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Baltic Journal of Economics

Provided in Cooperation with:

Baltic International Centre for Economic Policy Studies (BICEPS), Riga

Suggested Citation: Oja, Kaspar (2015) : No milk for the bear: the impact on the Baltic states of Russia's counter-sanctions, Baltic Journal of Economics, ISSN 2334-4385, Taylor & Francis, London, Vol. 15, Iss. 1, pp. 38-49,
<https://doi.org/10.1080/1406099X.2015.1072385>

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<https://hdl.handle.net/10419/180081>

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To cite this article: Kaspar Oja (2015) No milk for the bear: the impact on the Baltic states of Russia's counter-sanctions, *Baltic Journal of Economics*, 15:1, 38-49, DOI: [10.1080/1406099X.2015.1072385](https://doi.org/10.1080/1406099X.2015.1072385)

To link to this article: <https://doi.org/10.1080/1406099X.2015.1072385>



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No milk for the bear: the impact on the Baltic states of Russia's counter-sanctions

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(Received 9 July 2015; accepted 10 July 2015)

The Russian government banned in August 2014 imports of different food and agricultural products from the European Union as a countermeasure to sanctions introduced by the EU and several other countries after Russia's actions in Ukraine and the annexation of Crimea. This paper assesses the effect of Russia's counter-sanctions on the economies of the Baltic states using different statistics sources and an international input–output model, while taking into account possible data problems in international trade data due to re-exports. The amount of trade affected by Russia's counter-sanctions varies across the Baltic states. In 2013, the exports of goods affected amounted to 2.6% of GDP in Lithuania, 0.4% of GDP in Estonia, and 0.3% of GDP in Latvia, but re-exports are included in these numbers. The overall impact of the sanctions on GDP once intra-EU supply chains are taken into account is below 0.5% of GDP in all the Baltic states.

Keywords: EU; Russia; sanctions; international trade; economic impact

Subject classification codes: F47; F51; L66; Q17

1. Introduction

Since the beginning of the Russia–Ukraine crisis and the Russian annexation of Crimea, several countries have introduced economic sanctions against Russian firms and individuals. On 6 August 2014, Russian President Vladimir Putin signed Decree no. 560 to announce economic counter-sanctions against the EU, Australia, the USA, Norway, and Canada. These sanctions involved an embargo on several agricultural and food products, including meat, dairy products, fruit, and vegetables. The list of products affected by the sanctions and other details of the sanctions were made public by the Russian government on 7 August 2014 (Russian Government, 2014). The sanctions came into force at the time they were made public and were planned to remain in place for one year. Any extension of the sanctions will depend on the political decisions of the Russian government, and the expected duration of the sanctions remains uncertain.

The Baltic states are among the countries in the EU with the largest export to Russia relative to their GDP. This is due to their geographical location and the presence of transport infrastructure integrated with the Russian railway system. Despite their large exports, the Baltic states could be less exposed to Russia's economic problems and vulnerabilities by trade linkages than is often believed. The large exports to Russia can partly be attributed to re-exports, and the actual links between the Baltic economies and Russia are therefore more limited than the trade statistics suggest.

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The announcement of Russia's counter-sanctions on countries that had imposed sanctions on Russia because of its involvement in the Ukraine crisis and the annexation of Crimea raised the question of whether and on what scale the sanctions would affect the Baltic economies. It could be tempting to associate all adverse developments that have happened in Estonia, Latvia, and Lithuania since the sanctions were introduced to the sanctions themselves, ignoring several other possible unfavourable developments like overall geopolitical tensions, the depreciation of the rouble, a general decline in Russian imports, the lifting of EU milk production quotas, and even the presence of macro-imbalances.

Earlier analyses have shown that the share of goods affected by the sanctions is modest, accounting for less than 0.5% of GDP in most EU countries, but the Baltic states are among those most affected (see Bond, Odendahl, & Rankin, 2015; EBRD, 2014; Josing, Hein, Nittim, & Viileberg, 2014; Kraatz, 2014; Latvijas Banka, 2014; Sovala, 2014). Despite the overall high contents of import in exports to Russia, the import intensity in food and agricultural products can be presumed to be lower than the average as these products are produced by primary producers themselves, and the intermediates used in the production are often bought from the local primary sector because of their short storage life. The relatively high value-added content of food and agricultural products compared to other exports from Estonia has been shown by Kaasik (2003) and Musting (2009), and so the impact of the counter-sanctions on the Baltic states could be significant. However, quarter-on-quarter GDP growth in all the Baltic states exceeded the average growth in the EU in the third and fourth quarters of 2014 (Eurostat, 2015b), indicating that despite the sanctions, the economic situation has been quite good in these countries in the quarters since the announcement of Russia's counter-sanctions.

