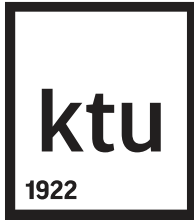


***Assessment of the impact of euro adoption
on international trade: Lithuanian case***

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Relevance

Becoming a European Union member in 2004 Lithuania has committed to adopt the single European currency - the euro when the convergence criteria will be met.

The first attempt to adopt the euro in Lithuania was in 2007. It was unsuccessful for one of the convergence criteria for non-compliance, and the subsequent deterioration in Lithuania during the economic situation of the global financial crisis has postponed the introduction of the single currency plans.

However, since 2015 1 January. Lithuania adopted the euro and became the nineteenth member of the euro zone.

Participation in the monetary union have both positive and negative effects, so it is appropriate for each country to assess what changes in the economy caused by the introduction of the single currency.

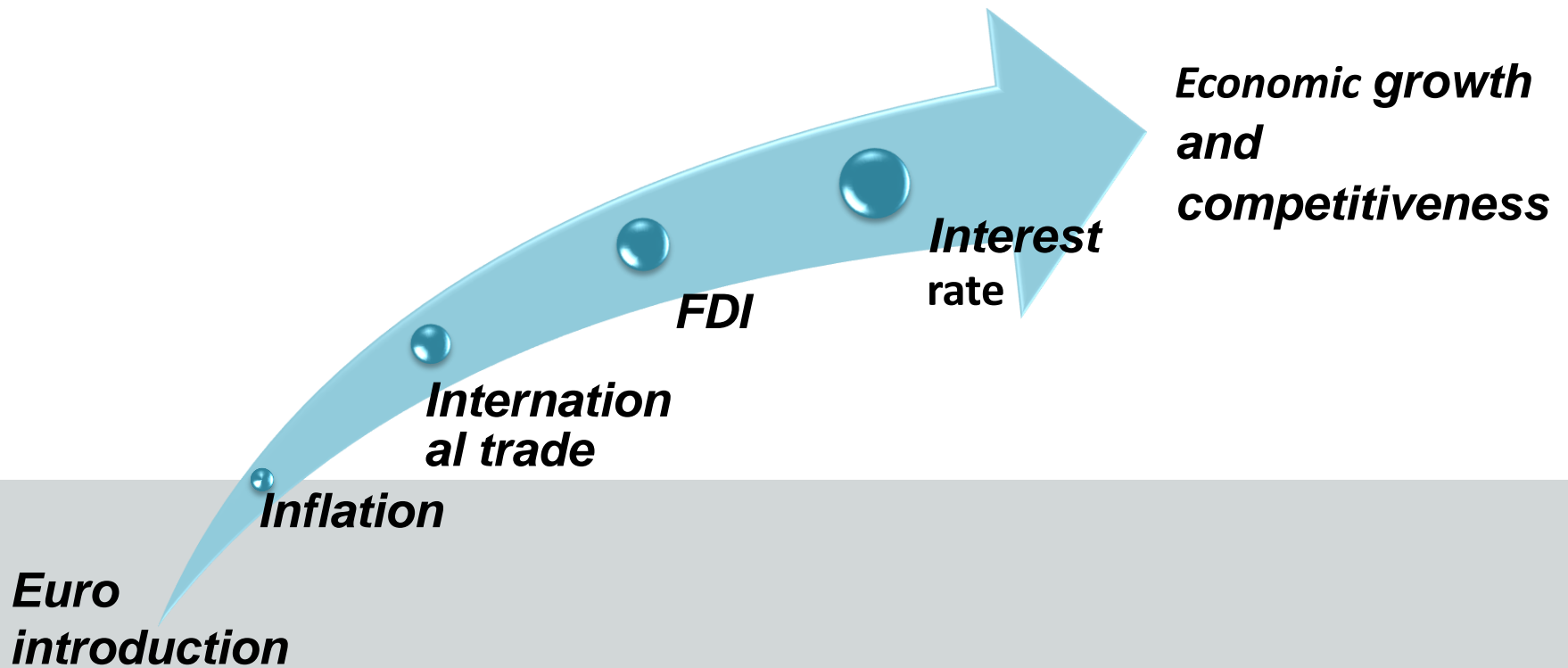
The problem – the impact of the euro introduction in Lithuania on fundamental economic trends in the short term as well as the positive and negative aspects of membership in the euro area

The aim – to assess the impact of euro on Lithuanian international trade

Research tasks

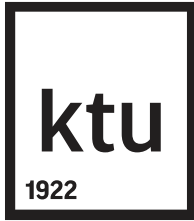
- *detect the changes of the relevant economic indicators before and after the state's entry into the Eurozone*
- *employ the gravity model of trade assessing the impact of euro on Lithuanian international trade*

