Global Advanced Research Journal of Management and Business Studies (ISSN: 2315-5086) Vol. 2(3) pp. 126-136, March, 2013
Available online http://garj.org/garjmbs/index.htm

Full Length Research Paper

Companies working efficiency before and after the economic crisis of the Latvia example

Lembo Tanning[1*] and Toivo Tanning[2]

[1]University of Applied Sciences, Pärnu road 62, 10135 Tallinn, Estonia, EU
[2]Tallinn University of Technology, Akadeemia street 3, 12618 Tallinn, Estonia, EU

Accepted 20 March 2013

Latvia is a country in the Baltic region of Northern Europe. This article focuses on the analysis of productivity and their relations in East Europe, primarily in Latvia. The objective of this article is to analyse the working efficiency, or labour productivity of Latvia companies, and to compare them on the Baltic Tiger (Baltic States) and European Union (EU) level. Industry, construction, trade and transport in Latvia have been viewed separately. On labour productivity the company and its relationship to labour costs is directly dependent on the country's competitiveness. Labour market problems in Baltic and Eastern European countries have become more and more important. When the EU labour markets opened, some EU countries were forced to face the problem of partial workforce drain to richer countries with higher wages. In Eastern European countries - the new EU member states - the labour movement into the old EU member states, where salaries are higher, has become a serious problem. Labour productivity analysis showed that both Latvia and the other Baltic States have successfully out of recession. A number of proposals to increase labour productivity for both workers and entrepreneurs have been listed in the summary.

Keywords: Latvia, Baltic States, workforce, working efficiency, labour productivity, recession, suggestions.

INTRODUCTION

Latvia is a member of the United Nations, EU, Council of Europe, NATO, IMF and WTO. Latvia was Europe-leading GDP growth during 1998–2006. In 2008 – 2010 Latvia was the hardest hit of the EU member states, with a GDP decline of 26.54% in that period. In 2010, Latvia's economy continued to improve and in 2011 was again become one of the fastest growing economy in the European Union. [Code: IKG01] The United Nations lists Latvia as a country with a "Very High" Human Development Index (43th). [Human] The term *Baltic Tiger* is used by one of the three Baltic States of Lithuania, Latvia and Estonia applied during a period of economic boom, which began after 2000 and lasted until 2006-2007. The Baltic countries had the highest growth rates in Europe between 2000 and 2007. Due to the global economic crisis, Baltic economy in 2008 was fragile and the previous fast growth has declined in Estonia and Latvia by the end of 2008, after Lithuania joined in 2009. Working efficiency in Baltic countries (Lithuania, Latvia and Estonia) has been analysed. The main branches of the Baltic States national economy in connection to the economic crisis have been analysed. Four major sectors of the economy with the greatest gross domestic product and largest number of employees will be observed: industry, construction, trade and transportation. The situations before the crisis, during the crisis and after the crisis will be viewed. The

*Corresponding Author's E-mail: lembo.tanning@gmail.com

growth of the entire economy, measured using gross domestic product (GDP), will be viewed as background. The main emphasis is still on the three Baltic States, and on Latvia business in more detail. Baltic countries labour productivity, wages, and other economic indicators are lagging behind Western European operators. Why? For an introduction, see the background for the Eastern European countries that were part of the Soviet bloc. This will help them to better understand the economic backwardness of Western Europe, the countries of the Western civilization.

METHODOLOGY

The techniques and labour market survey definitions and methodology used by the authors have been specified in Eurostat. Productivity is measured by output per worker or per hour. Labour productivity is defined as GDP per hour worked. The measures of labour productivity are presented as indices and as rates of change. Labour productivity per hour worked is calculated as real output per unit of labour input (measured by the total number of hours worked). Measuring labour productivity per hour worked provides a better picture of productivity developments in the economy than labour productivity per person employed, as it eliminates differences in the full time/part time composition of the workforce across countries and years. [Code: tsdec310] Labour productivity per person employed (on the basis of value added) – indicates how much value added is generated on average per person employed (is calculated as value added divided by the number of persons employed). [Formulas] ULC (unit labour cost) is defined as a relation between labour costs and labour productivity. If the productivity is growing faster than wages, the ULC decreases, which means that competitiveness of the state costs increases and vice versa. [Economic (2011)]

Eastern European countries – the background

For an introduction, see the background for the Eastern European countries that were part of the Soviet bloc. This will help them to better understand the economic backwardness of Western Europe, the countries of the Western civilization.

The Soviet Union existed between 1922 and 1991; the government and economy of the 15 multinational Soviet Republics were highly centralized. The Soviet Union established the Eastern Bloc (Soviet satellite states) in much of Central and Eastern Europe and emerged as one of the world's two superpowers after the war.

The German–Soviet Non-Aggression Pact (1939) made the Soviet occupation of Lithuania, Latvia, Estonia, Bessarabia, northern Bukovina, and eastern Poland possible. In 1940, the Soviet Union annexed the Baltic States Estonia, Latvia and Lithuania.

Latvia, but also Estonia and Lithuania were a member of the League of Nations (1921–1946).

In the late 1980s, the constituent republics of the Soviet Union started legal movements towards potentially declaring sovereignty over their territories. On April 7, 1990, a law was passed allowing a republic to secede if more than two-thirds of its residents voted for it in a referendum. Lithuania, Latvia and Estonia immediately declared the restoration of their full independence, while the other twelve republics continued discussing new, increasingly looser, models of the Union. The remaining republics were recognized as independent with the Soviet Union's final dissolution on December 26, 1991.

The dissolution of the Soviet Union was a process of systematic disintegration, which occurred in economy, social structure and political structure.

On 11 March 1990, a year before the collapse of the Soviet Union, Lithuania became the first Soviet republic to declare independence. The Estonian sovereignty declaration was issued on 16 November 1988 and formal independence declared on 20 August 1991. The independence of Latvia was restored on 21 August 1991.

