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2009

Online at <http://mpra.ub.uni-muenchen.de/16370/>
MPRA Paper No. 16370, posted 20. July 2009 / 22:14

Latvian and Europe construction comparison: stability and reasons of crisis

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Abstract

Recently construction industry in Latvia has experienced substantial changes. Stable increase of construction since 2002 has transformed to a boom in 2006-2007. Year 2008 characterizes with continuation of the boom in first half-year and with the rapid downslide in the second half-year. The downslide can cause the protracted recession not only in construction industry, but also in the whole national economy.

In the paper Latvian construction industry is comprehensively evaluated and compared with the Baltic States and the European Union. State of dwelling funds, dynamics of construction industry and factors influencing demand, including solvency of population, desires and necessities; factors of commercial and government demand are presented. Industry costs are analyzed separately: natural resources, production of building materials, fixed assets and attraction of money capital, personnel costs. Possibilities to obtain profit while working in construction were analyzed. Basing on the analysis, suggestions for improvements in the industry activities are elaborated.

JEL classification number:

Keywords: construction economics, demand, living conditions, real estate, solvency, credit burden, investments

1. Introduction

The volume of building production and market structure depends from the development of the national economy. If the economic situation in the country worsens, dwellings construction will diminish, than also commercial and infrastructure objects construction will diminish. However, if the economic situation improves, construction activities will increase first of all in commercial enterprises, then in production enterprises as well as in object financed by the state and municipalities. Then, after the increase in income of population, also dwellings construction expands. Such development is evident in all countries.

The building boom was formed by the continuous economic increase: increase in income of population and increase of welfare provoked hopes on a further increase of the standard of living. Together with the economic development and increase of the standard of living, the actual real estate fund became too small for market requirements. Taking into account specifics of construction process, its durable character, it was not possible to satisfy the increased demand. Therefore the boom caused the increase in prices of building products. Building costs were not grounded during the boom: wages in construction were so large that workers from other industries moved to construction. It caused the increase of wages in the whole national economy. Similarly during the boom quality of building products diminished considerably.

Downslide shows all these problems. If previously it was possible to increase profits of enterprises in construction industry or to eliminate losses of ineffective activities by increasing the turnover, prices, etc. then now it is not possible anymore. Therefore now a substantial importance gains the increase in construction industry efficiency, solving problems, which are connected with the balance of demand and supply, labor force, construction utilities and other resources, as also with financing and crediting.

2. Construction demand analysis

Analyzing the first, from the social point of view the most important building segment – dwellings, it is hard to say, whether there the necessary dwelling space has ever been provided in Latvia. The problem of dwelling funds is topical in Latvia for at least last 50 years, and it was intensified by the dwelling construction outage during the last 10 years (in 2006 constructed dwelling space only by 7% exceeded production in the previous four years, from 2000 till 2003). After restoration of independence and entering the EU, socio-economic changes in the state intensified the dwelling provision problem. As the most important socio-economic changes not only the change of the political situation, but also the changes in human views about dwellings, extended desires and necessities can be mentioned. Such conditions as in China, where 8 m² is planned for dwelling for person in cities, is not acceptable in Latvia. The previous standard of the soviet system is also not acceptable. Desires and necessities to live in European style have appeared. The current dwellings fund does not allow it. Therefore, a hypothesis can be raised that after some time Latvian dwellings fund will be equivalent to the average European level.

During the collection of the statistical data, there was a problem of completely correct comparison of the data of the European countries and Latvia. Dwellings and housing funds in various countries are characterized with various indicators, also calculation methods of these indicators differ, so, for example, in Latvia the popular indicator - the housing space – is rarely applied in the EU, instead the number of rooms per dwelling (or per person) it used. In Table 1 indicators of housing conditions are compared in the EU and in Latvia.

Table 1. Living conditions

	Persons per dwelling	Rooms per person	Rooms per dwelling	Households per dwelling
Denmark	2,2	2,1	4,8	1,079
Finland	2,4	1,8	3,6	0,950
Germany	2,4	1,8	4,5	0,723
Ireland	3,3	1,6	5,3	0,852
Italy	2,9	1,6	4,3	1,166
Latvia	2,38	0,98	2,22	0,952
Portugal	3,2	1,4	4,5	1,263
Spain	3,3	1,5	4,8	1,395
Sweden	2,1	n/d	4,3	0,885
United Kingdom	2,5	2	5,1	0,957

n/d - no data available

Source: Author's estimation based on Eurostat and LR CSB data

The first indicator in the Table 1 is the number of persons per dwelling. In Europe this is a popular indicator, but in Latvia it rarely used. The represented data for Latvia are calculated, based on the amount dwellings and population. This indicator, from one side, characterizes welfare regarding dwellings, but, from the other side, it

shows the peculiarities of the country. In the traditional catholic states or in the states with large families (Spain, Italy, Portugal, Ireland), this indicator is larger than 3. This is a sign that in the average family there are more than three persons and they all live in one dwelling. Latvia is near to Denmark, Germany, Finland and Sweden. Therefore the conclusion is that from this indicator, taking into account the national peculiarities, the amount of dwellings is sufficient in Latvia.

The next indicator represents the number of rooms per person. This indicator is also popular in Europe, but is almost never used in Latvia. In the Table 1 it is calculated based on the data of population and the structure of apartments by the number of rooms. It is clear that the larger is the average family, the smaller will the value of this indicator be (in the circumstances of the identical housing fund). Regarding this indicator Latvia is substantially behind other European countries.

Similar situation is with the next indicator – the number of rooms per dwelling. In Latvia the data of dwellings with more than three rooms are incorporated in one account group. There are also four rooms apartments in the market, but apartments with five and more rooms are very rare and their amount is statistically insignificant. It is important to add that in some countries only bedrooms are counted as rooms, but in Latvia also living rooms are included. Therefore the difference both in the number of rooms per apartment and the number of rooms per person is larger than in Europe.

Usually, when analyzing the living conditions, one indicator is not taken into account – average number of households per dwelling. From point of view of the author this indicator can complement the analysis. If we suppose that each family (household) wishes to live independently from the other families in particular dwelling, then after this indicator, knowing the number of households and dwellings, is possible to estimate disproportions of dwellings and households in the country. This indicator shows that the number of dwellings in Latvia is equal to the EU level. It is important to add that in the separate EU countries the number of dwellings is substantially larger than the number of households (Germany, Ireland, Sweden). It can be connected with diminishing number of population in these countries, with the high living conditions and with overproduction of dwellings during the boom time. Secondly, this indicator underlines that in such states as Spain and Portugal families of various generations wish to live together and it explains the large average size of families per dwelling and large number of rooms per dwelling.

The most important conclusion drawn from the Table 1 is that in Latvia the number of dwellings is sufficient, but dwellings quality is lower than modern requirements. It is clear that it is not possible to increase the number of rooms per person or the number of rooms per apartment without the increase in the number of dwellings. When the number of dwellings increases, there are excess dwellings in the market and purchasing power of population determines which of them are excessive - old or new. Problem of the excess dwellings has a substantial influence both on the real estate market and construction industry.

