová also examined Lithuanian interdependence with Russian Federation in energy field[3]. According to authors this relationship is that of mutual dependency, but how countries approach it differs. Russian Federation showed great willingness to use energy resources to influence Lithuanian state. Yet, despite this Lithuania remained reluctant to exploit Kaliningrad Oblast dependency on it for transit.

Lithuania's interdependence with Russian Federation can also be understood in a wider topic of post-soviet states. Since former soviet-states, like Lithuania, share many similar interdependencies with Russian Federation. R.Dragneva et al. note that dependency among post-soviet countries on

[1] Mark A. Cichock, Interdependence and manipulation in the Russian-Baltic relationship: 1993–97, Journal Journal of Baltic Studies Volume 30, Issue 2, 1999 https://doi.org/10.1080/01629779900000011

[2] Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015

[3] Matúš Mišík and Veronika Prachárová *Before 'Independence' Arrived: Interdependence in Energy Relations between Lithuania and Russia*, Geopolitics Volume 21, Issue 3, 2016.02.29 https://doi.org/10.1080/14650045.2015.1113402

Russian Federation is often presented as inevitable, despite the fact that interdependence is created and maintained by policy[4].

K.Całus et al. show how Russian Federation uses links different dependencies to undermine domestic process in Eastern Partnership countries that it perceives negatively[5]. The same methods are used to facilitated further developments of interdependence or prevent it from diminishing.

L.Jonavicius et al. in examines foreign policies used by Russian Federation to achieve its goals in post-soviet countries[6]. Here again it showed that Russian Federation relies on exploiting interdependencies. However, they also note that this has negative effect on its long-term attractiveness.

Yet, despite a number of works focusing on various aspects there has not been an attempt to systemically conceptualize what constitutes Lithuania's interdependence with Russian Federation (**problem**). As a result, a conceptual framework for analysing Lithuania's interdependence with Russian Federation is proposed here.

Conceptual framework for analysing Lithuania's interdependence with Russian Federation

Robert Keohane and Joseph Nye suggested that relationships among states are determined not only by objective criteria's, but also by subjective ones. In particular interdependence between countries was distinguished as an important factor. They defined it as - *dependence as a state of being determined or significantly affected by external forces*[7]. Two interdependence cost dimensions were also outlined – *vulnerability* and *sensitivity*. That they described as - *in terms of the cost of dependence, sensitivity means liability to costly effects imposed from outside before policies are altered to try to change the situation. Vulnerability can be defined as actor's liability to suffer costs imposed by external events even after policies have been altered*[8].

Interdependence concept challenged the notion that countries power can be ascribed based on pre-set criteria's. As the configuration of interdependence is not fixed and different issues can be

[4] Rilka Dragneva et al. *How Bilateral, Regional and International Regimes Shape the Extent, Significance and Nature of Interdependencies*, Working Paper Series (No. 8), EU-STRAT, 2018.03 http://eu-strat.eu/wp-content/uploads/2018/03/EU-STRAT-Working-Paper-No.8.pdf (EU-STRAT Working Paper No. 8)

[5] Kamil Całus et al., *Interdependencies of Eastern Partnership Countries with the EU and Russia: Three Case Studies*, Working Paper Series (No. 10), EU-STRAT, 2018.04 eu-strat.eu/wp-content/uploads/2018/04/EU-STRAT-Working-Paper-No.10.pdf (EU-STRAT Working Paper No. 10)

[6] Laurynas Jonavicius et al, *Russian Interests, Strategies, and Instruments in the Common Neighbourhood*, Working Paper Series (No. 16), EU-STRAT, 2019.03 http://eu-strat.eu/wp-content/uploads/2019/03/EU-STRAT-Working-Paper-No.-16.pdf (EU-STRAT Working Paper No. 16)

[7] Robert Keohane and Joseph Nye, Power and Interdependence, New York: Longman, 4th edition, 2012, page 7.

[8] Ibid, 11.

linked. Yet, Robert Keohane and Joseph Nye themselves never explicitly stated how interdependence cost dimension should be established. Authors never listed what variables should be used in determining *sensitivity* or *vulnerability*. They only referred to some general concepts that affect countries vulnerability - *political will, governmental ability, and resource capabilities*[9].

Based on R.Keohane and J.Nye work R.Dragneva et al. and K.Całus et al. developed a conceptual four-sector framework that examines interdependence specifically between Russian Federation and post-soviet states. This in turn means that theoretically it is applicable to Lithuania. Therefore, this conceptual framework structure will also be used here to examine Lithuania's interdependence with Russian Federation.

However, an important addition will be made. To enable more detailed and structural approach sub-criteria will be added to each sector. These sub-criteria will be based on sectors descriptions presented in the K.Całus et al. [10].

The structure itself will operate on Robert Keohane and Joseph Nye interdependence conception. Therefore, a cost dimension will be assigned to each sector and sub-criteria after analysis – *sensitivity* or *vulnerability*. The conceptions descriptions are as follow:

- Interdependence – *dependence as a state of being determined or significantly affected by external forces.*
- Sensitivity – *liability to costly effects imposed from outside before policies are altered to try to change the situation.*
- Vulnerability – *liability to suffer costs imposed by external events even after policies have been altered.*

Another aspect of this conceptual framework will be *linkage strategies* (issue-linkage). This concept was also developed by Robert Keohane and Joseph Nye and describes situation where different interdependencies are linked to generate leverage or affect sector that by themselves do not have dependencies that could be exploited.

This leads to the **objective** of analysis formulation, which is: *Lithuania's interdependence with Russian Federation pattern.* This analysis is limited to a detailed assessment of the nature of interdependence of Lithuania and Russian Federation in selected sectors and how it evolved over time. However, it does not address the reasons for such a type of interdependence and its change because this would extend the analysis beyond the text limit appropriate for the master thesis. Furthermore, for the same reasons this work will be focsued on Lithuania's interdependence with

[9] Ibid, 13.
[10] Kamil Całus et al., *Interdependencies of Eastern Partnership Countries with the EU and Russia: Three Case Studies*, Working Paper Series (No. 10), EU-STRAT, 2018.04 eu-strat.eu/wp-content/uploads/2018/04/EU-STRAT-Working-Paper-No.10.pdf (EU-STRAT Working Paper No. 10)

Russian Federation pattern in the context of war in Ukraine. Since this conflict created conditions under which elements of this interdependence were likely to be exacerbated and therefore more easily observed and established.

Based on this a conceptual framework that consists of four sectors and ten sub-criteria is introduced to examine Lithuania's interdependence with Russian Federation:

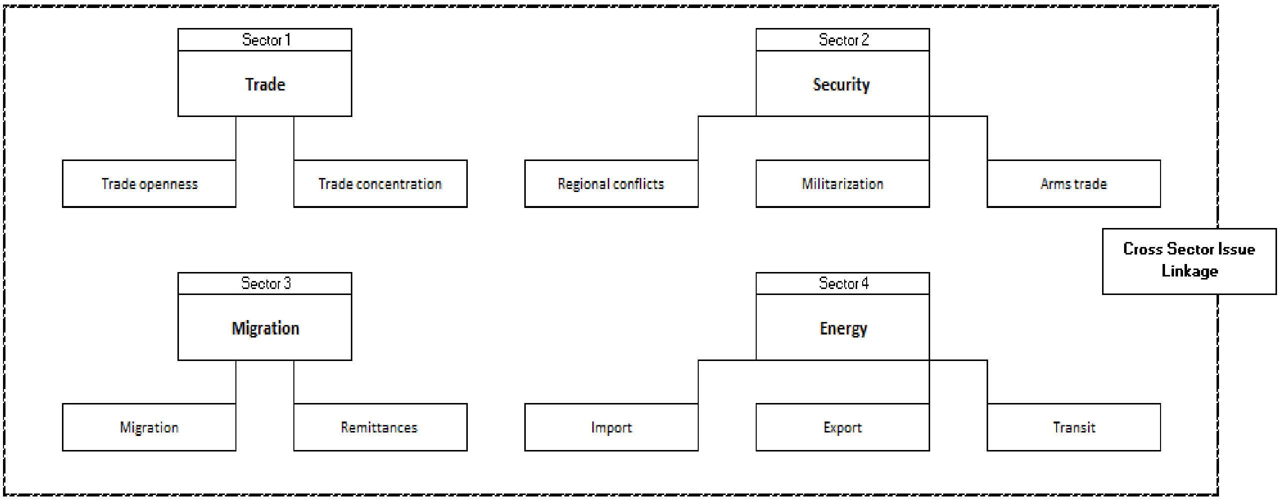


Figure 1, Conceptual framework for analysing Lithuania's interdependence with Russian Federation. Authors visualisation.

1. Trade sector will consist of two sub- criteria – trade openness and trade concentration. Both sub-criteria will focus on Lithuania's trade structure, but they will examine different fields. Trade openness sub-criteria will examine Lithuania's ability to access markets and countries reliance on trade. Trade concentration sub-criteria will examine various dependencies on products and markets. In addition, in the context of this sub-criteria Lithuanian trade with Russian Federation will be examined in detailed manner.
2. Security sector will consist of three sub-criteria – regional conflicts, militarization and arms trade. Regional conflicts sub-criteria will examine changing security situation in the post-soviet space and what implications this has for Lithuania. Militarization sub-criteria will examine at how security situation is changing around Lithuania. Arms trade sub-criteria will examine on Lithuania's reliance for military equipment procurement and whether this presented issues in regards to Russian Federation. It needs to be noted that here security concept is associated with military security and is focused on the objective side.
3. Migration sector will consist of two sub-criteria – migration and remittances. Migration sub-criteria will examine Lithuanian migration patterns and what implications this has for Lithuania. Remittances sub-criteria will examine remittances patterns and developments.
4. Energy sector will consist of three sub-criteria – import, export and transit. Imports and exports sub-criteria will examine Lithuania's energy trade structure, dependencies and

reforms. Transits sub-criteria will examine Lithuania's interdependence with Kaliningrad Oblast from transit perspective.

From these sectors and sub-criteria analysis an overall interdependence configuration will be established. Based on which it will be possible to determine the pattern of Lithuania's interdependence with Russian Federation - *sensitivity* or *vulnerability*.

1. Trade sector

Lithuania's interdependence in trade sector with Russian Federation is defined by asymmetry. For Lithuania Russian Federation has been the largest import and export partner for since the fall of the Soviet Union. For Russian Federation Lithuania remained a minor partner[11]. This created a configuration under which Lithuania's dependency on Russian Federation market could be exploited.

There were two underlying reason for this. First, energy resources (Standard International Trade Classification (SITC) Harmonised System (HS) code 4-27 (SITC HS4-27)) import dependency, which in strict sense was dependency on infrastructure controlled by Russian Federation. Second, overall importance of trade with Russian Federation.

The first reason, or rather issue, was clearly understood by the political elite and was addressed by government intervention in energy sector; this will be the topic of the energy sector chapter. The second reason, the topic of this chapter, was potential dependency on overall trade with Russian Federation, mainly in exports. The underlying reason for concern in overall trade was the fact that Russian Federation routinely used trade as a tool for political blackmail[12].

Yet, the overall effect of political fallout in 2014 for Lithuanian economy was limited. It is estimated that due to Russian Federation sanction Lithuania in 2014 lost 0.81% of GDP growth and additional 1% in 2015[13]. Despite this, Lithuanian economy still grew by 3.5% in 2014 and by 2% in 2015[14]. While unemployment continued to shrink during the same period[15]. Keeping in mind that among EU28 Lithuania was outlined as the most affected country by Russian Federation sanctions such limited scope of the impact was puzzling. However, this outcome also suggested that Lithuania might not have been dependent on Russian Federation market in the first place.

Therefore, this chapter will look into Lithuanian trade structure and will try to establish whether Lithuania was dependent on Russian Federation market. Subsequently, this analysis will also try to answer why sanction had only a limited impact on the country.

[11] International Trade Centre, Trade Map - total products and services imports/export. https://www.trademap.org/Country_SelProductCountry_TS.aspx
[12] Jurgita Lapienytė, *Rusija uždarė sienas Lietuvai: pieno perdirbėjai į Rusiją nebevažiuoja, kiti automobiliai toliau griežtai tikrinami*, 15min, 2013.10.09 https://www.15min.lt/verslas/naujiena/bendroves/rusija-uzdare-sienas-lietuvai-pieno-perdirbejai-i-rusija-nebevaziuoja-kiti-automobiliai-toliau-grieztai-tikrinami-663-375646?copied
[13] Žygimantas Mauricas, *The effect of Russian economic sanctions on Baltic States*, Nordea, 2014 https://e-markets.nordea.com/api#!/article/11743/undefined and LRT, *Ekspertai: Lietuva atsilaikė prieš Rusijos embargą*, 2016.11.10 https://www.lrt.lt/naujienos/verslas/4/153902/ekspertai-lietuva-atsilaike-pries-rusijos-embarga
[14] Statistics Lithuania, *Gross domestic product*, https://osp.stat.gov.lt/statistiniu-rodikliu-analize#/
[15] Ibid.

Trade openness

In the literature about small and developing countries access to main markets, including geographical proximity, has been described as an important factor for economic development and prosperity[16].

Lithuanian economy over the years has become characterised by high trade openness (exports plus imports as percent of GDP). This process accelerated since Lithuania gained member in EU and again after 2008 financial crisis. After which, in just four years, Lithuania became one the most open economies globally. The country went from 48th position globally in 2009, with a score of 105.56, to 11th position globally in 2013, with a score of 166.13. Then in 2014 due to political crisis that unfolded in Ukraine and rounds of sanctions a negative trend emerged. In few years Lithuanian score felt down to 147.61. Yet, despite this in 2017 a global positive trend emerged and Lithuanian score rose again to 160.13. The country took 13th position globally, while the global average increased to 71.70.

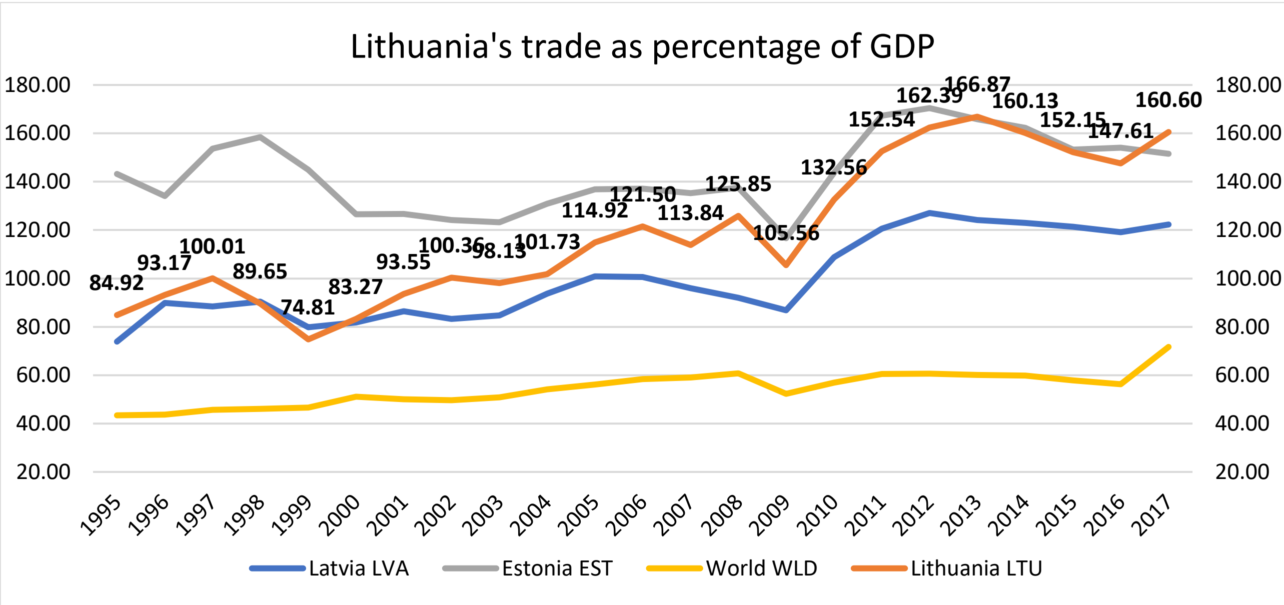


Figure 2, Lithuania's trade as percentage of GDP, World Bank data. Authors visualization.

After Lithuania joined EU trade as percentage of GDP expanded. This is not surprising considering that trade within EU accounts for majority of Lithuanian exports and imports. Membership in EU also allows Lithuania to achieve some of the economies of scale that had traditionally been the privilege of great powers[17]. While EU binding regimes provide a strong set of

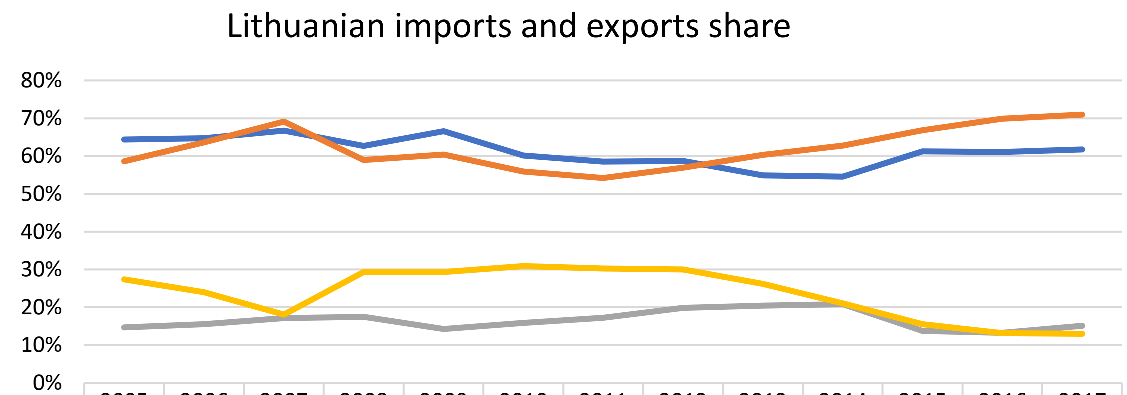
[16] Joao Brito, *Country Size and Determinants of Economic Growth: A Survey with Special Interest on Small States*, 2015 https://mpra.ub.uni-muenchen.de/61273/

[17] Anders Wivel, Alyson JK Bailes and Clive Archer, *Setting the Scene: Small States and International Security*, Book Clive Archer, Alyson J.K. Bailes, Anders Wivel (edited by), Small States and International Security Europe and Beyond, 1st Edition.2014, page 4.

disciplines to support compliance with existing obligations and prevent disruptions caused by arbitrary and discriminatory actions[18].

EU importance for Lithuania also increased after the political fallout in 2014 with Russian Federation. In 2013, prior to Russian Federation sanctions, seven out of ten Lithuania's largest export partners were part of EU. Other 3 being Russian Federation (1st overall), Belarus (5th overall) and Ukraine (10th overall). In imports, eight out of ten largest partners were part of EU, two others being Russian Federation (1st overall) and Belarus (6th overall)[19].

In 2017 eight out of ten Lithuania's largest export partners were part of EU. Other 2 being Russian Federation (1st overall) and United States of America (USA) (6th overall). In imports, nine out of ten largest partners were part of EU, the only exception being Russian Federation (1st overall)[20].



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EU Export	64%	65%	67%	63%	67%	60%	59%	59%	55%	55%	61%	61%	62%
EU Import	59%	64%	69%	59%	60%	56%	54%	57%	60%	63%	67%	70%	71%
RU Export	15%	16%	17%	17%	14%	16%	17%	20%	20%	21%	14%	13%	15%
RU Import	27%	24%	18%	29%	29%	31%	30%	30%	26%	21%	15%	13%	13%

Figure 3, Lithuanian imports and exports share, International Trade Centre data. Authors calculations.

Yet, Lithuania's most important foreign trade partner, as an individual country, remains Russian Federation. Accessing its market has been subject of political context even prior to 2014 political fallout. In wider sense this also extends to Eurasian Economic Union (EAEU).

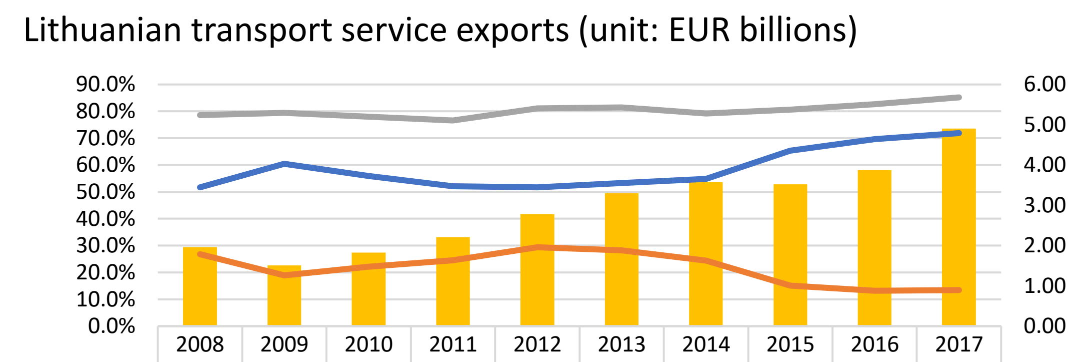
[18] Rilka Dragneva et al., *How Bilateral, Regional and International Regimes Shape the Extent, Significance and Nature of Interdependencies*, EU and Eastern Partnership Countries – An Inside-Out Analysis and Strategic Assessment' (EU-STRAT), 2018 March, page 15, http://eu-strat.eu/wp-content/uploads/2018/03/EU-STRAT-Working-Paper-No.8.pdf

[19] International Trade Centre, Trade Map - total products imports/export. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx

[20] Ibid.

Among EU28 Lithuania has been recognized as the most dependent country on trade with Russian Federation and most affected by the sanctions it introduced in 2014[21]. Due to which Lithuanian exports to Russian Federation contrasted by 37% in 2015[22].

Access to EU markets allowed to compensate significant share of losses. In some sectors, such as export of transport services, companies managed to completely counter losses from Russian Federation market by expanding revenues in EU.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
World	1.96	1.51	1.83	2.21	2.78	3.30	3.58	3.52	3.87	4.91
EU28 (%)	51.7%	60.5%	55.9%	52.1%	51.7%	53.3%	54.8%	65.4%	69.6%	71.9%
Russian Federation (%)	26.8%	18.9%	22.1%	24.5%	29.4%	28.2%	24.4%	15.1%	13.2%	13.4%
EU28 + RU combined (%)	78.6%	79.4%	78.0%	76.6%	81.1%	81.5%	79.2%	80.6%	82.7%	85.2%

World EU28 (%) Russian Federation (%) EU28 + RU combined (%)

Figure 4, Lithuanian transport service exports (unit: EUR billions), International Trade Centre data. Authors calculations.

This shows that despite underlying problems with main foreign trade partner, Russian Federation, Lithuanian companies at that time still had access to markets to which they could reorient. This in turn was one of the main reasons why Lithuania did not need to implement costly policy alternatives after Russian Federation restricted access to its market in 2014. For Lithuania had already created alternatives a decade earlier, back in 2004, when it gained membership in EU.

Lithuanian membership in NATO is also important factor. The overlapping membership between EU and NATO allows political leadership to develop new policy options[23]. Furthermore, formal structures of these organizations provide mechanisms for negotiations and adjustments among members. This enables policy coordination and, to some extent, prevents members from pursuing alternative policies individually.

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[21] European Parliament, *The Russian Embargo: Impact on the Economic and Employment Situation in the EU*, 2014.05 www.europarl.europa.eu/RegData/etudes/BRIE/2014/536291/IPOL_BRI(2014)536291_EN.pdf

[22] Figure 12, page 21.

[23] Rilka Dragneva et al, page 9.

Lithuania's Main Trade Partners, 2013		
No.	**Imports**	**Exports**
1	Russian Federation	Russian Federation
2	Germany	Latvia
3	Poland	Germany
4	Latvia	Poland
5	Netherlands	Belarus
6	Belarus	Estonia
7	Italy	United Kingdom
8	Sweden	Netherlands
9	Belgium	Sweden
10	United Kingdom	Ukraine

Lithuania's Main Trade Partners, 2017		
No.	**Imports**	**Exports**
1	Russian Federation	Russian Federation
2	Germany	Latvia
3	Poland	Germany
4	Latvia	Poland
5	Italy	Sweden
6	Netherlands	USA
7	Sweden	Estonia
8	France	United Kingdom
9	United Kingdom	Netherlands
10	Estonia	France

EU and NATO member

EU member

NATO member

Figure 5, Lithuania's Main Trade Partners 2013/2017, International Trade Centre data. Authors visualization.

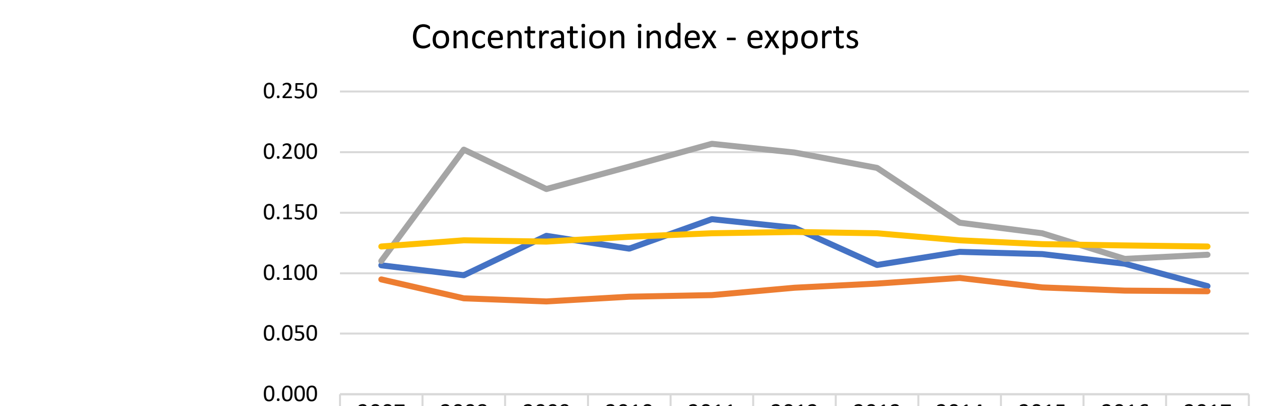
Therefore, membership in EU, and to some extent NATO, allowed Lithuania to minimize Russian Federation sanction effects. This ability to adapt within existing trade structure shows that Lithuania was not dependent on Russian Federation market. As a result, Lithuania's interdependence based on access to Russian Federation market constitutes a *sensitivity*.

Trade concentration

Frequent reason why small countries face vulnerability in foreign trade is over reliance. It can manifest as either reliance on certain exports/imports or dependency on access to certain market(es).

In the context of EU28 Lithuanian product concentration and diversification indices of exports and imports score around average[24]. They also showed a positive trend leading to 2014 and after it. Same pattern is also visible at the SITC three-digit level products exports and imports indices[25].

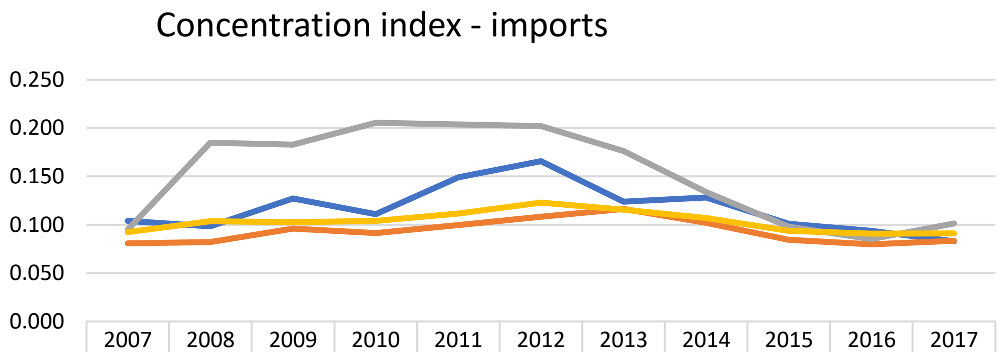
Keeping in mind that EU28 displays a globally competitive average Lithuania's result is also a competitive one. In short, this means that Lithuania is not dependent on any single export or import product category. Nevertheless, it needs to be pointed out that infrastructure dependencies do not appear on these indices.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	0.106	0.098	0.131	0.120	0.145	0.137	0.107	0.118	0.116	0.108	0.089
Latvia	0.095	0.079	0.077	0.081	0.082	0.088	0.091	0.096	0.088	0.085	0.085
Lithuania	0.110	0.202	0.169	0.188	0.207	0.200	0.187	0.142	0.133	0.112	0.115
EU28 (European Union)	0.122	0.127	0.126	0.13	0.133	0.134	0.133	0.127	0.124	0.123	0.122

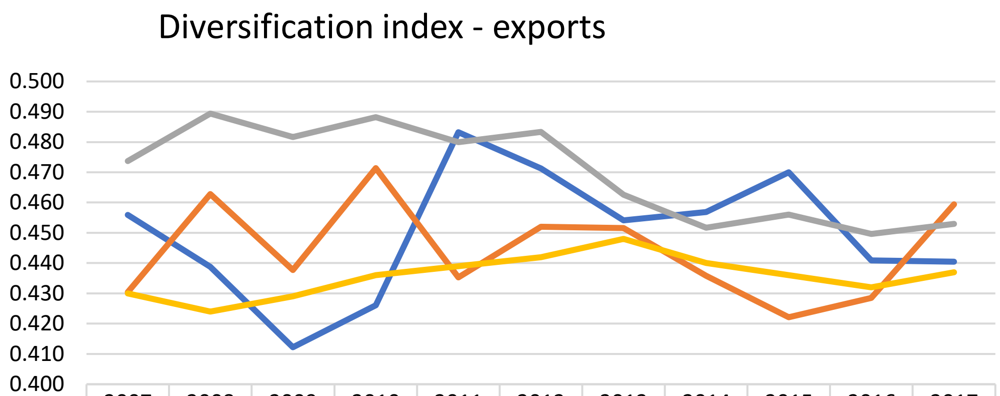
Figure 6, Concentration Index – exports, UNCTADstat data. Authors visualization.

[24] UNCTAstat, *Merchandise: Product concentration and diversification indices of exports and imports, annual,* https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=120
[25] Ibid.



