

The Economic Crisis Lessons from Europe. Enterprise Size Class Analyses of Transportation Companies of the Baltic Countries Before and After the Economic Crisis

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Abstract

The objective of this article is to analyse the indicators of transportation companies by enterprise size class in the Baltic States (Estonia, Latvia and Lithuania), or of new European Union (EU) states before and after the economic crisis, and to compare them on the EU level. We will look at how the economic crisis has affected transportation companies of various sizes and the number of persons employed. We will analyse changes to the size classes of companies. These companies will be compared to other EU states, incl. the Central and Eastern Europe (CEE) countries. The emphasis is on the work efficiency of small and medium sized enterprises (SME) during the economic crisis. We will attempt to answer the following question: what size class did the companies that worked most efficiently belong to, especially in the conditions of the economic crisis, and what is the optimal size for transportation companies? What are the lessons learned from the economic crisis? Based on this and previous publications, we will offer a number of generalized recommendations.

Keywords: Baltic States, transportation, enterprise size class, economic crisis, SME, suggestions.

1. Introduction

For an introduction, let us look at the background of these countries. The Baltic States were a half-century of Soviet-bloc countries. This will help to understand better the economic backwardness of the Western European countries. [1]

Estonia, Latvia and Lithuania have been members of the European Union and the NATO since 2004. These countries are a member of the Council of Europe, IMF and WTO; Estonia is also a member of the OECD and adopted the euro on 2011. [2]

The United Nations lists Baltic States as a country with a "Very High" Human Development Index. [3]

In EU, in 2012 one the lowest *government deficits* in percentage of gross domestic product (GDP) were recorded in *Estonia* (-0.3%) [2011=+1.2%], and *Latvia* (-1.2%). At the end of 2012, the lowest *ratios of government debt* to GDP were recorded in *Estonia* (10.1%) [2011=6.2%], *Latvia* and *Lithuania* (both 40.7%). [4]

Before and after the economic depression, the Baltic states were successful. The Baltic countries had the highest growth rates in GDP in Europe between 2000 and 2007. Hence, these countries were called the Baltic Tigers.

The four major sectors of the economy with the highest GDP and the largest number of employees are: industry, construction, trade and transportation. Here you will analyze the transport only. Other key economy we look separate publications.

The situations before the crisis, during the crisis and after the crisis will be viewed. Former post-communist countries were selected for observation. Let's do some comparisons with the CEE countries.

The growth of the entire economy, measured using GDP, will be viewed as the background. Based on this background, we will look GDP growth rate of the EU-28 countries and the USA.

However, the main emphasis is on the analyses of the indicators of transport companies in Baltic countries.

The theoretical bases have been brought in more detail in the authors' earlier works [5-14] and in the works of other authors [15,16].

2. Methodology

Structural business statistics (SBS) can provide answers to questions on the wealth creation (value added), investment and labour input of different economic activities. The data can be used to analyse structural shifts, country specialisations, sectoral productivity and profitability, as well as a range of other topics. Because they are available broken down by enterprise size class, structural business statistics also permit a detailed analysis of *small and medium-sized enterprises* (SMEs), which is of particular use to EU policymakers and analysts wishing to focus on entrepreneurship and the role of SMEs. Structural business statistics provide useful background information on which to base an interpretation of short-term statistics and the business cycle. [17]

Small and medium-sized enterprises (SMEs)

Small and medium-sized enterprises (SMEs) are defined by the European Commission as having less than 250 persons employed.

They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million in the EU. [18]

Annual structural business statistics with a breakdown by size-class are the main source of data for an analysis of SMEs. A limited set of the standard SBS variables (number of enterprises, turnover, persons employed, value added, etc.) is available mostly down to the 3-digit level of the activity classification (NACE), based on criteria that relate to the number of persons employed in each enterprise. The number of size-classes available varies according to the activity under consideration. The main classes used for presenting the results are:

- *micro enterprises*: with less than 10 persons employed;
- *small enterprises*: with 10-49 persons employed;
- *medium-sized enterprises*: with 50-249 persons employed;
- *small and medium sized enterprises* (SMEs): with 1-249 persons employed;
- *large enterprises*: with 250 or more persons employed. [18]

Business economy by sector - NACE Rev. 2

The Statistical classification of economic activities in the European Community, abbreviated as NACE, is the nomenclature of economic activities in the EU.