Lithuania, Latvia and Estonia have been members of both the European Union and the NATO since 2004. Now, most of the former Eastern European Bloc countries are members of the EU and NATO. [The Occupation; Information (2012); Tanning, L.; Tanning, T. (2010)]

Analysis of the economy of the former USSR

Next, we will analyse the development of the economy of the former USSR (The Union of Soviet Socialist Republics) using UNdata source data. GDP per capita at current prices in U.S. dollars has been brought below. [GDP per capita]

In 1990, GDP per capita in Estonia and Latvia was respectively 1.31 and 1.17 times greater than in the USSR, but still slightly below the GDP per capita in Russia. Compared to the GDP of Ukraine and Belarus, Latvia was 1.9 and 1.8 times better. Russia's GDP was high because of its powerful concentrated heavy industry, mainly in the war industry.

In 1990 the USSR had a backward economy in comparison to Western countries, when measured by GDP per capita, which is 8 to 11 times higher there. The lag of the Baltic States was also very high: 6 to 8 times.

While in the years 1983 - 1990 the economy of the developed economies of the Western countries grew up to 1.53 to 2.69 times, the economy of the USSR simultaneously fell by nearly a quarter (22.3%).

This analysis shows the economic reasons behind the disintegration of the USSR. Their economy did not only stop, but went back.

Formulas of productivity measures [Formulas]

	Productivity measures by net sales	Productivity measures by value added
Productivity of labour (thousand euro)	*net sales + subsidies* *number of persons employed*	*value added* *number of persons employed*
Productivity per hour (euro)	*net sales + subsidies* *number of hours worked by employees*	*value added* *number of hours worked by employees*

The theoretical basis of workforce productivity measurement in more detail are given of the authors' earliest publications. [Tanning, L.; Tanning, T. (2012) a; b; Tanning, T.; Tanning, L (2013)]

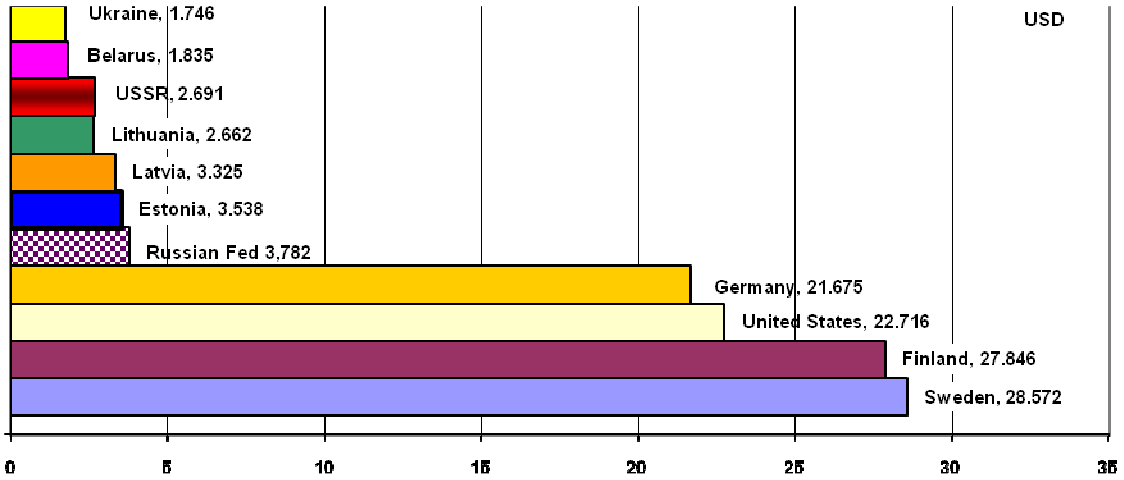


Figure 1. GDP per capita at current prices - USD, 1990 [GDP per capita]
Source: the authors' illustration

ANALYSIS

Working efficiency

GDP is an indicator for a national economic situation and a measure of the economic activity. It reflects the total value of all goods and services produced. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size. [Methodology]

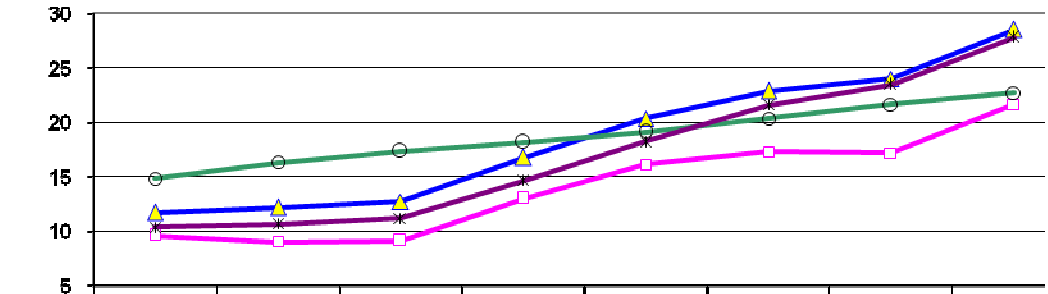
Gross domestic product growth rate

Economic growth is defined as a production increase of an output of a production process. In order to calculate GDP growth rate in constant prices, GDP in current prices is converted to the prices of the previous year and changes in volume are determined based on the level of the reference year. The calculation of the annual growth rate of GDP volume is intended to allow comparisons of the dynamics of economic development both over time and between economies of different sizes. For measuring the growth rate of GDP in terms of volumes, the GDP at current prices are valued in the prices of the previous year and the thus computed volume changes are imposed on the level of a reference year. Price changes therefore do not affect the growth rate of GDP. Accordingly, price movements will not inflate the growth rate. [Code: tec00115]

Real GDP growth rate, percentage change during the previous year in 2011: EU 27 = 1.5%; USA = 1.8%; Germany = 3.0%, and Sweden = 3.9%. [Code: tec00115]

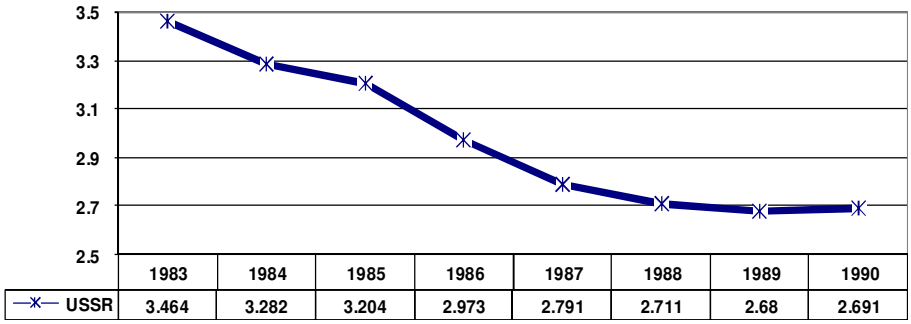
The trend line shows the cyclical development of the Estonian economy (GDP). In addition to the economic decline during the years 2008 – 2009, there was also a decline in 1999. If an annual real GDP increment of more than 10% can be considered excellent, then the result in 2009 (14.1%) was one of the largest in the world.