Dynamics of income of population, which shows solvency of population and influences construction demand, is represented in Table 2.

From Table 2 follows that from 2000 average wage, but also real wage grows. Taking into account the fact that in Latvia, in Great Britain and in other separate states wages are paid in national currency, but in the majority of countries in Euros, it is evident that the average or real income in separate years decreases. It can be connected not so much with the changes in wages, but also with fluctuations of currency exchange rates. So, for example, in Latvia, in 2005, after entering the EU, real wages were almost the as a year before. It was connected with the fact that during the time from November

till December 2004 exchange rate of the Latvian lat to Euro lost approximately 10% from its value. This had almost no influence on wages in 2004, but it was evident in 2005. Since then the lat is pegged to euro.

Table 2. Dynamics of income of population

		2001	2002	2003	2004	2005	2006
Finland	Average net income per person, euro/month	801	803	842	869	864	914
	Income changes, %	105	100	105	103	99	106
	Price changes, %	102	105	107	109	112	114
	Real income, euro/month	821	767	823	816	759	837
Latvia	Average net income per person, euro/month	193	208	218	237	250	307
	Income changes, %	106	108	105	109	106	123
	Price changes, %	103	102	103	106	107	107
	Real income, euro/month	198	220	223	244	247	356
United Kingdom	Average net income per person, euro/month	982	1092	922	1014	1125	1223
	Income changes, %	116	111	84	110	111	109
	Price changes, %	105	109	112	113	115	117
	Real income, euro/month	1087	1116	671	981	1080	1124

Source: Author's estimation based on Eurostat and LR CSB data

Therefore a hypothesis can be raised that in the circumstances of protracted increase of the real income of population stimulate considerable construction increase. With the increase of income in the first years, people improve the quality of their life: change food quality and so on. When a satiation is achieved and certain sum of money is accumulated, people improve their dwellings also. This hypothesis is analyzed in Table 3, where expenditure structure of population is represented.

Table 3. Expenditure structure of population

	Household expenditures, Euro /year	Housing costs share	Renovation costs share	Housing rent costs ratio	Imputed rentals for housing
Cyprus	30 856	20,2%	1,0%	2,2%	12,8%
EU (27 countries)	24 447	32,5%	1,9%	5,3%	16,5%
Finland	29 705	26,4%	n/d	4,9%	17,4%
Latvia	5 981	12,2%	1,2%	0,5%	27,5%
Norway	40 328	18,7%	4,3%	2,2%	8,2%
Spain	23 682	36,8%	0,9%	2,1%	27,8%
Sweden	29 885	28,5%	1,8%	9,3%	12,9%
United Kingdom (UK)	34 859	24,5%	1,4%	5,0%	14,5%

n/d - no data available

Source: Author's estimation based on Eurostat and LR CSB data

From Table 3 it is evident that in Latvia, compared with other EU countries, households' expenditures are very low. It is connected with low income. For example, income of the Latvia's population are almost 3 times lower than in Finland and 4 times lower than in the United Kingdom (UK) 4, but expenditures are 5 and 6 times lower accordingly. Therefore construction demand in Latvia is limited.

Additionally direct demand in dwelling maintenance and repair segment can be characterized. Dwelling costs include costs of water, fuel etc. Therefore it does not characterize construction demand of population fully, it is more important to set repair costs apart. Table 3 shows that the share of dwelling maintenance costs for households

in Latvia is more than two times lower than in the EU, but the share of repair costs are equal with separate EU countries, for example, with Spain and the UK. It means that it very problematic to increase construction demand in the segment of dwelling repair.

In Table 3 also shares of renting and alternative costs are given. These two columns also can characterize demand for building products. If renting costs are larger than its alternatives costs, then it is more beneficial for population to buy dwelling, to become a proprietor and not to pay renting cost. In such circumstances demand for dwellings grows, construction demand increases. In Latvia renting costs are 2-3 times below alternative costs, therefore it is more convenient to rent a dwelling in the EU. From this point of view increase in demand for building products is not to be expected. It is important to add that the share of renting in Latvia is that low, because these costs in statistics are analyzed not as renting costs, but as house service costs. Real costs of renting could be compared with other countries, which would significantly increase the share of dwellings costs in households' budget.

In short period, construction demand can be influenced also by possibilities to buy dwellings on credit. Availability of credits can influence the behavior of population: people do not accumulate means to buy dwellings, but they buy dwellings on credit and than with next payments cover purchase costs. It is more quickly buy dwelling on credit. It is important to mark that the long period in economics is time, which is necessary to enlarge production capacity (factories), however in construction long period is time, which is equivalent to operation time of buildings - not less then 50 years. All periods, which are shorter than this, are short periods. In the shortest periods (5 - 10 years), various phenomena in the market can be observed, no construction of dwellings can take place (or construction amount can be statistically insignificant, as in Latvia in 1992 - 2000), compensating that during the following shortest period. In long period credit possibilities have no economic consequences. If the crediting system in the state operates for a few years, in long period it has not substantial influences on construction demand. If the crediting system barely begins to function, it can influence construction demand and real estate market substantially. In Latvia the dwellings crediting system developed very quickly from 2000 till 2007, and now there is a discussion that income and credit burden are not balanced for population. In Table 4 credit burden of the Latvia's population is compared with the EU.

Table 4. Credit burden, mil. Euro

	2002		2004	
	Household loan	Per 1000 persons	Household loan	Per 1000 persons
Czech Republic (CR)	3 627	0,36	6 733	0,66
Germany	725 137	8,80	762 407	9,24
Estonia	593	0,44	1 500	1,11
EU	3 289 836	7,23	3 969 728	8,64
Finland	30 952	5,96	41 231	7,90
Ireland	43 416	11,13	73 120	18,15
Lithuania	211	0,06	999	0,29
Latvia	397	0,17	1 345	0,58
Poland	5 015	0,13	8 486	0,22
Sweden	82 175	9,22	107 975	12,03
UK	1 054 468	17,81	1 249 230	20,93

Source: Author's estimation based on Eurostat, LR CSB and Bank of Latvia data

Regarding credit burden of Latvia's populations loading, from 2004 till March 2009 the volume of household loans grew more than 10 times, reaching 14111 million

Euro or 6.19 th. Euro per capita. From Table 4 it is evident that from 2002 till 2004 Latvian credit system was in development position, it grew approximately two times every year. In the developed states, for example, in UK, increase was approximate 8% in a year.

If we compare Latvia's credit burden per person in 2009 year with Finland's credit burden in 2002, we see that they are in identical level. But, if we compare the income of population in the mentioned periods, we see that the level of income in Finland is substantially larger. Maybe the example of Finland is not the best one, because crediting level in Finland is smaller than the average EU level, therefore in Table 5 ratios of loans and wages are compared.

