

THE CONSTRUCTION PROJECTS SECTOR IN GREECE DURING THE LAST TEN YEARS

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Abstract

The crisis in the construction projects sector may become permanent. This crisis is characterized by reduced private investments, reduced public investment plans and a significant drop in the turnover of all sectors correlative to construction. Amidst negative developments and bleak future predictions for the entire economy and this sector in particular, financial analysis should be applied and conclusions should be sought with regard to the general course of the construction projects sector, in order to reveal prospects and opportunities. The objective of the current study is to present the general characteristics of the construction projects sector in Greece. The study presents the course of the construction projects activity during the last decade, emphasizing on financial figures and employment data. It includes the number of active businesses, their income and expenses, as well as their profit and damages. The study also shows the course of labor cost. The sector's prospects in Europe are recorded and conclusions are drawn. All the above can provide constructive data on the planning and future course and development of the construction projects sector in Greece.

Keywords: Construction projects, Construction, Financial figures, Employment, Construction companies, Prospects

JEL Codes: L74, M10, N64

1. Introduction

The construction projects comprise one of the main sectors of Greek economy. Inside the construction projects core sector, reside all building construction and civil engineering projects undertaken by construction and building enterprises (e.g. roads and community projects) as well as other specialized construction activities (demolitions, electrical and hydraulic installations etc.) (Mponou, 2016, pp. 1-10).

The construction projects sector plays a key role in Greek economy, especially since it has been an integral part to the country's financial development during previous years. However, its current status differs

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significantly in relation to previous years and is affected by especially adverse conditions (IOBE, 2016, pp. 3-5).

Construction projects represent a rather important share of the total added value and employment in Greek economy. There has always been a close relation between construction activity and the construction products industry where various materials used in construction are being produced. Similarly, the architectural / surveyor activities and trade, as well as the essential support provided by the implementation of investment projects in sectors such as tourism, industry, trade and the residential/ urban planning development, depict the particular importance of the Construction Projects sector, with regard to the growth of Greek economy (Association Anonymous Techniques Companies, 2016, p. 3).

2. The Construction Projects Sector in Greece

The latest statistical economic data regarding the construction projects sector are presented in the following tables for the period 2008-2013, as published by the Hellenic Statistical Authority. It is worth noting that although Hellenic Statistical Authority was researched, no available publications were found during 2014-2016, except for financial data for the year 2015, which will be discussed later in this study. The majority of companies in Greece involved with the construction projects sector are active in specialized construction activities.

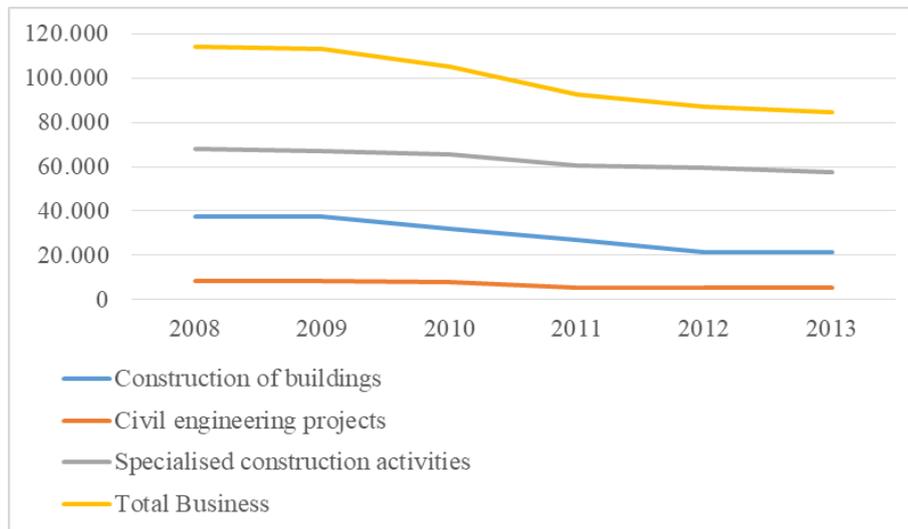
Table 1. Number of companies involved in the construction projects sector in Greece, 2008-2013

Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	37.412	37.378	32.025	26.796	21.682	21.565
Civil engineering projects	8.546	8.439	7.908	5.614	5.571	5.303
Specialized construction activities	68.194	67.135	65.365	60.290	59.620	57.754
Total Business	114.152	112.952	105.298	92.699	86.873	84.622

Source: [http://www.statistics.gr/el/statistics/-/publication/SIN21/-](http://www.statistics.gr/el/statistics/-/publication/SIN21/), Hellenic Statistical Authority, Constructions

As observed in table 1 and figure 1 that follows, companies involved with specialized construction present a small decrease of 15.31% as compared to the reduction of other construction companies, active in building construction (42.36%) and in civil engineer projects (37.94%) respectively. The total reduction of companies involved in the construction projects sector from 2008 up until 2013 is estimated around 25.87%.