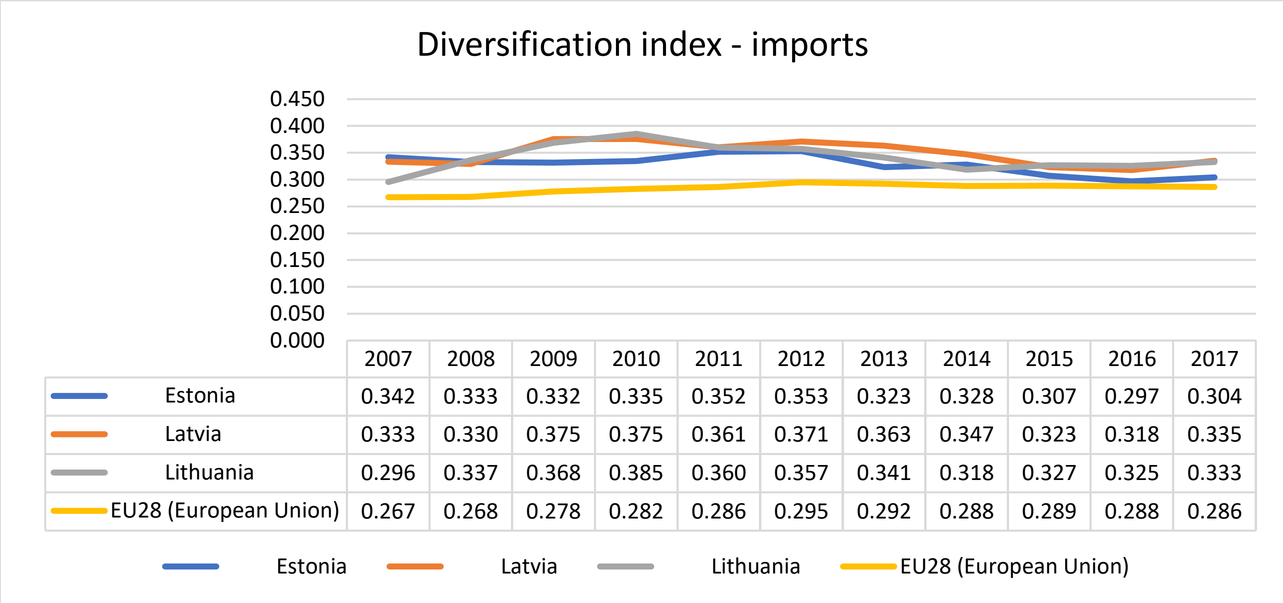
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	0.104	0.098	0.127	0.111	0.149	0.166	0.124	0.128	0.101	0.094	0.083
Latvia	0.081	0.082	0.096	0.091	0.100	0.108	0.116	0.102	0.085	0.080	0.083
Lithuania	0.095	0.185	0.183	0.206	0.204	0.202	0.176	0.134	0.098	0.085	0.101
EU28 (European Union)	0.092	0.104	0.103	0.104	0.112	0.123	0.116	0.107	0.094	0.091	0.091

Figure 7, Concentration Index – imports, UNCTADstat data. Authors visualization.



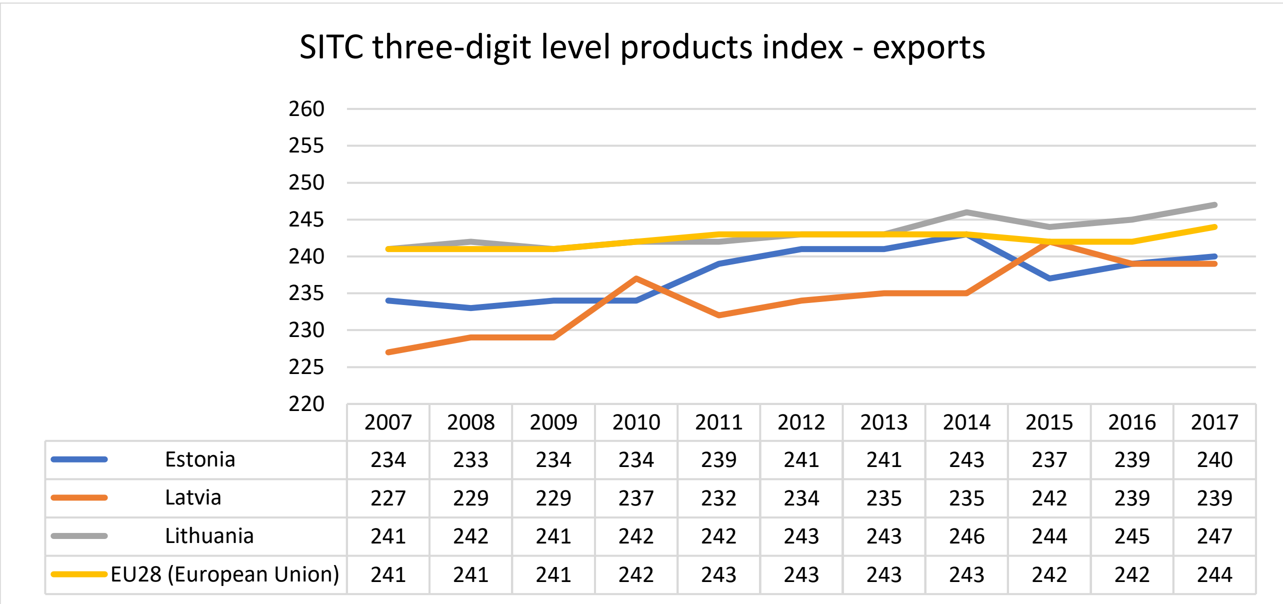
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	0.456	0.439	0.412	0.426	0.483	0.471	0.454	0.457	0.470	0.441	0.441
Latvia	0.430	0.463	0.438	0.471	0.435	0.452	0.452	0.436	0.422	0.429	0.459
Lithuania	0.474	0.489	0.482	0.488	0.480	0.483	0.463	0.452	0.456	0.450	0.453
EU28 (European Union)	0.43	0.424	0.429	0.436	0.439	0.442	0.448	0.44	0.436	0.432	0.437

Figure 8, Diversification Index – exports, UNCTADstat data. Authors visualization.



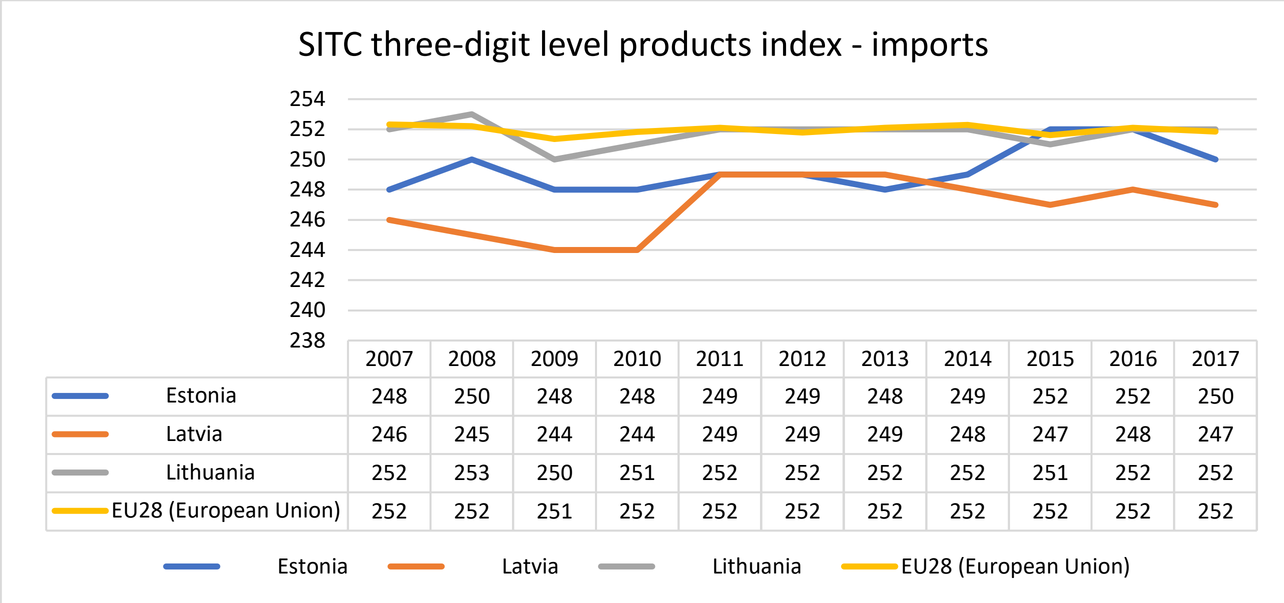
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	0.342	0.333	0.332	0.335	0.352	0.353	0.323	0.328	0.307	0.297	0.304
Latvia	0.333	0.330	0.375	0.375	0.361	0.371	0.363	0.347	0.323	0.318	0.335
Lithuania	0.296	0.337	0.368	0.385	0.360	0.357	0.341	0.318	0.327	0.325	0.333
EU28 (European Union)	0.267	0.268	0.278	0.282	0.286	0.295	0.292	0.288	0.289	0.288	0.286

Figure 9, Diversification Index – imports, UNCTADstat data. Authors visualization.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	234	233	234	234	239	241	241	243	237	239	240
Latvia	227	229	229	237	232	234	235	235	242	239	239
Lithuania	241	242	241	242	242	243	243	246	244	245	247
EU28 (European Union)	241	241	241	242	243	243	243	243	242	242	244

Figure 10, SITC three-digit level products index - exports, UNCTADstat data. Authors visualization.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	248	250	248	248	249	249	248	249	252	252	250
Latvia	246	245	244	244	249	249	249	248	247	248	247
Lithuania	252	253	250	251	252	252	252	252	251	252	252
EU28 (European Union)	252	252	251	252	252	252	252	252	252	252	252

Figure 10, SITC three-digit level products index - imports, UNCTADstat data. Authors visualization.

Market wise two possible interdependent relationships are visible for Lithuania. First, EU if taken as a whole. Since it accounts for well over half of Lithuanian imports and exports. Second, as a single country, Russian Federation which is the main export and import partner.

In the case of EU, as mentioned previously, binding regime prevents disruptions caused by arbitrary and discriminatory actions. This leaves Russian Federation as the only problematic market. Due to Russian Federation willingness to use economic measures for political blackmail[26].

This was a problem for Lithuania since it had a high energy resources (SITC HS4-27) dependency determined by Russian Federation controlled infrastructure. Subsequently this dependency did not appear on relevant trade indices as they do not take into account infrastructure. How this was addressed is the topic of energy sector chapter. Here it will only be examined briefly as it has more to do with strategic initiatives than market forces.

Another potentially problematic aspect for Lithuania was overall trade with Russian Federation due to its share significance. Yet, sanctions introduced by Russian Federation in 2014 had a smaller effect on Lithuania than was estimated. Despite Lithuania being the most dependent country on trade with Russian Federation among EU28[27]. To explain why Russian Federation markets importance was overestimated and why exports to it constituted a *sensitivity* trade between the countries needs to be examined.

[26] Jurgita Lapienytė, *Rusija uždarė sienas Lietuvai: pieno perdirbėjai į Rusiją nebevažiuoja, kiti automobiliai toliau griežtai tikrinami*, 15min, 2013.10.09 https://www.15min.lt/verslas/naujiena/bendroves/rusija-uzdare-sienas-lietuvai-pieno-perdirbejai-i-rusija-nebevaziuoja-kiti-automobiliai-toliau-grieztai-tikrinami-663-375646?copied
[27] European Parliament, *The Russian Embargo: Impact on the Economic and Employment Situation in the EU*, 2014.05 www.europarl.europa.eu/RegData/etudes/BRIE/2014/536291/IPOL_BRI(2014)536291_EN.pdf

Trade with Russian Federation

Exports

Export to Russian Federation has always accounted for a large share of overall Lithuanian export. In years leading up to 2014 this share was also expanding. This was especially the case in export of products. In 2001 Russian Federation accounted for roughly 11% of all Lithuanian products exports, in 2013, a year before sanctions were introduced, it accounted for 19.8%[28]. During this period on year to year basis products export volumes to Russian Federation on average grew by more than 20%[29].

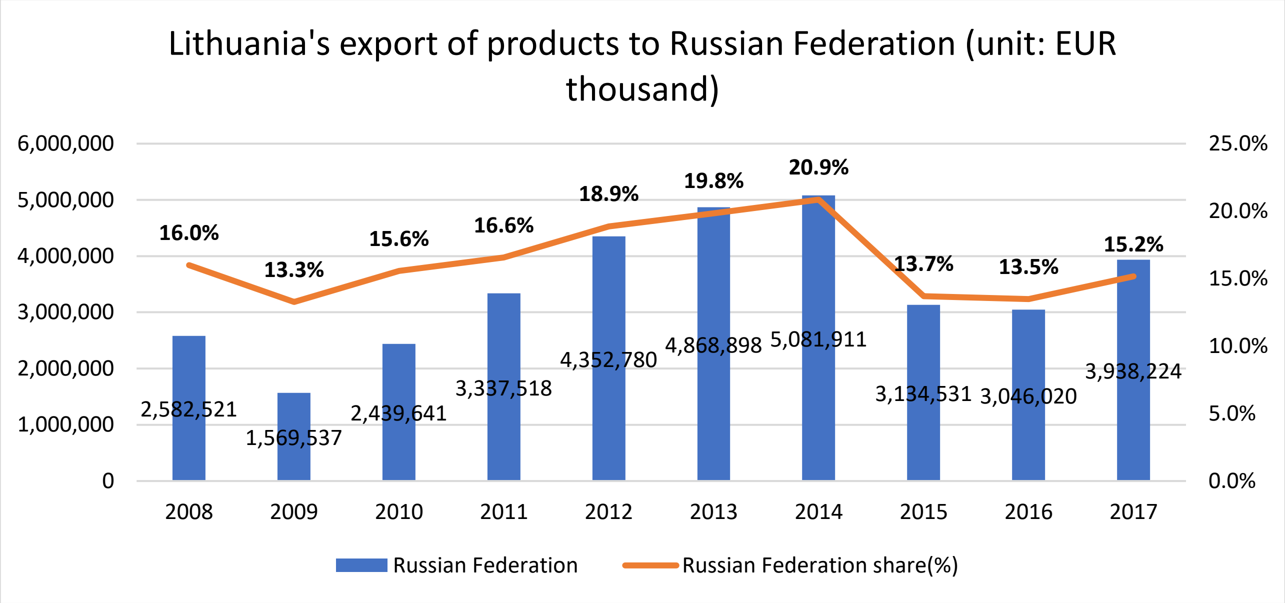


Figure 11, Lithuania's export of products to Russian Federation (unit: EUR thousand), International Trade Centre data. Authors calculations.

The situation looks less dramatic when export of services is accounted for.

[28] International Trade Centre, Trade Map - total products export. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx

[29] Ibid. Authors calculations.

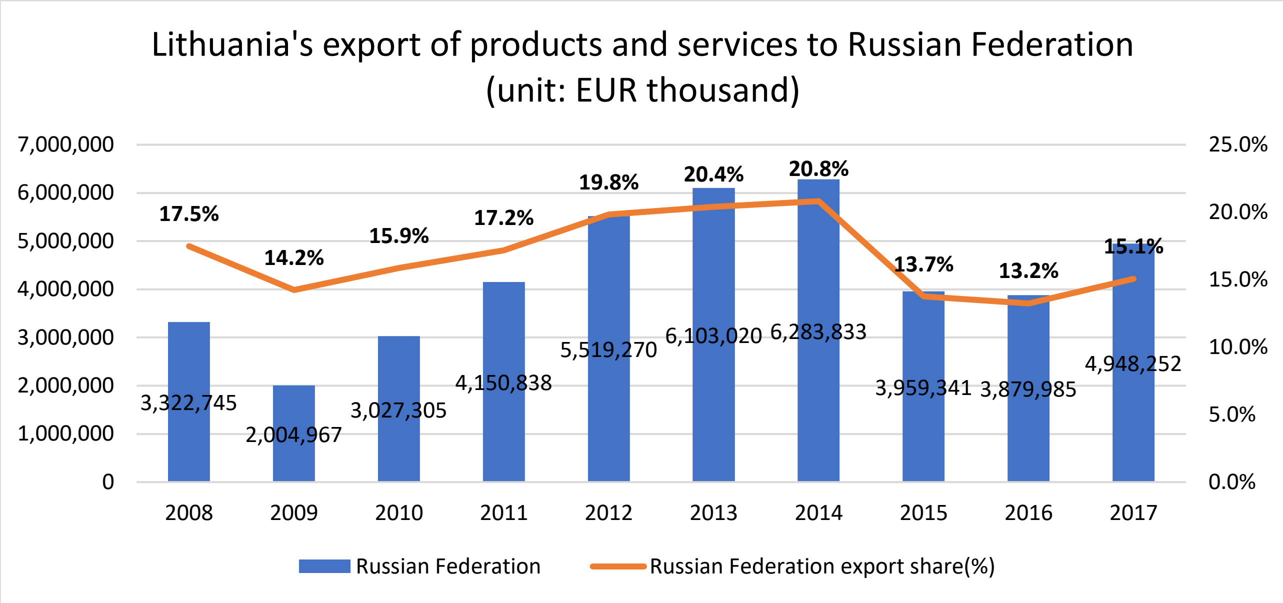


Figure 12, Lithuania's export of products and services to Russian Federation (unit: EUR thousand), International Trade Centre data. Authors calculations.

Due to such tendencies already prior to political fallout in 2014 Lithuanian exports dependency on Russian Federation market was perceived as potentially problematic. Considering that in 2014 exports to it accounted for more than 1/5 of all product export this was almost self-evident. Furthermore, it was also widely known that important Lithuanian economy sectors relied on Russian Federation market. In 2014 transport and food products sector stood out as the most noticeable cases. Later in part due to the fact that in 2013 Russian Federation arbitrary restricted food products imports from Lithuania[30]. Subsequently, this caused public commotion. While transport sector dependency was known due to its share importance for Lithuanian economy, over 100.000 people were employed in it at that time[31].

Then 2014 came and economic sanctions were introduced by Russian Federation to EU and other countries. These sanctions banned import of certain goods - agricultural products and food stuff - to Russian Federation (*import ban by Russian Federation is currently extended till the end of 2019*[32]). It covered:

- Dairy products
- Vegetable and fruit
- Meat

[30] LRT, usija grasinimus Lietuvai perkelia visai ES, 2015.09.08, https://www.lrt.lt/naujienos/ekonomika/4/27588/rusija-grasinimus-lietuvai-perkelia-visai-es
[31] Lithuanian Ministry of Transport and Communications, *Transporto rinkos statistinių rodiklių apžvalga*, 2016, https://sumin.lrv.lt/uploads/sumin/documents/files/2016%20m_%20Transporto%20rinkos%20apžvalga%20SM%20talpinimui(2).pdf
[32] Ivan Gutterman, Wojtek Grojec, and RFE/RL's, *A Timeline Of All Russia-Related Sanctions*, 2018.09.19 https://www.rferl.org/a/russia-sanctions-timeline/29477179.html

Some exceptions were made, for such products as prepared vegetables and fruits, live animals, nutritional supplements, baby food and others[33].

EU and European Bank for Reconstruction and Development (EBRD) at that time estimated that among EU28 Lithuania will be the most affected country by these sanctions[34]. These estimates were based on the fact that Lithuania had the highest export dependency among EU28 on Russian Federation market for sanctioned products. Blacklisted products export to Russian Federation accounted for 2.6-2.72% share of GDP in 2013.

Exports in 2013 in product categories falling under the Russian food import ban		
Country	Value of Exports, EUR million	Share in GDP, %
Lithuania	**910**	**2.6%**
Norway	838	0.2%
Poland	832	0.2%
Germany	554	0%
USA	545	0%
Netherlands	525	0.1%
Denmark	366	0.1%
Spain	338	0%
Finland	283	0.1%
Belgium	280	0.1%
France	234	0%
Italy	161	0%
Greece	125	0.1%
Austria	102	0%
Ireland	89	0.1%
Hungary	76	0.1%
Estonia	72	0.4%
Latvia	67	0.3%
United Kingdom	40	0%
Cyprus	13	0.1%

Figure 13, Exports in 2013 in product categories falling under the Russian food import ban, European Parliament data. Authors visualization.

Estimations presented another important aspect. As they showed that that Lithuania was not only the most affected country by sanction, but in fact virtually the only one that had potentially

[33] European Parliament, *The Russian Embargo: Impact on the Economic and Employment Situation in the EU*, 2014.05 www.europarl.europa.eu/RegData/etudes/BRIE/2014/536291/IPOL_BRI(2014)536291_EN.pdf
[34] Ibid and Bojan Markovic et al. The impact on the EBRD region of Russia's food ban, European Bank for Reconsturction and Development, 2014.09.09 https://www.ebrd.com/news/2014/the-impact-on-the-ebrd-region-of-russias-food-ban.html

serious implications to consider. This highlights how much more Lithuania was dependent on trade with Russian Federation than other EU countries, even Baltic countries.

After sanctions Lithuanian exports to Russian Federation dropped by 37%, while sanctioned goods accounted only for 15% of exports[35]. Yet, despite predicted loss 2.6-2.72% GDP only from the sanctioned product, not the overall political fallout, the impact for Lithuanian economy was limited[36]. Estimates put the loss at 0.81% of GDP growth in 2014 and additional 1% in 2015[37]. Despite this, Lithuanian economy still grew by 3.5% in 2014 and by 2% in 2015. While unemployment continued to shrink during the same period.

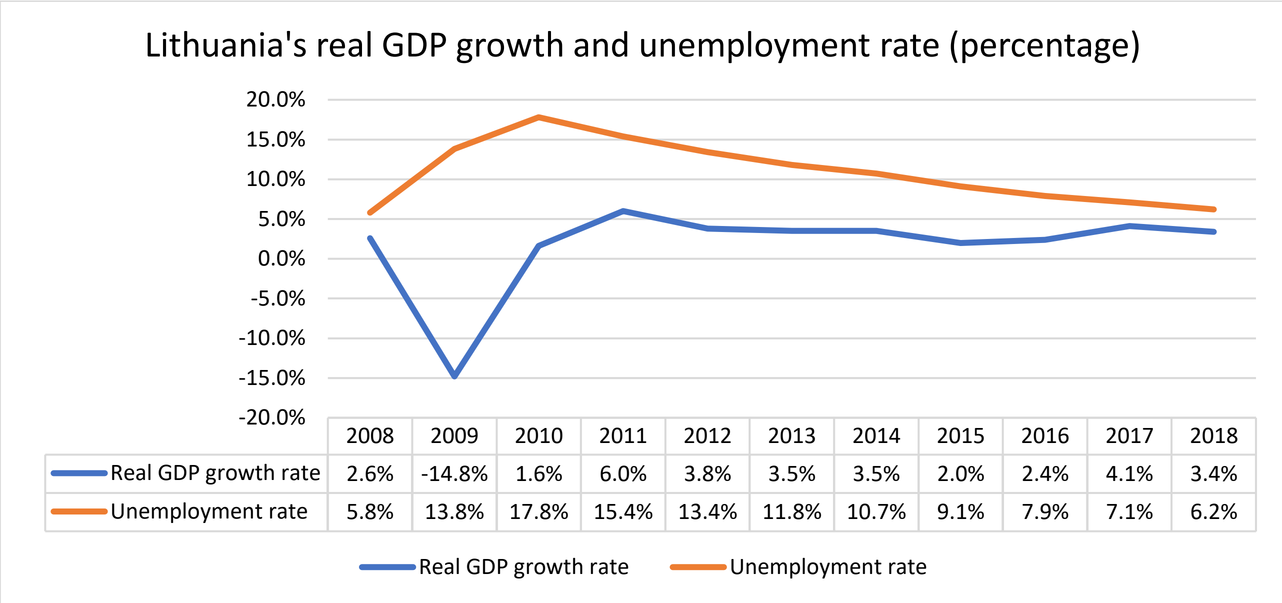


Figure 14, Lithuania's real GDP growth and unemployment rate (percentage), Statistics Lithuania data. Authors visualization.

This outcome naturally caused discussions. Publicly it was suggested that Lithuanian companies managed to divert sanctioned products from Russian Federation to other markets[38]. Even some prominent public officials cited this as the main reason for resilience[39]. There was only one problem with this view - the data does not show such divergence taking place. After Russian Federation introduced sanctions in 2014 a contraction in volumes of exported products is clearly visible.

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[35] International Trade Centre, Trade Map - total products and services export. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx
[36] Ibid.
[37] Viljar Veebel and Raul Markus, *The bust, the boom and the sanctions in trade relations with Russia*, Journal of International Studies, 11(1), 9-20https://www.jois.eu/files/1_310_Veebel_Markus.pdf and LRT, *Ekspertai: Lietuva atsilaikė prieš Rusijos embargą*, 2016.11.10 https://www.lrt.lt/naujienos/verslas/4/153902/ekspertai-lietuva-atsilaike-pries-rusijos-embarga
[38] Delfi, *Lithuanian businesses have experience in diversifying after Russia's trade restrictions*, 2014.08.19 https://en.delfi.lt/business/lithuanian-businesses-have-experience-in-diversifying-after-russias-trade-restrictions.d?id=65595466
[39] Ibid.

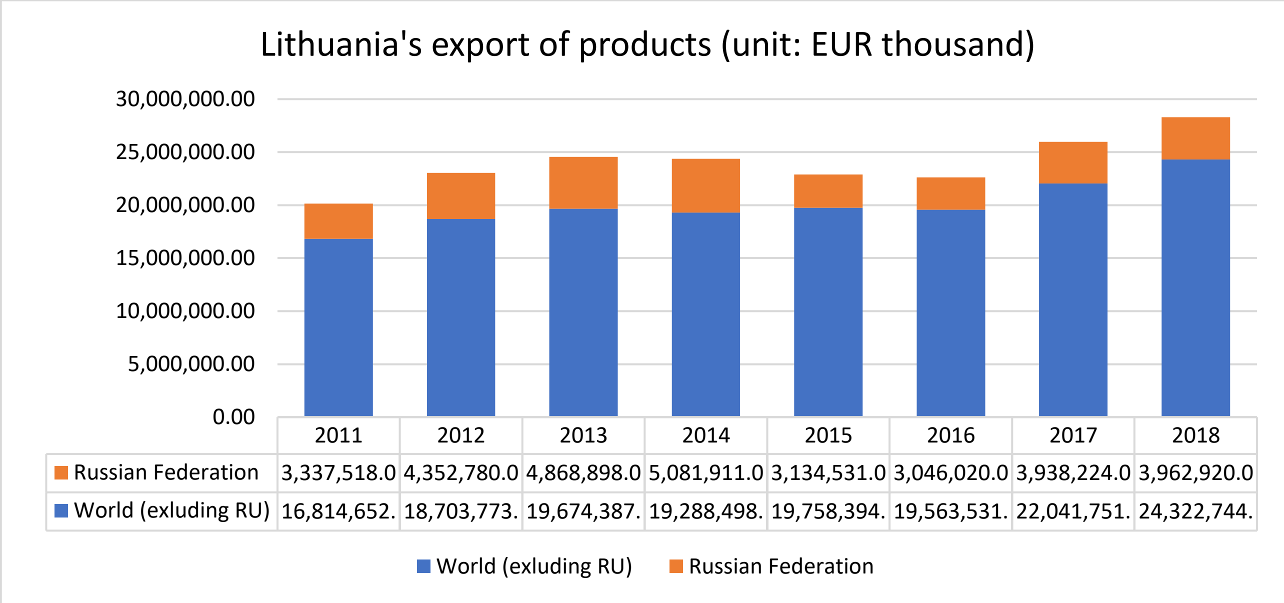


Figure 15, Lithuania's export of products (unit: EUR thousand), International Trade Centre data. Authors visualization.

Furthermore, among 20 largest Lithuanian export destinations in 2015 only one, Spain, demonstrated a sudden increase in exported products volumes. Yet, export to Spain in 2014 constituted only for 0.88% of Lithuanian exports of products and despite the increase in 2015 accounted only for 1.31%[40].

Lithuania's export of goods increase compared with previous year 2014-2015			
Rank	**Country**	**2014**	**2015**
1	Russian Federation	4.37%	-38.32%
2	Latvia	-8.51%	1.67%
3	Poland	10.73%	10.59%
4	Germany	0.59%	1.6%
5	Estonia	-23.31%	14.47%
6	Belarus	-11.09%	-6.92%
7	United Kingdom	-23.33%	10.67%
8	USA	32.14%	9.96%
9	Netherlands	0.81%	-15.27%
10	Sweden	7.16%	5.12%
11	Ukraine	5.53%	-28.44%
12	France	10.24%	-3.18%
13	Norway	7.04%	7.17%
14	Denmark	14%	4.48%
15	Italy	8.97%	5.07%
16	Kazakhstan	-7.13%	-5.45%
17	Belgium	20.08%	5.53%
18	Finland	-3.12%	10.02%

[40] International Trade Centre, Trade Map - total products export. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx

19	Spain	17.82%	40.59%
20	Czech Republic	14.75%	8.58%

Figure 16, Lithuania's export of goods increase compared with previous year 2014-2015, International Trade Centre data. Authors Calculations.

This shows that products that were exported to Russian Federation did not suddenly appear in other markets during 2015. Therefore, majority of exported products to Russian Federation were not diverted elsewhere, but simply lost.

Additionally, more detailed look reveals that re-routing majority of exports from Russian Federation elsewhere was highly unlikely to begin with. Since re-export accounted for 80-90% of Lithuanian exports to Russian Federation in 2013-2014 [41]. Such re-export was mainly transit from west to east and subsequently was largely uncompetitive in western markets where most of it originated in the first place[42].

Prior to the fallout in 2014 only few Lithuanian specialists made distinction in public discourse between exports of Lithuanian origin products and re-exports. Yet, this distinction is crucial. Since re-export has two important factors than need to be taken into account when considering sanctions effect. First, re-export generally has lower added value. The lower the added value the more limited impact will be on the economy from the loss of such export. Second, re-export has small effect on employment as it originates outside of the country and therefore does not create large employment. Furthermore, an analysis where re-export is taken into account, by counting the effect on added value, suggested that the real sanctions impact on Lithuania was 0.4-0.5% GDP loss[43]. These factors explain why Russian Federation sanctions did not has significant effect on Lithuanian GDP and employment.

Despite this, re-export topic was largely missing from public discourse in 2014-2015. Subsequently, trends described in public discourse during this time often actually reflected the situation in export of Lithuanian origin products or export of services. Compared with re-export these fields were more dependent on Russian Federation. Furthermore, their added value is generally higher than that of re-export. Therefore, it is likely that due to lack of distinctions in public discourse sanctions effect on exports was exacerbated.

[41] Office of the Seimas of the Republic of Lithuania, Impact of the Russian embargo for the Baltic economies discussed at the meeting of BA committees, 2015.10.02 https://www.lrs.lt/sip/portal.show?p_r=16385&p_k=2&p_t=160307 and Zygimantas Mauricas, Lithuania economic dependence on Russia, Nordea Reasearch, 2014.03.20 https://e-markets.nordea.com/research/item/5561.pdf

[42] Zygimantas Mauricas, *Baltics: Yes We Can! …Live without Russia*, Nordea, 2014 https://e-markets.nordea.com/api/research/attachment/31997

[43] Kaspar Oja, No milk for the bear: the impact on the Baltic states of Russia's counter-sanctions, Baltic Journal of Economics, 2015.07.28 https://www.tandfonline.com/doi/pdf/10.1080/1406099X.2015.1072385

Yet, when a distinction between export of Lithuanian origin products, re-exports and export of services is applied a different view emerges - one that is characterized by *sensitivity* and not vulnerability.

