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Analysis of construction of the European Economic Area Countries

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ABSTRACT

The purpose of this publication is to analyse of construction of the European Economic Area (EEA) countries, with particular emphasis on the EU large countries. How has European construction restored since the global economic crisis? Work of engineers and architects is also the basis for effective in construction.

As one of the Europe power countries United Kingdom (UK) leaves (Brexit) the EU, it is important to analyze how it affects the European Union (EU) economy. This publication aim is to analyse the dynamics of construction key indicators, production and value added. It shows how much the EU construction loses as the UK leaves. The analysis showed that both the EU and the UK would lose a great deal with this departure, not only in construction and the economy, but also in other areas of life related to it. As a whole, construction in both the EU and EFTA countries has recovered well from the economic crisis and is developing more rapidly. As a whole, the level of construction in Europe is very uneven, there are many inefficient micro-enterprises, that give work for millions, but it is not possible for these companies and also useless make big investments to increase work efficiency. As a rule, the best construction country in Europe was the United Kingdom, ahead of France or Germany.

Keywords: *European Union, construction, production, turnover, value added, work efficiency.*

Scientific novelty: *analysis trends of key indicators dynamics of European construction work efficiency.*

INTRODUCTION

The construction is process of creation and construction building infrastructure or facility.

The infrastructure is a basic facilities and systems serving country, city or region, including services and facilities necessary for its economy to function.

The first houses and shelters were built by hand or with simple tools. As the city grew during the Bronze Age, class of professional masters, like bricklayers and carpenters, appeared. In the middle Ages they were organized into guilds. In the 19 century, the steam engine appeared, and then diesel and electric-powered vehicles, such as cranes, excavators and bulldozers.

Fast-track construction was more popular in the 21 century. It suggests that 40% of construction projects are now fast-track construction. Fast-track construction is construction industry jargon for a project delivery strategy to start construction before the design is complete. The purpose is to shorten the time to completion. [1-3]

This article is an analyse of *specialised construction activities* in the EU, as covered by NACE Rev. 2 Division 43. As well as work on new structures, renovation, repair and maintenance markets are also important for enterprises in this sector, for example, for enterprises involved with installation, completion and finishing activities.

Highlights of European Integration after WWII [3]

09.05.1950 - Robert Schuman's proposal to create the European Coal and Steel Community (ECSC).

1951 - The ECSC came into force.

1957- Signature of the Treaty of Rome establishing the European Economic Community (EEC) and the European Atomic Energy Community (EUR ATOM).

1958 - The EEC and EURATOM came into force.

1968 - Customs duties on manufactured goods were abolished.

1993 - The Treaty establishing the European Union enters into force.

1994 – The European Economic Area (EEA) Agreement, which extends many of the benefits of the EU internal market to EFTA countries, came into force.

NB! In this analysis EEA=EU+EFTA!

METHODOLOGY AND THEORETICAL BASES

The methodology is based on international organizations (Eurostat [5 - 6], OECD [7]), others authors [10 – 20; 36 - 40] and the authors books [2 - 4], but also partly the authors of the methodology used in previous publications [21 - 35]. The techniques definitions used by authors have been specified in Eurostat [8; 9].

EU - 27 was in 2007-2013 and now again from 2020.

Distribution of construction (F) by section: construction of buildings (F41), civil engineering (F42) and specialised construction activities (F43). They all have lot sections. [1-2]

GDP is an indicator for a nation´s 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. [41]

Apparent labour productivity is defined as value added at factor costs divided by the number of persons employed. This ratio is generally presented in thousands of euros per person employed.

The number of persons employed is defined as the total number of persons working in the various industries: employees, non employees (e.g. family workers, delivery personnel) with the exception of agency workers. Country data are expressed in units.

Turnover is the total of all sales (excluding VAT) of goods and services carried out by the enterprises of a given sector during the reference period. [43]

Value added represents the difference between the value of what is produced and intermediate consumption entering the production, less subsidies on production and costs, taxes and levies. [43; 45]

Source data based on structural business statistics 24 *activities* of the EU. [6] *Statistical classification of economic activities in the European Community*, abbreviated as NACE, is the nomenclature of economic activities in the EU. This article presents an overview of the EU manufacturing sector, which is included in NACE Rev. 2 Section C. [8]

The theoretical bases of key indicators have been brought in more detail in the authors book [2 - 3], in authors' earlier works [21 - 35] and in the works of other authors [10 – 20; 36 – 40].

All figures are the authors' illustration.

GROSS DOMESTIC PRODUCT

For an introduction, let us look at the background the **GDP** (gross domestic product) at market prices and PPS of superpower countries in EUR and USD.

It was in 2018 largest by current prices in Germany, 3344 billion; in UK, 2419 bn; France, 2353 bn and in Italy 1765 bn EUR. Largest by PPS prices was in Germany, 3386 billion; in UK, 2390 bn; in France, 2349 bn; in Italy 1754 bn and in Spain, 1207 bn PPS.

Germany by GDP (PPS) is 1.5 times stronger than the UK and France. In the years 2007-2014 France was stronger than the UK, but the difference in current prices between UK (2641 bn) and France (2198 bn) in 2015 was 443 bn euros (16.77%) and in 2016 = 201 bn euros (8.25%). From 2015 by PPS and by current prices the UK was stronger France.

France, like Germany, has developed relatively stable GDP, characterized by simple theoretical trend lines (2nd degree polynomials), which are very high R^2.

Germany's level of GDP was in the EU (28) at 29.8% and it was 2.5 times highest then Italy and France, and over 2.8 times highest then the UK level.

In 2018 GDP *per capita* were in Germany 40,340; in Spain 25,730; in France 34,980; in Italy 29,220 and in UK 36,410 euro. In the case of the UK GDP per capita was the largest in the years 2005 - 2008 and in 2015. In other years, Germany was superior to the great powers. GDP per capita of UK is larger than France, Italy and Spain, but less than Germany, other Central European and Nordic countries; 1.6 times smaller than Ireland. The UK was ranked 10th in the 2016 EU ranking. [41]

Growth rate of GDP in 2018 was in Germany 1.5%, France 1.7%, Italy 0.8%, Spain 2.4% and UK 1.4%.

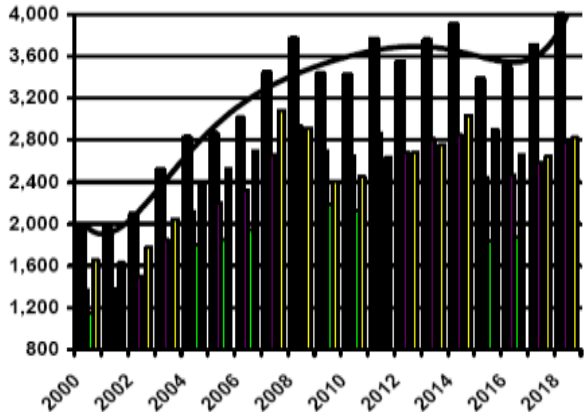

Figure1. *GDP at current prices of the Germany, UK, France and Italy, billion USD [44]*

Figure 1 shows an unstable economy of the UK. Germany and UK had two major periods of decline during the period under analysis, that is, in this century. Between of 2007 - 2009 the GDP of UK declined 680 million USD or nearly a quarter (22%), and from 2014 to 2017 of 379 million USD or about one eighth (12.5%). The 2007 level has not yet been reached in 2018, missing a quarter of a trillion or 8.55%. Other super countries also had smaller fluctuations in GDP. Apart from Germany, their record level in 2018 was not reached. The IMF forecasts that also in 2019 super countries below 2018 and France above 2018 in 2021 and Italy only in 2022. IMF predicts that also in 2019 super countries below 2018 and France above 2018 in 2021 and Italy only in 2022.

Table1. *Development of GDP, bn current USD [46]*

	2018	2019	2020	2021	2022	2023	2024
France	2,780	2,707	2,772	2,876	2,984	3,094	3,215
Germany	3,951	3,863	3,982	4,159	4,323	4,491	4,675
Italy	2,076	1,989	2,014	2,070	2,126	2,182	2,246

Table 1 shows the level and by IMF future prospects of the European economy. We see that superpower countries are doing well without the UK. Table 2 shows the level of the world economy. More than two trillion $ by nominal GDP are 8 country, half of them are from the European Union. By PPP of GDP (Int. $) is Germany European leader and outperforms the UK and France by almost 1.5 times. By GDP per capita is however, they all have a modest position.

Table2. *GDP, top 8, 2018 [47]*

	GDP (billions $)			*GDP (billions Int. $)*			*GDP per capita ($)*		*GDP per capita (Int. $)*		*GDP Growth*	
	Nominal	**Share (%)**	**Rank**	**PPP**	**Share (%)**	**Rank**	**Nominal**	**Rank**	**PPP**	**Rank**	**%**	**Rank**
U.S.	20,494	23.89	1	20,494	15.02	2	62,641	9	62,641	12	2.857	102
China	13,608	15.86	2	25,362	18.58	1	9,771	68	18,210	65	6.600	16
Japan	4,971	5.79	3	5,485	4.02	4	39,287	26	43,349	27	0.788	166
Germany	3,997	4.66	4	4,505	3.30	5	48,196	17	54,327	18	1.425	151
UK	2,825	3.29	5	3,074	2.25	9	42,491	21	46,240	25	1.398	156
France	2,778	3.24	6	3,073	2.25	10	41,464	25	45,877	26	1.725	142
India	2,726	3.18	7	10,499	7.69	3	2,016	143	7,762	108	6.982	9
Italy	2,074	2.42	8	2,543	1.86	11	34,318	27	42,080	28	0.858	165

CONSTRUCTION OF THE EU

Below analyzed more detail the major indicators of construction companies of EU and also EFTA countries. Let's see, in what regularities or economic laws they have become in period economic crisis.