Although the exposure of exports to counter-sanctions has been described by the earlier analysis discussed above, the general economic impact of counter-sanctions and possible effects on GDP have not been quantified. The value-added content of exports varies across countries and industries, so the link between exports and GDP might not be straightforward. Furthermore, the favourable geographical location of the three countries means that the trade volumes from the Baltic states to Russia are inflated by re-exports, meaning that part of exports from Estonia, Latvia, and Lithuania to Russia has very weak ties to the Baltic economies. In addition to the direct effects from the deterioration of exports to Russia, countries might suffer from second-round effects stemming from international trade linkages. This paper aims to fill the gap in the literature by estimating the impact of Russia's counter-sanctions on the Baltic states, taking account of the role of re-exports to Russia and intra-EU trade linkages in the Baltic states. Russian imports from Europe are used as a proxy for exports to Russia to avoid the problem of re-exports. Intra-EU trade linkages are modelled in an input-output framework taking advantage of the OECD-WTO TiVA (Trade in Value-Added) joint project, which has produced a cross-country breakdown of the value added of exports.

2. Limited vulnerability through trade

Estonia, Latvia, and Lithuania may be considered to be quite vulnerable to Russia's economic problems due to their large exports to Russia. Exports to Russia have exceeded 10% of GDP in Lithuania since 2010 while exports from Latvia and Estonia to Russia have been somewhat lower, but still higher than those from most other EU countries. Trade links with Russia have often been described as a source of risk or an opportunity for output growth by international institutions (see, e.g. European Commission, 2013). In the first quarter of 2015, exports of goods to Russia from Estonia were half of what they were in the first quarter of 2014. The decline was at 34% for Lithuania and 25% for Latvia. The decline was broad-based across different product categories and thus can only partly be explained by the sanctions. At the same time, the annual GDP

growth rate slowed in all the Baltic states, but although GDP decreased in Estonia and Lithuania from the fourth quarter of 2014, the 0.3% decline in Estonia and the 0.6% decline in Lithuania can hardly be considered as severe given the past volatility of the Baltic economies. It also demonstrates that despite the large share of total exports that Russia takes, the steep reduction in exports to Russia has had a very limited impact on GDP.

Although trade volumes to Russia are relatively large, analysing the bilateral trade reveals that the value-added contents of the trade might be relatively small, and this means that the economic impact of changes in exports to Russia may be modest. A comparison between the direct data (exports from the Baltic states to Russia) and the mirror data (Russia's imports from the Baltic states) reveals significant discrepancies. The difference between the exports of a country and the imports of the corresponding trading partner can be explained by three main factors. First, exports are denominated in FOB¹ prices and imports in CIF² prices. Earlier research has shown that about 10% of the difference between exports by one country and imports by another can be attributed to the differences between CIF and FOB prices (Makhoul & Otterstrom, 1998). Second, the discrepancy might be due to the misreporting of data and other errors. Third, re-exports can also be a source of discrepancy (Simola, 2012). Re-exports consist of products that are not produced in the reporting country, but are imported from other countries. That kind of trade should ideally be defined as transit and not be included in international trade data at all. However, due to methodological and data collection issues it is not always easy to tell the difference between exports and transit, and this can easily lead to the exports of countries on international trade routes being overestimated.

The problem with re-exports can be mitigated by the use of bilateral trade data. Countries report their imports by country of origin and their exports by destination. Consequently, the mirror data of exports, or the data of imports of trading partners, should provide a good proxy for identifying the exports of products produced in the reporting country and thus exclude the re-exports from the Baltic states to Russia. In other words Estonia, Latvia, and Lithuania report all exports destined to Russia as exports to Russia, but Russia counts only goods that were produced in the Baltic states as imports from these countries, thus excluding the re-exports of the Baltic states. Mirror data show that exports from the Baltic states to Russia are significantly lower than the direct export data would suggest (see [Figure 1](#)). Describing the vulnerability of a country to the Russian economy by Russia's imports from the country rather than the country's exports to Russia leads to the conclusion that the vulnerability of the Baltic states through direct trade links to Russia is similar to the vulnerability of other Central and Eastern European countries, although still higher than that of Western European countries.

