



European Construction Sector Observatory

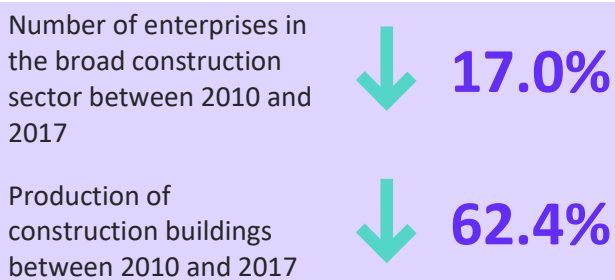
Country profile **Greece**

June 2019



In a nutshell

The Greek construction sector is showing some signs of relative improvement in recent years, after being severely hit by the economic crisis. However, the sector faces still a long way before fully recovering. The number of enterprises operating in the broad construction sector is 17.0% lower than in 2010 and the production in the construction of buildings dropped by 62.4% between 2010 and 2017.



Investment in the broad construction sector fell by 55.2% between 2010 and 2017 reflecting the severe economic downturn. Investment in dwellings dropped by 89.9% from 2010 to 2017, highlighting the collapse of the residential market. Investment in non-residential construction and civil engineering fared comparatively better, decreasing by 11.2% from 2010 to 2017.

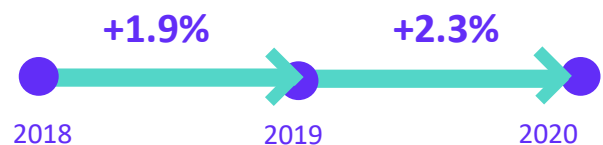
The housing market has been significantly impacted by the crisis with demand for housing and house prices plummeting by 37.9% in Athens and 31.9% in other cities except Thessaloniki. These can be seen as consequences of higher unemployment (from 12.7% in 2010 to 21.5% in 2017) and the negative impact on purchasing power of certain austerity measures, such as higher VAT and real estate taxes. The absence of policy schemes in Greece fostering access to housing as well as the uncertain regulatory and political context further exacerbate the problem. At the same time, with the housing supply

surpassing the demand, there are limited incentives for the construction of new dwellings.

Investments in infrastructures are projected to increase over the coming years, with a total of EUR 21.4 billion to be invested until 2022. 25% of these infrastructure projects, with a value of EUR 2.9 billion, were to be delivered in 2017. These investments are supported by the government's increased focus on strengthening the tourism sector, and by the Greek Privatization Program, which attracts significant private sector investments.

The construction of non-residential construction was negatively impacted by the crisis. The limited confidence in the Greek economy coupled with the political uncertainties impede private investments and hence the development of the sector. With the end of the EU bailout and the positive GDP growth prospects (+1.9% in 2018 and 2.3% in 2019), confidence in the country's economy may slowly recover.

Expected GDP growth between 2018-2020



Greece is lagging behind in eco-innovation and sustainable construction with decreasing spending on business enterprise R&D expenditure by over 50% between 2011 and 2013. Patent applications related to construction have also fallen from 11 in 2010 down to only 5 in 2017. Even though the government is taking action to strengthen the innovation capacity of the construction sector through a National Strategy, few large-scale programmes are put in place in order to foster

eco-innovation and sustainable construction. The use of Building Information Modelling is also limited in Greece.

The **outlook** for the construction industry is hence positive but fragile, relying on European and national public sector investments. Over the

forecast period of 2016-2020, the industry is expected to be supported by gradual improvements in business confidence, as well as subsequent public and private sector investments in transport, residential and commercial construction projects.

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Key figures

Construction market

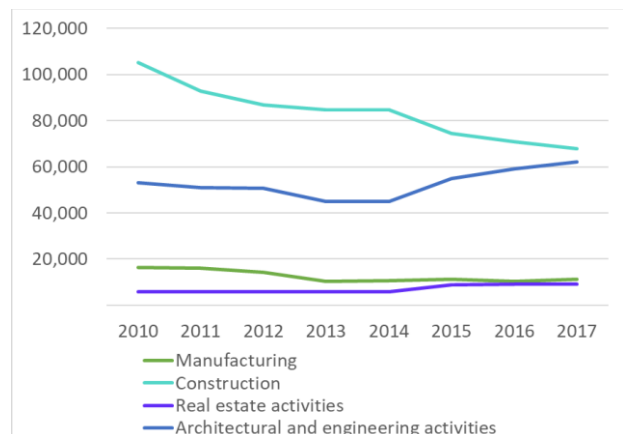
In 2017, 150,121 **enterprises** were operating in the broad construction sector in Greece, with the narrow construction sub-sector accounting for 45.1% of the total firms (Figure 1). Compared to 2010, the number of firms operating in the broad construction sector decreased by 17.0%. The narrow construction sub-sector experienced the greatest drop (-35.7%), followed by the manufacturing sub-sector (-31.7%). On the other hand, real estate activities and architectural and engineering reported an increase of 52.7% and 16.9% respectively.

Number of enterprises in the broad construction sector between 2010 and 2017 **↓ 17.0%**

Number of enterprises in the real estate activities sub-sector between 2010 and 2017 **↑ 52.7%**

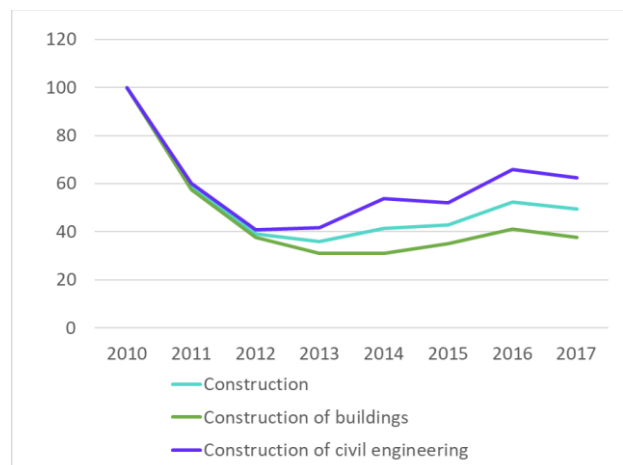
Production in the narrow construction and production of construction of buildings dropped by 50.6% and 62.4% respectively between 2010 and 2017. Although these indicators showed signs of stabilisation since 2012, they remains below the pre-crisis level (Figure 2). This collapse reflects the drop in demand as well as the housing market crash that followed the crisis (see Access to housing). Production in civil engineering suffered from severe budget cuts, resulting in a fall in infrastructure investments (see TO 1 - Stimulating favourable investment conditions - Investment conditions and volumes). After a 59.2% drop between 2010 and 2012, it started recovering, reaching 62.5% in 2017. This is still far from full recovery (-37.5% in comparison to 2010).

Figure 1: Number of enterprises in the Greek construction sector between 2010 and 2017



Source: Eurostat, 2018.

Figure 2: Volume index of production in the Greek construction sector over 2010-2017 (2010=100)



Source: Eurostat, 2018.

The **total added value**¹ of the broad construction sector amounted to EUR 5.2 billion in 2017². This is 42.3% less than the 2010 level (EUR 9.0 billion). The narrow construction sub-sector contributed to 57.2% of this total (i.e. EUR 3.0 billion), followed by the manufacturing (17.4%), architectural and engineering activities (16.9%) and real estate (8.5%) sub-sectors. The **share of gross value added**

of the broad construction sector in the GDP reached 19.0% in 2017, which is almost 3 percentage points higher than the EU-28 average, which stands at 16.9%. The real estate activities sub-sector has the largest contribution, with a 15.8% share (**Error! Reference source not found.**).

Share of gross value added of the broad construction sector to GDP in 2017

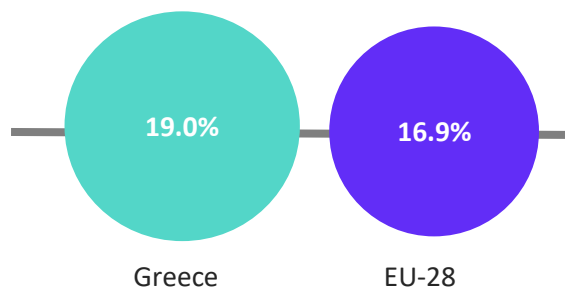
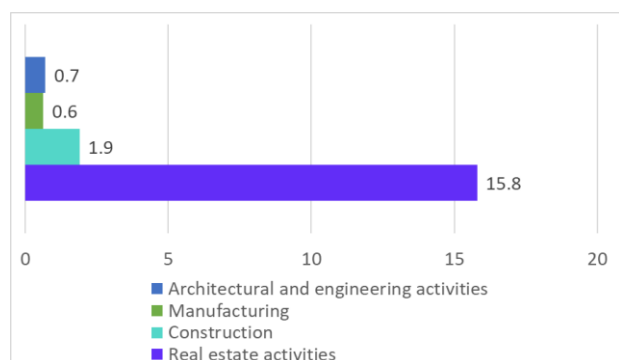


Figure 3: Gross value added as a share of GDP in the Greek construction sector in 2017 (%)



Source: Eurostat, 2018.

The gross value added is concentrated in the region of Attiki (where the capital Athens is located). The latter contributed to 37.6% to the total gross value added in 2015.

Productivity

Between 2010 and 2017, **labour productivity** only increased in the real estate sub-sector, which features the highest productivity with EUR 34,600 (**Error! Reference source not found.**). Even though the productivity of real estate activities declined from its peak in 2014 (EUR 56,500), it remained stable until 2017³. While the labour productivity slightly decreased in the narrow construction sub-sector (-6.9%) between 2010 and 2017, it experienced sharper drops in the manufacturing and architectural and engineering activities in the same period (-38.4% and -41.8% respectively). At the same time, the productivity levels in all EU

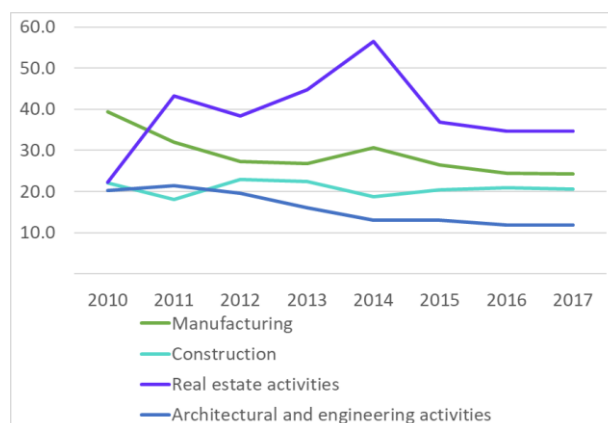
Member states increased in all narrow construction sub-sectors by over 10.0% from 2011 to 2015.