Table 5. Credit and income ratio

	2001	2002	2003	2004
Austria	6,9	8,4	8,8	7,8
Germany	9,6	10,4	11,3	11,3
Spain	10,3	12,3	14,0	17,0
Finland	6,4	7,8	8,3	9,7
France	6,7	7,0	7,4	11,9
Italy	16,0	15,8	22,6	24,7
Latvia	0,5	0,8	1,4	2,4
Netherlands	22,2	17,4	24,8	29,1
Portugal	17,2	19,2	19,6	20,6
UK	14,8	16,0	27,9	21,3

Source: Author's estimation based on Eurostat, LR CSB and Bank of Latvia data

Ratio of loans and wages is not so often used in economic analysis. Therefore author underlines that this indicator specifies, how much does credit volume exceeds monthly wages. From Table 5 it is evident that in Latvia credit volume exceeds two year wages. This indicator is very simple, but very useful. Knowing the average wage and this coefficient it is possible to calculate, how capable persons to pay for apartments are. For example, with the average wage of 385 LVL and coefficient 16 (which corresponds the beginning of 2009), possible amount of credit is 6.16 th. LVL. Taking into account that usually credit is not larger than 70% of a purchase sum, then the final sum of the purchase can be 8.8 th. LVL. The usefulness of this coefficient can be confirmed with economic, quantitative methods (see Skribans 2008, p. 114-123), therefore in this research it is not shown.

In Latvia in the beginning of 2009 ratio of credits and income was 16 – 17.4, which is substantially larger than in Germany or in France, approximately the same as in Spain, but less than in Italy and UK. It is possible to foresee the following development of this ratio in 2009: in the beginning of the year credits are not granted anymore, credit liabilities are not growing. In connection with crisis income of population can decrease and the value of the ratio can increase. Therefore it can be very problematic to increase construction volumes by increasing credit liabilities of population.

The following important factor, which can influence on construction volumes in a short period, is speculation in a real estate market. Without economically grounded reasons, when real estate prices grow, construction business becomes very cost-effective. If production factors allow, building volumes will grow rapidly. If too many buildings are constructed, market saturation is reached, prices fall, construction business profitability diminishes and building volumes go down. Price level of apartments in the end of 2008 is represented in the Table 6.

Table 6. Real estate data

State	Region	Price, Euro/ m ²	House price and rent ratio	House 1 m ² price and wages ratio
Cyprus	Nicosia	1 717	29	n/d
Estonia	Tallinn	2 810	23	n/d
Finland	Helsinki	6 397	27	7,6
Germany	Frankfurt	3 355	21	4,2
Latvia	Riga	2 829	23	10,5
Lithuania	Vilnius	2 213	27	n/d
Portugal	Lisbon	2 201	n/d	6,8
Spain	Madrid	4 318	27	9,1
UK	London	15 800	24	14,1

n/d - no data available

Source: Author's estimation based on Eurostat, and globalpropertyguide.com data

Analyzing data of Table 6, it is important to add that prices are compared for the average apartment - 120 m² area in the prestige district of the city (mainly in the center), which show the higher limit of prices. Apartments of other kind can substantially differ in prices, for example, in Latvia a price of a typical apartment is near 950 - 980 euro/m², which is three times less than the apartment included in comparison.

Table 6 shows that the prices of the Latvia's living area are higher than in Portugal, almost the same as in Germany (Frankfurt), but are lower than in Spain, Finland, and UK. Ratio of apartment price and renting costs show, how many years the rent is paid to accumulate apartment price. This indicator is approximately the same in all analyzed countries and is 25 - 30 years. If we accept that exploitation time of buildings is more than 50 years, then it is beneficial to buy apartments rather than to rent them in all countries. Unfortunately many people do not have sufficient financial means to buy an apartment.

Author offers to analyze availability of the living area in comparison with income level in the country. Table 6 shows ratio of square meter price and wages, it shows, how many months must an average person work to buy one square meter of the dwelling. In our case expensive apartments in the Riga center are compared and from this comparison follow that in Latvia this indicator is more than 10 months. It is one of the largest indicators in the EU, it is larger only in UK, in London, where a price of dwelling is almost 3 times larger than the EU average. It testifies about unbalanced prices and income in Latvia.

In short period price fluctuations in real estate market and in construction industry must be separated from long-term price increases, which is done in Table 7.

Table 7. Real estate price dynamics

	Change of prices during last (2008) year	Change of prices during last 5 years	Change of prices during last 10 years
Estonia	-17%	157%	462%
Finland	-4%	25%	62%
Germany	1%	4%	4%
Ireland	-10%	14%	121%
Latvia	-29%	100%	n/d
Lithuania	-20%	n/d	n/d
Norway	-8%	38%	107%
Poland	28%	129%	n/d

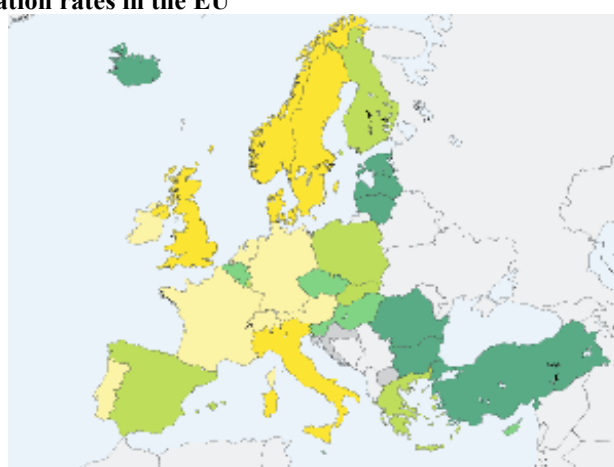
n/d - no data available

Source: globalpropertyguide.com

In Table 7 fluctuations of real estate prices are compared. It is evident that Latvia is a leader in decrease of real estate prices for the last year (2008). But, if we compare five last years, then prices in real estate increase almost two times, providing to its proprietors 20% profit a year. For the developed EU countries it is very much, but it is possible for rapidly growing countries. In Estonia and Poland this increase was even larger. In the EU 8 - 10% is a good profitability, which justifies investments in real estate; therefore prices must grow at least 100% in ten years. Table 7 shows that only Germany this increase is not reached. Germany paradox is connected with the construction boom in 1995 - 2000. After the unification of Germany construction boom began, which result in many unnecessary apartments. The newly built buildings began to compete with previously built buildings. As a result the price of real estate in Germany does not growing, but taking into account inflation processes, the real estate prices decreased. It is possible that similar process can take place in all countries with excessive real estate fund.

In stable political circumstances in case of inflation, investments in real estate are one of the best investments, which allow avoiding negative effects of inflation. This fact is rarely mentioned in economic theory, but now it is used almost in each East European country. Inflation and its dynamics characterizes consumer prices index, which for different EU states is represented in Figure 1.