Figure 1. Course of the number of companies involved in the construction projects sector in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

It is becoming evident that even though there has been a significant shrinkage of construction project companies, only those dealing with specialized activity construction seem to withstand this tendency but do present a steadily low downward course.

The reduction of the construction projects activity in Greece since 2008 has been mainly the reason for the major reduction of companies active in the construction sector. It is observed that continuous demand for specialized

construction projects is responsible for the lower shrinkage observed in this line of companies.

In order to understand these tendencies, one should consider the companies' financial figures. Starting from their expenses listed in Table 2, it is noted that expenses in building construction reached a 53.46%, as compared to a 32.05% being observed for specialized projects and only 12.07% of expenses were recorded for civil engineering projects, figures that have taken into account the significantly reduced construction activity.

Table 2. Expenses of construction projects sector companies in Greece, 2008-2013

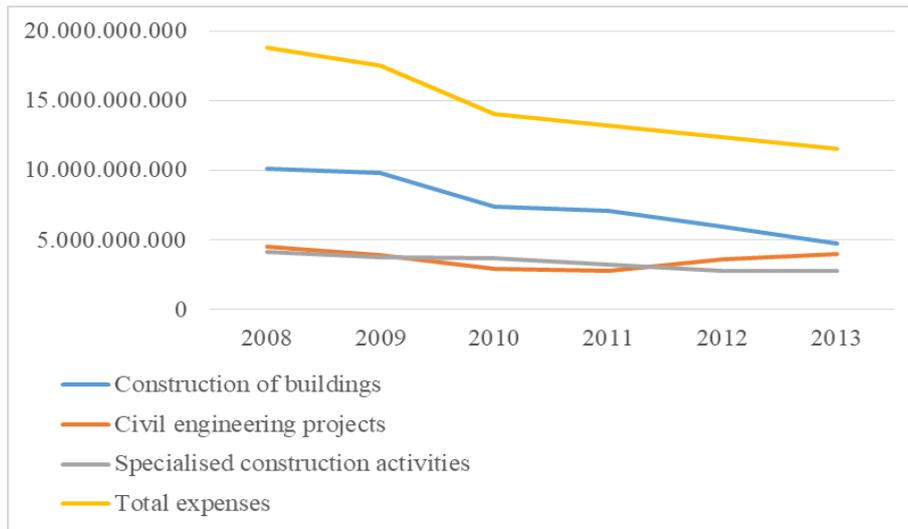
Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	10,154,94 9,813	9,856,882,6 50	7,393,713,6 32	7,100,659,9 42	5,952,389,7 24	4,726,210,0 93
Civil engineering projects	4,571,870 ,695	3,904,415,6 21	2,954,036,4 34	2,806,942,2 02	3,616,279,9 92	4,019,992,6 44
Specialized construction activities	4,130,954 ,676	3,749,486,3 60	3,718,758,4 38	3,286,163,0 30	2,801,103,5 27	2,806,801,2 00
Total expenses	18,857,77 5,184	17,510,784, 631	14,066,508, 504	13,193,765, 174	12,369,773, 243	11,553,003, 937

*VALUE IN EURO

Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Bellow in figure 2, one can follow a graphic display of Greek construction companies expenses as well as total expenses, the reduction of which sums up to 38.74%. This shows that during the economic recession, Greek companies realized the needed to reduce their expenses in order to become more sustainable and the consequences of this expenses reduction has caused a chain reactions in the entire sector's financial activity (suppliers, subcontractors etc.).