The development of the Latvia economy before and after the crisis was one of the fastest in the EC. Yet, the crisis led to a very deep recession, which was one of the greatest in the world, as well as in the EC, and lasted for nine quarters. 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.



	1983	1984	1985	1986	1987	1988	1989	1990
Germany	9.588	9.032	9.125	13.017	16.111	17.328	17.217	21.675
Sweden	11.74	12.193	12.739	16.806	20.397	22.927	24.037	28.572
USA	14.828	16.334	17.356	18.173	19.108	20.375	21.684	22.716
Finland	10.354	10.674	11.207	14.684	18.227	21.631	23.49	27.846

Figure 2. GDP per capita for Germany, Sweden, the USA and Finland at current prices - USD, 1983 – 1990 [GDP per capita]
Source: the authors' illustration



	1983	1984	1985	1986	1987	1988	1989	1990
USSR	3.464	3.282	3.204	2.973	2.791	2.711	2.68	2.691

Figure 3. Former USSR GDP per capita at current prices - USD, 1983 – 1990 [GDP per capita]
Source: the authors' illustration

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 f	2014 f
Estonia	5.9	11.7	6.8	-0.3	9.7	6.3	6.6	7.8	6.3	8.9	10.1	7.5	-4.2	-14.1	3.3	8.3	3.2	3.1	4
Latvia	4.3	9.1	5.4	3	5.7	7.3	7.2	7.6	8.9	10.1	11.2	9.6	-3.3	-17.7	-0.9	5.5	4.3	3.6	3.9
Lithuania	5.2	8.1	7.6	-1	3.6	6.7	6.8	10.3	7.4	7.8	7.8	9.8	2.9	-14.8	1.5	5.9	3.6	3.1	3.6

Figure 4. Real GDP growth rate – volume. Percentage change during the previous year. [Code: tec00115]
Note: f – forecast, Latvia 2012f, Source: the authors' illustration

Again, GDP growth in 2011 and also 2012 are highest in the EC.

The source data of Latvia is attached Lithuania and Estonia IVQ 2012 data. Their raw data the authors have made a summary figure. The 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 Latvian economy (GDP) fastest development in the Baltic countries as well as among all

EU-27 countries. Below we analyze the main causes.

Gross domestic product per capita and per person employed

GDP per capita in constant prices constant prices GDP is found and the ratio of the average population. Often used in constant prices GDP as an indicator of the wealth of nations, as it reflects the average real income in this country. However, the tool does not provide a complete overview of economic well-being. For example, GDP does not reflect much of the unpaid work in households, nor does it take into account negative effects of economic activities, such as damage to the environment. GDP per capita in constant prices is based on rounded. [Code: tsdec100]

GDP per capita (PPP) is an important indicator of a state's standard of living, which takes into account price level differences. The economy was the highest during the years 2007 - 2008. A larger or smaller recession took place in 2009, which is called the crisis year. In the following years economy grew.

Between 1995 and 2007, GDP per capita in constant prices in Estonia increased by 2.48 times, by 2.31 times in Lithuania and 2.67 in Latvia. The economic crisis significantly brought down the levels and in 2011, Lithuania was the only country that managed to exceed pre-crisis levels, in fact, Estonia and Latvia were also short of the level of the year 2006.

GDP per person employed is intended to give an overall impression of the productivity of national economies expressed in relation to the EU-27 average. The volume index of GDP per capita in PPS is expressed in relation to the EU-27 average set to equal 100. If the index of a country is higher than 100, this country's level of GDP per head is higher than the EU average and vice versa. Key indicators are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. The index, calculated from PPS indicators and expressed with respect to EU27 = 100, is intended for cross-country comparisons rather than for temporal comparisons." [Code: tec00114]

When analysing productivity in EU-27 (added value produced by one worker) by sectors of the economy and the size of companies, one cannot draw an equipollent (equal in force or effect) conclusion regarding productivity and the number of workers engaged in the company. It is conditioned by the particular sector of the economy. For instance, productivity among energy and water management companies is highest in small firms with up to 9 persons on payroll. On the other hand, for companies active in the lease of movable property, accommodation (housing) companies, and among all the sectors of the economy taken together as an entity, productivity is highest in big firms that employ 250 or more workers. Highest productivity among textile and habiliment (articles of clothing) firms can be noted in companies with 10 - 49 workers; the same can be said for timber companies with 50 – 249 workers [tin00054].

A more detailed analysis of the productivity indicators of Latvia companies and the labour expenses in current prices, i.e. the predominant share constituted by salaries, is brought below.

In comparison, in Estonia, productivity differs little for companies in the size of up to 249 workers. In 2003 and 2007 firms with 50 –99 workers boasted the largest productivity; in 2005 it was companies with up to 9 workers and for the rest of the surveyed period, companies with 100 – 249 workers dominated. Invariably, large companies with smaller productivity had 250 and more workers. This can be accounted for by the fact that smaller companies have larger flexibility in management, a smaller number of ancillary personnel and also because the workers of small companies are more likely to be "jacks of all trades" than in big companies. In big firms productivity is sapped, as a general rule, by large overheads.

In Norway, the indicator for euro per hour worked has grown from 49.3 thousand to 68.9 thousand during the years 1990 – 2011, from 29.8 to 44.4 in Sweden, from 25.7 to 40.0 in Finland, from 37.4 to 48.9 in Denmark, from 33.4 to 45.4 in France, from 31.2 to 42.3 in Germany, from 29.5 to 41.5 in the United States; and during the period from 1995 – 2011 from 25.3 to 31.9 in the EU (27 countries).