Labour productivity in the architectural and engineering activities sub-sector between 2010 and 2017

↓ 41.8%

The OECD publishes data on labour productivity in the construction sector as measured by **gross value added per hour worked** (holding prices constant). Overall, the index has remained almost constant from 2010 to 2016, decreasing slightly from 100 to 99.9⁴. According to a report from the McKinsey Global Institute, the growth of the construction sector productivity in Greece has exceeded productivity growth in total economy over the period 1995-2015, growing on average by 1.5% annually, compared to 1% for the general economy⁵.

Figure 4: Labour productivity in the construction sector in Greece over 2010-2017 (EUR k)



Source: Eurostat, 2018.

Profitability

The total **turnover** of the broad construction industry in 2017⁶, amounted to EUR 16.9 billion, a 26.1% decrease compared to 2010. That said, it has increased since 2014 with the exception of a decrease between 2016 and 2017. The narrow construction sub-sector generated 57.9% of the total turnover, followed by manufacturing (21.2%), architectural and engineering activities (12.8%) and real estate activities (8.0%). Mirroring the productivity growth, the real estate activities sub-sector grew significantly between 2010 and 2017 (+157.1%). All the other sub-sectors' profitability

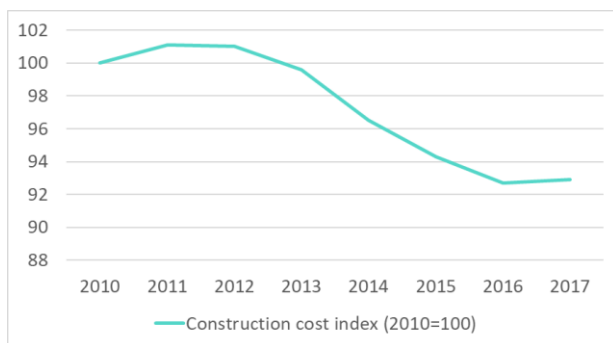
decreased, with rates ranging from 28.9% for the narrow construction sub-sector, to -36.5% for the architectural and engineering activities.

Turnover in the real estate activities sub-sector between 2010 and 2017

↑ 157.1%

The **gross operating surplus** of the broad construction sector amounted to EUR 3.1 billion in 2015, 20.7% lower than the previous year, and 41.1% below the 2010 level. The **gross operating rate** of the broad construction sector⁷, which gives an indication of the sector's profitability, was about 18.3% in 2015, below the 20.7% reported in 2011⁸, and the EU-28 average of 20.2%. This decrease occurred despite the 7.1% decline in the **construction cost index** over 2010-2017, mainly due to the 11.1% decrease in labour costs (**Error! Reference source not found.**).

Figure 5: Construction cost index over 2010-2017 (2010=100)



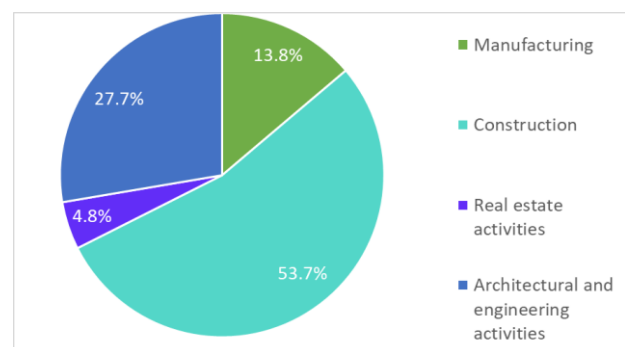
Source: Eurostat, 2018.

Employment

In 2017⁹, the broad construction sector **employed** 268,389 people. Since 2010, the number of persons employed in the broad construction sector dropped by 27.5%, although some stabilisation has been observed since 2014. The narrow construction sub-sector employed 53.7% of the total construction workforce in 2017 (**Error! Reference source not found.**), even though it experienced a 40.6% decline since 2010. In 2015, a major part of the narrow construction workforce was located in the regions of Attiki (32.9%) and Kentriki Makedonia (13.5%). The manufacturing sub-sector was also hit, losing 30.5% of employees. On the other hand, the number of employees in real estate activities, and architectural and

engineering activities has increased during the same period (2010 to 2017) by 17.9% and 17.5% respectively. As for the narrow construction sub-sector, the real estate activities workforce was mainly located in the regions of Attiki (58.7%) and Kentriki Makedonia (10.8%) in 2015. As for **employment by specific occupation**, craft and related trade workers in narrow construction declined from 230,600 in 2010 to 101,100 in 2017 (-56.2%), though being the largest occupation in absolute terms. Elementary occupations and managers in narrow construction experienced a strong decline (-72.8% and -81.9% respectively). Conversely, the amount of professionals within narrow construction has increased by 64.5% between 2010 and 2017 to 12,500 people, a high increase also with respect to 2016 (8,800 people). For the real estate sub-sector, the amount of technicians and associate professionals declined by 23.7% between 2010 and 2017, accounting to 900 people. The manufacturing sub-sector has experienced the highest decrease in managers, and plant and machine operators and assemblers, with a decline of 23,600 (-65.2%) and 42,400 (-40.8%). On the other hand, the sub-sector has had an increase in employment in elementary occupations (43.6%), professionals (53.0%), and service and sales workers (104.6%).

Figure 6: Percentage of people employed by narrow construction sub-sectors in Greece in 2017



Source: Eurostat, 2018.

In parallel, the number of **self-employed workers** in the narrow construction sub-sector declined from 98,700 in 2010 to 59,800 in 2017 (-39.4%). They represent 5.5% of all the self-employed in the general economy in 2017. This is well above the EU-28 average of 1.2%. Similarly, the amount of self-employed in the real estate sub-sector dropped by 54.5% between 2010 and 2017, reaching 2,000 people in 2017 (0.2% of all self-

employed people). Following a similar trend, the number of full-time employees in the narrow construction sub-sector fell from 299,900 to 129,900 over 2010-2017 (-56.7%), while the part-time employment decreased by only 2.5% in the same period. Similarly, full time employees in the real estate sub-sector also decreased by 35.7%.

SMEs play an important role in construction-related employment, employing 94.0% of the entire construction workforce in 2014.

However, the future employment growth in Greece in construction is expected to increase by 9.4% between 2016 and 2030, considerably higher than the EU average (3.3%)¹⁰.

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Macroeconomic indicators

Economic development

In 2017, Greece's **GDP** amounted to EUR 187.1 billion in 2017, a 1.4% increase with respect to 2016 (**EUR 184.5 billion**), but 17.2% lower than 2010. In 2016, the potential GDP was EUR 202.6 billion, resulting in a negative output gap (-7.7%). The latter is much higher than the EU-28 average of -0.2%, and suggests an underutilisation of resources in the national economy. This also reflects the deflationary trend, due to the economic crisis. The **inflation rate** in Greece peaked in 2010 at 4.7%, and has been declining significantly since then. There has been a deflationary trend between 2013 and 2015, reaching a record low in 2014 (-1.4%). In 2016, inflation stood at 0.0% and increased in 2017 (1.1%).

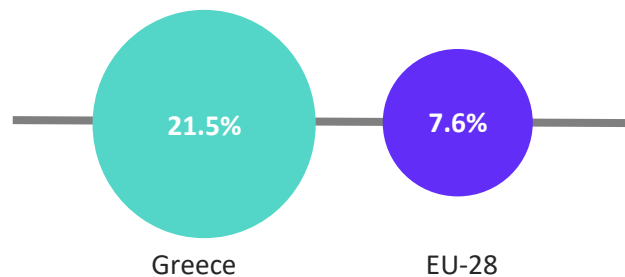


In 2017, Greece's GDP amounted to EUR 187.1 billion, 17.2% lower than 2010.

Demography and employment

The overall **unemployment rate** in Greece reached 21.5% in 2017, considerably above the EU-28 average of 7.6%¹¹, being the highest among EU-28 countries. It has been decreasing since 2013 (27.5%), but it is significantly higher than 2010 (12.7%). Youth unemployment (below the age of 25) was at 43.6% in 2017, the highest rate in the EU, exceeding the EU-28 average of 16.8%, and much higher than the 2010 level (33.0%). Such a high unemployment level is acting as a push factor for further brain drain. Particularly, the emigration of graduates, making up two-thirds of the outflow, further postpones Greece's transformation from a low-cost to a knowledge-based economy^{12,13}.

Unemployment rate in 2017



The **total population** in Greece amounted to 10.7 million people in 2017. It is projected to decrease by 7.4% by 2030 and by 16.9% until 2050, reaching 8.9 million. These projections are also influenced by the net migration, which has been negative from 2010 to 2015. Indeed, emigration from the country increased from 1,579 people in 2010 to 66,494 in 2012. Since then, there has been a decreasing trend reaching 44,905 in 2015. However, in 2016 this trend changed again, with the number of immigrants being 10,332. This is a significant increase with respect to the previous years linked to the amount of refugees in the country, having welcomed around 173,450¹⁴. In 2017, Greece's working age population made up 64.0% of the total population, slightly below the EU-28 average of 65.0%. By 2050, the **working age population** will have shrunk to 51.4%, while people aged 65 or older will make up 36.5% of the overall population.

Public finance

In 2017, general **government expenditure** in Greece accounted for 48.0% of GDP, which represents a decrease from the 2010 level (52.5%). In 2017, the **government deficit** stood at 0.8%, a significant improvement from -5.9% in 2015 and far better than 2010's (-11.2%). General **government gross debt** accounted for 178.6% of GDP. Greece has been receiving financial assistance from the EU since 2010 through three

consecutive Economic Adjustment Programmes. The latest Economic Adjustment Programme was launched in 2015 and was meant to provide Greece with EUR 86 billion over 2015-2018¹⁵. The EU bailout conditions have imposed harsh economic reforms on the country. These seek to restore fiscal sustainability, safeguard financial stability, strengthen growth and competitiveness, as well as modernize the public administration. According to the agreements, Greece targets to achieve primary surplus of 3.5% of GDP by 2018 through fiscal reform (raising income tax and VAT, reforming the pension system, combating tax evasion, etc.)¹⁶. The EU bailout has ended in August 2018, following Greek economic improvements.

Entrepreneurship and access to finance



Greece ranks 114th out of 137 economies in terms of financial system, according to the 2018 Global Competitiveness Report, underscoring how access to finance is one of the most problematic factor for doing business.