Figure 1. Inflation rates in the EU



Legend: 2008:



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Estonia	3,1	3,9	5,6	3,6	1,4	3	4,1	4,4	6,7	10,6
Euro area	1,1	2,1	2,3	2,2	2,1	2,1	2,2	2,2	2,1	3,3
Finland	1,3	2,9	2,7	2	1,3	0,1	0,8	1,3	1,6	3,9
Germany	0,6	1,4	1,9	1,4	1	1,8	1,9	1,8	2,3	2,8
Latvia	2,1	2,6	2,5	2	2,9	6,2	6,9	6,6	10,1	15,3
Lithuania	1,5	1,1	1,6	0,3	-1,1	1,2	2,7	3,8	5,8	11,1
Poland	7,2	10,1	5,3	1,9	0,7	3,6	2,2	1,3	2,6	4,2

Source: Eurostat

Figure 1 shows that the lowest inflation in the EU is in France and in Germany, but higher inflation - in UK, Italy, Sweden and Norway. The average inflation level is in

Finland, Poland, Spain, and Greece. In Belgium, Czech and Slovenia inflation is high. In the Baltic states, Hungary, Romania and Iceland inflation is dangerously high. In 2008 Latvia was for the second year inflation leader in the EU. At the same time construction volumes began to increase. It is important to mark, that in 2009 inflation in Latvia began to diminish, but building volumes decreased already in 2008. In short period real estate prices in Latvia decreased together with high inflation. It is related with the large increase in real estate prices in the previous short period and its correction to the balanced level.

Increase in demand for construction products is connected not only with a dwellings demand, but also demand of commercial, state (and municipal) building objects and repair.

Construction demand for commercial buildings and apartments in comparison with dwellings contain both similar and different aspects. Necessity for dwellings is continuous, but necessity for commercial areas can depend from business cycles. National economy develops; necessity of trade, bureau, production and commercial areas of other kind grows. In the case of economic decrease, necessity for commercial areas can fall even to zero, as it was in Latvia in the segment of large production buildings. Therefore in the market of the commercial areas risk is higher.

People use their savings and income for apartment purchase, but merchants do not always form reserves and usually use credits for real estate purchase. Commercial crediting in Latvia began to operate together with banking system development and functions more than 15 years, therefore this it can be seen as a factor influencing construction market development.

Commercial buildings demand, unlike dwellings demand, is substantially influenced by depreciation process. Dwellings also age, but their demand is more influenced by the number of population and desires, necessities and solvency changes. Commercial buildings depreciation is more rapid, above all things because of the moral depreciation. In the large trade centers the cosmetic repair takes place one time in 2,5 - 3 years (without extending area), a bit rarer in other shops and in bureaus. This high depreciation accordingly increases construction demand.

Commercial objects construction and repair are directly connected with the development of national economies. National economy and separate industries grow, the necessities of enterprises in trade, bureaus and production areas also grow. These commercial necessities cause construction. Increase of industries represented by total value added is represented in Table 8.

Table 8. Value added per person employed in industries, EUR, in current prices

NACE code	A-B		C-D-E		F		G-H-I		J-K		L-P	
	2006	2008	2006	2008	2006	2008	2006	2008	2006	2008	2006	2008
CR	256	301	3217	4042	621	814	2537	3286	1662	2299	1734	2189
Estonia	266	274	1811	2160	724	876	2415	2694	1959	2531	1352	1945
EU	381	414	4296	4512	1322	1484	4505	4733	5885	6375	4796	5037
Finland	769	855	7290	7902	1679	2109	6119	6693	5762	6603	6105	6751
Germany	217	238	6531	7016	976	1134	4542	4847	7474	7955	5641	5913
Latvia	213	277	890	1255	461	841	2102	2694	1327	2173	1138	1858
Lithuania	272	382	1521	1901	554	853	1947	2631	946	1334	1075	1452
Norway	781	732	20939	24136	2319	2892	8770	9484	8695	10219	10329	11794
Poland	271	376	1540	1924	398	662	1713	2274	1152	1618	1180	1446
UK	192	219	4988	3671	1808	1698	6128	5603	8908	8699	6733	6290

Source: Eurostat

In Table 8 it is visible that value added per person employed in Latvia is substantially lower than the average EU level: in Agriculture, hunting and forestry (A), Fishing (B) 1,5 times (in 2006 - 1,8); Extraction industry (C), Manufacturing (D), Electric power, gas and water supply (E) - 3,6 (4,8); Construction (F) - 1,8 (2,9); Trade (G), Hotels and restaurants (H), Transport, storage and communication (I) - 1,8 (2,1); Financial intermediation (J), Other business (K) - 2,9 (4,4); Other services (L-P) - 2,7 (4,2). It is evident that this difference will diminish. It is important to add that the compared added value is measured in actual prices, therefore the decrease in difference in Latvia can be determined not only by economic increase, but also by inflation process.

Regarding value added structure, share of agriculture and fishing industry in all EU countries is from 1% (UK) to 5% (Poland), or 1,8% on average, but in Latvia it is 3%. In Latvia the share of manufacturing is the lowest, 13,8%, but it is only a little smaller than in the Great Britain - 14%, but substantial smaller than the average EU level 20% and in the leading country - Norway with 41%. Share of construction in the EU is 5-10% and Latvia has second larger share after Lithuania 9%, with average EU level 7%. Average share of trade, tourism and transport industry in the EU is 21%, but in Latvia 30%, which is second largest in the EU, lowest share is in Norway 16%,. Average share of financial intermediation in the EU is 28%, and is similar in all countries. In Latvia it is 24%. Share of other services is also similar in all countries. In Latvia it is 20%, but the average EU level is 22%.

Data of Table 8 also represent the dynamics of value added in two years. Value added in Latvia grew substantially faster than in other countries. Latvia was the leader in all industries except agriculture and trade industries, where Latvia had a second place after Lithuania. For example, in Latvia in two years value added in construction increased by 82%.

Such a rapid increase of value added does not mean that there was also a rapid increase of commercial building demand. Separate industries can grow without real estate fund extension; there are reserves of real estate funds in a few industries. Therefore, when evaluating commercial buildings demand, it is necessary to analyze it in separate industries. For larger industries it is done in Table 9.

Table 9. Investment in real estate by industries, mil. eur

	Manufacturing (D)				Construction (F)				Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods (G)			
	Renovation		Building		Renovation		Building		Renovation		Building	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
Germany	n/d	514	n/d	4849	107	53	708	58	975	971	2446	1740
Estonia	25	72	76	142	3	14	4	5	37	92	58	92
Finland	71	34	730	714	4	0	0	15	11	21	391	399
Lithuania	60	108	142	379	30	55	18	12	60	139	57	174
Latvia	21	27	65	223	2	14	19	3	33	82	130	207
Norway	8	5	524	580	29	n/d	41	6555	30	0	268	327
Poland	n/d	288	n/d	2678	n/d	28	n/d	337	n/d	312	n/d	1679
UK	993	1456	3814	3997	66	92	3091	5342	1987	3713	5167	9544

n/d - no data available

Source: Eurostat

From Table 9 it is visible that in Latvia investment in real estate are larger than in Estonia and Lithuania, but smaller than in Finland, Norway, Germany and UK. It is influenced both by state socio - economic size and economic development.