Export of Lithuanian origin products

In 2013-2014 re-exports, which are generally low added value, accounted for 80-90% of Lithuanian exports to Russian Federation[44]. This means that high-added value Lithuanian origin products exports accounted for a small part of export to Russian Federation. By export of Lithuanian origin products Russian Federation in 2013 was only 8th largest destination after Germany, Latvia, Estonia, UK, Netherlands, Poland and Sweden[45]. In 2015 Russian Federation ranked 15th [46].

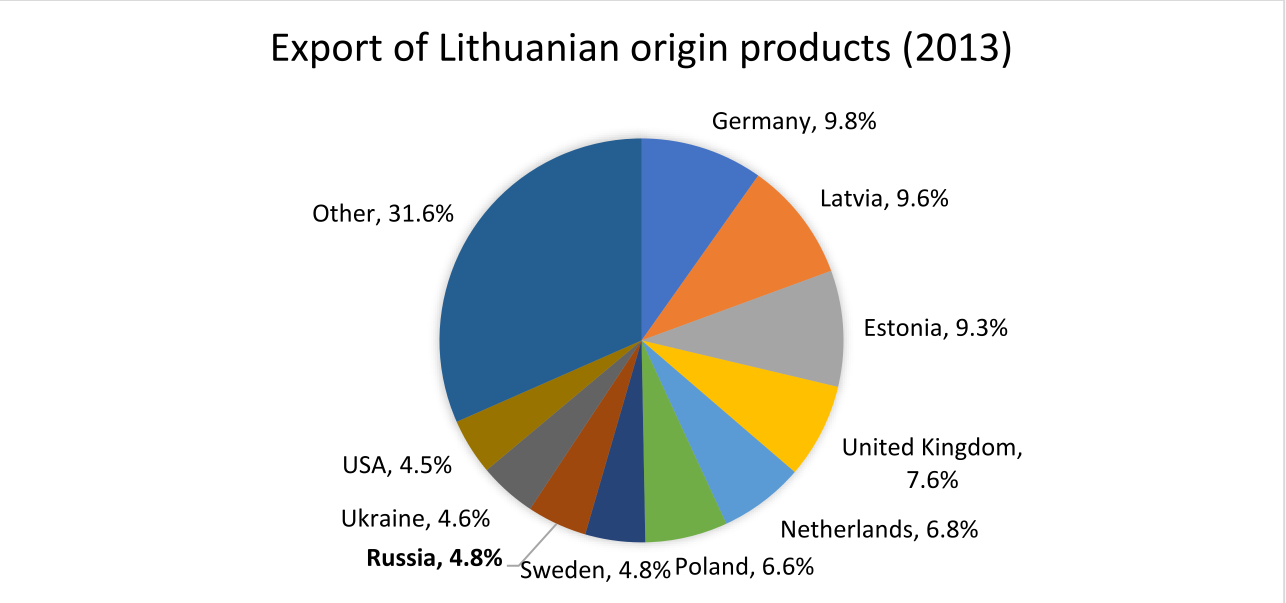
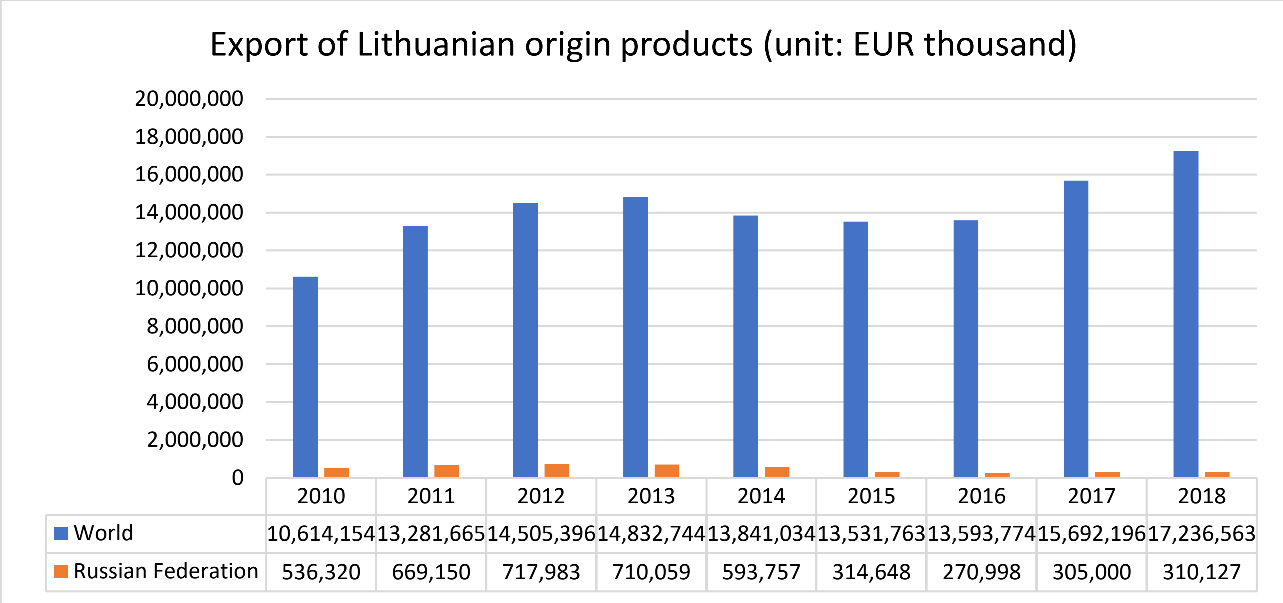


Figure 17, Export of Lithuanian origin products (2013), Statistics Lithuania data. Authors visualization.

This means that sanctions that Russian Federation introduced in 2014 affected relatively small part of Lithuanian origin products exports. Only 3.7% of total Lithuanian products export fell under sanctions effect in 2013. Nevertheless, the political fallout seemed to had an overall impact, or at least coincided with global trends that lead to reduction of Lithuanian origin products exports.

[44] Zygimantas Mauricas, *Baltics: Yes We Can! ...Live without Russia*, Nordea, 2014 https://e-markets.nordea.com/api/research/attachment/31997
[45] Ibid.
[46] Enterprise Lithuania, *Lithuanian- Russian bilateral Trade overview*, 2016.11.16 https://www.verslilietuva.lt/uploads/media/582c0fb0962fa/2016.11.16_Rusija_EN.pdf



	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	10,614,154	13,281,665	14,505,396	14,832,744	13,841,034	13,531,763	13,593,774	15,692,196	17,236,563
Russian Federation	536,320	669,150	717,983	710,059	593,757	314,648	270,998	305,000	310,127

Figure 18, Export of Lithuanian origin products (unit: EUR thousand), International Trade Centre data. Authors visualization.

The impact of sanction was harshest for agricultural products and food stuff. That is the product groups that Russian Federation specifically sanctioned.

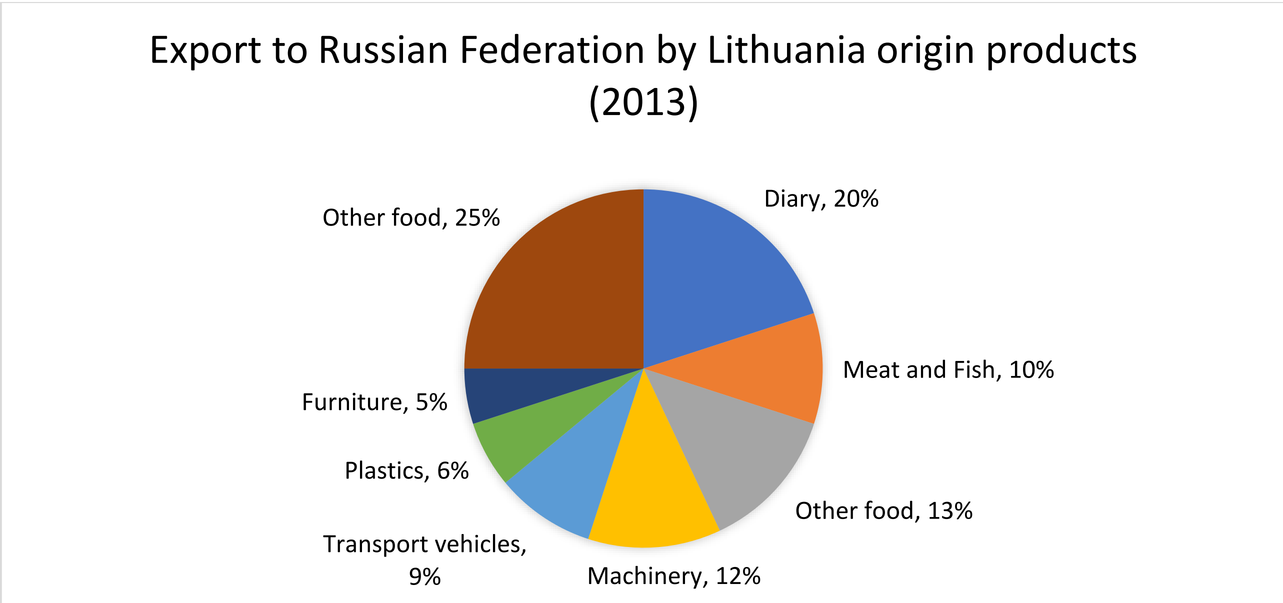


Figure 19, Export to Russian Federation by Lithuania origin products (2013), Statistics Lithuania data. Authors visualization.

Diary category (SITC HS4-04) was particularly susceptible to negative measures. High reliance on Russian Federation market was common for diary category across Baltic region and Finland. In 2013 Lithuania and Estonia exported ~25% and Finland 46% of its diary goods to Russian Federation

[47]. As a result, after sanctions were introduced producers had to cope not only with the loss of main market, but also with regional overcapacity.

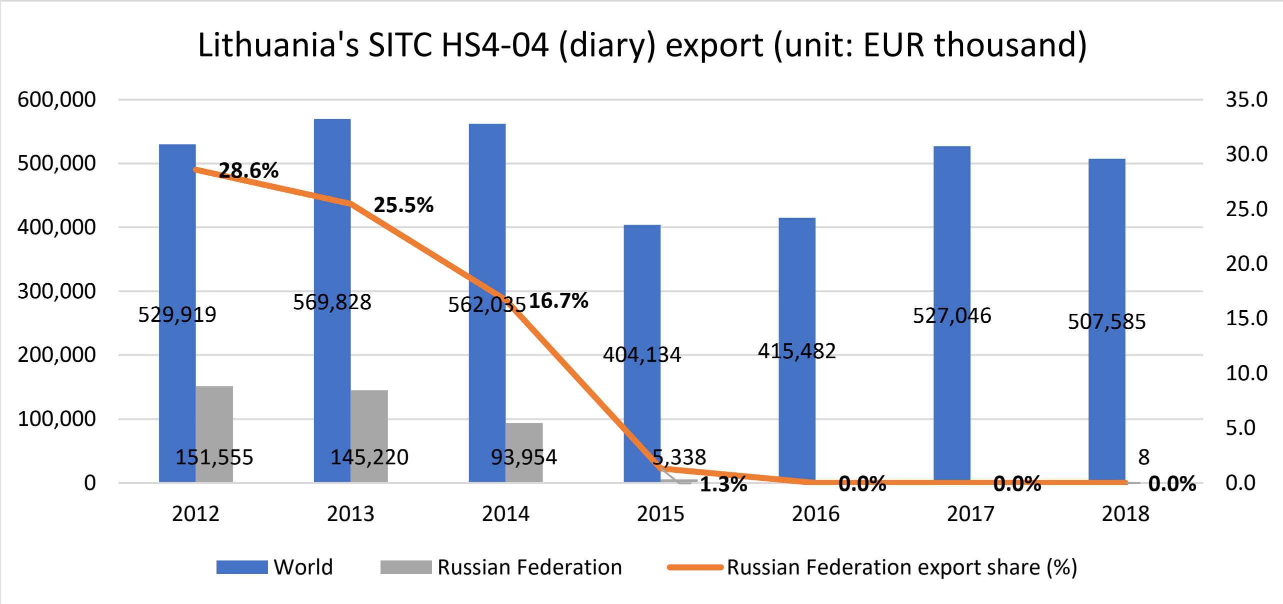
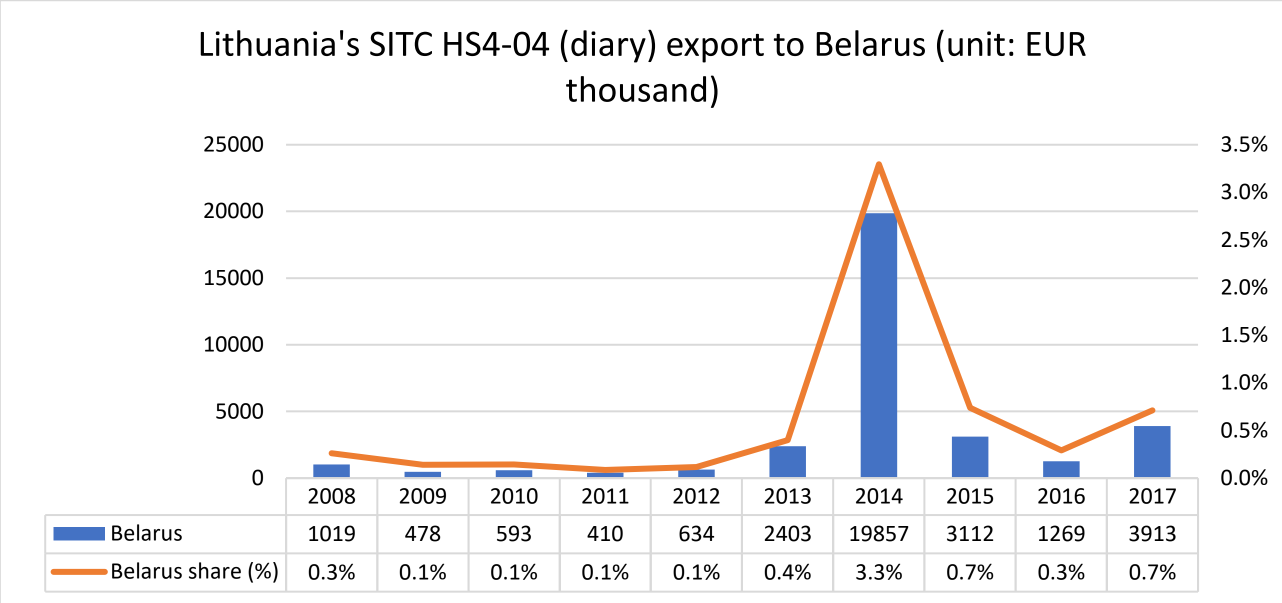


Figure 20, Lithuania's SITC HS4-04 (diary) export (unit: EUR thousand), International Trade Centre data. Authors calculations.

There have also been some suggestions that products sanctioned by Russian Federation are being re-routed to it via Belarus or other Eurasian Economic Union (EAEU) countries. The data suggest that to some extent this is likely, but the overall importance of re-routing was minimal. For example, in 2014 diary (SITC HS4-04) exports to Belarus increased by over 800%. However, even with the increase export to Belarus constituted only 3.29% of total diary (SITC HS4-04) export. This hardly account for 25% loss from Russian Federation market.

[47] Zygimantas Mauricas, *Lithuania economic dependence on Russia*, Nordea Reasearch, 2014.03.20 https://e-markets.nordea.com/research/item/5561.pdf



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Belarus	1019	478	593	410	634	2403	19857	3112	1269	3913
Belarus share (%)	0.3%	0.1%	0.1%	0.1%	0.1%	0.4%	3.3%	0.7%	0.3%	0.7%

Figure 21, Lithuania's SITC HS4-04 (diary) export to Belarus (unit: EUR thousand), International Trade Centre data. Authors calculations.

It also needs to be taken into account that technically such re-routing under Russian Federation legislation would be illegal. This means that if such activities did occur it is highly likely that these products entered EAEU countries under different classification or with no documents at all.

Overall, Russian Federation sanctions, and in wider sense political fallout, did had an effect on Lithuanian origins products export. But these changes did not have a lasting or significant impact due to small share of Lithuanian origin products being exported to Russian Federation. Therefore, Lithuanian interdependence based on exports of Lithuanian origin products to Russian Federation constitutes a *sensitivity*.

Export of services

Lithuanian export of services to Russian Federation mainly consist of two categories – transport (SITC 3) and travel (SITC 4). Prior to the fallout, in 2013, combined they accounted for 96.7% of all services exported to Russian Federation[48].

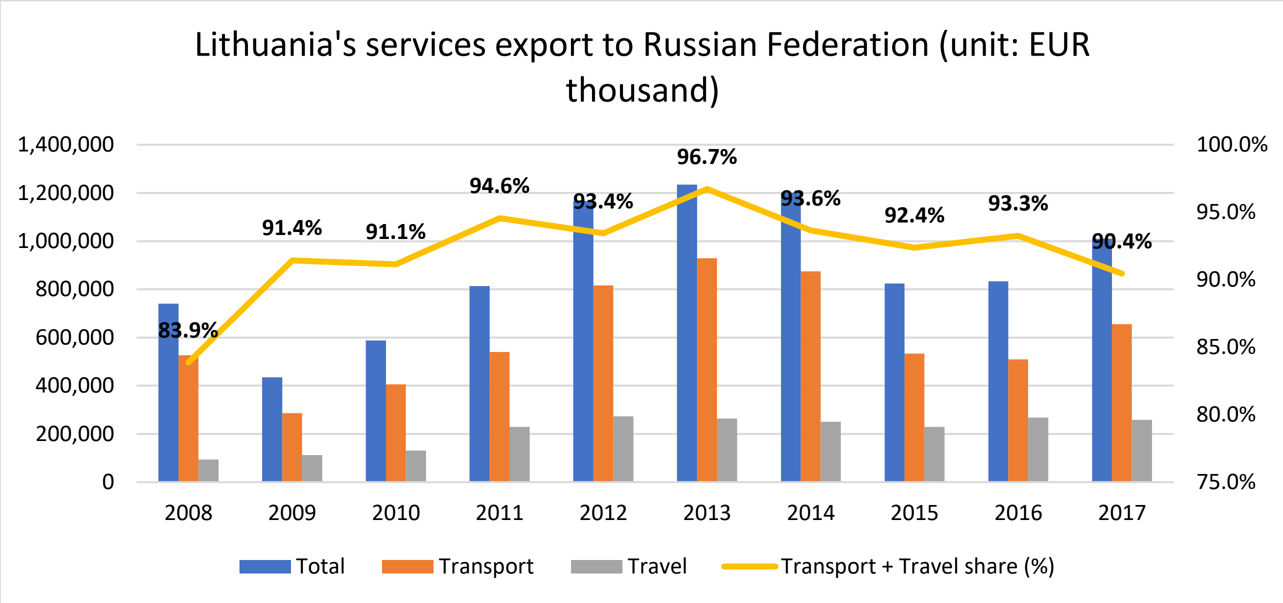


Figure 22, Lithuania's services export to Russian Federation (unit: EUR thousand), International Trade Centre data. Authors calculations.

Both travel (SITC 4) and transport (SITC 3) sectors had significant dependencies on Russian Federation. In 2013 25.5% of travel services (SITC 4) were exported to Russian Federation, while for transport (SITC 3) it was 28.2%[49]. Due to these dependencies both categories were considered susceptible to negative developments from the political fallout. In particular transport was under consideration as it constituted a large part of Lithuanian economy and was directly linked to the flow of products. Yet, these two categories displayed surprisingly positive results over following years.

Travel (SITC 4) sector displayed minimal reaction:

[48] International Trade Centre, Trade Map - total services export. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx
[49] Ibid.

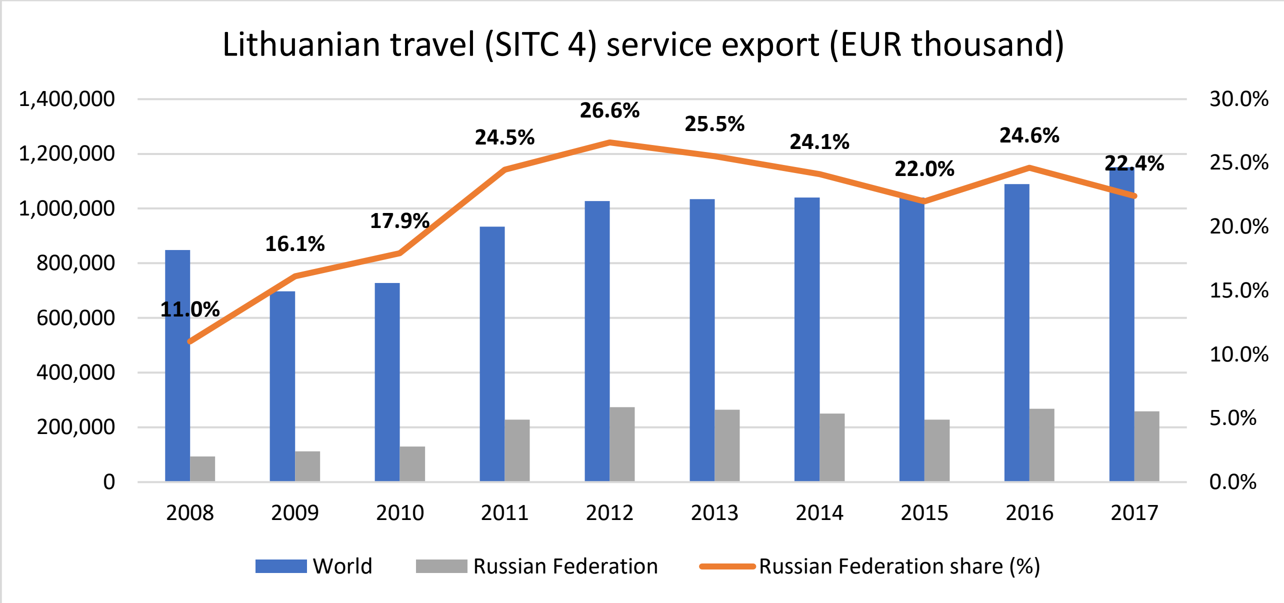
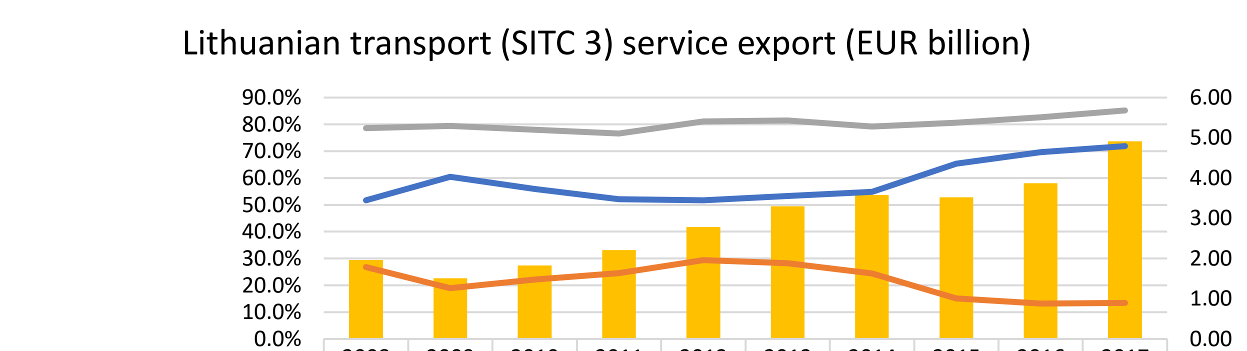


Figure 23, Lithuanian travel (SITC 4) service export (EUR thousand), International Trade Centre data. Authors calculations.

Transport (SITC 3) sector displayed surprisingly high flexibility. Despite 42% loss in Russian Federation market, which accounted for almost 25% of all transport services exports, expanded revenues in EU almost completely compensated the losses. Subsequently, there was no overall drop. Employment in transport sector also remained stable during the period, while the number of companies increased[50].



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
World	1.96	1.51	1.83	2.21	2.78	3.30	3.58	3.52	3.87	4.91
EU28 (%)	51.7%	60.5%	55.9%	52.1%	51.7%	53.3%	54.8%	65.4%	69.6%	71.9%
Russian Federation (%)	26.8%	18.9%	22.1%	24.5%	29.4%	28.2%	24.4%	15.1%	13.2%	13.4%
EU28 + RU combined (%)	78.6%	79.4%	78.0%	76.6%	81.1%	81.5%	79.2%	80.6%	82.7%	85.2%

World   EU28 (%)   Russian Federation (%)   EU28 + RU combined (%)

Figure 24, Lithuanian transport (SITC 3) service export (EUR billion), International Trade Centre data. Authors calculations.

[50] Lithuanian Ministry of Transport and Communications, *Transporto rinkos statistinių rodiklių apžvalga*, 2016, https://sumin.lrv.lt/uploads/sumin/documents/files/2016%20m_%20Transporto%20rinkos%20apžvalga%20SM%20talpinimui(2).pdf

Limited and short-lived outcomes in exports have been accredited to overall flexibility of Lithuanian economy[51]. That also likely allowed these sectors to minimize the impact of political fallout in 2014. Such positive result show that despite significant dependency Lithuanian interdependence based on exports of services to Russian Federation constituted a *sensitivity*.

Imports

In imports Lithuania has been even more dependent on trade with Russian Federation than in exports. Again, especially in the import of products. In 2001 Russian Federation accounted for roughly 25.3% of all Lithuanian products imports, in 2013 it accounted for 28.1%[52]. During this period on year to year basis imports volumes grew by around 17%[53]. Nevertheless, it needs to be noted that these imports volumes tendencies had been volatile. For example, in 2008 imports from Russian Federation grew by 99 %, only to fall by 38.5% next year (2009) and then again increase by 46.3% the following year (2010).

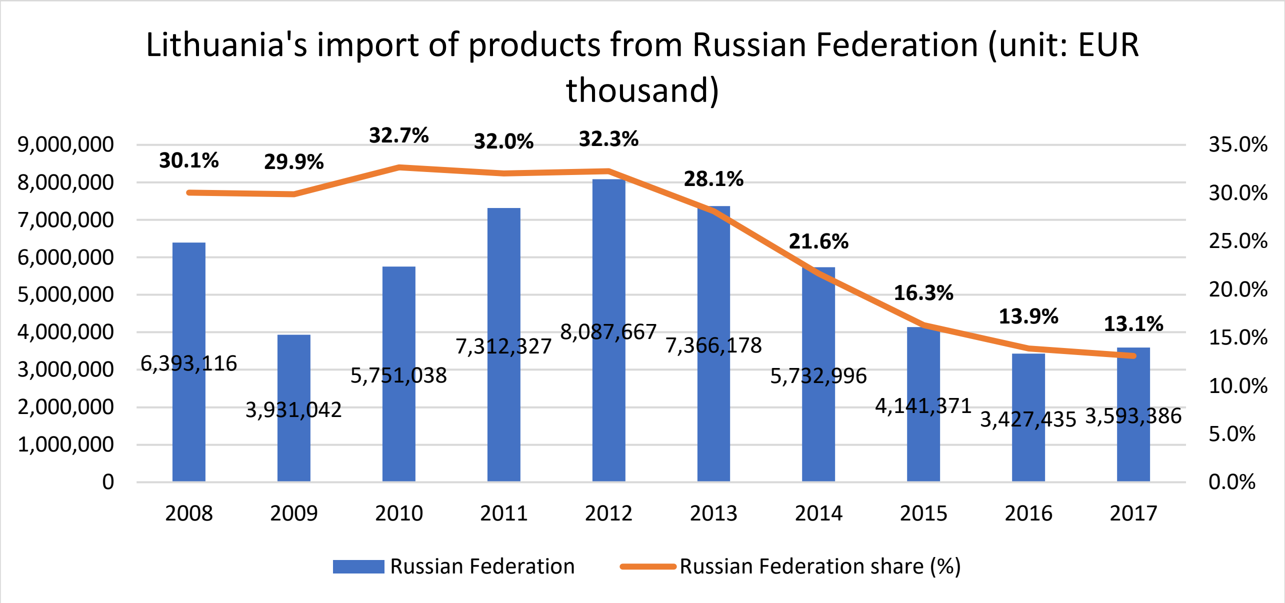


Figure 25, Lithuania's import of products from Russian Federation (unit: EUR thousand), International Trade Centre data. Authors calculations.

In imports situation does not change significantly once import of services is added.

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[51] Vytautas Kuokštis, *Jingle Bells and Struggling Gips: Comparing the Baltic and the Southern Euro Zone's Crisis Experience Using The Varieties of Capitalism Framework*, Acta Oeconomica,Vol. 65 (S1), 2016 https://doi.org/10.1556/032.65.2015.S1.4 and Catriona Purfield and Christoph B. Rosenberg, *Adjustment under a Currency Peg: Estonia, Latvia and Lithuania during the Global Financial Crisis* 2008-09, IMF, 2010.09https://www.researchgate.net/profile/Catriona_Purfield/publication/228293242_Adjustment_Under_a_Currency_Peg_Estonia_Latvia_and_Lithuania_During_the_Global_Financial_Crisis_2008-09/links/004635188d040bf44c000000.pdf

[52] International Trade Centre, Trade Map - total products imports. Authors calculations. https://www.trademap.org/Country_SelProductCountry_TS.aspx

[53] Ibid.

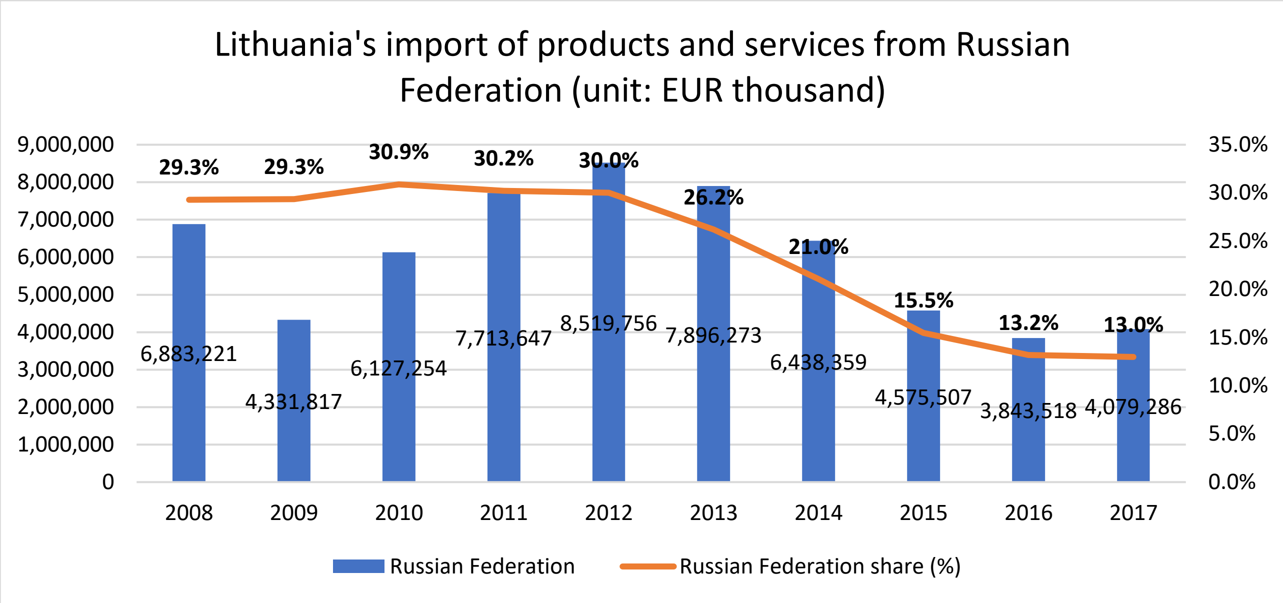

Figure 26, Lithuania's import of products and services from Russian Federation (unit: EUR thousand), International Trade Centre data. Authors calculations.