NACE is a four-digit classification providing the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics and in other statistical domains developed within the European statistical system.

The first reference year for NACE Rev. 2 compatible statistics is 2008, after which NACE Rev. 2 will be consistently applied to all relevant statistical domains. [19]

The Eurostat publication *Business economy by sector - NACE Rev. 2* presents an overview of structural business statistics analysed per activity sector of the NACE Rev. 2 classification.

We will first observe the main total (SIZE_EMP: Total) quantitative indicators of transportation (NACE_R2: Transportation and storage), as well as the changes in the number of transportation companies, etc. Eurostat's primary data will be used as the main sources (Services by employment size class – NACE Rev. 2, H-N, S95).

The techniques and labour market survey definitions used by the authors have been specified in Eurostat (Methodological Notes. EU-LFS) [20].

3. Gross Domestic Product (GDP) Analysis

In the background we look at EU and the USA and Baltic states economic (GDP) development.

Table 1. Real GDP growth rate. Percentage change on previous year [21]

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013(f)	2014(f)
EU-28	1,5	2,6	2,2	3,4	3,2	0,4	-4,5	2,0	1,7	-0,4	-0,1	1,4
Euro area (17)	0,7	2,2	1,7	3,2	3,0	0,4	-4,4	2,0	1,5	-0,7	-0,4	1,2
USA	2,8	3,8	3,4	2,7	1,8	-0,3	-2,8	2,5	1,8	2,8	1,9	2,6

(f) - forecast

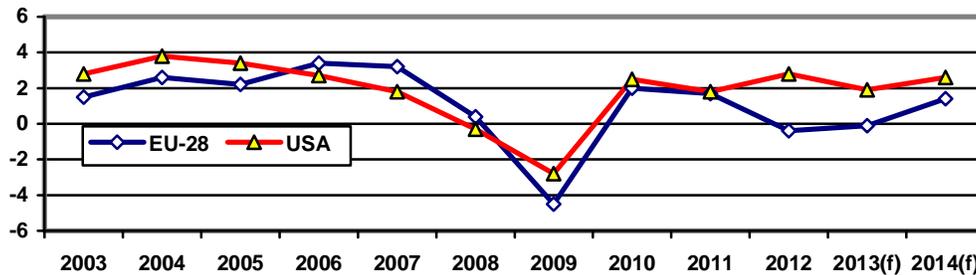


Figure 1. Real GDP growth rate of the EU-28 countries and the USA. Percentage change during the previous years. [21]

Source: the authors' illustration

The economy (GDP) of the USA has generally developed quicker than that of the EU; the pre-crisis years from 2006 to 2008 are the only exception. The decline in the EU was significantly higher in 2009 than in the USA. While the EU economy was negative in 2012, increment in the USA was 2.2%. According to the Eurostat prognosis, the EU economy (GDP) will also experience a small decline in 2013, the USA will experience normal growth for a highly developed industrial country.

Real GDP growth rate, percentage change during the previous year in 2012: EU-28 = -0.4%; Euro area (17 countries) = -0.7%; Germany = 0.7%; France = 0.0%; United Kingdom = 0.1%; Italy = -2.5%; Japan = 2.0%; USA = 2.8%. [21]

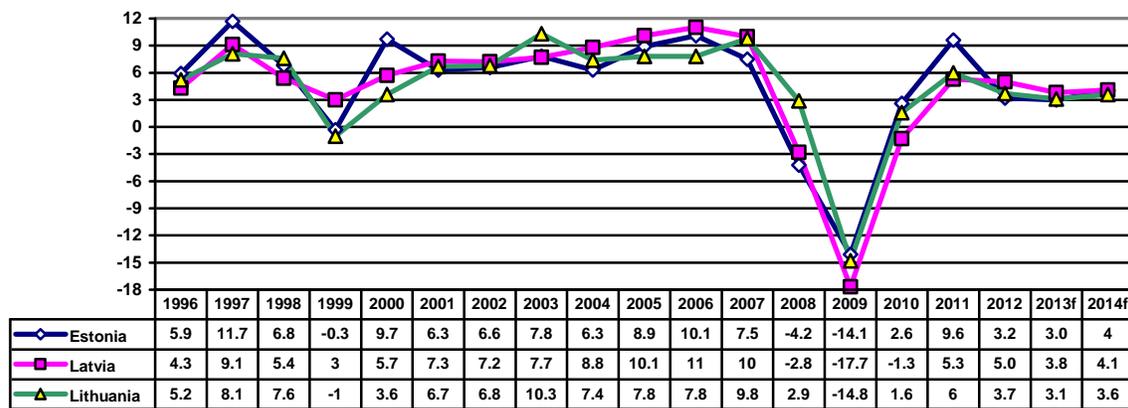


Figure 2. Real GDP growth rate. Percentage change during the previous year [21]