Construction is the erection of a building, structure or similar structure. Construction includes construction and installation of equipment. The preparatory stages of construction are the design, financing and contracting of the construction. Construction is the process of constructing a building or infrastructure. [1] Construction differs from manufacturing in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client. [48] Construction starts with planning, design, and financing; it continues until the project is built and ready for use. Construction as an industry comprises 7 % of the GDP of EU-28 [2]

Civil engineering is an engineering and technical field that deals with the design, construction and maintenance of roads, bridges, canals, dams and buildings. [49; 51] Civil

engineering has traditionally been divided into several allergy areas [50].

The known beginning of civil engineering in the 4th and 3rd millennium BC was in ancient Egypt, Indus culture and Mesopotamia. [49]

Classification of Construction Branch [51 - 52]

- Industrial construction objects (plants, factories).
- Civil engineering objects (residential buildings, public buildings, shopping malls, warehouses).
- Objects of agricultural construction.
- Transport construction objects (roads, linear objects, bridges, tunnels).
- Objects of military purpose (military construction).
- Objects of hydraulic engineering purpose. (dams, dams, canals, bank protection structures and devices, reservoirs).
- Irrigation and drainage facilities (irrigation, drainage systems).

Number of Enterprises of Construction

Figure2. *Number of enterprises of construction of EEA*

While in 2005 it was 3,003,655, it increased by 3,320,851 in two years. The economic crisis reduced their number by 36,041 or 1.1%. Again, growth followed, with an increase from 2005 of 519.902 or 17.3% to 2017.

In 2017 were construction of buildings 896,383; civil engineering 109,524 and specialised construction activities 2,517,652 enterprises of the EU.

Table3. *Number of enterprises of construction of large countries EU*

	2005	2008	2009	2010	2015	2017
Germany	220,300	236,717	240,747	238,924	332,411	338,475
Spain	479,168	419,570	377,029	371,025	377,795	376,235
France	409,055	437,788	403,863	456,747	494,099	468,974
Italy	596,894	634,988	623,355	607,771	511,405	502,775
UK	269,893	292,801	275,968	265,336	290,976	330,545

These changes were very different: in France was great and in Germany small increases; in Spain and Italy had a big loss and the United Kingdom was remained stable. However, in Italy was number of enterprises of construction nearly three times higher than in Germany and the United Kingdom UK and Germany increased, Italy and Spain decreased and France relatively stable until 2014, further declined.

Table4. *Number of enterprises of construction of medium countries of EU and EFTA*

	2010	2012	2015	2017
Poland	233,019	233,731	244,361	281,953
Czechia	173,872	175,799	172,479	177,390
NL	127,684	134,589	160,728	173,775
Sweden	87,119	93,598	98,925	104,097
Slovakia	91,432	86,412	85,016	95,114
Portugal	105,463	87,592	77,906	81,629
Hungary	67,354	60,284	60,724	69,658
Greece	:	86,873	74,337	61,833
Norway	49,283	52,763	56,654	57,964
Ireland	52,607	49,530	50,546	57,255
Romania	49,348	44,607	48,341	52,792
Finland	42,485	42,781	41,616	41,110

In Belgium, Ireland, Netherlands (NL), Austria, Finland, Sweden and Norway was great and in Luxembourg small increases; in Denmark, Greece and Portugal had a big loss, and Switzerland remained stable.

In Bulgaria, Czech Republic, Poland, Romania, Slovenia and Slovakia (!?) was great and in Malta small increases; in Croatia and Hungary had a big loss, and Malta remained stable.

Table5. *Number of enterprises of construction of small countries of EU and EFTA*

	2010	2012	2015	2017
Austria	31,196	32,174	34,564	36,157
Denmark	31,588	31,300	31,197	:
Lithuania	12,201	20,242	29,067	31,708
Switzerland	20,033	20,078	21,576	21,425
Bulgaria	21,164	19,068	19,367	19,889
Slovenia	19,190	18,392	18,289	18,668
Croatia	24,671	20,170	17,575	17,994
Latvia	6,874	8,000	11,057	11,590
Estonia	7,446	8,376	9,500	10,931
Cyprus	9,599	8,640	7,399	7,886
Luxembourg	3,220	3,365	3,634	3,930
Malta	4,034	3,835	3,646	3,906

In all three Baltic countries was great growth. In 2009 was in Estonia and Latvia small and in Lithuania had a big loss. The construction boom was in 2008 and in 2010 sharp decline. In the coming years although the number of enterprises increased. Estonia and Latvia exceeded the 2008 record level in 2012, but Lithuania has not yet reached.

Number of Enterprises by Branch of Construction

The building is man-made structure with a roof and walls were more or less permanently standing in one place, such as a house or factory. Buildings come in a variety of shapes, sizes and functions, and have been adapted throughout history for a wide range of factors, from building materials available, to weather conditions, to land prices, ground conditions, specific purposes uses and aesthetic reasons.

Table6. *Number of enterprises of construction of buildings, top-10 countries of EU and EFTA [53]*

	2010	2012	2015	2017
UK	77,003	67,596	82,342	96,578
NL	48,388	52,505	66,526	73,164
Poland	62,783	59,293	62,098	72,598
France	31,872	59,652	59,727	48,020
Czechia	33,032	33,292	32,254	30,762
Germany	21,637	25,559	25,308	24,870
Norway	19,896	21,835	23,956	24,782
Sweden	18,990	20,647	22,463	23,915
Finland	18,091	18,446	18,120	17,857
Ireland	15,365	14,071	13,822	15,573

The number of enterprises of construction of buildings in EU was significantly reduced after the building boom the level in 2013 was only 82.2% from the record level of 2007. The number of enterprises of construction of buildings in Spain and Italy was many times larger than it are in France, Netherlands and the United Kingdom (UK). In France and Netherlands (NL) was great rise and in Spain, Italy and UK small loss. In Germany had four years decline, but since 2012 restored former level. In other countries was two times growth.

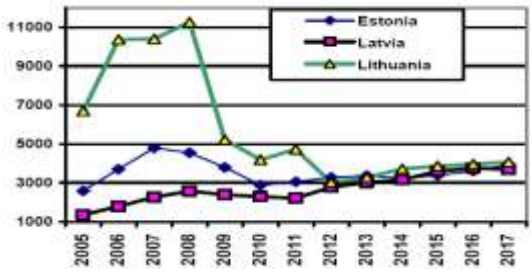

Figure3. *Number of enterprises of construction of buildings in CEE and Baltic countries [53]*

Housing construction boom of countries was at various times: in Estonia in 2007, in Poland and Lithuania in 2008, and in Czech Republic in 2009. This was followed by great decline, in Lithuania as much 3.6 times. The record level of boom years did not achieve any of them (all CEE enterprises). Exception was Latvia, it number of enterprises of construction of buildings was in 2013 2.2 times higher than in 2005.

Table7. *Number of enterprises of construction of civil engineering, top-10 countries of EU [53]*

	2008	2009	2010	2012	2015	2017
UK	24,674	22,960	21,431	19,694	22,460	24,476
Poland	8,145	11,727	13,917	14,726	16,333	18,383
Germany	5,447	5,941	6,202	7,444	7,961	9,765
NL	4,939	5,410	5,941	6,457	7,879	8,316
Italy	6,879	7,488	7,511	7,550	6,673	6,208
Greece	:	8,439	:	5,571	6,250	5,059
Hungary	4,959	4,576	4,501	4,017	4,234	4,360
France	6,449	5,329	5,096	6,194	5,677	4,003
Romania	2,980	3,369	3,672	3,363	3,393	3,355
Belgium	2,362	2,225	2,488	2,320	2,664	3,021

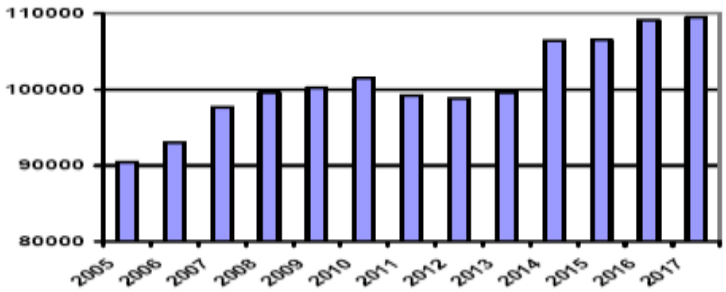

Figure4. *Number of enterprises of construction Civil engineering of EEA [4-2]*

The following is an analysis of specialized construction activities.