Imports from Russian Federation also presented a separate challenge. Lack of alternative infrastructure to that controlled by Russian Federation created a *de facto* monopoly of energy resources (SITC HS4-27) supply to Lithuania.

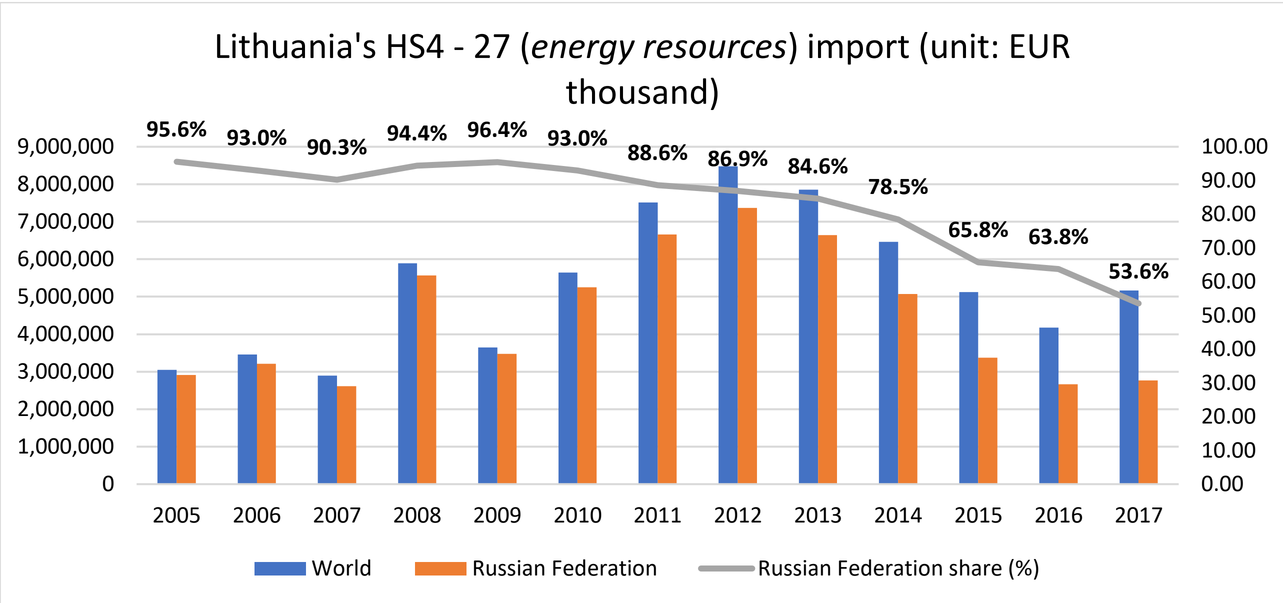

Figure 27, Lithuania's HS4 - 27 (energy resources) import (unit: EUR thousand), International Trade Centre data. Authors calculations.

Energy recourses (SITC HS4-27) category imports from Russian Federation accounted for most of import from Russian Federation. In the period 2005-2013 this category accounted for more than 81% of all imports from Russian Federation[54].

[54] Ibid.

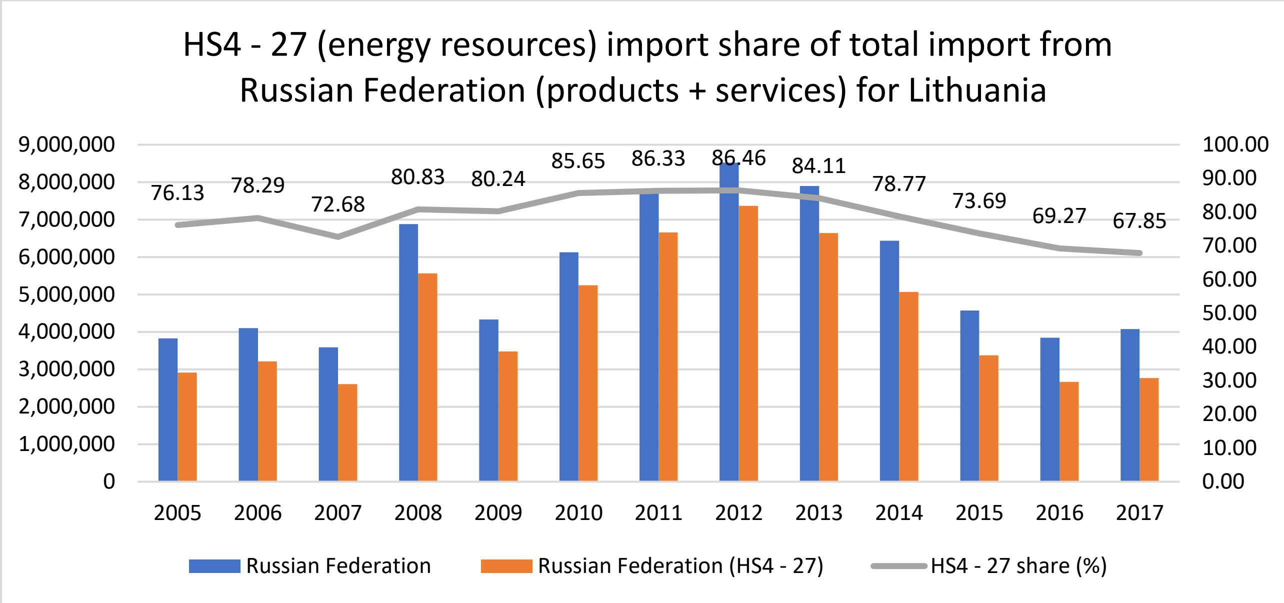

Figure 28, HS4 - 27 (energy resources) import share of total import from Russian Federation (products + services) for Lithuania), International Trade Centre data. Authors calculations.

However, in 2011-2014 Lithuania started the implementation of EU's Third Energy Package with which it specifically aimed to dismantle infrastructure control monopoly held by Russian Federation[55]. During the same time a number of strategic projects were also initiated to address energy imports dependency on Russian Federation, some of which were finished in 2014-2015 (*these will be overviewed in energy sector chapter*).

Therefore, by the time war in Ukraine started Lithuania was in the last stages of shifting its energy recourses (SITC HS4-27) imports dependency from vulnerability into *sensitivity*. As a result, due to coincidental timing, Lithuania addressed its energy recourses (SITC HS4-27) imports dependency at a time when it could have created serious political implications. Nevertheless, until late 2015 (December) Lithuanian interdependence with Russian Federation based on imports presented a vulnerability.

[55] Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015

Trade – sensitivity or vulnerability?

In this chapter Lithuania's trade sector interdependence with Russian Federation has been analysed to determine whether due to political fallout in 2014 it constitutes a vulnerability or sensitivity. To answer this question two sub-criteria for assessing the nature of trade relations have been explored – trade openness and trade concentration.

Analysis in trade openness sub-criteria displayed that in this category Lithuanian position constitutes a sensitivity. This is established by few factors.

First, Lithuania's membership in EU and NATO. Membership in EU allows Lithuania to achieve some of the economies of scale that had traditionally been the privilege of great powers. Its binding regimes also provide a strong set of disciplines to support compliance with existing obligations and prevent disruptions caused by arbitrary and discriminatory action. Membership in NATO provides not only security, but also minimize the likeliness of discriminatory actions among allies. Collectively these memberships guarantee Lithuania's access to majority of its foreign trade markets. Additionally, overlapping membership between EU and NATO provides political leadership with additional policy options.

Second, Lithuania's high rank and overall score in trade openness index. This reveals the importance of international trade for the country and its economies high trade openness globally. It is also worth noting that Lithuanian score increased gradually over the years and especially after 2008 financial crisis. After which, in just 4 years, Lithuania became one the most open economies globally.

Due to these main factors Lithuania did not need to implement any costly policy alternatives to address trade restrictions implemented by Russian Federation, because Lithuania had already created alternatives in the past by joining EU and NATO, and by gradually increasing its global competitiveness.

Analysis in trade concentration displayed that in this sub-criteria Lithuania's overall position was a vulnerability until 2015, but only in imports and not determined by market forces. Since Lithuania had to really on infrastructure controlled by Russian Federation for energy resources (SITC HS4-27) imports until 2014-2015. This result in turn also showed that once infrastructure dependency was removed, in 2015, overall trade with Russian Federation constituted a sensitivity. Such conclusion is determined by two factors.

First by data from product concentration, diversification and SITC three-digit level products exports and imports indices that show that Lithuania did not have dependency in imports or exports on any single products category leading up, during or after the political fallout. Although these indices do not take into account infrastructural dependency that Lithuania did had.

Second, examining what constituted Lithuanian trade relationship with Russian Federation, detailed export analysis shows that in 2013-2014, prior to political fallout, Lithuanian export to Russian Federation largely consisted of re-export (80-90%). That is generally marked by low added value and has limited effect on employment as it originates outside the country.

Export of Lithuanian origins goods did not substantially rely on export to Russian Federation. In 2013 only 4.8% of Lithuanian origin products were exported to Russian Federation, which was 8th largest destination. Diary category (SITC HS4-04) was the most dependent on export to Russian Federation. It also accounted for the largest share of Lithuanian origin products exported to Russian Federation and had significant reliance on the market itself. Around 25% of diary category (SITC HS4-04) exports went to Russian Federation prior to sanctions. However, overall political fallout in 2014 did not have a lasting or significant affect due to small share of Lithuanian origin products exported to Russian Federation prior to 2014.

Lithuanian export of services was more dependent on Russian Federation than that of products. Although this might be not entirely accurate description. Since two sectors – travel (SITC 4) and transport (SITC 3) – together accounted for 96.7% of all services exported in 2013 to Russian Federation. Subsequently, it might be more accurate to say that it was these two sectors that were more dependent on Russian Federation market than overall export of services. Despite this, both sectors showed minimal impact and no lasting effects. This has been accredited to Lithuanian economy flexibility.

This detailed look displayed that Lithuanian export of products to Russian Federation largely consisted of low added value re-export. On the other hand, services export adapted surprisingly well to the political fallout in 2014. From this we can understand why even after export to Russian Federation contracted by 37% in a single year there was limited impact on Lithuanian economy. Estimates put the negative effect of sanctions at 0.81% GDP growth loss at 2014 and 1% in 2015, while unemployment continued to shrink during the same period. This outcome was well below anticipated loss of 2.6-2.72% GDP only from the sanctioned product, which accounted only for 15% contraction of exports to Russian Federation and not the overall political fallout. Such positive outcome and overall exports structure demonstrate that Lithuanian exports to Russian Federation constituted a sensitivity.

Nevertheless, in public discourse due to trade volumes and lack of conceptual distinctions export importance to Russian Federation was likely exacerbated. Positive growth trends in other export markets also possibly mislead observers to believe that sanctioned products were re-routed elsewhere from Russian Federation. However, data shows overall drop in Lithuanian products export volumes and that re-routing was only limited. Additionally, re-routing product via EAEU countries would be illegal under Russian Federation legislation and therefore the actual scale is likely untraceable.

Detailed imports analysis shows that up to 2015 Lithuania's import from Russian Federation largely came from a single category - energy resources (SITC HS4-27). This strong dependency was determined not by market forces, but by lack of alternative infrastructure to that controlled by Russian Federation. As a result, in strict sense, this was not a trade, but infrastructure dependency. Other imports from Russian Federation did not constituted a dependency.

Lithuania did not need to implement policy alternatives to address this imports dependency due to the political fallout in 2014. Since it was already in the last stages of implementing strategic projects that were aimed to address this dependency. These projects were finished in late 2014(December) and 2015. Therefore, Lithuania was simply lucky due to coincidental timing to shift its imports dependency from vulnerability into sensitivity at a time when it could have had substantial political implications.

The overall classification of Lithuanian interdependence in trade sector is somewhat complicated due to imports. However, this classification difficulty is resolved by the conceptual framework itself. It separates trade and energy topics into two different sectors and energy infrastructure is assigned to energy sector. This means that, in strict sense, Lithuanian trade sector interdependence with Russian Federation constitutes a *sensitivity*. But, up until 2015 it could have been linked with energy sector via *issue-linkage*.

2. Security sector

If the mood in Western capitals was that of confusion, it was close to despair and panic in the Central Eastern European countries. Suddenly in March 2014 citizens of the Baltic states realized how fragile their well-being and the existence of their independence is. – Dr. Deividas Šlekys Associate professor at Vilnius University Institute of International Relations and Political Science[56].

Russian Federation has been the defining factor in Lithuanian security perception since it regained independence in 1990[57]. For many Lithuanians Soviet Union was and still is inseparable from Russian Federation[58]. Countries membership in NATO and EU did not change this perception, but it did create a level of security that was previously unattainable. Despite this, overall evaluation of Lithuanian interdependence with Russian Federation in security sector is both difficult and straightforward. In strict sense, based on NATO article V, Lithuania achieved the highest available security level to it. In wider sense, the country under current conditions is militarily undefendable from Russian Federation attack[59]. Therefore, the country *de facto* relies on deterrence and not its own conventional military forces.

After Lithuania regained its independence membership in NATO was determined to be a key security goal. Neutrality was not seen as a sufficient option considering occupation experience[60]. This perception only strengthened after high ranking Russian Federation officials started calling for restoration of Russian greatness[61].

Western orientation also became the foundation on which Lithuanian Armed Forces were to be organized. Subsequently, western standards and equipment were introduced. This in turn distanced Lithuania from soviet-era equipment and limited cooperation with Russian Federation in arms trade.

Membership in NATO was achieved in 2004. Subsequently, Lithuanian security position significantly improved. Yet, somewhat paradoxically the military budget as percentage of GDP continuously contrasted until 2014 since then. Furthermore, in the midst of 2008 parliamentary

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[56] Deividas Šlekys, *Lithuania's Balancing Act*, Journal on Baltic Security 3(2), 2017, https://content.sciendo.com/view/journals/jobs/3/2/article-p43.xml
[57] Linas Kojala and Vytautas Keršanskas, The Impact of the Conflict in Ukraine on Lithuanian Security Development, Lithuanian Annual Strategic Review 2014-2015, Volume 13, 2015.12.22, https://content.sciendo.com/view/journals/lasr/13/1/article-p171.xml
[58] Dovilė Jakniunaitė, *Changes in Security Policy and Perceptions of The Baltic States 2014 – 2016*, Journal on Baltic Security Volume 2, Issue 2 2016, page 6 www.baltdefcol.org/files/files/JOBS/JOBS.02.2.pdf
[59] RAND Corporation, *Limiting Regret and Deterring Russian Aggression in the Baltic States*, 2017.03.01 https://www.rand.org/multimedia/video/2017/03/01/limiting-regret-and-deterring-russian-aggression.html
[60] Linas Kojala and Vytautas Keršanskas, The Impact of the Conflict in Ukraine on Lithuanian Security Development, Lithuanian Annual Strategic Review 2014-2015, Volume 13, 2015.12.22,
[61] Dovilė Jakniunaitė, *Changes in Security Policy and Perceptions of The Baltic States 2014 – 2016*, Journal on Baltic Security Volume 2, Issue 2 2016, page 6 www.baltdefcol.org/files/files/JOBS/JOBS.02.2.pdf

elections the ruling coalition abolished conscription largely to boost its popularity[62]. This was done just one month after Russo-Georgian War (2008).

Deterrence based on NATO rather than conventional military capabilities possessed by country seemingly guided Lithuanian security logic. However, war in Ukraine had an effect on this configuration and a number of important changes were made. Domestic and international measures were taken to ensure countries security.

Despite this, the underlying element of Lithuanian security remains membership in NATO. Even after a number of domestic reforms Lithuania is simply, due to objective element, uncapable to match Russian Federation. Therefore, this chapter present explores how Lithuania ensures its security via membership in NATO despite worsening security situation around it due to Russian Federation actions.

Arms Trade

After Lithuania regained its independence and re-established its military a direction needed to be taken. That is, whether to use *western* military equipment or to carry on using *eastern* military equipment. With NATO in mind a decision was made to move toward *western* standards[63]. In time this made Lithuanian interdependence with Russian Federation based on arms trade obsolete.

Lithuania not only decided not to use *eastern* military equipment, but also to phase out most of the equipment it inherited from Soviet Union[64]. Subsequently, no substantial arms trade above maintenance and procurement of non-essential goods developed between Lithuania and Russian Federation. Furthermore, after war in Ukraine started even such cooperation format become controversial and subsequently was limited[65].

On the other had Lithuanian arms industry is small and never relied on Russian Federation. As a result, it felt no repercussions from political fallout and restrictions on arms sales to Russian Federation.

During the same time, and especially after the war in Ukraine started, Lithuania was conducting military equipment procurement from *western* allies. In 2016 Lithuanian Armed Forces made its most expensive purchase – 88 German Boxer infantry fighting vehicles[66]. Such purchases were used not

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[62] Deividas Šlekys, *Lithuania's Balancing Act*, Journal on Baltic Security 3(2), 2017, https://content.sciendo.com/view/journals/jobs/3/2/article-p43.xml
[63] Ministry of National Defence Republic of Lithuania, *Krašto apsaugos sistemai - 20 metų: svarbiausi įvykiai*, 2010.04.27 https://kam.lt/lt/naujienos_874/teminiu_puslapiu_archyvas/krasto_apsaugos_sistemai_-_20_metu.html
[64] Ibid.
[65] 15min, *Ažiotažą dėl remonto Rusijoje sukėlę sraigtasparniai – sutaisyti*, 2018.03.29 https://www.15min.lt/naujiena/aktualu/lietuva/aziotaza-del-remonto-rusijoje-sukele-sraigtasparniai-sutaisyti-56-948608
[66] Delfi, *Lithuania buying German Boxers for €386m*, 2016.08 22 https://en.delfi.lt/politics/lithuania-buying-german-boxers-for-386m.d?id=72104106

only to obtain military equipment, but also to receive political support. Lithuania has focused on procurements from Germany and this did help to facilitate a closer cooperation in security field[67]. It is worth noting that Germany is currently leading NATO battle group stationed in Lithuania.

Despite this, Lithuanian Armed Forces still uses some military equipment that was made by Soviet Union or Russian Federation - Mil Mi-8 helicopter (3), M38/43 mortars (18), VHF radars (3), SAR ship (1), Cutter ship (1) and for wartime reserve P40 3D-radar observation stations (3)[68].

Overall, Lithuanian interdependence with Russian Federation based on arms trade has never really developed and constitutes a minor *sensitivity*. Since decision to rely on *western* military equipment prevented the development of arms trade interdependence with Russian Federation.

Regional conflicts

Lithuanian interdependence with Russian Federation based on regional conflicts exists only indirectly. Nevertheless, regional conflicts directly impact Lithuanian security perception and political stance.

Russian Federation policy makers seem to belief that they are entitled to exercise control over ex-soviet states external affairs and to some extent their domestic affairs[69]. Especially in cases when countries are making decision that affect their stance toward *West* or Russian Federation. This has also been an ongoing issue for Lithuania and in wider sense the reason why the country is responsive to developments in other ex-soviet states that have similar interdependence with Russian Federation to its own.

When it comes to regional conflicts two cases stand out - Russo-Georgian War (2008) and war in Ukraine (2014). In the first case, Lithuania explicitly supported Georgia and was among its strongest political allies[70]. Nevertheless, this did not translate into increased security readiness for Lithuania. In fact, during following years Lithuanian Armed Forces budget was continuously reduced (*Figure 29, page 42)*. Such outcome can be associated with 2008 financial crisis and Lithuanian decision to prioritized economy over security as no imminent threat was present. Additionally, political leadership changed in Lithuania during 2008-2009, with it so did the priorities regarding

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[67] President of the Republic of Lithuania, *Lietuvos ir Vokietijos bendradarbiavimas – sėkmingiausias dvišalių santykių istorijoje*, 2018.09.14 https://www.lrp.lt/lt/lietuvos-ir-vokietijos-bendradarbiavimas-sekmingiausias-dvisaliu-santykiu-istorijoje/30858

[68] Ministry of National Defence Republic of Lithuania, *Ginkluotė ir karinė technika*, https://kariuomene.kam.lt/lt/ginkluote_ir_karine_technika.html

[69] Laurynas Jonavicius et al, *Russian Interests, Strategies, and Instruments in the Common Neighbourhood*, Working Paper Series (No. 16), EU-STRAT, 2019.03 http://eu-strat.eu/wp-content/uploads/2019/03/EU-STRAT-Working-Paper-No.-16.pdf (EU-STRAT Working Paper No. 16)

[70] Andrzej Kozłowski, The European Union posture towards the war The European Union posture towards the war in Georgia in 2008, Centrum Europejskie Natolin, 2013 www.natolin.edu.pl/pdf/analizy/Natolin_Analiza_1_2013.pdf

Lithuania's Eastern policy. New political leadership initially wanted to distance itself from conflict in ex-soviet space and prioritized relationships with EU, especially Nordic countries[71].

Despite this, Lithuanian strong support to Georgia facilitated development of good relationship between the two countries. Since then Lithuania also continuously supported Georgia in its effort to develop closer links with *western* countries. As a result, good relationship between the two countries persist to this day and as Georgian Prime Minister Mamuka Bakhtadze stated in 2019 January – *one may say without exaggeration that Lithuania is one of Georgia's closest friends*[72].

The international crisis caused by war in Ukraine greatly exceeded that caused by war in Georgia. Interestingly, it was also events in Lithuania that triggered the beginning of it, after President Yanukovych refused to sign EU association agreement during Vilnius summit[73]. Subsequent developments caused a sudden shift in Lithuanian security policy and reminded Lithuanians that their country independence is not guaranteed[74]. In fact, 2014 public opinion poll, conducted after hostilities started, shows that 55.5% of Lithuanians thought that Russian Federation poses a threat[75]. Just few years back, in 2012, a similar opinion poll showed that only 18% of Lithuanians thought that Russian Federation poses a threat[76].

Lithuanian military budget expanded the same year war in Ukraine started. This was the first time since 2008 when military budget as percentage of GDP increased. Additionally, also in 2014, major political parties agreed to raise Lithuanian military budget to 2% of GDP between 2014-2020[77].

[71] Linas Kojala, Vilius Ivanauskas, *Lithuanian Eastern Policy 2004–2014: The Role Theory Approach*, Eastern Europe Study Centre, 2014 www.eesc.lt/uploads/news/id838/Lithuanian%20Eastern%20Policy%202004_2014.pdf
[72] Agenda, *Georgian PM: 'one may say without exaggeration that Lithuania is one of Georgia's closest friends'*, 2019.01.21, www.agenda.ge/en/news/2019/175
[73] EurAsia Daily, *As the last ally: Lithuania takes Ukraine under its patronage*, 2018.03.30 https://eadaily.com/en/news/2018/03/30/as-the-last-ally-lithuania-takes-ukraine-under-its-patronage
[74] Deividas Šlekys, *Lithuania's Balancing Act*, Journal on Baltic Security 3(2), 2017, https://content.sciendo.com/view/journals/jobs/3/2/article-p43.xml
[75] Sprinter Research, *Gyventojų Apklausa Dėl Rusijos Keliamos Grėsmės*, 2014.10.27 https://spinter.lt/site/lt/vidinis/menutop/9/home/publish/NjY3Ozk7OzA=
[76] Mindaugas Jackevičius, Eglė Samoškaitė *Apklausa: realių grėsmių Lietuvai nėra, o jei bus – mus apgins NATO?*, Delfi, 2012.12.23 https://www.delfi.lt/news/daily/lithuania/apklausa-realiu-gresmiu-lietuvai-nera-o-jei-bus-mus-apgins-nato.d?id=60063003
[77] Delfi, *Partijų lyderiai vieningai sutaria dėl 2,5 proc. BVP gynybai jau 2020 m*., 2017.01.21 https://www.delfi.lt/news/daily/lithuania/partiju-lyderiai-vieningai-sutaria-del-2-5-proc-bvp-gynybai-jau-2020-m.d?id=73514000

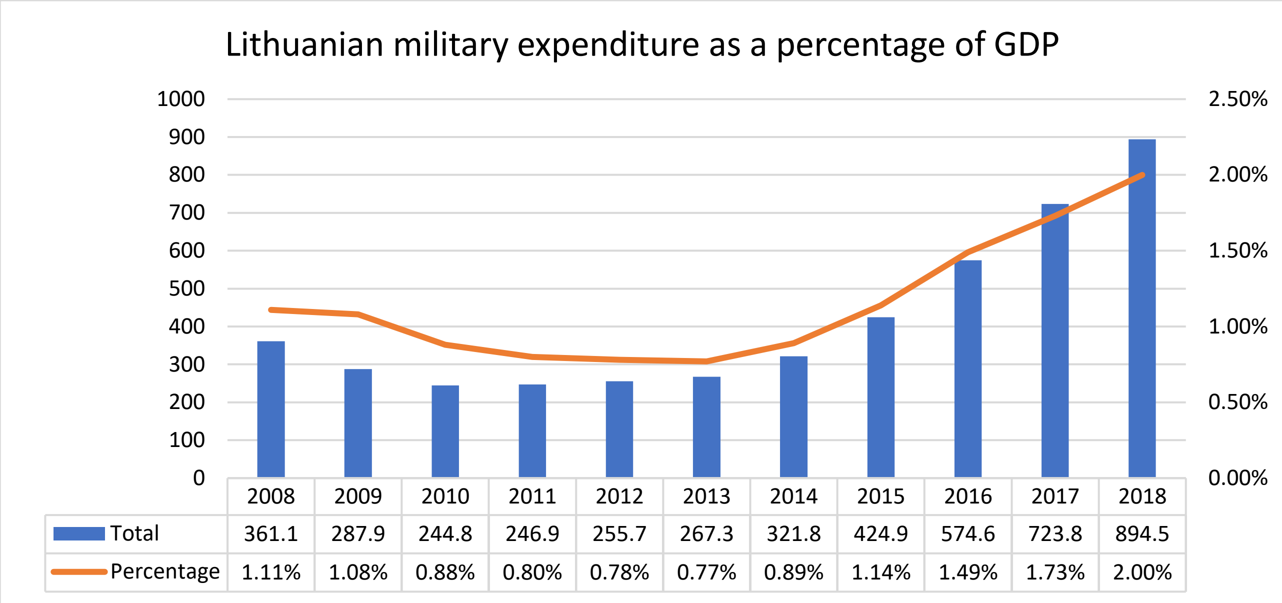

Figure 29, Lithuanian military expenditure as a percentage of GDP, Ministry of National Defence Republic of Lithuania data. Authors visualization.

Amendments to legislation were made to allow broader usage of military in peacetime[78] and mandatory military conscription was reintroduced in 2015. First conscripts started military service the same year[79]. This was a substantial change of policy considering that Lithuania abolished conscription not long ago (2008). Additionally, it took remarkably short time to pass the necessary legislations that met virtually no political opposition in the process[80]. Important reasons for this was unprecedented support from civil society. 2016 public opinion poll shows that only 27.9% of Lithuanians were against reintroduction of military conscription[81].

Events in Ukraine also fostered changes in NATO security perception. This in turn had a direct effect on Lithuania as these changes positively affected its security situation[82]. Very High Readiness Joint Task Force was created as part of NATO Response Force in 2014.[83] Four multinational battalion battle groups were stationed in Baltic countries and Poland as part of NATO Enhanced Forward

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[78] David Takacs, *Ukraine's deterrence failure: Lessons for the Baltic States,* Journal on Baltic Security ; 3(1): 2017, https://content.sciendo.com/view/journals/jobs/3/1/article-p1.xml
[79] Deividas Šlekys, *Lithuania's Balancing Act*, Journal on Baltic Security 3(2), 2017, https://content.sciendo.com/view/journals/jobs/3/2/article-p43.xml
[80] Ibid.
[81]Rūta Pukenė, *Patriotizmas: šauktinių grąžinimas daug geriau nei didesni mokesčiai*, 2015.05.13 https://www.delfi.lt/news/daily/lithuania/patriotizmas-sauktiniu-grazinimas-daug-geriau-nei-didesni-mokesciai.d?id=67952602
[82] David Stern, *Lithuanians 'sleep peacefully' thanks to German troops, Politico*, 2017.06.19 https://www.politico.eu/article/lithuania-nato-russia-baltics-germany-sleep-peacefully-thanks-to-german-troops/
[83] NATO, *NATO Response Force (NRF) Fact Sheet*, https://jfcbs.nato.int/page5725819/nato-response-force-nrf-fact-sheet

Presence in 2016. Official NATO documents describe this move as *biggest reinforcement of NATO's collective defence in a generation*[84]. NATO members expanded their military budgets[85].

All these changes greatly improved Lithuanian security situation. However, the pace and scope of changes also reveals just how unprepared Lithuania, and in wider sense NATO, was for potential crisis like this[86].

From the very beginning Lithuania also strongly supported Ukraine in its fight with Russian Federation. The country was also one of the strongest supporters of sanctions imposed against Russian Federation[87]. Despite the fact that Lithuania economically was the most dependent country on Russian Federation among EU28[88].This position and actions taken by Lithuania made it one of the closest political allies of Ukraine, this relationship persists till this day[89].

The fact that Lithuania became a key political ally for both Ukraine and Georgia after they suffered Russian Federation aggression is worth nothing by itself. It shows that Lithuania is capable of using regional crisis, at least in ex-soviet area, to foster closer relationships with countries that were affected by Russian Federation aggression.

Overall, Lithuanian interdependence with Russian Federation based on regional conflicts exists only indirectly and therefore constitutes a sensitivity. Since despite their meaningful implications Lithuania is not affected in manner that exceeds its existing coping capabilities.

Militarization

Lithuanian interdependence with Russian Federation based on militarization depends on how security concept is defined. Here security concept is associated with military security and is focused on the objective side. As a result, it is clear that current Lithuanian security configuration is largely based on deterrence and not on conventional military capabilities.