In 2011 Norway (68 900 EUR) and Luxembourg (60 000 EUR) have highest productivity, euro per hour worked, in Europe and also globally. EU 27 was 31 900 EUR. [Code: tsdec310]

Compared to 2005, labour productivity per hour in all 10 of the new post-socialist EU countries has increased at a more rapid pace than the EU 27 average. Ireland had the greatest increase of the old EU member states (117.3) and Latvia among the new members (133.6). Hungary had the smallest growth (104.6) among new members, which was even lower than the EU 27 average. The level of Estonia among the new member states was average.

Labour productivity grew for all countries until 2008. In 2008 some countries, including Estonia (-2.8), experienced a decline. In 2009, all countries, except Estonia and Poland were experiencing a decline. In 2011 hourly labour productivity only decreased in Estonia compared to the previous year. The greatest productivity growth in 2011th was of Latvia (+13.8%).

Having a base of 1995 = 100, the 1995th ratio had the highest labour costs in Estonia (116.7), and Lithuania was lowest (93.5), Latvia was between them (107.9). Estonian labour cost declined steadily until 2002 years (100.2), and were stable and the years 2007 - 2009 (117.8) saw a sudden increase. Latvian labour costs declined steadily from 1997 (114.5) to 2002. (94.7), had

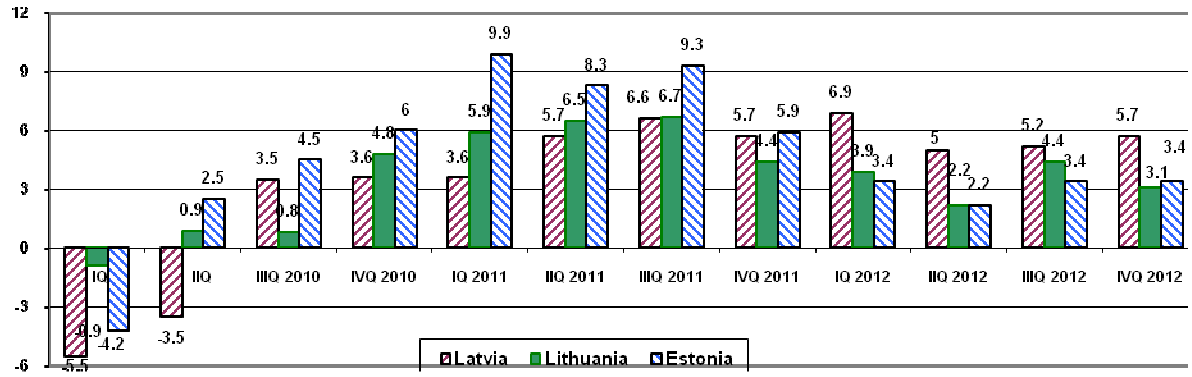


Figure 5. Changes of Gross Domestic Product in the Baltic States, at constant prices, % of the corresponding period of the previous year [Press news]
Source: Central Statistical Bureau of Latvia and the authors' illustration

Table 1. Labour productivity per employed person. Index EU-27 = 100. [Code: tec00116]

	1995	1997	1999	2001	2003	2005	2006	2007	2008	2009	2010	2011
Estonia	34.1	40.0	43.5	48.4	55.0	60.8	62.4	66.7	65.8	65.5	69.3	67.6
Latvia	33.4	35.7	38.3	41.6	44.2	47.8	48.9	51.4	51.6	52.8	54.8	62.7
Lithuania	36.2	38.6	40.6	47.4	52.6	55.0	56.8	59.6	62.1	57.6	62.5	64.9

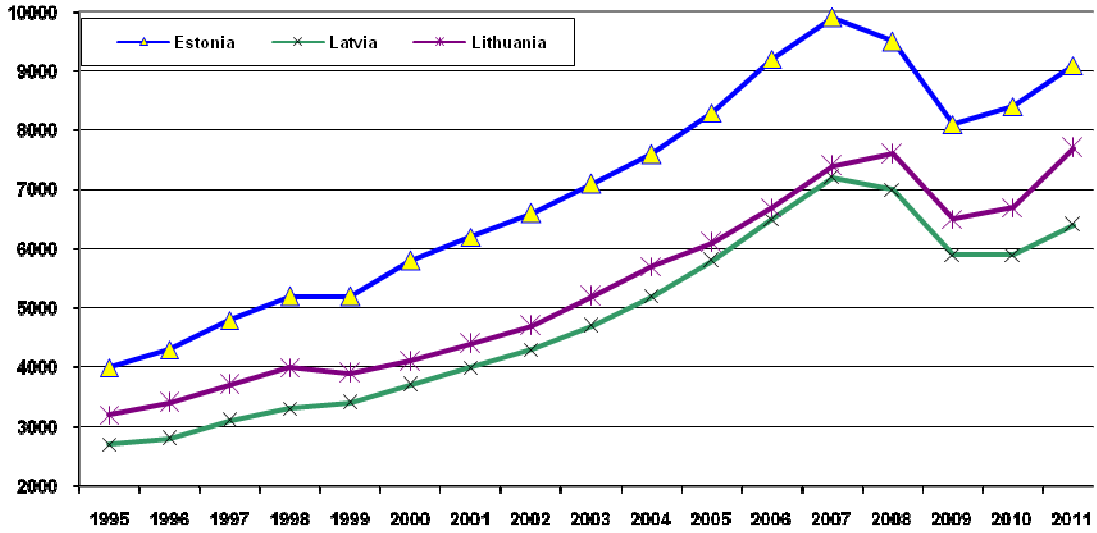


Figure 6. Real GDP per capita, EUR per inhabitant, 1995 – 2011 [Code: tsdec100]
Source: the authors' illustration

two years of steady, and growth the 2008th year (118.3), but was followed by a gradual decrease to a level below 2005th level. Lithuanian labour costs of was the most stable and declined sharply after the economic crisis of the 2011th was 90.1. Lithuanian labour cost has been the most stable and after recession declined sharply, reaching the 2011th was 90.1. According to the forecast, Latvian and Lithuanian labour cost decline will continue in the years 2012 and 2013, but Estonia is a small increment.