Table8. *Number of enterprises of specialised construction activities, top-10 countries of EU [53]*

	2010	2012	2015	2017
France	419,778	447,018	428,695	416,952
Italy	439,093	422,680	385,318	384,442
Germany	211,085	240,999	299,142	303,840
UK	166,902	169,902	186,174	209,491
Poland	156,319	159,712	165,930	190,972
Spain	173,927	154,484	178,375	171,291
Czechia	138,182	140,053	138,245	144,903
NL	73,355	75,627	86,323	92,295
Belgium	69,304	71,484	77,272	86,501
Slovakia	80,144	75,451	72,009	80,033

Construction Enterprises by Employment Size Class

	0 - 9	10-19	20-49	50-249	250 >	Total
EU	3,074,204	129,439	56,080	20,000	2,100	3,280,371
%	93.67	3.94	1.71	0.61	0.06	100

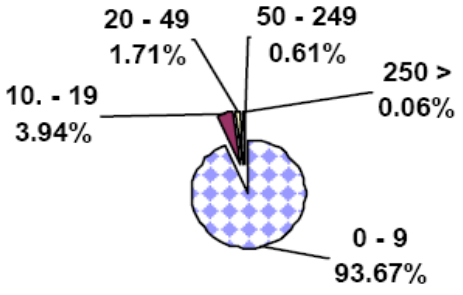

Figure5. *Enterprises by employment size class, construction, EU [53]*

Majority (94%) are micro-enterprises, which will also have a direct impact on the overall EU construction work efficiency.

Turnover of Construction Enterprises

Next analyze turnover or gross premiums written of construction enterprises.

Figure6. *Turnover of enterprises of EEA, in billion Construction [55]*

In 2013, turnover of EU-28 was one-fifth (21.1%) less than in EU-27 in 2008. After 2013 it began to grow, but in 2017 there were two trillion euros lower than in the record year of 2008, reaching only to 90%.

Table9. *Turnover or gross premiums written of enterprises of EU countries - million euro. Construction [55]*

	2005	2007	2008	2009	2010	2012	2014	2015	2016	2017
Germany	150,256	156,602	170,078	168,244	170,822	211,333	241,201	241,530	250,269	263,823
Spain	379,342	423,916	340,995	284,383	201,118	118,555	98,546	107,914	111,370	117,805
France	207,145	253,559	274,057	250,419	257,148	282,147	288,853	274,126	276,543	287,564
Italy	200,336	235,020	273,614	181,150	207,545	194,737	170,612	161,921	159,897	158,553
UK	268,966	314,778	280,457	212,738	212,926	233,296	268,299	326,213	289,338	286,910

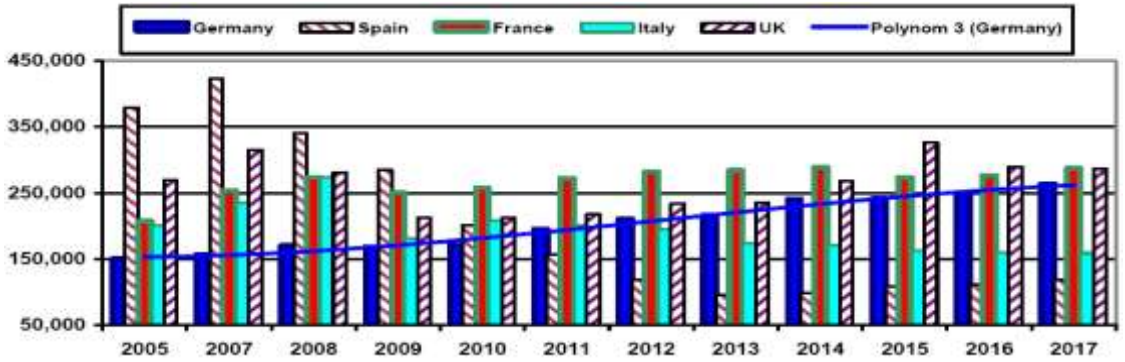

Figure7. *Turnover of large EU countries, in million Construction [55]*

The five largest countries in 2017 gave a total of 65% of the total volume of the EU, thus, they are crucial. Turnover of construction enterprises in Germany grewsteadily, only in 2009 was a small decline (1.1%). From 2005 to 2013 was total grew 44.2%. France also in 2012 exceeded level of 2008 with 2.9%.

Other countries had the largest turnover of enterprises in 2007 or 2008, it followed a significant decline. No one of them not yet restored by 2013, the level of boom years. Spain's turnover from 2006 to 2013 fell by 4.0 times.

Table9. *Turnover of medium EU countries, billion Construction [55]*

Group I	2005	2008	2009	2010	2016	2017
NL	75,364	100,301	93,554	86,067	89,633	96,437
Austria	30,548	40,560	39,648	40,243	46,820	48,500
Czechia	22,457	35,362	31,318	32,426	25,964	28,857
Poland	29,418	62,262	54,001	60,427	58,905	64,675
Belgium	37,760	51,609	51,845	56,074	70,441	72,796
Portugal	34,530	36,277	34,720	35,123	17,491	19,414
Sweden	33,957	46,652	41,867	48,888	72,482	79,449
Finland	20,267	27,094	24,297	24,153	32,786	36,266
Denmark	24,990	32,307	25,542	22,698	33,172	:

Austria, Belgium, Sweden and Finland exceeded level of 2007 or 2008 in 2013 or earlier. As a rule, the turnover in 2012 was higher than in 2013. In CEE-8 countries was highest turnover of construction enterprises in Poland and Czechia. Netherlands (NL) is ranked 6th by turnover and just below Spain.

Table10. *Turnover of medium EU* countries, *billion Construction [55]*

Group II	2005	2008	2009	2010	2016	2017
Bulgaria	4,007	10,338	9,812	6,988	5,8023	6,818
Ireland	15,889	32,092	22,108	17,713	19,428	24,869
Croatia	:	10,519	9,312	7,063	5,705	5,923
Luxemb.	4,275	5,730	5,330	5,442	7,635	7,918
Hungary	14,532	17,245	14,138	12,617	11,976	15,906
Romania	8,969	25,345	18,806	17,300	16,026	16,381
Slovenia	4,895	8,440	6,831	6,023	4,304	4,843
Slovakia	3,912	7,555	6,461	8,965	9,657	10,641

In this group of states only Luxembourg exceeded level of 2008 with 0.7%. Also, its turnover was most stable, other countries were large fluctuations.

Table11. *Turnover of small EU countries, billion Construction [55]*

	2005	2008	2009	2010	2016	2017
Estonia	2,964	4,466	2,824	2,435	4,174	4,939
Latvia	2,785	5,868	3,303	2,714	3,034	3,893
Lithuania	3,169	6,347	2,803	2,848	4,635	5,331
Cyprus	2,643	4,424	3,625	3,624	2,342	2,972

The Baltic construction boom was in 2007-2008, followed by a more than double decline. From 2011, their turnover will start to increase again, but Latvia and Lithuania have not yet reached their higher levels in 2017. However, Cyprus' turnover in 2017 was almost half lower than in 2008. However, all fluctuations were high, indicating that their construction performance has been volatile.

Turnover of Malta grew steadily from 682.8 (2008) to 796.1 million (2012). Other countries had the largest turnover in 2007 or 2008, it followed a significant decline. No one of them not yet restored by 2013, the level of boom years. The nearest was Estonia, who was a lack of 12%.

Table12. *Turnover of the particular economy by size class of employment Millions EUR. EEA. 2017 [55]*

	250 persons or more	From 50 to 249 persons	From 20 to 49 persons	From 10 to 19 persons	From 0 to 9 persons	Total
Belgium	386,078.8	213,150.4	130,593.6	83,955.3	257,235.5	1,071,013.5
Bulgaria	40,600.2	32,455.4	18,388	11,633.7	29,385.3	132,462.7
Czechia	221,610.5	105,697	49,421.7	33,717.1	85,547.8	495,994.1
Estonia	11,959.3	14,304.9	7,968.5	6,009.7	18,615.5	58,858
Spain	751,242.7	397,530.5	231,855.1	158,763.1	431,968.3	1,971,359.7
Croatia	32,969.9	18,358.1	10,297.7	8,739.6	16,933.5	87,298.8
Latvia	12,090.8	14,646.6	10,323.8	5,422.1	13,115.8	55,599.1
Lithuania	26,406.1	22,137.4	12,665.4	7,737.8	15,411.6	84,358.4
Luxembourg	65,321.7	54,479.1	12,135.9	13,821.2	23,920.9	169,678.7
Hungary	127,743.4	63,890.7	30,433.7	23,647.9	59,074	304,789.8
Malta	3,341.8	4,324.2	3,390.2	2,640.1	9,119.7	22,815.9
Poland	456,476.5	199,839.9	88,910.8	47,374.9	229,466.4	1,022,068.5
Romania	123,805.4	66,758.1	33,356.2	25,816.1	43,254.4	292,990.2
Slovenia	33,067.8	22,243.8	11,812	8,025.3	20,125.8	95,274.8
Slovakia	84,240.3	37,261.3	21,106.5	10,779.2	45,782.5	199,169.8
Sweden	374,149.1	179,562.9	95,811.2	62,080.7	162,377.7	873,981.5
UK	2,182,822.2	624,842.6	354,082.1	244,302.5	651,838.9	4,057,888.4

The table shows that the main financial results, here turnover comes from large companies. The small ones have the advantage of being employed as owners.