Figure 2. Course of expenses of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/->, Hellenic Statistical Authority, Constructions

Table 3. Income of construction projects sector companies in Greece, 2008-2013

Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	9,546,228,209	8,302,474,984	7,604,777,111	6,563,987,432	5,648,896,776	4,895,417,999
Civil engineering projects	4,698,899,046	3,875,226,727	3,089,811,771	2,176,365,438	3,391,297,701	4,255,728,072
Specialized construction activities	5,024,905,976	4,441,828,939	4,374,000,537	3,762,291,059	3,367,514,351	3,099,966,480
Total revenue	19,270,033,232	16,619,530,650	15,068,589,418	12,502,643,929	12,407,708,829	12,251,112,550

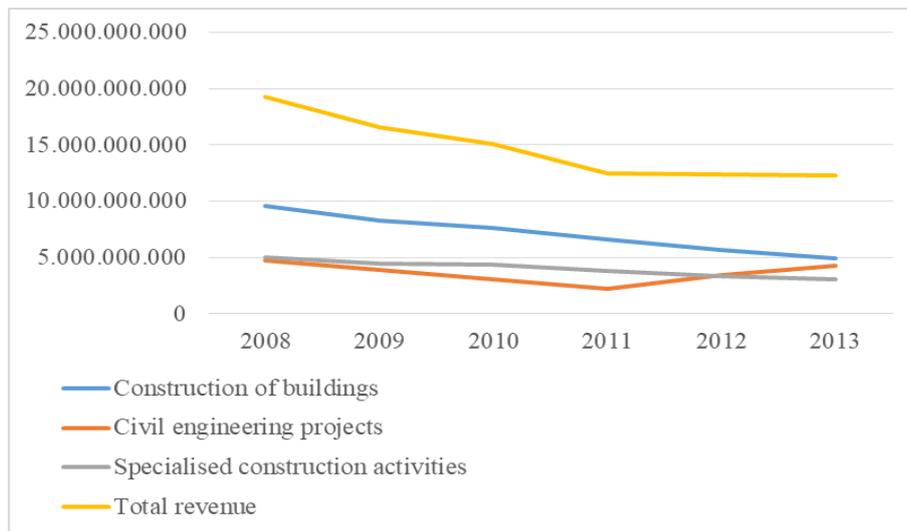
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Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/->, Hellenic Statistical Authority, Constructions

Company income documents the sector's actual activity, and that in relation to demand. Data collected over the years were analysed and presented in table 3, where a 36.42% reduction has been recorded.

Analysing the total income reduction, it is observed that the greatest reduction is recorded in building construction projects with 48.72%, followed by a 38.31% in specialized activities and last but not least, a narrow 9.43% in civil engineering projects (data presented in figure 3).

Figure 3. Course of income of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Considering the aforementioned income and expenses data, it is observed that companies active in building construction had a delayed reaction over the market entering recession and they only managed to balance their income and expenses over the period of 2011-2012. In contrast, civil engineering and specialized activity companies reacted immediately and since 2008 they managed to increase their income over their expenses. Regarding the total income and expenses of construction companies, from 2008 to 2011 the instability of the building construction sector affected these figures and caused

turbulence in the ratio of income/ expenses. From 2012 onwards, income has been stabilized in levels higher than expenses.

Following the analysis of income and expenses, the fluctuation of profit and damages presented by these companies needs to be considered.

Bellow in Table 4, the construction projects sector's profit is reported. There is an obvious reduction in profit that reaches a 42.89%. Despite the stability previously shown in the sector of specialized construction, a great deal of profit reduction is observed that account for 50.61%. Building construction companies show a 44.89% while, civil engineering projects evade with only 20.29% reduction in their profit.

Table 4. Profit of construction projects sector companies in Greece, 2008-2013

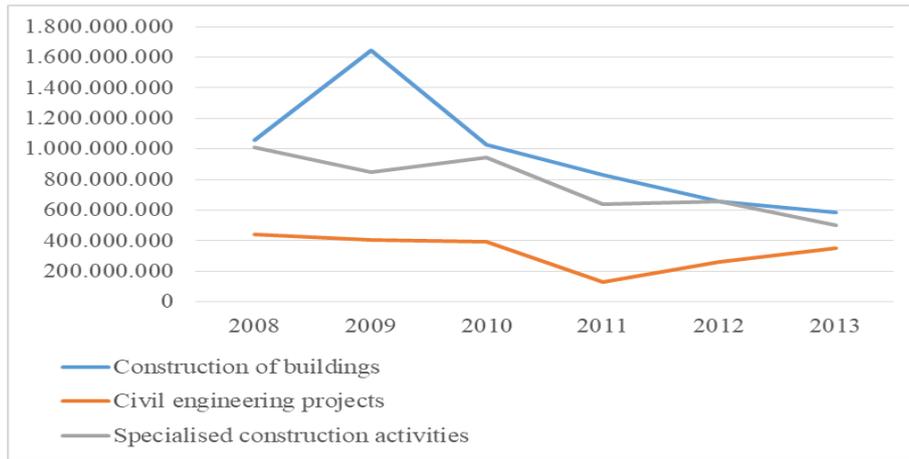
Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	1,058,667,536	1,645,639,911	1,029,840,887	827,243,446	654,972,585	583,441,295
Civil engineering projects	439,348,607	407,427,314	393,359,937	131,628,524	258,212,364	350,226,292
Specialized construction activities	1,012,577,967	850,852,789	941,668,531	639,654,638	654,378,587	500,084,471
Total profits	2,510,594,110	2,903,920,014	2,364,869,356	1,598,526,608	1,567,563,536	1,433,752,057

