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**Ключові слова:** інвестиційна привабливість, житлово-комунальне господарство, індикативна методика, рентабельність активів, управління

**Ключевые слова:** инвестиционная привлекательность, жилищно-коммунальное хозяйство, индикативная методика, рентабельность активов, управление

**Key words:** investment attractiveness, housing and communal services, an indicative method, return on assets, management.

# УДК 338.1

### THE COST OF RECESSION: THE EVALUATION APPROACH

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## Ciburene J., Orekhova T. The cost of recession: the evaluation approach

The aim of this research is to characterize the main costs of economic development after 2007 world financial crisis, evaluating the synchronization of the economic/business cycle. The ongoing contraction of economy increases the unemployment level and decreases consumption (both private and public). The risk of poverty and exclusion negatively affects people's health and their human capital. The costs of recession are analyzed evaluating the changes of the main macroeconomics indicators in the conditions of globalization in the period of 2005-2011: real gross domestic product growth rate, gross national income per capita in USD, unemployment level, and number of unemployed and employed people. The object of the article is the effects of economy recession after 2007 financial crisis in different countries (Lithuania, Ukraine, USA, Germany, EU and EU euro zone).

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The article analyzes the state of economy and the effects of recession and compares the results in different countries in the conditions of globalization in the period of 2005-2011. Objectives: to characterize economic effects of recession and compare these effects in chosen countries, to calculate the index of economic development as part of sustainable development in conditions of globalization in these countries. The indexes of economic development are evaluated for Lithuania, Germany, the Ukraine, the USA, EU and EU euro area in analyzed period, seeking to show and compare the costs of recession.

# Чибурене Я. А., Орєхова Т. В. Витрати рецесії: аспект оцінки

Метою дослідження є характеристика витрат економічного розвитку після фінансової кризи 2007 року, що розгорнулася до світового рівня, враховуючи синхронізований економічний / бізнес цикл. Економічний спад збільшує безробіття і знижує споживання (як приватного, так і державного секторів). Ризик бідності та ізоляції робить негативний вплив на здоров'я людини і його людський капітал. Витрати економічних спадів аналізуються використовуючи зміни основних макроекономічних показників за період 2005-2011 р.: реальний валовий внутрішній продукт і валовий національний дохід на душу населення в доларах США, рівень безробіття і кількість безробітних і зайнятих осіб. Об'єкт аналізу: вплив фінансової кризи 2007 р. на економіку в різних країнах і регіонах, таких як Литва, Німеччина, Україна, Сполучені Штати Америки (США), Європейський Союз (ЄС) і ЄС євро зона. Мета статті полягає в аналізі стану економіки та наслідків фінансової кризи 2007 р. і порівнянні результатів економічного розвитку в умовах глобалізації в періоді 2005 - 2011р. У статті охарактеризовані наслідки економічного спаду і розраховано індекс економічного розвитку, що ілюструє витрати після кризового періоду.

# Чибурене Я. А., Орехова Т. В. Издержки рецессии: аспект оценки

Целью исследования является характеристика издержек экономического развития после финансового кризиса в 2007 году и развернувшегося до мирового уровня, учитывая синхронизированный экономический / бизнес цикл. Экономический спад увеличивает безработицу и снижает потребление (как частного, так и государственного секторов). Риск бедности и изоляции оказывает негативное воздействие на здоровье человека и его человеческий капитал. Расходы экономических спадов анализируются используя изменения основных макроэкономических показателей за период 2005-2011 г.: реальный валовой внутренний продукт и валовой национальный доход на душу населения в долларах США, уровень безработицы и количество безработных и занятых лиц. Объект анализа: воздействие финансового кризиса 2007 г. на экономику в разных странах и регионах, таких как Литва, Германия, Украина, Соединенные Штаты Америки (США), Еврорейский Союз (ЕС) и ЕС евро зона. Цель статьи состоит в анализе состояния экономики и последствий финансового кризиса 2007 г. и сравнении результатов экономического развития в условиях глобализации в периоде 2005-2011г. В статье охарактеризированы последствия экономического спада И подсчитан индекс экономического развития, иллюстрировающий издержки после кризисного периода.