In fact, financing of SMEs and venture capital availability place Greece at the 137th and 129th position respectively¹⁷. This is echoed in the Survey on the Access to Finance of Enterprises (SAFE), which highlights that access to finance is the most important concerns for Greek SMEs in 2018. Furthermore, non-performing loans and soundness of banks both rank at 137th. These additional

indicators show that the Greek banking system is rather weak, which in turn will influence its lending and appetite for risks. As a result, this makes access to finance more difficult for SMEs (which are often considered riskier investment in comparison to large companies), and construction companies. The stability of the Greek financial system has been critically undermined since the beginning of the sovereign debt crisis, requiring a major restructuring, consolidation and recapitalisation of the banking sector since 2010¹⁸. Nonetheless, the financial sector experienced a further deterioration in 2014-2015, characterised by deposit outflows, shortage of liquidity as well as very high levels of non-performing loans (NPL)¹⁹. The European Central Bank (ECB) has recently started to provide Greek banks with additional cheap liquidity in order to restore confidence in the sector²⁰. The critical state of Greek banks had a considerable impact on the economy, notably on SMEs. Access to finance is considered one of the main challenges for SMEs, with conditions substantially worsening since 2008²¹. In fact, the downward trend is continuing, with new loans to SMEs having more than halved between 2014 and 2015. In fact, outstanding loans advanced to non-financial corporations has decreased by 29.3% between 2010 and 2017, reaching EUR 82.0 million. Moreover, no SME received growth or venture capital investments in 2015 in Greece²².

Outstanding loans advanced to non-financial corporations between 2010 and 2017  **29.3%**

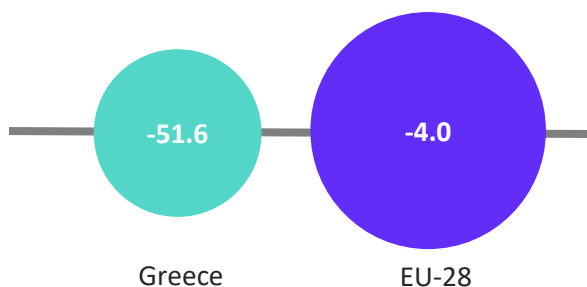
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Key economic drivers of the construction sector

Business confidence

Business confidence in the overall economy has been negative over the last few years, with the **consumer confidence indicator** being at -63.0 in 2017, significantly lower than the -2.7 average level of EU Member States. **Industry confidence** has improved but is still with negative level, being better in 2017 (-4.6) than in 2010 (-22.5). However, this is below the EU-28 average of 5.3. The **construction confidence index** is also negative, reaching -51.6 in 2017. This is significantly worse than in 2014 (-22.1), and below the EU-28 average of -4.0. However, it is better than the 2010 level. Moreover, the **investment ratio** declined, reaching 12.5% in 2017, much lower than 2010 levels (17.6%) and considerably lower than the EU-28 average, standing at 20.3%. However, it has continuously improved since 2014, when it stood at 11.4%. In addition, the **investment per worker** in the broad construction sector experienced a sharp fall, going from EUR 100,600 in 2010 to EUR 31,200 in 2015 (-69.9%).

Construction confidence index in 2017



The Foundation for Economic and Industrial Research (IOBE) compiles an index of business expectations in construction (private activity). Even though the indicator increased quite significantly from 2011 to 2013 (from -27.8 to 50.6) it has

recently decreased and stood at -1.1 in 2016 and at -27.9 for the first 5 months of 2017²³.

Political and fiscal instability are the main issues that are negatively affecting business confidence, making investors more risk-averse and reluctant to invest in the sector. The Association of Companies for Quality and Development of Construction (SEPAK) also criticizes burdensome taxation and overregulation as the most important depreciation factors for the real estate and construction sub-sector²⁴.

Domestic sales

The ranking of the most domestically sold construction products in Greece has remained relatively constant since 2010, with the exception of “Prefabricated buildings of metal”, being replaced by “Articles of cement, concrete or artificial stone n.e.c.”. Moreover, in 2016, “Ready-mixed concrete” has taken over “Portland cement and aluminous cement” group. Overall, the value of sales has seen important decreases over the past years. For example, the value of the sales for “Portland cement, aluminous cement, etc.” and “Ceramic tiles and flags” has dropped by 61.6% and 61.3% since 2010, respectively. The **top 5 most domestically sold** construction products are presented in **Error! Reference source not found.**, including a comparison with the most sold in the EU-28. These represented 62.2% of total domestic construction product sales in 2016.

Table 1: 5 most domestically sold construction products in Greece and in the EU 2016

	Greece			EU-28
	Product	Value (EUR m)	Share in construction products exports (%)	Product
1	Ready-mixed concrete (group 236310)	242.7	21.8	Other structures (group 251123)
2	Portland cement, aluminous cement, etc. (group 235112)	214.3	19.2	Doors, windows, etc. (group 251210)
3	Other structures (group 251123)	98.2	8.9	Ready-mixed concrete (group 236310)
4	Ceramic tiles and flags (group 233119)	71.7	6.5	Prefabricated buildings of metal (group 251110)
5	Articles of cement, concrete, etc. (group 236919)	64.3	5.8	Windows, French windows and their frames, etc (group 162311)

Source: PRODCOM, 2017.

Export of construction-related products and services

The ranking of the most exported products has remained relatively stable since 2010. In 2016, “Marble, etc.” was overtaken by “Portland cement, etc.” as the most exported product group. The top 5 most exported construction products in Greece and in the EU-28 are summarised in Table 2. Together, these made up 84.0% of all construction products exports in 2016.

Table 2: 5 most exported construction products in Greece and EU-28 in 2016

	Greece			EU-28
	Product	Value (EUR m)	Share in construction products exports (%)	Product
1	Portland cement,	175.6	35.7	Ceramic tiles and flags (group 233110)

	Greece			EU-28
	Product	Value (EUR m)	Share in construction products exports (%)	Product
	aluminous cement, etc. (group 235112)			
2	Marble, etc. (group 237011)	142.3	29.0	Other structures (group 251123)
3	Cement clinkers (group 235111)	48.9	10.0	Fiberboard of wood or other ligneous materials (group 162114)
4	Other structures (group 251123)	28.9	5.9	Marble, etc. (group 237011)
5	Doors, windows, etc (group 251210)	16.9	3.4	Doors, windows, etc. (group 251210)

Source: PRODCOM, 2017.

In terms of cross-border provision of construction services²⁵, Greece exported EUR 499.2 million worldwide in 2016, and imported EUR 131.7 million, achieving a **trade surplus** of EUR 367.5 million. The share of imports and exports with the EU stood at 66.5% and 60.1% respectively. Overall, exports of construction services declined by 45.8% between 2011 and 2016. Likewise, imports fell by 41.8% in the same period. The reliance on the EU market is even more emphasised for architectural and engineering services, where the share of imports and exports with the EU stood at 72.9% and 81.9% in 2016. Put in absolute terms Greece exported for EUR 38.2 million to, and imported from the EU EUR 44.7 million.

Exports of construction services between 2011 and 2016.  **45.8%**

Access to finance in the construction sector

The credit extended to the narrow construction industry decreased by EUR 2,381 million (-21.0%) between 2010 and 2017. In 2015, the share of

bank credit to the construction sector was 12.9%. Furthermore, during the period of 2005 to 2010, bank credit to construction expanded by 142.6%, but subsequently dropped by 6.7% from 2010 to 2015. In contrast, the share of bank credit to the real estate sub-sector was 5.8% in 2015. However, bank credit to the real estate sub-sector increased by 27.2% between 2010 and 2015, after a 6.2% decline over 2014-2015. In addition, access to finance to construction is burdened by one of the highest shares in non-performing exposure (NPE), which includes non-performing loans (NPL) and overdue credit considered unlikely to be repaid without liquidation of the underlying collateral. In fact, NPE to the construction sector stood at 49% in 2015, second only to NPE to commerce (54%).

Credit extended to the narrow construction industry between 2010 and 2017

 **21.0%**

In addition, access to finance, according to 2018 SAFE report, is the most important concern for 17% of Greek SMEs (compared to 7% at EU level)²⁶.

Access to housing

The number of households in Greece has experienced a 0.9% increase since 2010, reaching 4.4 million in 2017. At the same time, the urbanisation rate grew slightly between 2010 and 2017 from 76.3% to 78.7%²⁷.

The **housing market** has declined significantly because of the crisis, with prices falling continuously as demand plummeted. The main reasons for the drop in demand can be traced back to the decrease in mean equivalised net income, which has dropped by 37.9% since 2010, reaching EUR 8,673 in 2016, due to the crisis. This is considerably lower than the EU-28 average of EUR 18,837. This, together with the surge in unemployment rate and the increase in real estate taxes and VAT as part of the austerity measures, has reduced household purchasing power. As a result, residential investment fell continuously by -12.8% in 2016 and -11.1% y-o-y in Q1 2017²⁸.

Moreover, the annual **Single Property Tax** (ENFIA) has had a particularly detrimental impact on households and investors in the property market. The tax became effective in early 2014, and was

initially an extraordinary measure²⁹. However, the tax was further renewed and revised for 2016 (enacted by Law 4389/2016), and it is unclear when it will be abolished (although there is the possibility that it will remain into force until 2031)³⁰. The tax represents a financial burden for property owners, particularly for owners of larger plots, unrented properties and detached houses³¹. Overall, Greeks paid seven times more property taxes between 2009 and 2016 reaching the amount of EUR 3.5 billion³².

Beyond property taxation, the Bank of Greece stresses the impact of the changing **tax environment** and the uncertainty it creates in stifling the access to housing. This goes hand in hand with improved financing conditions, a reduction in red tape and the completion of the national cadastre³³. The Hellenic Property Federation (*Πανελλήνιος Ομοσπονδία Ιδιοκτητών Ακινήτων* – POMIDA) further stresses the impact of the newly introduced tax in arguing that the complete abolition of the ENFIA is a prerequisite for the revival of the construction sector and of the whole national economy.

The Greek housing market continues to be characterised by excess supply, a very limited number of transactions and declining prices, albeit at a more moderate pace³⁴.

In parallel, **housing loans** to households decreased by 23.7% since 2010, with outstanding residential loans amounting to EUR 61.4 billion in 2016. Financing conditions, specifically credit standards, terms and conditions for loans to household for house purchase have become stricter in 2015 and remained stable in 2016, according to the Bank Lending Survey for Greece. On the other hand, the ratio of rejected loan applications to housing loans has declined in the first quarter of 2016. Overall, demand for housing loans has increased in Q1 2016³⁵.