Source: the authors' illustration

The trend line shows the cyclical development of the Baltic countries economy (GDP). In addition to the economic decline during the years 2008 – 2009, there was also a decline in 1999 (Estonia and Lithuania). If an annual real GDP increment of more than 10% can be considered excellent, then the results in 2009 was one of the largest in the world. In 2009, real GDP fell by 14.8% in Lithuania, by 17.7% in Latvia and 14.1% in Estonia. The development of the Baltic countries economy before and after the crisis was one of the fastest in the EU. Yet, the crisis led to a very deep recession, which was one of the greatest in the world, as well as in the EU. A larger or smaller recession took place in 2009, which is called the crisis year. In the following years economy grew. Thus, the country covered two extremes. On the other hand, it also shows that the reforms carried out in the past were successful and established a base that enabled exiting the crisis successfully. In particular, this meant creating favourable conditions for business. Again, GDP growth in 2011 and also 2012 are highest in the EU.

Before and after (2011 – 2012) the economic depression, the Baltic States were successful. The Baltic countries had the highest in GDP growth rates in Europe between 2000 and 2007.

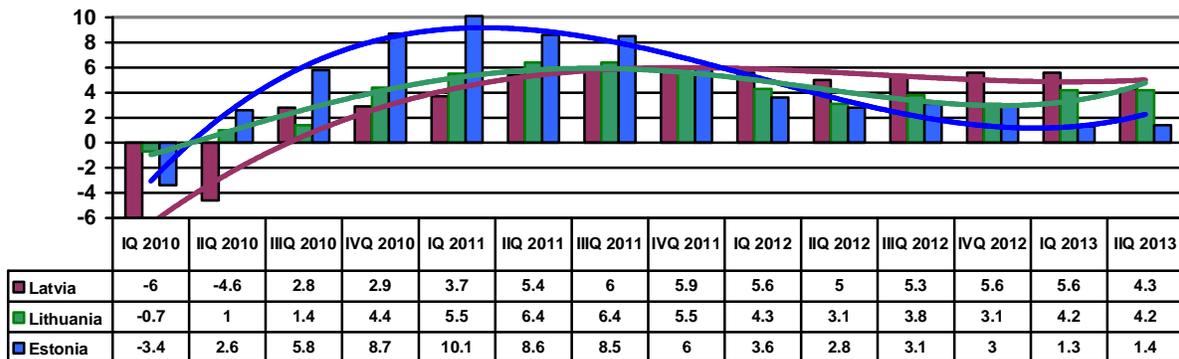


Figure 3. GDP growth rate at market prices in the Baltic States. Percentage change during the previous year [22, 23]
Source: the authors’ illustration

Trendlines and mathematical models of GDP growth rate in the Baltic States:

Latvia $y = 0,0177x^3 - 0,5557x^2 + 5,4899x - 11,405; R^2 = 0,9372$ (1)

Lithuania $y = 0,0026x^4 - 0,0586x^3 + 0,2522x^2 + 1,4453x - 2,6046; R^2 = 0,9071$ (2)

Estonia $y = 0,0427x^3 - 1,1477x^2 + 8,6054x - 10,561; R^2 = 0,9472$ (3)

These complex trendlines characterize the cyclical development of the economy (GDP) in the Baltic countries, even after the economic crisis.

The figure shows that the Baltic countries are from 2010th end successfully outgoing from economic crisis. Quarterly analysis provides a more accurate picture. In 2011th was Estonia and in 2012th and in 2013th Latvian economy (GDP) fastest development in the Baltic countries as well as among all EU-28 countries. Below we analyze the main causes of transportation company.