For Lithuania problems with increased militarization around it did not start with war in Ukraine, but rather with war in Georgia back in 2008. In the aftermath of Russo-Georgian war even Moscow

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[84] NATO, *NATO's Enhanced Forward Presence*, 2019.02
https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2019_02/20190213_1902-factsheet_efp_en.pdf
[85] NATO, *Defence Expenditure of NATO Countries (2011-2018),* 2018.07.10
https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2018_07/20180709_180710-pr2018-91-en.pdf
[86] Matthias Gebauer et al. *NATO Grapples with Serious Organizational Shortcomings,* 2017.10.20
https://www.spiegel.de/international/world/nato-faces-serious-shortcomings-in-command-revamp-a-1173947.html
[87] Andrian Croft, *EU hawks lead calls for tougher sanctions on Russia,* Reuters, 2015.01.26
https://www.reuters.com/article/us-ukraine-crisis-eu/eu-hawks-lead-calls-for-tougher-sanctions-on-russia-idUSKBN0KZ2D320150126
[88] Kari Liuhto, To what extent are EU Member States economically dependent on Russia?, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 854 Finanse, Rynki Finansowe, Ubezpieczenia nr 73, 2015
https://wneiz.pl/nauka_wneiz/frfu/73-2015/FRFU-73-993.pdf
[89] EurAsia Daily, *As the last ally: Lithuania takes Ukraine under its patronage,* 2018.03.30
https://eadaily.com/en/news/2018/03/30/as-the-last-ally-lithuania-takes-ukraine-under-its-patronage

was surprised by the poor performance of its armed forces[90]. As a result, despite the overall victory there was little cause for celebration.

It also became clear that Russian Federation Armed Forces were not ready to fight a modern war, even more so against NATO[91]. The poor performance was largely determined by soviet-era equipment and military doctrine. Subsequently, not even two months later, Russian Federation initiated major reforms and modernization effort for its armed forces[92].

Russian Federation reforms focused in several key areas, such as – command and control, technology, logistics, air superiority, mobility and overall military doctrine at tactical and strategic level[93]. This in turn meant increase in investment, new technologies, new hardware, new equipment, modernization of existing equipment and changes in tactics and strategy.

These developments and ongoing trends presented a number of issues for Lithuania even prior to the war in Ukraine. First, Kaliningrad Oblast was increasingly militarized. Baltic see fleet, substantial amount of military personnel and anti-access/area denial capabilities that Kaliningrad Oblast was becoming Russian Federation military fortress[94]. Second, Baltic countries came under pressure from Russian Federation due to constant maritime boarders' and air space violations[95]. Third, Russian Federation armed forces increased the number of exercises they were conducting, including snap mobility exercises. Fourth, Russian Federation started increasingly demonstrating non-kinetic capabilities. The introduction of cyber sphere capabilities was especially noteworthy[96]. Fifth, there was ongoing expansion of cooperation between Belarus Armed Forces and Russian Federation Armed Forces[97].

However, war in Ukraine demonstrated the real outcome of Russian Federation Armed Forces reforms and modernization. In the aftermath it became clear that substantial improvement were made

[90] Michael Kofman, Russian Performance in The Russo-Georgian War Revisited, War on the Rocks, 2018.09.04 thehttps://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/
[91] Christian Love, *Georgia war shows Russian army strong but flawed*, 2008.08.20 https://www.reuters.com/article/us-georgia-ossetia-military/georgia-war-shows-russian-army-strong-but-flawed-idUSLK23804020080820
[92] Ibid.
[93] Michael Kofman, Russian Performance in The Russo-Georgian War Revisited, War on the Rocks, 2018.09.04 thehttps://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/
[94] Paulina Siegień, *From Prussian to Russian fortress. Kaliningrad – Russia's military zone in the West*, New Eastern Europe, 2016.07.07 neweasterneurope.eu/2016/07/07/from-prussia-to-russia-how-koenigsberg-the-fortress-city-became-kaliningrad-the-iskander-base/
[95] Dovilė Jakniunaitė, *Changes in Security Policy and Perceptions of The Baltic States 2014 – 2016*, Journal on Baltic Security Volume 2, Issue 2 2016, page 6 www.baltdefcol.org/files/files/JOBS/JOBS.02.2.pdf
[96]Kertu Ruus, *Cyber War I: Estonia Attacked from Russia*, The European Institute, European Affairs: Volume number 9, Issue number 1-2, 2008 https://www.europeaninstitute.org/index.php/component/content/article?id=67:cyber-war-i-estonia-attacked-from-russia
[97] Ministry of Defence Republic of Belarus, *Cooperation with Russian Armed Forces* https://www.mil.by/en/military_policy/cooperation_RF/

since the Russo-Georgian War[98]. Particularly hybrid capabilities expansion was a noticeable element[99].

This in turn not only exacerbated already existing problems associated with Russian Federation, but also added new ones. War in Ukraine demonstrated that changes in Russian Federation military doctrine enabled it to efficiently operate in *grey* zone. As a result, Lithuania amended its legislations to allow use of armed forces in peace time and banned individual from wearing items and distinctive signs associated with soldier uniforms in public places[100].

During following years Kaliningrad enclave was also turned into the most militarized region in Europe[101]. In fact, this region became one of the most advance anti-access/area denial zones in the world[102]. Furthermore, its nuclear weapon storages facilities were also updated[103].

The aftermath of war in Ukraine and expanding Russian Federation militarization made it clear that Lithuania itself is grossly unprepared for military confrontation, conventional or hybrid. Even after NATO presence has been increased in Baltic countries and Poland war game simulations carried out by RAND showed that Baltic states are still militarily undefendable from Russian Federation attack[104]. To counter this outcome additional armed forces need to be present, but the *force* required exceed Baltic countries capabilities.

Despite this, it is important to understand that Lithuania, and other Baltic countries, do not only rely on conventional military measures for security. In current times elements of country's deterrence became just as important as conventional capabilities[105]. Therefore, membership in NATO puts Lithuania is in a very favourable position when it comes to deterrence. Since conventional military attack on Lithuania, or other Baltic countries, due to NATO Battle groups stationed in them would result in *de facto* attack on multiple member states. This in turn suggests that hybrid approach, at least in initial stages, is more likely. That is why NATO, and Baltic countries specifically, have been extensively preparing for possible hybrid nature conflict since the war in Ukraine[106].

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[98] Michael Kofman, Russian Performance in The Russo-Georgian War Revisited, War On the Rocks, 2018.09.04 thehttps://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/
[99] Andrew Monaghan, *The 'War' in Russia's 'Hybrid Warfare'*, Parameters 45(4) Winter 2015-16, 2016 https://ssi.armywarcollege.edu/pubs/parameters/issues/winter_2015-16/9_monaghan.pdf
[100] David Takacs, *Ukraine's deterrence failure: Lessons for the Baltic States,* Journal on Baltic Security ; 3(1): 2017, https://content.sciendo.com/view/journals/jobs/3/1/article-p1.xml and Office of the Seimas of the Republic of Lithuania, *Seimas įtvirtino draudimą viešosiose vietose dėvėti kario uniformos atskirus elementus ir skiriamuosius ženklus,* 2015.04.23 https://www.lrs.lt/sip/portal.show?p_r=15707&p_k=1&p_t=155715
[101] Sergey Sukhankin, *Kaliningrad oblast – Russia`s formidable A2/AD bubbl*e, New Eastern Europe, 2017.08.02 neweasterneurope.eu/2017/08/02/kaliningrad-oblast-russia-s-formidable-a2-ad-bubble/
[102] Ibid.
[103] Hans M. Kristensen, Russia Upgrades Nuclear Weapons Storage Site in Kaliningrad, Federation of American Scientists, 2018.06.18 https://fas.org/blogs/security/2018/06/kaliningrad/
[104] David A. Shlapak and Michael Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*, RAND, 2016 https://www.rand.org/pubs/research_reports/RR1253.html
[105] David Takacs, *Ukraine's deterrence failure: Lessons for the Baltic States,* Journal on Baltic Security ; 3(1): 2017, https://content.sciendo.com/view/journals/jobs/3/1/article-p1.xml
[106] Ibid.

The reliance on deterrence provided by alliances is also a logical decision for countries that lack abilities to defend themselves by conventional military means. Therefore, Lithuania’s reliance on membership in international organization, in this case specifically NATO, allows it to achieve security level that would be otherwise unattainable.

Overall, despite ongoing expansion of militarization around Lithuania, its interdependence with Russian Federation based on militarization constitutes a sensitivity. This conclusion follows from the fact that in Lithuania’s security configuration deterrence is more important than conventional military capabilities.

Security – sensitivity or vulnerability?

In this chapter Lithuania’s security sector interdependence with Russian Federation has been analysed to determine whether due to political fallout in 2014 it constitutes a vulnerability or sensitivity. To answer this question three sub-criteria for assessing the nature of security sector have been explored – arms trade, regional conflicts and militarization.

Analysis of arms trade sub-criteria showed that in this category Lithuanian interdependence became obsolete. This outcome was determined by Lithuanian choice to use *western* military equipment and phase out soviet equipment. Subsequently arms trade above maintenance and procurement of non-essential goods did not develop between the countries. This also allowed Lithuania to facilitate the development of closer security cooperation with *western* countries from which procurement was conducted. Most notably Germany.

Analysis of regional conflicts sub-criteria showed that in this category Lithuania does not have a direct interdependence with Russian Federation. Subsequently, indirect effects only constitute a sensitivity. Despite this, regional conflicts create implication for Lithuania and significantly affect it from domestic and international perspective. Additionally, Lithuania was able to develop close relationships with countries that have been affected by Russian Federation aggression. This in turn indicates that Lithuania, despite its limited capabilities, is a visible and active actor in such conflicts when they take place in ex-soviet space.

Analysis of militarization conflicts sub-criteria showed that in this category Lithuania’s interdependence with Russian Federation constitutes a sensitivity that is based on deterrence rather than conventional military capabilities. Since Lithuania’s security mostly relies on deterrence provided by NATO and not its own conventional capabilities. Despite this, there has been a clear increase in militarization around Lithuania and this negatively affects Lithuania’s security position. Furthermore, under current configuration Baltics countries are militarily undefendable from Russian

Federation attack. This in turn reinforces the need for deterrence and the logic behind Lithuania's reliance on it.

Overall, Lithuania's interdependence with Russian Federation in security sector constitutes a sensitivity that is primarily based on deterrence provided by NATO. However, Lithuania does not possess conventional military capabilities needed to defend itself against Russian Federation attack, not is capable of possessing them due to objective limitations. As a result, reliance on membership in NATO allows the country to achieve a security level that would be otherwise unattainable.

3. Migration sector

Emigration is considered to be one of the greatest challenges that Lithuania is facing. Despite this, Lithuania's interdependence in migration sector with Russian Federation is so minimal that it receives virtually no attention from policy makers. This outcome is a direct result of policies that Lithuania pursued in the past. That simplified emigration to EU and subsequently minimized migration interdependence with Russian Federation.

Membership in EU, and in wider sense integration to the *west,* created legal means for Lithuanians to move to high-income countries. Such destinations, in particular United Kingdom, became the prime destinations for Lithuanians to relocate. However, simplified access also increased the number of people leaving the country. This in turn is creating a socio-demographic crisis in Lithuania.

Emigration also created a steady flow of remittances to Lithuania. Membership in EU played a pivotal role in this development. Since the flows of remittances *de facto* starts only after Lithuania joined the EU. Yet, despite substantial number of people emigrating from Lithuania remittances did not develop into dependency for the country.

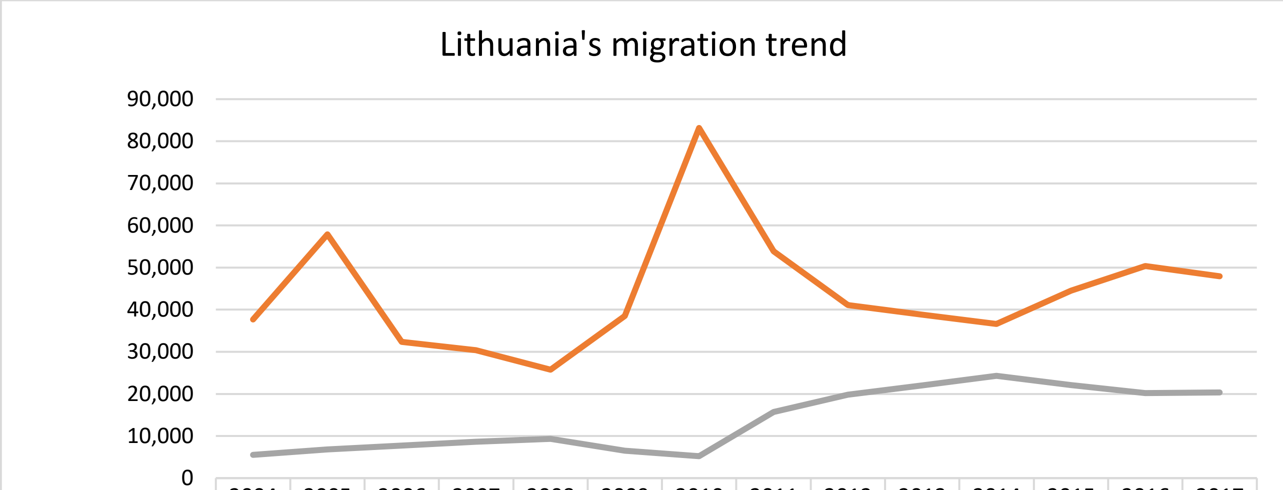
Therefore, this chapter present an overall image of Lithuanian migration patter and analyses how membership in EU, and in wider sense integration to the *west,* reduced migration sector interdependence with Russian Federation to a level of *sensitivity* where the topic lost its relevance.

Migration

Lithuania is facing a migration challenge and it comes from emigration. Around 700.000 people emigrated from the country since it regained its independence in 1990. During the same period due to natural decrease Lithuania's population also contracted by around 177.000 people. That means that Lithuania lost around 24% of its population in less than three decades[107]. This makes Lithuania one of the fastest shrinking countries globally[108].

[107] European Migration Network*, Migration trends: How much has Lithuania's population decreased?* http://123.emn.lt/en/

[108] Charlotte Edmondt, *Where in the world are populations shrinking the fastest?,* World Ecnomic Forum, 2017.09.26 https://www.weforum.org/agenda/2017/09/the-countries-with-the-fastest-shrinking-populations/



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Imigrants	5,553	6,789	7,745	8,609	9,297	6,487	5,213	15,685	19,843	22,011	24,294	22,130	20,162	20,368
Emigrants	37,691	57,885	32,390	30,383	25,750	38,500	83,157	53,863	41,100	38,818	36,621	44,533	50,333	47,925

Figure 30, Lithuania's migration trend, European Migration Network data. Authors visualization

Lithuanian membership in EU is a central piece of migration puzzle. Since majority of people leaving the country re-locate within EU or Schengen area. Lithuanians living within EU in 2018 accounted for over 80% of all Lithuanians living abroad[109]. At the same time Lithuanians living in Schengen Area accounted for almost 95% of all Lithuanians living abroad[110].

In 2018 twelve countries had larger than 1% share of total number of Lithuanians residing abroad. Lithuanians living in these countries accounted for 92% of all Lithuanians residing abroad. In this context United Kingdom importance needs to be highlighted. It is by far the most popular destination of residence.

[109] European Migration Network, *Emigration: where do Lithuanians emigrate?* http://123.emn.lt/en/
[110] Ibid.

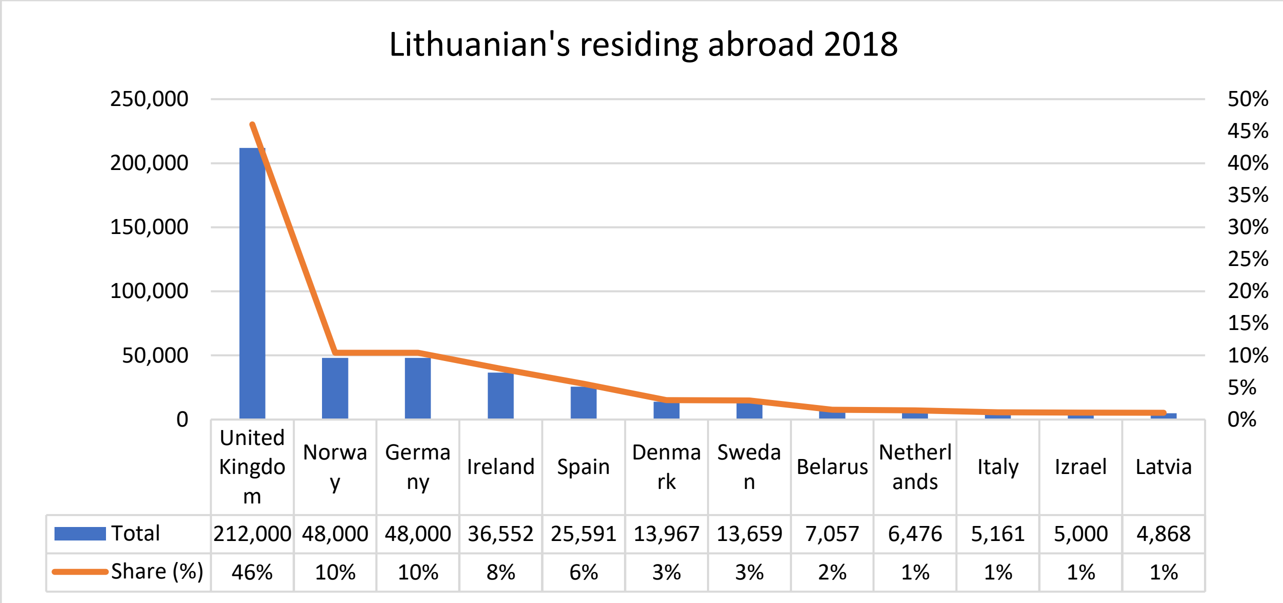
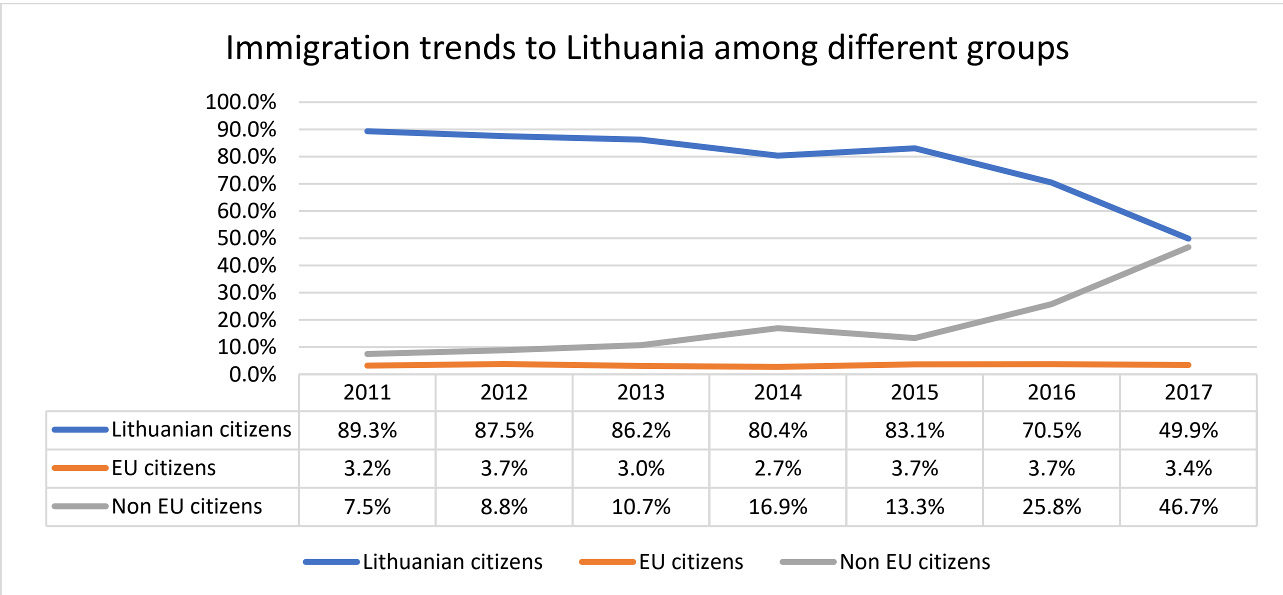


Figure 31, Lithuanian's residing abroad 2018, European Migration Network data. Authors visualization.

Another problematic aspect for Lithuania is the age of people who are leaving the country. Majority of people emigrating are aged between 15-44[111]. This means that Lithuania's labour force is contracting and elderly population makes up increasingly larger share of overall population. Since Lithuania's fertility rate is below 2.00 since the 1992[112].

Immigration has not become an issue for Lithuania as majority of immigrants have been Lithuanians returning from abroad, while the overall number of non-Lithuanians arriving is relatively small. Although during recent years share of non-EU citizens in immigration statistics is increasing. This coincides with a drop of returning Lithuanians.



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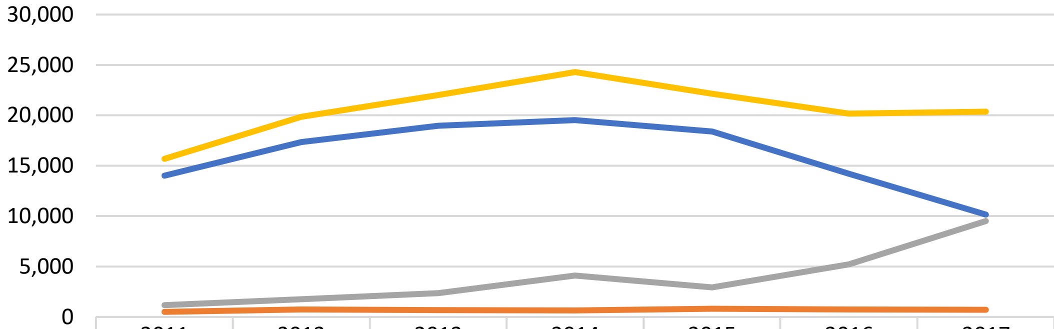
[111] European Migration Network, *Emigration: Emigrants by age* http://123.emn.lt/en/
[112] The World Bank, *Fertility rate, total (births per woman)*, https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=LT

Figure 32, Immigration trends to Lithuania among different groups, European Migration Network data. Authors calculations.

Immigration to Lithuania

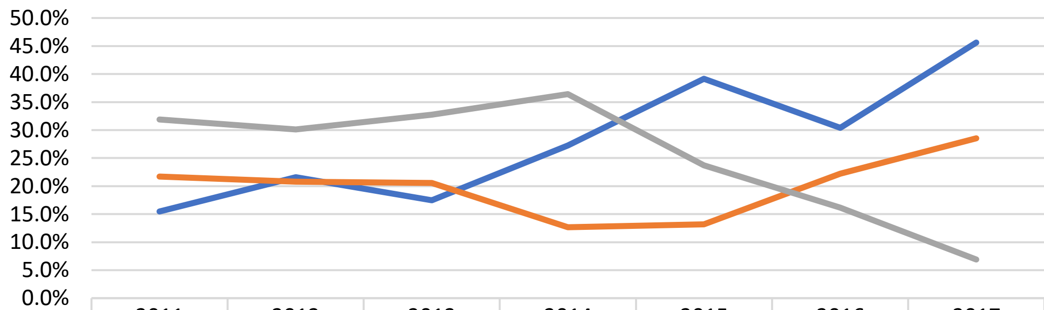


	2011	2012	2013	2014	2015	2016	2017
Lithuanian citizens	14,012	17,357	18,975	19,528	18,383	14,207	10,155
EU citizens	503	738	671	658	813	751	700
Non EU citizens	1,170	1,748	2,365	4,108	2,934	5,204	9,513
Total	15,685	19,843	22,011	24,294	22,130	20,162	20,368

Figure 33, Immigration to Lithuania, European Migration Network data. Authors calculations.

Majority of people arriving to Lithuania from non-EU countries are from Ukraine, Belarus and Russian Federation. Furthermore, war in Ukraine has clearly had an effect on Lithuania's immigration pattern. There has been a visible surge in the number of arriving Ukrainians. In 2017 they accounted for almost half of non-EU citizens immigrating to Lithuania, while the downfall of Russian Federation citizens share can be associated more with the surge from other destinations, rather than overall decrease.

Immigration of non-EU citizens to Lithuania, selected countries

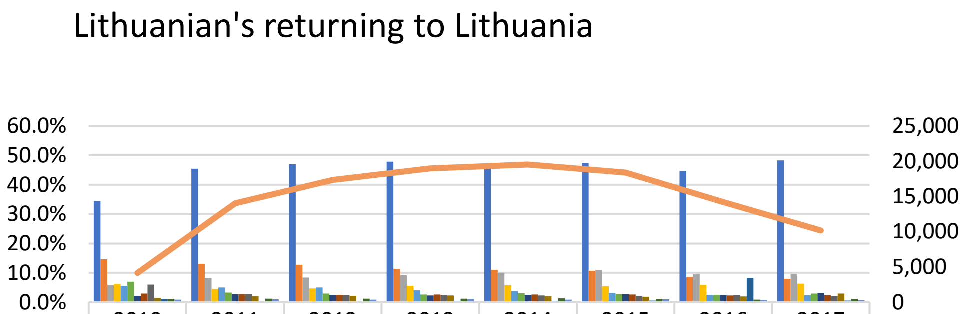


	2011	2012	2013	2014	2015	2016	2017
Ukraine	15.5%	21.6%	17.5%	27.3%	39.2%	30.4%	45.6%
Belarus	21.7%	20.8%	20.5%	12.7%	13.2%	22.2%	28.5%
Russian Federation	31.9%	30.1%	32.7%	36.4%	23.7%	16.2%	6.9%

Ukraine Belarus Russian Federation

Figure 32, Immigration of non-EU citizens to Lithuania, selected countries, European Migration Network data. Authors calculations.

Most of Lithuanians returning to the country during 2010-2017 were coming back from a group of 13 countries - United Kingdom, Ireland, Norway, Germany, Spain, United States of America, Denmark, Sweden, Russian Federation, Netherlands, Ukraine, Italy, France. Together they account for over 90% of Lithuanians who returned during this period. Ten of these countries are part of EU and eleven part of Schengen Area. Here again the importance of United Kingdom is clearly visible. Since share of Lithuanians returning from United Kingdom was similar to that of other twelve countries combined.

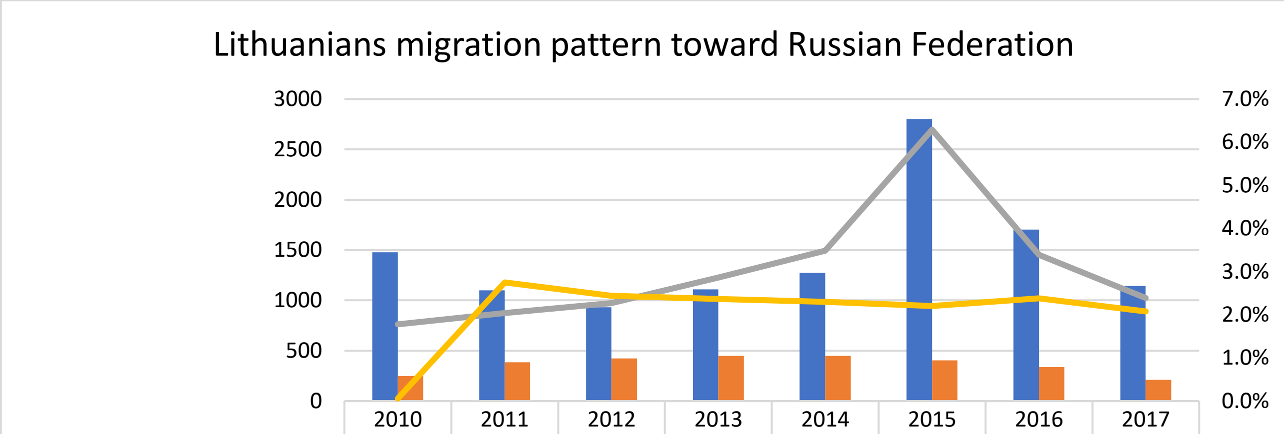


	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	34.4%	45.4%	47.0%	47.9%	46.8%	47.4%	44.6%	48.3%
Ireland	14.6%	13.1%	12.8%	11.4%	11.0%	10.7%	8.6%	7.9%
Norway	5.9%	8.3%	8.4%	9.1%	10.1%	11.0%	9.5%	9.6%
Germany	6.3%	4.5%	4.7%	5.5%	5.8%	5.5%	5.9%	6.3%
Spain	5.5%	5.0%	5.0%	4.1%	3.8%	3.2%	2.5%	2.4%
United States of America	7.0%	3.3%	3.0%	2.6%	3.0%	2.8%	2.5%	3.0%
Denmark	2.1%	2.7%	2.5%	2.3%	2.5%	2.7%	2.5%	3.2%
Sweden	3.0%	2.7%	2.5%	2.6%	2.6%	2.6%	2.3%	2.5%
Russian Federation	6.0%	2.7%	2.4%	2.4%	2.3%	2.2%	2.4%	2.1%
Netherlands	1.4%	2.1%	2.2%	2.3%	2.1%	1.9%	2.0%	3.0%
Ukraine	1.1%	0.4%	0.3%	0.5%	0.5%	0.6%	8.3%	0.6%
Italy	1.1%	1.2%	1.2%	1.2%	1.4%	1.1%	0.9%	1.1%
France	0.9%	1.0%	0.9%	1.1%	0.9%	1.0%	0.7%	0.7%
Number of people returning	4,153	14,012	17,357	18,975	19,528	18,383	14,207	10,155

Figure 34, Lithuanian's returning to Lithuania, European Migration Network data. Authors calculations.

The number of Lithuanians residing and moving to Russian Federation is small. In 2018 there has been 4320 Lithuanian's residing in Russian Federation[113]. This accounted for 0.94% of all Lithuanians residing abroad and made Lithuanian community residing in Russian Federation 13th largest. However, there has been a visible spike in emigration the year after war in Ukraine started (2015).

[113] European Migration Network, *Emigration: Which countries have the biggest number of Lithuanians?* http://123.emn.lt/en/



	2010	2011	2012	2013	2014	2015	2016	2017
Emigration	1479	1100	932	1111	1275	2801	1704	1143
Imigration	249	385	424	449	449	405	338	211
Total emigration share	1.8%	2.0%	2.3%	2.9%	3.5%	6.3%	3.4%	2.4%
Total imigration share	0.1%	2.8%	2.4%	2.4%	2.3%	2.2%	2.4%	2.1%

Figure 35, Lithuanians migration pattern toward Russian Federation, European Migration Network data. Authors calculations.

At first glance this might suggest that migration sector interdependence with Russian Federation was irrelevant for Lithuania, yet it is exactly the opposite. Lack of any meaningful dependency on Russian Federation is a direct result of policies that Lithuania pursued in the past. Membership in EU, and in wider sense integration into *west*, provided Lithuanians with more desirable alternatives than that of Russian Federation. This subsequently minimized migration dependency on Russian Federation.

Therefore, Lithuania’s membership in international regimes, in particular EU, created conditions that facilitated emigration and at the same time minimized interdependence with Russian Federation based on migration. This in turn secured Lithuanian migration sector from Russian Federation influence into foreseeable future and created wider socio-demographic implications. Yet, despite these wider implications Lithuania’s interdependence with Russian Federation based on migration patterns constitutes a *sensitivity*.

Remittances

Remittances flows to Lithuania started to grow in 2004, the year Lithuania joined EU. This is no coincidence considering that vast majority of Lithuanians leaving the country relocated within EU or Schengen Area. Growth in remittances volumes, and in its share of GDP, also coincides with waves of emigration from Lithuania.