*VALUE IN EURO

Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

A significant increase in profit for building construction in 2009, in relation to 2008 is shown in figure 4 bellow. However, this tendency was not maintained, since there was a reduction in years to come, from 2010 onwards. Specialized projects presented a profit increase in years 2010 and 2012, but significant reduction was noted in 2013. In contrast, the civil engineering projects sector showed a profit increased from 2012 onwards, which, however, did not manage to exceed the profit reduction up to 2011.

Figure 4. Course of profit of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/->, Hellenic Statistical Authority, Constructions

Figure 5. Total course of profit of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/->, Hellenic Statistical Authority, Constructions

The total course of profit presented in figure 5, shows an increase for the year of 2009, which is directly related to the great increase of building construction companies' profit, and does not correlate to the overview of the sector, characterized by reduced profit.

Finally, in order to gain a complete overview of the financial situation in the construction projects sector, damages in previous years need to be considered as well. In table 5, damages recorded from 2008 up to 2013 are being presented. Damages in building construction were significantly reduced at 64.94%, in 2013, as compared to 2008, while the reduction in damages for civil engineering projects was notably smaller, at 5.56%. In contrast, specialized work projects presented a huge increase in damages, reaching up to 92.64%.

Table 5. Damages of construction projects sector companies in Greece, 2008-2013

Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	1,304,195,609	529,595,870	704,968,905	1,067,558,809	993,038,103	457,224,574
Civil engineering projects	289,457,972	167,607,846	267,123,944	819,681,733	621,530,143	273,370,275
Specialized construction activities	105,740,698	52,570,776	198,465,399	257,575,817	87,528,256	203,703,208
Total losses	1,699,394,280	749,774,492	1,170,558,248	2,144,816,359	1,702,096,503	934,298,058

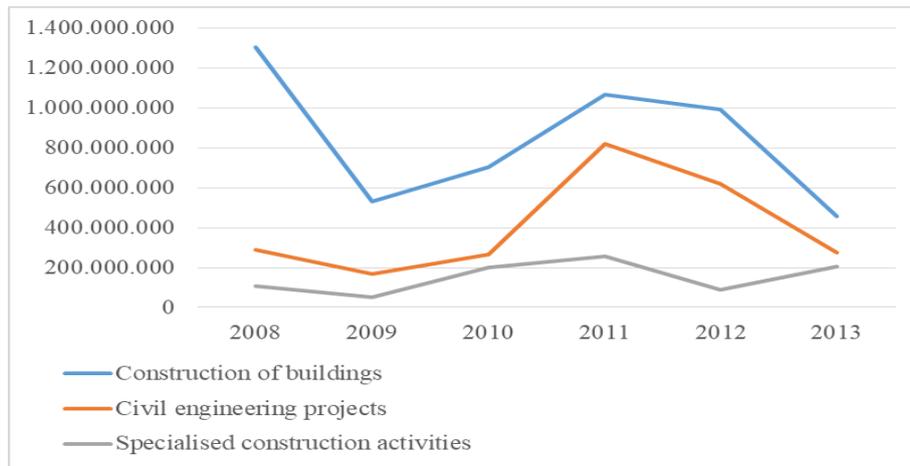
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Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Focusing on each construction project category on a yearly basis, in figure 6, the following observations were made: during 2008 and 2011, building construction suffered significant damages, whereas smaller losses were recorded for the years 2009, 2012 and 2013. Similarly, civil engineering projects also showed reduced damages in 2009, in contrast to the increased recorded in 2010 and 2011, followed by a continuous major reduction in damages from 2012 onwards. The same fluctuation has been observed for losses