Production of Construction Enterprises

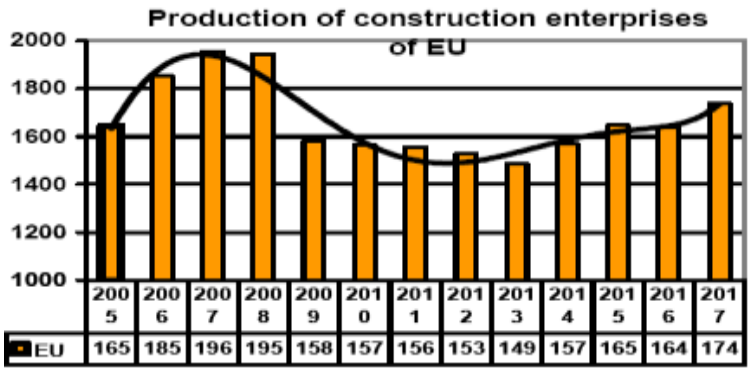

Figure8. *Production value of enterprises of EEA. Construction Bn [56]*

In 2013, production of EU-28 was 22.9% less than in EU-27 in 2007.

Table13. *Production value of large countries. Over 50 bn euro*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
France	203,791	229,301	250,347	272,024	247,284	254,942	272,497	284,007	282,296	290,927	276,934	281,543	293,684	297,556
UK	271,920	284,151	318,203	279,754	208,131	208,807	212,958	228,994	235,051	272,192	326,428	288,859	288,380	315,748
Germany	148,979	158,627	165,074	174,181	167,640	173,471	197,708	213,720	217,858	242,724	244,677	255,587	273,989	295,404
Italy	225,802	263,830	260,428	296,983	206,942	227,625	210,382	202,692	181,368	168,117	165,208	162,869	165,333	166,919
Spain	415,438	473,414	453,735	368,266	271,777	198,416	156,057	119,303	99,206	103,533	111,563	115,838	124,556	149,865
NL	75,393	83,417	91,987	99,064	91,734	84,742	88,944	81,883	77,553	77,125	80,310	86,481	96,054	106,056
Sweden	34,351	39,101	45,294	47,198	40,712	48,256	56,099	60,975	62,105	62,838	68,711	72,326	79,436	79,417
Poland	24,627	32,132	43,937	53,987	46,629	50,415	57,350	49,362	49,061	59,974	60,105	57,494	64,090	71,103
Switzerl	:	:	:	:	43,136	46,325	54,999	57,842	59,342	60,629	68,078	66,213	66,096	67,825
Belgium	35,845	41,934	45,370	46,000	49,160	53,418	58,121	56,613	56,018	59,022	63,745	69,258	71,017	88,124
Norway	28,348	33,077	40,536	42,473	35,016	38,784	45,757	54,639	55,014	54,114	53,776	55,968	59,516	:
Austria	28,935	31,472	34,702	40,935	39,374	38,790	40,266	42,190	42,335	43,373	44,959	46,387	48,497	52,013

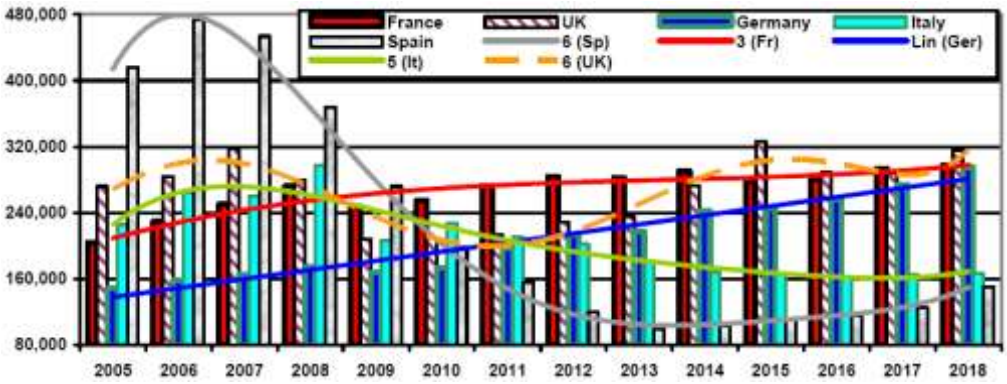

Figure9. *Production of large EU countries, billion Construction [56]*

Production of construction enterprises in Germany grew steadily, only in 2009 was a small (3.8%) decline. From 2005 to 2013 was total grew 47.2%. France in 2012 exceeded level of 2008 with 4.4%, but in 2013 was decline also 4.4%. So in France, but especially in the German construction output will grow smoothly. Other countries had the largest production of enterprises in 2007 or 2008, it followed a significant decline. No one of them not yet restored by 2013, the level of boom years. Spain's production from 2006 to 2013 fell by 4.4 times.

Spain has had a very uneven development, with its lowest point was in 2013, when output was nearly five times lower than in 2006. Italy's 2018 was also almost twice as low as its 2008 record.

Although the UK was in a period of severe decline, it surpassed its 2007 record high of 2017 and missed only 0.8% in 2018. The trend line allows for a successful sequel.

Table14. *Production value of medium countries, 10 – 40 bn euro*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Czechia	22,323	27,267	31,551	35,217	30,490.1	31,877	30,666	27,481	25,336	24,981	27,184	25,788	28,683	32,594
Denmark	25,310	29,463	33,488	32,651	25,644.5	22,982	25,357	26,457	25,803	27,501	30,066	32,357	34,630	:
Ireland	17,140	26,042	23,412	35,619	19,955.7	14,049	13,532	7,903	9,757	14,102	15,603	19,964	25,587	:
Hungary	8,091	8,448	9,012	9,693	7,903.2	7,370	6,981	6,477	7,313	8,356	8,929	7,931	10,536	13,893
Portugal	34,306	33,775	35,124	35,998	32,789.9	32,110	27,610	20,838	18,295	16,899	17,256	16,440	18,262	20,179
Romania	9,128	13,406	22,996	26,087	18,721.3	18,066	19,087	18,134	17,983	16,726	18,413	17,190	17,685	21,132
Slovakia	3,901	4,923	5,520	7,485	6,345.1	8,483	8,372	7,226	6,232	7,396	9,577	8,877	9,967	10,965
Finland	19,274	21,450	24,581	27,181	23,875.3	24,371	27,258	29,047	28,720	29,315	30,593	33,586	37,762	38,195

Denmark; Hungary; Slovakia and Finland achieved record levels in 2018, but others have not achieved better times.

Table15. *Production value of Small countries, under 10 bn euro*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bulgaria	4,101	5,640	8,044	11,034	9,866	6,774	6,553	6,595	6,492	7,641	9,128	5,916	6,877	8,050
Estonia	1,916	2,611	3,336	2,899	1,924	1,676	2,241	2,706	2,804	2,766	2,684	2,922	3,413	:

Greece	:	:	:	:	15,656	:	11,398	10,858	10,238	9,422	9,731	8,793	9,392	9,503
Croatia	:	:	:	11,167	9,528	6,945	6,061	5,384	5,159	5,127	5,614	5,640	5,929	6,479
Cyprus	2,986	3,364	3,907	4,931	3,960	3,802	3,255	2,637	1,893	1,716	1,756	2,146	2,838	3,340
Latvia	2,821	4,536	6,246	5,993	3,288	2,712	3,170	3,871	4,259	4,155	4,019	3,046	3,881	4,745
Lithuania	3,219	4,516	6,281	6,231	2,711	2,739	3,436	3,569	3,998	4,840	4,833	4,563	5,218	6,176
Luxemb.	3,122	3,430	3,890	4,136	3,914	3,912	4,123	4,351	4,349	4,807	5,118	5,546	5,853	6,046
Malta	:	:	:	716	767	749	756	801	815	961	1,112	:	1,214	1,367
Slovenia	4,676	5,470	7,288	8,210	6,639	5,670	4,856	4,485	4,194	4,536	4,320	4,062	4,624	5,578
Iceland	:	:	:	:	:	:	:	:	:	:	1,100	1,634	2,144	:

Estonia, Luxembourg, Malta and Iceland were successful in 2018, but others have not exceeded pre-crisis levels.

Austria, Belgium, Sweden and Finland production of construction enterprises exceeded level of 2007 or 2008 in 2013 or earlier. In six of nine country production was in 2012 higher than in 2013. From CEE-8 countries was highest production in Poland and the Czech Republic. In this group of states only Luxembourg exceeded level of 2008 with 4.7%. Also, its turnover was most stable, but other countries were large fluctuations.

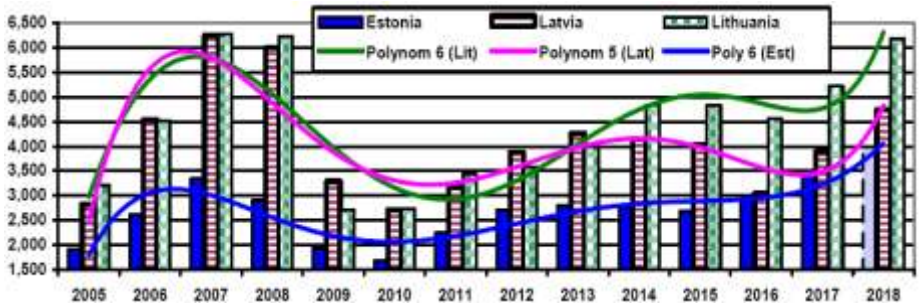

Figure10. *Production of small EU countries, billion Construction [56]*

Baltics countries had the largest production in 2007 or 2008, it followed nearly double decline. No one of them not yet restored by 2013, the level of boom years. The nearest was Estonia, who was a lack of 7.2%.