Housing loans between 2010 and 2016

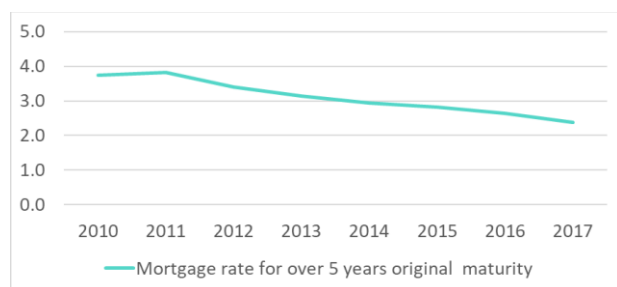
 **23.7%**

Because of the fall in demand, **house prices** have experienced a sharp decline (-41.9%) since the beginning of the crisis in 2008. Prior to the crisis, the elevated house price index reflected the

buoyancy of the housing market. However, after 2008, prices collapsed. For the capital, Athens, the index decreased by 37.9% between 2010 and 2015. Similarly, in the other cities of the country (except Athens and Thessaloniki) the house price index fell by 31.9%³⁶. Despite the declining interest rates on **mortgages (Error! Reference source not found.)** and low house prices, the housing market is not yet showing signs of recovery.

Furthermore, the number of **construction permits** and the volume of the new construction shrank dramatically over the last years. Regarding the former, the number of building permits issued (for dwellings) decreased from 23,380 in 2010 to 4,618 in 2015 (-80.2%³⁷). The annual rate of change in private construction activity, in terms of building permits, was -5.3% in 2016. Regarding new projects, 52,344 were started in 2010 compared to only 9,264 in 2015 (-82.3%). Again, the situation is showing signs of stabilisation with a small decrease since 2014³⁸.

Figure 7: Mortgage rates for loans for over 5 years original maturity (%)



Source: ECB MFI Interest Rate Statistics, 2017.

In this context, in 2016 housing **affordability** has become a pressing issue. In fact, the **severe deprivation rate** was of 2.9%³⁹, above the EU-28 1.7% average. In addition, 39.6% of the population is overburdened by housing costs, which is well above the EU-28 average of 10.2%⁴⁰. This number

has been declining since 2014 and is more than twice as high as in 2010 (where it stood at 18.1%). These values are amongst the highest in the EU. The **housing overcrowding rate** is also relatively high in Greece compared to EU averages. In fact, it stood at 29.0% in 2017, higher than the 2010 level of 25.5% and the EU-28 average of 17.5%⁴¹.

Infrastructure



Greece ranks 38th out of 137 for its infrastructure, according to the 2018 Global Competitiveness Report⁴².

In particular, it performs best in terms of airport connectivity (27th), quality of roads (36th) and liner shipping connectivity index (30th). However, Greece does less well in terms of road connectivity index (63rd) and efficiency of train service (77th). A number of investment projects, mostly co-financed by EU funds, aim at enhancing the Greek transport infrastructure (see TO 1 – Investment conditions and volumes).

Beyond the quality of infrastructure, a recent report on Greek infrastructure investment by PwC stresses the investment gap in infrastructure in Greece. In fact, the average annual level of investment in infrastructure between 2009 and 2016 amounts to EUR 2.2 billion, which is 62% lower than the historical average between 2006 and 2008⁴³. Overall, between 2014 and 2017, 16 infrastructure projects were completed, valued at EUR 2 billion. In the pipeline until 2022 are 69 infrastructure projects totalling EUR 21.4 billion⁴⁴. Public funding in Greece, specifically through the Public Investment Program (PIP) has gone down since 2010 to reach 2002 levels in 2016⁴⁵.

4

Key issues and barriers in the construction sector

Company failure

In Greece, the number of corporate insolvencies decreased from 355 in 2009 to 120 in 2017 (-66.1%)⁴⁶. While these numbers appear comparatively low, it must be noted that only a small proportion of corporate closures are actually registered in the form of insolvencies in Greece. Therefore, official statistics do not cover all of the insolvencies, especially for SMEs⁴⁷. In Greece, the sub-sector with the largest share of construction companies' birth and death per year is the construction sub-sector. Indeed, in 2015 there has been 2,337 companies' births and 4,771 deaths of enterprises. This is followed by the architectural and engineering activities and related technical consultancy enterprises sub-sector with 1,969 enterprises births and 3,164 deaths of enterprises. Finally, the real estate sub-sector registered 278 enterprises births and 237 enterprises deaths.

Trade credit



Trade credit is a very common practice in Greece, making up on average 52.1% of the total B2B sales in 2017, which is higher than the average for Western Europe of 38.8%⁴⁸.

Namely, 60.6% of domestic B2B sales are made on credit, compared to 43.7% for foreign B2B sales, both at a lower level than the previous year. In Greece, trade credit is used as a financing tool. However, credit-based sales decreased compared to 2015, as result of reduced economic activity and a more risk-averse behaviour⁴⁹.

Late payment

Overall, late payments are a longstanding problem in Greece, and have deteriorated in the current

economic climate. Despite a 30-days improvement compared to 2017⁵⁰, payment delays by Greek public administrations to SMEs were amongst the longest in the EU in 2018, with an average delay of 73 days. Also in B2B transactions, the average payment terms negotiated in the contract has decreased between 2017 and 2018, from 80 to 65 days. During the same period, payment delays also decreased, on average⁵¹. According to the European Payment report 2018, 60% of the companies said that faster payments from debtors would enable them to increase hiring of new employees. A higher number compared to the EU average (20%)⁵².

The construction sector had the highest levels of overdue payments in 2015 in the domestic industry, standing at nearly 60%, and the longest payment delays, averaging 46 days⁵³. In 2017, the construction sector ranked as the second industry in terms of late payments (over 90 days on average) making up 11.8 % of the total of late payments⁵⁴. Furthermore, B2B customers in the construction⁵⁵ sector faced payment terms of 55 days, longer than the country average.

Time and cost of obtaining building permits and licenses

Greece is ranked 58th in 2018 with respect to “Dealing with construction permits” by the World Bank, which is the same as the previous year but lower than in 2016 (the revised 2016 ranking is 55th)⁵⁶. The country performs below average in granting construction permits, compared to OECD high-income countries. Completing the formalities to build a warehouse⁵⁷, requires 18 administrative procedures, (considerably higher than the OECD high-income average of 12.5) and takes 124 days compared to the 154.6 OECD average (**Error! Reference source not found.**). The average cost is

slightly above OECD high-income average, as it represents 1.8% of the warehouse value compared to 1.6%.

In 2013, Greece introduced measures to reduce the time required to obtain a construction permit. It applied strict time limits for handling permit applications at the municipality level⁵⁸.



Greece ranked 58st (out of 190) in “Dealing with Construction Permits”, according to Doing Business 2018.

Table 3: Construction procedures timing and costs in Greece

Procedure	Time to complete	Associated costs
Submit a petition for an archaeological clearance certificate	1 day	no charge
Obtain archaeological clearance certificate	12 days	no charge
Obtain active fire protection approval	10 days	no charge
Obtain copy of land registry certificate	2 days	EUR 25
Obtain verification of the feasibility of the project	1 day	no charge
Obtain proof of advanced payment to the Social Security	2 days	no charge
Request and obtain initial permit/approval from the Municipality	16 days	no charge
Request and obtain building permit from the Municipality	15 days	EUR 12,274
Notify Archaeology Supervisory Authority of commencement of works	7 days	no charge
Notify the police of the commencement of works	1 day	no charge
Notify the Municipality of the commencement of works	1 day	EUR 350
Request and obtain foundation work inspection	1 day	EUR 300

Source: Doing Business overview for Greece, World Bank, 2018.

Skills shortage

The **job vacancy rate** in the construction sector has been low and continued to decline in 2010-2014, reaching 0.3% in 2014⁵⁹. Such a decline is linked to the 57.4% decrease in the amount of occupied jobs in the narrow construction sub-sector, as well as continuous low demand for jobs, resulting in the 86.2% decrease of job vacancies between 2010 and 2014. The situation in the real estate sub-

sector follows a similar trend. The job vacancy rate grew by four times between 2010 and 2014. This was due to the 54.0% shortage of occupied positions, rather than growth in the job vacancies. In fact, **job vacancies** in the narrow construction sub-sector decreased from 1,113 in 2010 to 154 in 2014, a 86.2% decrease.

In parallel, the **number of tertiary students** in engineering, manufacturing and construction (specifically architecture and building) decreased compared to 2010 (-11.5%), reaching 3,141 in 2016. Furthermore, adult participation in training in the narrow construction sub-sector was 2.0% in 2010 and slightly decreased to 1.8% in 2016. This is considerably lower than the EU-28 average, which stands at 9.2%.

In a recent report from the European Centre for the Development of Vocational Training (CEDEFOP), activities in “building frame and related trades workers”, “mining and construction labourers”, “wood treaters, cabinet-makers and related trades workers” as well as “painters, building structure cleaners and related trades workers” are identified as surplus occupations – meaning that there are too many suitable workers available compared to the demand for such workers. This is partly due to the economic recession in the construction sector⁶⁰. On the other hand, the PEDMEDE (Panhellenic Association of Engineers Contractors of Public Works) argues that there is a shortage in highly skilled workers, such as engineers, given the current brain drain that Greece is experiencing.

Furthermore, some barriers to skills development have been detected in the construction sector. The biggest problem of the construction workforce in Greece is the low level of participation to training and adult participation in lifelong learning (see TO 2 – Skills). This is linked to the fact that there is a lack of incentives for the participation in training activities. A further problem is related to the age structure of the workforce, as most of the current older workforce does not express strong interest in the continuing vocational training and new technologies⁶¹.

Sector and sub-sector specific issues

Material efficiency and waste management

In 2010, 2,086,080 tonnes of construction and demolition (C&D) waste were generated in Greece, decreasing to 479,999 in 2014, representing a 77.0% decrease, mostly linked to the slowdown in construction activity⁶². However, actual quantities of C&D waste in Greece can vary from two to ten times higher than the official reported statistics, possibly linked to the fact that soils and stones or other natural occurring materials are not included in the statistics⁶³.

C&D waste is regulated by the following legislation: Law 4042 of 2012 ‘Penal protection of the environment - Compliance with Directive 2008/99/EC - Framework for waste generation and management - Compliance with Directive 2008/98/EC - Regulating issues of the Ministry of Environment, Energy and Climate Change’ which transposes the EU Waste Framework Directive (2008/98/EC) into Greek law⁶⁴.