4. Analyses Of Enterprise Size Class Of Transportation And Storage Companies

4. 1 Overview of European Union transportation and storage companies

Structural business statistics can be analysed by enterprise size class (defined in terms of the number of persons employed). There were around 1.1 million enterprises in the EU-27’s transportation and storage services sector in 2010, equivalent to 5.2 % of the non-financial business economy (Sections B to J and L to N and Division 95) enterprise population. These enterprises employed 10 million persons and recorded value added of EUR 471.7 billion, which represented 7.5 % of those working in the non-financial business economy and 7.9 % of the wealth generated in the non-financial business economy. The relatively low share of transportation and storage services in the non-financial business economy enterprise population indicates that the average size of enterprises in the transportation and storage services sector (in value added or employment terms) was above average; indeed, this sector includes some activities which are dominated by very large enterprises, for example, postal services, air and rail transport services. [17]

In the EU (27 countries) as a whole, the number of transportation and storage enterprises grew by a significant 13.3% during the years 2008 to 2010. Spain, Italy, France, Germany and Poland had the largest number of such companies. In 2010, the three first countries constituted 43.1% and all five together 59.7% of all transportation and storage enterprises in the EU. In all of the countries, except in France, the number of enterprises decreased. [24]

4. 2 Number of transportation and storage enterprises in the Baltic countries

The main emphasis of this analysis is on how the transportation and storage enterprises of Baltic countries survived the economic crisis. What are the lessons learned from the economic crisis?

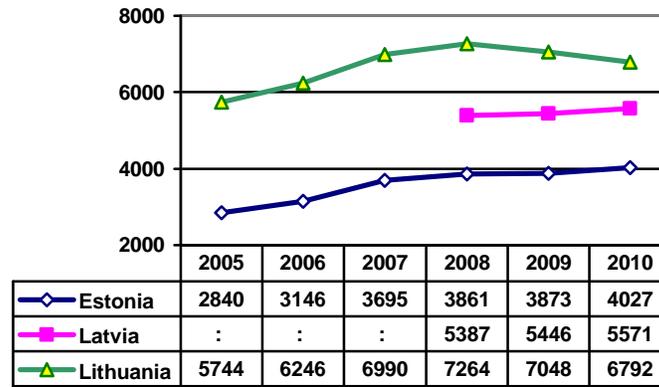


Figure 4. Number of transportation enterprises in Baltic countries. [24]

Source: the authors' illustration

While the number of enterprises in the Baltic countries in 2008 was 16 512, the following year the number was smaller by 145, i.e. 0.9%. On the other hand, in 2010, this indicator nearly reached the 2008 level (-0.07%). Estonia and Latvia have had a steady increase, Lithuania, contrary to a continuous decline.

The following trend can be noted in Baltic and in CEE countries: an increase until 2008, a decrease in 2009 and a new increase in the following year that remained below 2008 levels.

Since the number of enterprises increased for some and decreased for others, they must be analysed as separate groups. Considering the significantly different economic levels of these countries, especially during the crisis; and considering the sizes of enterprises, generalisations cannot be made taking into account only the changes in the number of enterprises.

Conclusion

The number transportation companies of Baltic countries, as the entire economic crisis took different courses in different countries. The general trend was that the number of enterprises grew until 2008, decreased in 2009 and experienced another increase during the following year that did not reach the 2008 levels. Estonia and Latvia, where the number of transportation companies continued to grow, also during the crisis, were an exception.

Thus, these indicators alone are not enough to draw conclusions on how transportation companies got through the economic crisis. Other key indicators must also be analysed, and at the same time, it must be taken into account that other European states experienced an economic (GDP) decline in 2012.

4. 3 Number of transportation and storage enterprises by persons employed

Table 2. Number of enterprises. From 0 to 1 persons employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	801	900	1124	1302	1407	1765
Latvia	:	:	:	1771	2063	2205
Lithuania	1835	1994	2215	2116	2034	1766

The number of sole traders increased during the crisis, since the number of persons employed in micro and average sized companies decreased.

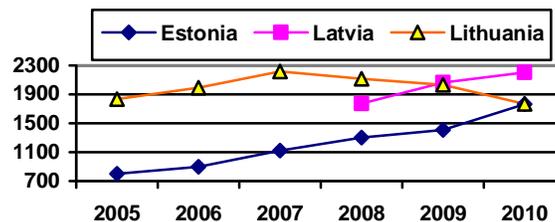


Figure 5. Number of transportation enterprises in Baltic countries. From 0 to 1 person employed. [24]

Source: the authors' illustration

Conclusion: relatively stable, except in Lithuania.

