Chapter 3

Construction

The construction sector includes construction of buildings and civil engineering works, and numerous categories of economic activity, such as new works, repairs, additions and alterations. Recent legislative reforms, in particular, in the area of public procurement, have aimed to simplify and codify the regulatory framework. Despite these efforts, issues remain, including reform of the registry-based classification system for market operators and eligibility for tenders, and the need to ensure that the price-list system – which forms the basis of tenders for public works – is functioning correctly and is regularly updated. E-procurement and e-monitoring of public works are expected to have a long-term positive effect both on the cost of public works and on public revenue, yet the necessary integrated or interoperable electronic information systems are still to be introduced.

3.1. Definition and economic overview

The construction sector covers several categories of economic activity. This study focuses on activities related to the design of works, as well as on construction activities for buildings and civil engineering works. The construction of buildings encompasses new works, repairs, additions, alterations and demolition works. The construction of civil engineering works covers mostly infrastructure works, such as roads, motorways, bridges, tunnels, railways and utility projects. The definition adopted is based on the European standard classification system (NACE), which groups core construction activities under group F.[1]

Construction activity is of great importance to the Greek economy. In 2013, a total of 85000 construction companies were operating in Greece, directly employing more than 193000 workers or 5.6% of the Greek labour force; the corresponding figure for the European Union is on average 5.5%. The Greek construction sector has a gross turnover of EUR 11.3 billion and contributes around EUR 4.3 billion in Gross Value Added (GVA) accounting for 3% of GDP in 2013, compared with an average of 5.3% for the European Union[2] (see Table 3.1).

Table 3.1. **General statistics, construction, EUR, 2013**

	Greece	EU-28
Number of firms	85 000	3 280 000
Employment	193 000	12 730 000
Gross turnover (€ m)	11 250	1 545 000
GVA (%)	3	5.3

Sources: ELSTAT and Eurostat's Construction Statistics Database.

The construction industry has strong upstream and downstream links with other economic activities and can contribute to the development of, for example, public and private investment projects, trade and manufacturing. Despite the significant contraction of the sector during and following the financial crisis in Greece (see Figure 3.2), its contribution to the Greek economy remains substantial. Given the positive spillover effects of the sector it is calculated that in 2013 it contributed around EUR 20 billion to the Greek economy, or 11% of GDP, 22% of which is estimated to correspond to taxes and charges levied by the state.[3] In terms of employment, the Greek Foundation for Economic and Industrial Research (IOBE) has estimated that for each job created in the construction industry a total of three jobs are created throughout the entire economy.[4] Taking into account these significant multiplier effects, the overall contribution of construction activity in Greece was estimated in 2015 at around 500 000 jobs. It should be noted, however, that despite the sector's significant multiplier effects, labour productivity when compared to the rest of the EU is particularly low.[5]

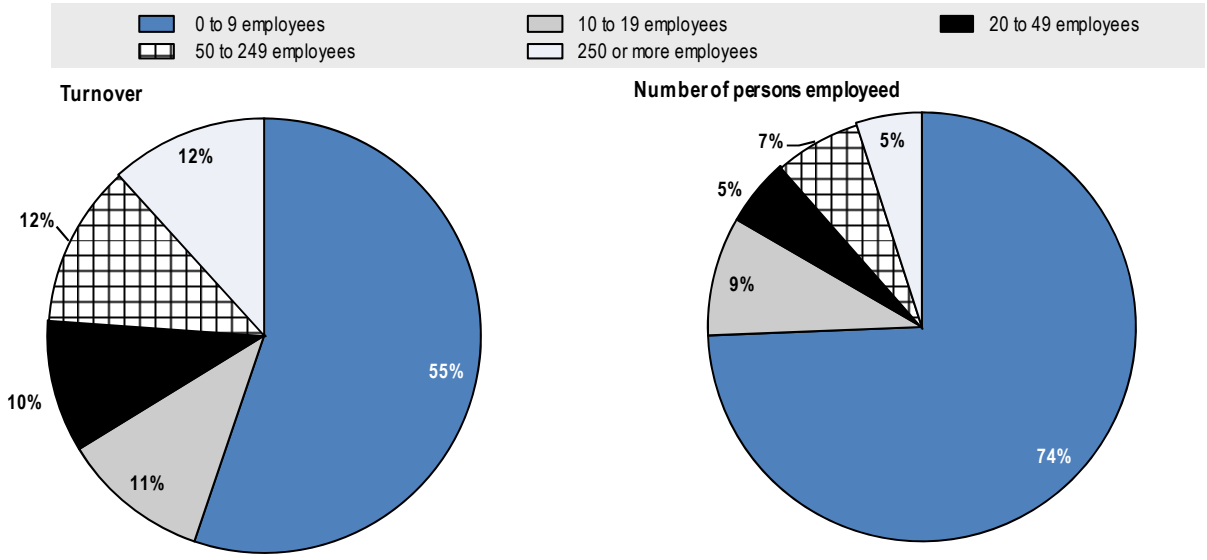
In the EU, the construction sector is dominated by micro enterprises, which are firms that employ fewer than 10 persons. In 2010, micro and small-sized (employing 10 to 49 persons) enterprises employed more than half of the sub-sector's workforce in nearly all of the EU member states. Data from Greece suggest that the make-up of the sub-sector in Greece is similar.[6] Table 3.2 and Figures 3.1 and 3.2 demonstrate the structure and composition of the domestic construction sector with regards to firms' turnover, value added and employment positions according to their size. It is clear that in Greece micro enterprises dominate the construction market in both their share of total employment and turnover. It is interesting to note how the prevalence of large and very large enterprises is expressed in the Greek construction market. Specifically, while large and very large firms employ 12% of the total construction employees, they make up for 24% of the market's total turnover.

Table 3.2. **Construction sector in Greece, general description, 2013**

	Micro and small enterprises (0-49 employees)	Large and very-large enterprises (>50 employees)
Employment	88.0%	12.0%
Turnover	76.0%	24.0%
Value added	66.5%	33.5%

Source: Eurostat, Construction Statistics, epp.eurostat.ec.europa.eu, accessed April 2016.

Figure 3.1. **Turnover and employment by firm size, 2013**



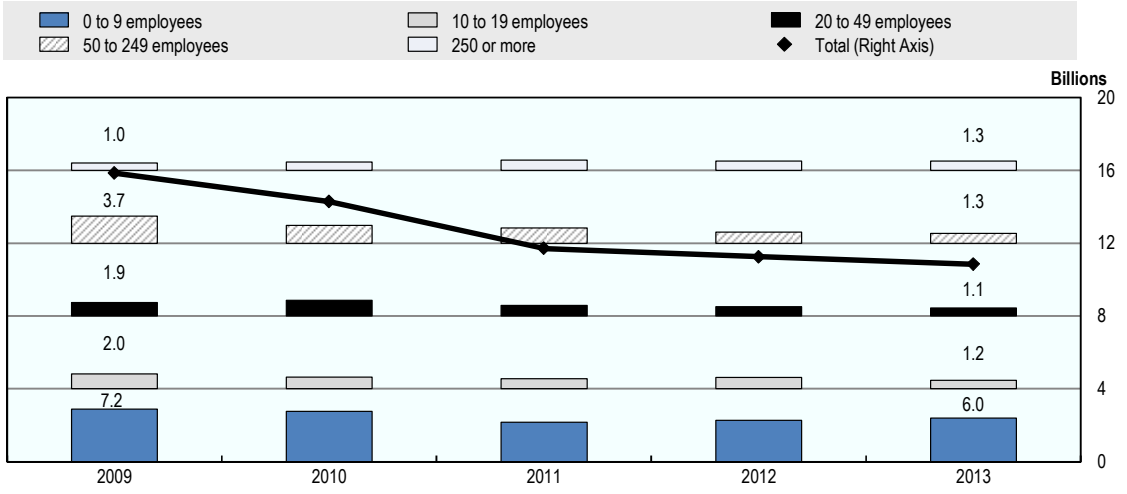
Source: Eurostat, Construction Statistics, epp.eurostat.ec.europa.eu, accessed April 2016.

Following the NACE definition, the construction sector can be broadly divided into two sub-sectors: the construction of buildings and the construction of civil engineering works. Across the EU, there are significant differences in the relative importance of these two sub-sectors within the construction sector: buildings account for nearly three quarters of total construction activity in Member States.[7]

Impact of the financial crisis on construction activity

The construction sector, and the construction of buildings subsector in particular, has a highly pro-cyclical character. The financial crisis that started in 2008 has had profound effects on the sector across the EU: according to data from Eurostat, the level of total construction activity in the EU was in constant decline during the six-year period between 2008 and 2013.[8] In Greece, the financial crisis prompted a significant drop in domestic construction activity. As depicted in Figure 3.2, the construction sector's total turnover declined by 32% between 2009 and 2013, while the total number of enterprises active in the industry fell by 25%. Firm closures and bankruptcies have significantly increased in the past few years, weakening economic activity. The downturn further consolidated the market as it was mostly felt by small and medium-sized firms: throughout the 2009-2013 period: two thirds of enterprises employing between 20 and 249 employees stopped their operations.[9]

Figure 3.2. **Turnover by firm size, 2009-2013**



Source: Eurostat, Construction Statistics, epp.eurostat.ec.europa.eu, accessed April 2016.