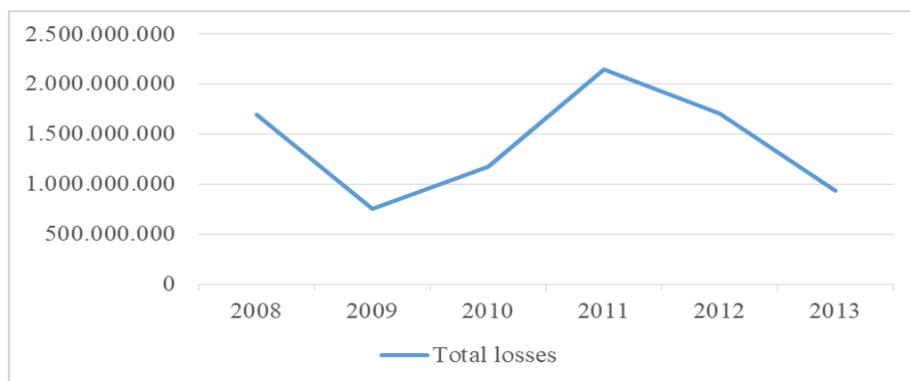
in specialized constructions, except for the year 2013, when damages accumulated to more than double, of those recorded in 2012.

Figure 6. Course of damages of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Figure7. Total course of damages of construction projects sector companies in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Figure 7 shows the total damages in the construction projects sector, which despite the fluctuation and major increase in 2011, were reduced again in 2013 by 45.02%, in relation to 2008.

The rapid development was to be blamed for that equally sudden decline of almost all economic sectors. For example, the added value within the narrow construction projects core sector had reached 16 billion Euros in 2006 or 7.8% of the GDP. In combination with other sector activities, the total direct contribution the construction projects had, was 22.5 billion Euros or 11% of the GDP. However, the participation of the construction projects in Greek economy figures, was shaken due to the economic recession and in 2015, the added value of the wider sector was estimated to be 8.1 billion Euros. This accounts approximately for 4% of the GDP, in comparison to 8.7% in 2008 and 9.2% on average during 2000-2008 (Mponou E, 2016, pp 26-30).

3. Employment

Due to the economic recession of the past few years, loss of employment was severe in 2015, with an absolute reduction of 1.06 million job positions and an increase of unemployment rates, approximating 27%. During the same period, available income was reduced by 27.7% and uncertainty was magnified, influencing dramatically investment activity (Mponou E, 2016, pp 26-30).

Table 6. Employment in construction projects sector companies in Greece, 2008-2013

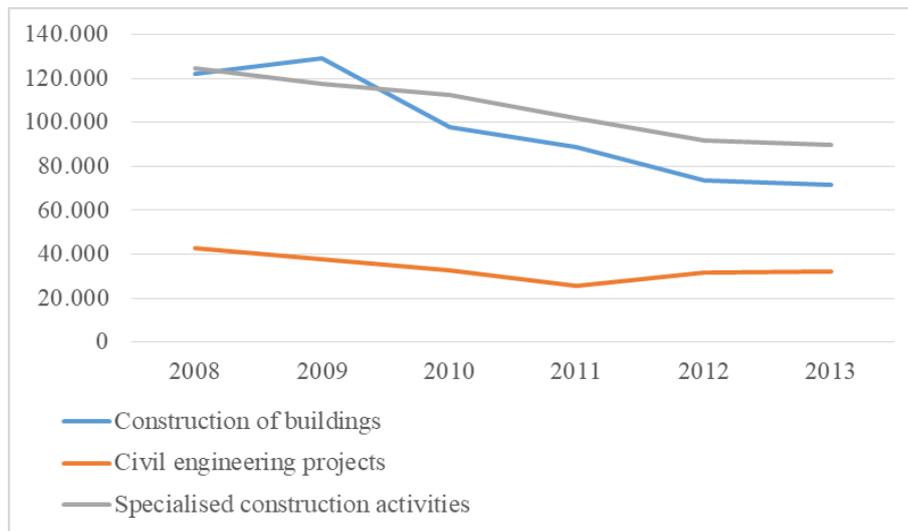
Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	122.034	129.389	97.870	88.605	73.579	71.589
Civil engineering projects	42.658	37.876	32.471	25.749	31.887	32.257
Specialized construction activities	124.828	117.455	112.370	101.650	91.896	89.786
Total Employed	289.520	284.719	242.711	216.004	197.363	193.633

Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

According to Hellenic Statistical Authority data, it was observed that employment was directly affected by the reduced financial figures in the construction sector companies'. A large percentage of 41.34%, in reduced employment was shown in the building construction sector, followed by the sector of specialized construction of a 28.07% and finally, a 24.38% reduction in the civil engineering projects sector (Table 6).