Table 3. Number of enterprises. From 2 to 9 person employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	1,435	1,622	1,933	1,914	1,862	1,691
Latvia	:	:	:	2,504	2,481	2,504
Lithuania	2,528	2,765	3,147	3,466	3,574	3,604

There are a half less micro companies than there are single person companies. Their percentage in the EU was 33.2%. Thus, the ratio of companies with less than 10 employees in the EU-27 countries in 2010 was 90.9%. The total number of enterprises in the Baltic countries in 2008 was 7,884. However, in 2010, their number decreased to 7,779 (-1.3%).

Table 4. Number of enterprises. From 10 to 19 person employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	307	331	319	342	304	300
Latvia	:	:	:	614	457	416
Lithuania	677	704	773	834	694	695

While the total number of enterprises in the Baltic countries in 2008 was 1,790. In 2010 it decreased to 1,411. Two years the reduction was 21.1%.

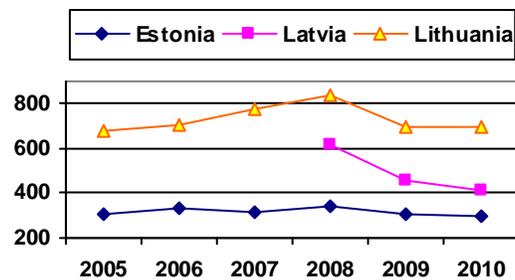


Figure 6. Number of transportation enterprises in Baltic countries. From 10 to 19 person employed. [24]

Source: the authors' illustration

Table 5. Number of enterprises. From 20 to 49 person employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	175	172	196	184	189	169
Latvia	:	:	:	338	293	306
Lithuania	459	516	565	545	481	468
Total				1067	963	943

In Baltic countries there were 1,067 companies in 2008; this was followed by a constant decline. In 2010, there were only 943 companies left.

Table 6. Number of enterprises. From 50 to 249 person employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	110	108	111	106	99	90
Latvia	:	:	:	131	123	110
Lithuania	217	238	260	269	237	227
Total				506	459	427

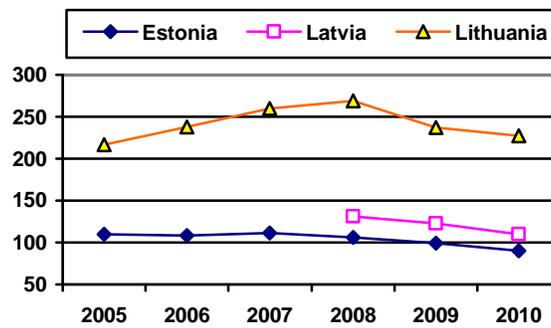


Figure 7. Number of transportation enterprises in Baltic countries. From 50 to 249 person employed. [24]
Source: the authors' illustration

From the 2008th all had a continuous decline.

Table 7. Number of enterprises. 250 or more persons employed. [24]

	2005	2006	2007	2008	2009	2010
Estonia	12	13	12	13	12	12
Latvia	:	:	:	29	29	30
Lithuania	28	29	30	34	28	32
Total				76	69	74

In Estonia and Latvia were between 2008 and 2010, was the number remained relatively stable, while Lithuania has decreased in 2009 by 9.2%.

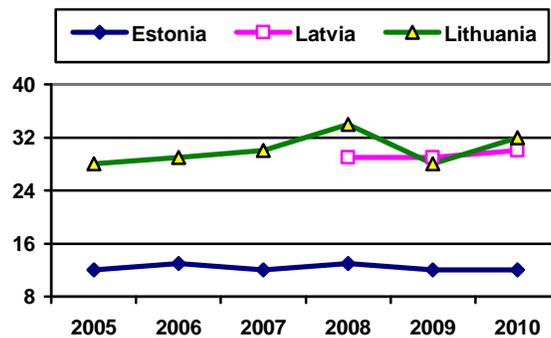


Figure 8. Number of transportation enterprises in the Baltic countries of the EU. 250 or more persons employed. [24]
Source: the authors' illustration

Whether this fluctuations was due to the crisis, will become clear through the analysis of the following other factors.

Table 8. Number of enterprises. Transportation and storage. Persons employed. [25]

	Total	From 0 to 9	From 10 to 19	From 20 to 49	From 50 to 249	250 or more
EU-27	1,122,086	1,019,957	51,380	32,000	15,500	3,200
Estonia	4,027	3,456	300	169	90	12
Latvia	5,571	4,709	416	306	110	30
Lithuania	6,792	5,370	695	468	227	32

The general trend was that the ratio of micro companies in the EU as a whole was 90% and that of large companies was 0.3%.

