

# The economic impact of EU-Russia sanctions on the EU

## Plausibility check of existing studies using a simple estimation

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# Summary

## Estimation results

- EU export to Russia has decreased by EUR 47 bn in 2016 (vs 2013)
- The sanctions-related exports decrease amounts to EUR 11-20 bn, respectively 23%-43%, in 2016
- The negative impact of the sanctions-related export decrease on the EU GDP is estimated at EUR 4-7 bn, respectively 0.03-0.05%, in 2016

## Plausibility check of existing studies

- WIFO 2016: Estimation of sanctions-related export decrease (43%) is reasonable, estimation of impact on EU GDP (0.12%) not
  - Other studies: Estimation of impact on EU GDP between 0.29% and 0.77% of GDP; this is many times our maximum value of 0.05%
- not plausible

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# I. Objective

**2014**

- EU sanctions against Russia, targeting mainly the financial sector and “dual use” goods
- In response: Russian sanctions against EU, especially import ban on many agricultural products and foodstuff
- Together: “Reciprocal EU-Russia sanctions”

## **Objectives of this presentation**

- Simple estimation of the impact of reciprocal EU-Russia sanctions on the EU GDP
- Plausibility check of existing studies

## II. From export decrease to GDP: Two steps

### Observation

- EU export to Russia has decreased sharply after the implementation of reciprocal sanctions
- This has affected many companies in the EU
- Consequence: negative impact on the EU GDP

### Analysis: Two steps

- **Step 1:** Which share of the export decrease can be attributed to sanctions? → “sanctions-related export decrease“
- **Step 2:** Impact of sanctions-related export decrease on EU GDP

### III. Sanctions-related export decrease (step 1)

Since 2014: EU exports to Russia have decreased sharply (“export decrease”)

#### Two key reasons

- “Oil price shock”: Decline of oil and gas prices
- “Sanctions shock”: Reciprocal EU-Russia sanctions

#### Step 1: Estimation of the “sanctions-related export decrease”

- Estimation of the export decrease, which can be attributed solely to the sanctions shock; filtering out the oil price shock

#### In the following: Three approaches

- i. Comparison of EU exports to Russia and Kazakhstan
- ii. Comparison of EU exports to Russia to the export of non-sanctioning countries to Russia
- iii. Taking over the results of a gravity model (WIFO 2016)

# Approach i. Comparison of EU exports to RUS and KAZ

## EU exports to Russia

- Decline due to oil price shock and sanctions shock

## EU exports to Kazakhstan

- Decline mainly due to oil price shock
- Only indirect effect of sanctions shock
- Also: Extent of impact of oil price shock similar to Russia, as both countries export comparable quantities of energy
  - Kazakhstan: 76% of total exports (2013)
  - Russia: 71% of total exports (2013)

**→ Comparison of EU exports to both countries is suitable to isolate and estimate the sanctions-related export decrease**

## Years to be compared: 2013 vs 2016

- 2013: Before the shocks
- 2016: After the adjustment to the shocks in both countries

*Note: Russia devaluated already at the end of 2014, Kazakhstan only in Aug 2015. Therefore it is reasonable to use 2016 (not 2015) for comparison.*

# Estimation of the sanctions-related export decrease

	EU export in EUR bn		Export decrease in EUR bn	Export decrease in %
	2013	2016	2016 vs 2013	2016 vs 2013
<b>Russia</b>	119.4	72.4	47.0	-39.4%
<b>Kazakhstan</b>	7.5	5.2	2.3	-30.4%

Source: Eurostat; trade in goods

**Approach i:** Without sanctions EU exports to Russia would have developed like those to Kazakhstan, i.e. would have decreased by 30.4% instead of 39.4%.

## Sanctions-related export decrease (approach i)

Decrease of EU exports to Russia 2016 vs 2013	EUR 47 bn
Sanctions-related share 2016	23%
Sanctions-related export decrease 2016	EUR 11 bn

Source: Own calculations based on Eurostat; trade in goods

# Approach ii. EU exports to Russia compared with the export of non-sanctioning countries to Russia

## EU exports to Russia

- Decrease due to oil price shock and sanctions shock

## Export of non-sanctioning/sanctioned countries to Russia

(China, South Korea, Vietnam, Brazil, India, etc.)