The ULC is one of the indicators characterising competitiveness (the country in general and individual sectors).

In 2010, compared to 2008, the real ULC in the EU countries has increased on average by 1.2%. Yet, it decreased in the Baltic States, thus reflecting the improving competitiveness. In 2010, the real ULC in Estonia and Lithuania was respectively by 4.3% and 7% lower than in 2008. But it decreased by 14.4% in Latvia. Unlike the years of rapid growth, when changes (growth) in the ULC were mainly determined by structural factors, the ULC dynamics since 2008 to a great extent are related to the cyclical factors or crisis consequences. The real ULC still continued to grow in 2008 but not as rapidly and it was by almost 7% higher than in the previous year. [Economic (2011)]

The significant adjustments in the labour market of Latvia (Figure 13) in 2009 affected the dynamics of both

Table 2. Labour productivity. Euro per hour worked. [Code: tsdec310]

	1995	1998	2000	2002	2004	2005	2006	2007	2008	2009	2010	2011
Estonia	:	:	7.0	7.7	8.7	9.2	9.7	10.3	10.0	10.3	10.9	10.8
Latvia	:	:	4.2	4.7	5.5	5.9	6.3	6.7	6.7	6.6	6.9	7.8
Lithuania	4.5	5.3	5.6	6.5	7.5	7.7	8.2	8.7	8.8	8.3	8.7	9.2

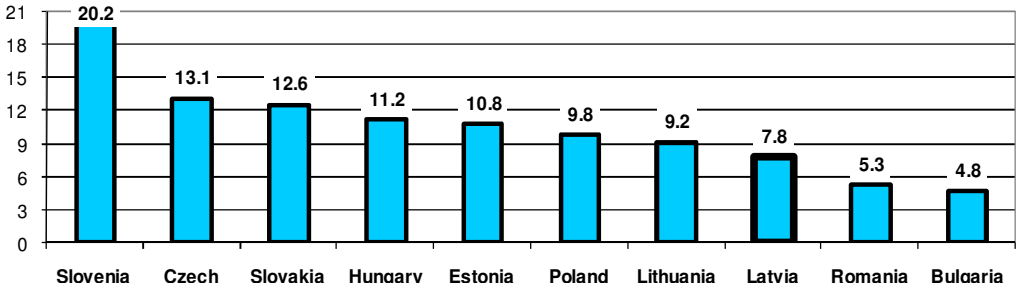


Figure 7. States with lower productivity, euro per hour worked, < EL=100, 2011 [Code: tsdec310]
Source: the authors' illustration

Table 3. Labour productivity per hour worked. Index, 2005=100 [Code: tec00117]

	2006	2007	2008	2009	2010	2011
EU (27 countries)	102.1	103.6	103.1	101.7	103.9	105.3
Estonia	105.0	112.1	108.9	111.7	118.2	116.9
Latvia	106.9	114.6	114.7	111.9	117.3	133.6
Lithuania	106.7	112.8	115.0	107.5	113.9	119.8

Table 4. Labour productivity per hour worked. Percentage change over previous year [Code: tsdec310]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EU (27 countries)	1.8	1.7	1.5	1.7	1.2	2.1	1.4	-0.5	-1.4	2.1	1.4
Estonia	5.9	5.0	6.1	5.8	6.0	5.0	6.8	-2.8	2.5	5.8	-1.1
Latvia	6.5	6.3	6.2	9.3	6.6	6.9	7.2	0.1	-2.4	4.8	13.8
Lithuania	11.8	4.8	8.9	6.0	1.7	6.7	5.7	1.9	-6.5	5.9	5.2

productivity and labour costs. If compared with 2008, productivity has decreased by 5.5% as GDP decreased faster than the number of the employed. However, the labour costs in 2009, if compared with 2008, decreased by 12.7% as the number of the employed decreased faster than the payroll. As a result, the real ULC decreased by 6.2 per cent. The ULC dynamics in 2010 and in the three quarters of 2011 mainly depended on relative changes in the wages and on the number of employed. Yet, considering the low competitiveness of Latvia in the common EU labour market, the changes were already rather moderate. Therefore, the decrease in the unit labour costs, as well as the increase in productivity was to great extent based on changes in the number of employed. The real ULC in 2010 was by 8.2% lower if compared with the previous year, but in the 3rd quarter of 2011 this indicator was by 3.6% lower than a year before. The dynamics of unit labour costs and productivity in 2010 and at the beginning of 2011 show that the rapid adjustment period is over and opportunities to improve competitiveness at the expense of labour cost cuts have been exhausted.

The increase in competitiveness of Latvia no longer can be based on this factor, moreover, taking into account that it will not be possible to keep low wages under circumstances of free labour movement. [Economic (2011)]

Latvia restored successfully the crisis. In 2011 the GDP increased by 5.5%. Over the past few years exports have become the key driver of economy. The export volumes of goods and services have reached the highest level ever. The increase in exports is related to the increase in external demand, and what is more important, also to the improving competiveness of Latvian producers. Recovery of the Latvian economy has been also recognized internationally as the international rating agencies raised the credit rating of Latvia. Increasing risks in external markets, especially in the euro zone in the second half of 2011 and the beginning of 2012 have not had any particular impact on the economy of Latvia. Latvia is currently the fastest growing economy in the EU. Experts expect the overall GDP to increase by 5% in 2012. [Report (2012)]

Taking into account this publication and the previous work of the authors [Tanning, L.; Tanning, T. (2010);