Here it must be taken into account that the time difference between, when a company officially declares bankruptcy (death of a company, liquidation) and the actual slump (financial difficulty) may often be more than a year.

Some companies have in essence stopped their activities but will continue to exist statistically for some time. This is especially true for SMEs. Thus, the economic crisis has affected the number of companies in these groups, and as such, other indicators, especially financial indicators must be observed in order to provide a more substantial evaluation of the effects of the crisis.

4. 4 Number and rate of the births and deaths of transportation and storage enterprises

Table 9. Number of births and deaths of enterprises (in thousands). [26]

	Number of births							Number of deaths		
	2004	2005	2006	2007	2008	2009	2010	2008	2009	2010
Estonia	476	396	555	683	917	472	420	997	1,049	671
Latvia	305	364	483	573	761	766	891	885	765	667
Lithuania	:	:	:	1,394	870	865	856	851	1,550	1,515

Table 10. Births and deaths rate of enterprises (%).[27]

	Births rate			Deaths rate		
	2008	2009	2010	2008	2009	2010
Estonia	12,11	6,51	6,14	13,16	14,47	
Latvia	13,61	14,08	15,77	15,83	14,06	
Lithuania	12,12	11,15	11,81	11,86	19,97	

Birth and death rate: number of enterprise births or death in the reference period (t) divided by the number of enterprises active in t.

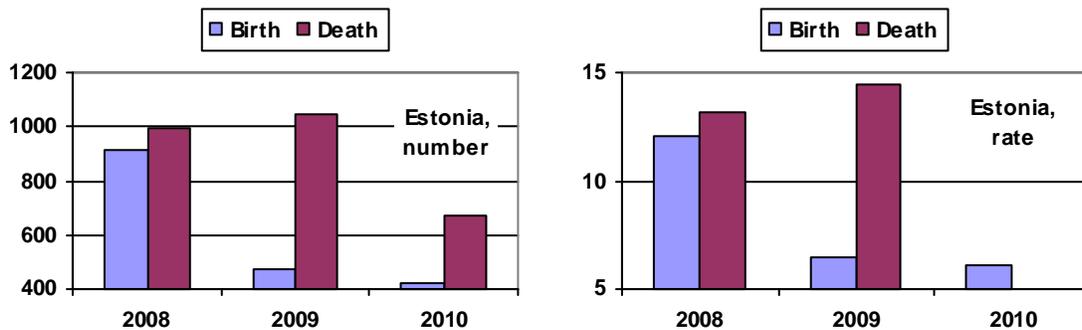


Figure 9. Number and rate of the births and deaths of enterprises in Estonia. [26,27]

Source: the authors' illustration

The changes in the number of transportation companies in 2008-2010 have been brought here on the example of Poland, as the largest CEE-8 country, and Estonia, the most successful Baltic State. The trends vary – in Poland, the number of the births of new companies exceed or are more or less equal to the number of the deaths of companies, whereas in Estonia and Lithuania the deaths of companies significantly exceed the births of companies, especially in 2009 and 2010.

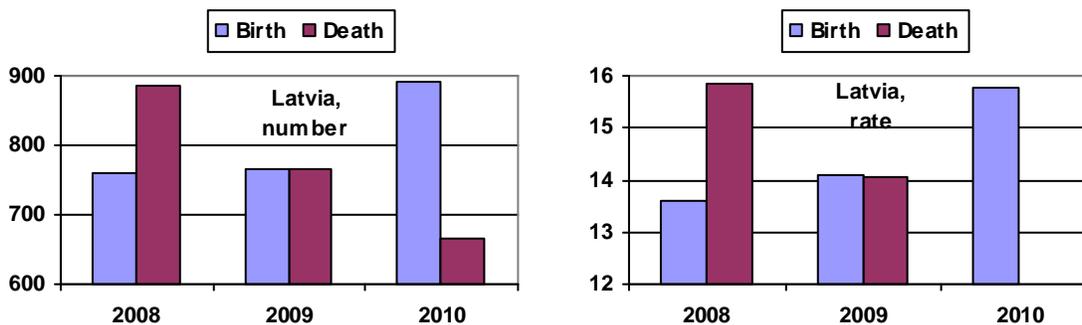


Figure 10. Number and rate of the births and deaths of enterprises in Latvia. [26,27]

Source: the authors' illustration

In Latvia the births of companies significantly exceed the deaths of companies, especially in 2010.