- Decrease mainly due to oil price shock
- Only indirect effect of sanctions shock (positive and negative)

→ Comparison of exports to Russia from both country groups is suitable to estimate the sanctions-related decrease of EU exports to Russia

	Exports to RUS, EUR bn		Export decrease, EUR bn	Export decrease, %
	2013	2016	2016 vs 2013	2016 vs 2013
EU countries	119.4	72.4	47.0	39.4%
Countries without sanctions	109.8	82.0	27.7	25.3%

Source: Own estimations based on Eurostat and Federal Customs Agency of Russia; export data of countries without sanctions from Russian import data; trade in goods

# Estimation of the sanctions-related export decrease

## Approach ii

- Without sanctions, EU exports to Russia would have developed like exports from non-sanctioning/sanctioned countries
- Thus: Export decrease by 25.3% instead of 39.4%

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### Sanctions-related export decrease

EU export decrease to Russia 2016 vs 2013	EUR 47 bn
Sanctions-related share 2016	36%
Sanctions-related export decrease 2016	EUR 17 bn

*Source: Own estimations based on Eurostat and Federal Customs Agency of Russia; trade in goods*

# Approach iii. Results of a gravity model

## Study WIFO 2016

- Estimation of sanctions-related export decrease to Russia with a gravity model
- Result: 43% of decrease can be attributed to sanctions (for 2015)

## In the following

- We use this result in the further course of our estimation (step 2)

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### Sanctions-related export decrease (approach iii)

EU export decrease to Russia 2016 vs 2013	EUR 47 bn
Sanctions-related share 2016	43%
Sanctions-related export decrease 2016	EUR 20 bn

*Source: Own estimations based on Eurostat and WIFO 2016; trade in goods*

# Sanctions-related export decrease: Overview

	Approach i	Approach ii	Approach iii
	EU exports to RUS vs EU exports to KAZ	EU exports to RUS vs exports to RUS from countries without sanctions	Employing the results from a gravity model (WIFO 2016)
EU export decrease to RUS 2016 vs 2013	EUR 47 bn	EUR 47 bn	EUR 47 bn
Sanctions-related share 2016	23%	36%	43%
Sanctions-related export decrease 2016	EUR 11 bn	EUR 17 bn	EUR 20 bn

Source: Own estimations based on Eurostat and Federal Customs Agency of Russia and WIFO 2016; trade in goods

# IV. Impact of the sanctions-related export decrease on the EU GDP (step 2)

Step 2 → Two aspects to be taken into account: Import share and adjustment factor

## Aspect 1: Import share in exports

- Export = gross value (turnover), GDP = net value (value added)

## Implications

- “Impact on GDP = export decrease / GDP” is incorrect
- Also: The export value includes the value added of the suppliers
- an “additional” impact can not be added
- Finally: The export value includes also imports from non-EU countries that are used in the production of export products (energy, raw materials, etc.)
- These imports have to be deducted from the export value
- The average import share in EU products is 28% (OECD 2011)
- **The import share (28%) is deducted from the sanctions-related export decrease**

## Aspect 2: Adjustment factor

### Short term: Little adjustment

- Products: Finding new markets is not easy for exporters
- Production factors: Vacant resources of affected companies cannot immediately move to other companies or industries

### Mid-term: Adjustment becomes much easier

- Goods: Exporters can partly enter alternative markets
- Production factors : Labour and capital partly move to other industries

### Our estimation

- Mid-term perspective, as sanctions are in place since 2014 (almost three years)

### Implications: “Adjustment factor“

- It can be assumed that adjustment takes place to a certain extent, which has to be deducted from the sanctions-related export decrease
- For simplification we assume an adjustment factor of 50% (see Annex)

# Impact on the EU GDP

## EU export to Russia vs Kazakhstan (approach i)

<b>Impact on EU GDP, approach i</b>	
Sanctions-related export decrease	EUR 11 bn
Import share of EU exports	28%
Sanctions-related export decrease minus import share	EUR 8 bn
Assumed adjustment factor	50%
<b>Impact on EU GDP</b>	<b>EUR 4 bn</b>
EU GDP 2016*	EUR 14,774 bn
<b>Mid-term impact of sanctions on EU GDP</b>	<b>0.03%</b>

Source: Own calculations based on Eurostat and OECD; trade in goods; \*projection of the EU Commission

## Impact on the EU GDP

Exports of the EU to Russia vs export of non-sanctioning countries to Russia (approach ii)