Small contribution of manufacturing industry on development of construction in Latvia indicates on industrial crisis, but there is positive dynamics: in 6 years this indicator increased more than 3 times, for developed countries this increase was about 5% (UK), or smaller (Finland). Volume orders of construction products will increase together with industrial development, there is a large potential for Latvia.

If we examine construction industry consumption of construction products (self consumption), in Table 9 we see that its size is very low. For construction industry enterprises special buildings are not necessary, because they execute construction works by orders. For builders it is enough to have a bureau and small storages. But in separate countries (in UK, in Norway), self consumption of construction products is very large. In these countries builders are investors or developers, which explain the difference in investment volumes.

Construction investments from trade industry fully represent economic development. In Latvia turnover of trade does not increase as rapid as in other industries. It is because trade in Latvia is the best developed industry. Comparing its development with other industries, it is evident that it is only one third smaller than in Norway. Therefore trade in the future will not give construction industry a substantial increase.

The following construction demand segment is the state (and municipal) demand. In a short term this segment is not object of forecast, but of planning. State means are spent according to the state budget and program of state investments. The program of state investments is accessible to the businessmen, making plans for the next year. But the real situation is such that in an average term and in long period it is necessary to forecast state consumption. In average and long term it is problematic to determine state order volume, because political situation can have a substantial influence. Therefore it is not analyzed in this research.

Summarizing influence of private, commercial and state buildings demand factors, it is possible to create demand factors system for construction products to understand the economic functioning mechanism of demand and to forecast its further dynamics.

3. Construction resources

As in any production five production factors are necessary for building demand satisfaction: nature factor (building resources), capital assets, current capital, labor factor (personnel), and entrepreneurial activity (and information) factor. Next these factors are examined.

Nature factor is one of the most important factors, which substantially influences on construction industry development. Nature factor (resource) costs do not decrease, because the largest part of the natural resources is nonrenewable. Use of resources in Latvia and EU is compared in Table 10.

In Table 10 there are many cells with no value or with minimal (zero). Table perfectly represents differences in production of materials from local resources in the EU countries and differences in the statistical accounting. For example, in Latvia sand extraction is not divided in industrial and construction sand, therefore industrial sands area is not filled, but for neighbors, Lithuanians and Estonians, this division is present, but the volume of industrial sand is so minimal, that it is represented as zero.

Table 10. The main construction materials production in the EU in 2007, mil. tn.

Name, PRODCOM Code	EU27	Czech Republic	Germany	Estonia	Ireland	Latvia	Lithuania	Poland	Finland	UK
Industrial sands, 14211150	80	n/d	8,4	0	0,4	n/d	0	4,2	0,2	5,1
Construction sands, 14211190	630	9,5	70	4,3	4,4	2,7	5,0	45	2,7	n/d
Granules, 14211290	100	0	45	0,1	0,9	0	0	7,3	0	n/d
Limestone, 14121050	123	2,8	16	1,1	4,4	n/d	1,7	13	3,1	0
Building blocks and bricks, 26611130	95	n/d	n/d	0,9	13	0,7	0,9	6,9	0,9	15
Tiles, flagstones and similar articles, 26611150	72	2,1	20	0,2	0,6	0,3	0,7	9,4	0,1	7,1
Building stone, 26701260	7	0	0,1	0	0,1	0	0	0,2	0	0,1
Ready-mixed concrete, 26631000	942	15	n/d	1,9	18	2,7	2,6	36	7,4	55
Carpentry of wood, 20301300	5	0,1	n/d	0,2	0	0	0	0,2	n/d	0

n/d - no data available

Source: Eurostat

In various countries even such simple materials like granules are taken into account in various groups, in sandstone group, dolomite, granite, marble or other groups. This data are accessible not only in natural units, but also in value expression. But materials value can show not only material availability, but also price level differences in various states, which is shown in Table 11.

There are also identical moments for all EU countries. From Table 10 it is evident that statistically large production of construction materials with small value added can be replaced by production of construction materials with high value added - tiles and stone plates. Common thing is also construction technologies, ready-mixed concrete production take considerable place in construction materials production, which show that in the EU construction with framework technologies is typical. Bricks buildings and panel technology is applied less.

Talking about Latvia's construction material production industry and statistics, for author and other experts, it is known for the large black or shade economy percentage in construction. Therefore official data look very suspicious for extraction of sands (2.7 million. tn.), which is about two times less than in neighboring Lithuania and Estonia. In extraction of construction materials there are big possibilities for shade economy, and for natural resources, with the increase of value added taxes, also the share of shade economy increases.

In manufacturing it is possible to control material flows and the share of shade economy is minimal. Table 10 shows that finished concrete production in Latvia is one third larger than in Estonia, and by a few percent larger than in Lithuania. Differences in the production of other construction materials can be explained with local regional features, for example, building blocks industry is weakly developed in Latvia. In Estonia its production is at lowest costs, because they use local energy industry waste - slag, therefore in Latvia the production of building blocks is less than in Estonia and in Lithuania.

Basic construction materials are usually produced locally; they are not transportable on large distances, because of increase in costs. It is also a factor, which stipulates production of regional construction materials. Regarding availability of construction materials, it is necessary also to compare their prices in various states, which is done in Table 11.

Table 11. The main construction materials price in the EU 2007, Euro.

Name, PRODCOM Code	Unit	Median	EU27	Czech Republic	Germany	Estonia	Latvia	Lithuania	Poland	Finland	UK
Industrial sands, 14211150	tn.	14	12	n/d	17	n/d	n/d	33	10	35	19
Construction sands, 14211190	tn.	6	6	6	5	4	4	3	3	2	n/d
Granules, 14211290	tn.	8	8	n/d	7	26	n/d	5	7	98	n/d
Limestone, 14121050	tn.	7	9	9	12	5	n/d	3	8	14	n/d
Building blocks and bricks, 26611130	tn.	57	50	n/d	n/d	34	74	40	56	87	71
Tiles, flagstones and similar articles, 26611150	tn.	70	78	79	61	63	66	49	50	82	141
Building stone, 26701260	kg	1,0	0,5	0,5	1,3	3,3	1,1	0,5	0,3	1,6	3,3
Ready-mixed concrete, 26631000	tn.	27	28	31	n/d	29	35	25	26	32	40
Carpentry of wood, 20301300	kg	1,2	1,8	1,0	n/d	0,8	1,0	1,0	0,7	n/d	n/d

n/d - no data available

Source: Eurostat

Comparing Latvian data with the average EU data and median, it is evident that in Latvia there are cheapest materials, which ask the minimum treatment, and are accessible in the country (sand, wood). Materials, for which industrial machines are necessary (blocks, tiles), have higher prices in Latvia than in the EU. But a difference of both construction materials groups from the average EU level is insignificant. Comparing Latvian data with the other Baltic states, it is evident that in other Baltic states main construction materials are substantially cheaper. It is connected with low development of production of construction materials in Latvia. Industry of construction materials depends from import deliveries; as a result, prices are high. Small market volumes do not allow returning invested means in the case of new factory, it is more profitable to transport construction materials in region.