**The problem**. The economic processes taking place in the world (international trade, foreign direct investment, labour force migration, etc) show that the countries of the world are tied together in economic, social, cultural, informational, and political and so on bonds. The global financial crisis of 2007 confirmed these interrelationships, so in today's conditions, state cooperation, performance of global organizations, coordinating national efforts and activities are very important. Both on a global and individual country level, economic sustainability is increasingly important. For a variety of reasons, without providing economic sustainability the economy is cyclical. Scientific literature indicates that there is no single indicator which would be sufficient enough to determine the country's economic condition. The extensive economic impact of the crisis in different countries of the world was different. In some countries gross national product (GNP), unemployment rate dropped significantly, in other countries the

reduction of these indicators was lower. This paper compares the economic activity and its structure in Lithuania, the Ukraine, the United States, Germany (as one of the most economically developed countries of the European Union ), the European Union Member States (EU) on average and European Union countries belonging to the euro area (EU euro area).

The object of the article is the effects of economy recession after 2007 financial crisis in different countries (Lithuania, the Ukraine, the USA, Germany, EU and EU euro zone).

The aim: to analyze the state of economy and the effects of recession and to compare the results in different countries in the conditions of globalization in the period of 2005-2011. Objectives: to characterize economic effects of recession and compare these effects in chosen countries, to calculate the index of economic development as part of sustainable development in conditions of globalization in these countries.

Research methods: scientific analysis of sources, statistical data analysis.

The financial crisis of 2007 started in the USA, so it is important to analyze the postcrisis situation in this country. The USA Fed professionals [11, P.58] who investigate the recession analyze such indicators: 1) GDP growth, 2) the dynamics of employment / unemployment, 3) coincident indices, and 4) housing sector conditions. These indicators are directly related to population and course their expectations for the future. Firstly, the most important indicator is GDP growth. The authors explain the changes of the country's GDP by explaining the structure of economic activities and its evolution over time. For example, the main USA economy's sectors share in total GDP in year 2011 were: finance and real estate (20.1 %); trade, transportation and utilities (16.2 %); business, professional services (12.7 %), manufacturing (12.3 %), education, health services (8.8 %) and others. But in separate states of the USA the shares of different sectors of economy activities significantly differs, for example in the state of Delaware the economy sectors shares of total GDP were: finance and real estate (48.6 %); trade, transportation and utilities (9.5 %); business, professional services (10.7 %); manufacturing (6.8 %); education, health services (6.7 %) and others.

Secondly, the crisis of 2007 mostly affected the financial and construction sectors, therefore in these areas there was a significant loss of employment and output. For these reasons, the unemployment rate in the USA construction sector grew by 25.7 %, and in the Delaware state unemployment rate increased by 33.0 %. The different structure of economy causes different level of employment. Thirdly, coincident indice summarizes the economic conditions of four indicators: nonfarm payroll employment, average hours worked in manufacturing, the unemployment rate, and wage and salary wage disbursement [11, P. 59] and shows the situation of the economy. This index is evaluated by the Federal Reserve System (Fed) of Philadelphia for all states of USA and generally for USA. According to this index the trend for GDP is determined. The changes of coincident indice in long term trend show GDP for long term. Fourthly, the conditions of housing sector evaluate the home price index, which shows the average change in home value. All these indicators show that the economy of the USA remains below the previous peaks, so is still in recession [11, P. 63].

According to D. Luttrell, T. Atkinson and H. Rosenblum [7, P. 1] the crisis cost is characterized as the value, which society losses. These costs can be seen as the losses in the future too, that are not understood yet. The difference among the pre-crisis trend of GDP and current output, is output loss. This loss in the USA is of USD 6 trillion to USD 14 trillion, or USD 50 thous. to USD 120 thous. for every household. The disposable income decreases, when the countrie's output drops. This leads to the decreasing of consumption and saving. evaluation of the costs of the crisis is given in Table 1.

O. Blanchard, D. Quah [2] recommend that for the analysis of economic/business fluctuations measures of such indicators as GDP and the changes of unemployment level have to be compared. C.Reinhart and K.Rogoff [9] warn that financial crises are typically long and very costful.

