European Commission

European Construction Sector Observatory

Country profile Greece

March 2018

In a nutshell

The Greek construction sector is showing some signs of improvement in recent years, especially due to the continuation of TAP construction, after being severely hit by the economic crisis. However, the sector has not yet recovered, as the number of enterprises operating in the broad construction sector are 18.6% lower than in 2010 and production in the construction of buildings dropped by 58.8% between 2010 and 2016.

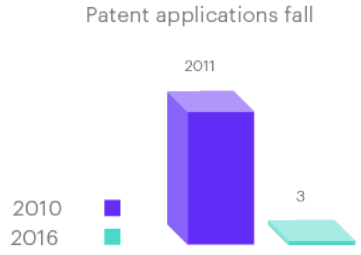
↓ 58.8%

Production in the construction of buildings dropped between 2010 and 2016

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 11.4% in 2010 to 22.3% in 2016) and the negative impact on purchasing power of certain austerity measures, such as higher VAT and real estate taxes. The lacking policy schemes in Greece in order to foster access to housing as well as the frequent policy changes further exacerbates the problem.

> 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 have also fallen from 2011 in 2010 down to only 3 in 2016. 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.



Investment by the broad construction sector has been declining since 2010, yet, it experienced a small rebound in 2015. Overall, investment by the construction sub-sector dropped by 1.6% from 2010 to 2015 from EUR 224.7 million to EUR 221.1 million. Total investment in the broad construction sector fell more sharply by 46.9% between 2010 and 2015 reflecting the severe economic downturn. The country has been granted the third Economic Adjustment Programme bailout package in August 2015, set to mobilise up to EUR 86 billion until 2018, which should positively impact the recovery process in the construction sector.

↓ 1.6%

Overall Investment by the construction sub-sector dropped from 2010 to 2015

↓ 46.9%

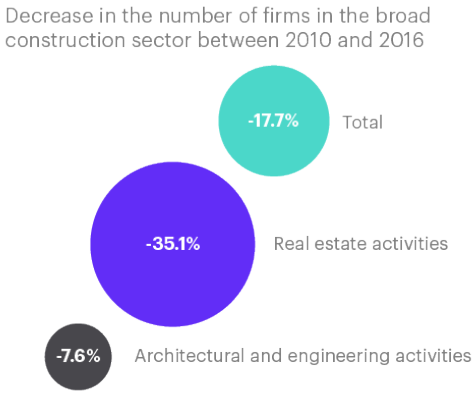
Total Investment by the construction sec fell more sharply from 2010 to 2015

The outlook of construction industry is projected to experience a real growth of 1.3% in 2017, driven by the government's effort to revitalize economic growth, coupled with substantial financial assistance coming through bailouts from major organizations such as the European Union (EU) and the International Monetary Fund (IMF).

The outlook of construction industry is projected to experience a real growth of 1.3% in 2017, driven by the government's effort to revitalize economic growth, coupled with substantial financial assistance coming through bailouts from major organizations such as the European Union (EU) and the International Monetary Fund (IMF). 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 projects.

1
Key Figures

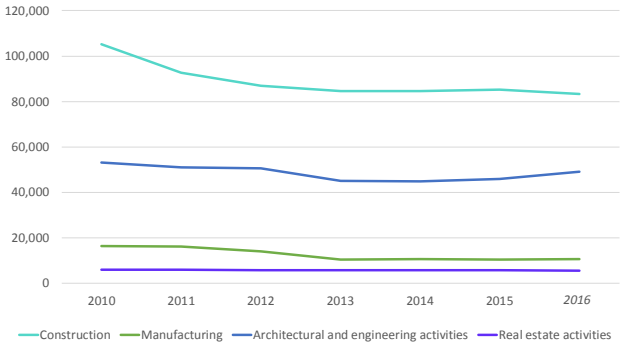
In 2016[1], 148,750 **enterprises** were operating in the broad construction sector in Greece, with the construction sub-sector (NACE F) accounting for 57.8% of the total firms (Figure 1). Compared to 2010, the number of firms operating in the broad construction sector decreased by 17.7%. The manufacturing sub-sector experienced the greatest drop (-35.1%), followed by construction (-20.8%) and architectural/engineering activities (-7.6%). Only real estate activities reported a slighter loss, with its companies declining by 4.9% since 2010.



Production in the construction of buildings dropped by 58.8% between 2010 and 2016, although it showed signs of stabilisation since 2012, without, however, fully reaching the pre-crisis level (Figure 2). This collapse goes in parallel with the drop in demand and the housing market crash following the crisis (see Access to housing). Similarly, production in civil engineering suffered from severe budget cuts and fall in infrastructure investments (see TO 1- Stimulating favourable investment conditions- Investment conditions and volumes), thus decreasing by 59.2% between 2010 and 2012. It subsequently started to recover, increasing by 62% between 2012 and 2016. However, it is still far from full recovery, standing 34% below the 2010 level.

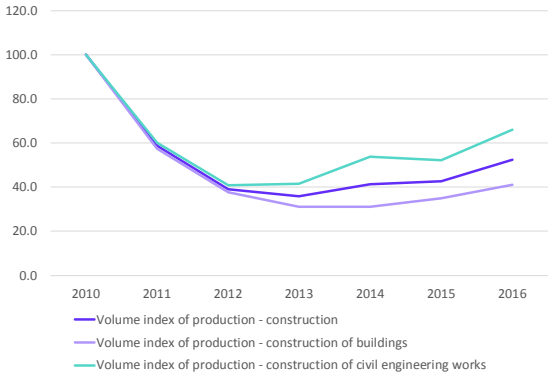
Production in the construction of buildings dropped between 2010 and 2016

Figure 1: Number of enterprises in the Greece construction sector between 2010-2016



Source: Eurostat, 2017.