So, not looking on material availability sometimes it is not profitable to produce materials due to various reasons. But by importing construction materials, it is possible to ensure construction process continuity. Clearly, it diminishes state competitiveness and industry profitability, but it can also be seen as a problem solution.

In this research with capital assets investments in production means are understood, dynamics of their volume for the EU countries are represented in Table 12.

Table 12. Gross investment in tangible goods in construction, Euro

	2000		2002		2004		2006	
	mil.	th, on employed	mil.	th, on employed	mil.	th, on employed	mil.	th, on employed
CR	4	n/d	412	1	396	1	697	1,8
Germany	5582	2,6	3808	2,1	3156	1,9	3339	2,2
Estonia	37	1,2	42	1,2	70	1,9	127	2,5
EU	n/d	n/d	n/d	n/d	40418	3,1	47826	3,4
Finland	546	4,6	565	4,6	688	5,3	765	5,6
France	3858	2,7	4052	2,8	4334	2,8	5267	3,2
Lithuania	75	1,1	74	1	113	1,3	274	2,2
Latvia	69	1,7	75	1,6	119	2,2	275	3,8
Poland	1283	n/d	855	1,2	666	1,1	1096	1,6
Sweden	1309	5,7	1099	4,6	1153	4,8	1561	5,7
UK	5179	3,9	7994	6,1	7335	5,4	7118	5,1

n/d - no data available

Source: Author's estimation based on Eurostat data

Table 12 shows that investment volume in Latvian construction industry grew rapidly from 2002 almost doubling every second year. That large increase is similar in all of the Baltic states, but in separate developed countries (Germany, UK) investment volume decreased. From the other side, in one of the developed countries, France, this indicator grew approximately 10% in a year. Analyzing this data, author drew a conclusion that investment volumes are more connected with construction peculiarities of the country with proportion of fixed assets percentage in construction and machines and labor ratio.

So, from Table 12 it is evident, that investment per employed in construction in Latvia is larger than in France, Germany and the EU, but smaller than in Finland, Sweden and UK. It can be explained following: in Germany and in France are many labor migrants, which provide construction industry with the cheap labor force. Labor force work is not mechanized, therefore capital investments are not growing, and investment and labor force ratio remains low. In Finland, Sweden labor force is expensive; work migration is low, work mechanization is high, investment and labor force ratio is high. In UK, despite large capital investments and large labor migration, there is a large labor deficit in construction. It stipulates the high mechanization of construction works.

In the Baltic states and in Latvia in particular capital investment increase is connected not only with increase of construction volumes, but also with changes in construction process and increase of mechanization level. Also market demand changes played their part. Before 2000 largest part of construction (near 70%) was repair, which is done without expensive mechanisms and machines, however since then multistory buildings construction increased, which demands large capital investments in fixed assets. Also in the Baltic region increase in mechanization level is connected with the increase of wages.

Poland data are analyzed separately. From Table 12 it is evident that there is the lowest investment and labor force ratio. In previous periods capital investment volume in Poland was too large, and it decreased from 2000 till 2004 and later begun to grow again. This example can show that capital investment, which are not realized before they are necessary, during the boom time are not lost. During the next years smaller investments in fixed assets are made. It confirms also that during the boom time financial resources are accessible for businessmen. It is topical for all the EU countries.

Current assets together with the fixed assets form industry capital. If construction industry has funds for short-term investments, then also current assets are available. Often largest part of fixed assets are acquired using enterprise means, and fixed assets serve as a collateral used to increase current assets. Commercial banks finance enterprises, if they work with profit. Therefore provision of current assets does not cause problems.

Other question, that accessible resources and bank credits represent also entrepreneurial activity risks in each state. Accordingly in one country accessible resources will be cheaper, in other more expensive. Too expensive resources decrease profitability to minimum and it is not profitable to take credits. In this case price of resources serves as resources availability indicator. Often with price of money resources interest rates are understood. Table 13 compares interest rates in the EU countries.

From Table 13 it is evident that in the Euro area money resources are 40-100% cheaper than in other states. In Latvia, as compared with the other Baltic states, interest rates are higher by 1.2 percent points on average and by 1.8 percent points cheaper than the EU average. It means that in the other Baltic states current assets are cheaper by

25%, but in the EU by 47% on average. Such a large difference in resources prices can be explained with instability of the country.

Table 13. Average interest rates in the EU

	2000	2001	2002	2003	2004	2005	2006	2007	2008
CR	5,48	5,2	3,55	2,28	2,48	2,05	2,42	3,22	4,12
Denmark	5,28	4,61	3,6	2,4	2,24	2,28	3,35	4,52	5,32
Estonia	6,26	5,65	4,1	3	2,58	2,44	3,29	4,9	6,95
Euro area	4,55	4,15	3,35	2,31	2,15	2,24	3,24	4,35	4,72
EU	n/d	5,06	3,93	2,76	2,86	2,84	3,43	5,06	5,04
Hungary	11,15	10,63	9,28	8,24	12,01	7,68	6,63	n/d	9,05
Lithuania	9,71	6,33	4,04	3,02	2,79	2,52	3,27	5,22	6,53
Latvia	6,2	7,01	4,6	4,09	4,34	3,13	4,49	9,04	8,91
Poland	18,83	15,52	8,76	5,57	6,39	5,21	4,29	4,9	6,5
Romania	50,91	41,29	27,48	16,89	18,15	8,31	7,98	7,23	12,25
Sweden	4,3	4,14	4,33	3,21	2,36	1,94	2,74	4,03	4,87
UK	6,31	5,01	4,16	3,76	4,77	4,76	4,92	6,04	5,59

n/d - no data available

Source: Eurostat

Dynamics of interest rates in 2000-2005, in Latvia is increasing, which caused interest rates to decrease. In 2006-2007 economic development had boom characteristics, interest rates were growing. It was connected with the decision of Latvian Bank to limit boom phase, and raise refinancing rate, which in result increased interest rates, because a part from credits is taken in LVL. High interest rate in LVL caused interest rate increase also in other currencies, including in Euro. It was connected not only with increase of risk, but also with specific action of local banks. In 2008 crisis in national economy development became obvious and reflected in high interest rates.

If we compare Latvian dynamics with other EU states we see similar picture. In Latvia the situation was unique and it was connected with the influence of central bank and interest rates increase. Other exceptions are substantial decrease in interest rates in developing countries (Romania, Hungary). Also big differences are in the UK, which uses national currency and retains large interest rates, one percent points larger than the average EU rate (in UK money is by 26% more expensive than in the EU). But even with expensive money resources, UK construction industry is excellently developed and competitive. Unfortunately one example is not enough to make a conclusion, that industry can be successful despite of interest rates. The reason can be the large scale of construction industry in the UK. With the conditions little Baltic states could not survive.

Analysis of labor resources or personnel factors in construction industry begins with employment analysis (Table 14).