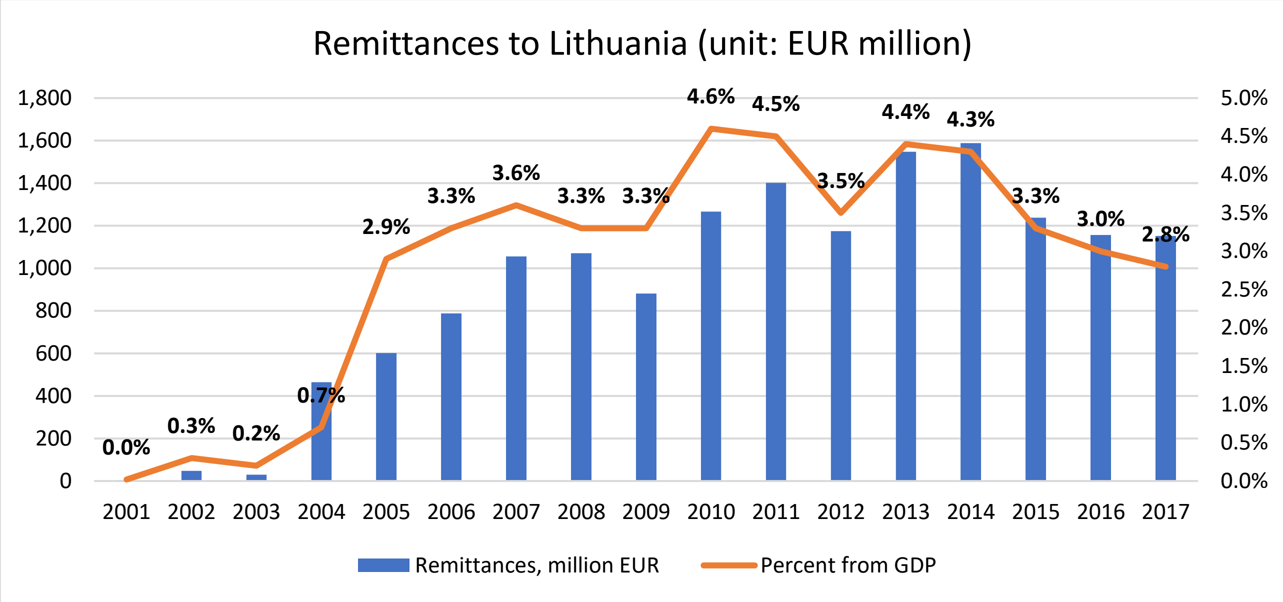


Figure 35, Remittances to Lithuania (unit: EUR million), European Migration Network data. Authors visualization.

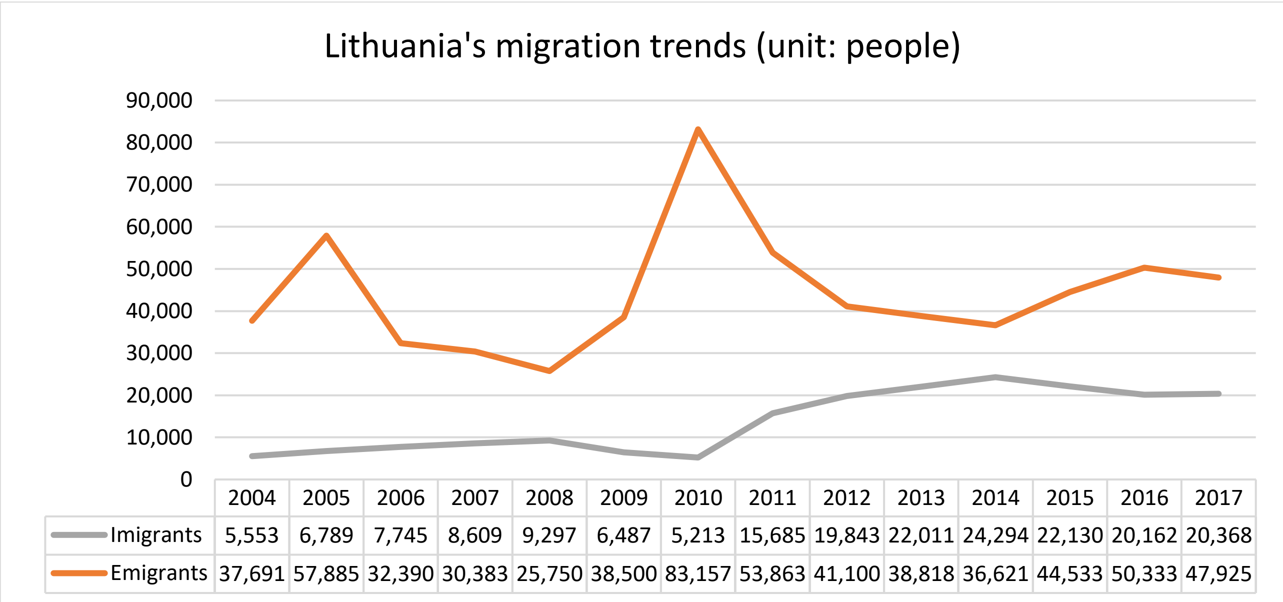


Figure 30, Lithuania's migration trend, European Migration Network data. Authors visualization

Unfortunately, there is no database for tracking remittances from individual countries. Since empirical verification is not entirely possible due to practical tracing limitations. World Bank does provide estimations based on theoretical model, but this data should be examined carefully. Especially for Lithuania, since its data-set does not corresponds to migration patterns. Due to this data from Word Bank is not used here.

Therefore, in this part it is empirically difficult to determine what effect the political fallout in 2014 between Lithuania and Russian Federation has had on Lithuania's remittances pattern. However, the overall pattern - most Lithuanians residing in Schengen Area and small number of Lithuanians residing in Russian Federation - suggest that remittances from Russian Federation could not accounted for significant share. Furthermore, despite empirical difficulties in this sub-chapter determining the interdependence cost-effect is not difficult. Since Lithuania did not needed to implement any policies in migration sector that address the political fallout effects. This in turn suggest that Lithuania's interdependence with Russian Federation based on remittances is a *sensitivity*.

Migration – sensitivity or vulnerability?

In this chapter Lithuania's migration interdependence with Russian Federation has been examined to determine whether it constituted a vulnerability or sensitivity. To answer this question two sub-criteria for assessing the nature of migration sector have been explored – migration and remittances.

Migration sub-criteria, displayed that emigration poses a socio-demographic challenge to Lithuania. However, migration associated with Russian Federation does not. The number of Lithuanians residing and moving to Russian Federation is small. Such outcome can be accredited to policies that Lithuania pursued in the past (integration into *west*). Since majority – more than 90 % – of Lithuanians reside in EU and Schengen Area. Due to this Lithuania did not need to implement any policies in migration to address effects of the political fallout with Russian Federation. Subsequently, this also means that interdependence with Russian Federation based migration constitutes a sensitivity for Lithuania.

Remittances sub-criteria analysis is inductive as only overall data is available. Despite this, the small number of Lithuanians residing in Russian Federation suggest that the political fallout in 2014 could not have had a significant effect on remittances. Yet, the underlying argument here is the fact that Lithuania did not needed to implements any policies to address remittances question due to the political fallout. This in turn suggest that interdependence with Russian Federation based remittances constitutes a sensitivity for Lithuania.

Therefore, the overall cost effect dimension of Lithuanian migration sector interdependence with Russian Federation constitutes a *sensitivity*. In the end this result highlights the importance of international regimes.

4. Energy sector

"Energy is always geopolitics" -
Dalia Grybauskaitė, 5th President of Lithuania[114].

After Lithuania regained its independence in 1990 its interdependence with Russian Federation in energy sector has been a particularly noticeable dependency. Nevertheless, since the beginning of war in Ukraine it has been significantly reduced. Two main factors contributed to this outcome. First, Lithuanian government strategic intervention into energy sector. Aimed at reducing imports dependency on a single supplier – Russian Federation. Second, Lithuania's membership in EU. That allowed Lithuania to receive financial, legal and political support to reform energy sector and counter opposition. These two factors and coincidental timing meant that by the time war in Ukraine started Lithuania was in the last stages of transforming its interdependence with Russian Federation in energy sector. However, it was also this, the defining dependency of post-soviet countries, that proved to be the most challenging to address.

When Lithuania regained its independence in 1990 it inherited soviet-era energy sector infrastructure that was isolated from Europe. This configuration and lack of domestic sources meant that Lithuania essentially faced single supplier, Russian Federation, monopoly in energy sector. As a result, Lithuania's energy security significantly dependent on decisions taken in Kremlin.

Lithuanian political elite grasped the energy sector vulnerability early on[115]. This was fostered by Russian Federation abuse of its monopolistic power. Despite this, reforming energy sectors proved to be challenging not only financially and technologically, but also politically. In fact, up until 2009 Lithuanian political system could not produce political leadership that could dismantle the single supplier monopoly.

Situation changed after centre-right government, led by Andrius Kubilius, was formed in 2008 and new president, Dalia Grybauskaitė, was elected in 2009. This political leadership prioritized reforms in energy sector and strategically used Lithuania's membership in EU to facilitate them. Now, retrospectively, it can be said that it was simply a matter of coincidental timing that key projects in energy sector were scheduled to be finished in 2014-2015 and global oil prices started collapsing in 2014. Subsequently, by the time war in Ukraine started Lithuania was already in the last stages of

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[114] James Kanter, *At Anchor Off Lithuania, Its Own Energy Supply*, The New York Times, 2013.07.04 <https://www.nytimes.com/2013/07/05/business/energy-environment/lithuania-aims-for-energy-independence.html?_r=0>

[115] Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, eprint edition (July 23, 2015), Publisher: University of Toronto Press, Scholarly Publishing Division, 215.

dismantling direct and indirect dependencies on a single supplier in gas and electricity sectors. While oil dependency was reduced by global trends and prior project.

In all of this configuration there was another important aspect to Lithuanian position – Lithuania is a transit country for energy resources to Kaliningrad enclave. This in turn created additional leverage for Lithuania when dealing with Russian Federation. Yet, for years the importance of this position was exacerbated and by the time war in Ukraine started it was already largely obsolete[116].

Lithuania's interdependence in energy sector presents the most complex, intertwined and recognized dependency on Russian Federation out all four sectors under consideration in this conceptual framework. Further sub-criteria will explore how Lithuania used domestic initiatives and membership in EU to address this dependency and what role coincidental timing played in these developments.

Imports

Lithuania inherited soviet-era energy sector infrastructure that was isolated from Europe. This and lack of domestic sources meant that Lithuania largely faced single supplier, Russian Federation, monopoly in energy imports. In the years after Lithuania regained independence it manifested across three energy resources imports sectors – oil, natural gas and nuclear fuel.[117]

Only oil imports dependency was addressed prior to Lithuania joining the EU. When in 1999 Butinge marine oil terminal became operational and created alternative supply route to Lithuania. Despite this, primary and secondary oil was still almost exclusively imported from Russian Federation until 2014.

[116] Ibid, 222.
[117] Ibid.

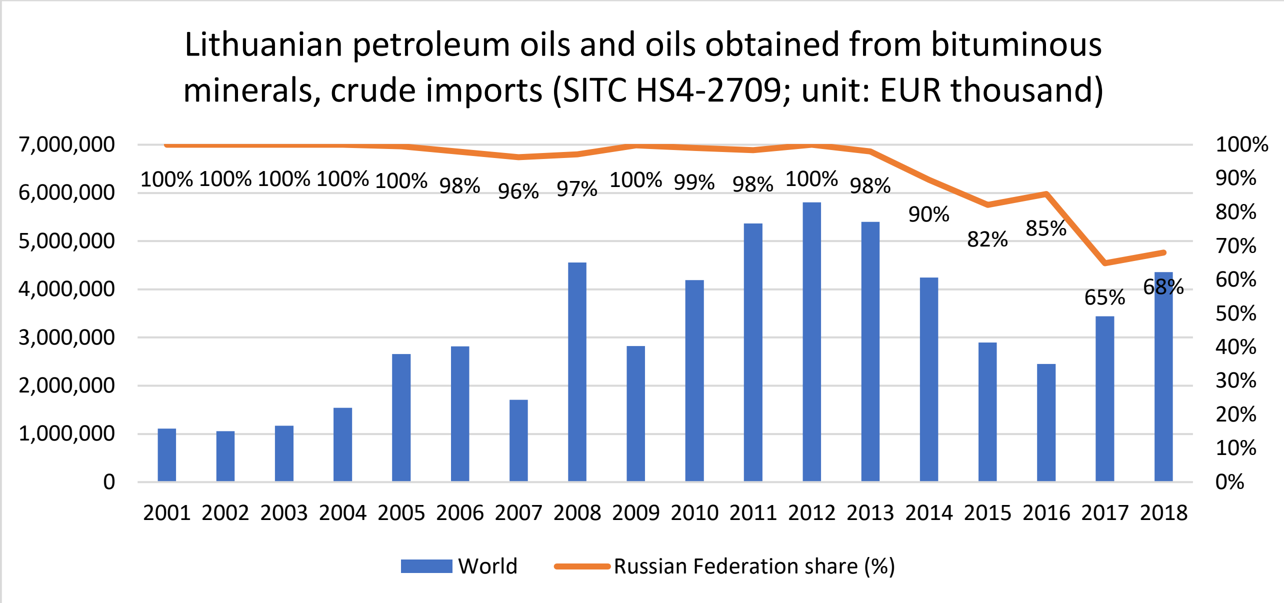
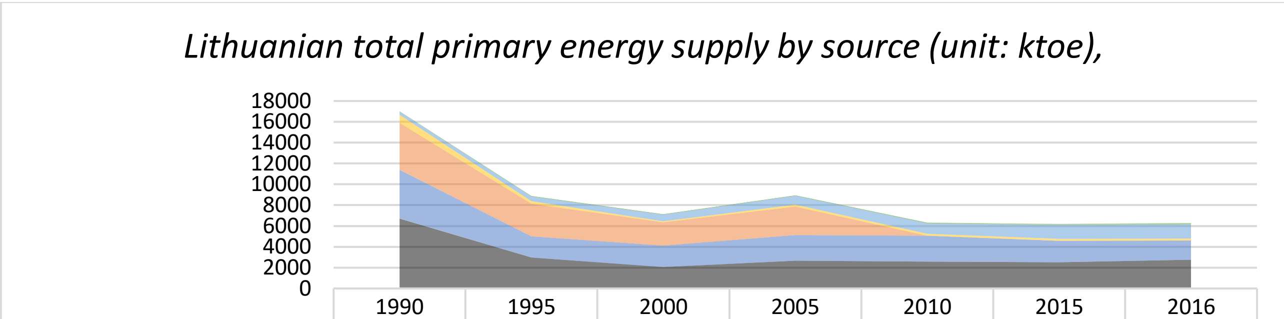


Figure 36, Lithuanian petroleum oils and oils obtained from bituminous minerals, crude imports (SITC HS4-2709; unit: EUR thousand), International Trade Centre data. Author calculations.

Total primary energy supply (TPES) data (*excluding electricity)* indicates just how dependent Lithuania was on imports from Russian Federation.



	1990	1995	2000	2005	2010	2015	2016
Geothermal, solar, etc.	0	0	0	3	24	77	105
Hydro	36	32	29	39	46	30	39
Biofuels and waste	285	461	645	839	993	1332	1370
Coal	797	246	92	184	206	181	184
Nuclear	4503	3142	2245	2739	0	0	0
Natural gas	4678	2029	2064	2476	2492	2067	1842
Primary and secondary oil	6711	2975	2040	2654	2564	2515	2763

Figure 37, Lithuanian total primary energy supply by source (unit: ktoe), International Energy Agency data. Authors visualization.

It shows that Russian Federation, directly and indirectly, accounts for around 80% of TPES for Lithuania in 2005 and 2010.

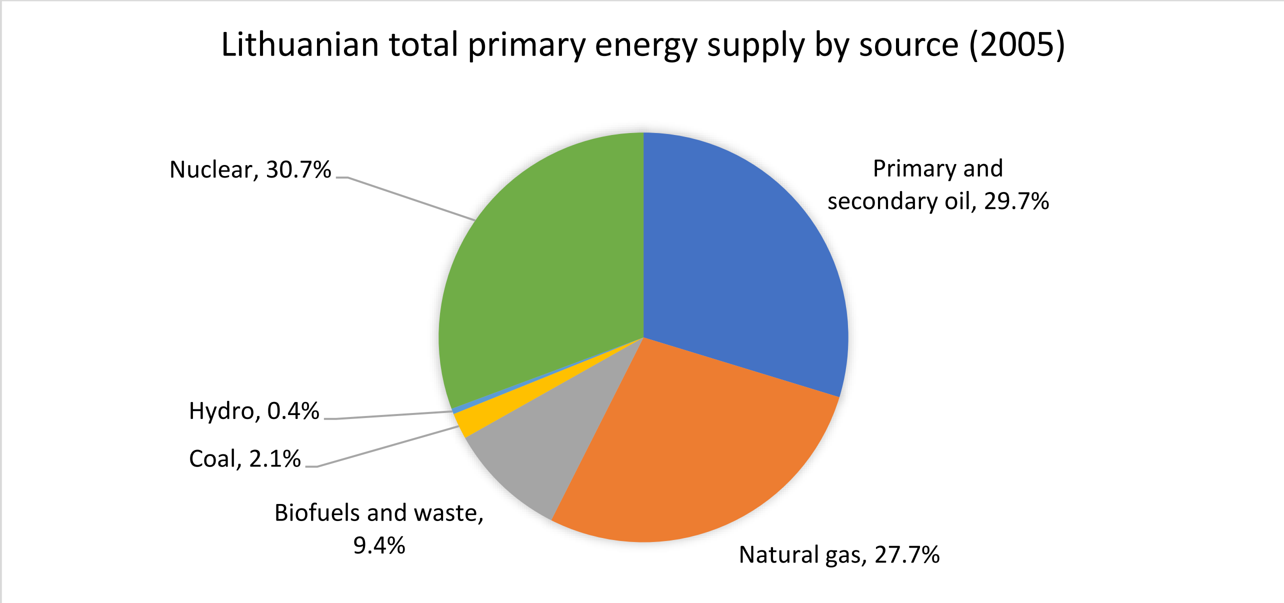


Figure 38, Lithuanian total primary energy supply by source (2005), International Energy Agency data. Author calculations.

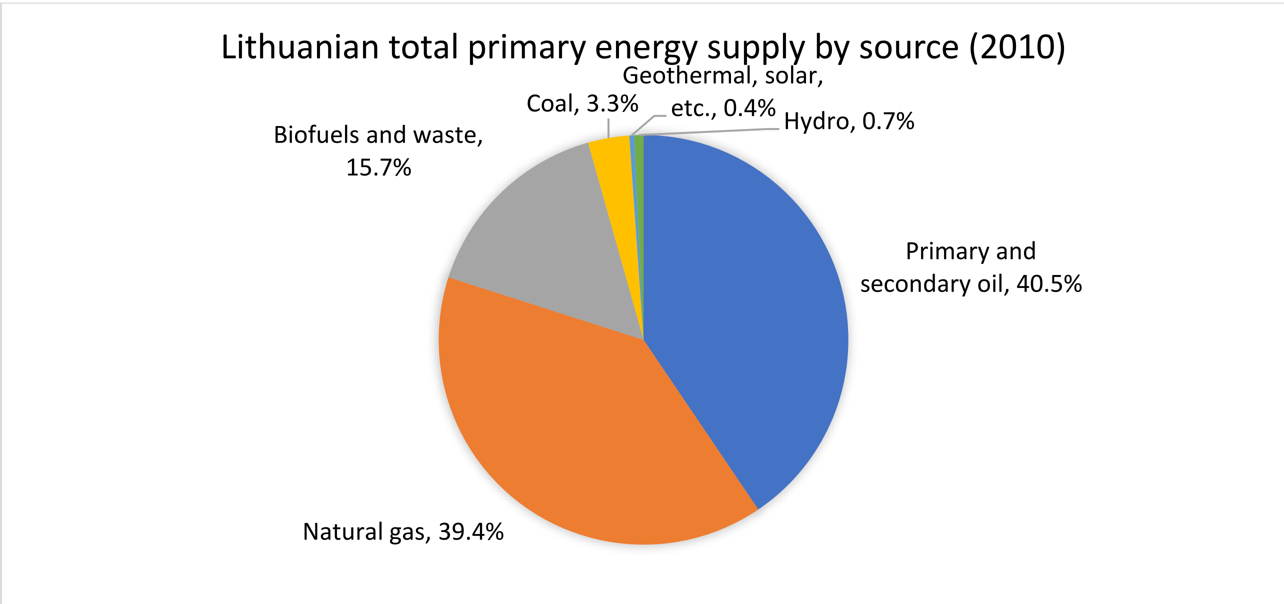


Figure 39, Lithuanian total primary energy supply by source (2010), International Energy Agency data. Author calculations.

Reforming other energy sectors dependencies for Lithuania proved to be challenging not only financially and technologically, but also politically. Situation improved when Lithuania joined EU in 2004 and additional financial, legal and political support became available.

Membership in EU also had a significant effect on the only energy field where Lithuania did not have a direct imports dependency - electricity. Lithuania possessed Ignalina nuclear power plant (Ignalina NPP) which was built by Soviet Union to supply electricity to its entire northwest region[118]. Due to this Lithuania had electricity generation capacity that exceeded domestic demand and

[118] Ibid, 216.

electricity infrastructure that was orientated toward exports to former soviet states[119]. This allowed Lithuania to became an electricity exporting country after it regained its independence. However, EU considered Ignalina NPP to be unsafe. Primarily because it was built using the same technology as Chernobyl nuclear power plant. Consequently, a condition was made that Lithuania needs to close Ignalina NPP if it wants to joins the EU[120]. Lithuania agreed and after gaining membership in 2004 started the decommissioning process. Electricity production in Ignalina NPP plant ended in 2010[121].

Decommissioning of Ignalina NPP meant that Lithuania will no longer be able to satisfy domestic electricity demand. This created an issue since Lithuania, like other Baltic countries, had no access to EU electricity networks. Baltic countries electricity network was developed as an integral part of Russian Federation and Belarussian system, commonly known as the BRELL ring. Belonging to this network had created political implications. Since BRELL ring is a centralized system controlled directly from Moscow. Therefore, after closure of Ignalina NPP Lithuania needed to rely on Russian Federation for electricity flows[122]. Despite this, in reality Lithuania actually swapped one imports dependency with another. Soviet-era technology used in Ignalina NPP meant that Russian Federation was the only possible supplier for nuclear fuel[123]. This in turn meant that Lithuania had to rely on Russian Federation for electricity generation capabilities.

Despite all of this only during 2008-2012 Lithuania adequately started to address reliance on a single supplier. This was determined by several factors:

First, up until 2008-2009 Lithuanian political system did not produced a political leadership capable of dismantling Russian Federation supply monopoly. Only when new centre-right government, led by Andrius Kubilius, was formed in 2008 and new president, Dalia Grybauskaitė, was elected in 2009 situation changed. New political leadership was strongly pro-European and prioritized reforms in energy sector[124]. To signify this Ministry of Energy was re-established in 2009 as a separate ministerial portfolio. New political leadership also strategically relied on Lithuania's membership in EU to gain support for the reforms and counter Russian Federation opposition[125].

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[119] Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015

[120] EUR-Lex, *Document 12003T/PRO/04*, 2013.09.23, <http://data.europa.eu/eli/treaty/acc_2003/act_1/pro_4/sign> [Reviewed at 2019.05.10]

[121] World Nuclear Association, *Nuclear Power in Lithuania*, 2017.05 www.world-nuclear.org/information-library/country-profiles/countries-g-n/lithuania.aspx [Reviewed at 2019.05.10]

[122] Seimas of the Republic of Lithuania, *Presentation on energy security in Europe based on Lithuania's example delivered at the OSCE PA*, 2019.02.22, https://www.lrs.lt/sip/portal.show?p_r=119&p_k=2&p_t=264705 [Reviewed at 2019.05.10]

[123] B Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015, page 217.

[124] Linas Kojala, Vilius Ivanauskas, *Lithuanian Eastern Policy 2004–2014: The Role Theory Approach*, Eastern Europe Study Centre, 2014 www.eesc.lt/uploads/news/id838/Lithuanian%20Eastern%20Policy%202004_2014.pdf

[125] Ibid.

Second, in 2009 EU's Third Energy Package entered in force and created regulations under which monopolies in electricity and gas sectors were to be dismantled across EU[126]. This in turn allowed Lithuania to bypass opposition from various interest groups and to some extent Russian Federation. In the same year Lithuanian government started discussing plans to carry out the "unbundling" of its gas and electricity sectors in accordance to EU's Third Energy Package and was the first country to choose the most radical option out of three possible - separate the supply company from the control of delivery and distribution infrastructure[127]. This unbundling meant that Russian Federation state owned company, Gazprom, will lose control of gas infrastructure in Lithuania.

Third, in 2009 Baltic Energy Market Interconnection Plan established list of priority projects. Among which was Polish-Lithuanian gas pipeline (GIPL) that incorporated reverse flow capabilities allowing trading between Poland and the Baltic states[128]. GIPL project was recognized by EU as a Project of Common Interest, a key infrastructure projects in EU. This in turn meant that EU will provide substantial support for it. Preparation works started in 2009, but process remained slow for years to come.

For Lithuania this was particularly important project since it received all of its gas through one pipeline controlled by Russian Federation and did not have any gas storage facilities[129]. The later part improved in 2004 when Lithuania gained access to storage facilities in Latvia. Although these were in fact also managed by Russian Federation (Gazprom), up until Latvia implemented EU's Third Energy Package[130].

Such configuration also meant that out of three Baltic countries Lithuania was the most dependent country on gas imports[131]. Since Estonia could satisfy the domestic demand by other domestic sources and Latvia had gas storage facilities capable of storing countries two years demand. Lithuania had neither.

Fourth, in 2010 the decision was made to start preparations for liquefied natural gas (LNG) terminal project. Potential value of such terminal was already recognized in 2008, but the lack of possible funds at that time prevented further developments. After failure to reach a consensus with

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126 European Commission press release database, *Questions and Answers on the third legislative package for an internal EU gas and electricity market*, 2011.03.02, europa.eu/rapid/press-release_MEMO-11-125_en.htm?locale=en [Reviewed at 2019.05.10]

127 Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015

128 European Commission, *Baltic Energy Market Interconnection Plan (BEMIP)*, https://ec.europa.eu/energy/en/topics/infrastructure/high-level-groups/baltic-energy-market-interconnection-plan [Reviewed at 2019.05.10]

129 Frank Umbach, *Baltic energy security – no longer a regional energy island*, Geopolitical Intelligence Service, 2015.08.07 https://www.gisreportsonline.com/baltic-energy-security-no-longer-a-regional-energy-island,energy,229.html [Reviewed at 2019.05.10]

130 Madara Fridrihsone, *Gazprom still hasn't sold off shares at gas storage utility*, LSM, 2018.01.02 https://eng.lsm.lv/article/economy/economy/gazprom-still-hasnt-sold-off-shares-at-gas-storage-utility.a262857/

131 Same.

other Baltic countries and Poland, Lithuania decided to implement the project individually. As a result, EU funding was not available for this project. Hyundai Heavy Industries were contracted to build floating LNG storage and regasification unit. Constructions began in 2012 and was expected to be finished in 2014.

Fifth, in 2008-2009 as part of Baltic Energy Market Interconnection Plan Lithuania started NordBalt, electricity infrastructure connection with Sweden, and LitPol link, electricity infrastructure connection with Poland, projects[132]. Together with already operational Estlink, electricity infrastructure connection between Estonia and Finland, these links were to end Baltic countries EU energy island status in electricity sector. It needs to be noted that EU provided funds for these projects that covered substantial amount of costs.

It also needs to be noted that during this time a number of projects in electricity sector were also initiated across Baltic countries. Among which was the project to integrate Baltic countries integration to Nord Pool AS electrical energy market. The largest market for electrical energy in Europe. This was accomplished in 2013[133].

New projects were also creating condition for Baltic countries to exit BRELL ring and synchronize with one of the EU electricity networks. Two options were available for synchronization – Nordic and Continental Europe (UTCE). After considerations a decision was made for Baltic countries to synchronize with UTCE[134]. This project was also incorporated to Baltic Energy Market Interconnection Plan.

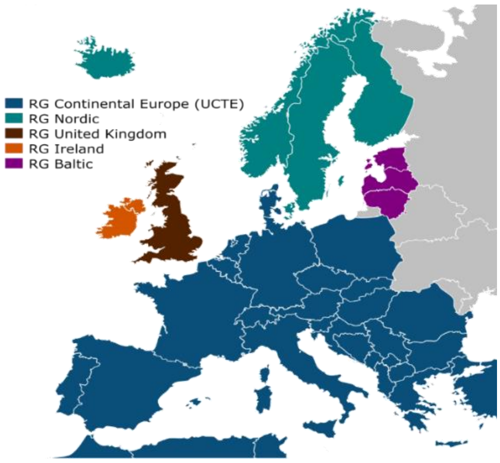

Figure 40, Synchronous grid of Continental Europe, Wikipedia.

[132] European Commission, *Baltic Energy Market Interconnection Plan (BEMIP).*

[133] Emmet Tuohy and Kristiina Visnapuu, *Nord Pool Spot and the Baltic Electricity Market: Difficulties and Successes at Achieving Regional Market Integration*, Rahvusvaheline Kaitseuuringute Keskus, 2015.06 https://icds.ee/wp-content/uploads/2014/Emmet_Tuohy__Kristiina_Visnapuu_-_Nord_Pool_Spot_and_the_Baltic_Electricity_Market.pdf [Reviewed at 2019.05.10]

[134] Ministry of Energy of the Republic of Lithuania, *The Concession Tender Commission analysing binding proposals of Strategic Investors into Visaginas nuclear power plant (VNPP)*, 2010.11.11 https://enmin.lrv.lt/en/news/the-concession-tender-commission-analyzing-binding-proposals-of-strategic-investors-into-visaginas-nuclear-power-plant-vnpp [Reviewed at 2019.05.10]

Sixth, in 2010 Lithuania actively started looking for strategic investor to proposed Visaginas nuclear power plant[135]. That was planned to be built at the site of Ignalina NPP after its closure. The project itself was started back in 2005 and at least initially was supported by all Baltic countries. In 2006 Poland was also invited to join. Yet, domestic opposition, split public opinion, disagreement among supporting countries and Russian Federation opposition meant that implementation of this project was stagnating for years. Finally, in 2012 an advisory referendum on constructing a new nuclear plant was held in which 62.7 people voted against[136].

Despite these initiatives in 2010 Lithuania's dependency on Russian Federation increased even more. This was the result of Ignalina NPP plant decommissioning process. In 2010 electricity generation in Ignalina NPP ended. Hence, nuclear fuel imports dependency became obsolete and was replaced by electricity imports dependency. Since after closing NPP Lithuania no longer could meet domestic electricity demand and went from being electricity exporting country to an electricity importing country.