Infrastructure investment in public works has also been significantly affected by the economic crisis. According to a recent PwC report,[10] the total value of new infrastructure projects in Greece decreased by 75% in the 10 years between 2006 and 2015. This corresponds to a compound decline in new infrastructure investments of EUR 50 billion (equivalent to about 3% of the Greek GDP) over this period. When compared with the EU average, the same report estimates that the gap in infrastructure investment ranges between 0.8% and 1.3% of GDP – a share that translates to about EUR 2 billion a year. The Greek Centre of Planning and Economic Research (KEPE) has estimated that investments in infrastructure have an economic multiplier of approximately two.[11] As such, investment in public infrastructure can generate and boost demand in a significant number of other sectors such as tourism, manufacturing and commerce, as well as overall urban development. The contraction in infrastructure investment during the past decade has therefore had wide-ranging effects, particularly considering its potential for creating direct growth and employment opportunities, as well as its positive spillover effects for the entire economy.

3.2. Sector overview

The mapping of the relevant regulatory framework for the construction of buildings and civil engineering works included 250 sector-related laws, presidential decrees, ministerial decisions and circulars. At the time of the mapping process, the legislation covering public designs and public works included two core (codifying) laws, which were accompanied by numerous ministerial decisions and circulars. These ministerial decisions and circulars were mostly concerned with the following: operation of registries of designers and contractors; pricing; technical specifications; and standardised documents for procurement of public designs and public works. In addition, the core law on public-private partnerships (PPPs) was screened. Finally, other legislation governing both public and private designs and works, including provisions on urban planning, spatial planning, and the environment, was also reviewed.

Until 2016, the regulatory framework for all public designs and works, concessions and PPPs incorporated the provisions foreseen in the relevant EU legislation, but was only partly codified. This incomplete codification meant laws remained largely fragmentary and included numerous exceptions in the form of special tendering regulatory framework. Law 4281/2014[12] aimed to simplify and codify the

existing regulatory framework, abolished special regimes, and harmonised the regulatory framework with EU rules on public procurement for public tenders valued below EU thresholds for public procurement. Apart from a number of provisions, however, this legislation never came into force and it was ultimately repealed.[13]

The Greek Government, in line with its EU membership obligations, introduced Law 4412/2016[14] in order to harmonise national legislation with EU Directives 2014/24/EU[15] and 2014/23/EU.[16]

The new bill (now Law 4412/2016) on public procurement was brought before the Greek Parliament and was eventually voted in August 2016 during the drafting of the OECD's Competition Assessment report. The OECD was invited to comment on potential competition concerns arising from certain provisions of the law and the outcome of this consultation is reflected in the law's final version. More specifically, the OECD addressed and commented on 24 provisions of the draft law; these comments were assessed and/or implemented by the Greek authorities. More specifically, the OECD commented, among others, on: the categories of public designs (as defined by the national regulatory framework) and emphasised that these should not be any more restrictive than the list provided in the Directive 2014/24/EU; advised for a clear and uniform approach as to the definition of preliminary works; recommended that technical specifications should focus on functional performance (namely on what is to be achieved, rather than on how it is to be done) in order to attract the highest number of bidders in tenders; suggested that the authorities should issue guidelines on the application of the criterion of the most advantageous offer in order to improve the quality of designs and avoid the award of a contract without any technical evaluation of the offer; and emphasised the importance of clarifying time limits and the liability of designers – after the delivery of their design and during their acting as technical advisors to this same work.

Law 4412/2016 aims to codify the existing framework on public designs and public works. Yet it recites and retains in force almost all pre-existing provisions concerning registries of public works contractors and designers, pricing for construction works, and the execution and monitoring of public works. These provisions were also examined in the context of the Competition Assessment, together with the draft law as provided at the time by the Greek authorities,[17] and taking into account the recital and general provisions of the new law. With respect to the design of public procurement, the provisions carried over from pre-existing legislation were reviewed alongside the provisions introduced by Law 4412/2016, mainly concerning preliminary works, the participation of the designer in the execution of the main work, and the maturity of works.[18]

More specifically the new Law has introduced a number of provisions regarding the procurement of mature works, as well as provisions relating to preliminary works, with a view to making the procurement of designs and the execution of works more effective. However, the organisation of tender processes, an issue closely connected to the maturity of works, remains largely unchanged in the new law. The legislation grants the contracting authority discretion when launching a tender.

The decision on the tendering process for works, concessions or PPPs is left to the contracting authority or reserved for special committees. The decision-making process itself does not appear to follow standardised procedures, nor are there any rules requiring that the relevant information be made publicly available.

With the exception of a few provisions, the new law does not provide a standardised procurement method. However, it does foresee the publication of standardised documents for various categories of works, with uniform terms and criteria for works falling within each category. These documents would be binding for contracting authorities.

Overview of current legislation

Registries of public works contractors and designers have had an important function in organising procurement for public works and designs: all Greek economic operators participating in tenders for such works are registered in the corresponding registries. Provisions on registries were found scattered in various laws and their amendments, and ministerial decisions.

Contracting authorities are required to use price lists established by ministerial decisions to compile budgets for public works. Price lists are similarly used to update the prices and costs of works for the duration of the contract. Currently, they appear not to be consolidated and, more importantly, not regularly updated.

In the area of electronic procurement (e-procurement) and monitoring (e-monitoring), the new law relies on and recites the previous legal framework. More specifically, provisions concerning the execution and monitoring of works, such as provisions on measurements and the "diary of works", were found unchanged in Law 4412/2016.

Public-private partnerships (PPPs) are mainly governed by a single piece of legislation, Law 3389/2005[19]. The terms included in the PPP contract award describe the specific terms pertaining to each partnership. The private partner to the partnership forms a special -purpose vehicle, which is made liable under the terms of the contract and assumes the risk for the effective execution and operation of the project. PPP contracts were, initially, not made publicly available; however, by virtue of early amendments to the corresponding law, they are now published in the Electronic Registry for Public Procurement (KHMDHS). Recently adopted laws 4412/2016 and 4413/2016[20] , also include provisions regulating PPPs.

The regulatory framework on spatial and urban planning is not codified, with relevant provisions scattered across various types of legislation. The general framework for spatial planning has been revised several times. Recent varied amendments to building regulations and the supervision mechanisms reflect efforts by the legislator to create a more coherent regulatory framework. At the time of writing of this report, a public consultation has been launched for a new draft law establishing a mechanism for identifying environmental interventions related to construction works. Finally, the general and regional frameworks concerning urban planning and sustainable development have also been revised, to take into account the current urban status quo.

Environmental provisions mostly incorporate EU legislation, while standardised environmental commitments follow equivalent EU rules. Provisions on environmental licensing (i.e. the approval of environmental terms for the execution of works) can mainly be found in Law 4014/2011,[21] as well as in various ministerial decisions. Terms and procedures may differ depending on the specific characteristics of the work in question and the potential impact on the environment. Exceptions are foreseen (for example, in the case of EU co-funded projects, or waste-management projects) to allow for more flexibility in executing certain works, while taking into account compliance with environmental standards and ensuring the least environmental impact.

3.3. The system of registries: categories of works and classification of companies

Description and objective of the provisions

The participation of economic operators in tenders for public works and designs is governed by rules and procedures that aim to ensure that contractors and designers[22] who are awarded the contract are capable of completing the works and designs, respectively, according to the provisions in the call for

tenders. The remainder of this section reviews the relevant provisions, namely Articles 92-107 of Law 3669/2008[23] and Article 75 of Law 4412/2016 for public works; Article 39 of Law 3316/2005[24] and Article 76 of Law 4412/2016 for designers.

To participate in tenders for public works, individuals are required to be registered in the Registry of Acquired Experience (MEK). Construction companies must register with the Registry of Contractors (MEEP).

Registration in MEK is reserved for those individuals whose academic qualifications enable them to execute the works in question. They are registered in the categories of works in which they specialise (for example, road works, hydraulic works, green projects). Their registration and certificate also reflects their specialisation and professional experience, the latter being determined by the number of years since the award of their university degree, the projects they have executed in the public or private sector, or a combination of the two.

Companies are registered in MEEP by categories and classes. They can register in one or more categories of works, depending on their specialisation (see further below); and they are assigned one class, on the basis of criteria set out by the law, principally their financial viability (see Box 3.1),the number of personnel they employ and their fields of specialisation. A company may only be registered in one class for each category of works. There are currently 14 categories of works and seven primary classes. Small companies with specific minimum staffing and financial capacity or fixed assets can be registered in two lower additional classes.