The trends of effect on economy introducing euro



Summary of the empirical research on the impact of euro on the eurozone's domestic trade

<i>Authors</i>	<i>Period under research</i>	<i>The impact of euro on the eurozone's domestic trade</i>
<i>Rose, Wincoop (2001)</i>	<i>1970 – 1995</i>	<i>58 percent</i>
<i>Bun, Klaassen (2002)</i>	<i>1965 – 2001</i>	<i>3.9 – 9.6 percent; 37.8 percent</i>
<i>Bun, Klaassen (2006)</i>	<i>1967 – 2002</i>	<i>3 percent</i>
<i>Nardis, Vicarelli (2003)</i>	<i>1980 – 2000</i>	<i>2.6 – 6.3 percent</i>
<i>Flam, Nordstorm (2003)</i>	<i>1989 – 2002</i>	<i>15 percent</i>
<i>Flam, Nordstorm (2007)</i>	<i>1995 – 2005</i>	<i>26 percent</i>
<i>Micco, Stein, Ordoñez (2003)</i>	<i>1992 – 2002</i>	<i>5 - 20 percent</i>
<i>Baldwin, Skudelny, Taglioni (2005)</i>	<i>1991 – 2002</i>	<i>70 - 112 percent</i>
<i>Berger, Nitsch (2004)</i>	<i>1948 – 2003</i>	<i>5 percent</i>
<i>Maliszewska (2004)</i>	<i>1992 – 2002</i>	<i>26.5 percent</i>
<i>Brouwer, Paap, Viaene (2007)</i>	<i>1990 – 2004</i>	<i>7 percent</i>
<i>Pareja, Vivero, Serrano (2008)</i>	<i>1950 – 2004</i>	<i>38 - 71 percent</i>



Gravity model of trade

$$\ln(F_{ijt}) = \beta_0 + \beta_1 \ln(M_{it}) + \beta_2 \ln(M_{jt}) + \beta_3 \ln(D_{ijt}) + \varepsilon_{ijt}$$

here:

F_{ijt} - volumes of trade between states i and j at time moment t

M_{it} and M_{jt} - size of economy (GDP) in states i and j at time moment

D_{ijt} - distance between states i and j at time moment t

$\beta_0, \beta_1, \beta_2, \beta_3$ - values of equation coefficients

ε_{ijt} - random errors

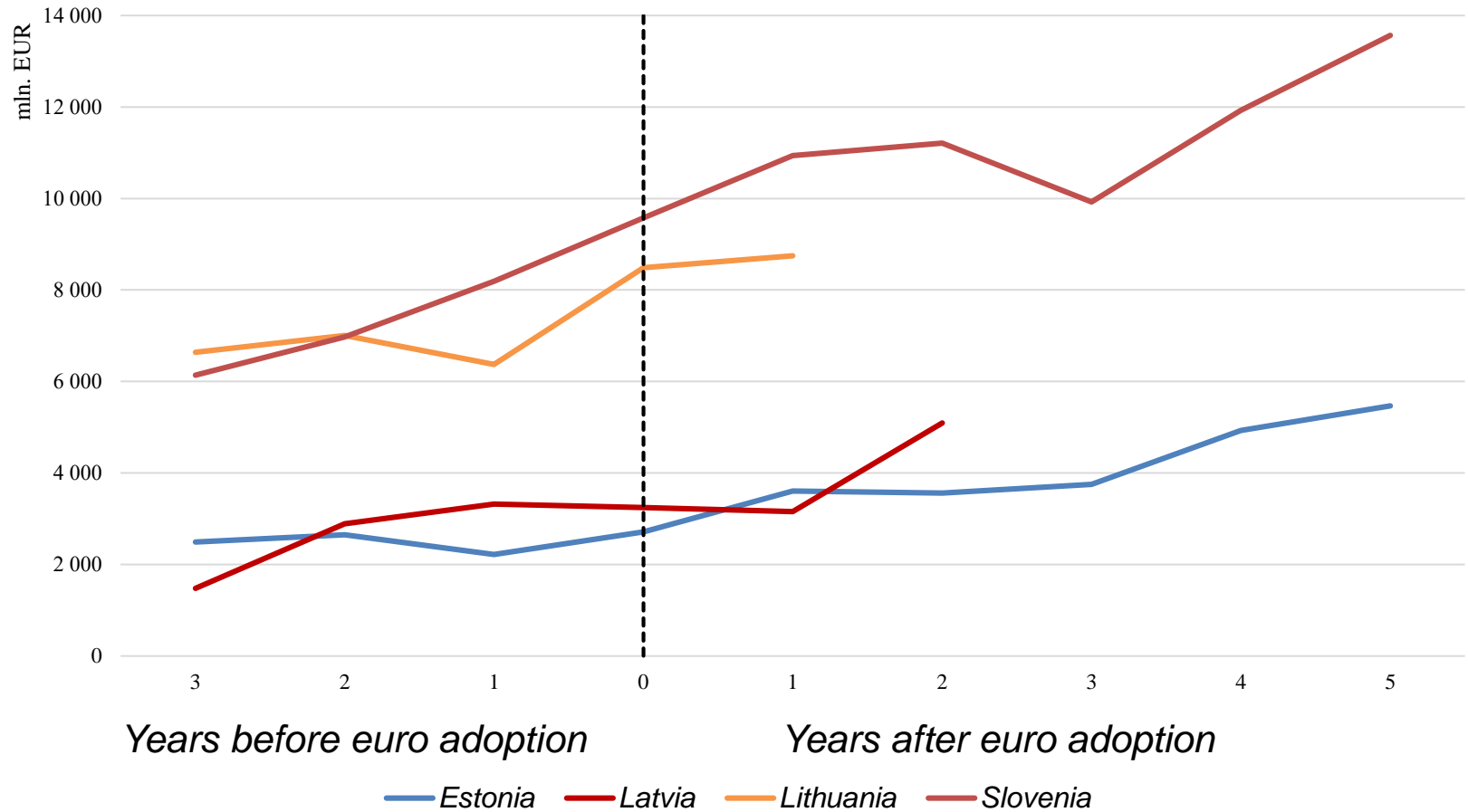
The model reveals the impact of the single currency on the volumes of Lithuanian trade