Since the share of value added of re-exports is lower than that of locally produced goods, most of the exports to Russia by the Baltic states have had only a limited economic impact on these countries. Russia's imports of goods from Estonia, Latvia, and Lithuania are less than 4% of the GDP of those countries. A similar conclusion is reached by considering Estonia's data on exports by country of origin. The share of locally produced goods among exports to Russia has been relatively small in Estonia (Eesti Pank, 2014, pp. 25–27).

Enterprise statistics on exports from the EU to Russia by sector also express the importance of re-exports. In most EU countries, the industrial sector has the largest share in exports to Russia, but in Estonia, Latvia, and Lithuania the export turnover to Russia is generated by other firms, with retail and wholesale trade companies seeming to play an important role (see [Figure 2](#)). Comparing this data to Russian data on imports from the EU reveals that the value of exports to Russia by industrial firms is about the same magnitude as imports by Russia.

In addition to direct trade links, possible spillovers from other countries should also be examined as all three Baltic states have quite open economies and tend to trade with countries that have

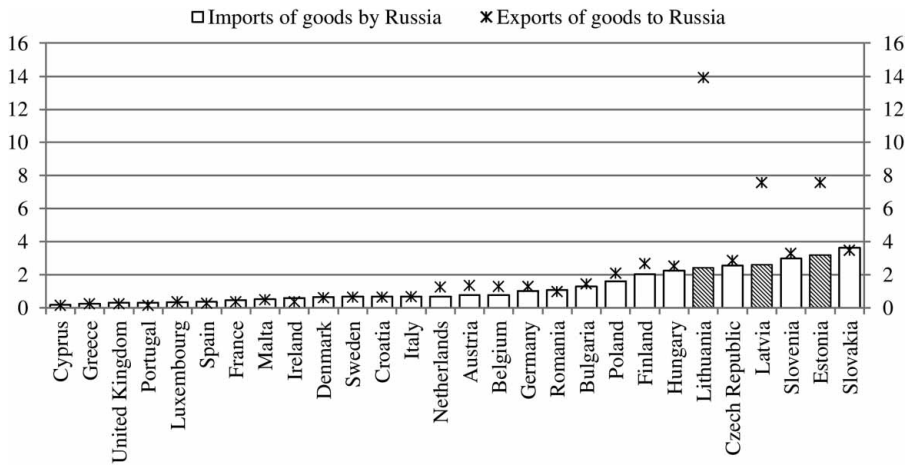


Figure 1. Exports to Russia and imports by Russia, % of GDP, 2013.
 Note: GDP data are based on the ESA2010 data (Eurostat, 2015a) for all countries except Poland, for which it was not available and where ESA95 (Eurostat, 2014) had to be used instead.
 Source: Eurostat (2014, 2015a, 2015c). Federal Customs Service (2015).

intensive trade links with Russia. These links can be an important source of vulnerability for the Baltic economies as economic problems in Russia would not strike by direct trade channels only, as intra-European trade could propagate the shock indirectly. Figure 3 shows a measure of indirect exposure to Russia through European trade links calculated by the author. The term $v_{i,RU}$ represents the indirect openness of country i to Russia through intra-EU trade linkages and it is computed as follows:

$$v_{i,RU} = \sum_{k=1}^{28} \frac{x_{i,k}}{Y_i} \times \frac{x_{k,RU}}{Y_k}. \tag{1}$$