Company registration in MEEP and registration of individuals in MEK are linked. Companies demonstrate their experience (a classification criterion) and the categories of works they can execute based on the qualifications and corresponding certificates of the MEK-registered individuals they employ. Individuals registered in MEK may use their certificate/degree on behalf of one company only – in other words they must "declare' their association with a single firm. Companies are also obliged to keep their personnel unchanged for two years following their first registration in a class. A company's classification is subject to review in the event of personnel changes.

The categorisation and classification of a company is reflected in the call for tenders and the company's eligibility to participate in such tender. More specifically, a company is only allowed to bid in tenders for those categories of works in which they are registered. Moreover, each class is associated with certain contract -value ranges; companies in a certain class (or classes) can participate in a tender for works of a given budget as described below.

Up until 2014, companies were only allowed to participate in tenders with a budget that fell within the range defined for their respective class; in other words, a call for tenders would invite bids from companies belonging to one class of MEEP only. In August 2014, lower thresholds for the participation of a company in a tender were abolished[25] so that a call for tenders could invite bids from companies belonging to a specified class of MEEP, as well as all classes above it. Upper thresholds were set to be abolished with the issuance of a presidential decree detailing the terms under which companies would be allowed to participate in tenders above their class. This presidential decree, however, has never been issued and, consequently, upper thresholds are still not abolished.

According to Law 4412/2016 companies are obliged to register in specific categories of works and specific classes; however, the law does not seem clear as to whether class registration still serves as a participation criterion in the sense that a company would be prohibited from participating in a tender if not registered in the specific class (classes) associated with certain contract value, provided that it can prove that it satisfies the criteria set by the call for tenders.

The thresholds for participation in tenders differ in the case of partnerships between firms. Economic operators are allowed to form a joint venture (JV) and participate in tenders on the condition that they only partner with operators registered in the same class. In such cases, companies belonging to classes up to the fifth class can bid for tenders with a budget of up to 25% of the difference between the upper threshold of their class and the upper limit of the class above, provided the parties to the JV each take at least a 30% share of profits or losses.[26] For companies belonging to the sixth class, the upper threshold is EUR 60 million and each company's required share of profit and damages is 25%.

Table 3.3 and Figure 3.3 below show how the classes and participation of economic operators are formed according to the estimated budget of works, together with how participation thresholds are amended in cases where firms participate in JVs.

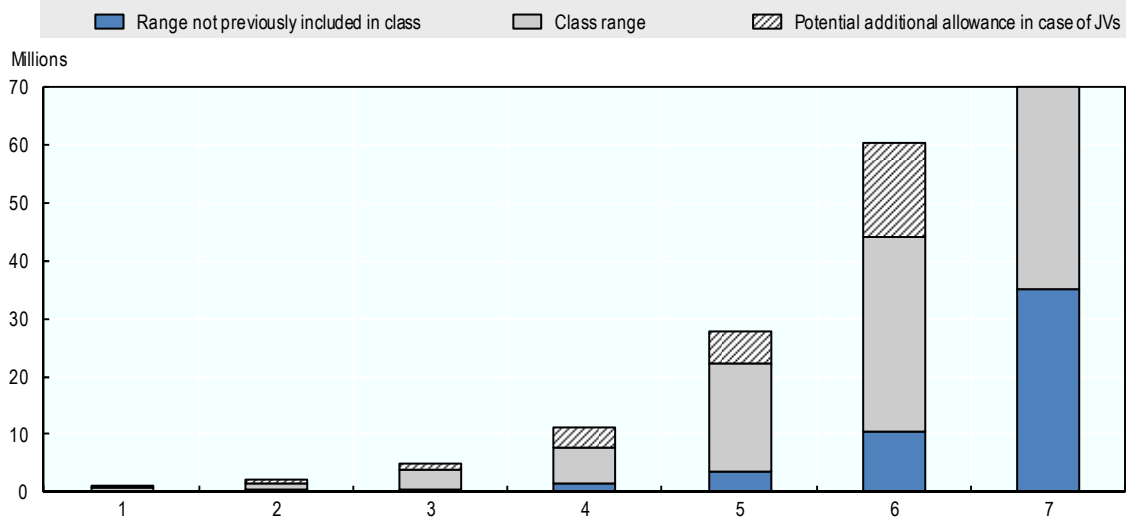
Table 3.3. **Registry of Contractors (MEEP) – tender value thresholds by class**

Class	Lower limit (€)	Upper limit (€)	Upper limit – adjusted for JVs (€)
7	35 000 000		
6	10 500 000	44 000 000	60 000 000
5	3 500 000	22 000 000	27 500 000
4	1 400 000	7 500 000	11 125 000
3	500 000	3 750 000	4 687 500
2	175 000	1 500 000	2 062 500
1		750 000	937 500
A2		300 000	412 500
A1		90 000	142 500

Note: Lower limits were abolished in August 2014.

Source: Based on Article 102 of Law 3669/2008 and Article 76 of Law 4412/2016.

Figure 3.3. **Registry of contractors (MEEP) – tender value thresholds by class**



Source: Based on Article 102 of Law 3669/2008; and Article 76 of Law 4412/2016.

The MEEP Committee is responsible for accepting or rejecting applications by companies for registration in the Registry of Contractors. Once registered, companies are obliged to notify the MEEP Committee of any change in their structure. Information on the classification of companies and

individuals is included in the electronic registry of the Directorate for Registries of the Ministry of Infrastructure, Transport and Networks.

For public -works designers, individuals and companies are obliged to register with the Registry of Designers Design Offices (MM). Participation in tenders for designs of public works is conditional on registration. Also, design companies must primarily engage in the design of works: neither registered design companies nor their affiliates are permitted to engage in non-design activities, such as the execution of public works.

Designers can be registered only in a limited number of categories (see below); their registration reflects their level of professional qualifications and their experience. Similarly to MEK-registered individuals, designers are only permitted to register with one design company.

Harm to competition

All the registries outlined above – Registry of Designers and Design Offices (MM), Registry of Acquired Experience (MEK) and Registry for Contractors (MEEP) – serve as a pre-selection process tool, filtering individuals and companies that wish to participate in tenders according to their professional skills, experience and financial capacity, and classifying them accordingly. The contracting authority, when initiating a call for tenders, matches the budget and nature of the project being procured with the relevant classes in question. This means that the pool of potential participants for any tender is known in advance.[27]

OECD best practices[28] (2011) suggest that procuring authorities should avoid unnecessary restrictions that may reduce the number of qualified bidders. Moreover, any minimum requirements should be established in respect of the size and content of the procurement contract rather than the size, composition or nature of firms that are eligible to submit bids.[29]

The way the Registries are organised in the context of procurement of public works and designs can produce three effects that potentially reduce competition, both directly and indirectly.

First, making class registration a requirement for participation in a tender creates direct barriers to entry. Compulsory tendering according to registries' classes may limit the number and range of qualified suppliers by granting exclusive participation rights to companies belonging to the designated classes; excluding those economic operators that are not included in the class summoned in the call for tenders.[30] Limiting eligible operator participation hinders competition and may result in worse pricing outcomes. This is empirically analysed in detail in Annex 3.A1 of this report: based on data for all complete tenders awarded through an open procedure for the eight years between 2009 and 2016 in Greece, an additional offer is shown to result in a 14.7% increase in the level of discount offered by the winner.

Box 3.1. **Requirements for participation in tenders for public works**

A company wishing to be registered into a specific class in the Registry of Contractors (MEEP) must meet a number of technical and financial criteria, including:

- experience of similar works and gross turnover in the previous three years (e.g. Table 3.4., column 1);
- financial viability, such as equity, bank deposits and fixed assets (e.g., Table 3.4, columns 2 and 3);
- minimum staffing, such as number and qualifications of technicians in the contractors' acquired experience registry (MEK).

Table 3.4. **Minimum gross turnover, equity and fixed assets per class registered in the Registry of Contractors (MEEP)**

Class	Minimum gross turnover (in EUR thousands)	Minimum equity (in EUR thousands)	Minimum fixed assets (in EUR thousands)
3	2 025	750	150
4	4 125	1 500	300
5	11 250	4 500	900
6	22 500	9 000	1 800
7	135 000	90 000	18 000

Source: www.ypexd15.gr (accessed August 2016) and Law (3669/2008).

Registration in a class allows a company to bid for public tenders of a budget not exceeding the upper limit specified by Greek legislation for that class (see Table 3.2). For example, if a contracting authority issues a tender with a budget of EUR 10 million, only companies belonging to classes 5, 6 and 7 could participate in the tender (operators in class 4 could not participate as the upper limit for that category is EUR 7.5 million). Since 2014, lower class thresholds have been abolished, so operators belonging to higher classes can now participate in tenders for lower ones (in our previous example, firms in classes 6 and 7 could participate in the tender alongside operators in class 5).