Observing the curves in figure 8, it is noticed that employment in building projects was increased only in 2009 and then followed a steady reduction course. Civil engineering projects followed a steady decline course from 2008 up to 2011, and from 2012 onwards employment has been on the increase again in this sector. Specialized projects presented a steady decrease from 2008 onwards.

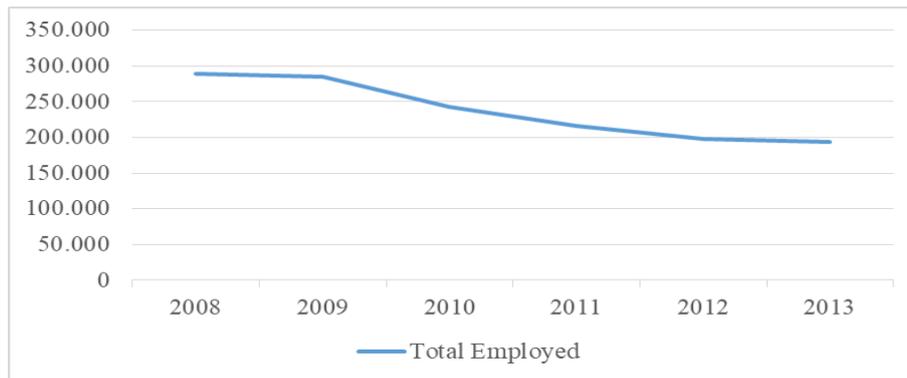
Figure 8. Course of employment in the construction projects sector in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions.

Total employment in figure 9 shows decrease from 2008 onwards and is reduced at 33.12% in 2013.

Figure 9. Total course of employment in the construction projects sector in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

Employment is translated to financial figures for the sector's companies, which are presented in Table 7. It was expected that following employment reduction, the labour cost will also be reduced.

Table 7. Labour cost in construction projects sector companies in Greece, 2008-2013

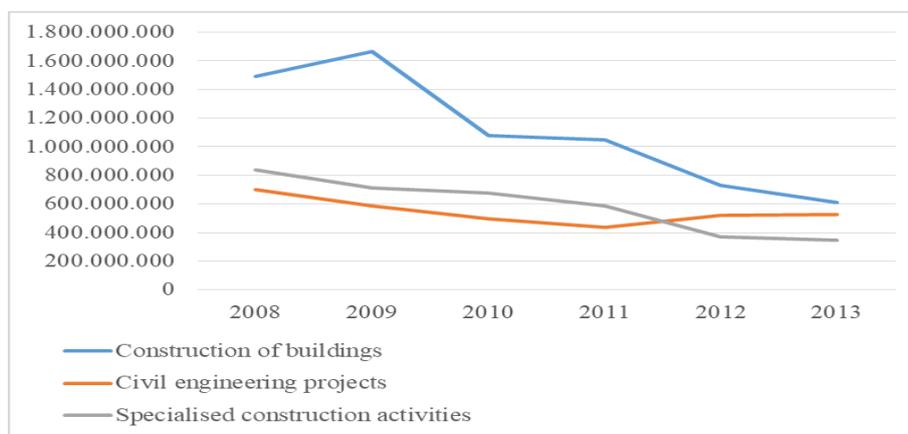
Branch of economic activity	Year					
	2008	2009	2010	2011	2012	2013
Construction of buildings	1,489,170,907	1,662,447,623	1,075,985,866	1,044,793,520	731,588,645	611,710,648
Civil engineering projects	699,603,332	586,278,122	495,166,340	433,788,571	517,094,883	528,449,647
Specialized construction activities	835,066,507	710,334,253	673,431,242	585,493,033	368,587,859	343,929,701
Total labour costs	3,023,840,746	2,959,059,998	2,244,583,448	2,064,075,124	1,617,271,388	1,484,089,996