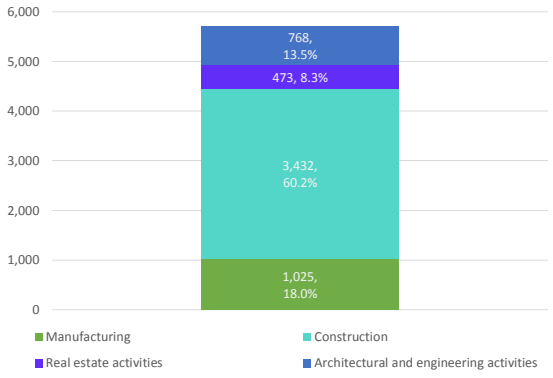
Figure 2: Volume index of production in the Greece construction sector over 2010-2016 (2010=100)



Source: Eurostat, 2017.

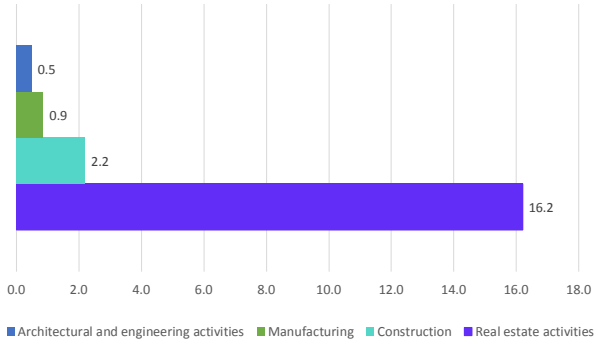
The total **added value**[2] of the broad construction sector amounted to EUR 5.7 billion in 2016[3], with the construction sub-sector contributing to 60.2% of this total (i.e. EUR 3.4 billion), followed by manufacturing (18.0%), architectural and engineering activities (13.5%) and real estate (8.3%) (Figure 3). The share of gross value added of the broad construction sector in the GDP reached 19.8% in 2014, with the real estate activities sub-sector having the largest contribution (Figure 4), which is almost 3 percentage point higher than the EU28 average, which stands at 16.9%.

Figure 3: Value added in the Greek construction sector in 2016 (EUR m)



Source: Eurostat, 2017.

Figure 4: Gross value added as a share of GDP in the Greek construction sector in 2014 (%)

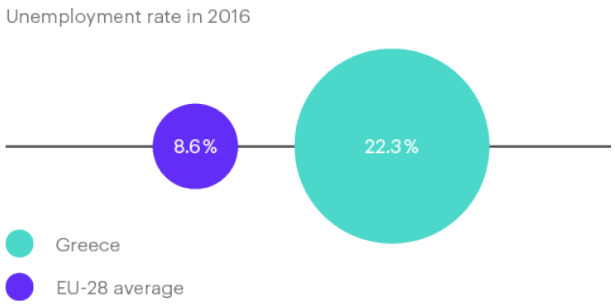


Source: Eurostat, 2017.

2
Macroeconomic Indicators

In 2016, Greece's **GDP** amounted to **EUR 184.5 billion**, the same as in 2015, but 22.5% lower than 2010. In 2016, the potential GDP was EUR 204.5 billion. The significant negative output gap, much higher than the EU28 average of -0.75%, suggests the important underutilisation of resources in the national economy and highlights the deflationary trend, due to the economic crisis. The **inflation rate** in Greece peaked in 2010 at 4.7%, 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%.

The overall **unemployment rate** in Greece reached 22.3% in 2016, considerably above the EU-28 average of 8.6%[4]. It has been decreasing since 2013 (25.5%) to reach the 2012 level, but it is significantly higher than 2010 (11.4%). Youth unemployment (below the age of 25) was at 47.3% in 2016, the highest rate in the EU, exceeding the EU-28 average of 18.7%, and much higher than 2010 (33.0%). Such 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[5 6].



The **total population** in Greece amounted to 10.8 million people in 2016. It is projected to decrease by 7.8% by 2030 and by 17.3% until 2050, reaching 8.9 million. These projections are also influenced by the net migration, which has been negative since 2010. 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. In 2016, Greece's working age population made up 64.3% of the total population, slightly below the EU-28 average of 65.3%. 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.

In 2016, **general government expenditure** in Greece accounted for 49.0% of GDP, which represents a decrease from the previous year (54.2%). In 2016, the **government deficit** stood at 0.7%, a significant improvement from -5.9 in 2015. General **government gross debt** accounted for 179.0% of GDP. Greece has been receiving financial assistance from the EU since 2010 through three subsequent Economic Adjustment Programmes. The latest Economic Adjustment Programme was launched in 2015 and is meant to provide Greece with EUR 86 billion over 2015-2018[7]. 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 modernise 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.)[8].

> Greece ranks 133st out of 137 economies in terms of financial market development, according to the 2017-2018 Global Competitiveness Report, underscoring how access to finance is one of the most problematic factor for doing business.

Ease of access to loans and venture capital availability place Greece at the 135th and 134th position respectively[9]. Furthermore, availability and affordability of financial services represent key challenges, even though both dimensions score slightly better than the overall ranking, at 131th and 132th, respectively. 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 2010[10]. 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)[11]. The European Central

Bank (ECB) has recently started to provide Greek banks with additional cheap liquidity in order to restore confidence in the sector[12]. 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 2008[13]. In fact, the downward trend is continuing, with new loans to SMEs having more than halved between 2014 and 2015. Moreover, no SME received growth or venture capital investments in 2015 in Greece[14].