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### Impact on EU GDP, approach ii

Sanctions-related export decrease	EUR 17 bn
Import share of EU exports	28%
Sanctions-related export decrease minus import share	EUR 12 bn
Assumed adjustment factor	50%
<b>Impact on EU GDP</b>	<b>EUR 6 bn</b>
EU GDP 2016*	EUR 14,774 bn
<b>Mid-term impact of sanctions on EU GDP</b>	<b>0.04%</b>

*Source: Own calculations based on Eurostat, Federal Customs Agency of Russia and OECD; trade in goods; \*projection of the EU commission*

## Impact on the EU GDP

Taking over the results of a gravity model, WIFO 2016  
(approach iii)

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<b>Impact on EU GDP, approach iii</b>	
Sanctions-related export decrease	EUR 20 bn
Import share of EU exports	28%
Sanctions-related export decrease minus import share	EUR 15 bn
Assumed adjustment factor	50%
<b>Impact on EU GDP</b>	<b>EUR 7 bn</b>
EU GDP 2016*	EUR 14,774 bn
<b>Mid-term impact of sanctions on EU GDP</b>	<b>0.05%</b>

*Source: Own calculations based on Eurostat, Federal Customs Agency of Russia and OECD; trade in goods; \*projection of the EU Commission*

## V. Comparison to existing studies

Estimation	Impact on EU export to RUS (step 1)		Impact on EU GDP (step 2)	
	EUR bn	%	EUR bn	%
Berlin Economics 2017				
<i>Export to RUS vs KAZ</i>	11	23	4	0.03
<i>Export EU vs countries without sanctions</i>	17	36	6	0.04
<i>Taking over step 1 of WIFO 2016</i>	20	43	7	0.05
WIFO 2016	20	43	18	0.12
WIFO 2015				
<i>short-term impact</i>			33	0.29
<i>long-term impact</i>			90	0.77
Study on request of the EU Commission 2014*			50	0.4
Russian Academy of Science 2015*				0.5

\*unpublished; \*\*Institute for Economic Forecasting at the Russian Academy of Science

# VI. Plausibility check of existing studies

## Simple estimation by Berlin Economics

- Impact on EU GDP 2016 amounts to EUR 4-7 bn
- This equals 0.03-0.05% of EU GDP

## Interpretation of the results of our study

- Simple estimation, thus results not to be interpreted exactly
- But: Three different approaches lead to similar results
- Thus: Estimation can be used for a plausibility check of existing studies

## Plausibility check

- WIFO 2016: step 1 is plausible, but step 2 not
- Other studies: 0.29% to 0.77% of EU GDP
- Even if we assume that the export decrease can be attributed solely to the sanctions, the estimation result of 0.12% of the EU GDP is much smaller

→ **Not plausible**

# Reasons for the overestimation by other studies

## Note

- Methodology of other studies is partly not known
- Still we can perceive problematic assumptions/approaches

## Estimation of the sanctions-related export decrease (step 1)

- The export decrease is partly set equal to the sanctions-related decrease (e.g. WIFO 2015); the impact of the oil price shock is thus not taken into account

## Impact of the sanctions-related export decrease (step 2)

- Import share is not deducted from exports to Russia; in consequence turnover values and value added are improperly equated
- No re-orientation of exports and no reallocation of factors of production, partly because input-output model is used (e.g. WIFO 2015 and 2016)
- Short-term perspective; impact intensified by “multiplier”

**Main reason for overestimation:** Problematic assumptions/methodology in step 2

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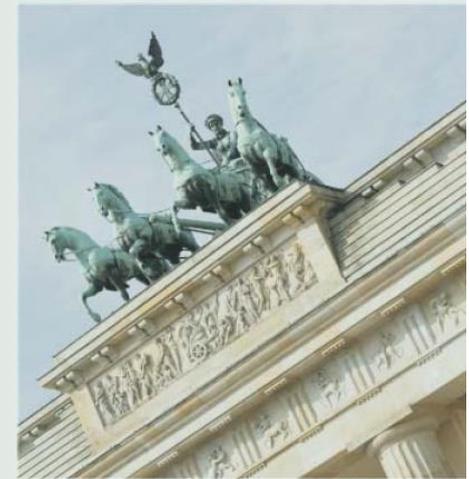
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# Annex: The adjustment factor – background