*VALUE IN EURO

Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

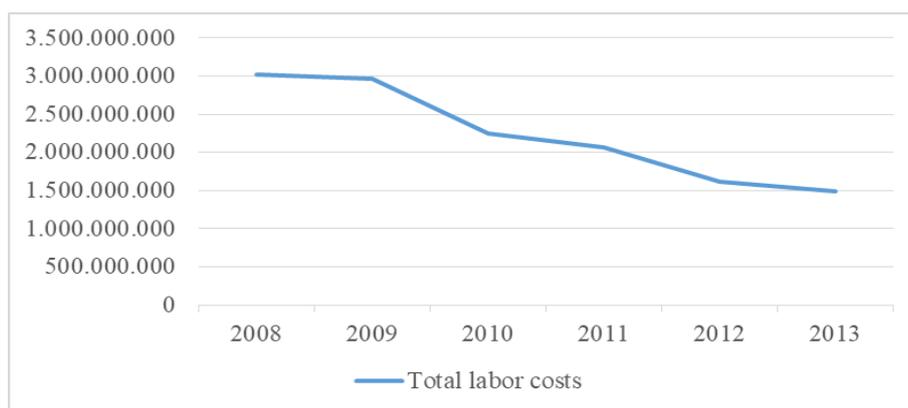
The greatest decrease is observed in labour cost in the building construction projects, at 58.92% and 58.81% for specialized structures, while the reduction in civil engineering projects is much lower, at 24.46%.

Figure 10. Course of labour cost in the construction projects sector in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>, Hellenic Statistical Authority, Constructions

Figure 11. Total course of labour cost in the construction projects sector in Greece, 2008-2013



Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>, Hellenic Statistical Authority, Constructions

The total cost, as observed in figure 11, is reduced by 50.92 in 2013 in relation to 2008.

Comparing employment and labour cost data, we observe that in civil engineering projects the reduction in employment was accompanied by a respective reduction of labour cost, which suggest that up until 2013, the salaries of individuals employed in this sector did not fluctuate. The same is not the case for the other two business brunches. As far as building construction in concerned, the percentage of cost reduction is greater than employment reduction, suggesting that the employees' salaries were reduced. The same situation is evident in the data drawn from specialized projects, where reduction in employment is approximately half the percentage of reduction in labour cost.

Following data mining and research it was evident that the crisis had significant impact on employment since 2013, accounting for 287 thousand individuals employed by 2018 in the construction projects sector (8.7% of total employment), as compared to 589 thousand back in 2008 (13% of total employment). It is worth noting that 46 occupation categories are active in the sector, based on the 3-digit STEP (Statistical Ranking of Occupations) ranking, in contrast to the 86 occupation categories found in the wider construction sector, including hundreds of separate occupations. It is also a fact that construction projects was irregularly influenced in comparison to the entire economy and its other sectors, both in terms of added value as well as employment. The accumulative reduction of added value in Construction during the period 2008-2015 reached 76% whereas that of employment touched 59%, exceeding by far, the reduction registered in the entire economy and other sectors (Association Anonymous Techniques Companies, 2016, pp. 35-42).

4. The Performance of the Construction Projects Sector Today

The data collected by Hellenic Statistical Authority for the construction sector are presented in Table 8, showing the number of active companies and their turnover in relation to their employees.

Table 8. Construction projects sector in Greece, 2015

	Employed Persons					Totals
	0-9	10-19	20-49	50-249	250+	
Number of Construction Projects Companies	72,797	971	425	133	11	74,337
Percentage of Business Against Total	97.93%	1.31%	0.57%	0.18%	0.01%	
Turnover of Construction Projects	4,144,331	1,218,526	1,728,754	1,615,330	1,661,073	10,368,014
Turnover rate of Construction Projects sector against the Total aggregate.	39.97%	11.75%	16.67%	15.58%	16.02%	

*VALUES IN THOUSAND EUROS

Source: <http://www.statistics.gr/el/statistics/-/publication/SIN21/>-, Hellenic Statistical Authority, Constructions

In 2015, 74,337 companies were recoded to be active in Greece, and 97.93% of those employing from 0 to 9 individuals. It was observed that companies involved in the construction projects sector in Greece are mainly small business. This is considered an asset for the sector, since smaller companies are more flexible and adapt faster to new circumstances. Nevertheless, the turnover of these companies accounts for 39.97% of the sector's total aggregate. There may be only 11 companies that employ over 250 individuals, corresponding to just 0.01% of all companies, but their turnover overcomes 16.02% of the total turnover.

According to data provided by the Bank of Greece, for the year 2015, approximately 162.000 individuals and almost 74,000 businesses were active in solely construction project activities, generating over €3.1 billion of added value in the Greek economy. An equally significant contribution was also recorded in other areas of the construction projects sector. In 2015 the processing sector, which includes the main suppliers of the construction projects (production of structural, metal and other products) 14.2 thousand enterprises

employed 62 thousand individuals generating approximately €2.6 billion of added value in the Greek economy. On the other hand, in the mining sector, financial figures were less influenced, and a particularly important part of the construction sector is related to trade and architectural and surveyor services (Bank of Greece, 2017, pp. 49-52).