The Greek government implemented a new Waste Prevention Plan in 2014. It identifies food waste, paper waste, packaging waste and Waste Electrical

and Electronic Equipment as priority waste streams for waste prevention. Furthermore, the Plan also includes measures for the prevention of C&D waste. These measures are mostly limited to promoting information and education about waste prevention and engaging business⁶⁵. Alongside the Waste Prevention Plan, a National Waste Plan also exists, defining the strategy, policy objectives and actions for waste management at national level towards a zero-waste economy and society. It is geared towards the 2020 milestone of reducing drastically per capita waste and increase the recycling of waste. In parallel regional Waste Management Plans exist across Greece in order to target the need for current waste management services, the design of additional services as well as the required investments^{66,67}.

Climate and energy

Emissions of greenhouse gases (i.e. carbon dioxide, among others) from activities in the construction and real estate sub-sectors amounted to 294,827 tonnes and 5,233 tonnes in 2016, respectively. This represents a 57.7% decrease in emissions for the narrow construction sub-sector and a 32.9% increase for the real estate sub-sector from 2010 to 2016.

5

Innovation in the construction sector

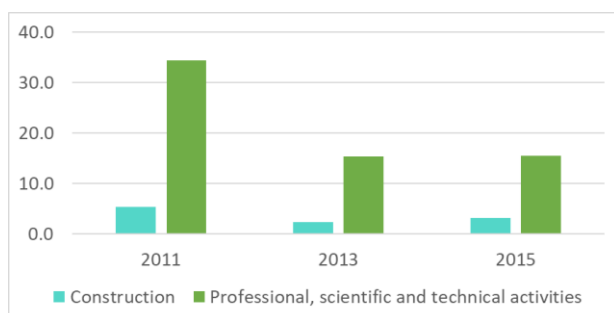
Innovation performance

Greece is considered a Moderate Innovator according to the Innovation Union Scoreboard 2018 and its innovation performance ranks below the EU average⁶⁸.

Its areas of strength include Innovators, Linkages (in particular Innovative SMEs collaborating with others) and Attractive research systems. Conversely, the country's relative weak areas are in Intellectual assets, and Finance and Support.

The innovation intensity of the construction sector in Greece is low, with decreasing spending on research and development. Thus, **business enterprise R&D expenditure (BERD)** has fallen by over 40% in both the narrow construction (-42.2%) and the professional and technical activities (-55.1%) sub-sectors between 2011 and 2015 (**Error! Reference source not found.**). Specifically, BERD in the professional and technical activities dropped from EUR 34.4 million in 2011 to EUR 15.4 million in 2015 (-55.1%). Similarly, BERD in the narrow construction sub-sector declined from EUR 5.4 million in 2011 to EUR 3.1 million in 2015 (-42.2%), signalling the shortage of R&D activities. It is relevant to note that the major drop was between 2011 and 2013, and has slightly improved between 2013 and 2015.

Figure 8: Business enterprise R&D expenditure (BERD) per construction sub-sector in Greece (EUR m)⁶⁹



Source: Eurostat, 2018.

In addition to the declining expenditure in R&D, the amount of research personnel has also been dwindling. In terms of **R&D personnel**, in 2015, 34 full-time equivalents (FTE⁷⁰) were employed in the narrow construction sub-sector, while 425 FTE were employed in the professional and scientific activities sub-sector. Compared to 2011 levels, FTE decreased in the professional activities sub-sectors (-19.6%) and increased in the narrow construction sub-sector (240.0%), albeit from a very low basis (10 FTE). From 2010 to 2016, Greece has filed an average of around 6.1 **construction-related patent applications** per year, suggesting a low innovation outcome of the sector. This has been decreasing, with patent applications amounting to 11 in 2010 down to five for 2016. Moreover, no Greek construction-related firm ranks within the top 1,000 EU companies by R&D (industrial sector ICB-3D), according to the 2016 EU R&D Scoreboard⁷¹.

Eco-innovation and digitalisation

The government is taking action to strengthen the innovation capacity of the construction sector. The “Greek National Strategy for Smart Specialisation Strategy” considers ‘material – construction’ as one of the seven priority areas for R&D and innovation activity⁷².

Furthermore, energy, including energy savings in buildings is another priority area of the smart specialisation strategy.

In addition to construction being listed as priority at national level, regional approaches, such as the **Strategy for Smart Specialisation of the Region of Central Macedonia**, emphasise smart buildings as one of the specific priorities⁷³. Among others, the strategy foresees the clustering of the building materials sub-sector as well as the establishment of the ‘Institute for Competitiveness of Building Materials and Smart Buildings’, aiming at building capacities and expertise in R&D in the construction sector.

Another programme in place until December 2019 is entitled “rooftop PV”. The authority in charge of this scheme is the national energy supplier. It promotes energy efficiency by incentivising domestic consumers and small business to install photovoltaic systems (up to 10 kWp) on their rooftops. The electricity generated is then bought by the national energy supplier at a guaranteed feed-in tariff for 25 years, which allows to offset the investment costs and to generate gains⁷⁴.

A current trend in digital construction is the use of Building Information Modelling (BIM) in order to represent and simulate digitally construction processes. Contrarily to many EU countries where the construction sector is investing in such technologies, Greece is currently lagging behind⁷⁵.

Finally, the Electronic Building ID Code, discussed in Greece for now a few years is currently included in the law 4495/2017 “Control and Protection of the Built Environment” (*Έλεγχος και προστασία του δομημένου περιβάλλοντος*), submitted to the House in September 2017. This will allow all public entities to electronically monitor property ownership, radically changing the current situation⁷⁶. Moreover, this law focuses on transparency and speeding up the processes by using spatial planning procedures. It also aims to introduce new technologies to ensure a better environmental balance, and preserving the cultural and architectural Greek heritage in buildings⁷⁷.

6

National and regional regulatory framework

Policy schemes

Social housing in Greece was under the responsibility of the **Workers' Housing Organisation** (*Οργανισμός Εργατικής Κατοικίας – ΟΕΚ*), a body promoting homeownership in vulnerable social groups (large families, people with disabilities, long-term unemployed, etc.) through rent allowances and subsidised rates on housing loans⁷⁸. After being abolished in 2012, as part of the austerity measures, the OEK's assets have since been taken over and managed by the **Manpower Employment Organisation of Greece** (*Οργανισμός Απασχόλησης Εργατικού Δυναμικού – ΟΑΕΔ*). No concrete national social housing schemes have been available in Greece following the OEK's termination.

Nevertheless, in 2015, a programme containing measures to address the humanitarian crisis (*Προγράμματος για την «Αντιμετώπιση της Ανθρωπιστικής Κρίσης*) was passed, implemented by law n. 4320/2015 (A 29).

It grants benefits to households and individuals in need (families with young children, long-term unemployed and households at risk of eviction and overburden by housing costs). Namely, the provisions include free electricity connection (up to 300 Kwh per month), food subsidies and **tax-free rent subsidies**⁷⁹. Initially meant to be in place until the end of 2015, the programme was extended, due its popularity and necessity. According to the Ministry of Labour, EUR 6.5 million was credited to 17,486 beneficiaries in December 2016⁸⁰.

Moreover, the Greek government recently launched the **National Strategy for Social Inclusion (NSSI)** (*Εθνική Στρατηγική Κοινωνικής Ένταξης*), which sets out a framework of principles, priorities and measures. It is aimed at establishing a unified

framework for social inclusion policies targeting vulnerable groups. The Strategy is based on three socio-political pillars, namely combatting extreme poverty through measures including access to affordable and adequate housing, access to services and inclusive labour market⁸¹.

Other programmes exist at the municipal level, such as the **Network of Social Housing** (*Δίκτυο Κοινωνικής Κατοικίας*) of the Municipality of Athens, aiming to support vulnerable social groups by providing short-term accommodation to households or individuals living under inadequate conditions (homeless or at risk of being homeless). Priority is given to families with children, single parent families, pregnant women and the elderly. The programme is also supported by private companies, such as Procter and Gamble (P&G), which contributed to the reconstruction of the social housing building that hosts the beneficiaries of the scheme⁸². The second social apartment, inaugurated in end 2014 hosts nine families in nine apartments for a duration of six months, renewable once. Moreover, these families are offered free help and advice in order to escape the vicious cycle of social exclusion⁸³. In December 2015, four ready-made apartments were further made available for 20 families in similar conditions⁸⁴. In 2017, a new building was created with 10 apartments to host 20 single-parent families. From April 2014 until today, 62 families, totalling 196 people, have been hosted under the programme⁸⁵.

Finally, in order to counterbalance austerity measures, the government is planning in 2019 to put in place rent subsidy at an average of EUR 1,000 a year aiming to help 600,000 households. The allowance will be proportionally higher for large families⁸⁶.

Building regulations

The legal framework governing construction activities in Greece is constituted by the **General Building Regulation** (*Γενικό Οικοδομικό Κανονισμό* - Γ.Ο.Κ.), with subsequent amendments, which establishes the terms and conditions for the proper development of construction projects within or outside urban settlements, with the aim of protecting the physical, natural and cultural environment⁸⁷. A series of buildings regulations complementing the General Building Regulation contain provisions related to the classification of buildings, safety and durability of structures, various structural elements (walls, openings, windows, etc.), basic facilities (plumbing, heating, elevators, etc.⁸⁸). Moreover, spatial planning is regulated by Law 2742 on 'Spatial Planning and Sustainable Development', whereas urban planning is governed by Law 2508/97 on 'Sustainable Residential Development'⁸⁹. As for the execution of public works, they are defined by the Code of Construction and Public Works. It details the requirements for carrying out the works, the procedure for selecting contractors and award criteria, among others⁹⁰.

In 2011, the government enforced the New Building Regulation (Law 4067/2012), which implements reforms to the issuing of building permits, energy performance of buildings and supervision of construction works, among others.

This new regulation defines new coefficients, sizes and definitions related to building, which supersedes specifications made in the General Building Regulations, except when mentioned otherwise. Namely, regarding building permits, the regulations require a Preliminary Building Approval in order to apply for a permit, as well as an energy efficiency audit⁹¹. This law has been slightly amended by the bill on Spatial Planning – Sustainable Development, passed in December 2016⁹².