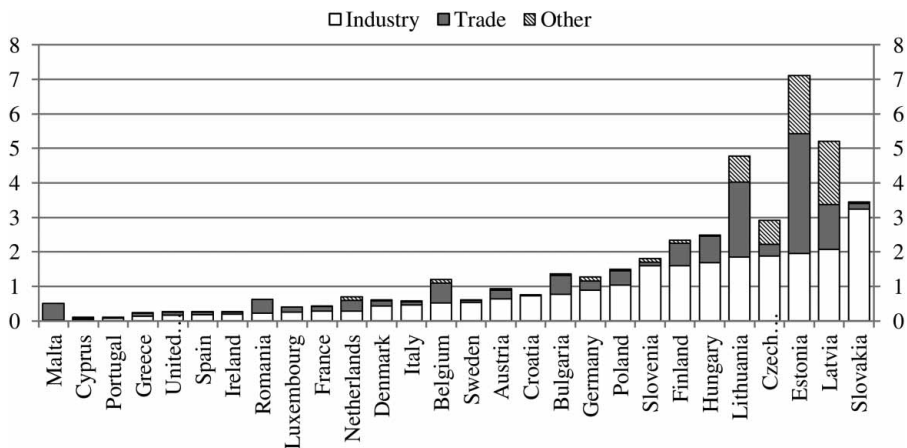


Figure 2. Exports to Russia, % of GDP, 2012, enterprise statistics.
 Source: Eurostat (2014, 2015a, 2015d).

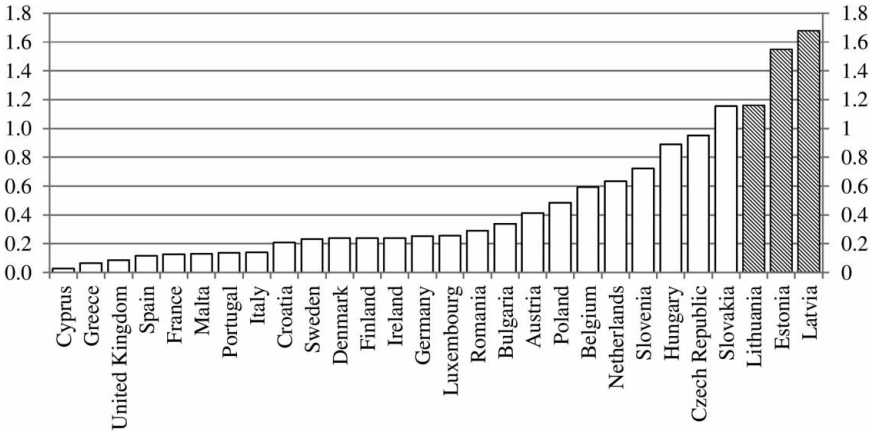


Figure 3. Measure of indirect openness to Russia through intra-EU trade, % of GDP, 2013. Source: Eurostat (2014, 2015a, 2015c), author’s calculations.

The term $x_{i,k}/Y_i$ represents exports from country i to country k as a ratio to the GDP of country i . This is the direct exposure of country i to shocks from country k through the trade channel. Similarly, $x_{k,RU}/Y_k$ indicates the direct exposure of country i to shocks originating from the Russian economy through the trade channel. The term $v_{i,RU}$ is simply a weighted exposure to the second-round effects of shocks in the Russian economy. Figure 3 reveals that Latvia, Estonia, and Lithuania are among the top European countries trade partners of Russia, and the indirect exposure to Russia is therefore much higher in the Baltic states than it is in most other EU countries. Even so, the indirect exposure to shocks originating from Russia is only 1–2% of GDP.

3. The Russian counter-sanctions: How much of the exports were affected?

The Russian President signed the counter-sanctions into law on 6 August 2014 (The Russian Government, 2014). The law prohibited imports of a list of goods from countries which had imposed sanctions on Russia because of Russian involvement in the Russia–Ukraine crisis and the annexation of Crimea by the Russian Federation. The list of goods under embargo consisted of various agricultural and food products, including meat, milk and dairy products, fruits, and vegetables.

Figure 4 shows the volume of exports of goods under embargo in per cent of GDP. The left panel uses export data from 2013 from Eurostat. In 2013, the volume of exports affected by the sanctions imposed by Russia was 2.6% of GDP in Lithuania, 0.4% of GDP in Estonia, and 0.3% of GDP in Latvia. Relative to their GDP, exports of goods under embargo were the highest in the Baltic states, which were followed by Poland, Denmark, and Finland. Dairy products were the largest group of goods affected by the sanctions in Estonia and Latvia, while fruit and vegetables were affected most in Lithuania.

The right panel in Figure 4 shows Russia’s imports from the EU of the goods affected by sanctions in per cent of the GDP of these countries. According to Russian customs data, the value of Lithuanian products affected by sanctions was much lower than was shown by the data from Eurostat. For other countries the data on Russia’s imports seem to match the data on exports to Russia better. The discrepancy between the two data sources shows that re-exports play an important role in this trade. The high share of re-exports means that many of the goods exported to Russia are in fact imported from other countries, and a downturn in such exports would have only a negligible effect on the economy as the value-added content of re-exports is presumably low.