$$\ln(\text{TRADE}_{LTjt}) = \beta_0 + \beta_1 \ln(\text{GDP}_{LTt}) + \beta_2 \ln(\text{GDP}_{jt}) + \beta_3 \ln(\text{DISTANCE}_{LTjt}) + \beta_4 \text{EUR}_{LTjt} + \beta_5 \text{TRADEAGREEMENTS}_{LTjt} + \varepsilon$$

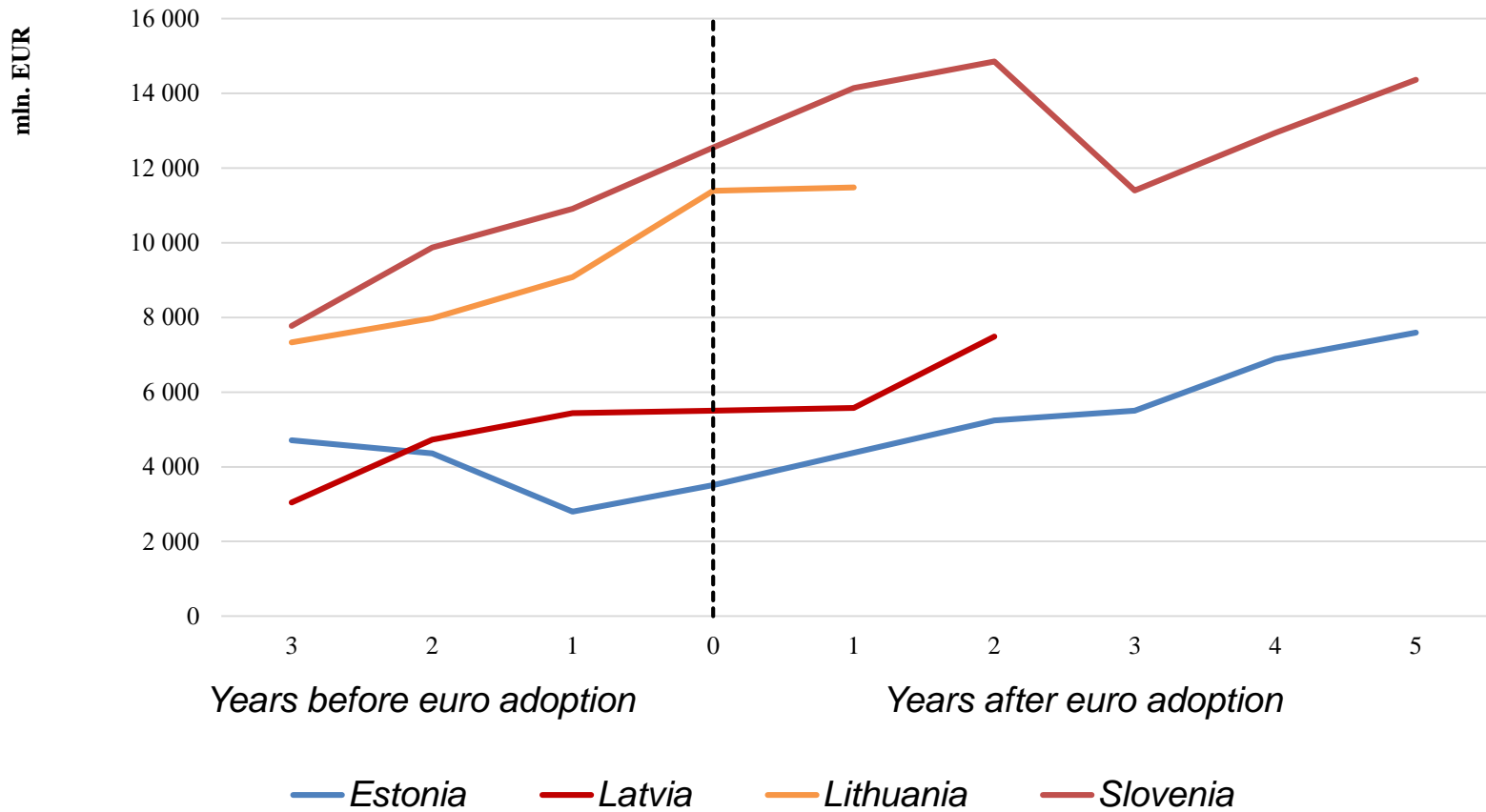
General indicators of the states under research