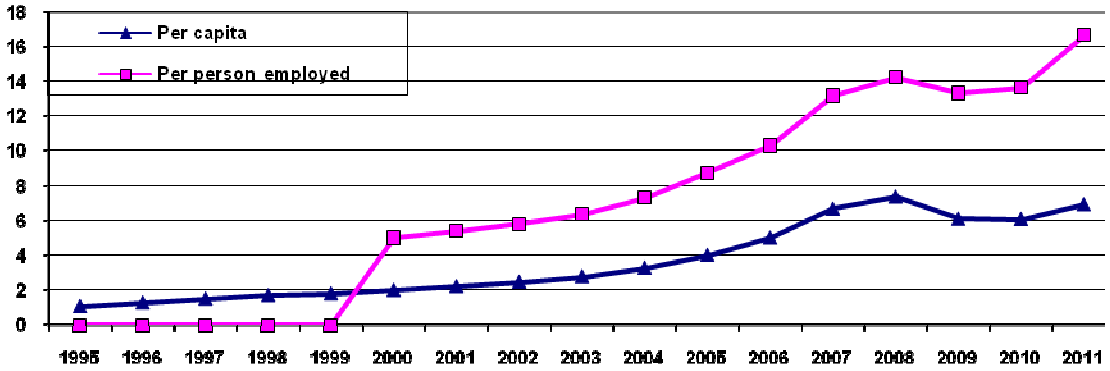


Figure 8. Indicator per capita and per person employed of Latvia, lats [Code: IKG01]
Source: the authors' illustration

Table 7. Gross domestic product per capita and per employed person from production approach by quarters (in lats) of Latvia. Chain-linked reference year 2000 [Code: IK02]

Per capita														
	1995	**1997**	**2000**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
I Q	329	367	449	503	558	618	658	752	837	874	724	692	733	796
II Q	361	421	492	595	641	706	768	862	967	972	804	788	849	903
III Q	357	416	501	594	648	707	807	896	999	964	804	847	921	978
IV Q	405	484	546	659	707	779	897	998	1074	979	838	880	947	-

Per employed person												
	2000	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
I Q	1,121	1,233	1,298	1,410	1,464	1,593	1,711	1,679	1,493	1,609	1,823	1,915
II Q	1,242	1,401	1,473	1,574	1,682	1,805	1,922	1,848	1,734	1,784	2,048	2,109
III Q	1,266	1,363	1,452	1,562	1,738	1,790	1,941	1,846	1,814	1,869	2,177	2,214
IV Q	1,382	1,530	1,617	1,734	1,919	2,018	2,049	1,949	1,919	1,942	2,221	-

Note: 1 lat (LVL) = 1.4225 EUR = 0.5449 USD (4th quarter, 2011)

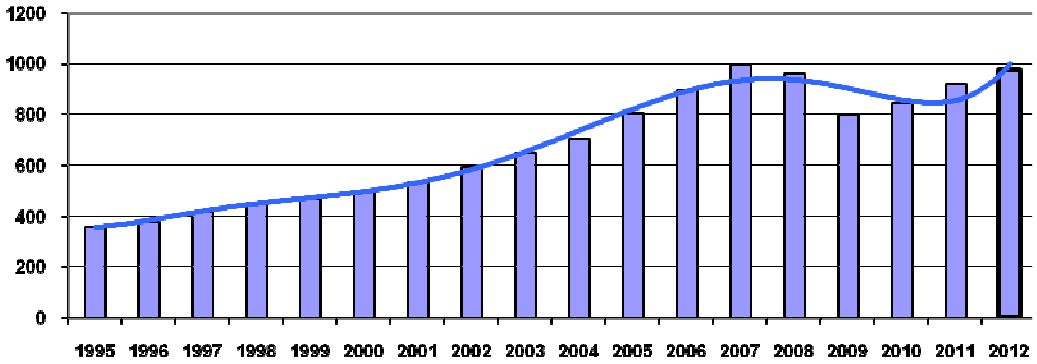


Figure 9. Per capita 3rd quarter of Latvia [Code: IK02]
Source: the authors' illustration

Tanning, L.; Tanning, T. (2012) a; b; Tanning, T.; Tanning, L (2012); Tanning, T.; Tanning, L (2013); Tanning, T. et al (2012)] have made the following conclusions and suggestions.

CONCLUSIONS

In conclusion, the Baltic States, including Latvia of labour productivity, the structural problems in the labour market should be solved by supporting efforts to obtain higher qualifications based on the requirements of the labour market and improve regional and occupational mobility of labour.

The ongoing transition to a sustainable economic model of the economy is the Baltic States, where exports are a key driver of growth and competitiveness in the domestic and foreign markets, and the ability to be competitive in attracting capital to increase the production capacity of the Baltic countries.

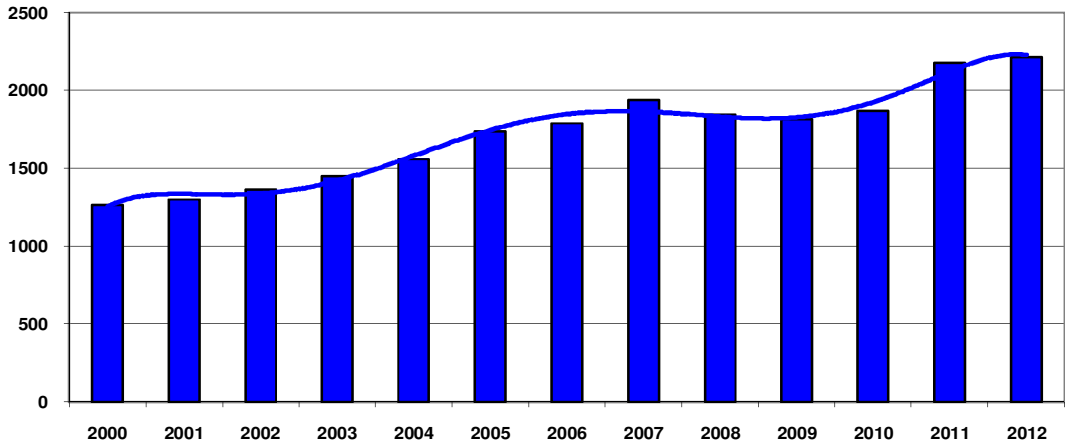


Figure 10. Per employed person 3rd quarter of Latvia [Code: IK02]
Source: the authors' illustration

Table 8. Gross domestic product by kind of activity (NACE Rev.2) of Latvia, thousand lats
Chain-linked reference year 2000. [Code: IKG041]