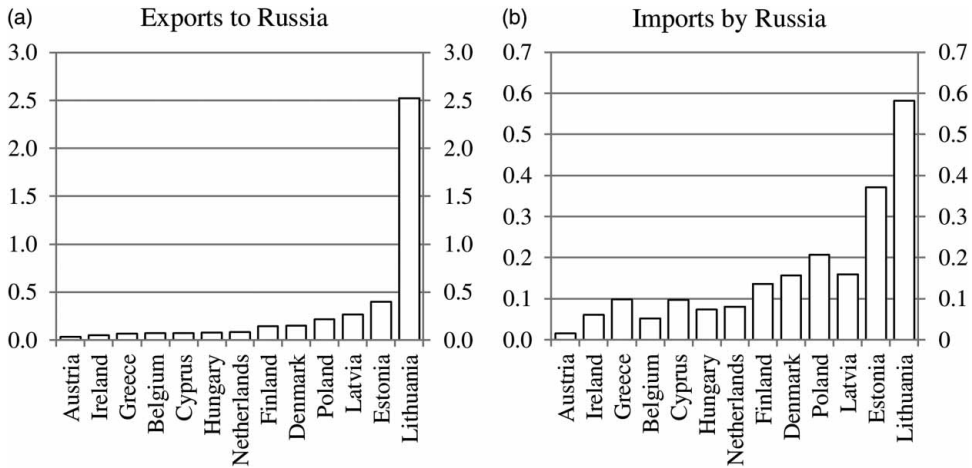


Figure 4. Trade in the goods affected by Russia’s counter-sanctions, % of GDP, 2013. Source: Eurostat (2014, 2015a, 2015c), Federal Customs Service (2015).

The importance of re-exports in Lithuania’s food exports to Russia can also be illustrated by the high correlation between Lithuania’s imports and exports of some specific goods. The main difference between the export volumes from Lithuania to Russia and the import volumes of Russia stem from the trade in fruit and vegetables, as according to the data Lithuania exported a lot more fruit and vegetables to Russia than Russia imported from Lithuania. This discrepancy is attributed to re-exports. As is shown in Figure 5, the dynamics and value of Lithuania’s imports of fruit and vegetables almost match those of exports. In fact, the correlation between the month-on-month growth rates of Lithuania’s imports and exports of fruit and vegetables for the period starting from the beginning of 2010 and ending when Russia imposed its counter-sanctions was 0.91. This implies that the export volume of Lithuania’s food and agricultural products to Russia exaggerates the effect of the counter-sanctions on Lithuania’s producers and the data on Russia’s imports provide a better proxy.



Figure 5. Lithuania’s exports and import of fruit and vegetables, million EUR. . Source: Eurostat (2015c).

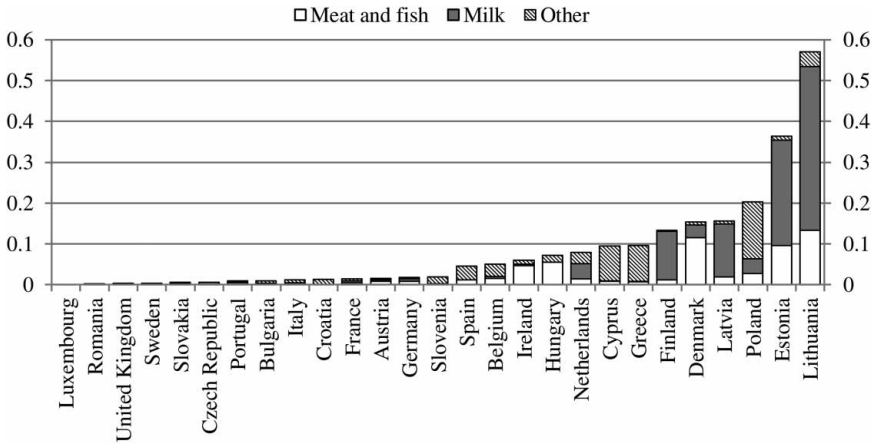


Figure 6. Russia’s imports of goods affected by counter-sanctions, % of GDP, 2013. Source: Eurostat (2014, 2015a), Federal Customs Service (2015), author’s calculations.