<i>Indicator</i>					
<i>State</i>	<i>Area, sq. km</i>	<i>Population, million (in 2015)</i>	<i>GDP, million EUR (in 2015)</i>	<i>GDP per capita, EUR (in 2015)</i>	<i>Euro introduction date</i>
<i>Lithuania</i>	65 300	2.888	37189.7	12 800	January 1, 2015
<i>Latvia</i>	64 589	1.986	24375.6	12 300	January 1, 2014
<i>Estonia</i>	45 226	1.313	20460.9	15 600	January 1, 2011
<i>Slovenia</i>	20 273	2.063	38543.2	18 700	January 1, 2007

State exports to the euro zone dynamics



States imports from the euro zone dynamics



Changes in trade after adoption of euro, percent

State	Exports			Imports		
	<i>One year after</i>	<i>Two years after</i>	<i>Five years after</i>	<i>One year after</i>	<i>Two years after</i>	<i>Five years after</i>
Estonia	32.91	31.32	101.7	24.55	49.26	116.09
Latvia	-2.62	57.11	-	1.38	36.08	-
Lithuania	3.05	-	-	0.79	-	-
Slovenia	14.20	17.06	41.61	12.66	18.31	14.42

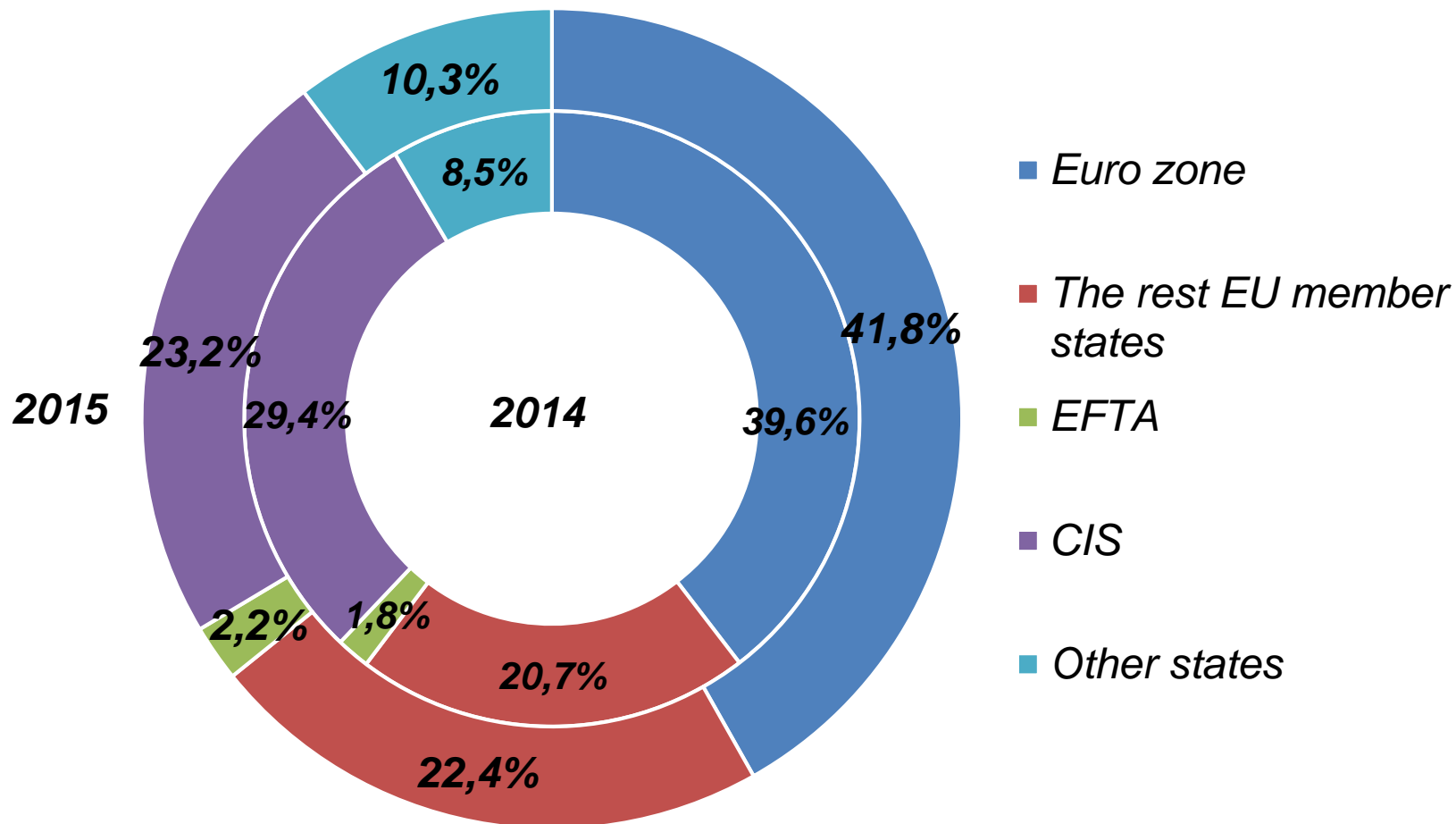
Evaluation of the impact of euro adoption on international trade in Lithuania

$$\ln(\text{TRADE}) = -8,576 + 0,8 \cdot \ln(\text{GDP}_{LT}) + 0,869 \cdot \ln(\text{GDP}) - 1,892 \cdot \ln(\text{DISTANCE}) + 0,453 \cdot \text{EUR} - 0,654 \cdot \text{TRADE_AGREEMENTS}$$

Variable	Coefficient	Prob.
C	-8.575738	0.1089
ln GDP_{LT}	0.800964	0.0003
ln GDP	0.869061	0.0000
ln DISTANCE	-1.891666	0.0000
EUR	0.452611	0.0272
TRADE_AGREEMENTS	-0.654266	0.0000
Adj-R2	0.760353	
Prob(F-statistic)	0.000000	

$$\text{EUR} = (e^{0,452611} - 1) \cdot 100\% = 0,5724 \cdot 100\% = 57,24\%$$

The structure of Lithuanian trade by trade partners





Conclusions