	(A..S) Gross value added	(C) Manufacturing	(F) Construction	(G) Wholesale and retail trade	(H) Transportation and storage
1995	3,203,615	471,760	185,017	443,598	359,176
1996	3,340,692	487,434	193,754	444,110	410,265
1997	3,655,376	568,059	212,229	509,591	446,418
1998	3,862,905	596,232	247,520	608,066	442,659
1999	3,993,533	571,718	268,919	670,371	444,087
2000	4,217,859	609,039	286,236	735,751	399,179
2001	4,537,843	661,016	309,338	793,976	449,685
2002	4,874,900	730,085	333,767	894,371	476,407
2003	5,240,255	764,802	383,694	994,222	538,752
2004	5,708,925	809,879	437,259	1,099,601	615,194
2005	6,294,639	850,641	504,798	1,280,931	709,327
2006	6,965,774	904,888	639,457	1,526,921	737,333
2007	7,580,966	912,415	761,726	1,697,637	821,073
2008	7,457,215	834,167	735,072	1,580,616	818,620
2009	6,294,107	685,727	499,588	1,177,679	827,872
2010	6,219,430	816,804	344,231	1,183,560	813,302
2011	6,562,864	912,590	385,228	1,286,935	878,798

Unit: thousand lats

(A..S) Gross value added
(C) Manufacturing
(F) Construction
(G) Wholesale and retail trade; repair of motor vehicles and motorcycles
(H) Transportation and storage

Table 9. Real unit labour cost - annual data. Index, 2005=100 [Code: nama_aux_ulc]

	1995	1999	2002	2006	2007	2008	2009	2010	2011	2012(f)	2013(f)
EU (27)	104,9	102,6	102,5	98.8	98.0	99.0	102.2	100.5	100.1	100.3	99.6
Estonia	116,7	105,3	100,2	100.3	105.4	114.6	117.8	109.7	105.2	106.2	106.0
Latvia	107,9	109,0	94,7	104.6	110.7	118.3	110.3	100.2	99.6	96.8	95.2
Lithuania	93,5	109,5	98,0	103.3	101.4	102.1	104.2	95.1	90.1	88.4	86.0

Note: f – forecast

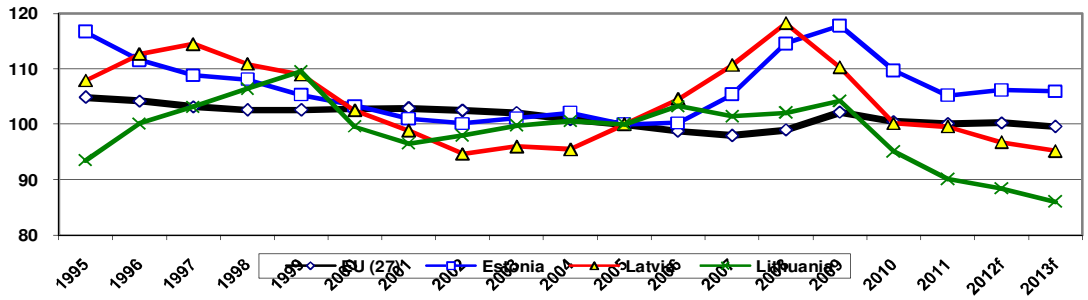


Figure 11. Real unit labour cost - annual data. Index, 2005=100 [Code: nama_aux_ulc]
Source: the authors' illustration

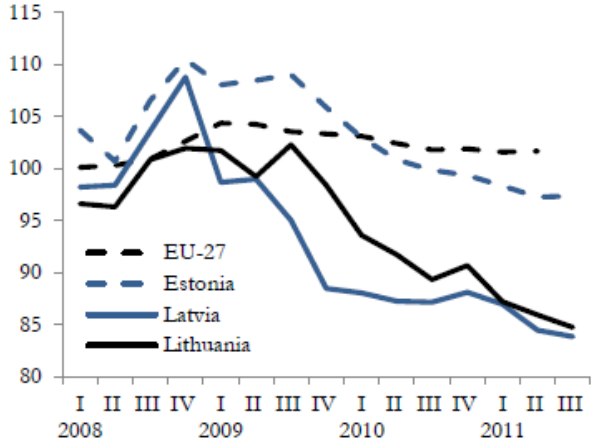


Figure 12. Changes of real ULC in the EU and Baltic States (4th quarter of 2007 =100) [Economic (2011)]
Source: Ministry of Economics of Latvia illustrations

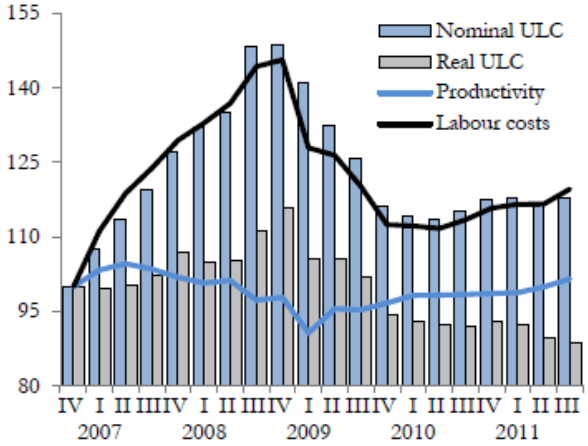


Figure 13. Changes of Labour Costs in Latvia (4th quarter of 2006 = 100) **[Economic** (2011)**]**

RECOMMENDATIONS

- Companies came out of the economic crisis by a surge of hiring professionals, engineers and customer service staff.
- Companies were brought out of the economic crisis by the growth of labour productivity.
- The importance of large companies, especially those with 250 and more employees, was decisive.

To increase labour productivity the following should be taken into account

- To contractors: Objective factors (different innate abilities, talents, working and living conditions). Subjective factors (self-realization, motivation, commitment, a desire to work better, ambition, education, qualification, a variety of mental and physical abilities, laziness, negligence, drunks, the courage to set high goals and the desire to strive for them).
- To employers (the company): Objective factors [better organization of work, using more efficient machinery and equipment, innovation, improving working conditions (lighting, noise, humidity, temperature, air composition, etc.), natural conditions, material possibilities].