Figure 6 reveals that most of Russia’s imports from the Baltic states of goods affected by sanctions consisted of milk and dairy products. Imports of meat and fish products from Estonia and Lithuania are around 0.1% of the GDP of these countries. The trade in goods affected by sanctions is small relative to GDP, and the overall effect of sanctions on exports is modest in the Baltic states, but most of the impact is concentrated in the dairy sector. The contribution of ‘other’ reflects trade in fruit and vegetables, which has played an important role in Poland, Greece, and Cyprus.

4. Impact on GDP

While the volume of trade in goods affected by sanctions is small relative to GDP, the effect of sanctions on GDP may be even smaller, as only part of the value added incorporated in the exports of goods from the Baltic states to Russia is created in the Baltic states. The rest of the value of the exports consists of imported intermediate consumption, which affects GDP in other countries and can be described as an indirect effect of the counter-sanctions. In order to catch such features of cross-border supply chains, the trade links between countries must be modelled.

I use the OECD–WTO TiVA data to estimate the impact of sanctions on value added in the EU. TiVA is a joint project of the OECD and the WTO, which has created international input–output tables to access the creation of value added in cross-national supply chains. It includes all the EU countries except Croatia and the latest estimates are based on input–output tables from 2009.

TiVA covers 18 industries, including agriculture and food processing. The data on exports use the combined nomenclature (CN) as the Russian law described groups of goods affected by sanctions by CN. In order to use the TiVA data, the data on exports have to be transformed into a classification of products by activity. I use the correspondence table of eight-digit CN and CPA-2008 (Classification of Products by Activity)³ to transform the exports data. The data on Russia’s imports cannot be transformed in the same way as a large share of goods appears to be defined at the four-digit level only. To overcome this problem, it is assumed that goods imported by Russia in four-digit categories of goods are produced by the same industries as the corresponding exports of goods to Russia.

To estimate the change in the value added related to the Russian counter-sanctions, I use the data on the shares of value added embodied in exports by source country. The calculation can be described by Equation (2):

$$\Delta Y_c^{\text{total}} = \sum_{p=1}^2 \sum_{i=1}^{27} x_{p,i} v_{p,i,c}. \quad (2)$$

The variable $\Delta Y_c^{\text{total}}$ is the change in the value added of country c due to the sanctions; $x_{p,i}$ is the exports of goods affected by the sanctions by industry p of country i and $v_{p,i,c}$ is the share of value added created in country c to export one unit of products of industry p from country i . The first sum is over producers; p can be 1 or 2 as there are two sectors, agriculture and food processing, that are directly affected by the sanctions. The second sum is over the EU countries; i has the values from 1 to 27 as Croatia was not included in TiVA.

The change in value added can be further decomposed into the direct and indirect effects of sanctions. The direct effect can be calculated by replacing the second sum in Equation (2):

$$\Delta Y_c^{\text{direct}} = \sum_{p=1}^2 x_{p,i} v_{p,c,c}. \quad (3)$$

The term $v_{p,c,c}$ is the share of value added created in country c to export one unit of products of industry p from country c . The indirect effect is simply the difference between the total and direct effects:

$$\Delta Y_c^{\text{indirect}} = \Delta Y_c^{\text{total}} - \Delta Y_c^{\text{direct}}. \quad (4)$$

The calculations draw on the data on exports of goods to Russia (the direct data) and the data on imports of goods by Russia (the mirror data). The results using the mirror data are taken to be the primary estimate as these are expected to be free of the bias caused by re-exports. The direct data on exports are heavily influenced by re-exports as has been shown in earlier parts of the paper, thus the estimates based on the direct data would be biased and would overestimate the impact on GDP. The results in Figure 7 are shown as a ratio to the GDP of 2013, which is used as a reference period because it is the last full year before the counter-sanctions were imposed in 2014. The results for the total impact and the decomposition of changes in value added are based on the mirror data of exports (the data on Russia's imports), while the result based on the Eurostat data on exports is presented as a robustness check.

The impact of sanctions on value added is the highest in Lithuania, where the effect on value added is calculated to be 0.4–0.5% of GDP. Across the EU countries, Estonia sees the second largest effect from counter-sanctions, as the counter-sanctions may lower GDP by 0.2–0.3%. The country third most affected by sanctions relative to the size of the economy is Poland. It can be seen in summary that the impact of sanctions is concentrated in countries around the Baltic Sea, as Latvia, Denmark, and Finland are also among the countries most affected.