Table 1. Different approaches to measuring the crisis cost [7, P. 2]

	1.1		E, 3		
Indicator	A.Looking at Lost	Output and Forgone	B.Other Harder-to-Quantity Outcomes		
	Consumption				
	According to parth of	According to parth of	National trauma and	Extraordinary	
	output	consumption	lost opportunity	government	
				support	
Cost in USD	6 trillion -14 trillion	15 trillion -30 trillion	Up to 14 trillion	12 trillion-13	
2012				trillion	
Percent of	40-90 %	100-190%	Up to 90 %	80-85 %	
2007 output					

In the scientific literature, the effects of recession are classified using different criteria. W.M.Liefern, M.Shane [6] define economic effects depending from the factors that have caused them. According to them, these factors can be direct (when the factors work inside the country) and indirect (when they work from outside of the country and depend on foreign trade, currency exchange and oil price changes in the international market). W.M.Liefern, M.Shane [6] evaluate, that recession differently affects according to the time aspect (short time or long time) the structure of economic activity (agriculture, industry and services). According to them, economic recession strongly affects the agricultural sector, but the impact on crop sector and livestock sectors differs. The increase of global demand in agricultural product caused, that recession processes affected the less agricultural sector, because the export of agricultural products was growing both in Lithuania and in the Ukraine. On the other hand, the stability of the agricultural sector development is based, in comparison with the industrial sector, on lower level of debt, both private and governmental. E.Baldacci, L.Mello, G.Inchauste [1, P.7], C.I.Jones [5, P. 346] evaluate that the most important effect of crisis is the incensement of poverty of the population and the reduction of expenditure of households.

Government initiated economic policy can mitigate economic volatility and lead to balanced and sustainable state and regional development. It is discussed in scientific literature which indicators are appropriate to be used to describe the development of coherence [4, P. 29-31; 13, P. 5]. One of the methods to study this process is to analyze, using the World Bank Group data, the changes of such data as: gross national income per capita (GNIpc) calculated in USD, foreign direct investment net inflows per capita (FDIpc) calculated in USD, employment rate (E) of the population aged 15 + total in %, real economic growth (EG) and unemployment rate level of population aged 15-64 years old (UR) in %, discomfort index in % (as the sum of unemployment and inflation rates), an interest rate (InR) in %.

The changes of GDPpc in Lithuania show, that the phase of recession has ended [10, P. 6]. The same situation is in other countries, which real GDP growth rate changes during the period of 2005-2010 are given in Table 2, but further recovery of economy investment is necessary. FDI is one of the most important sources of capital formation. The analysis of statistical data shows that real GDP contracted in year 2009 in Lithuania was about 15.0 %, in the Ukraine – 15.1 %, in Germany – 5.0%, USA – 4.3 %, EU – 4.3 % and EU euro zone – 4.4 %. The change of real GDP in each country is directly related to the structure of its economic activities structure, e.g. the share of agriculture, industry and services in the whole economy. The agriculture value added as % of GDP, according to Table 2, has decreased in the period of 2005-2010 both in Lithuania and in the Ukraine, accordingly by 27.1% and 20.2 %. The agriculture value added as % of GDP in Germany and the USA were stable during the analysed period, but in the EU and EU euro zone has decreased accordingly by 11.1 % and 15.8 %.

Industry value added has decreased mostly in Lithuania by 14.3 %, because the country is small, very open and depends from foreign markets. Industry value added in the USA has decreased by 9.1%, because the crisis has begun from this country and mostly touched it. The 2007 crisis started in the USA after the collapse of the mortgage banks Fannie May and Freddie Mac. After that, a number of financial services and investment banks went bankrupt, that directly affected the country's industry as well: decreased the demand and the investment dropped.

Industry value added in the Ukraine has fallen 4.7%, but in 2011 has successfully recovered. The industry value added has decreased in Germany about 3.6 %, it still less diminished in the EU – 2.7 % and EU euro zone – 1.1 %.