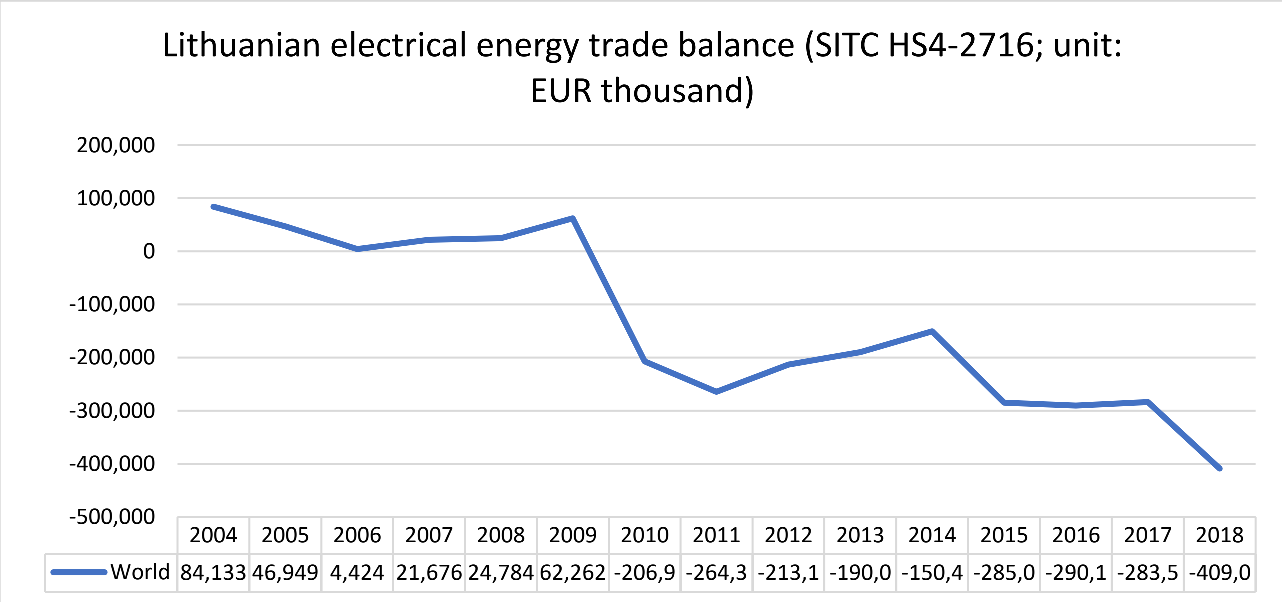

Figure 41, Lithuanian electrical energy trade balance (SITC HS4-2716; unit: EUR thousand), International Trade Centre data. Author visualization.

Not surprisingly Russian Federation opposed changes that threatened its monopolistic position in Lithuanian energy sector and implemented various pressure strategies. Among which price increase for gas was particularly noticeable measure. From 2010 onward Lithuania started paying above market price and by 2012 the price was 30 percent higher than that of EU28 average (*Figure 42*,

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[135] Ministry of Energy of the Republic of Lithuania, *The Concession Tender Commission analyzing binding proposals of Strategic Investors into Visaginas nuclear power plant (VNPP)*, 2010.11.11 https://enmin.lrv.lt/en/news/the-concession-tender-commission-analyzing-binding-proposals-of-strategic-investors-into-visaginas-nuclear-power-plant-vnpp

[136] 15min, *Lithuanians say 'no' to new nuclear plant*, 2012.10.15, https://www.15min.lt/en/article/politics/lithuanians-say-no-to-new-nuclear-plant-526-264405?copied [Reviewed at 2019.05.10]

page 65). During this time Lithuania became the highest rate for gas paying country in Europe[137]. It needs to be noted that during this time relationships between Russian Federation and Lithuania detreated. Therefore, developments in energy sector were also part of wider context.

To counter Russian Federation actions in gas sector Lithuania relied on its membership in EU and issued a formal complaint against Gazprom to European Commission in 2011 January[138]. Accusing the company of price-fixing as a retaliatory measure for EU's Third Energy Package implementation. This started a wider investigation into Gazprom activities across EU and in September 2012 EU's Directorate General of Competition initiated an anti-trust case against the company[139]. It was the first time Gazprom was facing such scale investigation. This meant that Lithuania's complaint triggered the greatest legal challenge in Gazprom's history.

Another election cycle began in 2012 and new centre-left government, led by Algirdas Butkevičius, took office. Despite the change of leadership reforms in energy sector did not halted. Only Visaginas Nuclear Power Plant project, which the new centre-left political leadership did opposed, was ended.[140] But this outcome was largely already determined by the advisory referendum on constructing the new nuclear plant results, in which majority of people voted against.

Few years later, in 2014, war in Ukraine started and Lithuania's interdependence with Russian Federation in energy sector once again became highlighted. However, by that time key initiatives in energy sector were already entering last stages of implementation.

In 2014 Lithuania finished EU's Third Energy Package implantation (2011-2014). The separation of supply company from the control of delivery and distribution infrastructure was complete. Consequently, Russian Federation, directly and indirectly, lost control of Lithuanian gas infrastructure.

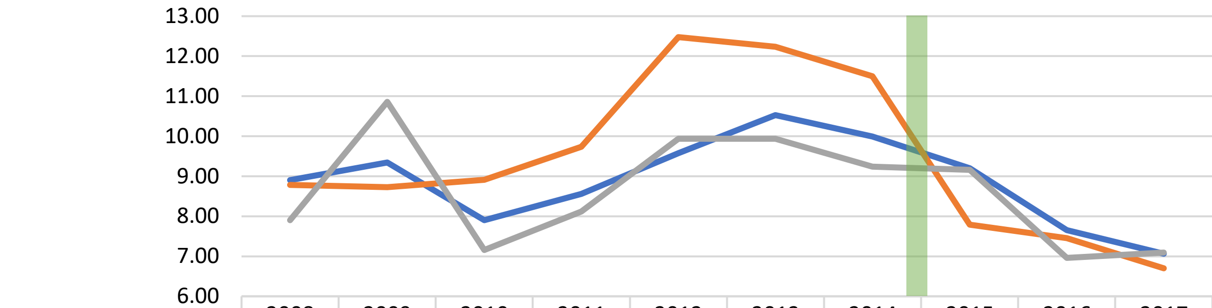
In 2014 December Klaipėda liquefied natural gas floating storage and regasification unit (Klaipėda LNG FSRU) terminal became operational. This and dismantled gas infrastructure monopoly meant that Lithuania was no longer depended on single supplier. New configuration had an immediate effect on gas prices in Lithuania. For the first time since 2009 they dropped below EU average.

[137] President of the Republic of Lithuania, *Reuters: "Russian gas policy self-defeating - Lithuania president"*, 2013.04.10 https://www.lrp.lt/en/press-centre/president-in-the-media/reuters-russian-gas-policy-self-defeating-lithuania-president/8237/15883

[138] Anca Gurzu, *Gazprom escapes EU fine in competition prob*e, Politico, 2018.05.24 https://www.politico.eu/article/gazprom-escapes-eu-fine-competition-probe/

[139] Ibid.

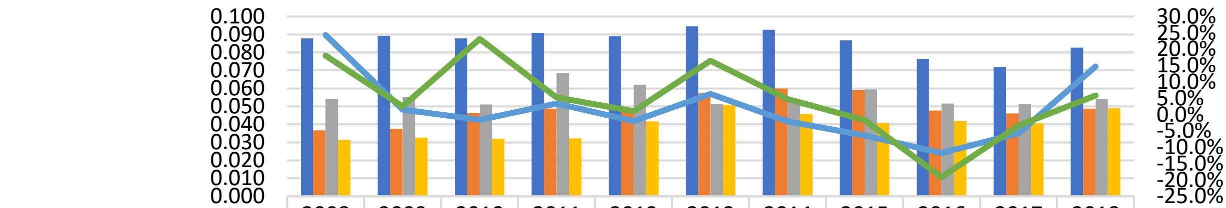
[140] LRT, *A.Butkevičius atominę perkeltų iš Visagino į Elektrėnus*, 2012.11.08 https://www.delfi.lt/verslas/energetika/abutkevicius-atomine-perkeltu-is-visagino-i-elektrenus.d?id=59939255



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EU (28 countries)	8.90	9.34	7.90	8.56	9.57	10.53	10.00	9.20	7.65	7.06
Lithuania	8.79	8.73	8.91	9.74	12.48	12.23	11.50	7.79	7.45	6.70
Latvia	7.90	10.86	7.16	8.12	9.94	9.94	9.24	9.16	6.96	7.09

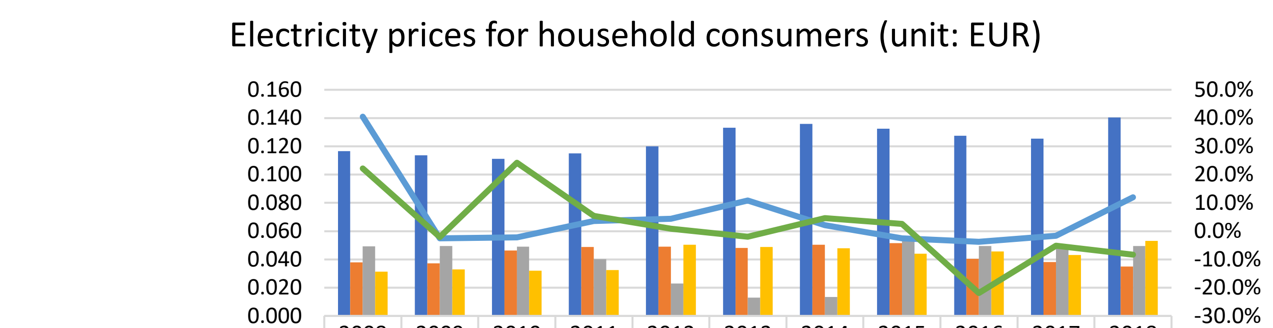
Figure 42, Gas prices: medium size industries (unit: EUR per gigajoule), Eurostat data. Authors visualization.

In 2014 construction of NordBalt and LitPol link also started. Both projects were finished in 2015 December. This also had an immediate effect on prices for Lithuanian consumers.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU28	0.088	0.089	0.088	0.091	0.089	0.095	0.093	0.087	0.077	0.072	0.083
Lithuania	0.037	0.038	0.046	0.049	0.049	0.057	0.060	0.059	0.048	0.046	0.049
Latvia	0.054	0.055	0.051	0.069	0.062	0.051	0.053	0.059	0.052	0.052	0.054
Estonia	0.031	0.033	0.032	0.032	0.042	0.051	0.046	0.041	0.042	0.041	0.049
EU28 increase (%)	24.3%	1.5%	-1.6%	3.4%	-2.0%	6.3%	-2.1%	-6.4%	-11.8%	-5.8%	14.7%
Lithuania increase (%)	18.0%	2.5%	23.1%	5.2%	1.0%	16.5%	4.7%	-1.7%	-19.2%	-3.4%	5.9%

Figure 43, Electricity prices components for non-household consumers (unit: EUR), Eurostat data. Authors calculations.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU28	0.117	0.114	0.111	0.115	0.120	0.133	0.136	0.133	0.128	0.125	0.140
Lithuania	0.038	0.037	0.046	0.049	0.049	0.048	0.050	0.052	0.040	0.038	0.035
Latvia	0.049	0.049	0.049	0.040	0.023	0.013	0.013	0.053	0.049	0.049	0.050
Estonia	0.031	0.033	0.032	0.032	0.050	0.049	0.048	0.044	0.046	0.043	0.053
EU28 increase (%)	40.5%	-2.6%	-2.2%	3.6%	4.3%	10.8%	2.1%	-2.5%	-3.8%	-1.6%	12.0%
Lithuania increase (%)	22.2%	-2.1%	24.2%	5.4%	0.8%	-2.0%	4.6%	2.6%	-21.9%	-5.2%	-8.4%

Figure 44, Electricity prices for household consumers (unit: EUR), Eurostat data. Authors calculations.

However, the more important implication was the fact that combined NordBalt, LitPol link and Estlink ended Baltic countries electricity isolation from EU.

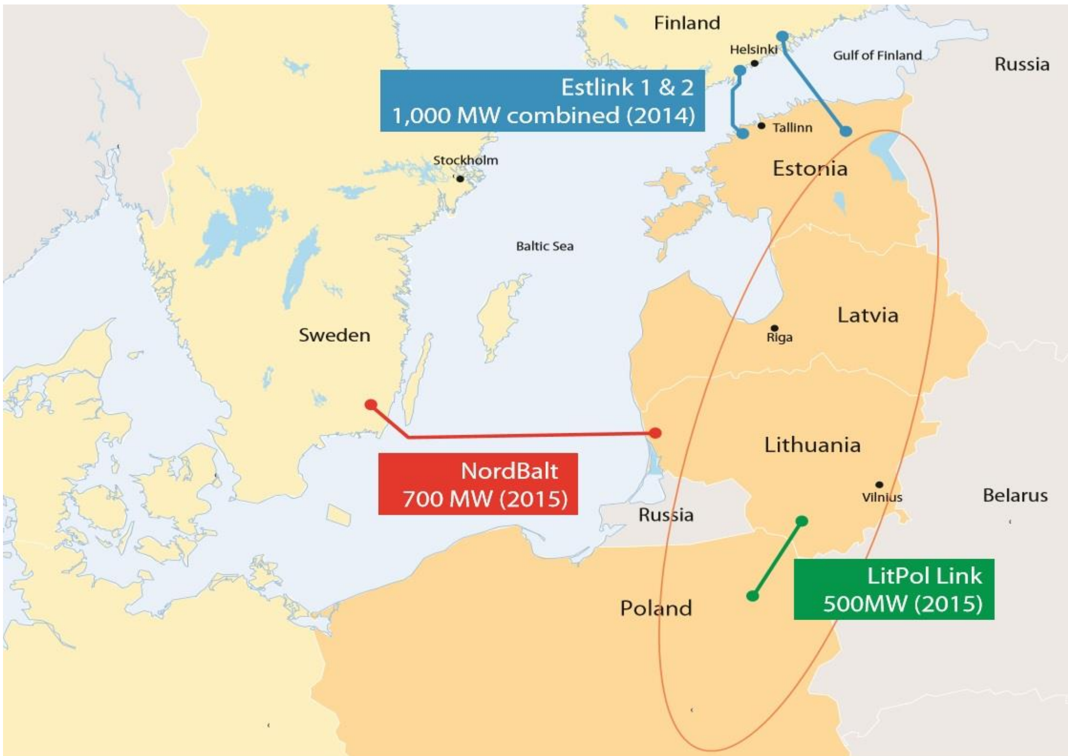
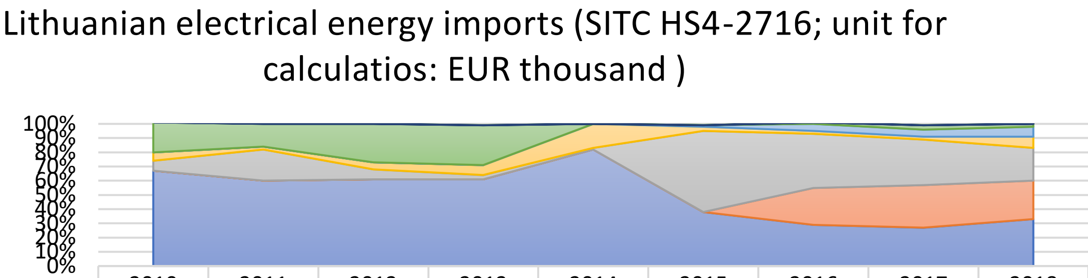


Figure 45, European Commission visualization[141].

This had a visible effect on Lithuanian electricity imports pattern. Russian Federation share decreased and imports from new destinations appeared. It needs to be noted that there are visible

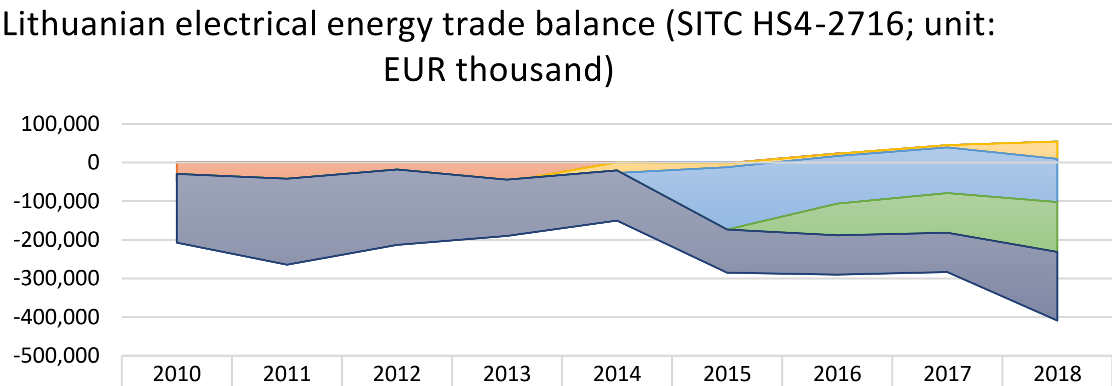
[141] European Commission *EU invests in Baltic synchronisation project*, 2018.04.18 https://ec.europa.eu/info/news/eu-invests-baltic-synchronisation-project-2018-apr-18_en

changes in Lithuanian imports configuration also due to operational start of second Estlink (2014) and Baltic countries integration to Nord Pool AS electrical energy market.



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Finland	0%	0%	0%	0%	0%	0%	0%	0%	0%
Estonia	21%	16%	27%	28%	0%	0%	1%	3%	2%
Poland	0%	0%	0%	0%	0%	1%	5%	5%	7%
Belarus	6%	2%	5%	7%	17%	3%	2%	2%	8%
Latvia	7%	22%	7%	3%	1%	57%	38%	32%	23%
Sweden	0%	0%	0%	0%	0%	0%	26%	30%	27%
Russian Federation	67%	60%	61%	61%	82%	38%	29%	27%	33%

Figure 46, Lithuanian electrical energy imports (SITC HS4-2716), International Trade Centre data. Authors calculations.



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Russian Federation	-177,305	-222,329	-195,065	-145,829	-129,705	-111,381	-102,191	-101,966	-177,999
Sweden	0	0	0	0	0	0	-81,576	-102,339	-128,976
Latvia	18,809	10,751	64,769	18,326	6,598	-161,760	-122,979	-118,257	-111,392
Belarus	-14,777	-7,790	-9,353	-12,893	-27,309	-10,022	-5,680	-5,697	-44,846
Finland	12,794	0	0	0	0	0	0	0	0
Estonia	-46,497	-45,000	-73,497	-49,635	0	-67	-1,230	9,145	13,784
Poland	0	0	0	0	0	-1,792	23,514	35,555	40,423

Figure 47, Lithuanian electrical energy trade balance (SITC HS4-2716; unit: EUR thousand), International Trade Centre data. Authors visualization.

This in turn also led to overall contraction in imports of energy resources (SITC HS4 - 27) from Russian Federation.

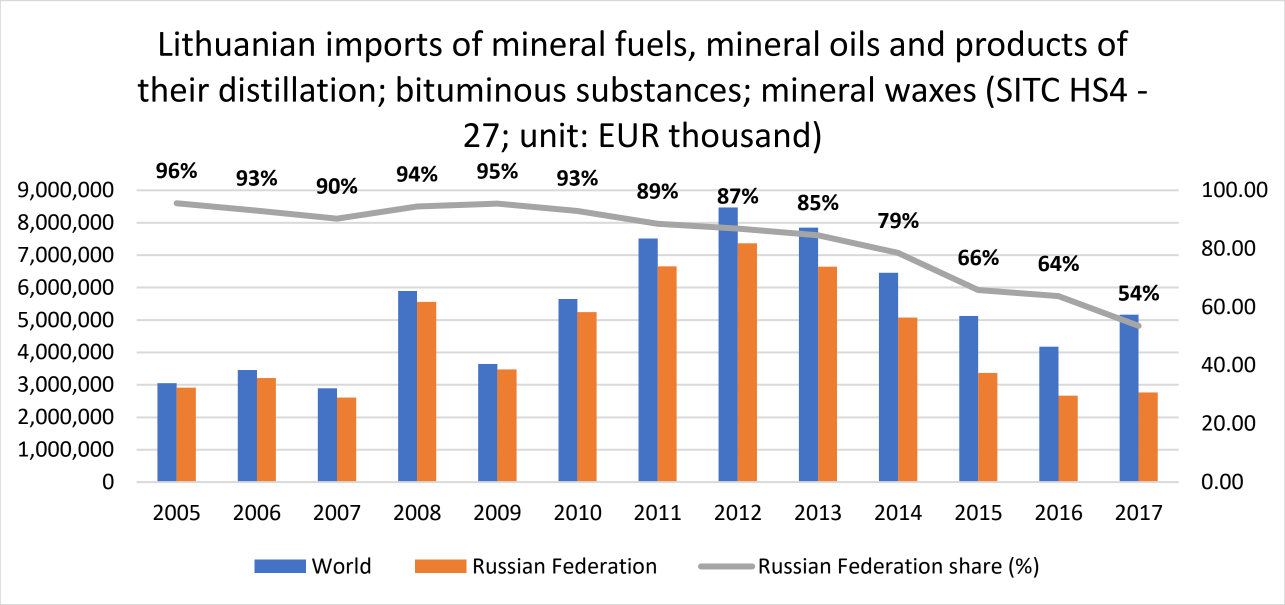


Figure 48, Lithuanian imports of mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes (SITC HS4 - 27; unit: EUR thousand), International Trade Centre. Authors calculations.

As a result, by the end of 2014 Lithuania had ended single supplier monopoly in gas sector and by the end 2015 reduced dependency in electricity sector. However, both sectors were still not fully integrated to EU network. Two further projects were needed to achieve full integration to EU network – GIPL and Baltic countries synchronization with UTCE.

To adequately prepare for synchronization with UTCE a number of projects were started across Baltic countries[142]. In 2017 EU also recognized the Baltic countries synchronization with UTCE project as a Projects of Common Interest[143]. This shows that Lithuania and other Baltic countries once again were able to strategically use membership in EU to advance their energy security. Synchronization is expected to be finished by 2025.

Baltic countries synchronization with UTCE project also creates implications for Russian Federation and Belarus. Since the current system is a "*ring*" and is operated as one unit. Consequently, preparations for de-synchronization of Baltic countries were also started by Russian Federation and Belarus. In theory, if preparations on Russian Federation and Belarus side would be finished prior to those of Baltic countries they could be disconnected prior to their full readiness[144]. Due to this, Baltic

[142] Litgrid, *Development of the Lithuanian Electric Power System and Transmission Grids*, 2014 www.leea.lt/wp-content/uploads/2015/05/Network-development-plan-2015.pdf
[143] European Commission, *European Commission - Fact Sheet*, 2018.05.28 europa.eu/rapid/press-release_MEMO-18-4285_en.htm
[144] Vilija Andrulevičiūtė, *Rusija mums gali atjungti elektrą greičiau, nei susijungsime su Europa,* Delfi, 2018.01.17 https://www.delfi.lt/verslas/energetika/rusija-mums-gali-atjungti-elektra-greiciau-nei-susijungsime-su-europa.d?id=76922019

countries have already scheduled tests of running a closed electricity network between them[145]. Theoretically improved infrastructure already allows such option. While the links with Sweden, Poland and Finland could fully provide electricity needed to meet demand.

Preparations for GIPL project are already finished. In 2018 an agreement between Lithuanian and Polish transmission system operators was signed that confirmed investments and started the pipeline construction phase[146]. The same year public construction procurements started.

During this period another important development was slowly taking place – growth of renewable energy importance. The share taken by renewable energy has been steadily expanding in Lithuanian final energy consumption through the years. This expansion has also been concentrated in heating and cooling sector. That is, the sector most reliant on gas consumption.

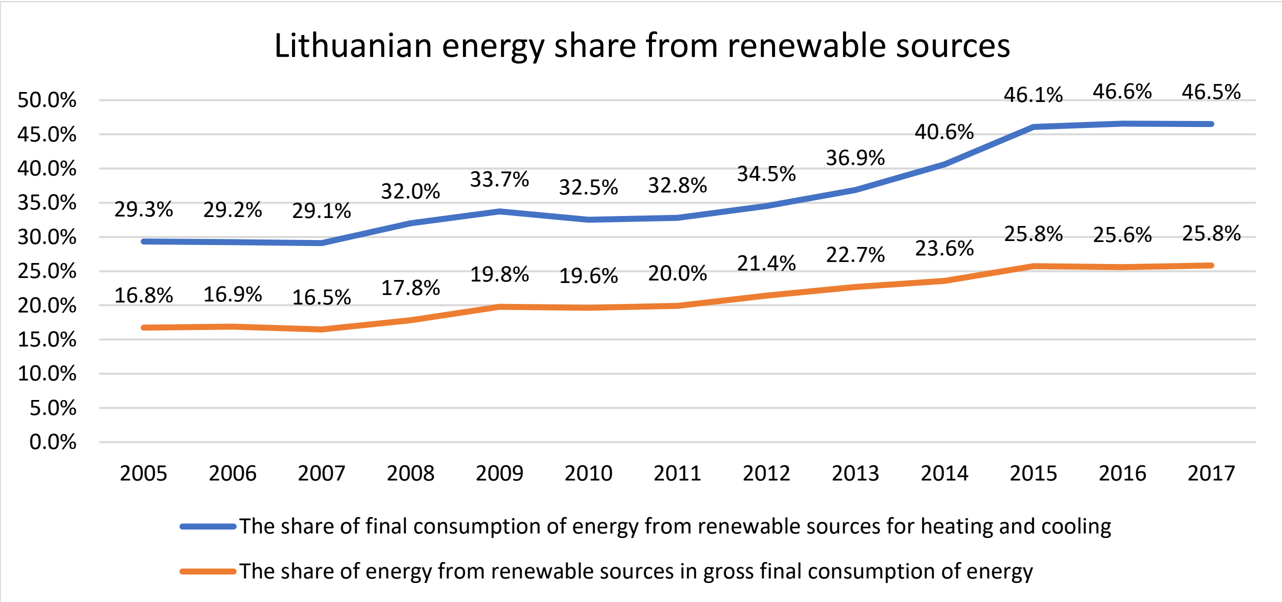


Figure 49, Lithuanian energy share from renewable sources, Statistics Lithuania. Authors visualization.

Overall, by the end of 2014 Lithuania's energy security significantly improved and by the end of 2015 its interdependence with Russian Federation over energy resources imports no longer constituted a vulnerability. Nevertheless, important projects are still undergoing, but these are needed to reduce sensitivity further, not to address the vulnerability. Therefore, from 2015 December Lithuania's interdependence with Russian Federation based on energy resources imports constituted a *sensitivity*.

[145] Lietuvos Energija, *Tęsiamas pasiruošimas darbui izoliuoto tinklo režimu: įvertintos Elektrėnų ir Kruonio elektrinės*, 2019.02.15 https://www.le.lt/index.php/naujienos/grupes-naujienos/tesiamas-pasiruosimas-darbui-izoliuoto-tinklo-rezimu-ivertintos-elektrenu-ir-kruonio-elektrines/5676

[146] Amber Grid, *Gas Interconnection Poland–Lithuania (GIPL)*, https://www.ambergrid.lt/en/projects/gas-interconnection-poland-lithuania-gipl

Exports

Lithuania has exported two energy resources – electricity and oil products. Both of them relied on imports from Russian Federation. As a result, Lithuanian exports were in fact closely linked with imports. This made them another potential issue when dealing with Russian Federation.

When Lithuania regained its independence, it found itself in a rather unique position among former Soviet Union states due to the possession of Ignalina NPP. This plant was built by Soviet Union to supply electricity to its entire northwest region. Because of this Lithuania had electricity generation capacity that exceeded domestic consumption. Soviet-era electricity infrastructure in Lithuania was also orientated toward export to other former soviet states. This allowed Lithuania to became an electricity exporting country after it regained its independence.

Yet, soviet-era technology also meant that Russian Federation was the only possible supplier of nuclear fuel[147]. Hence, Lithuania depended on Russian Federation for electricity generation capabilities. However, this did not stop Lithuania from operating the plant, EU did.

EU considered Ignalina NPP to be unsafe. Primarily because it was built using the same technology as was Chernobyl nuclear power plant. As a result, a condition was made that Lithuania needed to close Ignalina NPP if it joins the EU. Decommissioning process started the same year Lithuania became a member (2004). Electricity generation ceased in 2010 and with it so did electricity exports from Lithuania. The country became an electricity importer.

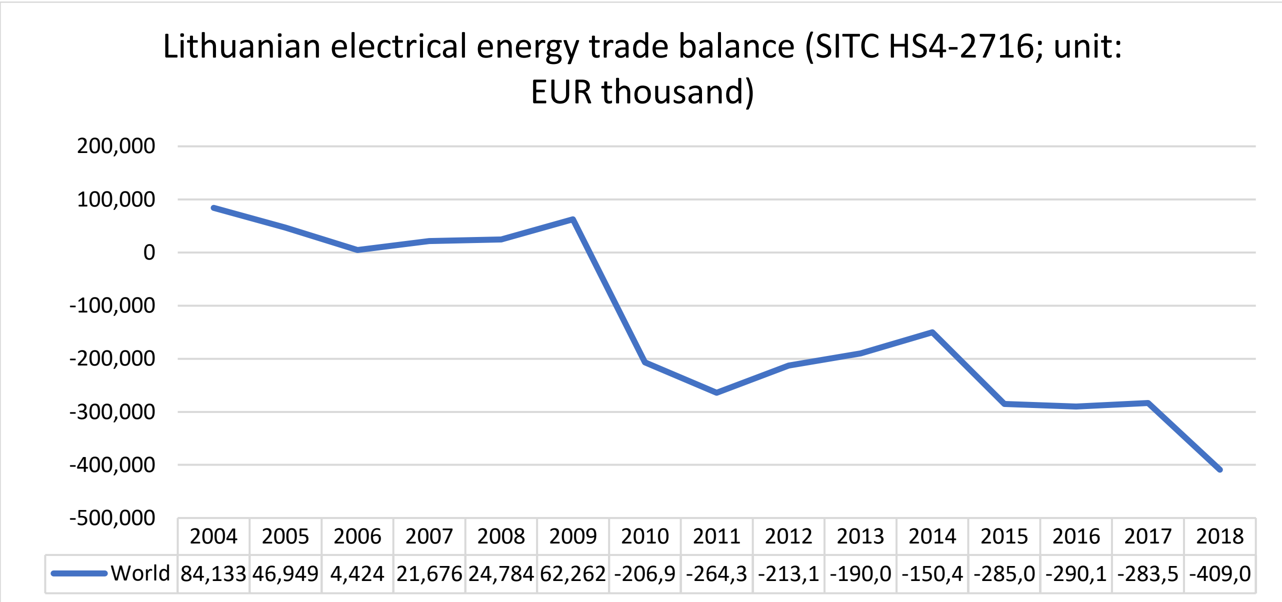


Figure 41, Lithuanian electrical energy trade balance (SITC HS4-2716; unit: EUR thousand), International Trade Centre data. Author visualization.