For most countries the result estimated from direct exports data is broadly similar to the result obtained using the mirror data and the difference between the two estimates tends to be higher in countries which are geographically closer to Russia and where the effect of sanctions is more prominent. This result is expected as re-exports should play an important role in countries close to Russia, and geographical location could also play a role in the trade in food products. The most recognizable differences between the two estimates are in Latvia and Lithuania. The

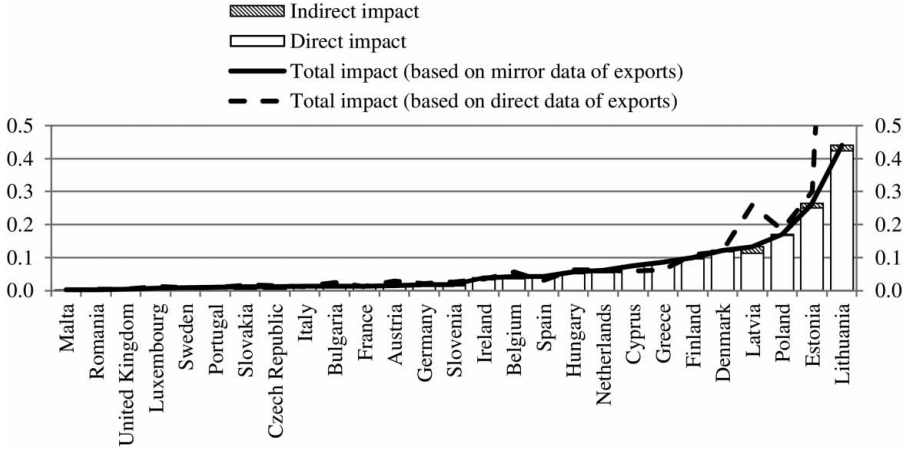


Figure 7. The negative impact of Russia’s counter-sanctions on GDP, %
 Source: Eurostat (2014, 2015a, 2015c), Federal Customs Service (2015), OECD-WTO (2013), author’s calculations.

estimated impact of the sanctions for Latvia is similar to that found for Estonia when using the Eurostat data, while in the Lithuanian case the impact of sanctions is of a different magnitude when calculated using the Eurostat data, exceeding 2% of GDP.

Most of the effect of counter-sanctions is due to the direct effect from exports to Russia, and the indirect effect of sanctions caused by cross-border supply chains is small according to the calculations. However, Figure 8 shows that the intra-EU and intra-Baltic trade in goods affected by sanctions is considerable. From international trade data alone, it is impossible to say which products are meant for domestic final use and which are used as intermediates in the production of exportable products. The high intra-Baltic trade in the products affected by counter-sanctions might also indicate a possible undermining of the effect of cross-border supply chains on GDP. The input–output framework used in this paper takes account of some heterogeneity in supply chains, but the aggregation level of industries is still high. It is assumed that all food

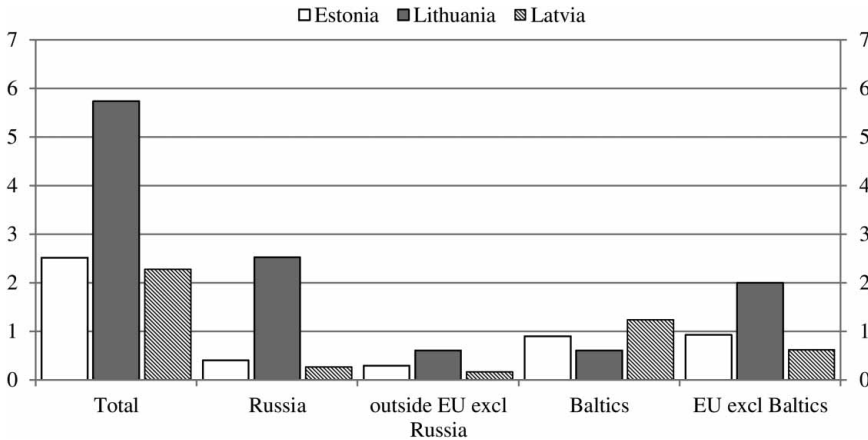


Figure 8. Exports of goods affected by Russia’s counter-sanctions by trade partners, % of GDP, 2013.
 Source: Eurostat (2015a, 2015c).

products use a similar production technology, which implies that the import intensity and also the markets from which the intermediates are purchased are the same across all food products.