Capital controls in force since June 2015 have played an important role in worsening the financing conditions. A recent sectoral study by the National Bank of Greece has shown that a rapid removal of capital controls is crucial in preventing structural problems for SMEs and in the current situation poses relatively little risk. The survey conducted shows that about one-third of SMEs will reinitiate postponed investment amounting to EUR 1 billion in the next six months[15].

3

Key economic drivers of the construction sector

Productivity

> Across the four sub-sectors, labour productivity increased only in the real estate sub-sector (Figure 5).

Even though the productivity of real estate activities declined from 2011 to 2012, it increased until 2016[16], reaching EUR 54,700 in 2016 from EUR 22,300 in 2010 (+145.3%). Conversely, productivity in the narrow construction sector has declined to EUR 17,800 in 2016 (-19.6%). Moreover, productivity in the manufacturing and architectural/engineering sub-sectors dropped by 20.8% and 37.9% over the 2010-2016 period, reaching EUR 31,200 and EUR 12,600 in 2016, respectively. At the same time, the productivity levels in all EU Member states increased by 7% in the four sub-sectors from 2011 to 2014.

Greece Narrow construction sector: ↓ 19.6%

Greece Real estate activities: ↑ 145.3%

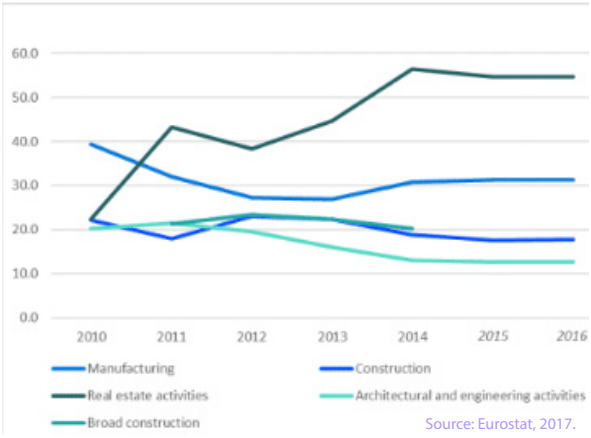
Labour productivity in the construction sector between 2010 and 2016

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 99.9[17]. According to a report from the McKinsey Global Institute, construction sector productivity growth in Greece has exceeded productivity growth in total economy over the period 1995-2015, growing on average by 1.5% annually, compared to 1% globally[18].

Profitability

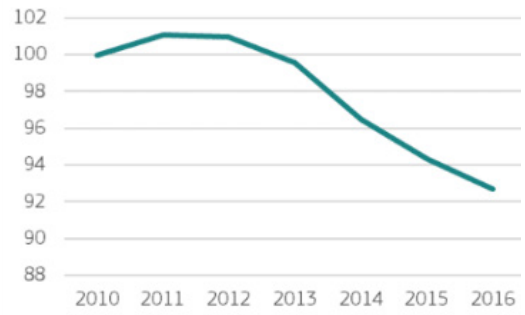
The total **turnover** of the broad construction industry in 2016[19] amounted to EUR 17.4 billion, a 24.2% decrease compared to 2010, but on the increase since 2014. The construction sub-sector generated 64.7% of total turnover, followed by manufacturing (18.4%), architectural and engineering activities (11.8%) and real estate activities (5.1%). The **gross operating surplus** of the broad construction sector amounted to EUR 3.9 billion in 2014, 8.9% lower than the previous year, and 34.7% below the 2010 level. The **gross operating rate** of the broad construction sector[20], which gives an indication of the sector's profitability, was 23.2% in 2014, well below the 58.4% reported in 2010, but above the EU28 average of 17.9%. This decrease occurred despite the 7.3% decline in the **construction cost index** over 2010-2016, mainly due to the 11% decrease in labour costs (Figure 6).

Figure 5: Labour productivity in the construction sector in Greece over 2010-2016 (EUR k)



Source: Eurostat, 2017.

Figure 6: Construction cost index over 2008-2016 (2010=100)



Source: Eurostat, 2017.

Employment

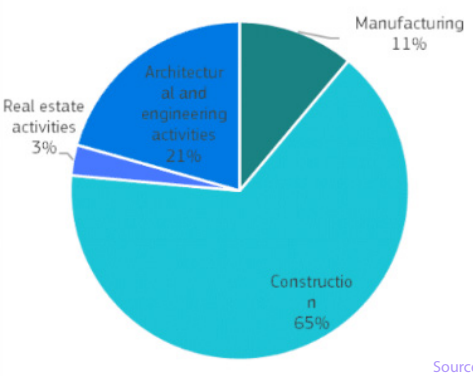
In 2016[21], the broad construction sector **employed** 295,555 people. Since 2010, the number of persons employed in the broad construction sector dropped by 20.2%, although some stabilisation has been

observed since 2014. The construction sub-sector employed 65.4% of the total construction workforce in 2016 (Figure 7), and has experienced a 20.4% decline since 2010. The manufacturing sub-sector was particularly hit, losing 38.6% of employees.

> As for employment by specific occupation, craft and related trade workers in narrow construction declined from 230,600 in 2010 to 102,600 in 2016 (-55.5%), though being the largest occupation in absolute terms.

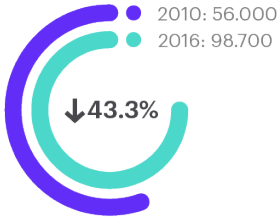
For elementary occupations and managers in narrow construction a relative decline was even higher – 72.1% and 79.7% respectively. Contrarily, the amount of professionals within narrow construction has increased by 15.8% between 2010 and 2016 to 8,800 people. For the real estate subsector, the amount of technicians and associate professionals declined just by 10.5% between 2010 and 2016, accounting to 3,400 people.