It is important for this Competition Assessment to establish whether this system of registries "artificially" restricts firms' participation in public-works tenders, and so whether it has an impact on competition. This means first looking at any alternative systems.[31]

One alternative system would completely abolish any system of registries and give contracting authorities complete freedom to define which criteria to use and their level at each call for tenders. For example, in our previous example, the contracting authority could issue a call for tender with a budget of EUR 10 million specifying that only companies with a minimum turnover of EUR 11 million and a certain level of minimum staffing could participate, without specifying a company's obligatory minimum equity and fixed assets. Although such a system could be less restrictive in theory than the current one, there are a number of concerns as to whether it would actually be more effective in practice. One of the aims of the current system of registries is to achieve a minimum level of standardisation and homogenisation to speed up the pre-qualification stage and eliminate the contracting authorities' incentives to manipulate the criteria in an arbitrary way. The added flexibility of a system where contracting authorities would have complete freedom to set the criteria for each tender needs to be balanced against: 1) the danger that criteria could be set by the contracting authorities in a way that restricts, instead of increasing, participation relative to the current system; 2) the possibility of an increased number of disputes from operators about preferential or unequal treatment for tenders for similar types of works; and 3) that the whole tender process would become more complicated and require more demanding monitoring.

A second alternative system would maintain the current system of registries, but allow contracting authorities to set levels for a number of existing criteria. For example, continuing our previous example, the contracting authority could issue a tender with a budget of EUR 10 million specifying that only companies with a minimum turnover of EUR 13 million could participate. Clearly such a system would be more restrictive than the current one, as some companies belonging to class 5 (with a minimum turnover of EUR 11.25 million) and placed between the minimum threshold and the new minimum of EUR 13 million would be excluded.[32]

Analogously, a contracting authority could be allowed to set a level on a number of existing criteria *below* the current minimum levels as specified in the registry system. For example, the contracting authority could issue a tender with a budget of EUR 10 million specifying that any company with a minimum turnover of EUR 9 million (below the minimum turnover of EUR 11.25 million for class 5) could participate. Such a system would implicitly allow near full flexibility to the contracting authority and be closer in spirit to the first scenario. But again, any added flexibility needs to be balanced against the danger of disputes from operators for preferential or unequal treatment for tenders for similar types of works.

Hence, it would appear extremely difficult to make clear improvements in the tendering mechanism within the class registry system that would increase participation, while maintaining its current benefits (e.g. process standardisation and fast pre-qualification). The current system's flexibility could be increased, however, to allow eligible firms to participate in tenders independent of their class participation. For example, being registered in a specific class should not prohibit economic operators from participating in tenders in higher classes on the condition that they fulfil the requirements of tender. In this manner, economic operators would be able to avoid various direct and indirect costs such as upgrading class, and the associated rigidities and resulting opportunity costs of class change. In addition, such as an amendment would set domestic operators on an equal footing with foreign competitors, which can already participate in a tender on the condition that they satisfy the participation criteria.

Second, the system of Registries, as currently organised, increases predictability in the market since, once a tender's budget is known, the pool of potential competitors is also known. Predictability and repeated interactions may facilitate co-ordination among bidders, especially in higher MEEP classes, which are populated by a smaller number of economic operators, as shown in Table 3.5.

Table 3.5. **Number of companies registered in each class of the Registry of Contractors (MEEP), August 2016**

Class	Number of companies listed	Upper budget limit (EUR)
7	6	No upper limit
6	32	44 000 000
5	47	22 000 000
4	134	7 500 000
3	237	3 750 000
2	1 487	1 500 000
1	2 134	750 000

Source: *www.ypexd15.gr* (accessed August 2016); and Law 3669/2008.

Third, there are rigidities inherently built in the system of registries given that, for example, contractors need to be part of a class for at least two years before applying for a class upgrade. All these factors potentially raise the opportunity cost of economic operators, as the time and resources committed to registration and/or class upgrade may hinder their ability to engage in other (more productive) activities. These costs do not symmetrically burden firms of all sizes; they tend to be greater for smaller ones.[33]

The current paper-based organisation of registries could be associated with higher administrative costs, which may further restrict participation. There are both time and monetary costs involved. Companies need to pay a fixed fee to be listed in the Registries and to renew their registration in a specific class. Initial registration and/or renewal requires the submission of documentation proving the relevant criteria have been met or that they continue to be met, e.g. proof that the company's personnel has remained unchanged for two years since the previous registration. Moreover, there is an additional indirect, but important cost involved: the time required for a company to register in class or to upgrade to a higher one might result in a provider not being able to participate in a tender until its registration is finalised.

However, the OECD acknowledges that the Registries aim to: 1) help economic operators establish their compliance with tender requirements without incurring the costs of submitting comprehensive documentation for each bid; and 2) facilitate the evaluation by contracting authorities of the bidder's professional and technical capabilities, as well as its financial standing in a unified and transparent way.

Recommendation and benefit

The OECD recommends that class registration no longer be a requirement for participation in tenders. Rather, participation should be conditional on the economic operator fulfilling the criteria, requirements and qualifications specified in the call for tenders.[34] However, the OECD acknowledges that a degree of standardisation is beneficial. These benefits could be attained by the publication of binding standardised documents [35]and the provision of technical specifications which focus on functional performance in order to increase participation. Overall, disconnecting class registration and tender participation widens the pool of potential eligible participants and fosters competition at a tender level.

3.4. Individual restrictions in the system of registries

In addition to the overall assessment of the system of registries, its operation, and its potential harm to competition, a number of specific provisions should be considered and addressed separately. These include provisions that restrict market participation, segment the market, and/or result in differentiated costs and preferential treatment for certain (groups of) suppliers.

Dual registration in the Registry of Designers and Design Offices (MM) and the Registry of Acquired Experience (MEK) for individuals and the Registry of Designers and Design Offices (MM) and the Registry of Contractors (MEEP) for companies

Description and objective of the provision

According to Article 39 of Law 3316/2005, still in force by virtue of Article 377 of Law 4412/2016, for individuals to register in the Registry of Designers and Design Offices (MM) they should not be contemporaneously registered in either the MEK or the MEEP.[36] Additionally, such individuals are not allowed to be employed by companies registered in the MEEP (Article 39, paragraph 2, subparagraph b, d and e). Similarly, according to Article 39, paragraph 3, subparagraph a and b subsection 2, design companies are prohibited from being affiliated with or being controlled – in any form – by companies registered in the MEEP.

Also, design companies are not allowed to have activities other than design. More specifically, design companies are prohibited from having within their scope the execution of public works and thus cannot register in the MEEP. The objective of these restrictions is to avoid the possibility of emerging moral hazard in the context of design and public works. For example, in the case of companies, a company participating both in a design tender and a tender for the execution of this design could have incentives to tailor the design it produces to benefit its own construction arm.

Harm to competition

While the concern that a design/constructing company may face conflicts of interest, as outlined above, could be valid, the OECD finds that the way the relevant provision attempts to remedy it – by imposing a blanket prohibition – is potentially restrictive.

As far as the prohibition on the contemporaneous registration to the MM and the MEK for individuals is concerned, the provision could be restrictive. Not allowing engineers to register contemporaneously in both the MEK and the MM makes switching more difficult (or costly) and decreases the flexibility individuals enjoy in building their specialisation and experience. The same is also valid with regards to the ability of individuals to obtain experience when working for a company registered in the MEEP or the MM. Allowing this contemporaneous registration of individuals as well as allowing them to work for construction or design companies registered in the MM or the MEEP could enhance the experience and specialisation in both design and construction.[37]

Moreover, prohibiting design companies to engage in construction activities, and thus register in MEEP, negates the creation of possible complementarities in the design and execution of public works and can also restrict firms' capacity to develop economies of scale and scope.

Recommendation and benefit

The OECD recommends that individuals be allowed to register contemporaneously in the Registry of Acquired Experience (MEK) and the Registry of Designers and Design Offices (MM); companies

engaging in the construction or design of public works should be allowed to register in the both Registries. However, in order to avoid potential moral hazard and conflicts of interest, economic operators should not be allowed to bid (either directly or indirectly, relying on sub-contraction or lent experience) for the construction of a project that they have designed – unless explicitly provided for in the call for tenders.[38]

Particular attention needs to be paid here to the manner in which experience is gained and reported on an engineer's professional degree. Laws 3669/2008 and 3316/2005 specify how engineers' experience is reported in their Registry of choice (MEK or MM) according to, among others, the number of years since the award of their university degree. This could, potentially, be manifested in professional degrees with high scores deriving from the age of an engineer who could have however been inactive in his respective professional field.[39] Given the proposal of the OECD to allow dual membership in both MEK and MM the authorities should closely consider, and if necessary proceed into the respective legal adjustments, in order to ensure that an engineer does not, for example, concurrently gain experience in both Registries by the mere passage of time when he is in fact inactive in either construction or design activity.