5. Prospects of the Sector in the European Union and Greece

The construction projects sector plays an important role in the European economy. It produces almost 10% of the GDP and provides 20 million jobs, mostly in (very small and small companies). In addition to that, the construction projects sector is an important consumer of intermediate products (raw materials, chemical substances, electrical and electronic equipment etc.), as well as related services. Due to its financial importance, the performance of the construction projects sector can significantly influence the growth of the entire economy (European Commission, 2012, p. 1). During the past few years, the construction projects sector was largely influenced by the economic recession Greece suffered, leading on to the suspension of large-scale government-funded construction, cut backs in the public investment program and reduction of private initiative regarding constructions. As a result, the sector suffered significant losses.

However, the construction projects sector also faces several structural issues, such as lack of specialized workforce in several companies, loss of interest by the younger employees, due to the unfavourable working conditions, limited innovation capacity and the issue of undocumented labour. Generally, the present status of this productive sector is characterized by three basic elements. Firstly, the construction projects sector is the one that suffered the greatest blows from the financial crisis (building and infrastructure projects were reduced by 16% between January 2008 and November 2011 in the 27 member-state EU). Secondly, there is an increasing competition by non-European companies, not only in international markets but also at a national level, mostly with regard to infrastructure projects. This external competition does not always operate in a just way. It is a fact that EU companies frequently face greater costs than non-European ones. Finally, energy and environmental issues have created a new set of dynamics among companies giving rise to

various State initiatives, which have now become fundamental competitive factors in the market (European Commission, 2012, p. 2).

In Greece, all prognostics for the period 2017-2019 regarding the sector's development are untrustworthy, given the uncertainty which prevails in Greek economy. However, based on existing conditions (expected recession, reduction of public investments for the years 2017-2019, shift towards lower budget Public Projects) it is estimated that the sector will shrink further, approximating a 15% reduction in relation to 2015. In this framework, construction companies should utilize their documented know-how and experience, as well as the skills of their advanced human resources, in order to maintain their positions in the market. Enterprises should focus on project financial management, in order to achieve a more profitable outcome (IOBE, March 2016, p. 60), (Alpha Bank, 2016, p. 17).

Focusing at the present and taken for granted the various activities in the construction projects sector, a contradictory reality emerges with regard to the social, economic, organizational, cultural and technological aspects and their adaptation to the new regulations and opportunities that govern the market. There are global challenges which mid-term can leverage sustainable development, provided that all necessary measures are applied now. This could lead into the development of a range of services dealing with health and safety issues, energy performance, green buildings, durability against disasters, internal climate conditions, reuse / repossession / recycling and proper planning. If these challenges are dealt with correctly, new opportunities in the market will emerge (European Commission, 2012, p. 4).

Last but not least, the European strategy for a sustainable competitiveness on the construction projects sector in order to response to the basic challenges described above, has already been elaborated for the following decade. Aims to complement strategies developed by the companies involved in the construction projects sector for improving their competitiveness and handling of social challenges. This strategy focuses on five main objectives: a) strengthening favourable conditions for investments; b) upgrading human resources in the construction projects sector; c) improving the effective use of resources, environmental performance and business opportunities; d) strengthening of the local construction market; e) promoting the total competitive position of the construction project companies within the EU. Each objective covers various

basic challenges, e.g. favourable investment conditions are required to revitalize development, research and innovation, as well as the economy, along with low carbon emissions. Also, a steady human resources base is fundamentally important to improve the chain value performance and seek innovative solutions, particularly in an economy with low carbon emissions. The European strategy on the one hand offers recommendations that tackle both short-term as well as mid-term the economic and employment challenges the construction projects sector is facing and, on the other hand, presents some suggestions with long-term prospects to ensure continuous results in the sector's competitiveness (European Commission, 2012, pp. 6-7).

6. Conclusions

The fiscal adjustment of economy leaves no room for improvement or support the public investments plan or provide alternative motives. However, the State's contribution should be more substantial, in order to facilitate the recovery of the construction projects sector.

In particular, there is greater need for short-term counter measures, aiming to attract foreign construction services and funds. At the same time, money flow should be strengthened, in order to balance supply and demand and reduce the unallocated reserve of residences. In the long-term, important factors for a successful representation of the construction projects in the intended new developmental standards of the country involve: improving their productivity (cost, completion time, quality, innovation), participating in the national energy upgrade programme and ensuring opportunities for inactive human resources, so that the sector will rebound.

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