Figure 7: Percentage of people employed by construction sub-sector in Slovakia in 2016



Source: Eurostat, 2017.

In parallel, the number of **self-employed workers** in the construction sub-sector declined from 98,700 in 2010 to 56,000 in 2016 (-43.3%). They represent 5.3% of all the self-employed in the general economy in 2016. This is well above the EU28 average of 1.2%. Similarly, the amount of self-employed in the real estate sector dropped by 40.9% between 2010 and 2016, reaching 2,600 people in 2016 (0.2% of all self-employed people). Following a similar trend, the number of full-time employees in the construction sub-sector fell from 209,700 to 88,400 over 2010-2016 (-57.8%), while the part-time employment decreased by 60.1% in the same period. SMEs also play an important role in construction-related employment, employing 94.0% of the entire construction workforce in 2014.



Self-employed workers in the construction sub-sector

Business confidence

Business confidence in the overall economy has been negative over the last few years, with the **consumer confidence indicator** being at -68.0 in 2016, significantly lower than the -6.3 average level of EU Member States. Even though there have been some improvements since 2011, there has been an important year on year decrease since 2015, when the indicator stood at -50.7. **Industry confidence** is at a higher, but still negative level, being better in 2016 (-7.8) than in 2010 (-22.5), but worse than in 2014, when it stood at -3.4. The **construction confidence index** has been negative since 2004, reaching -47.4 in 2016. This is worse than the three previous years, although it has been improving overall since the lowest in 2011 (-68.3). Moreover, the **investment ratio** declined, reaching 11.4% in 2016, much lower than 2010 levels (17.6%) and considerably lower than the EU28 average, standing at 19.8%. In absolute terms, the investment per worker in construction has fell from EUR 100,600 in 2010 to EUR 50,600 in 2014 (-49.8%).

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 stands at -1.1 in 2016 and at -27.9 for the first 5 months of 2017[22].

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 criticises burdensome taxation and overregulation as the most important depreciation factors for the real estate and construction sector[23].

Domestic sales

The ranking of the most domestically sold construction products in Greece has remained relatively constant since 2010, with the exception of "Particle boards and similar boards of wood etc.", being replaced by "Prefabricated buildings of metal". Moreover, in 2015, "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 Table 1, including a comparison with the most sold in the EU-28. These represented 58.1% of total domestic construction product sales in 2015.

Greece			EU-28
Product	Value (EUR m)	Share in construction product domestic sales (%)	Product
Ready-mixed concrete (group 236310)	213.9	19.6	Other structures (group 251123)
Portland cement, aluminous cement, etc. (group 235112)	213.1	19.5	Doors, windows, etc. (group 251210)
Other structures (group 251123)	85.8	7.9	Ready-mixed concrete (group 236310)
Ceramic tiles and flags (group 233119)	63.3	5.8	Prefabricated buildings of metal (group 251110)
Doors, windows and their frames, etc. (group 251210)	58.7	5.4	Prefabricated structural components for building, etc. (group 236112)

Source: PRODCOM, 2017

Export of construction-related products and services

The ranking of the most exported products has remained relatively stable since 2010. In 2015, "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 79.2% of all construction products exports in 2015.

Greece			EU-28
Product	Value (EUR m)	Share in construction product domestic sales (%)	Product
Portland cement, aluminous cement, etc. (group 235112)	146.7	28.8	Ceramic tiles and flags (group 233110)
Marble, etc. (group 237011)	137.6	27.0	Other structures (group 251123)
Cement clinkers (group 235111)	79.0	15.5	Fibreboard of wood or other ligneous materials (group 162114)
Other structures (group 251123)	24.6	4.8	Marble, etc. (group 237011)
Other plywood, veneered panels and similar laminated wood (group 162112)	15.6	3.1	Doors, windows, etc. (group 251210)

Source: PRODCOM, 2017

In terms of cross-border provision of construction services, Greece exported EUR 500 million worldwide in 2016, and imported EUR 131 million, achieving a trade surplus of EUR 369 million.

Access to finance in the construction sector

In 2015, the share of bank credit to the construction sector was 12.9%[24].

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 sector was 5.8% in 2015. However, bank credit to the real estate increased by 27.2% between 2010 and 2015, but has known a 6.2% decline in 2014-2015[25]. 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%)[26].

Access to housing

The number of households in Greece has experienced a 1.3% increase since 2010, reaching 4.4 million in 2016. At the same time, the urbanisation rate in 2015 grew slightly compared to 2010, going up by 2 percentage points to 78%[27].

The **housing market** has declined significantly as a consequence 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 8,682 in 2015, due to the crisis. This is considerably lower than the EU28 average of EUR 18,463. 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.

Namely, 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 measure[28]. 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)[29]. The tax represents a financial burden for property owners, particularly for owners of larger plots, unrented properties and detached houses[30]. Overall, Greeks paid seven times more property taxes between 2009 and 2016 reaching the amount of EUR 3.5 billion[31].

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 cadastre[32]. 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.

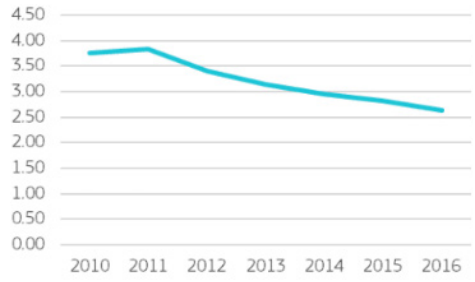
In parallel, **housing loans** to households decreased by 16.0% since 2010, with outstanding residential loans amounting to EUR 67.6 billion in 2015. Financing conditions, specifically credit standards, terms and conditions for loans to household for house purchase have become stricter in 2015 and remained stable in 2016, according to the Bank Lending Survey for Greece. On the other hand, the ratio of rejected loans applications to housing loans has declined in the first quarter of 2016. Overall, demand for housing loans has increased in Q1 2016[33].