The analysis of Slovenian, Estonian, Latvian and Lithuanian economic indicators before and after introduction of euro has revealed that in many cases adoption of the single currency had a positive impact on the changes of the indicators.

The volumes of trade with the other members of the eurozone revealed the trend of growth after adoption of euro in both short and long terms.

The analysis of the data of Lithuanian international trade has disclosed that the volumes of the state's trade decreased by 3.7 percent in 2015; the decrease is considered to have been determined by significantly lower volumes of trade with the CIS.



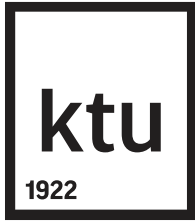
Conclusions

Nevertheless, the volumes of trade with the states of the eurozone, the EU and the other major Lithuanian trade partners went up in the same year.

The impact of euro adoption on Lithuanian international trade, assessed by employing the developed gravity model of trade, amounts to nearly 57.24 percent.

Comparing the results of the estimations with the ones obtained in previous scientific studies, it was observed that similar results were reported by Rose & Wincoop (2001), Bun & Klaassen (2006) and Baldwin et al. (2005), who established that the impact of euro adoption on international trade exceeds 50 percent.

On balance, it can be stated that adoption of the single currency - euro – contributed to the increase in Lithuanian trade with the main partners (excluding the CIS) by nearly 2.7 percent, and promoted the increase in trade with the eurozone by nearly 1 percent in 2015.



Thank you