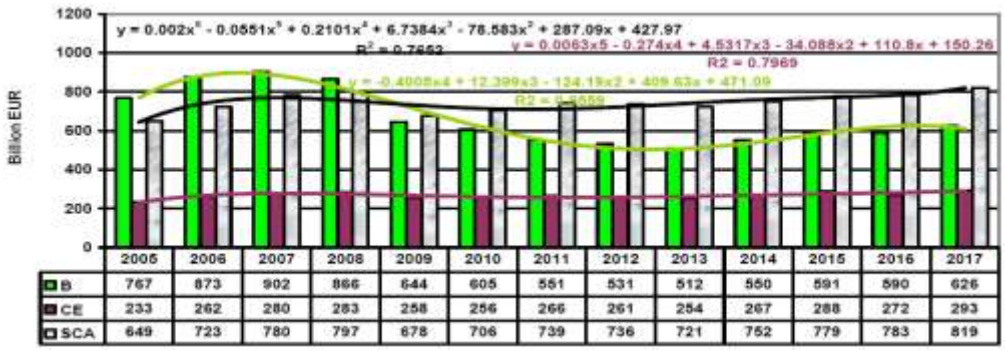

Figure11. *Production value of construction of buildings (B); Civil engineering (CE) and specialised construction activities (SCA) - billion euro [56]*

To sum up, we look at the five major *production value* countries and the small Baltic countries that have recently regained independence, followed by the construction boom as much as possible.

Table16. *Production value of enterprises of EU countries- million euro. Construction of buildings (B) [56]*

	2005	2007	2008	2009	2013	2014	2016	2017	2018
France	49,116.9	59,959.6	63,972.0	50,464.0	67,434.5	76,217.5	78,839.0	81,805	79,420
UK	111,984	130,675	113,7692	85,692	97,146	115,692	121,886	124,081.7	138,842
Germany	38,986.6	43,348.3	44,432.6	40,089.8	57,266.7	61,048.6	62,569.5	64,962.1	69,049
Italy	119,505.8	139,183.7	158,048.1	97,277.8	67,013.4	58,778.9	53,857.9	56,009	55,803
Spain	278,605.6	298,697.7	244,417.2	173,328	48,240.3	52,509.8	58,135.6	62,945.8	78,020
Estonia	1,042.9	1,712.4	1,212.5	787.7	854.8	930.2	1,019.8	1,253.5	:
Latvia	1,335.7	3,233.4	2,837.7	1,412.6	1,709.3	1,815.4	1,339.3	1,725.2	2,182.6
Lithuania	1,749.4	3,632.7	3,385.5	1,227.3	1,702.7	2,090.2	2,065.2	2,310.0	2,802.0

Table17. *Production value of enterprises of EU countries- million euro. Civil engineering (CE) [56]*

	2005	2007	2008	2009	2013	2014	2016	2017	2018
France	26,926.8	33,373.7	36,049.8	33,716.1	38,194.0	42,194	33,147.0	44,229	42,874
UK	58,961.2	68,922.2	60,919.5	47,030.6	46,332.8	52,046	63,479.3	57,933.0	64,869
Germany	20,712.6	21,652.2	22,703.4	23,988.2	28,543.8	30,319.3	33,562.1	37,306.4	42,025
Italy	18,716.5	22,073.0	25,098.6	22,776.9	26,083.6	25,090.2	25,661.3	24,358.0	24,850
Spain	41,572.8	44,995.1	36,281.2	32,859	16,700.7	16,147.9	18,558.9	20,188.4	20,881
Estonia	373.3	653.9	708.7	529.9	829.4	724.0	728.5	849.6	:
Latvia	601.1	1,217.1	1,427.7	988.1	1,453.9	1,282.2	874.8	1,193.4	1,435.6
Lithuania	685.8	1,094.7	1,327.9	758.7	1,156.6	1,415.7	995.2	1,194.6	1,317.2

Table17. *Production value of enterprises of EU - million euro. Specialised construction activities (SCA) [56]*

	2005	2007	2008	2009	2013	2014	2016	2017	2018
France	127,747	157,014	172,002	163,104	176,667	172,515	169,557	167,649	175,261
UK	100,975.1	118,605.7	105,066.0	75,408.5	91,572	104,453	103,493	106,365.8	112,037
Germany	89,280.3	100,073.9	107,045.6	103,562.4	132,047	151,356	159,456.3	171,720.5	184,329
Italy	87,580.5	99,171.5	113,836.9	86,887.9	88,271	84,248.0	83,350.4	84,966.2	86,264
Spain	95,259.8	110,042.5	87,568.2	65,589	34,265	34,875	39,144.4	41,422.2	50,963
Estonia	500.2	970.1	978.6	606.5	1,120.2	1,112.0	1,174.4	1,310.2	:
Latvia	885.1	1,795.7	1,727.8	888.1	1,096.2	1,057.5	832.4	962.9	1,127.0
Lithuania	784.2	1,554.0	1,518.4	726.0	1,138.7	1,334.5	1,503.1	1,713.4	2,056.9

Table18. *Production value of enterprises of EU - million euro. Specialised construction activities (SCA) [56]*

	2005	2007	2008	2009	2013	2014	2016	2017	2018
France	127,747	157,014	172,002	163,104	176,667	172,515	169,557	167,649	175,261
UK	100,975.1	118,605.7	105,066.0	75,408.5	91,572	104,453	103,493	106,365.8	112,037
German	89,280.3	100,073.9	107,045.6	103,562.4	132,047	151,356	159,456.3	171,720.5	184,329
Italy	87,580.5	99,171.5	113,836.9	86,887.9	88,271	84,248.0	83,350.4	84,966.2	86,264
Spain	95,259.8	110,042.5	87,568.2	65,589	34,265	34,875	39,144.4	41,422.2	50,963
Estonia	500.2	970.1	978.6	606.5	1,120.2	1,112.0	1,174.4	1,310.2	:
Latvia	885.1	1,795.7	1,727.8	888.1	1,096.2	1,057.5	832.4	962.9	1,127.0
Lithuani	784.2	1,554.0	1,518.4	726.0	1,138.7	1,334.5	1,503.1	1,713.4	2,056.9

Working Efficiency or Labour Productivity of Construction

Table19. *Turnover per person employed of EEA countries. Construction [55]*

	2009	2010	2012	2015	2017
EU - 28	119	115	121	134	132
Belgium	177.9	184.3	192.7	208.7	216.9
Bulgaria	41.3	38.2	47.7	63.3	46.5
Czechia	76.5	:	70.7	74.3	78.0
Denmark	162.3	153.6	162.0	175.5	:
Germany	105.0	104.2	107.7	109.7	114.5
Estonia	63.6	63.1	89.8	89.1	103.5
Ireland	179.2	169.4	98.5	137.5	181.2
Greece	55.6	58.9	57.0	78.5	79.6
Spain	154.0	121.2	106.6	101.9	102.4
France	:	143.4	159.2	179.2	171.6
Croatia	58.2	51.7	49.0	54.4	57.8
Italy	94.8	113.9	125.4	122.3	120.7
Cyprus	98.6	101.1	90.1	97.6	113.8
Latvia	56.2	51.3	64.7	59.4	58.6
Lithuania	30.5	35.0	38.6	46.2	49.7
Luxembourg	134.7	136.4	145.6	160.5	175.9
Hungary	63.9	59.3	52.7	69.4	73.6
Malta	71.6	72.3	77.9	104.1	115.1
Netherlands	187.3	175.9	173.8	193.6	214.5
Austria	144.9	146.7	149.2	156.9	161.0
Poland	57.9	67.0	65.2	72.5	71.2

Portugal	71.2	78.4	64.7	60.4	62.0
Romania	39.2	42.9	42.5	48.0	45.2
Slovenia	78.7	77.3	77.4	74.0	77.6
Slovakia	81.9	50.8	50.5	67.3	64.6
Finland	141.3	139.5	158.0	161.3	178.6
Sweden	134.8	147.9	173.4	181.9	192.4
UK	140.2	154.1	180.3	239.8	189.0
Iceland	:	:	:	135.1	187.6
Norway	183.6	203.8	260.9	234.9	243.5
Switzerland	135.9	153.2	186.1	207.6	199.3

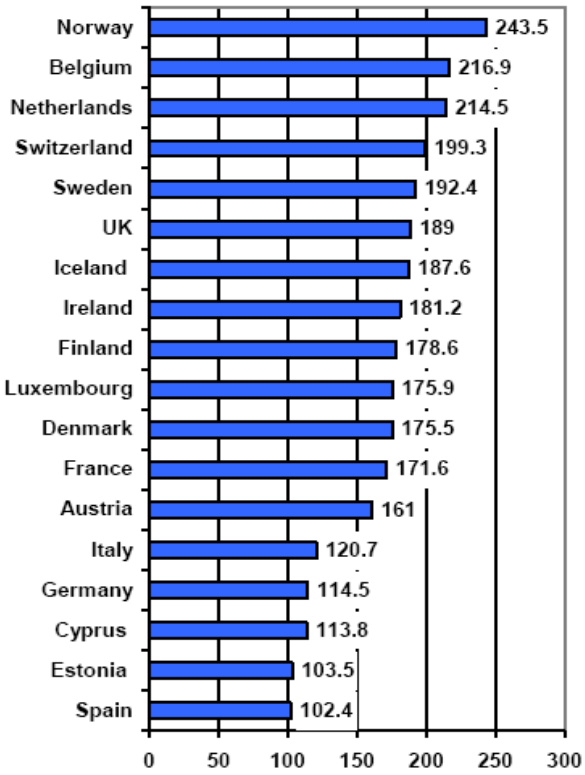

Figure12. *Turnover per person employed of EEA countries. 2017. Construction [55]*

Next will be analysed apparent labour productivity or *gross value added per person* employed in construction companies.