Registry of Designers and Design Offices (MM)

Description and objective of the provision

Article 2 of Law 4412/2016 defines 28 categories for public designs, depending on their nature, e.g. urban, architectural, hydraulic designs. The same provision stipulates that individuals must be registered in certain categories, and assigned a class within each category.

According to Article 39 of Law 3316/2005, still in force by virtue of Article 377 of Law 4412/2016, designers are only allowed to register in a maximum of two categories, based on their specialised scientific and technical knowledge, as demonstrated by their university degree, field of study and experience. Moreover, designers are assigned a class within each category on the basis of a number of criteria: field of study, experience in preparing public and private projects; experience in supervising design studies; and years since obtaining their degree. This provision aims to ensure public designs are undertaken by qualified designers.

Harm to competition

The manner in which designers are allowed to register in the Registry of Designers is restrictive,[40] limits the range of suppliers in the market, and so potentially restricts competition in price, quality and innovation. The current regulatory framework does not align classification to categories of designs and services with designers' professional rights. This is contrary to empirical evidence that designers are, in principle, capable of participating in more than two categories, as per their university-degree qualifications.

Recommendation and benefit

The OECD recommends that the provision allowing designers to register in a maximum of two categories of designs – on the basis of their specialised scientific and technical knowledge but irrespective of the professional qualifications their university degree entitles them to – should be revisited. The categories in which designers are allowed to participate should increase taking into account their professional rights. This will remove the artificial delineation of the market introduced by this provision, and allow competition between designers to determine the appropriate degree of specialisation (and any resulting advantages).

Regional Registries

Description and objective of the provision

Construction companies not registered in the Registry of Constructors may participate in small-scale public works only if they are registered in a Regional Registry. Registration is valid for three years. It is the OECD's understanding that the legislator's intention was to allow smaller, less qualified firms and individuals who could not qualify for registration in the main Registry of Contractors to perform public works, while ensuring effective execution of public works by qualified contractors.

According to Article 105 of Law 3669/2008, still in force by virtue of Article 380 of Law 4412/2016, companies are allowed to register in one Regional Registry only. Companies registered in Regional Registry are limited to execute works in the catchment area of their own registry and a single neighbouring area only. Registration in Regional Registries and in the Registry of Contractors (MEEP) is mutually exclusive. Further, partnerships between companies registered in MEEP and companies registered in the Regional Registries are not permitted.

Harm to competition

This provision places unnecessary restrictions on business strategies by, for example, disallowing partnerships and therefore limiting the capacity of smaller, locally registered firms to compete on the basis of their proven capabilities. As a result, it constitutes a likely impediment to competition. Moreover, geographic restrictions attached to registration in Regional Registries artificially segment the market and restrict participation.

Recommendation and benefit

Although the OECD cannot comment on the technical qualification criteria that allow firms to be classified in each type of registry, the mutual exclusiveness of the Regional and National Registries is found to be restrictive. The OECD recommends that Regional Registries be abolished; and the Registry of Contractors be amended, if necessary, for former Regional registrants to be accommodated. This will create one unified Registry, free from any unnecessary restrictions on firms' ability to participate in tenders (if they satisfy the corresponding selection criteria).

Legal form of companies registered in the Registry of Contractors (MEEP)

Description and objective of the provision

Article 100 of Law 3669/2008, still in force by virtue of Article 380 of Law 4412/2016, prescribes that companies belonging to the third class of the registry or above are required to be incorporated as a société anonyme (SA).This requirement is in place to ensure that shareholders are known, allowing the committee of the Registry to validate each contractor's shareholding structure in the interest of transparency in public procurement.

Harm to competition

This requirement may be restrictive, given that there are certain criteria (such as minimum capital requirements, management board criteria and legal documentation) attached to the legal form of the company described in the provision. Satisfying such criteria is not necessarily related to the ability of a contractor to complete a project, so this requirement is deemed not to satisfy the proportionality objective for criteria in tender participation. Instead these criteria limit the range of potential suppliers, raise their

cost of entry and, thereby, restrict their ability to compete. This creates disproportionate costs for those firms that would otherwise satisfy the financial and technical requirements for registration in the third class of the Registry of Contractors – a particular burden for companies on the lower end of the third class. This could constitute a disincentive to grow for public procurement-focused businesses, potentially resulting in less intense competition in higher classes and lower participation in higher-value tenders.

Recommendation and benefit

The OECD recommends abolishing the requirement that a company be an SA in order to be registered in the third class of the Registry of Contractors and above. This will enhance the incentives of firms, particularly the smaller ones, to compete and develop within the Registry's class system. The OECD suggests that, while this particular obligation should be abolished, the legal obligation for firms bidding for a tender to register shares to a natural person should be maintained. This would preserve the level of transparency initially sought by lawmakers.

3.5. Pricing and budgeting

Description of the framework

Legislation on procurement of public works and designs contains a series of provisions on how tenders are organised; how budgets are compiled on the basis of binding price lists; the way offers are submitted evaluated, and priced (e.g. the normality of discounts or fixed pre-determined profit rates); and price/cost revisions after a contract has been awarded. In addition, provisions relating to the supervision of works after the awarding of a contract regulate the redesign of projects, replacement of a contractor, and rules in respect of complementary works if any are required.

The objective of this set of provisions is to manage potentially excessively low offers (i.e. winning bids offering excessively high discounts) and so minimise the risk of a contractor's subsequent failure to execute the project.

To that end, the law stipulates that a ministerial decision should be regularly issued to establish and update price lists both for works and designs. The lists are compiled on the basis of unit prices for and volumes of materials, rates and number of working hours, etc. Price lists for public works are binding and are issued for each category of works, for example, road infrastructure or hydraulic works; similar price lists are issued for public designs.

Price lists are used by the contracting authorities in preparing budgets for works being procured; and they are binding in nature – i.e. the contracting authority is obliged to base its budget on the price list current at the time of issuing a call for tenders. Participants then submit their tender offers expressed as percentage discounts of the budget as compared to the published price list – either submitting a single discount or individual discounts for each category of works, depending on the terms of each call for tenders. Contracting authorities then evaluate the bids they receive on the discounts offered.

The manner in which a tender is organised highlights the key role played by price lists in public procurement for works and designs. Price lists currently exist for the majority of works' categories, but not all. For example, there is no price list for most electromechanical works. Moreover, even though the law stipulates that price lists should be regularly updated, the most recent update of price lists in some categories dates back to 2013.

Finally, the law provides that, in the case of public works, the pricing (i.e. cost) of certain works has to be updated in line with price developments. In other words, after the award of the contract, contracting

authorities regularly revise the pricing of certain works. These updates occur every three months, using a formula that takes into account, among other criteria, the time elapsed between the commencement of works and their execution. Updates can both increase and reduce prices.

Harm to competition.

Organising tenders on the basis of discounts to price lists is an alternative to systems in which bidders freely submit an offer to undertake a contract. Both systems are found in EU countries – for example, Italy and Germany also base their procurement on discounts. Given the reliance of this system on price lists and budgets, contracting authorities are required to disclose the budget for each call for tenders.

In its 2011 Report on Competition and Procurement,[41] the OECD notes that auction design plays a significant part in an effective procurement policy. It further suggests that the budget and underlying unit prices should not be disclosed, but rather used by contracting authorities for reference only. This could mitigate the risk that reference prices function as a focal point for bidders and facilitate collusive behaviour between suppliers. Moreover, according to OECD guidelines for fighting bid rigging in public procurement,[42] contracting authorities should use maximum reserve prices only if they are based on thorough market research and if officials are convinced they are competitive.

Predetermined price lists may facilitate bid rigging; and limit the freedom of structuring the offer and costing the items the way the bidder prefers. A large body of evidence from markets such as cement (Albæk, 1998), and fruits and vegetables (Genakos et al., 2011) suggests that publicly available prices have been used as focal points upon which suppliers co-ordinate on price.

However, past practice suggests that this mechanism is not an issue for the public procurement of works and designs in Greece: the risk of co-ordination does not appear to have materialized as economic operators participating in tenders for both public works and designs tend to compete with high discounts on reference prices. Based on data for 653 works, designs and service contracts tendered in an open procedure since 2006, the average discount offered by the winner was 34.4% (see Annex 3.A1 for more detailed information).

In fact, procuring authorities are often faced with the opposite problem – that of excessively high discounts ("excessively low offers"). It is often observed that unrealistically high discounts are offered in order to secure a contract in question. This may ultimately delay the execution of the works or lead to incomplete execution, incurring high direct and indirect costs to both the procuring authority and society as a whole.

The OECD considers that an alternative system, without reference price lists and (publicly available) budgets, may not be an improvement on the current one. If public works and designs were auctioned without reference budgets, the offers put in could be (well) above the contracting authority's undisclosed budget, resulting either in significant additional costs or in projects not being executed on time. An alternative system in which the budget for public construction projects is not published would also complicate the funding of works financed or co-financed by the EU, since according to EU rules, the budget for co-financed projects must be publicly available.