Household loans decrease between 2010 and 2016

As a result of the fall in demand, **house prices** have experienced a sharp decline 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, respectively. Similarly, in the other cities of the country (except Athens and Thessaloniki), the house price index fell by 31.9%[34]. Despite the declining interest rates on mortgages (Figure 8) 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. Even though, there are signs of stabilisations, with only 2 less permits issued from 2014 to 2015, the overall decrease represents 80.2%[35]. The Eurostat indicator for building permits for residential buildings shows that there has been an 86.2% decrease in the number of building permits issued between 2010 and 2016, while on average there has been a 0.7% increase in EU Member States. Regarding new projects, 52,344 were started in 2010 compared to only 9,264 in 2015 (-81.6%). Again the situation is showing signs of stabilisation with a small decrease since 2014[36].

Figure 8: Mortgage rates for loans for over 5 years original maturity (%)



Source: ECB MFI Interest Rate Statistics, 2017.

In this context, housing **affordability** has become a pressing issue. In fact, 40.5% of the population is overburdened by housing costs. This number is lower than 2014 and 2015 figures, but 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 28.7% in 2016 up from 25.5% in 2010[37].

Infrastructure

Greece ranks 38th out of 137 for its infrastructure, according to the 2017-2018 Global Competitiveness Report . In particular, it performs best in terms of the quality of its port roads (44th), followed by port infrastructure (52th). However, Greece does less well in terms of air transport (53th) and railroad infrastructure (66th). 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).

Greece ranks 38th out of 137 for its infrastructure, according to the 2017-2018 Global Competitiveness Report[38].

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 2008[39]. Overall, between 2014 and 2017, 16 infrastructure projects were completed, valued at EUR 2 billion[40]. In the pipeline until 2022 are 69 infrastructure projects totalling EUR 21.4 billion. Public funding in Greece, specifically through the Public Investment Program (PIP) has gone down since 2010 to reach 2002 levels in 2016[41].

4

Key issues and barriers in the construction sector

Company failure

In Greece, the number of corporate insolvencies increased from 355 in 2009 to 392 in 2013 (+10.4%)[42]. 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 SMEs[43].

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%[44]. Namely, 60.6% of domestic B2B sales are made on credit, compared to 43.7% for foreign, 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 behaviour[45].

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Late payment

Overall, late payments are a longstanding problem in Greece, and have been aggravated in the current economic climate. Payment by Greek public administrations to SMEs was amongst the most delayed in the EU in 2017, with an average delay of 103 days, an 8 days improvement compared to 2016[46]. Moreover, the average time to make a payment as set in the payment terms agreed between the parties has decreased between 2016 and 2017. During the same period, payment delays also decreased, on average[47]. The construction sector has the highest levels of overdue payments in 2015 in the domestic industry, standing at nearly 60%, and the longest payment delays, averaging 46 days[48].

> In 2017, the construction sector is the second industry in terms of late payments (over 90 days on average) making up 11.8 % of the total of late payments[49].

Time and cost of obtaining building permits and licenses

Greece is ranked 58th in 2017 with respect to "**Dealing with construction permits**" by the World Bank, which lower compared to the previous year (the revised 2016 ranking is in fact 55)[50]. The country performs below average in granting construction permits, compared to OECD high-income countries. Building a warehouse requires 17 administrative procedures, (considerably higher than the OECD high-income average of 12.1) and takes 124 days compared to the 152.1 OECD average (Table 3). 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 level[51].

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 by EYDAP 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
Request and obtain structural inspection	1 day	EUR 450
Receive final inspection from independent engineer and receive sealed construction permit	5 days	EUR 600
Apply for water and sewage connection	1 day	EUR 61
Undergo investigation by EYDAP on the feasibility of the project	21 days	EUR 470
Obtain water and sewage connection	45 days	EUR 600

Source: Doing Business overview for Greece, Word Bank, 2017.

Skills shortage

The **job vacancy rate** in the construction has been low and continued to decline in 2010-2014, reaching 0.3% in 2014. Such a decline is linked to the 57.4% decrease in the amount of occupied jobs in the narrow construction 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 sector follows similar trend. The job vacancy rate grew by four times between 2010 and 2014. This was due, however, to the 54.0% shortage of occupied positions, rather than growth in the job vacancies. In fact, **job vacancies** in the 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 slightly compared 2010 (-3.1%), reaching 3,438 in 2014. Furthermore, adult participation in training in the construction sub-sector was 2.0% in 2010 and slightly decreased to 1.8% in 2016. This is considerably lower than the EU28 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 sector[52].

> 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 the 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 technologies[53].

Sector & 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 activity[54]. 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 statistics[55].

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 law[56].

> 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 on promoting information and education about waste prevention and engaging business[57]. 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[58 59].

Climate and energy

Emissions of greenhouse gases (carbon monoxide and dioxide, methane, nitrous oxides and particulate matter) from activities in the construction and real estate sub-sectors amounted to 227,705 tonnes and 7,471 tonnes in 2014, respectively. This represents a 40% decrease in emissions for the construction sub-sector and a 7% increase for the real estate sub-sector from 2010 to 2014.