Table 2. The changes of main indicators of economy and economic activity, in % [12]

Indicator/Year	2005	2006	2007	2008	2009	2010	2011		
1.Real GDP growth rate (EG), %									
-Lithuania	8.0	8.0	10.0	3.0	-15.0	1.0	5.9		
-Germany	1.0	4.0	3.0	1.0	-5.0	4.0	3.0		
-Ukraine	2.7	7.3	7.9	2.1	-15.1	4.1	5.2		
-USA	3.0	3.0	4.0	-1.0	-4.3	2.0	1.0		
-EU	2.1	3.3	3,2	0.3	-4.3	2.1	1.5		
-EU euro area	1.7	3.3	3,0	0.4	-4.4	2.0	1.5		
2.Agriculture value added, % of GDP									
-Lithuania	4.8	4.3	3.9	3.7	3.4	3.5			
-Germany	1.0	1.0	1.0	1.0	1.0	1.0			
-Ukraine	10.4	8.7	7.5	7.9	9.3	8.3	9.6		
-USA	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
-EU	1.8	1.7	1.8	1.4	1.6	1.6	•••		
-EU euro area	1.9	1.8	1.8	1.7	1.6	1.6	•••		
3. Industry value added, % of	GDP								
-Lithuania	32.9	32.9	32.6	31.6	26.9	28.2			
-Germany	29.0	30.0	30.0	30.0	27.0	28.0	•••		
-Ukraine	32.31	36.1	33.7	33.6	39.6	30.8	31.7		
-USA	22.0	22.0	22.0	21.0	20.0	20.0			
-EU	26.3	26.6	26.6	26.1	24.3	25.6	•••		
-EU euro area	26.6	26.8	27.0	26.5	24.5	26.3	•••		
4. Value added in services, % of GDP									
-Lithuania	62.3	62.8	63.5	64.7	69.7	68.3			
-Germany	70.0	69.0	69.0	69.0	72.0	71.0			
-Ukraine	57.3	55.2	55.8	58.5	62.1	60.4	58.7		
-USA	77.0	77.0	77.0	78.0	79.0	79.0	79.0		
-EU	71.9	71.7	71.7	72.2	74.2	72.8			
-EU euro area	71.5	71.4	71.2	71.8	73.9	72.0			

The services sector according to its share in country's GDP structure is the most important in each separate analysed country. The value added in services, calculated as % of GDP, in Lithuania has grown the most intensively in comparison with all the analyzed countries. This process is linked to the country's still changing economy structure, which manifests as expansion of financial services, tourism, and health care industry. The value added in services in Lithuania has grown during all the analyzed period and achieved the growth rate of 9.6 % in year 2010. In Germany the services sector value added in post-crisis period even increased 1.4% compared to the period before the crisis. Before the crisis, the added value of the industry increasing. The value added in services in the Ukraine has grown only since 2008 and achieved 5.4% growth rate in year 2010. There were positive tendencies in the Ukraine in year 2012, because the share of industry increased in its GDP, some decreasing share of services. The value added in services in the USA has increased during all the analyzed period both before the crisis and both after crisis was. The value added in services in the EU and EU euro area until year 2007 has decreased but since 2008 has begun to increase.

The ongoing contraction of economy in the USA from year 2008 and in other analyzed countries: Lithuania, Germany, the Ukraine, the USA, the EU and EU euro area has increased the unemployment levels and decreased general price levels. An unemployed person loses all or a share of disposable income, which can be used for consumption or saving.

GNIpc, evaluated in purchase power parity (PPP), has been growing in all the analyzed countries. GNIpc growth rate slowed down in the after-crisis period in all the countries. During the analyzed period, the most rapid GNIpc growth occurred in Lithuania and the Ukraine, as shown in Table 3.

Recession, reducing GDP, negatively affects the labour market. The unemployment rate in Lithuania has increased to 17.8 % in year 2010 and was significant in year 2011 – 15.4 %, as shown in Table 3. The number of unemployed people in Lithuania has increased by 87.21 % in the analyzed period. The unemployment level in the Ukraine was less than in Lithuania, but the overall number of unemployed people has increased to 14.83 % in the period of 2005-2011. The level of employed people has decreased both in Lithuania and in the Ukraine, but it was bigger in Lithuania (7.0 %) than in the Ukraine (0.7 %). The labour market in the USA and in the EU and EU euro area in year 2010 has suffered from a high unemployment level, accordingly, 10.0 %, 9.6 % and 10.0 %. During the economic downturn, general supply exceeds aggregate demand and producers cannot sell their manufactured goods. General decline in demand related with a fall in consumption, both private and public consumption, in manufacture and unemployment growth [8].