It is interesting to note that within the current system of unit price lists, price lists are not regularly updated in several categories of works and materials. Categories such as electromechanical works, high-pressure hydraulic works and certain heavy -industry categories of works are in practice not fully incorporated into the central system of unified pricing. Consequently, price updates in such categories occur neither as regularly nor as homogenously (with regards to covering all the materials and works

included in each category) as in other categories of works. This could further limit competition in the market, as it could create a system of differing incentives depending on whether a contractor's costs fall within a price list or not. For instance, suppliers could offer different prices in different categories of works depending on whether they can place an offer as an absolute price per unit, or if they are instead required to bid based on a discount of a pre-set price.

Following the discussion above, the OECD has identified specific provisions – within the current system of price lists and discounts – that may impede competition between firms and limit their ability to formulate their (pricing or other) business strategies.

Discount normality

Contracting authorities using price lists to compile budgets generally detail prices for each sub-group of works. Offers are then submitted with reference to discounts for each of those sub-groups, unless the call for tenders dictates otherwise.

Article 95, paragraph 2 of Law 4412/2016 imposes the additional requirement that the discounts offered for the various categories (sub-groups) of public works are not significantly different. This "normality" between discounts in different categories is guaranteed by a formula that essentially requires that discounts between categories do not vary by more than 10%.

Harm to competition

Limiting the variation in discounts submitted by bidders restricts business strategies and removes a potential element of competition at the bidding stage. For instance, a bidder might be able to offer a bigger discount in one category (benefiting from economies of scale, bulk purchasing, lower transportation costs), but it is prevented from doing so. This could lead to cross-subsidization across different categories and limit the intensity of competition among bidders for specific sub-categories.

However, the OECD acknowledges that the provision is designed to deter bidders from submitting excessively low offers (excessive discounts), shifting the budget between categories of works, strategic bidding and limiting any potential need for complementary works or project redesigns.

Recommendation and benefit

The policy maker's objectives could be achieved in alternative ways, including effective supervision, a well-functioning pricing system and ex-post mechanisms. Given that the pricing system is being reviewed and that it may address the phenomenon of abnormally low offers, the OECD recommends that the need for this restriction should be assessed by the authorities.

Price list updates

According to Article 52 of Law 4412/2016, price lists for public works and designs should be regularly updated. This requirement was also found in the law in force until August 2016. However, the OECD understands that price lists for many categories of public works have not been updated since 2013.

Harm to competition

Price lists play a key role in the tendering process. They form the basis upon which budgets are compiled and discounts are (in turn) offered, and so directly affect an element of competition upon which

the contract award is decided. Therefore, it is imperative that price lists are current and that they are a true reflection of market prices.

Overall, the methodology of updating price lists by issuing ministerial decisions carries a significant administrative burden that can inflate prices and limit firms' strategies. This has led to delays and rigidities in price lists being updated.

Recommendation and benefit

The OECD recommends that updates to price lists take place regularly, as stipulated in the law. It is also recommended that the competent authorities explore alternative means to set, update and publish price lists other than via ministerial decisions. A more efficient framework for updating and communicating price lists will ensure that they are aligned with true market conditions and will allow suppliers to submit accurate offers.

3.6. E-Systems (Public procurement and e-monitoring of public works and designs)

The current legislation provides for the use of e-procurement and the interoperability of e-systems related to public -procurement processes. Specific provisions also refer to the e-monitoring of public works and designs in particular; for example, contracting authorities are obliged to keep an electronic file of the contract for those public contracts which exceed certain financial thresholds. However, the operation of e-procurement for public works is provided for April 2017, while monitoring procedures, besides the electronic file obligation mentioned above, do not follow a consolidated electronic process.

The OECD acknowledges that effective on-site supervision is a key factor for the efficient execution of works, both by contracting authorities and economic operators. Equally, the lack of such supervision is seen as a major deficiency of the current system; and although Law 4412/2016 includes provisions aimed at enhancing the technical capability of contracting authorities to supervise works, a complete system of supervision still remains incomplete. Specifically, legislation is still not geared towards the electronic monitoring of public contracts. A number of important issues that still need to be addressed include, among others: the electronic monitoring of awarded contracts as well as the electronic recording of on-site supervision results (the "diary of works"), contract annulments, contract terminations and legal sanctions.

In order to support the effective allocation of public resources, the e-monitoring of public works and designs could provide a strategic tool to mitigate risks resulting from inefficiencies and corruption often met in major infrastructure and other complex public work and public design projects.

According to the OECD recommendations on public procurement,[43] authorities should "employ recent digital technology developments that allow integrated e-procurement solutions covering the public procurement cycle. Information and communication technologies should be used in public procurement to ensure transparency and access to public tenders, increasing competition, simplifying processes for contract award and management, driving cost savings and integrating public procurement and public finance information". The supervision and effective execution of public works can be enhanced by either the e-monitoring and maintenance of all information included in each contract consolidated into a single integrated system or by the enhanced availability and accessibility of such information through interoperable systems.

Moreover, the visibility and accessibility of information relevant to all stages of a public contract (from its initial procurement to its final payment) in the form of electronic consolidated data ensure

transparency and promote "fair and equitable treatment for potential suppliers by providing an adequate and timely degree of transparency in each phase of the public procurement cycle".[44]

Electronic consolidated data could employ effective impact assessment methodologies to measure the effectiveness of the awarded public contract (e.g. benchmarks, monitoring results) and "allow (i) stakeholders to understand government priorities and spending, and (ii) policy makers to organise procurement strategically".[45]

Recommendation and benefit

The OECD recommends that the contracting authorities consider the introduction of e-monitoring mechanisms for public works and public designs contracts by keeping all the information on each contract consolidated, either in a single integrated system or easily accessible through interoperable systems. This will allow for higher transparency, access and participation in the market to be achieved.

Notes

1. For the purposes of this assessment, NACE codes F41 (construction of buildings) and F42 (civil engineering works) were selected, while F43 (specialised construction) was considered to fall outside the scope of this assessment.

2. Eurostat (2016), Construction Statistics, epp.eurostat.ec.europa.eu (accessed March-September 2016).

3. IOBE (2015), *The Significance of Growth, the Barriers and the Future of the Construction Sector*, iobe.gr/docs/research/res_05_f_31032015_rep_gr.pdf (accessed on July 2013).

4. IOBE (2015), *The Significance of Growth, the Barriers and the Future of the Construction Sector*, ibid.

5. In general, the wage-adjusted labour productivity ratio [defined by Eurostat as "value added divided by personnel costs subsequently adjusted by the share of paid employees in the total number of persons employed" [Eurostat (2013), Glossary: Wage-adjusted labour productivity ratio, *http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Wage-adjusted_labour_productivity_ratio* (accessed April 2016)] for the EU 28 demonstrates that value added per person employed in the construction sector was equivalent to around 120% of the average personnel costs per employee. The Greek construction sector seems to suffer particularly from low levels of labour productivity with a wage-adjusted labour productivity ratio of 53%, the lowest in the European Union [Eurostat (2016), Construction Statistics, epp.eurostat.ec.europa.eu (accessed April 2016)]. This low level of labour productivity is a result of the average value added generated per person employed being significantly less than average personnel costs.

6. ELSTAT (2013), Basic Economic Magnitudes in the Construction Sector,, *www.statistics.gr/en/statistics/-/publication/SIN21/2013* (accessed on July 2013).

7. In 2012, according to Eurostat data, the construction of buildings sub-sector accounted for around 78% of total construction in the EU, while the construction of civil engineering works accounted for the remaining 22%. Eurostat (2016), Construction Statistics, epp.eurostat.ec.europa.eu (accessed March-September 2016).

8. Eurostat (2016), Construction Statistics, epp.eurostat.ec.europa.eu (accessed April 2016).

9. It is interesting to note here that, unlike all other categories of firms, very large enterprises were in fact the sole ones to increase their gross turnover during the 2009-2013 period.

10. PwC (2016), *Infrastructure: Funding the future – Greece,* March 2016, available at *www.pwc.com/gr/en/publications/assets/infrastructure-funding-the-future-2015-en.pdf*.

11. KEPE (2014), A Development Vision for Greece in 2020: Forecasts, Development Conditions and Finance Mechanisms, Athens.

12. Law 4281/2014 Government Gazette A 160/8.08.2014 on Support and development measures for the Greek Economy, organisational issues of the Ministry of Finance and other provisions.

13. Law 4412/2016 Government Gazette A 147/8.08.2016 on Public procurement of works, goods and services (adjustments to Directives 2014/24/EU and 2014/23/EU).

14. Law 4412/2016 ibid.

15. Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, Official Journal L 94, 28.3.2014.

16 Directive 2014/23/EU of the European Parliament and of the Council of 26 February 2014 on the award of concession contracts, Official Journal L 94, 28.3.2014.