Subjective factors [moral (cheering, encouragement, etc.) and material incentives (salary, bonuses, bonus payments, etc.), creating conditions for up-skilling and re-training, the work environment (working collective, i.e. co-workers, etc.), not overly demanding, behaviour with the staff (guaranteeing human integrity, name-calling, etc.), taking internal tensions to the minimum, a desire to develop the company and increase its fame, the educational level and experiences (information capital) of the management leadership, the ambition of the company's management].

- Several of the factors for raising mental and physical work productivity are different. Typically, an increase in the company's productivity depends more on the employees that do mental work (engineers, economists, etc.). It is important to establish an optimal relationship between the groups. The excellent drawings for a machine designed by an engineer will still usually be finished in metal by workers.

- Each company, sector of the economy and region has its peculiarities, and taking these into account would increase labour efficiency.

Labour productivity in Latvia after the economic crisis has grown significantly. Latvia's economy (GDP) growth was in 2012 the highest of the European Union.

REFERENCES

Code: IK02. Gross domestic product per capita of Latvia. (25.01.2013)

Code: IKG01. Gross domestic product. Central Statistical Bureau of Latvia. (25.01.2013) http://data.csb.gov.lv/Dialog/varval.asp?ma=IK0010a&ti=IKG01%2E+GROSS+DOMESTIC+PRODUCT&path=../DATABASEEN/ekfin/Annual%20statistical%20data/02.%20Gross%20domestic%20product/&lang=1

Code: IKG041. Gross domestic product by kind of activity (NACE Rev.2) (25.01.2013)

Code: nama_aux_ulc. Real unit labour cost - annual data. Index, 2005=100. (31.01.2013) http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_aux_ulc&lang=en

Code: tec00114. GDP per capita in PPS - Index (EU-27 = 100). Eurostat. (20.12.2012) http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00114

Code: tec00115. Real GDP growth rate – volume. Percentage change on previous year. Eurostat. (20.12.2012) http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00115

Code: tec00116. Labour productivity per employed person. Eurostat. (20.12.2012) http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00116

Code: tec00117. Labour productivity per hour worked. Index (EU-27 = 100). (20.12.2012)

Code: tin00054. Labour productivity by sector and enterprise size-class in the EU-27. Eurostat. (01.07.2012) http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=de&pcode=tin00054

Code: tsdec100. Real GDP per capita, growth rate and totals. EUR per inhabitant. Eurostat. (20.12.2012)

Code: tsdec310. Labour productivity per hour worked. Euro per hour worked, index 2005 = 100, % change over previous year. Eurostat. (20.12.2012)

Economic development of Latvia. Report (Dec 2011). Ministry of Economics of Latvia. Riga, 144 p. http://www.em.gov.lv/images/modules/items/tsdep/zin_2011_2/zin_2011_dec_eng.pdf

Formulas of productivity measures. Statistics Estonia. (20.12.2012) http://pub.stat.ee/px-web.2001/I_Databas/Economy/09Financial_statistics_of_enterprises/04Enterprises_financial_key/02Annual_statistics/FS_008.htm

GDP per capita at current prices - US dollars. UNdata (12.12.2012) http://data.un.org/Data.aspx?q=GDP+Per+Capita&d=SNAAMA&f=grID%3a101%3bcurrID%3aUSD%3bpcFlag%3a1

http://data.csb.gov.lv/Dialog/varval.asp?ma=IK0020ac&ti=IK02%2E+GROSS+DOMESTIC+PRODUCT+PER+CAPITA+AND+PER+EMPLOYED+PERSON+FROM+PRODUCTION++APPROACH+BY+QUARTERS%2C+seasonally+unadjusted+%28in+lats%29&path=../DATABASEEN/ekfin/Short%20term%20statistical%20data/02.%20Gross%20domestic%20product/&lang=1

http://data.csb.gov.lv/Dialog/varval.asp?ma=IK0041a&ti=IKG041%2E+GROSS+DOMESTIC+PRODUCT+BY+KIND+OF+ACTIVITY+%28NACE+Rev%2E2%29+%28thsd+lats%29&path=../DATABASEEN/ekfin/Annual%20statistical%20data/02.%20Gross%20domestic%20product/&lang=1

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00117&plugin=1

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdec100

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdec310

http://www.em.gov.lv/em/2nd_print/?lng=en&cat=30353&id=0&m=0&d=0&y=0&days=0

Human Development Index Report 2011. United Nations. 2011. (02.11.2011) http://hdr.undp.org/en/statistics/

Information on the History of Latvia (2012). http://www.am.gov.lv/en/policy/history

Methodology. Annual accounts. National accounts (including GDP). Eurostat (20.12.2012) http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/methodology/annual_accounts

Press news 07.12.2012 Central Statistical Bureau of Latvia http://www.csb.gov.lv/en/notikumi/third-quarter-2012-gross-domestic-product-increased-52-33558.html

Report on the Economic Development of Latvia. Ministry of Economics Republic of Latvia. Riga, June 2012, 144 p.

Tanning L, Tanning T (2010). Rahvusvaheline majandus I (International Economy, Volume I). Tallinn University of Technology. Tallinn, pp 52-74.

Tanning L, Tanning T (2012). Labour Costs and Productivity Analysis of East-European Countries. International Journal of Business and Social Science. 20:65 - 78.

Tanning L, Tanning T (2012). Labour market analysis of East- and Southern-European countries. The International Journal of Arts and Commerce. 5:209 - 223.

Tanning T, Tanning L (2012). European Union labour force competitiveness in the world. The International Journal of Arts and Commerce, 6:64 - 79.

Tanning T, Tanning L (2013). An analysis of labour productivity in Central and East European countries. The International Journal of Arts and Commerce. 2(1):1 - 18.

Tanning T, Tanning L, Saat M (2012). Eastern European Countries Salaries and Productivity by the Example Estonia . Journal of International Scientific Publications: Economy & Business. 6:286 - 301.

The Occupation of Latvia: Aspects of History and International Law (2012). http://www.am.gov.lv/en/policy/history/occupation-aspects.