Table 3. The changes of income and labor market indicators in the period 2005-2011, in % [12]

Table 3. The changes of income and labor market indicators in the period 2005-2011, in % [12]									
Indicator/Year	2005	2006	2007	2008	2009	2010	2011		
1.GNIpc (PPP), USD									
-Lithuania	14050	15790	17580	19060	17390	17970	20760		
-Germany	31470	34190	36150	37550	36500	38410	40190		
-Ukraine	5520	6130	6850	7250	6180	6590	7120		
-USA	43170	45680	46800	47320	45390	47220	48820		
-EU	26760	28926	30573	31733	30815	31555	32526		
-EU euro area	29284	31705	33456	34558	33628	34348	35323		
2.Unemployment rate, %	2.Unemployment rate, %								
-Lithuania	8.3	5.6	4.3	5.8	13.7	17.8	15.4		
-Germany	11.0	10.0	9.0	8.0	8.0	7.0	6.0		
-Ukraine	7.2	6.7	6.0	6.0	9.5	8.0	7.9		
-USA	5.0	5.0	5.0	6.0	9.0	10.0	9.0		
-EU	8.9	8.2	7.1	6.9	8.9	9.6	9.6		
-EU euro area	9.0	8.3	7.5	7.5	9.3	10.0	10.1		
3.Unemployed persons, thou	s.								
-Lithuania	132.9	89.3	69.0	94.3	225.1	291.1	248.8		
-Germany	455.0	417.0	3.78.0	337.0	338.0	295.0	254.0		
-Ukraine	1623.3	1624.7	1395.6	1395.0	2095.2	1864.0	1864.8		
-USA	7645.0	7760.0	7823.0	9493.0	14233.0	15800.0	14320.0		
-EU	21100	19650	17160	16850	21810	23580	23650		
-EU euro area	13840	12910	11800	11920	14830	15980	16190		
4.Employed persons, thous.									
-Lithuania	1473.9	1499.0	1534.2	1520.0	1415.9	1343.7	1370.9		
-Germany	36780.0	37510.0	38220.0	38710.0	38820.0	39250.0	39740.0		
-Ukraine	21570.0	21590.0	21860.0	21850.0	21180.0	21400.0	21410.0		
-USA	145255	147440	148640	148720	143910	142200	144750		
-EU	215960	219970	224560	227290	223240	222090	222750		
-EU euro area	139900	142610	145470	147030	144680	143780	144120		

Based on the given analysis of main macroeconomic indicators, we determine what is achieved in economic development in all the analyzed countries. Year 2005 was chosen as a base year for the evaluation of the economic development index in all countries in the period of 2005-2011 (the index of economic development in year 2005 is equal to 100.0 %), as it is shown in Table 4. This index characterizes the economic development of countries, evaluating the changes of three described macroeconomic indicators: GNIpc (measured in USD), FDIpc (measured in USD) and employment index (measured in %).

Due to the lack of information it is problematic to define the share of each economic indicator included in this index and the method of equal base weights is used. Evaluating economic development, only such indicators are taken into calculation, which incensement has a

positive effect on economic development (GNIpc, FDIpc and employment index). The index of economic development in Lithuania, the Ukraine, the USA, the EU and EU euro zone in the period of 2005-2008 has grown, but in the period of 2009-2011 the growth was less than in year 2008. This index in Germany in the period 2006-2010 has decreased, but since 2011 has began to grow. Calculated index of economic development in Lithuania has been 134.5 %, in the USA – 148.24 %, in the Ukraine – 124.16 %, in the EU –110.58% and in the EU euro zone – 105.3 % in year 2008. Lithuania, the USA and the Ukraine have not achieved the economic development level of year 2008 in year 2011, because this index in these countries was, accordingly 134.5 %, 148.24 % and 124.16 %. The index of economic development in Germany, the EU and EU euro area in 2011 has not yet to achieve the economic development level of 2005. These processes were caused by the contraction of GDP and FDI inflows into industry and agricultural sectors.