17. In late September, at the time of the drafting of the current report, the Greek government released for public consultation a draft law on registries, pricing, and the e-monitoring of public works.

18 Maturity of works is the stage when all preparatory works required for a project to be procured are complete. More specifically, the term is used to describe the completion of all works related to general planning of the works; completion of the required designs; and acquisition of the necessary licences e.g. environmental licencing.

19. Law 3389/2005 Government Gazette A 232/22.9.2005 on Public-private partnerships.

20. Law 4413/2016, Government Gazette A'148/08.08.2016 on Procurement and execution of concession contracts – Harmonisation with Directive of 24 February 2014 of the European Commission and of the European Council (Official Journal L94/1/28.3.2014) for the procurement and execution of concessions – and other provisions.

21. Law 4014/2011 Government Gazette A 209/21.09.2011 on Environmental licencing of works and activities, regulation of arbitrary constructions in relation to the environmental balance and other provisions under the competence of the Ministry of Environment and Energy.

22. Designers are qualified engineers who according to their specialisation may design e.g. spatial planning, architectural, geotechnical designs which serve as the basis for the execution of public works.

23. Law 3669/2008 Government Gazette A 116/18.6.2008 on the Codification of legislation on the execution of public works.

24. Law 3316/2005 Government Gazette A 42/22.2.2005, correction of errors Government Gazette A 85/7.4.2005 on Procurement and execution of public designs and provision of related services and other provisions.

25. Law 4278/2014 Government Gazette A 157/4.08.2014 on Lighthouses, soldier recruitment and other provisions.

26. This acts as a safeguard against 'ghost' JVs formed solely for the purpose of by passing the value thresholds corresponding to a company's registration in MEEP.

27. Since Law 4278/2014 came into force and the lower thresholds for tender participation were abolished, all firms belonging to a certain class and the classes above it can participate in a tender.

28. OECD (2011), *Competition and Procurement,* OECD Publishing, Paris, *www.oecd.org/daf/competition/sectors/48315205.pdf*.

29. "Effective competition can be enhanced if a sufficient number of credible bidders are able to respond to the invitation to tender and have an incentive to compete for the contract. For example, participation in the tender can be facilitated if procurement officials reduce the costs of bidding, establish participation requirements that do not unreasonably limit competition, allow firms from other regions or countries to participate, or devise ways of incentivising smaller firms to participate even if they cannot bid for the entire contract" Specifically the OECD recommends to "Avoid unnecessary restrictions that may reduce the number of qualified bidders. Specify minimum requirements that are proportional to the size and content of the procurement contract. Do not specify minimum requirements that create an obstacle to participation, such as controls on the size, composition, or nature of firms that may submit a bid" (OECD, 2011, p.83).

30. Economic operators that fulfill class criteria would benefit from this provision, as they would now be eligible for participation in the call for tenders. Such operators could include firms, which could make use of lent experience (i.e. the use of one's financial or technical capability in order to execute the work), or which have applied already for a review of their classification but fall in the interim of the 2 years required for their class review.

31. Due to the technical nature of the criteria, OECD does not take a stance on the selection or the level of criteria required. Our comments pertain only to the design of the tendering mechanism.

32. Note that the law already allows for additional criteria to be included by the procuring authorities in each call for tenders, if considered necessary.

33. An electronic system could reduce some of these costs and equalize costs for all firms irrespective of their size.

34. According to OECD recommendations on public procurement, "in order to facilitate access to procurement opportunities for potential competitors of all sizes authorities should deliver clear and integrated tender documentation, standardised where possible and proportionate to the need, to ensure that: specific tender opportunities are designed so as to encourage broad participation from potential competitors, including new entrants", OECD (2015), *Recommendation of the Council on Public Procurement*, http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=320.

35. Standardised documents take the form of a model call for tenders approved by the competent body namely the Single Public Procurement Authority (SPPA); they provide, for common and repeated use, rules, guidelines, or technical specifications for procurement of designs and works; they are binding for contracting authorities.

36. Registration in the MEEP refers to the situation in which an individual is a sole trader, i.e. has a "personal company".

37. See also Hellenic Competition Commission (2014), *Opinion 34/2014 in plenary session,* p.23, *www.epant.gr/gnomo_details.php?Lang=gr&id=31&nid=31.*

38. The same rule seems to apply in Italy, according to the relevant Italian regulatory framework (Gazzetta Ufficiale della Repubblica Italiana (18 Aprile 2016), *Decreto Legislativo,* No. 250, Rome, Italy).

39. This could also affect a company's classification (under the current system) given the fact that this classification is determined, among others, by the noted experience of the company's minimum staffing. This could potentially influence the firm's ability to bid for works of higher budget. It should be noted here that in a system where class registration is not a requirement for participation the same issue could arise.

40. See also Hellenic Competition Commission (2014), *Opinion 34/2014 in plenary session,* p.23, available at *www.epant.gr/gnomo_details.php?Lang=gr&id=31&nid=31* (accessed on August 2016).

41. OECD (2011), *Competition and Procurement*, ibid.

42. OECD (2012), *Guidelines for Fighting Bid Rigging in Public Procurement*, OECD, available at *www.oecd.org/competition/cartels/42851044.pdf* (accessed on August 2016).

43. OECD, *Recommendation of the Council on Public Procurement*, ibid.

44. OECD, *Recommendation of the Council on Public Procurement*, ibid.

45. OECD, *Recommendation of the Council on Public Procurement*, ibid.

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Annex 3.A1

Public procurement for construction works and designs

In this Annex, we present the data, methodology and results of an analysis of the tendering process for public construction works and designs in Greece over the past decade. More specifically, we use data on publicly procured projects to assess the impact of the design of the competitive process on the outcome of the corresponding tenders. The following questions – partly guided by data availability and the extent to which the relevant information can be gleaned from the data – have been addressed in our analysis:

- the impact of the procurement procedure on the outcome of the tendering process;
- whether higher-value projects attract more bidders; and
- the significance of the degree of competition for a project, as measured by the number of offers submitted in the context of each tender, for the final outcome.

The analysis is based on data compiled by the competent Directorates in the Ministry of Infrastructure, Transport and Networks.[1] We have also relied on data submitted to the Tenders Electronic Daily (TED) database, maintained by the European Commission, to validate the results of our analysis and perform cross-country comparisons.

Data from the Ministry of Infrastructure, Transport and Networks

Description of the data

In response to a request from the OECD, all the Directorates within the Directorate General for Transport Infrastructure and the Directorate General for Hydraulic and Building Works of the General Secretariat for Infrastructure reported data on all the tenders they conducted and/or oversaw.

The data contains, among other things and to varying degrees of completeness, information on:[2] the tender date, the procedure followed,[3] its status,[4] the nature of the work involved,[5] the budget/expected value of the project, the number of offers submitted, the winning bid and corresponding discount offered, and final value after revisions (e.g. due to a change in VAT rate) and additional expenses (e.g. due to unforeseen works). It covers the period since 2009 for projects relating to public works; and the period since 2006 for designs, services, consulting services, and other projects.[6] Most tenders are concentrated in the years 2006-2009: the data contain over four times more records in the four-year period, 2006-2009, than any four-year period between 2010-2016. There is also some cyclicality, in that there are typically fewer tenders in the December/January and July/August periods.

An overview of the key variables of interest is set out in Table 3.A1.1. Other than the relative weight of various categories of projects and tender procedures, and their respective average and range, the table confirms a priori expectations. In particular, open tendering procedures – which are, by design,

more competitive in nature – attract more participants and appear to secure higher discounts. An open procedure attracts, on average, 3.5 times more bids than other procedures; in turn, this results in discounts that are over 4 times greater on average. It follows that, absent non-price considerations, open procedures yield better pricing outcomes for contracting authorities.

Table 3.A1.1. **Summary statistics – Greece**

Variable	Category	Observations	Mean	Standard deviation	Minimum	Maximum
Budget / Expected value (€ '000)	All	747	5 149	16 009	16	147 600
	Works	286	12 055	24 292	25	147 600
	Designs	407	729	877	18	5 949
	Other	54	1 878	3 168	16	18 430
Winning bid (€ '000)	All	2 571	1 040	6 065	4	129 053
Number of (suitable) offers	All	787	7.9	5.4	1.0	30.0
	Open	692	8.7	5.4	1.0	30.0
	Negotiated procedure	81	2.7	1.7	1.0	12.0
	Direct award	10	1.0	0.0	1.0	1.0
	Other	4	3.0	0.8	2.0	4.0
Discount of winning bid (%)	All	737	31.4	21.6	0.0	91.2
	Open	653	34.4	21.0	0.0	91.2
	Negotiated procedure	79	7.8	9.0	1.5	47.1
	Direct award	1	3.2	0.0	3.2	3.2
	Other	4	15.6	5.8	8.7	20.7

Notes: The above table provides summary statistics for *completed* tenders only, i.e. for those contracts that have been awarded to the winner of the tender. Variables are reported where available and where it is meaningful to do so (e.g. the contract's expected value is not shown when it matches the winning bid by construction, in the case of direct awards). The number of offers shows the number of final bids found acceptable and admitted in the tender. The discount has been calculated by the authors on the basis of expected project value and winning bid; using the discount recorded in the original data does not result in any substantial changes to the statistics reported in the table.