[147] Margarita M. Balmaceda, *Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure*, Publisher: University of Toronto Press, Scholarly Publishing Division. 2015

Oil products exports relied on Mazeikiu oil refinery, the only oil refinery in Lithuania. Yet, this time due to soviet-era infrastructure links, the only possible supplier of crude oil was Russian Federation. Since pipelines leading to Mazeikiu oil refinery were controlled by Russian Federation and Lithuania had no real domestic alternatives.

This situation changed in 1999 when Butinge marine oil terminal became operational. Events in the 1990s, when Lithuania was blackmailed using crude oil imports dependency, convinced Lithuanian political establishment of need for alternative supply option. The decision to construct Butinge marine oil terminal proved to be of paramount importance. Since in 2006 it became the only supply option after Russian Federation closed its pipeline, supposedly due to technical issues[148]. The pipeline was never re-opened and the closure from the very beginning was perceived to be political in nature[149]. Nevertheless, supply to Mazeikiu oil refinery continued via Butinge marine oil terminal.

The main reason for crude oil supply disturbances was the fact that companies tied with Russian Federation wanted to take over the ownership of the Mazeikiu oil refinery[150]. For Lithuania this was highly undesirable outcome and other investors were found[151]. This decision had political consequences as Russian Federation responded by cutting supply via its pipeline. Despite this, Mazeikiu oil refinery still mainly operated on crude oil imported from Russian Federation that was supplied via Butinge marine oil terminal. Situation only changed in 2014 when global price trends changed.

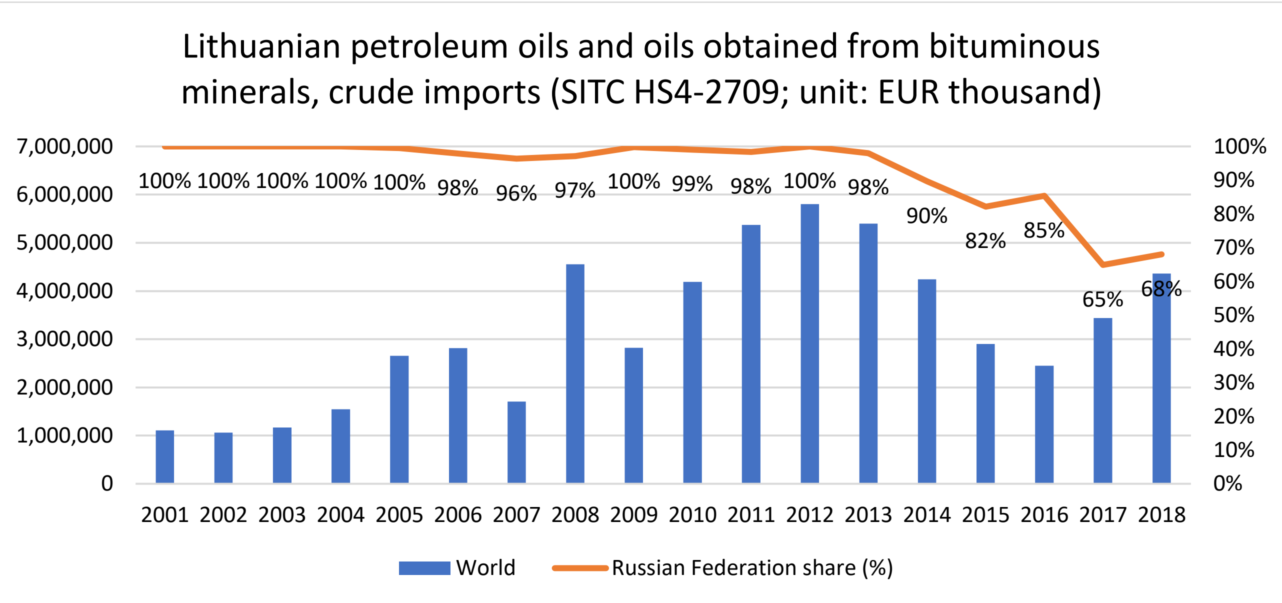


Figure 36, Lithuanian petroleum oils and oils obtained from bituminous minerals, crude imports (SITC HS4-2709; unit: EUR thousand), International Trade Centre data. Author calculations.

[148] Arūnas Andriuškevičius, *„Družba“ išdžiūvo dėl Kremliaus ambicijų*, Delfi, 2007.07.12 https://www.delfi.lt/verslas/verslas/druzba-isdziuvo-del-kremliaus-ambiciju.d?id=13766332
[149] Ibid.
[150] Ibid.
[151] Ibid.

Operation of Mazeikiu oil refinery was also an economically strategic issue for Lithuania. The refinery created substantial income for the country, especially in the early years after the country regained independence.

Unfortunately for Lithuania, with the rise of oil prices globally the economic viability of the refinery came under question. High prices had a negative effect on the refinery. In 2014 prospects of the refinery were already publicly questioned[152]. But due to the collapse of global oil price in 2014 the refinery became profitable again and since its economic viability did not come under question again[153].

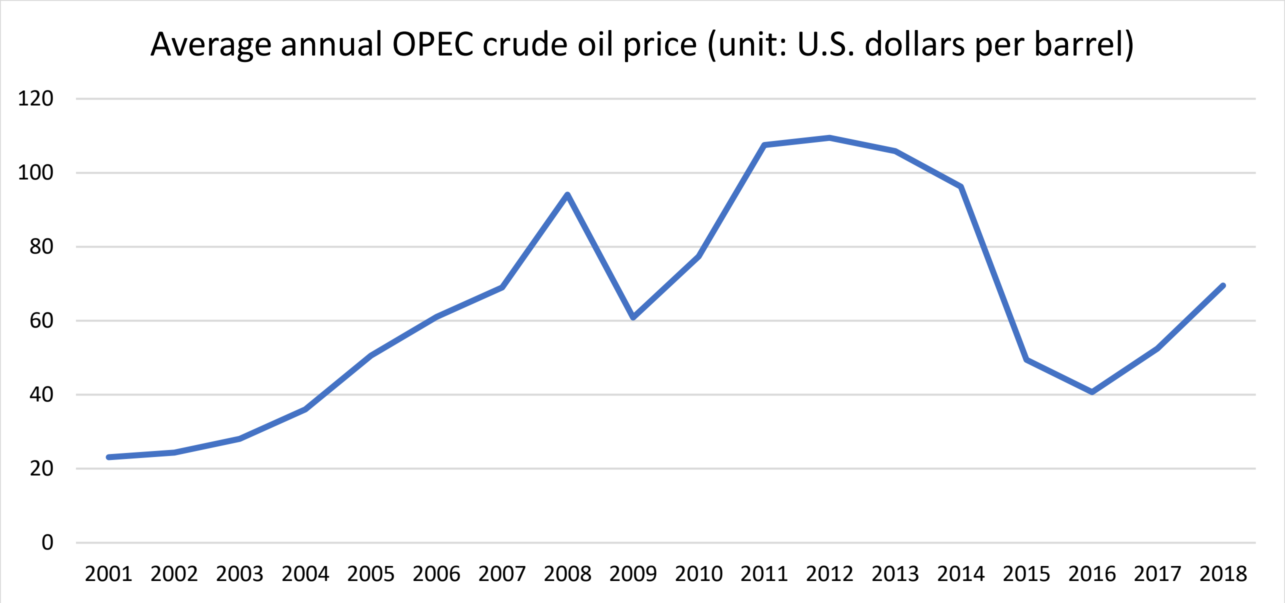


Figure 50, Average annual OPEC crude oil price (unit: U.S. dollars per barrel), Statista data. Authors visualization.

Overall, Lithuania's interdependence with Russian Federation based on energy resources exports was determined by energy resources imports from Russian Federation. Subsequently, due to closure of Ignalina NPP plant and oil price trends globally this interdependence transitioned from vulnerability into sensitivity. Coincidental timing also played a role in this transition as the global oil prices started collapsing in 2014.

[152] Stasys Gudavičius and Rima Aukštuolytė, *Premjeras buvo patikintas, kad lenkai neuždarys*, Verslo Zinios, 2014.07.23 https://www.vz.lt/archive/article/2014/7/23/premjeras-buvo-patikintas-kad-lenkai-neuzdarys-mazeikiu-gamyklos

[153] Verslo Zinios, *Lenkijos premjeras žada „Orlen“ plėtrą Lietuvoje*, 2019.04.05 https://www.vz.lt/verslo-aplinka/2019/04/05/lenkijos-premjeras-zada-orlen-pletra-lietuvoje

Transit

When Lithuania regained its independence in 1990 it became an energy transit country for Russian Federation to reach the Kaliningrad Oblast. The same soviet-era infrastructure that determined Lithuanian interdependence with Russian Federation also determined Kaliningrad Oblast interdependence with Lithuania. As a result, transit interdependence was a potential issue-linkage area for Lithuania.

For years gas supply to Kaliningrad Oblast was managed only via Minsk – Vilnius – Kaunas – Kaliningrad gas pipeline. This provided Lithuania with some safeguard against possible supply cut-off to it. However, Lithuania's actual ability to affect the gas flows to Kaliningrad Oblast for years was limited by the fact that Gazprom owned the infrastructure used for transit. This dynamic only changed with EU's Third Energy Package implementation (2011-2014).

Realizing upcoming changes already in 2013 Russian Federation announced its plans to make Kaliningrad Oblast independent from gas transit. It was announced that LNG FSRU unit will be built to create alternative supply route[154]. Marshal Vasilevsky Floating Storage and Regasification Unit (LNG FSRU) became operational in 2019 January. However, due to difference in LNG costs and state-regulated gas price the terminal is actually predicted to make losses[155]. Furthermore, gas transit via Minsk – Vilnius – Kaunas – Kaliningrad gas pipeline is comparatively much cheaper[156]. As a result, even after Vladimir Putin declared Kaliningrad Oblast energy independence[157] the gas flows via Minsk – Vilnius – Kaunas – Kaliningrad gas pipeline continues.

Electricity is also supplied from Lithuania to Kaliningrad Oblast. In past this was part of energy swap deal between Lithuania and Russian Federation[158]. In exchange for nuclear fuel, used by Ignalina NPP, Lithuania provided electricity to Kaliningrad Oblast. Yet, after electricity production ceased in Ignalina NPP in 2010 so did Lithuanian electricity exports to Kaliningrad Oblast.

Despite this, due to BRELL ring configuration, all electricity flowing to Kaliningrad Oblast from other destinations still needs to cross Lithuania. As a result, even after Lithuanian electricity exports ended the dependency did not disappear. However, the real concern in energy sector regarding

[154] The Moscow Times, *Putin Declares Exclave's Energy 'Independence' as He Turns on LNG Tap*, 2019.01.01 https://www.themoscowtimes.com/2019/01/08/putin-declares-exclaves-energy-independence-as-he-turns-on-lng-tap-a64069
[155] Warsaw Institute, *Kaliningrad LNG Terminal: Russia's Costly Show*, 2019.01.24 https://warsawinstitute.org/kaliningrad-lng-terminal-russias-costly-show/
[156] Ibid.
[157] The Moscow Times, *Putin Declares Exclave's Energy 'Independence' as He Turns on LNG Tap*, 2019.01.01 https://www.themoscowtimes.com/2019/01/08/putin-declares-exclaves-energy-independence-as-he-turns-on-lng-tap-a64069
[158] Ibid.

Kaliningrad Oblast for Russian Federation is Baltic countries synchronization with UTCE plan[159]. Due to which Kaliningrad Oblast will be cut off from BRELL ring. This in turn means that Kaliningrad Oblast will no longer be able to operate in the same electricity system as Russian Federation mainland. Since BRELL ring is a centralized system and operating outside of the *ring* is not possible. Nevertheless, preparations are already being made for Kaliningrad Oblast to be self-sufficient after Baltic countries synchronization with UTCE[160].

Overall, Lithuania's interdependence with Russian Federation based on energy resources transit constitutes a sensitivity as there are no dependencies for the country. Transit also provides Lithuania with viable options for issue-linkage. This is clearly understood by both sides and Russian Federation is actively working to counter this dependency.

Energy – sensitivity or vulnerability?

In this chapter Lithuania's energy sector interdependence with Russian Federation has been analysed to determine whether due to political fallout in 2014 it constitutes a vulnerability or sensitivity. To answer this question three sub-criteria for assessing the nature of energy sector have been explored – imports, exports and transit.

Analysis of imports sub-criteria showed that in this category Lithuanian interdependence transitioned from vulnerability into *sensitivity* during 2014-2015. This outcome was determined by few factors.

First, political leadership that took offices during 2008-2009 prioritized reforming energy sector and initiated key reforms. This was done by centre-right government, led by Andrius Kubilius, elected in 2008 and new president, Dalia Grybauskaite, elected in 2009.

Second, Lithuanian political leadership strategically used Lithuania's membership in EU to gain financial, legal and political support for reforms in energy sector. This was done by ensuring that Baltic countries energy sector reforms were carried out in EU framework, mainly under Baltic Energy Market Interconnection Plan. Some project, such as GIPL and Baltic synchronisation project with UTCL, were even recognized as Projects of Common Interest, key infrastructure projects in EU.

Membership in EU was also used to counter Russian Federation pressure. The most prominent example of this happened in 2011 when Lithuania issued a formal complaint against Gazprom to European Commission in 2011 January. This started a wider investigation into Gazprom activities

[159] Anca Gurzu, *Baltics threaten to unplug Russian region*, Politico, 2015.04.11 https://www.politico.eu/article/baltics-threaten-to-unplug-russian-region-power-kaliningrad-electricity-interconnectors-lithuania-poland-sweden/
[160] Jo Harper, *Kaliningrad gets Moscow energy boost as Baltic states pull plug*, DW, 2019.03.22 https://www.dw.com/en/kaliningrad-gets-moscow-energy-boost-as-baltic-states-pull-plug/a-47979106

across EU and in September 2012 EU's Directorate General of Competition initiated an anti-trust case against the company. Hence, Lithuania's complaint triggered the largest legal challenge in Gazprom history and put its activities under close supervision across EU.

Third, Lithuania implemented a number of strategic projects that were designed to reduce its dependency on single supplier – Russian Federation. Majority of which were initiated during 2008-2012 period. As a result, by the time war in Ukraine stated some of the key projects - Klaipeda LNG FSRU, NordBalt, LitPol link – were already in the last stages of implementation. With their operational start in 2014-2015 Lithuania ended its dependency on Russian Federation in gas and electricity sectors. This in turn also had a positive effect on gas and electricity prices.

Further projects, such as GIPL and Baltic synchronisation project with UTCL, were still needed to fully integrate Baltic countries to EU energy network, but not to address overreliance on Russian Federation.

Fourth, in 2009 EU's Third Energy Package entered in force and created regulations under which monopolies in electricity and gas sectors were to be dismantled across EU. This allowed Lithuania to bypass opposition from domestic groups and Russian Federation. Lithuanian became the first country to choose the most radical option out of three offered by EU's Third Energy Package - separate the supply company from the control of delivery and distribution infrastructure. This ended Russian Federation, direct and indirect, gas infrastructure control monopoly in Lithuania. Full implementation of EU's Third Energy Package was finished in 2014.

Therefore, due to energy sector reforms that were initiated prior to political fallout Lithuania was already in the last stages of addressing its dependency on Russian Federation in energy imports when the war in Ukraine started. This in turn also means that coincidental timing played an important role.

Analysis of export sub-criteria showed that in this category Lithuanian interdependence cost effect dimension also transitioned from vulnerability into *sensitivity*. In spite of the fact that Lithuanian energy sector exports were dependent on energy resources imports from Russian Federation. This outcome was mainly determined by decommissioning of Ignalina NPP and global changes in oil price.

Soviet Union constructed Ignalina NPP to provide electricity to its entire northwest region. Because of this after Lithuania regained its independence it had electricity generation capacity that exceeded domestic consumption. Yet, due to soviet-era technology used in the plant there was also only one possible supplier for nuclear fuel - Russian Federation. This in turn meant that Lithuania's electricity generation capabilities were based on nuclear fuel imports from Russian Federation.

Closure of Ignalina NPP was one of the conditions for Lithuania to join EU. In 2004 Lithuania gained membership and the decommissioning process began. Electricity generation in Ignalina NPP ceased in 2010 and with it so did electricity exports from Lithuania. This also ended Lithuania's dependency on nuclear fuel import from Russian Federation.

After Lithuania regained its independence it also inherited Mazeikiu oil refinery. Yet, this time due to infrastructure links, it also had only one possible supplier of crude oil – Russian Federation. As there was only oil pipeline leading to the refinery. After political blackmail linked with crude oil imports in the 90's Lithuania decided to construct alternative supply route. Subsequently Butinge marine oil terminal was built in 1999.

In 2006 Russian Federation permanently ceased supply of crude oil via the pipeline it controlled. Hence, Butinge marine oil terminal became the only supply option. Despite this, up until 2014 Mazeikiu oil refinery operated almost exclusively on crude oil imported from Russian Federation. Later, due to changes in global oil market, import sources diversified.

Although the biggest challenge for Mazeikiu oil refinery came from global oil prices. High oil prices had a negative affected on the refinery and by 2014 its future prospects were already in question. Then, in 2014, global oil prices started collapsing and Mazeikiu oil refinery became profitable again. Its future prospect did not come under question since.

Therefore, due to closure of Ignalina NPP plant and collapse of oil prices in 2014 Lithuanian energy sector exports were not in a vulnerable position over imports from Russian Federation. Consequently, Lithuania did not need to address this.

Analysis of transit sub-criteria showed that in this category Lithuanian interdependence was never a vulnerability to begin with. The same soviet-era infrastructure that bound Lithuania to Russian Federation also bound Kaliningrad Oblast to Lithuania. Subsequently, this creates leverage that Lithuania can use for issue linkage. However, various projects have substantially reduced Kaliningrad Oblast dependency on Lithuania for energy resources transit. But even with this reduction potential for issue linkage remains.

Overall, Lithuania's interdependence with Russian Federation in energy sector constitutes a *sensitivity*. Reforms, global trends and coincidental timing meant that by the time war in Ukraine started Lithuanian interdependence with Russian Federation in energy sector transitioned from vulnerability into sensitivity. Therefore, energy sector also presents a case of how reforms and *luck* (*coincidental timing between political fallout and operational start of strategic energy sector project; collapse in oil price globally*) can have a crucial effect on countries interdependence.

Lithuanian interdependence with Russian Federation

In accordance to the conceptual framework (*Figure 1)* used in this work four sectors and ten sub-criteria of Lithuanian interdependence with Russian Federation have been examined. Each of them was ascribed an interdependence cost dimension of either *sensitivity* or *vulnerability*. This allows to formulate an overall view of Lithuania's interdependence with Russian Federation and examine how the overall dynamic changed.

The analysis conducted in this work established that Lithuania's interdependence with Russian Federation in 2013 was as follows:

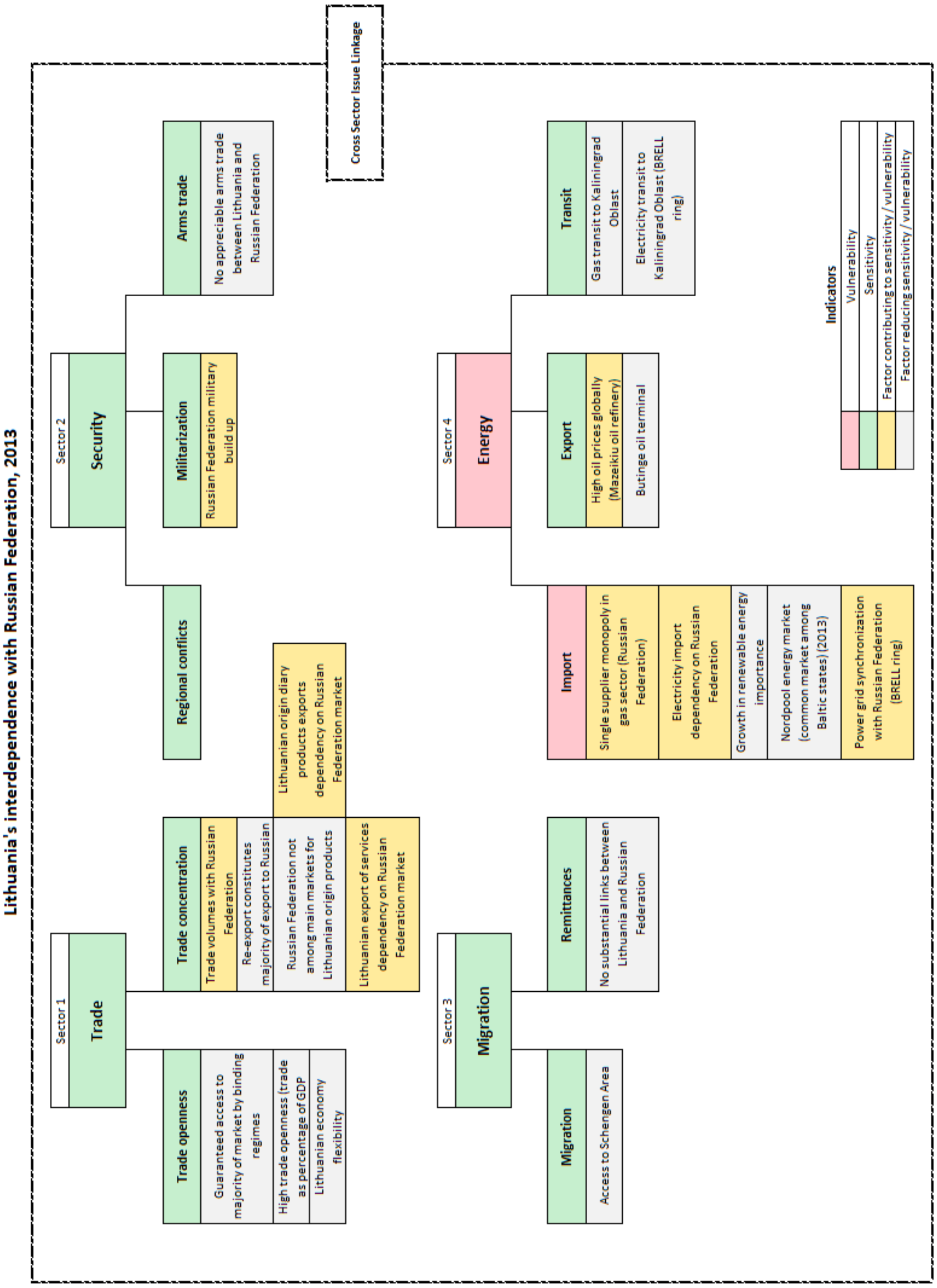


Figure 50, Lithuania's interdependence with Russian Federation, 2013. Authors visualization.

The analysis conducted in this work also establishes that current Lithuania's interdependence with Russian Federation is as follows:

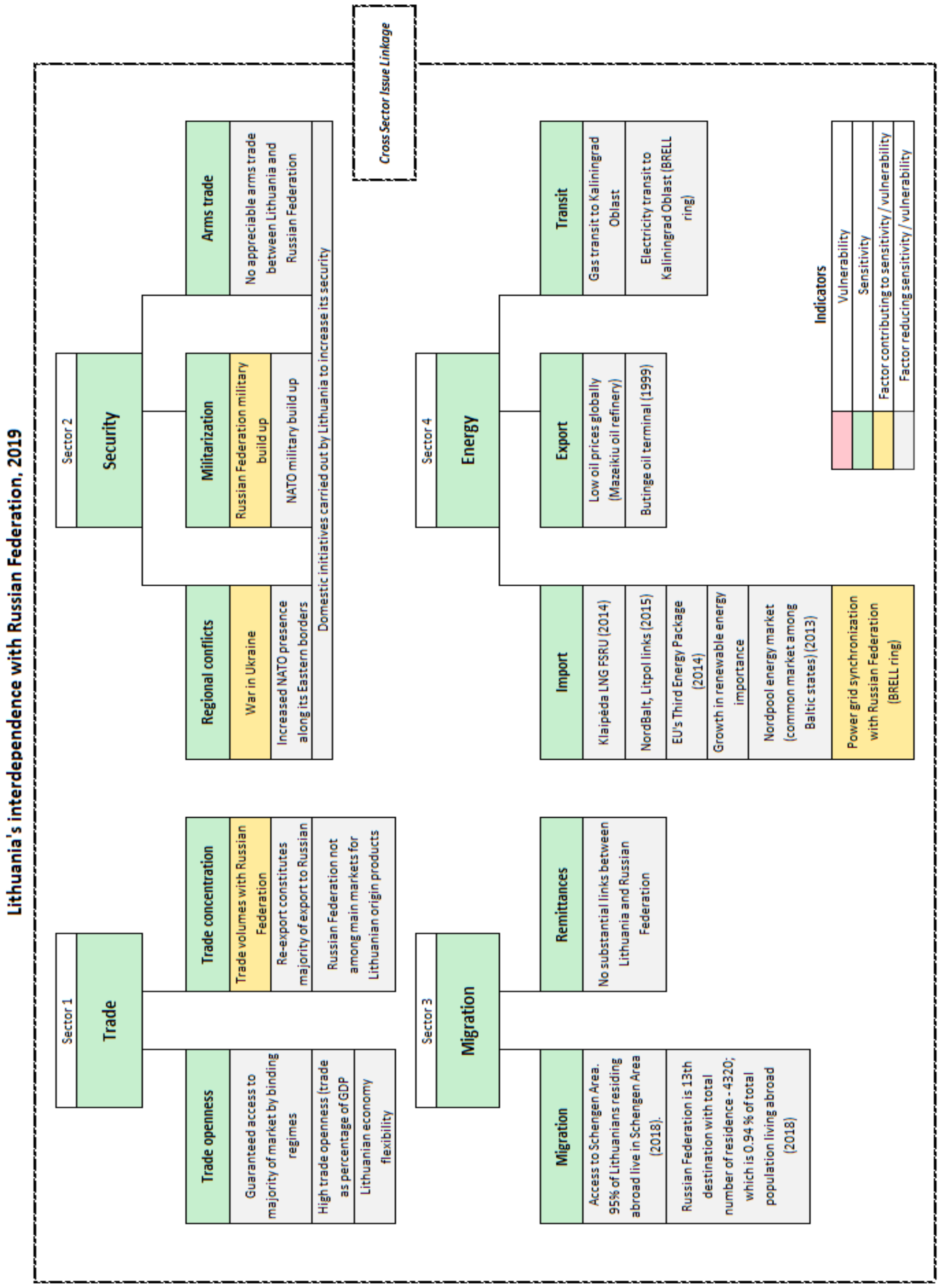


Figure 51, Lithuania's interdependence with Russian Federation, 2019. Authors visualization

From this a number of important observations can be established:

1. Prior to start of war in Ukraine Lithuanian interdependence with Russian Federation constituted a vulnerability in only one sector – energy. Three other sectors – trade, security and migration – constituted a sensitivity.
2. Lithuanian interdependence with Russian Federation prior to war in Ukraine had factors contributing to sensitivity or vulnerability in three sectors – trade, security and energy. Only migration sector had no noticeable factors that would contribute to sensitivity or vulnerability.

3. At the time when war in Ukraine started Russian Federation was able to use issue linkage between sectors against Lithuania. This was determined by the fact that energy sector vulnerability could be linked with other sectors. Additionally, a number of sensitivities could be exploited to generate leverage from individual factors, as was demonstrated per economic sanctions that Russian Federation introduced.
4. Coincidental timing and global trends played an important role for Lithuania's interdependence with Russian Federation. Since reforms that prevented exploitation of energy sector vulnerability during political fallout were started years before. On the other hand, collapse in oil prices globally during 2014-2015 removed contributing factor to sensitivity in exports. Therefore, in some sense Lithuania was simply *lucky* with timing between the political fallout and reforms/global trends.
5. In 2015 December Lithuanian interdependence with Russian Federation in energy sector transitioned from vulnerability into sensitivity.
6. Vulnerability in energy sector was removed by Lithuanian government intervention. This can be contributed to the fact that reliance on single supplier, Russian Federation, was not determined and maintained by market forces. Therefore, addressing this required intervention by the state.
7. Sanction introduced by Russian Federation, despite negative effects, removed factors contributing to sensitivity in trade sector. In this context it also worth noting that sanctions had a smaller effect than initially predicted and minimal impact overall.
8. Only four noticeable factors that contribute to sensitivity or vulnerability remain as of 2019 May. One of them, synchronization with BRELL ring, is planned to be removed by 2025. The three remaining factors cannot be removed by domestic initiatives alone and consequently are likely to persist into foreseeable future.
9. Analysis also revealed that membership in international organizations, particularly EU and NATO, is an important factor for all four sectors interdependence dynamic. Two sectors – migration and security – interdependence dynamic is defined by membership in international organizations.

It also needs to be noted that out of four sectors examined here only in three interdependence development timelines can be clearly established – security, migration and energy. Trade sector interdependence timeline, beyond membership in EU, remains unclear as changes in trade structure were gradual. Subsequently, this explains why it was not clear in advance what effects Russian Federation sanctions, and in wider sense the political fallout itself, will have on trade. Nevertheless, limited negative effects suggest that either by the time war in Ukraine started there was no dependence or that Lithuanian economy flexibility made the impact negligible. In this work a combination of both, in different trade fields – re-export and exports of services, are noted as important contributing factor. Despite this, their precise input remains unclear and requires further assessment.

Collectively the analysis leads to the following conclusions: *by the end of 2015 Lithuania's interdependence with Russian Federation for the first time since it regained independence constituted a sensitivity.*

This conclusion also reveals that under current interdependence configuration Russian Federation's ability to use issue-linkage against Lithuania has significantly diminished. This observation is based on the fact that leverage generated from vulnerability exceed that of sensitivity. Subsequently, with the removal of energy sector vulnerability the entire issue-linkage potential has downgraded.

These findings are consistent with a number of observations made by Robert Keohane and Joseph Nye. First, that interdependence is maintained, *and subsequently is changed,* by policy. Therefore, this work reiterates the importance of state role in interdependence development and shows that certain dependencies require government intervention to be resolved. Second, that international regimes can significantly affect interdependence dynamic. Third, that states experiencing asymmetrical interdependence, in particular small states, will use membership in international organizations to gain leverage.

This work also contributes to the field that is examining interdependencies between Russian Federation and post-soviet states. Lithuania's example proves that it is possible to change interdependence with Russian Federation from vulnerability into sensitivity. However, this example also highlights the importance of membership in EU and NATO during this process.

Further research on Lithuania's interdependence with Russian Federation should focus on developments in trade. Since compared to other sectors it remains unclear what factors need to be followed in order to understand trade interdependence developments for the future. Additionally, better understanding of these factors could help to establish a clear timeline of interdependence development in trade sector.

These findings also suggest interesting academic insight into future works examining sectors outlined here. The removal of vulnerabilities and reduction in sensitivities means that these sectors will increasingly be de-linked from developments in other fields. Therefore, if the current interdependence configuration persists future academic works examining sectors outlined here are likely to became increasingly sector specific. As a result, in some sectors, or parts of them, Russian Federation relevance is likely to become obsolete. Migration sector already offers such example.

Collectively, the work done in this paper brings better understanding of what constitutes Lithuania's interdependence with Russian Federation and contributes to understanding how interdependencies are constructed, maintained and developed.

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