The government introduced Law no 4178/13 on 'Tackling illegal building works, Safeguarding Environmental Harmony and other Provisions'. It aims to put an end to illegal construction activities (i.e. structures built without planning permission and any extension not approved in architectural plans) and unauthorised uses of space (i.e. use of a

space which is not consistent with the purpose originally declared in the building permit). Instances of actions in this respect include a system of fines, prohibition of property transactions for assets containing illegal structures and requests for additional certificates of compliance during transactions⁹³.

In 2014, the government introduced two laws. First, Law 4269/2014 on regional and urban planning establishes a new planning system through a reorganisation and revision in the regulatory plans and framework. Law 4280/2014 on private urban development and forestry law provisions focuses on introducing a legal framework for private urbanisation schemes for areas over 50.000 square meters. Moreover, the law enacts a change in the classification and conditions under which public interest interventions in forests and forestlands are undertaken⁹⁴.

Finally, the "Control and Protection of the Built Environment" law 4495/2017 (*Έλεγχος και προστασία του δομημένου περιβάλλοντος*) aims to simplify and accelerate the procedures for issuance and control of building permits as well as review the framework to tackle and sanction arbitrarily built housing. The law, establish a structure called the "Structured Environment Observatory" dealing with the control and quality of the built environment⁹⁵. Moreover, the procedure for submission, control and issuance of building permits, as well as notification of execution of additional works, would be performed exclusively electronically under the responsibility of the engineer and the approval would be issued automatically, immediately after the submission of the required supporting documents, and data⁹⁶.

Insurance and liability related regulations

In Greece, there is no legal obligation to be covered by insurance when conducting construction work.

Even though Greece was planning to introduce such an insurance scheme, the project has not materialised, potentially due to its high implementation cost⁹⁷. However, voluntary

insurances for third party liability, professional indemnity risks and risks arising during the construction activity (Contractors' All Risks insurance – CAR) are available. Moreover, requirements related to insurance are specified in the general conditions of the contract, particularly in the case of public works or large private projects⁹⁸.

The **Civil Code** defines the principles of liability, as well as the duration of liability. Thus, according to Articles 692 and 693 of the Code, the contractor is liable for 10 years following the handover for defects in the building, and remains liable for any hidden defects. The construction contract also plays an important function in defining liability, since it can limit or extend the duration of liability⁹⁹.

7

Current status and national strategy to meet Construction 2020 objectives

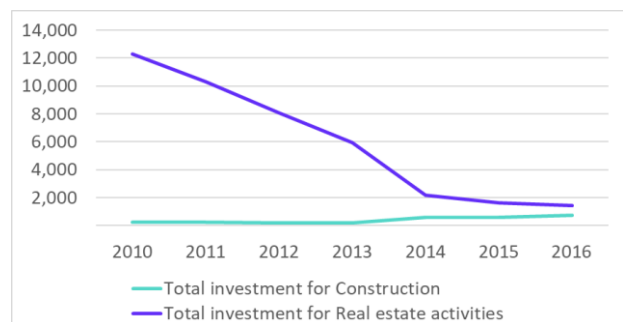
TO 1 – Investment conditions and volumes

Investment in the Greek construction industry as well as by the industry itself decreased dramatically since the economic and sovereign debt crisis, particularly due to severe spending cuts by the public sector and the collapse of private investment¹⁰⁰.

Indeed, total investment by the broad construction sector¹⁰¹, has been declining since 2010, due to the real estate sub-sector drop. This underscores the financial difficulties experienced in the sector (**Error! Reference source not found.**). However, investment by the narrow construction sub-sector increased by 222.1% from 2010 to 2016, from EUR 224.7 million to EUR 723.8 million. Investment by the real estate sub-sector experienced a significant drop, decreasing by 88.4%, from EUR 12,295 million in 2010 to EUR 1,432 million in 2016.

Investment in intellectual property products has followed a similar trend, it has also been increasing in the narrow construction sub-sector but decreasing in real estate from 2010 to 2016. It has increased from EUR 13.3 million to EUR 15.1 million (+13.5%) and from EUR 755.9 million to EUR 60.6 million (-92.3%), respectively.

Figure 9: Investment by the Greek broad construction industry between 2010 and 2016 (EUR m)

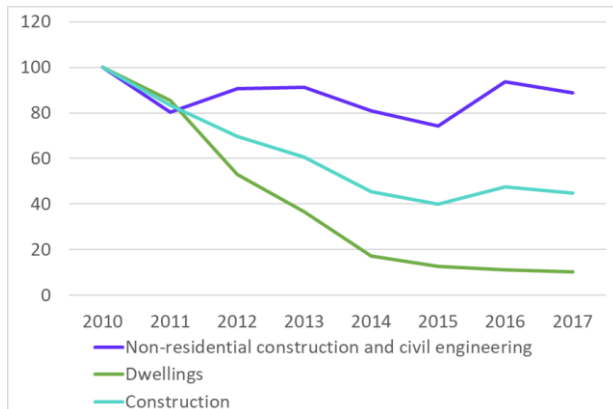


Source: AMECO, 2018.

Total investment in the broad construction¹⁰², sector fell by 55.2% between 2010 and 2017 (**Error! Reference source not found.**) reflecting the severe economic downturn. Investment in dwellings dropped by 89.9% from 2010 to 2017, highlighting the collapse of the residential market. Investment in non-residential construction and civil engineering fared comparatively better, decreasing by 11.2% from 2010 to 2017, however it has been stabilising after 2012 and slightly increasing on average thereafter. In 2016, investment in the broad construction sector totalled EUR 8.6 billion, out of which EUR 1.1 billion were invested in dwellings and EUR 7.5 billion were allocated to other buildings and structures.

Total investment in the broad construction sector between 2010 and 2017 ↓ 55.2%

Figure 10: Investment index in the Greek broad construction sector between 2010 and 2017 (2010=100)



Source: Eurostat, 2017.

Total inland infrastructure investment as a share of GDP dropped following the crisis, but has recently recovered from 0.7% in 2010 up to 1.3% in 2014. In particular, road investments have increased from 2010 to 2013¹⁰³, by 56.0%, going up from EUR 1.4 billion to EUR 2.2 billion. On the other hand, investments in rail and sea have dropped by 55% between 2010 and 2013. Thus, rail investment dropped from EUR 212 million to EUR 96 million, whereas sea investment decreased from EUR 73 million to EUR 33 million. Finally, investments in air increased by 29.0% from EUR 38 million to EUR 49 million over the same period. Furthermore, Greece has one of the lowest rail densities (17.16 km/km²) in the EU, highlighting the need for additional investments in this sector¹⁰⁴.

Investments in road infrastructures between 2010 and 2013 **↑ 56.0%**

Investments in air infrastructures between 2010 and 2013 **↑ 29.0%**

In Greece, infrastructure investment in the economy is defined in the Public Investment Programme (PIP), which is the main development policy tool and includes national and EU sources of funding¹⁰⁵.

For 2016, the PIP foresees a total allocation of **EUR 2.1 billion** for infrastructure, transport and

networks, consisting of EUR 2 billion of EU sources and EUR 100 million from national funds¹⁰⁶. Importantly, the average annual infrastructure investment of EUR 2.2 billion between 2009 and 2016 is 62% lower than the average annual infrastructure investment in 2006-2008 (EUR 5.5 billion)¹⁰⁷.

In addition, as part of the Greek Privatization Program, several infrastructure sites are awarded concession agreements. These include i.a. the Athens International Airport, the Thessaloniki port, the new Kastelli airport, or several hotels¹⁰⁸.

According to a recent report, investment needs (construction, upgrade and maintenance) of hotel units in Greece will amount to EUR 4.8 billion approximately till 2022. The same report states that the investment (Gross fixed capital formation) in houses has declined 96% in the last decade (2007 to 2016¹⁰⁹).

The funding rate of infrastructure through the State Budget declined to 15% in 2017 from 30%-45% in 2008¹¹⁰. As a result, EU funding has taken a primary role for public investment in the country including for infrastructure. For the period 2014-2020, more than EUR 35 billion have been allocated to Greece from various EU financing sources, such as the European Structural and Investment Funds (ESIF), the Connecting Europe Facility (CEF), Horizon 2020, and other programmes¹¹¹. Out of the total ESIF envelope for 2014-2020 (EUR 20 billion), nearly EUR 3 billion are earmarked for transport, financing for instance new tram- and railways, metro lines, as well as new motorways. For example, the underwater tunnel "Salamina" has an estimated budget of EUR 350 million and is expected to be started in 2019^{112,113}.

Currently, 75 infrastructure projects are planned to be delivered within the next 5 years, in the area of transportation, energy, water supply and waste management. In particular 27 refer to Roads and Ports, 17 to Rail and 10 to Waste Management and there is a remaining spending requirement of EUR 18.7 billion.

The European Investment Bank (EIB) is also heavily involved in Greece, with total investments totalling EUR 2.1 billion¹¹⁴. It provided EUR 815 million for transport and energy projects in 2014, out of

which EUR 300 million are allocated to motorway construction and another EUR 200 million are spent for the construction of the Thessaloniki metro¹¹⁵. Recently, in March 2017, the EIB has announced it has lent EUR 280 million to Fraport Greece in order to upgrade 14 regional Greek airports under the European Fund for Strategic Investments (EFSI)¹¹⁶. In total, 20 projects worth a total of EUR 1.7 billion were approved under EFSI¹¹⁷.

Finally, as part of the Memorandum of Understanding signed with the European Commission in 2015, Greece will develop a master plan for its transport infrastructure covering all types of transport modes (road, railway, maritime, air and multimodal)¹¹⁸. The second review of this support programme has been assessed positively by the EC, the ECB and the ESM in July 2017 as well as the third review in March 2018. The European institutions submitted a compliance report in June 2018 on the completion of all the agreed prior actions for the fourth review of the ESM programme.

In parallel, renovation spending has decreased from 2010 to 2016 by 58.3%. The renovation spending as a percentage of total household per capita disposable income went from 0.7% to 0.3% in the same period. At the same time, with increasing housing rental opportunities through platforms such as Airbnb, renovation investments may increase in future years¹¹⁹.

TO 2 – Skills

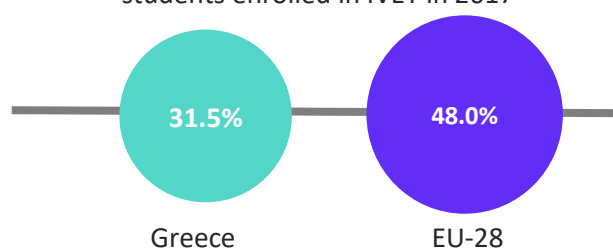
The construction sector in Greece experiences a lack of skilled workers and young specialists, linked to the negative perception about the sector.