From Table 14 it is evident, that during six years number of employees in construction in Latvia has almost doubled, and similar situation is in the other Baltic states. In the other states increase wasn't that large; in developed countries increase was near 20%, or 3% in a year. Exception is Czech Republic (CR), where increase was only 7%. So rapid increase of employees in construction can be connected with minimal starting point and with boom circumstances. Data dynamics of 2001-2005 show that in Latvia the number of employees rose more rapidly than in developed countries. In 2005-2007 there was the boom increase in the Baltic states.

Table 14. Number of employees in construction industry, th. and % of total employment

	2001		2003		2005		2007	
	th.	%	th.	%	th.	%	th.	%
CR	426	9,1%	439	9,3%	458	9,5%	457	9,2%
Germany	n/d	n/d	n/d	n/d	2498	6,8%	2530	6,5%
Estonia	42	7,3%	46	7,7%	53	8,5%	82	12,6%
EU	n/d	n/d	n/d	n/d	16786	7,9%	18189	8,2%
Finland	145	6,2%	150	6,4%	161	6,7%	177	7,1%
Lithuania	90	6,8%	111	7,8%	143	9,6%	186	12,2%
Latvia	71	7,4%	91	9,0%	91	8,7%	137	11,9%
Norway	152	6,7%	160	7,1%	160	7,0%	183	7,4%
Poland	950	6,8%	847	6,2%	924	6,4%	1145	7,4%
Sweden	236	5,5%	240	5,6%	262	6,0%	295	6,5%
UK	2051	7,4%	2201	7,8%	2294	8,0%	2400	8,2%

n/d - no data available

Source: Author's estimation based on Eurostat data

It is clear that each increase has certain limitations. All citizens cannot work in one industry. Share of employees in each industry has limits. Table 14 presents the share of employees in construction. Limitations of shares can be determined only in normal economic circumstances, however, in boom circumstances, surpassing the limit testifies on large disproportion in national economy. Employment share in construction in Czech Republic (CR) is a bit above 9%, which together with the minimal increase of employees testifies that the maximal border is near 9%. This number is confirmed also by Latvia's data, in which in 2003-2005 around 9% of employees were working in construction and their number did not increase. Certainly, in boom time this limitation didn't work.

This conclusion is hard to prove, because too little countries have stable employment structure. Such limits are attained in Austria, Italy, Portugal. In other stable countries (Sweden, France), the number of workers continues to grow. Analysis of personnel like resource cannot fully characterize possibility to increase the number of employees. In construction industry substantial increase of production volumes can be realized by inviting workers from other industries, unemployed persons or work migrants, because the largest part of works doesn't need specific skills, each worker can do it. One of the simplest ways to increase employment in industry is to attract unemployed persons. These possibilities are analyzed in Table 15.

Table 15. Unemployed persons, unemployment ratio and ratio of unemployed persons to construction industry employees

	2002			2005			2008		
	th	%	ratio	th	%	ratio	th	%	ratio
CR	374	7,3%	86%	405	7,8%	88%	231	4,4%	49%
Germany	n/d	n/d	n/d	4478	10,8%	179%	2928	6,9%	116%
Estonia	75	11,3%	173%	47	7,0%	89%	54	7,6%	73%
EU	20417	n/d	n/d	20544	8,8%	122%	17603	n/d	n/d
Finland	212	8,3%	141%	197	7,6%	123%	159	6,0%	88%
Lithuania	209	13,0%	225%	113	7,1%	79%	130	7,9%	81%
Latvia	131	11,6%	203%	89	7,8%	97%	119	9,9%	107%
Norway	90	3,8%	56%	100	4,2%	63%	69	2,7%	38%
Poland	3375	19,7%	383%	2894	16,7%	313%	1154	6,7%	n/d
Sweden	223	4,9%	92%	333	7,1%	127%	298	6,1%	n/d
UK	1470	5,0%	72%	1520	5,0%	66%	1930	6,2%	79%

n/d - no data available

Source: Author's estimation based on Eurostat data

Table 15 represents the number of unemployed persons; unemployment level; ratio of unemployed persons to construction industry employees. Table 15 shows that with rare exceptions (Norway) unemployment level in the EU is not less than 6%. Latvia and Baltic states have stable high unemployment level. Similar situation is in Poland. High unemployment level also was in Germany. Average number of employed in the EU in 2002-2005 has almost no changes. Baltic states, Poland and other low developed states gradually developed, providing population with increasing work opportunities, but in developed countries unemployment level increased. Therefore the aggregate unemployment level in the EU has not changed. In 2005-2008 in connection with the general economic increase, unemployment dynamics was positive, the amount of unemployed persons decreased. But in the Baltic states and in the UK unemployment levels increased. If we compare data from Table 15 (unemployment) and from Figure 1 (inflation), it is evident that Baltic states are leaders in the EU, but Latvia is the Baltic state leader. Simultaneous high inflation and unemployment level mean that economy has stagflation. In Latvia its reason was connected with inflation increase (which is caused by economic factors, including income from the EU and crediting system development) and unwillingness of population to work with the same salaries as in previous years.

Regarding unemployment influence on construction industry, in the case of necessity construction industry can attract unemployed persons. Ratios in Table 15 indicate that by attracting unemployed persons the number of employees in construction industry can increase from 38% (Norway) till 116% (Germany) in 2008. But in previous period for all the EU countries these possibilities were higher. Conclusion is that for low skilled construction works it is always possible to find workers, paying appropriate wages.

Table 16 compares wages in construction industry and in the national economy.

Table 16. Personnel costs in construction and the national economy, Euro/hour

	2000			2003			2006		
	const.	total	diference	const.	total	diference	const.	total	diference
CR	n/d	2,8	-2,8	3,4	3,4	0,0	4,4	5,4	-1,0
Germany	16,6	22,9	-6,3	17,9	24,0	-6,1	17,7	26,2	-8,5
Estonia	1,8	1,9	-0,1	2,7	2,6	0,1	4,2	3,7	0,5
Finland	14,6	20,3	-5,7	15,7	21,4	-5,7	18,6	23,8	-5,2
Lithuania	n/d	1,3	n/d	2,0	2,2	-0,2	3,2	2,9	0,3
Latvia	1,5	n/d	n/d	2,1	1,9	0,2	2,5	2,4	0,1
Sweden	17,6	23,1	-5,6	17,7	25,4	-7,7	18,8	28,7	-9,9
UK	n/d	14,2	n/d	15,0	20,8	-5,9	17,1	25,2	-8,1

n/d - no data available

Source: Author's estimation based on Eurostat data

From Table 16 it is evident that wages substantial differ in various EU countries. If a country is low developed, wages are low. In the Baltic states wages are one of the lowest in the EU, and in Latvia they are the lowest in the Baltic states. 7-fold wage difference in the EU and in Latvia influences Latvian construction work market. In such circumstances it is logical to export construction services to neighbors, to countries with larger personnel charges. Unfortunately it was not possible in large volumes. Various reasons both formal (minimal wages and so on) and non formal (construction areas work paralyze from competing state professional unions).