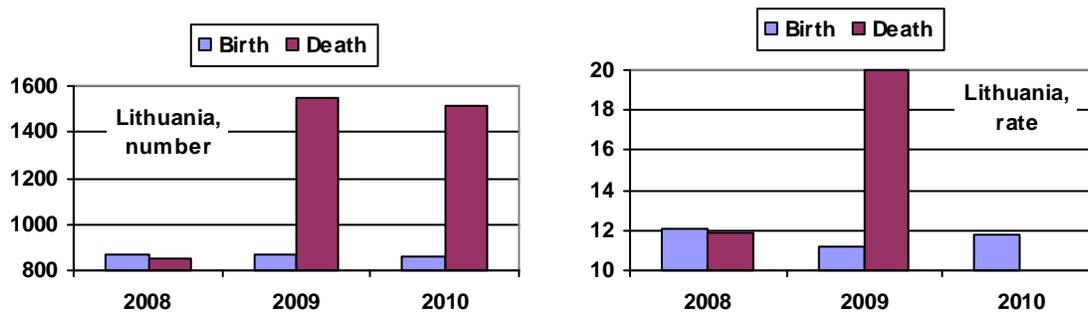


Figure 11. Number and rate of the births and deaths of enterprises in Lithuania. [26,27]

Source: the authors' illustration

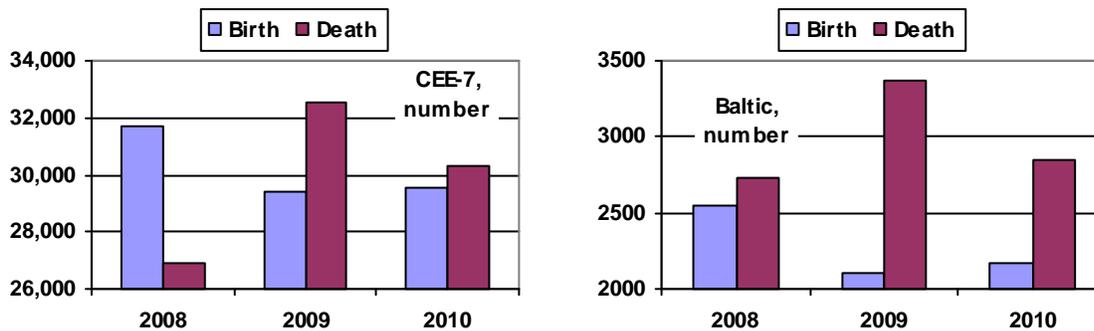


Figure 12. Number of the births and deaths of enterprises in the CEE-7 and Baltic countries (in thousands). [26]

Source: the authors' illustration

The deaths of companies in comparison to the births of new companies grew for both regional groups. Although, yet again, the CEE-7 was slightly better off than the Baltic States.

Aggregate tables, also presenting comparisons of the EU-27 have been brought in the conclusion [28-31].

Table 11. Key indicators, transportation and storage (NACE Section H), 2010. [28]

	Number of enterprises	Persons employed	Turnover	Value added
	thousands		EUR million	
EU-27	1 122.1	10 000.0	1 250 000	471 661
Estonia	4.0	36.9	4 084.8	926.7
Latvia	5.6	68.2	4 008.4	1 188.4
Lithuania	6.8	90.4	4 958.4	1 277.9

Table 12. Key indicators of EU, transportation and storage (NACE Section H), 2010. [29]

	Number of enterprises	Number of persons employed	Value added	Apperent labour productivity
	thousands		EUR million	EUR thousand per head
All enterprises	1 122.1	10 000.0	471 661.3	47.2
All SMEs	1 118.8	403.6	214 137.5	39.6
Micro	1 020.0	2 034.1	64 892.5	31.9
Small	83.4	1 754.4	73 245.0	41.7
Meduim-sized	15.5	1 615.1	76 000.0	47.1
Large	3.2	5 000.0	258 000.0	51.6

Table 13. Number of persons employed by enterprise size class, transportation and storage (NACE Section H), 2010. [30]

	Total	SMEs	Micro	Small	Medium-sized	Large
	thousands	% of total				
EU-27	10 000.0	54.0	20.3	17.5	16.2	46.0
Estonia	36.9	72.1	24.3	24.1	23.8	27,9
Latvia	68.2	53.6	17.4	21.3	14.9	46.4
Lithuania	90.4	66.6	18.3	26.2	22.1	33.4