5

Innovation in the construction sector

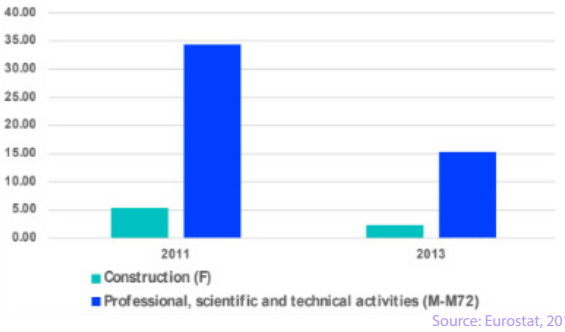
Innovation performance

Greece is considered a **Moderate Innovator** according to the Innovation Union Scoreboard 2017 and its innovation performance ranks below the EU average[60].

> Its areas of strength include Innovators, Attractive research systems and Human resources. Conversely, the country's relative weak areas are in Innovation-friendly environment, 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 50% in both the construction and the professional and technical activities sub-sectors between 2011 and 2013 (Figure 9). Specifically, BERD in the professional and technical activities dropped from EUR 34.4 million in 2011 to EUR 15.3 million in 2013 (-55.5%). Similarly, BERD in the narrow construction sub-sector declined from EUR 5.4 million in 2011 to EUR 2.4 million in 2013 (-55.8%), signalling the shortage of R&D activities.

Figure 9: Business enterprise R&D expenditure per construction sub-sector in Greece over 2010-2014 (EUR m)[61]



Source: Eurostat, 2017.

In addition to the declining expenditure in R&D, the amount of research personnel has also been dwindling. In terms of **R&D personnel**, 34 full-time equivalents (FTE)[62] were employed in the construction sub-sector, while 324 FTE were employed in the professional and scientific activities sub-sector in 2013. Compared to 2011 levels, FTE decreased in the professional activities subsectors (-39%) and increased in the construction sub-sector (240%), albeit from a very low basis (10 FTE). From 2010 to 2016, Greece has filed an average of 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 3 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 Scoreboard[63].

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 activity[64]. 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 priorities[65]. Among others, the strategy foresees the

clustering of the building materials 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 photo-voltaic systems (up to 10 kWp) on their rooftops. The electricity thus 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 gains[66].

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 technology, Greece is currently lagging behind[67].

Finally, the Electronic Building ID Code, discussed in Greece for now a few years is currently included in the draft law "Control and Protection of the Built Environment" (*Έλεγχος και προστασία δομημένου περιβάλλοντος*), submitted to the House in September 2017. This will allow all public entities to electronically monitor property ownership, radically changing the current situation[68].

6

National & Regional Policy & Regulatory Framework

Policy schemes

Social housing in Greece was under the responsibility of the **Workers' Housing Organisation** (*Οργανισμού Εργατικής Κατοικίας* – OEK), 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 loans[69]. 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* – OAED). 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**[70]. 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 Labor, EUR 6.5 million was credited to 17,486 beneficiaries in December 2016[71].

Moreover, the Greek government recently launched the National Strategy for Social Inclusion (NSSI) (*Εθνική Στρατηγική Κοινωνικής Ένταξης*), which sets 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 market[72].

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, that are homeless or are 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 scheme[73]. 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 with free help and advice in order to escape the vicious cycle of social exclusion[74]. In December 2015, four ready-made apartments were further made available for 20 families in similar conditions[75]. In 2017, a new building was created with 10 apartments to host 20 single-parent families. From April 2014 until today a total of 62 families, totalling 196 people have been hosted under the programme[76].

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 higher proportionally higher for large families[77].

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 on introducing such an insurance scheme, the project has not materialised, potentially due to its high implementation cost[78]. 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 projects[79].

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 liability[80].

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 environment[81]. 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.)[82]. 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'[83]. As for the execution of public works, this is defined by the Code of Construction and Public Works, which details the requirements for carrying out the works, the procedure for selecting contractors and award criteria, among others[84].

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.)[85].

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 audit[86]. This law has been slightly amended by the bill on Spatial Planning – Sustainable Development, passed in December 2016[87].

The government introduced Law, no 4178/13 on 'Tackling illegal building works, Safeguarding Environmental Harmony and other Provisions', aiming 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 transactions[88].

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 undertaken[89].

Currently, a draft law, namely the law on the "Control and Protection of the Built Environment" (*Έλεγχος και προστασία δομημένου περιβάλλοντος*) is expected 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, if passed, would establish a new structure called the "Structured Environment Observatory" dealing with the control and quality of the built environment[90].

7

Current Status & National Strategy to meet Construction 2020 Objectives

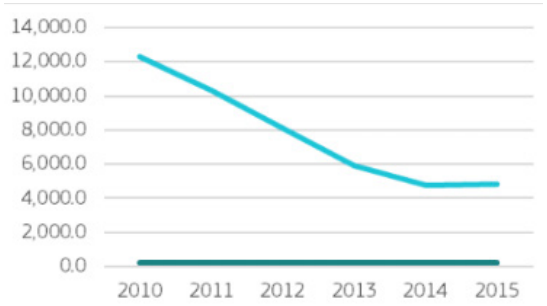
TO 1 - Investment conditions and volumes

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 investment[91].

Indeed, total **investment by the broad construction sector**[92] has been declining since 2010, with a small rebound in 2015. This underscores the financial difficulties experienced in the sector (Figure 10). Namely, investment by the construction sub-sector dropped by 1.6% from 2010 to 2015, from EUR 224.7 million to EUR 221.1 million. Investment by the real estate sub-sector experienced an even more significant drop, decreasing by 60.1%, from EUR 12,295 million in 2010 to EUR 4,779 million in 2015.