Despite that organized construction labor force export did not take place, workers migrated from Latvia informally. As a result deficit of construction labor force appeared in Latvia. During the construction boom it caused very large disproportions in the national economy. Because of labor deficit wages were raised attracting unemployed persons and workers from other industries to construction industry (data are examined in Table 15). Productivity and quality of new workers was low. Wage increase did not solve the problem of labor deficit. It is important to note that in construction industry wages are lower than the average wage in the country, but in Latvia, and in the Baltic states, wages in construction were higher than the average (Table 16).

From Table 16 it is evident that in developed countries (Finland, UK) average wages in construction are by 30-55% lower than the average wage in the country. Situation is opposite in Latvia, where wages in construction are 4-10%. This fact from one side shows that during the boom time construction profitability was so high, that businessmen were able to pay 35-65% higher wages than normal wages for low skilled work. But from the other side it shows advantages of free labor force movement in the EU.

Labor force productivity in construction, labor force costs and their share in total costs are compared for the EU countries in Table 17.

Table 17. Value added and personnel costs in construction

	2000				2006			
	Value added per employed, th. Euro	Personnel costs			Value added per employed, th. Euro	Personnel costs		
		per employed, th. Euro	total, th. euro	share in costs, %		per employed, th. Euro	total, th. euro	share in costs, %
CR	n/d	n/d	1 665	n/d	13,5	11	2 875	11,7
Germany	34,5	33	65141	34,8	37	33	43006	29,9
Estonia	6,1	4	130	12,2	16,3	10	491	20,3
EU	30,6	n/d	248117	23,7	36,2	28	323256	20,5
Finland	42	31	3 439	22,5	51,5	38	4 706	22,5
Lithuania	4,3	3	226	23,6	10,1	7	769	18,4
Latvia	10,7	3	130	11,6	13,4	5	381	9,2
Norway	43,3	39	4 475	27,9	63,3	53	7 244	25,3
Poland	n/d	7	4 084	16,6	13,3	8	4 011	14,1
Sweden	41,4	38	7 461	25,4	45,6	41	9 113	23,9
UK	49,5	31	35599	18,4	70,1	39	47543	18,5

n/d - no data available

Source: Eurostat

From Table 17 it is evident that value added in construction, which can be seen as a productivity indicator, in Latvia, and in the Baltic states, is about 3 times lower than the average EU level. In analyzed period, this difference decreases. These data show that workers in Latvia work ineffective, it is possible to raise their productivity at least 3 times.

Despite low productivity of Latvian workers, their efficiency is the largest in the EU. So, in 2000 costs per employee in construction industry were about 3 th. Euro/year, but during this time each employee brought about 10.7 th. Euro value added, which corresponds to profitability 357%. In 2006 this coefficient decreased till 268%, which is two times more than the average EU profitability level 129%. That large profitability level shows that in Latvia construction business potentially is more profitable than in the EU.

Additionally in Table 17 share of personnel cost in construction industry costs is represented, which in the EU is near 20% on average, but in separate countries

(Germany) is near 30%. In Latvia this indicator is near 9%, however in the other Baltic states share of personnel costs is similar to the EU average, which can indicate that this cost proportion is artificial for Latvia. Previously it was mentioned that proportions of raw materials and capital investments in Latvian construction industry are similar with the EU proportions, capital costs are a bit larger than in the EU, but personnel costs proportion is lower. It means that entrepreneurship (and information) factor in Latvia has higher share of costs than in the other EU countries. Accordingly Latvian construction industry has the largest profitability in the EU.

Next important construction industry development factor is entrepreneurship and information factor. Factor influence can be estimated using profit obtained in the industry. Construction industry profit in comparison with profit in other industries is represented in Table 18, but dynamics and profitability is analyzed in Table 19.

Table 18. Gross operating surplus, in 2006, by activity

NACE kode	C	D	E	F	G	H	I	K
CR	814	12888	3982	2414	5777	464	3865	4633
Germany	2217	131800	25038	12435	86333	9304	57950	126036
Estonia	38	753	385	326	864	56	639	607
EU	66098	637021	136958	186760	468241	63502	298725	558311
Finland	277	548	2507	2302	5715	467	3635	5415
Lithuania	70	1087	404	498	1159	44	876	786
Latvia	24	922	215	600	1640	123	959	919
Norway	39299	7646	4419	2741	6480	465	9991	10264
Poland	3164	25316	6095	5304	17479	753	9588	9729
Sweden	1333	19094	4651	2776	7378	717	5716	15475
UK	30053	90028	28509	50082	96535	17285	55795	143230

Source: Eurostat

Table 18 is connected with Table 19.

Table 19. Gross operating surplus and its growth rate in construction (NACE F)

	Gross operating surplus			Growth of gross operating surplus (%)		
	2000	2003	2006	2000	2003	2006
CR	756	1785	2414	n/d	10,1	9,7
Germany	9457	10098	12435	5	6,8	8,1
Estonia	58	126	326	5,4	7,1	9,2
EU	n/d	135904	186760	n/d	11,9	12
Finland	n/d	1696	2302	n/d	10	11,2
Lithuania	64	190	498	6,5	10,3	12,3
Latvia	301	245	600	27,1	16,2	14,9
Norway	1368	1829	2741	8,3	8,9	9,4
Poland	3574	2578	5304	14,1	12,8	15,6
Sweden	2011	1585	2776	6,9	5,3	7,3
UK	30733	36384	50082	15,8	16,5	19,5

n/d - no data available

Source: Eurostat

Analyzing gross operating surplus and profitability data, it is evident that Latvia is a small country with small profit in all industries. Despite that it is manufacturing, trade and service profitability leader in the EU. Data of Table 18 and 19 confirm the fact that the profitability in the developing countries is higher than in the developed states. Development takes place gradually, beginning with the industries and locations, which are highly cost-effective and do not ask for large investments. In economic theory it is underlined that high profitability is connected with high risks. But

in is this research it is declared that it is not true, at least in quickly developing countries like the Baltic states. It is connected with a fragmentary development of these states, that is, in these countries only highly cost-effective economic segments develop. Such situation is visible also in Latvia. It is not possible to call Latvian industry highly developed, but highly cost-effective segments are well developed, for example pharmaceuticals production industry.

Profitability in construction industry in Latvia is between four EU leaders: Poland, UK, Greece, and Latvia. Increase of profit is visible both in the EU and in separate countries. But profit increase was not stable, in separate countries in 2003 profit of enterprises in construction industry was below the 2000 level (Sweden, Poland, Latvia), which shows on possible economic fluctuations. Together with the decrease of profit volumes also profitability decreased. Further, together with the increase of profit in Sweden and Poland profitability rises again, even exceeding the initial level, but it was not in Latvia. It was connected, with very high initial level of profitability in Latvia, above 27%, and it decreased to accessible level.

From the analysis of data of Table 18 and 19, conclusion can be drawn that the stable gross profitability level in construction is on average 12%, which is similar in other industries. Its means that the industry provides stable average entrepreneurship factor remuneration for entrepreneurs working in the industry.

The final conclusion is that production factors will allow satisfying demand for construction in any circumstances, but during the construction demand boom large disproportions in the national economy are caused, as it was seen in Latvia and the Baltic states in 2008.

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