Another flaw of the methodology is that it does not take the induced effects of sanctions into account, for example, a drop in investment due to lower profits in the dairy sector or a fall in consumption because of reduced wages in agriculture. These effects are ignored as the outcomes might depend on various factors, and the relatively small amplitude of the effect of counter-sanctions means that it could be assumed that markets are able efficiently to relocate resources left idle due to sanctions. The effect of counter-sanctions on the Baltic economies can be expected to be short-term anyway irrespective of the time it takes until Russia abolishes the sanctions. The counter-sanctions affect the demand side of the economy, but production capacities should remain unchanged. The duration of the effect of the sanctions depends on the time it takes to find new markets and reshape production in order to resume exporting.

5. Conclusion

Exports from the Baltic states to Russia are relatively large in per cent of the GDP of these countries due to the high share of re-exports. At the same time, exports of locally produced goods are of a similar magnitude to those of other Central and Eastern European countries, as can be shown by the data on Russia's imports. In 2013, the share of exports of goods to Russia was close to 8% of GDP in Estonia and Latvia and almost 14% of GDP in Lithuania. Russia's imports of goods from the Baltic states were at the same time 2.4–3.2% of the GDP of these countries. In contrast, Russia's imports from Slovakia were 3.6% of Slovakian GDP, imports from Slovenia were 3% of Slovenian GDP, and imports from the Czech Republic were 2.5% of Czech GDP. The trade linkages between the Baltic states and other countries exporting to Russia may amplify the shocks originating from Russia as the Baltic states trade with countries that are vulnerable to shocks from Russia. Even so, the overall exposure of the Baltic states to the Russian economy remains limited even when the indirect exports of the Baltic states to Russia are taken into account.

The amount of trade affected by Russia's counter-sanctions varies across the Baltic states. In 2013, the exports of goods affected by the sanctions amounted to 2.6% of GDP in Lithuania, 0.4% of GDP in Estonia, and 0.3% of GDP in Latvia. However, when these shares are interpreted, the prevalence of re-exports should be taken into account. A comparison of the data on exports from the Baltic states with Russian data on imports revealed that a large share of the goods exported by Lithuania were re-exports. The share of re-exports in goods affected by the counter-sanctions was less pronounced for Estonia and Latvia. After the re-exports were deducted, the share in GDP of the trade affected by sanctions became much smaller for Lithuania.

Although the overall amount of exports affected by the sanctions is small and should have only a limited impact on the economy, the trade affected by the sanctions is mainly concentrated in the dairy sector. The overall impact of the sanctions on GDP once intra-EU supply chains are taken into account is below 0.5% of GDP in all the Baltic states. Lithuania is affected the most, while the effect of sanctions on the Latvian economy is negligible. A possible re-orientation of food exports to other markets could mitigate the impact of the counter-sanctions and help to avoid any possible future volatility in exports stemming from Russia's political and economic storms.

The effect of sanctions should not be mixed up with other developments related to trade with Russia or the common agricultural policy in the EU, such as developments in the dairy sector. The depreciation of the Russian rouble, the economic downturn in Russia, and the lifting of milk production quotas could all affect the Baltic economies, but these developments are not a result of the

counter-sanctions and thus the impact of these developments should not be regarded as an impact of those sanctions.

Acknowledgements

The author would like to thank, without implicating, the editor of *Baltic Journal of Economics* Anders Paalzow as well as Rasmus Kattai, Karsten Staehr, and Lenno Uusküla for valuable comments on earlier drafts. The views expressed are those of the author and not necessarily those of Eesti Pank.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes

1. The FOB price or the free on board price is equal to the market value of goods at the customs frontier of the economy from which they are exported (European Commission IMF, OECD, UN, & WB, 2009, p. 53).
2. The CIF price or the cost insurance freight price is the price of goods delivered at the frontier of the importing economy (European Commission et al., 2009, p. 53).
3. The correspondence table of the CN and the CPA is based on the CN-2008 and the CPA-2008. While data on exports are based on the newer version of the CN, the correspondence table of the CN and the CPA is augmented for changes in the CN (see Statistics Estonia, 2015).

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Kaspar Oja is an economist in the Economics and Research Department of Eesti Pank, where he is involved with economic projections and development of macro models. He received a master's degree from Tartu University and he is also continuing his Ph.D. studies there. His main research interests are related to economic cycles and labour market institutions.

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