Table20. *Apparent labour productivity in 1 000 EUR of EEA large countries. Construction [55]*

	2006	2008	2010	2012	2016	2017
EU (28)	37	42	37	39	43	44
Belgium	:	49.3	48.8	49.4	52.5	54.4
Denmark	:	55.9	55.1	53.3	66.2	:
Germany	:	40.3	41.1	40.3	44.6	47.4
Ireland	:	35.4	9	36.2	57.5	67.2
France	:	:	47.7	48.8	50.5	54.6
Italy	:	40.4	33.2	34.4	36.3	37.2
Cyprus	:	53.2	41.4	32.9	28.9	30.4
Luxembourg	45.8	48.7	47.3	51.3	60	62
Malta	:	22.7	25.7	25.5	:	41.5
Netherlands	:	56.9	54.1	53.1	61.8	62.7
Austria	49.4	56.5	50.7	52.5	57.4	58.4
Finland	52.1	49.6	46.9	51.6	55	56.8
Sweden	45.9	49.0	48.9	55.5	57	58.3
UK	:	70.0	57.1	67.6	80.2	72
Iceland	:	:	:	:	70.1	81.4
Norway	67.3	70.2	69.5	84.4	75.3	76.6
Switzerland	:	:	72.5	85.7	91.4	88.1

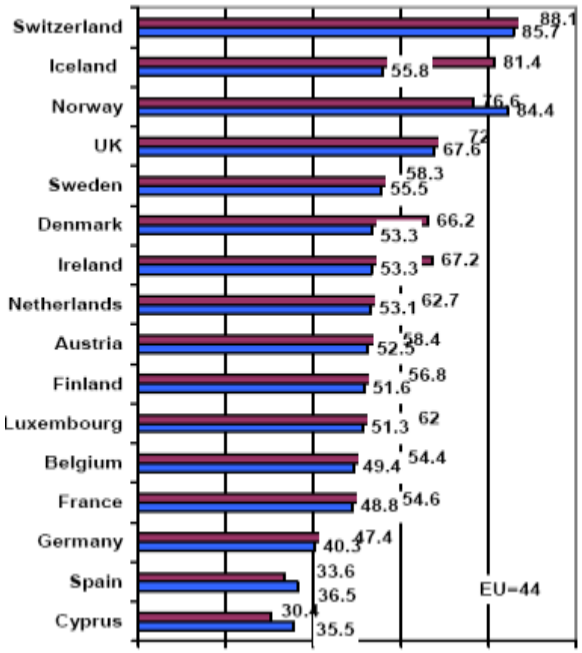

Table21. *Apparent labour productivity in 1 000 EUR of EEA small countries. Construction [55]*

	2006	2008	2010	2012	2016	2017
Bulgaria	5.7	9.6	7.3	8.3	9.7	10.9
Czechia	:	18.1	:	15.2	16.3	17.9
Estonia	17.9	16.5	13.1	21.1	22.2	23.9
Spain	:	44.5	38	36.5	33.7	33.6
Croatia	:	18.9	16.1	12.7	17.3	18.3
Italy	:	40.4	33.2	34.4	36.3	37.2
Cyprus	:	53.2	41.4	32.9	28.9	30.4
Latvia	14.6	14.8	9.5	12.7	11.7	13.6
Lithuania	11.3	13.3	8.2	10.2	13.4	14.2
Hungary	10.4	12.6	11.2	11.1	12.3	16.4
Poland	14.7	19.4	14.9	15	15	16.4
Portugal	18.6	19.4	19.2	17	17.3	18.6
Romania	6.7	12.8	11.7	10.1	11.3	12.4
Slovenia	19.2	23.7	17.7	19.9	20.5	22.9
Slovakia	:	17.7	14	16.1	12.7	14.1

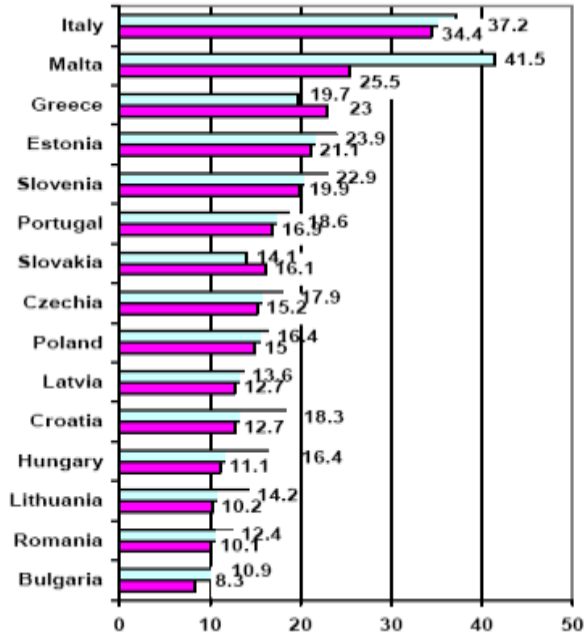

Figure13. *Apparent labour productivity of EEA countries. 2012/2017 Construction [57]*

Pre-crisis level exceeded in 2012 only Belgium, Estonia, Luxembourg, Greece, Finland, Sweden, Norway and Switzerland. Germany although exceeded level of 2008, but in 2012 fall on the same level.

Apparent labour productivity was the highest in EFTA countries Norway (84.4) and Switzerland (85.7). From EU countries was greater in 2012 in United Kingdom (67.6), Denmark (53.3), Sweden (55.5), Netherlands (53.1), Austria (52.5), Finland (51.6) and Luxembourg (51.3). In 2009 was it in Ireland 117.6, but fall in 2011 to 53.3.

In new EU Member countries was it greater in 2012 from CEE-8 countries Slovenia (19.9) and from Baltic States Estonia (21.1). But best from new Member States was quite Malta (25.5). GVA was lower in Bulgaria (8.3), Romania (10.1) and Lithuania (10.2).

The differences were very large, up to 46 times: Bulgaria was in 2005 4.6 and Ireland in 2009 117.6 (!). In 2012, the differences were slightly smaller inside the EU: Bulgaria was 8.3 and UK 67.6 or difference was 21 times.

Also in this group of countries is large, nearly double the differences.

However, all of these countries, the level is much lower than in Western European countries.

EU average number of persons employed per construction enterprises was in 2017 3.7, in 2009 it was 4.3. It was higher in Switzerland (15.2), Luxembourg (11.5), Austria (8.3), Romania (6.9) and Germany (6.8). Smaller was in Slovakia (1.7), Greece (2.0), Czechia (2.1) and Ireland (2.4) Italy (2.6). [54]

The almost the same was number in construction of buildings and in specialised construction activities.

In the civil engineering, these numbers were much higher. The EU average was 14.6, compared with 16.3 in 2011. It was higher in Luxembourg (66.3), France (51.0), Switzerland (39.6), Lithuania (36.3), Spain (35.5), Czech Republic (33.3), Austria (26.2), Croatia (25.4) and Germany (24.0). It was lower in Greece (4.9), Ireland (6.0) and the Netherlands (6.7). [54]

General trend - of the EU, Germany, Spain, Austria, Baltics; Poland, Romania, Finland, Switzerland Decrease in number of persons employed in construction companies; at the same time, this number increased from France and Czechia, but remained practically stable in some countries. [54]

In 2017 persons employed of construction EU-28 was 13,052,841 (2010 = 13,423,200); including in Germany 2,304,882; in France 1,675,716; in Italy 1,314,006; in Spain 1,150,639; in United Kingdom 1,518,168 and in Poland 908,972. [54]

Next analyse of value added at factor cost of construction enterprises of EEA countries.

Value Added of Enterprises

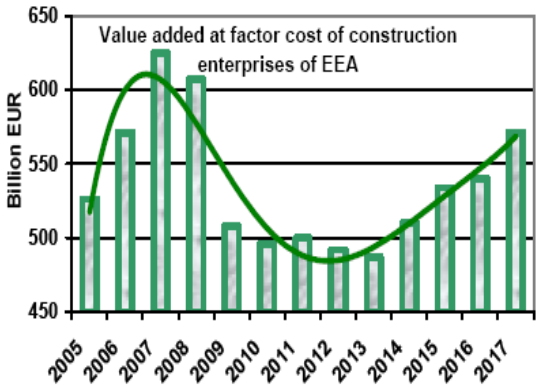

Figure14. *Value added at factor cost of enterprises of EEA, billion. Construction [45]*

In 2013, value added at factor cost of EU-28 was 22.2% less than in EU-27 in 2007.