Investment in intellectual property products has also been declining from 2010 to 2015. This is the case for investment in intellectual property products by the construction and the real estate activities, decreasing respectively from EUR 13.3 million to EUR 9.6 million (-27.8%) and from EUR 755.9 million to EUR 136.0 million (-82.6%).

Figure 10: Investment by the Greek broad construction industry between 2010-2015 (EUR m)



Source: Eurostat, 2017.

Total **investment in the broad construction sector**[93] fell by 46.9% between 2010 and 2015 (Figure 11) reflecting the severe economic downturn. Investment in dwellings dropped by 89.0% from 2010 to 2016, highlighting the collapse of the residential market. Investment in non-residential construction and civil engineering fared comparatively better, decreasing by 1.8% from 2010 to 2016 and stabilising after 2012 and slightly increasing on average thereafter. In 2015, investment in the broad construction sector totalled EUR 9,106 million, out of which EUR 1,310 million were invested in dwellings and EUR 7,796 million were allocated to other buildings and structures.

↓ 1.6%

Investment by the construction sub-sector 2010-2016

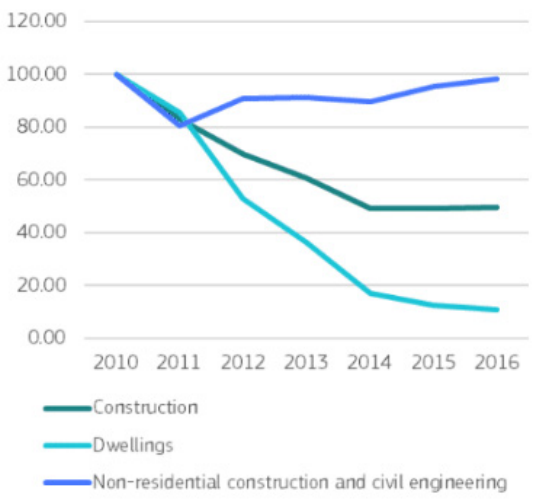
↓ 46.9%

Investment by the broad construction sector 2010-2015

↓ 60.1%

Investment by the real-estate sub-sector 2010-2016

Figure 12: Investment in the Greek construction sector between 2010-2016 (2010=100)

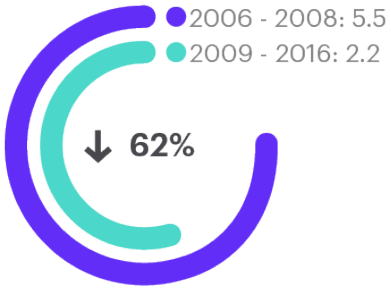


Source: AMECO, 2017.

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 2013, by 56%, 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 73 million to EUR 33 million. Finally, investments in air increased by 29% 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 sector[94].

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 funding[95]. 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 funds[96]. 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)[97].



Comparison of average annual infrastructure investment (billions)

Since 2008, the share of infrastructure funding through the national budget declined substantially from 30-45% to 11% in 2016. 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 programmes[99]. Out of the total ESIF envelope for 2014-2020 (EUR 20 billion), nearly EUR 3 billion are earmarked for transport, financing

> Currently, 69 infrastructure projects are planned to be delivered within the next 5 years, in the area of transportation, energy, water supply and waste management

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 expected to be started in 2019[100] [101].

In total, such investment will account for an investment of EUR 21.4 billion until 2022. The European Investment Bank (EIB) is also heavily involved in Greece, as it provided EUR 815 million for transport and energy projects in 2014, out of which 300 million are allocated to motorway construction and another EUR 200 million are spent for the construction of the Thessaloniki metro[103]. 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)[104].

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)[105]. The second review of this support programme has been assessed positively by the EC, the ECB and the ESM in July 2017.

TO 2 – Skills

> The construction sector in Greece experiences a lack of skilled workers and young specialists, linked with the low image of 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 2014)[106], which often fails to attract talented young people, as it is considered 'second choice'[107]. In addition, adult participation in lifelong learning is also very low compared to other EU countries. Indeed, the participation rate in Greece was at 3.3% in 2010 and has stayed constant until 2015, compared to the EU average which stands at 10.7%[108]. There have been efforts made in Greece to promote lifelong learning, for example, through the Operational Program "Education and Lifelong Learning" or with the "Youth and Lifelong Learning Foundation". The latter is a non-profit, public benefit institution which fosters educational welfare, provides youth support and lifelong learning.

> 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 forecasting[109]. 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 scheme[110].

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 policies[111].

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 2025[112]. 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 availability[113]. 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 market[114].

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 schools[115].

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'[116]. 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 constructors[117].

Finally, the Youth Employment Initiative supports young people not in employment, education and/or training (NEETs) with EUR 171 million for 2014-2015[118].

TO 3 - Resource efficiency / Sustainable construction

In 2008, Greek legislation was harmonised with the EU Directive on the Energy Performance of Buildings (2010/31/EC) 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)[119].

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 4014/2011,21 and in various ministerial decisions. Depending on the characteristics of the construction work and their environmental impact, different terms apply, allowing to minimise the impact on the environment[120].

In 2010, the Ministry of Environment and Energy introduced the Energy Saving at Home programme (*Πρόγραμμα Εξοικονόμηση κατ' Οίκον*), which provides financial incentives for energy efficiency interventions in residential buildings with a budget of EUR 396 million[121].

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%[122]. So far, about 50,000 households have benefited from the scheme, with the performed interventions leading to energy savings of over 40%[123]. The programme was amended to simplify its bureaucracy and complexity, and provide support to more beneficiaries due to the exhaustion of funds in early 2014[124]. The program was renewed in 2017 and is expected to subsidise 40,000 households in order to reduce energy costs[125].