Greece is characterised by a low level of participation in initial vocational education and training (IVET) (31.5%, compared to EU average of 48.0% in 2017¹²⁰), which often fails to attract talented young people, as it is considered ‘second choice’¹²¹. In addition, adult participation in lifelong learning is also very low compared to other EU countries. Indeed, the participation rate in Greece was at 4.0% in 2010. It has stayed constant up to 2016, compared to the EU average of 10.8%¹²². In addition, the employment rate of young graduates was 50.2%, slightly below the EU-28 average (54.8%) in 2016. There have been

efforts made in Greece to promote life-long learning, for example, through the Operational Program “Education and Lifelong Learning” or with the “Youth and Lifelong Learning Foundation”.

According to the results from the Build UP SKILLS Greece, by 2020 the construction sector will require around 45,000 to 115,000 additional workers. The highest need is for electricians and plumbers, followed by glaziers and frames installers, insulation technicians, heating systems installers and finally building frame and workers in related trades¹²³.

Rate of participation of secondary level students enrolled in IVET in 2017



In order to tackle the lack of skilled workers in the construction sector, the Greek government is taking several initiatives in vocational education. Since September 2013, the Greek government has initiated a number of reforms to strengthen VET education, such as the law 4186/2013 on secondary education, which introduced an optional final year of apprenticeship for vocational upper secondary school. Further reforms are expected as part of the 2015 National Reform Programme, such as the introduction of a quality assurance system for VET and the development of a method for skill forecasting¹²⁴. In 2016, ministerial decisions are under consultation in order to strengthen the quality of VET, as part of the reform agenda. Moreover, a National strategy for VET has been elaborated with the EC, which comprises the modernisation of the apprenticeship scheme¹²⁵. Other policies aiming to foster VET include a 2016 reform establishing the EPAL programme to reduce early overspecialisation; and another one establishing a one-year apprenticeship programme at post-secondary level to offer upper secondary VET graduates the chance to acquire labour-market-relevant skills and to support labour market entry¹²⁶. In addition, the Greek government implemented a coherent

national strategic framework for upgrading VET and apprenticeships.

In order to foster VET, an inter-ministerial committee is in charge of launching pilot partnerships with local authorities and employers. Overall, this would be aimed at increasing employer participation and private funding. Furthermore, discussions have taken place between the Greek authorities, the OECD and the EC in order to review the Greek educational system in order to support reforms by the government in VET and LLL policies¹²⁷.

The lack of skill forecasting is a challenge for developing appropriate VET curricula. Indeed, CEDEFOP estimated that the construction sector will create 56,000 new jobs in the period between 2013 and 2025¹²⁸. Furthermore, according to a study published by the Hellenic Federation of Enterprises (SEV), the skills required for construction need to be taken more strongly into account for the development of VET curricula, indicating a growing mismatch between industry needs and skill availability¹²⁹. In order to counter such problems, a new and more effective mechanism has been put in place in order to forecast the skills needed in the market¹³⁰.

Another important issue is related to the lack of established occupational rights for certain construction-related professions, such as ironworkers, builders, aluminium technicians, etc. This reduces the attractiveness of such professions and leads to low participation in related vocational upper secondary schools¹³¹.

Furthermore, as part of the BUILD UP Skills initiative, the **'National Qualification Roadmap'** was devised in order to obtain the necessary skills to meet the Europe 2020 targets and the requirements for 'nearly-zero-energy buildings'¹³². As a follow up on this roadmap, the BUILD UP project introduced three training schemes on energy efficiency (insulation technicians, aluminium and metal construction craftsmen, installers-maintainers of burners) and aims at having 23,650 graduate professionals until 2020. In 2017, the training program for installers-maintainers of burners is being conducted in Thessaloniki, while the program for the insulation technicians in Heraklion has been completed

together with the training in Athens and Heraklion for aluminium and metal constructors¹³³.

Finally, the Youth Employment Initiative supports young people not in employment, education and/or training (NEETs) with EUR 171 million for 2014-2015¹³⁴.

TO 3 – Resource efficiency / Sustainable construction

In 2008, Greek legislation was harmonised with the EU Directive on the Energy Performance of Buildings (2010/31/EU) through the implementation of Law 4122/2013 on 'Measures to reduce energy consumption in buildings and other provisions'. As provided by the law, the **Regulation on the Energy Performance of Buildings (K.En.A.K.)** was adopted. It defines an integrated energy design in the building sector to improve the energy efficiency of buildings, energy savings and environmental protection by introducing the preparation of a study on the energy performance of buildings, minimum energy efficiency requirements, Energy Performance Certificate, and inspections to buildings and installations (boilers, heating and ventilation systems)¹³⁵.

EU legislation and standardised environmental commitments mostly incorporate EU legislation and rules. Environmental licensing provisions (i.e. the approval of environmental terms for the execution of works) can mainly be found in Law 4014/2011, and in various ministerial decisions. Depending on the characteristics of the construction work and their environmental impact, different terms apply, allowing minimising the impact on the environment¹³⁶.

The Greek government published in 2017 their National Energy Efficiency Action Plan¹³⁷, which aims to reduce energy consumption by 20% by 2020 – i.e. reaching 18.4 Mtoe. This target was already achieved by 2015 (16.5Mtoe), due to the efforts of the Greek government but also the economic downturn¹³⁸. Most of the energy saving (32.7 GWh) came from the transport sector (19.0 GWh), followed by the residential and industrial sectors with 9.5GWh and 3.3GWh respectively.

In 2010, the Ministry of Environment and Energy introduced the Energy Saving at Home

programme¹³⁹, (*Πρόγραμμα Εξοικονόμηση κατ' Οίκον*), which provides financial incentives for energy efficiency interventions in residential buildings with a budget of EUR 396 million¹⁴⁰. Through the interventions eligible for support (replacement of window frames/panes, thermal insulation of building envelope, upgrade of heating/hot water systems), the programme aims to result in an energy upgrade of at least one energy class, or achieve annual primary energy savings of at least 30% of the reference energy consumption of the building. The extent of support varies according to the beneficiary's income, and consists of a combination of grants covering up to 70% of the cost of the interventions and interest-free loans of up to 85%¹⁴¹. So far, about 50,000 households have benefited from the scheme, with the performed interventions leading to energy savings of over 40%¹⁴². The programme was amended to simplify its bureaucracy and complexity, and provide support to more beneficiaries due to the exhaustion of funds in early 2014¹⁴³. The program was renewed in 2017 and is expected to subsidise 40,000 households in order to reduce energy costs¹⁴⁴.

Moreover, the **Building the Future Programme** (*Χτίζοντας το Μέλλον*) was launched in 2012 by the Ministry of Environment as a partnership between the public and private sectors, aiming to provide individuals with certified and high-quality products for the energy-efficient renovation of their building, at lower than market prices. The programme, foreseen to run until 2020, is expected to provide 3.1 million interventions in the Greek residential and commercial building stock¹⁴⁵.

Other programmes from the Ministry of Environment to promote energy efficiency in buildings include the **Mandatory installation of solar thermal systems in new residential buildings**. It aims to cover a minimum of 60% of hot water needs through solar energy¹⁴⁶. The **Green roofs on public buildings** (*Πράσινα Δώματα σε Δημόσια Κτήρια*) is another programme, aiming to promote the installation of energy-efficient roofs on schools, swimming pools and public administration buildings through a budget of EUR 15 million¹⁴⁷.

The programme 'Standard demonstration projects on the use of Renewable Energy Sources and Energy Saving Actions in new, under construction or existing buildings, gyms and swimming pools owned by local authorities and municipal enterprises of local authorities', financed a total of 71 projects, with a total public expenditure of EUR 32.9 million. This led to an energy savings rate of 54.6 %¹⁴⁸.

Two new measures for the energy upgrade of public buildings were put in place by the Greek government in 2018, mainly targeting the public sector. These include the Energy upgrading of public buildings; and the Holding Fund under the name 'Infrastructure Fund - Projects for the energy upgrade of public buildings. The 'Infrastructure Fund' was set up with Ministerial Decision No 6269/29.11.2017, and aims at maximising the use of the Financial Instruments to cover the financial gap, inter alia in the fields of Energy Saving and Promotion of Renewable Energy Sources (RES).

Given the importance of the tourism sector, a specific programme referred to as the "Green Programme" has been established by the government providing subsidies for energy efficiency and environmental protection measures alongside awareness-raising interventions with regard to the investment potential in the building sector. The targeted range for subsidies goes from EUR 15,000 to EUR 400,000, which is expected to cover 40-45% of the total investment¹⁴⁹.

Regarding Waste Management, since 2013, 15 Waste Management projects have been announced, amounting to approximately EUR 1.7 billion. Only two of them are implemented, while the remaining have been postponed¹⁵⁰.

In 2016, a public consultation was launched in order to write a new draft law introducing a mechanism for identifying environmental interventions related to construction works¹⁵¹.

TO 4 – Single Market

Greece scores moderately well in relation to the metrics of the EU Single Market Scoreboard. It improved its scoring relating to several criteria, such as the conformity deficit vis a vis EU directives; pending cases or compliance with court

rulings. However, the country scores unsatisfactorily regarding several indicators. These include public procurement (9 out of 12 criteria are rated unsatisfactory), and trade integration. Greece has the second lowest trade integration in the Single Market for goods (even though it increased from 2015 to 2016), and scores below average when it comes to services. Finally, when it comes to professional qualifications, Greece scores unsatisfactorily when it comes to positive recognition decisions, and average for quick positive recognition decisions¹⁵².

Poor performance in public procurement is particularly felt in the construction sector, which suffers from severe infringement, competition and public procurement issues. In case of **building materials**, there are a number of national provisions that negatively affect competition. For instance, for cement, the obligation for traders and distributors to set up a dispatching centre in Greece was found to constitute a hindrance to competition in the supply and trade, and may influence the price of cement. Moreover, the 2% fee on cement retail prices creates additional costs at the production and import level, restricting the entry of new suppliers on the market. Similarly, the minimum capital of EUR 500,000 and minimum storage capacity requirements for a company to obtain an asphalt trading licence also limit market entry and competition¹⁵³.

More broadly, in the construction sector, three issues are stressed in the 2017 Competition Assessment for Greece by the OECD. First, the classification within the Registries of bidders should not restrict them to participate in a tender, in cases where they meet the criteria described in the call. Moreover, it is emphasised that engineers and designers should have more possibilities to register in a greater number of categories than currently allowed. Finally, in order to offer guidance to contracting authorities and ensure more uniform implementation, guidelines and standardised documents should be issued¹⁵⁴.