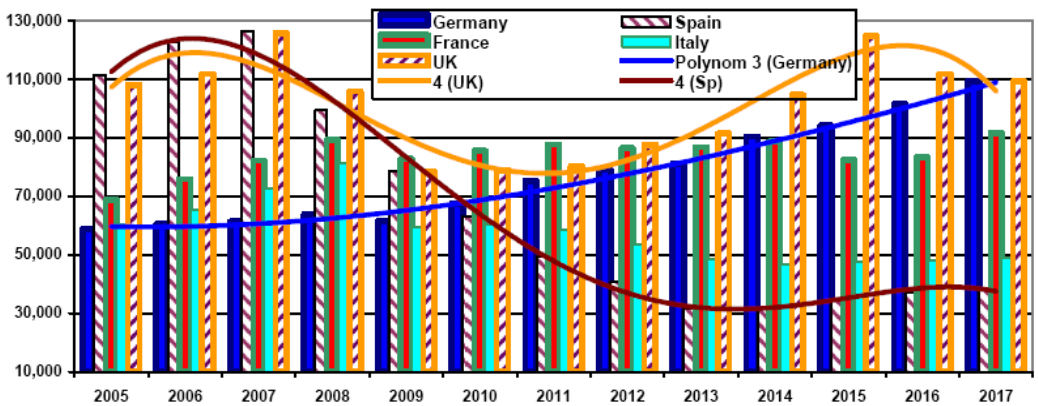

Figure15. *Value added at factor cost of large EU countries in million EUR. Construction [45]*

Table22. *Value added of enterprises of EEA large countries - million euro. Construction, top-8 [45]*

	2005	2007	2008	2009	2010	2012	2013	2014	2015	2016	2017
Germany	58,850	61,293	63,832	61,516	67,433	79,086	81,035	90,489	94,088	101,463	109,328
UK	108,028	125,756	105,795	78,266	78,849	87,492	91,350	104,607	124,704	111,850	109,303
France	68,746	82,189	89,166	82,859	85,538	86,460	86,689	88,665	82,455	83,353	91,548
Italy	60,375	72,790	81,217	59,280.	60,489	53,408	48,764	46,551	47,419	48,009	48,890
Spain	111,496	126,427	99,270	78,408	62,991	40,579	31,792	31,708	34,371	36,950	38,709
Switzerland	:	:	:	19,646	21,592	26,143	25,109	26,509	29,459	29,454	28,675
Netherlands	24,778	28,060	29,177	27,913	27,018	25,217	24,040	24,532	25,188	26,907	28,193
Sweden	11,446	15,170	15,434	13,685	16,154	19,634	19,873	20,333	21,357	22,485	24,060

Germany was just a leader by total value added volumes (VA) ahead of the UK, while in previous years it was definitely a better UK. The VA of other large countries are also higher than the subsequent smaller countries.

Value added at factor cost of construction enterprises in Germany grew steadily, only in 2009 was a small decline (3.6%). From 2005 to 2012 was total grew 34.4%. Other countries had the largest value added at factor cost of enterprises in 2007 or 2008, it followed a significant decline. No one of them not yet restored by 2012, the level of boom years. Spain's value added at factor cost from 2007 to 2012 fell by 3.1 times.

In 2017 formed Germany and UK level 19.1%, France 13.1%, Italy 8.6% and Spain 6.8% of EU-28. Together, these top five countries accounted for 66.7 % or 2/3 of the total EU-28. While Germany has been steadily growing, the UK has lost 12.4% in value added over the last two years, as do most other economic indicators. At the same time, it has decreased over the analysis period also in Italy and especially in Spain.

Table23. *Value added of enterprises of EEA medium countries - million euro. Construction, top-10+3[45]*

	2010	2011	2012	2013	2014	2015	2016	2017
Norway	13,331.2	15,121.9	17,725.1	18,011	17,722.7	17,502.1	17,677.1	18,836.8
Belgium	14,854	15,991.6	15,687.2	15,711.5	16,518	16,427	16,722.8	18,249.3
Austria	13,907.3	14,285.2	14,991.7	15,082.7	15,663.4	15,898.3	16,779.4	17,602.1
Poland	13,467.5	16,980.5	13,325.3	15,544.8	14,113.9	12,811.9	13,348.6	14,934.1
Finland	8,121.1	8,709.9	9,437.2	9,256.7	9,326.3	9,591.1	10,586.5	11,539.0
Denmark	8,133.9	8,582.6	8,863.8	9,087	9,605.3	10,313.9	11,178.1	:
Ireland	943.5	1,844.7	3,232.2	4,183.6	5,599.4	5,797.3	6,921.8	9,226.6
Czechia	6,659.2	6,492.6	6,025.2	5,529.1	5,462.6	6,242.2	5,970.7	6,632.9
Romania	4,696.3	4,607.3	4,156.1	5,842.1	4,714.5	3,726.4	4,212	4,511.2
Hungary	2,385.6	2,367.2	2,194.8	2,406.6	2,756.9	3,035.4	2,548.8	3,547.7
Baltics:								
Estonia	505	710.8	916.1	915.9	877.7	876.7	1,027.2	1,140.6
Latvia	502	575.4	756.9	831.6	867.3	850.6	740.3	903.0
Lithuania	665	823.3	951.9	1,088.6	1,327.4	1,351.6	1,403.9	1,520.9

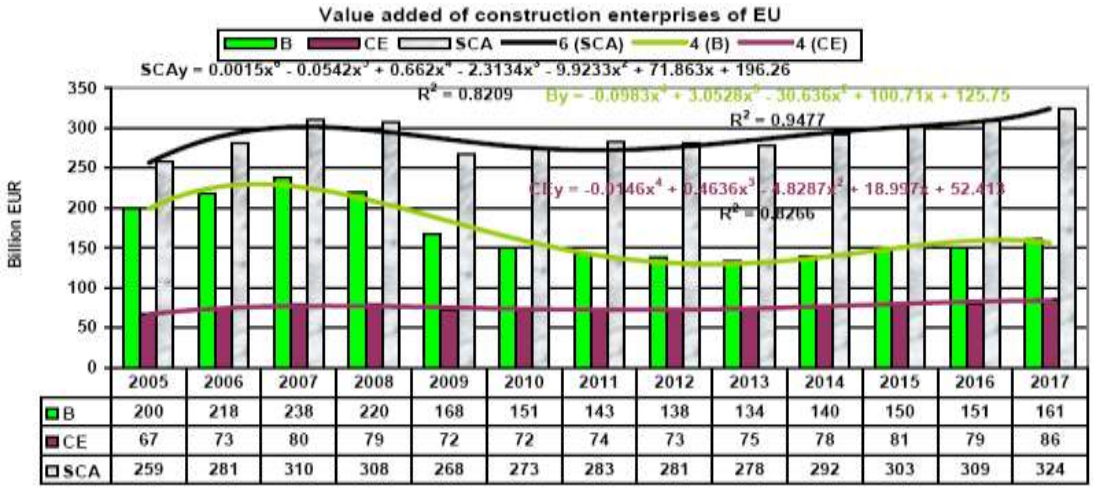

Figure16. *Value added of construction of buildings (B); civil engineering (CE) and specialised construction activities (SCA) - billion euro [45]*

Table24. *Value added at factor cost - million euro Construction of buildings 10 + 3 [45]*

	2005	2007	2008	2009	2013	2014	2016	2017
UK	39,931	46,023	37,631	30,451	34,487	42,019	43,082	43,369
Germany	13,154.1	13,672.8	13,845.5	11,755.9	17,363.1	16,660.7	19,882.2	19,858
Spain	66,221.6	73,061.6	56,895.4	43,314	12,665.7	12,312.3	15,378.0	16,176
France	10,317.8	12,218.3	13,886.5	10,406.7	11,684.9	12,910	13,141.7	15,639
Italy	27,137	32,293.9	36,570.6	21,068.7	13,312.1	12,059.0	11,204.0	11,160
Netherlands	9,037	10,123.7	10,438.8	9,661.8	6,826.9	7,315.3	8,713.9	9,025
Switzerland	:	:	:	5,797	7,886	8,138	9,111	8,842
Norway	3,730.7	5,271.2	5,183.3	4,575.7	7,172.0	6,934.1	7,073.2	7,658
Sweden	3,698.9	4,817.5	4,822.1	4,177.7	5,337.3	5,471.4	6,167.4	6,679
Poland	3,119.6	9,395.8	8,359.3	6,883.5	6,610.6	4,726.5	4,504.5	5,464
Belgium	3,302.2	3,896.1	4,390.5	4,173.3	4,770.8	4,961.8	4,887.4	5,443
Estonia	363.4	588.1	360.4	222.2	272.1	278.9	381.6	451.1
Latvia	242.0	734.5	507.1	162.0	275.6	314.9	232.4	290.8
Lithuania	452.3	1,022.3	896.4	255.9	425.0	531.7	566.8	604.7

Table25. *Value added at factor cost - million euro Civil engineering top10 + 3 [45]*