> 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 stock[126].

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**, aiming to cover a minimum of 60% of hot water needs through solar energy[127], and the **Green roofs on public buildings** (*Πράσινα Δώματα σε Δημόσια Κτήρια*), aiming to promote the installation of energy-efficient roofs on schools, swimming pool and public administration buildings through a budget of EUR 15 million[128].

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 regards 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 investment[129].

> 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 works[130].

TO 4 - Single Market

> Greece scores moderately well in relation to the metrics of the EU Single Market Scoreboard, although its performance in terms of Transposition of law is above the EU average and, for some dimensions, among the best across the EU-28.

However, it shows poor performance in Infringements, Public Procurement and in the Mutual Recognition of Skills. In Public Procurement, there are below-average scores, inter alia, in the aggregation (i.e. the proportion of procedures with more than one public buyer), award criteria (i.e. the proportion of procedures awarded solely based on lowest price) and decision speed (i.e. the time between the deadline for receipt of offers and the award of the contract) indicators[131].

This situation is also encountered specifically in the construction sector, which suffers from severe infringement, competition and public procurement issues. Firstly, in the case of **building materials**, there are a number of national provisions that negatively affect competition. For instance, for cement, the obligation for traders and distributers 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 competition[132].

> 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 issued[133].

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 capacity[134]. 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/EU15 and 2014/23/EU16. The new bill (now Law 4412/2016) on public procurement was voted in August 2016.

Moreover, 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 2016[135]. Consequently, ERDF funding to Greece for 2014-2020 was temporarily suspended[136 137]. 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 works[138]. In this context, Law 4389/2016 introduced a cartel settlement process under the Greek Competition Act, aiming to reinforce anti-cartel handling procedures[139].

> 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)[140].

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 contracts[141].

TO 5 - International competitiveness

Greece ranks 86th out of 138 economies in the 2016-2017 Global Competitiveness Index[142].

It performs below the EU average in terms of internationalisation of its SMEs, with administrative conditions for importing and exporting being similar to other EU countries but with costs for documentary compliance in the case of exports being almost double than the EU average. The cost of exporting was estimated at USD 1,040 (EUR 937.4) in 2015, compared to the EU average of USD 1,042.1 (EUR 929.5), taking 15 days (against the EU average of 11.6) and requiring 4 documents (4.1 in the EU)[143].

The **internalisation 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 EU28 average, which stands at 9.2%. In line with such 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.

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, Saud 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-contractors[144].

> Various initiatives have been introduced to promote the internationalisation of Greek companies, particularly SMEs. 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 Russia. 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 companies[146].

> Support to international trade by Greek companies is also provided by the European Investment Bank through the EUR 500 million Trade Finance Facility for Greece, launched in 2013.

Under the instrument, the EIB provides Greek banks with guarantees on credit extended to companies, covering 85% of the risk and mitigating the chance of non-payment and default[147]. 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.

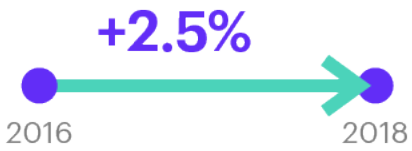
Another measure introduced in order to foster internalisation and facilitating trade in Greece is the single online contact point — the **General Exports Registry** (GEME). This single point of contact together with the implementation of a single window for exports is meant to create a suitable environment for increasing exportations. 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.

More recently, between 2015 and 2016, the Ministry of Foreign Affairs established an online platform named the 'Market Ombudsman' (www.agora.mfa.gr). The goal of such 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 awareness[148].

> However, no construction-specific support schemes are available. 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[149] [150].

8
Outlook

The economic crisis has severely affected the Greek construction sector, and its effects are still to be felt in the coming years. However, the macroeconomic context is currently showing signs of stabilisation and revival, with GDP being predicted to increase by 2.1% in 2017, to EUR 188.3 billion and further increasing by 2.5% in 2018 to reach 192.9 billion[151]. 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 2020[152].



The outlook for the construction sectors GDP

In parallel, the workforce employed in the broad construction sector in Greece is expected to pick up its increasing trend, rising by 1.3% in 2017 reaching 299,381 people. Similarly, the number of companies in the broad construction sector is forecast to rise by 3.7% in 2017 compared to 2013 levels, to 151,095. However, the value added of the broad construction sector should follow the opposite trend, as it is predicted to fall by 11.7% in 2017 compared to 2013, amounting to EUR 5.8 billion. On the other hand, the year-on-year increase from 2017 to 2018 is expected to increase by 1.9% to reach EUR 5.9 billion. This improvement will be accompanied by a 5.5% increase in the total turnover in 2017 compared to 2013, amounting to EUR 17.6 billion, with an additional 1.6% rise in 2018 (to EUR 17.9 billion).

Activity in the infrastructure segment is projected to be intense 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, are to be delivered in 2017[153]. Moreover, the government's increased focus on strengthening the tourism sector may attract increased investments in the infrastructure markets[154].

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 quarters, , the housing market, including house prices, projected to show signs of stabilisation as well[155].

Prospects for the **non-residential real estate** are negatively influenced by the low investor confidence and increasing investment risks. The political and fiscal instability of the country, and the uncertainty about the achievement of the surplus budget target upon expiry of the current bailout package in 2018[156], undermine 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 rates[157]. 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 estate[158].

The **outlook** of construction industry is projected to experience positive growth of 1.3% in 2017, driven by the government's effort to revitalize economic growth, coupled with substantial financial assistance coming through bailouts from major organizations such as the European Union (EU) and the International Monetary Fund (IMF). 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 projects[159].

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