With regard to public procurement in the construction sector, Greece was referred to the European Court of Justice (ECJ) in 2014 for non-compliance with Directive 2004/18/EC (now Directive 2014/24/EU) on public procurement.

The infringement was due to the **compulsory registration system** for all national construction companies, which divides them into classes based on budget ranges. During the tendering process, only companies belonging to classes that match the budget foreseen for the contract may be admitted by the contracting authority, thus automatically excluding a number of companies, which, though potentially suitable, have a greater financial capacity¹⁵⁵. This limits participation in tenders, restricts market access and hinders competition. In order to meet its EU membership obligations, the Greek Government thus introduced Law 4412/2016 in order to harmonise national legislation with EU Directives 2014/24/EU and 2014/25/EU. The new bill (now Law 4412/2016) on public procurement was voted in August 2016.

The Hellenic Competition Commission (HCC) recently provided evidence of the existence of a cartel in the construction sector, involving sixty construction companies, including both major national and international firms.

The cartel is suspected to have manipulated tendering procedures for major infrastructural projects (road construction, rail transport and concessions) involving EU funds, as well as price fixing and bid rigging, and has been operating between 1989 and 2016¹⁵⁶. Consequently, ERDF funding to Greece for 2014-2020 was temporarily suspended^{157,158}. In August 2017, 10 construction companies were fined EUR 80.7 million, found guilty to have been rigging the tenders for a series of public works¹⁵⁹. In this context, Law 4389/2016 introduced a cartel settlement process under the Greek Competition Act, aiming to reinforce anti-cartel handling procedures¹⁶⁰.

With regard to cross-border provision of construction services by EU service providers, a proposal for the **horizontal authorisation scheme** 'Register of building design engineers and construction supervising engineers' is underway. Its objective is to issue a personal ID to architects and engineers, which will be a necessary requirement for building permit applications. Thus, construction works will be linked to the responsible architect/engineer, ensuring the traceability of any emerging defect. This will also support the mutual recognition of cross-border

service providers, in line with the principles of the Services Directive (2006/123/EC)¹⁶¹.

As for the implementation of **Eurocodes**, Greece published National Annexes to all 58 Eurocode Parts, which are all published as National Standards. Eurocodes are not mandatory for structural design in Greece, and can be used in parallel to national standards and regulations. Indeed, contracting authorities can choose which regulatory framework to use in tender documents for the structural design of construction works. However, Eurocodes are typically the chosen option by public authorities in the case of public procurement contracts¹⁶².

TO 5 – International competitiveness



Greece ranks 57th out of 138 economies in the 2018 Global Competitiveness Index¹⁶³. It performs below EU average in terms of internationalisation of its SMEs.

In particular, SMEs internationalisation is impeded by several factors including insufficient information provision and burdensome customs formalities for internationalisation activities. More importantly, SMEs' limited access to finance represents the key barrier to the internationalisation process¹⁶⁴.

The **internationalisation of construction products** and services in the Greek construction sector has shown signs of improvement since 2009. In particular, export values of all construction-related products accounted for 22.0% of the total value of production in 2010. This share increased to 41.2% by 2015, signalling the growing importance of exports in the construction products market. This is considerably higher than the EU-28 average, which stands at 9.2%. In line with such an increase, the value of exports accounted for only 0.04% of the turnover of the architectural services sub-sector in 2014, which has doubled since 2010.

According to the "GPoC 2017 Global Powers of Construction" there are 3 Greek companies in the top 3 (81st: Ελλάδακτωρ, 91st: ΓΕΚ-ΤΕΡΝΑ and 92nd: J&P-AVAX¹⁶⁵).

Greek construction companies have been expanding their operations outside Greece as a result of the difficult domestic situation following the crisis. There has been strong activity particularly in the Middle East, with several Greek companies winning bids in the Gulf States (Dubai, Qatar, Saudi Arabia) for infrastructural and civil engineering projects (transport, retail and trading centres, ports, airports and renewables). For instance, Archirodon, a Greek company won a EUR 3.9 billion contract for the construction of a section of Doha's rail network. However, Greek construction companies in the Gulf operate predominately as sub-contractors¹⁶⁶. In addition, since the past years there are several Greek construction companies moving to Serbia, currently there are about 27 construction companies and according to the Embassy's Office of Economic and Commercial Affairs in Belgrade, there are many opportunities for further specialization¹⁶⁷.

According to the Association of Technical Companies of the Highest Classes (*Σύνδεσμος Τεχνικών Εταιριών Ανωτέρων Τάξεων* – STEAT), the Greek construction sector has been playing a leading role in country exports over the last years, with construction services generating EUR 845 million of foreign exchange in 2014. Therefore, STEAT openly requested the assistance of the government in actively supporting the export efforts of the sector^{168,169}.

Various initiatives have been introduced to promote the internationalisation of Greek companies, particularly SMEs (though none focuses per se on the construction sector).

For instance, the **GO International** programme, launched by Eurobank together with the three largest Greek export agencies under the auspices of the Ministry of Foreign Affairs, aims to support the internationalisation of Greek enterprises and strengthen Greek exports particularly in Central and South-eastern Europe and the Eastern Mediterranean, through the organisation of business meetings with potential foreign customers. Missions and meetings have been organised in Serbia, Romania, Cyprus and Russia¹⁷⁰. In addition, as part of the initiative, the **Exportgate** online portal was launched, providing a platform for networking, trade development and industry

analysis support, aiming to foster multilateral trade between Greek and international companies¹⁷¹.

Support to international trade for Greek companies is also provided by the European Investment Bank. In 2013, it launched the **Trade Finance Facility for Greece** encompassing EUR 500 million of financing. Under the instrument, the EIB provides Greek banks with guarantees on credit extended to companies, covering 85% of the risk and mitigating the risks of non-payment and default¹⁷². In June 2017, the Trade Finance Facility 2.0 was launched with the EIB activating EUR 400 million in guarantee facility in order to continue to support SMEs' exports.

Another measure introduced in order to foster internationalisation and facilitating trade in Greece is the single online contact point — the **General Exports Registry** (GEME). This single point of contact together with the implementation of a single window for exports is meant to create a suitable environment for increasing exports. Moreover, two programmes, namely the 'Internationalisation Business Competitiveness I and II' have been established for the provision of

financial instruments to promote internationalisation. In 2011, in order to promote foreign direct investments, to facilitate trade as a means to reduce the trade deficit, a strategy was launched for expanding Greece's exports. Furthermore, the launch of Enterprise Greece aimed to bridge local entrepreneurs' investment needs with international funds. In addition, the Ministry of Foreign Affairs established an online platform named the 'Market Ombudsman'¹⁷³. The goal of the platform is to provide advice, mentoring and assistance to Greek companies when they wish to carry economic transactions in countries within the EU or beyond. The services provided span from offering information on funding availabilities or on new business opportunities alongside seminars to raise awareness¹⁷⁴.

The Greek government developed the National action plan for an export strategy (*Εθνικό Στρατηγικό Σχέδιο Δράσης για τις Εξαγωγές*) in 2017 to support Greek exporters by upskilling them and providing them with relevant information.

8

Outlook

The economic crisis has severely affected the Greek construction sector, which used to be one of the main drivers of economic growth in the country. The sector faces a long way to revival in the post-EU bailout era.

However, the macroeconomic context is currently showing signs of stabilisation and revival, with GDP being predicted to increase by 1.9% in 2018, to EUR 190.6 billion, and further increasing by 2.3% in 2019 to reach 195.1 billion¹⁷⁵. With the implementation of new structural reforms, the improvements in business confidence, and new investments in residential and commercial construction projects, the industry's output value is expected to rise at a compound annual growth rate (CAGR) of 1.02% in real terms from 2016 to 2020¹⁷⁶.

Following a forecasted increase of production in the narrow construction, construction of buildings and construction of civil engineering between 2018 and 2020, the turnover of the broad construction sector is expected to increase by 2.4% in 2018 and 3.6% in 2019, reaching EUR18.0 billion. This is forecasted to translate into an increased value added of all construction sub-sectors except narrow construction. Notably the real estate activities value added is expected to increase by 10.9% and 12.0% in 2018 and 2019. Overall, the broad construction sector total value added is forecasted to grow by 2.9% and 4.1% in 2018 and 2019. However, labour productivity is forecasted to remain at the same level, or even decrease in the case of the narrow construction and manufacturing sub-sectors (-1.9% and -0.2% in 2018).

In parallel, the workforce employed in the broad construction sector in Greece will follow a similar trend, with a growth of 4.9% in 2018 and 5.9% in 2020, reaching close to 300,000 people. This growth will be driven by a forecasted 13.5%

increase in terms of people employed in the architectural and engineering activities and over 10% increase in the real estate activities in 2018 and 2019.

Activity in the infrastructure segment is projected to increase over the coming years, with a total pipeline of 69 projects amounting to EUR 21.4 billion up to 2022. 25% of these infrastructure projects, with a value of EUR 2.9 billion, were to be delivered in 2017¹⁷⁷. Moreover, the government's increased focus on strengthening the tourism sector may attract increased investments in the infrastructure markets¹⁷⁸.

Prospects for the **residential market** are also closely mirroring the state of the general economy. Indeed, the recovery of the housing market is tightly linked to household disposable income, employment and bank financing conditions. Since the general economy is seeing signs of stabilisation and recovery, with a positive GDP growth for two consecutive years, the housing market, including house prices, is projected to show signs of stabilisation as well¹⁷⁹. That being said, as long as there is an oversupply of housing, there will be limited opportunities for the construction of new housing.

Prospects for the **non-residential real estate** are negatively influenced by the low investor confidence and increasing investment risks. Although the EU bailout is over, demonstrating the EU trust in the recovery of the Greek economy, the political and fiscal instability weigh on investors' confidence¹⁸⁰. In turn, this undermines investment prospects in the Greek construction sector.

However, in line with the **residential housing market**, the retail real estate is showing signs of stabilisation and is expected to see increasing rental rates¹⁸¹. The situation in cities such as Athens, with a strong tourism sector, will provide

further opportunities for stability in the retail market and, consequently, in retail real estate¹⁸².

The outlook of construction industry is hence positive but fragile, relying on European and national public sector investments. Over the forecast period of 2016-2020, the industry is also expected to be supported by gradual improvements in business confidence, as well as subsequent public and private sector investments in transport, residential and commercial construction projects¹⁸³.

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