	2005	2007	2008	2009	2013	2014	2016	2017
UK	19,374.9	22,318.9	18,853	13,329.8	16,157.4	16,463.1	20,485	17,648
France	7,378.6	8,886.7	9,739.4	9,449.1	9,772.9	13,142	9,032.3	14,593
Germany	7,217.5	7,129.3	7,338.9	8,458.7	10,265.6	11,351.5	12,868	13,912
Italy	4,209.4	5,116.1	5,733.8	5,548.3	5,220.5	5,092.0	6,130.2	6,283
Spain	10,770.1	11,981.8	9,257.7	8,842.5	4,919.1	4,952.6	5,618.1	5,645
Netherlands	3,664.0	4,110.5	4,295.4	4,384.6	4,490.5	4,420.2	4,235.4	4,297
Poland	1,794.6	2,874.0	3,665.3	3,474.9	3,579.2	3,670.9	3,217.9	3,708
Belgium	1,455.4	1,791.3	1,976.8	1,911.5	2,332.7	2,397.9	2,077.4	2,861
Austria	1,924.1	2,720.7	3,603.7	2,432.0	2,514.3	2,760.0	2,208.6	2,215
Sweden	513.0	702.6	730.3	846.1	1,699.8	1,794.5	1,806.4	2,064
Estonia	122.0	230.4	225.6	171.8	275.4	240.8	235.2	257.0
Latvia	164.5	346.9	370.3	243.1	283.2	268.8	240.0	301.2
Lithuania	218.7	363.9	441.2	255.6	292.8	361.2	322.9	320.2

Table26. *Value added at factor cost - million euro. Specialised construction activities top 15 + 3 [45]*

	2005	2007	2008	2009	2013	2014	2016	2017
Germany	38,478.7	40,491.3	42,648.5	41,301	53,406.7	62,477.3	68,713.2	75,557.2
France	51,050.0	61,085.0	65,540.2	63,003	65,231.2	62,612	61,179.6	61,316.0
UK	48,721.2	57,414.2	49,309.6	34,485	40,705.9	46,125.2	48,282	48,285.6
Italy	29,028.4	35,380.6	38,912.7	32,663	30,231.6	29,400.3	30,674.9	31,446.0
Switzerland	:	:	:	11,950	15,296.7	16,496.5	18,035.6	17,695.4
Spain	34,504.4	41,384.0	33,117.0	26,251	14,207.7	14,443.4	15,954.6	16,887.8
Sweden	7,234.4	9,650.3	9,882.5	8,661.9	12,836.5	13,067.0	14,511.9	15,316.4
Netherlands	12,077.2	13,826.6	14,443.0	13,867	12,723.4	12,797.2	13,957.8	14,870.5
Austria	6,616.4	7,639.4	8,126.1	8,014.5	8,973.8	9,038.1	9,779.1	10,579.8
Norway	4,930.6	6,909.9	7,563.1	6,578	9,477.2	9,372.4	9,031.3	9,557.7
Denmark	:	7,857.1	7,806.7	6,384.2	6,291.2	6,806.7	7,626.4	:
Poland	2,906.6	4,931.6	6,033.5	4,991.5	5,355.0	5,716.4	5,626.2	5,760.7
Ireland	:	:	5,044.2	3,831.5	2,373.9	3,287.1	3,791.5	5,027.9
Czechia	1,791.8	2,553.9	3,075	2,515.1	2,407.4	2,473.3	2,825.8	3,242.3
Portugal	2,244.8	2,659.1	2,920.5	2,806.3	1,785.8	1,836.3	1,975.0	2,195.5
Estonia	156.6	374.0	359.0	209.6	368.4	358.0	410.3	432.5
Latvia	223.0	493.2	446.4	205.4	272.8	283.5	267.9	311.0
Lithuania	260.5	585.2	541.6	225.0	370.8	434.5	514.2	596.0

Construction by Employment Size Class

	0 - 9	10 - 19	20 - 49	50 - 249	250 >	Total
EU	183,888	67,900	72,463	79,259	89,400	492,897
%	37.31	13.78	14.70	16.08	18.14	100

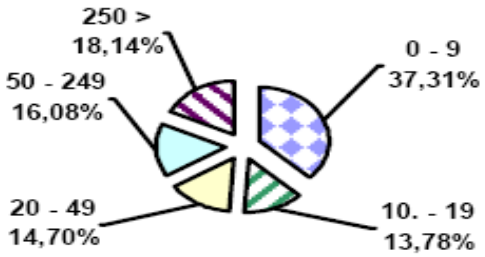

Figure17. *Value added at factor cost of enterprises. Construction by employment size class, 2012, EU- 28 [53]*

The largest share of value added at factor cost of construction enterprises was size class 0-9 (37. 3%).

Take the basics this publication and the previous work of the authors [2, 24 - 43], we can make the following conclusions and suggestions.

CONCLUSIONS

- Germany is largest European economy, the EU economic motor, which depends on development of most economic indicators throughout of EU.
- Countries economy has increased after the crisis. Whether economic growth achieved smaller number personnel, it means expense labour productivity?
- The EU-28 and the euro area emerged from the crisis, as evidenced by the positive GDP growth.
- Before the crisis, all CEE-8 countries experienced large increases. All of the states experienced a great GDP decline in 2009, except Poland, which was the only EU country, where the economy did not decline.
- The development of the Baltic countries economy before and after the crisis was one of the fastest in the EU, but in 2009 were big fall of real GDP.
- In 2013 the EU has not reached the level of enterprises of construction of 2007.
- From 2005 to 2013 were in Bulgaria, Czechia, Poland, Romania, Slovenia and Slovakia great increases of enterprises of construction; in Croatia and Hungary had a big loss.
- In all three Baltic countries was great, nearly double, growth of enterprises of construction.
- The construction boom by persons employed of CEE and Baltic countries was in 2007 - 2008 and in 2009 - 2010 was sharp recessions. In 2013 the EU has not reached it level of 2007.
- New EU Member States construction activity developed relatively faster when in old the EU States, but it share the absolute value added of construction activity in comparison with the old the EU States, was small, less than 10%.
- Poland was 2.5 times increase of GVA in enterprises of construction from 2004 to 2012.
- Record level of GVA in construction enterprises of CEE countries Czechia was in 2010 and Poland in 2011, Bulgaria in 2009, and Hungary, Romania, Slovenia and Slovakia in 2008.
- Record level of GVA in enterprises of construction of Estonia was in 2007 and of Latvia and Lithuania in 2008, but in forward was big decline.
- The largest share of value added at factor cost of construction enterprises was size class 0-9 (37.3%).
- In CEE-8 Poland, Czech Republic, Hungary, Slovenia, Slovakia and Estonia were value added at factor cost higher in size class 0-9 than 250 and more. In Bulgaria, Latvia, Lithuania and Romania were higher in size class 50-249, and in Croatia size class 250 and more.
- Total were of new EU member states biggest share of value added at factor cost microenterprises (0-9), who gave a third of the total value added at factor cost.
- Apparent labour productivity was the highest in Norway (84.4), Switzerland (85.7), United Kingdom (67.6), Denmark (53.3) and Sweden (55.5). In 2009 was it in Ireland 117.6.
- In CEE-8 countries was greater apparent labour productivity in 2012 in Slovenia (19.9) and in Baltic States in Estonia (21.1). It was lower in Bulgaria (8.3), Romania (10.1) and Lithuania (10.2).
- The differences of productivity between the EU countries were very large, up to 46 times (!). In 2012, the difference was 21 times. Estonian productivity was 2.5 times higher than in Bulgaria.
- Many countries, including also CEE and Baltic countries, were labour productivity by size class differences to three times, in Portugal up to four times.
- On the basis of 16 EU and two EFTA countries: the upgrading of enterprise size class also increased labour productivity in enterprises of construction.

- In principle, the construction companies of the Baltic and CEE countries as a whole exited the economic crisis successfully, some sooner, some later. On the other hand, the crisis meant the death of thousands of companies and a rise in unemployment.
- There were great differences in the dynamics of the labour productivities of countries during the crisis and labour productivity by size class, thus also in how the economic crisis was overcome.
- Number of persons employed of the EU from 2005 to 2015 was fall 12%, decreased over 4 million persons.
- What is the reason why, according to one, the GDP of the UK is decreasing and by the EU increasing? We can find the answer by analysing at exchange rates. For clarity, we look at changes in the currency.
- The value of the GDP has fallen heavily in recent years, particularly in relation to EUR, the GBP dropped in USD and EUR after Brexit's decision.
- The UK, which is still one of the most important countries in the world, the economic downturn is likely to continue along the spiral, which also includes short-term ups.
- In conclusion, both the UK and the EU economies are weakening in the increasingly competitive world with the USA, China, Japan, India and other countries.
- The situation of global economy in recent years shows, what the superpowers states of EU have lost their leading position also to India, Russia, Brazil and Indonesia. At the same time, however, the UK was the second economic power in the EC. Think about, whether a fragmented Europe can stand alone against the new global economic powers?
- Already we can say that Brexit is economically bad for both.
- Britain will leave the EU, but the majority of European countries are still bound by the NATO and the future of bilateral agreements.
- As a whole, the level of construction in Europe is very uneven, there are many inefficient micro-enterprises, that give work for millions, but it is not possible for these companies and also useless make big investments to increase work efficiency.
- As a rule, the best construction country in Europe was the United Kingdom, ahead of France or Germany.

To get a more accurate overview of what were the lessons learnt by countries as a result the economic crisis, other key indicators in their interconnection should be observed as well. A more detailed analysis of various types of construction would also provide a more accurate picture.

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