## Economic adjustment

- Reorientation of exports: goods no longer exported to Russia can partly be sold in other countries
- Reallocation of factors of production: Vacant labour and capital partly move to other companies and industries

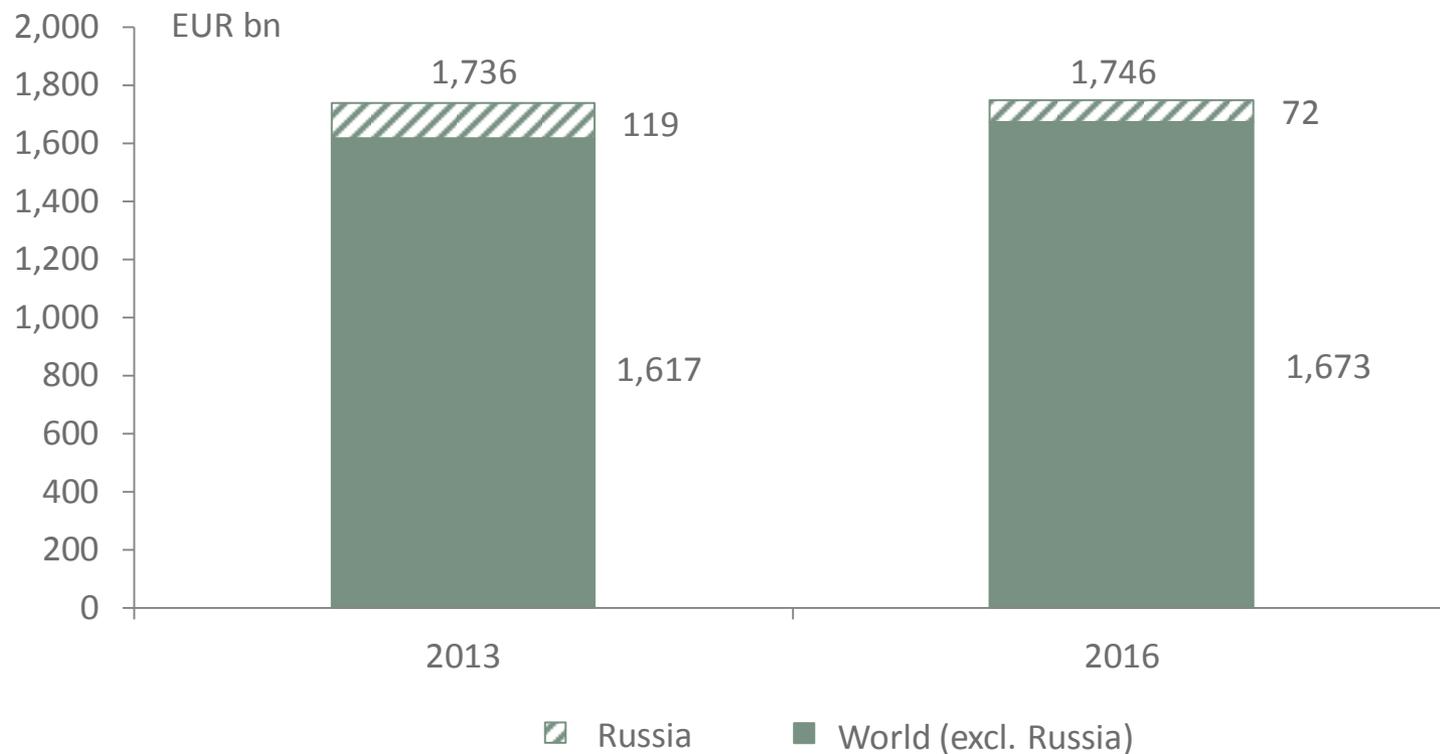
## Adjustment factor (in step 2 of our estimation)

- Captures reorientation of export and reallocation of capital and labour
- Basically it holds that:
  - The adjustment factor is increasing gradually over time
  - The more flexible and competitive a country is, the higher is the adjustment factor
  - Adjustment also depends on the sector
- Here: No own estimation of the adjustment factor; only assumption (50%) in order to make an estimation
- Agriculture/foodstuff: adjustment factor clearly over 50%

## → Meaningful field for further analysis

# Annex: EU exports to Russia and the world

## Exports of the EU



Source: Eurostat; trade in goods