Table 4.The structure and index of economic development in the period 2005-2011, in %

						1100 2005-20			
Indicators/Year	2005	2006	2007	2008	2009	2010	2011		
1. GNIpc, USD									
-Lithuania	33.4	37.54	41.79	45.31	41.34	42.72	49.35		
-Germany	33.4	36.29	38.37	39.85	38.74	40.77	42.66		
-Ukraine	33.4	37.09	41.45	43.87	37.39	39.87	43.08		
-USA	33.4	35.34	36.21	36.61	35.12	36.53	37.77		
-EU	33.4	36.10	38.16	39.61	38.46	39.38	40.60		
-EU euro area	33.4	36.16	38.16	39.42	38.36	39.18	40.29		
2. FDIpc,USD									
-Lithuania	33.3	57.86	65.81	54.79	0.55	25.1	45.52		
-Germany	33.3	44.25	23.02	13.24	29.21	22.45	34.28		
-Ukraine	33.3	24.08	44.06	46.51	20.82	28.28	31.7		
-USA	33.3	70.07	80.31	77.84	32.36	62.32	58.80		
-EU	33.3	28.30	45.32	35.92	12.49	8.00	16.87		
-EU euro area	33.3	26.28	46.52	30.88	18.16	9.30	22.39		
3.Employment index,	%								
-Lithuania	33.3	33.9	34.7	34.4	32.02	30.39	31.0		
-Germany	33.3	33.96	34.60	35.05	35.15	35.54	35.98		
-Ukraine	33.3	33.36	33.78	33.76	32.73	33.07	33.08		
-USA	33.3	33.8	34.08	34.09	32.99	32.60	33.18		
-EU	33.3	33.92	34.63	35.05	34.42	34.24	34.35		
-EU euro area	33.3	33.94	34.63	35.00	34.44	34.22	34.30		
4. Index of economic development, %									
-Lithuania	100.0	129.3	142.3	134.5	73.91	98.21	125. 87		
-Germany	100,0	114.5	95.99	88.14	103.1	98.76	112.92		
-Ukraine	100.0	94.46	119.21	124.16	90.88	101.15	107.78		
-USA	100.0	139.21	150.6	148.24	100.47	131.45	129.75		
-EU	100.0	98.32	118.11	110.58	85.37	81.62	91.82		
-EU euro area	100.0	96.38	119.31	105.3	90.96	82.7	96.98		

#### Conslusions

Research shows that the financial crisis differently effects the changes of economic indicators in chosen countries, but in each country global crisis reduced aggregate demand and demand for labour force, due to this emigration increased and the number of population decreased in Lithuania and the Ukraine. In Germany the number of population is almost stable, in the USA the number is growing annually by 1%, and in the EU and EU euro area – growing annually by 2%. Real GDP contracted in year 2009 mostly in the Ukraine – 15.1% and in Lithuania – 15.0%.

Unemployment level among analyzed countries mostly increased in Lithuania and in 2010 was 17.8 %, it was reduced in year 2011 – to 15.4%. Unemployment level in the Ukraine in 2009 was the biggest and reached up to 9.5 % but in current period is 8 %.

The calculated index of economic development in Lithuania has been 134.5 % and in the Ukraine 124.16 % in year 2008. Lithuania and the Ukraine have not achieved the economic

development level of year 2008 in year 2011, because this index in these countries was in 2011, accordingly 125.87 % and 107.78 %. In USA, the EU and EU euro area the biggest index of economic development was in 2007, accordingly, 150.6%, 118.11% and 119.31%. These levels of economic development were not achieved in 2011. In Germany the biggest index of economic development was in 2006, then it was reduced in year 2007-2008 and began to grow in year 2009, but in year 2010 diminished and in 2011 was 112.92%. References

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**Ключевые слова:** экономический /бизнес цикл, спад экономики, рецессия, издержки рецессия, макроэкономические показатели, региональная экономикаю

**Keywords:** business cycle, contraction of economy, recession, costs of recession, macroeconomic indicators, regional economics.