Table 14. Value added by enterprise size class, transportation and storage (NACE Section H), 2010. [31]

	Total	SMEs	Micro	Small	Medium-sized	Large
	EUR million	% of total				
EU-27	471 661	45.4	13.8	15.5	16.1	54.6
Estonia	927	75.4	12.2	22.3	40.9	24.6
Latvia	1 188	54.0	15.0	21.0	18.0	46.0
Lithuania	1 278	58.1	10.0	23.5	24.6	41.9

Taking into account this publication and the previous work of the authors [3 - 10] have made the following conclusions of transportation and storage companies.

Summary

1. In 2010, the total number of enterprises of transportation and storage companies in the EU-27 barely exceeded the 2008 level, while the number of persons employed remained below.
2. In 2010, turnover and added value of enterprises in the EU-27 remained below the 2008 level, while gross operating surplus was higher.
3. In 2010, apparent labour productivity and gross operating rate of enterprises in the EU-27 were higher than in 2008. Total turnover per person employed in the EU-27 grew in 2009 and 2010 compared to 2008. According to this indicator, transportation and storage successfully overcame the crisis year 2009. However, if we look at turnover per person employed in transportation and storage by countries and the sizes of companies, this trend is no longer valid for most states.
4. The majority of the companies in the EU-27 were micro companies (their ratio was 90.1%). Half of the persons employed worked in large companies. Without doubt, those companies also had the largest added value share (54.7%) and highest labour productivity (51.6 thousand Euros per head).
5. In Baltic and Eastern European countries, average sized companies were most effective.
6. The number of transportation companies, as well as the economic crisis took significantly varying routes in different countries. Since the number of enterprises grew in some countries and decreased in others, countries must be analysed as separate groups based on the sizes of companies. For instance, as an exception, the number of transportation companies in Estonia and Latvia grew constantly even during the crisis.
7. Considering the extremely different economic levels of countries, especially during the crisis, and the sizes of companies, it is clear that the changes in the numbers of transportation companies alone are not enough to make generalisations on how transportation companies survived the economic crisis. In order to provide a definite evaluation, the interconnectedness of these key factors must be evaluated as a set.
8. The deaths of companies increased compared to the births of companies during the years 2008-2010 both in the Baltic and CEE States. However, the trends vary – in the CEE countries, the ratio was slightly better than for the Baltic States. In Poland, the births of companies exceed or are more or less equal to the deaths of companies. For instance, in Estonia, the deaths of companies significantly exceeded the births of companies during the years 2008-2010.
9. Labour productivity for micro companies with 2 to 9 persons employed was significantly higher in four countries, incl. Estonia, than in other states. This is the first time an old post-socialist country is successfully competing at labour productivity with older and stronger EU states. At the same time, there are more than 10 time differences in this group of enterprises, and nearly 5 time differences among post-socialist states.

10. Of the Baltic countries, Latvia had the largest number of persons employed in large companies (46.0%), while Estonia had the smallest (24.6%).
11. In principle, the transportation companies of the Baltic and CEE countries as a whole exited the economic crisis successfully. On the other hand, the crisis meant the death of thousands of companies and a rise in unemployment.
12. The key indicators did not act similarly for all countries during the economic crisis and as a result, the crisis took different paths in different countries. The consequences and reasons of the crisis varied greatly. In order to provide a definite evaluation, other key indicators must also be viewed as an interconnected set.
13. The key indicators of transportation companies are strongly influenced by the situations of other areas of the economy, especially industry, construction and trade.
14. Significantly decreasing the number of incompetent managers and hiring a large amount of specialists also helped exit the economic crisis successfully and thus saved the economy of the state.
15. On the other hand, it is an objective inevitability that the market economy develops cyclically, with highs and lows. Those managers, who were more knowledgeable of the laws of the economy and managed to use them to their advantage, were better at exiting the crisis.
16. In the current conditions of increasing globalization, the economic situation of partner states has more and more influence, especially on smaller states. Success depends on whether companies have been able to find business partners, especially abroad. But at times also on how quickly they have been able to find new, solvent partners.
17. The companies death or the deterioration of economic indicators caused by both objective and subjective factors.
18. The economic crisis cleansed the business market of weak companies, also in the field of transportation, thus creating grounds for new development.

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