Source: Authors' calculations based on data compiled by the General Secretariat for Infrastructure of the Ministry for Infrastructure, Transport and Networks.

Results and discussion

We use these data to empirically examine two important relationships. Firstly, we examine the impact of the expected value (budget) of a project on the number of competitors participating in the tendering process. Our empirical analysis is based on the following specification:

$$(1)\quad \ln(Number\ of\ offers)_i = \alpha + \beta\ln(Expected\ value)_i + \gamma_{it}D_{it} + \varepsilon_{it}$$

The dependent variable in (1) is the logarithm of the number of offers accepted in tender i. The main explanatory variable of interest is the size of the project, as indicated by its expected value, whereas D_{it} is a matrix of control variables and ε_{it} is a random shock. The matrix of control variables includes joint year and month indicator variables to capture the varying (economic) conditions across time, as well as type and nature of work-indicator variables, which aim to control for the heterogeneity across

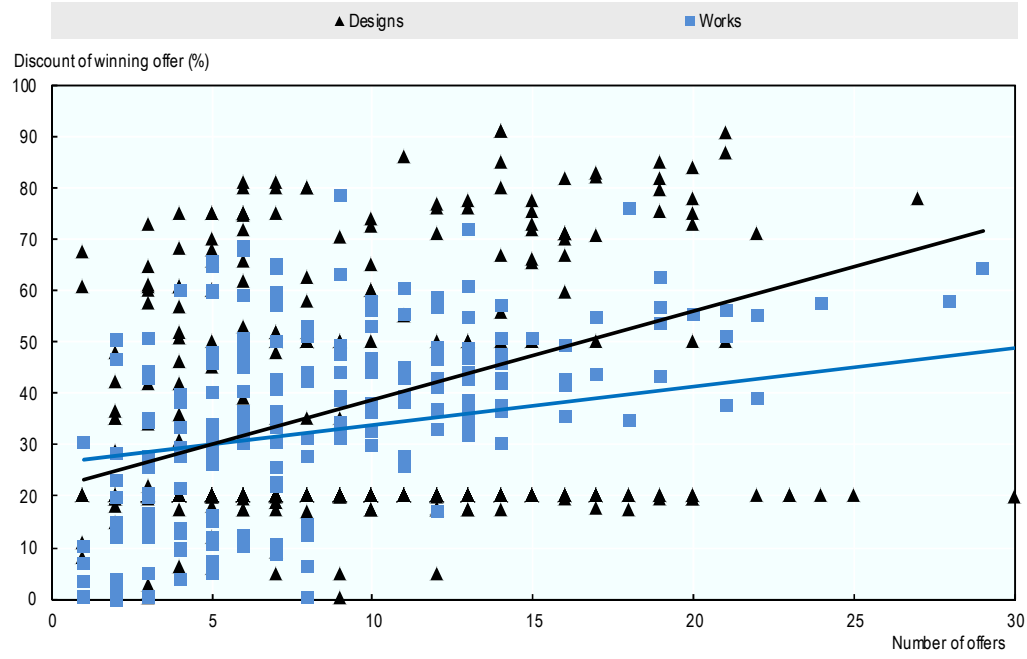
projects. Equation (1) was estimated using fixed-effects panel data techniques and robust standard errors were calculated to account for heteroscedasticity across the various works.

The analysis is conducted on all *complete* tenders, decided after an *open* procedure. The sample for works used in the estimation has been restricted to tenders with a budget up to €44 million, which is the threshold above which only construction firms of the highest class can participate – there is a small number of firms registered in this class.[7]

Table 3.A1.2 reports our main results. Both in column (1) that examines the data on works and in column (2) that looks at the data on designs, we find a positive and statistically significant relationship: the higher the expected value (budget) of a project the more competitors participate in the tender. A 1% increase in the budget of a project leads to 0.12% more offers for works and 0.27% more offers for designs. Hence, it is advisable that contracting authorities do not split large works or designs into smaller pieces since the bigger the contract the more competitors it attracts.

The second empirical relationship we test, using the same data on completed open tenders, is whether the increased competition at tender level (as measured by the number of offers submitted) results in lower prices (in the form of large discounts). Figure 3.A1.1 shows a positive relationship between the number of (suitable) offers submitted in a tender and the final pricing outcome, i.e. the discount of the winning bid, for both works and designs. The positive relationship is clearly stronger for works than for designs. However, the less-pronounced relationship in the case of designs is partly driven by a high level of concentration of discounts at or around the 20% mark,[8] which reflects a cap on discount for design works previously imposed by regulation.

Figure 3.A1.1. **Number of competing offers and discount of winning bid in tenders for public works and design projects – Greece**



Notes: Completed tenders awarded after an open procedure. Discount calculated on the basis of expected value of each project and value of winning offer, where both were available. Linear fitted lines are an approximation only.

Source: OECD calculations based on the data compiled by the General Secretariat for Infrastructure of the Ministry for Infrastructure, Transport and Networks.

To formally test this relationship, we use the following empirical framework:

$$(2)\quad \ln(Discount\ of\ winning\ offer)_i = \alpha + \beta(Number\ of\ offers)_i + \gamma_{it}D_{it} + \varepsilon_{it}$$

The dependent variable in (2) is the logarithm of the discount offered by the winner of tender i. The main explanatory variable of interest is the intensity of competition, as indicated by the number of offers submitted, whereas D_{it} is a matrix of control variables and ε_{it} is a random shock. The matrix of control variables includes joint year and month indicator variables, to capture the varying (economic) conditions across time, and also work- and project-type indicator variables that aim to control for the heterogeneity across projects. Equation (2) was estimated using fixed-effects panel data techniques and robust standard errors were calculated to account for heteroscedasticity across the various works.

The results are reported in the last three columns of Table 3.A1.2.[9] Column (3) aggregates the data for both works and designs and reveals a strong and positive relationship between the number of participants and the final discount offered. However, while a positive relationship is also found when works and designs are considered separately – columns (4) and (5) respectively, as depicted in Table 3.A1.1 – it is clearly stronger and statistically significant in the case of works.

Table 3.A1.2. **Project size, number of offers and discounts – Greece**

	(1)	(2)	(3)	(4)	(5)
Project type	Works	Designs	All	Works	Designs
Expected value	less than €44m	All	All	All	All
Dependent variable	log (Number of offers)	log (Number of offers)	log (Discount)	log (Discount)	log (Discount)
log(Expected value)	0.118 ***	0.271 ***			
	(0.039)	(0.047)			
Number of offers			0.050 ***	0.137 ***	0.015
			(0.01)	(0.034)	(0.011)
Year/month dummies	yes	yes	yes	yes	Yes
Project type dummies	no	no	yes	no	No
Work type dummies	yes	yes	yes	yes	Yes
Observations	193	392	650	216	388

Notes: Robust standard errors are reported in parentheses.
* signifies estimates significant at 10%,
** significant at 5%, and
*** significant at 1% level respectively.

Analysis based on *completed open* tenders. *Year/month* corresponds to month/year combinations. *Project type* distinguishes work and design projects. *Work type* identifies the nature of the work involved. The specifications include a constant, which is not reported in the table.

Source: OECD calculations based on the data compiled by the General Secretariat for Infrastructure of the Ministry for Infrastructure, Transport and Networks.

The results are also economically significant. In the case of public works, we find that an additional offer leads to a 14.7%[10] increase in the level of discount offered from the winner.[11] In other words, a hypothetical discount of 35%[12] would (on average) increase to 40% if an additional offer was accepted as part of the tendering process.[13] Hence, making the registry system more flexible and encouraging higher participation in a tender procedure can lead to more aggressive bidding and consequently higher discounts (lower prices) with significant benefits to public finance and consumer welfare.[14]

Data from the European Commission's Tenders Electronic Daily (TED) database

Description of the data

The European Commission collects information on public procurement, including public works and designs, from contract award notices (and contract notices)[15] issued by contracting authorities in the European Economic Area (EEA), Former Yugoslav Republic of Macedonia (FYROM) and Switzerland, between 2006-2015 (inclusive). In principle, the data consist of notices above the procurement thresholds established by EU Directives, although notices below the relevant thresholds are also found in the data. Information includes year of publication, contract authority, type of contract,[16] estimated value of the contract, type of procedure,[17] award criteria,[18] number of offers, and final value of the contract (winning bid) at tender level is included in the database.

We use a subset of this dataset, which relates to construction projects with complete data; and focus on construction works[19] awarded after an open tender. Summary statistics for the key variables of interest are set out in Table 3.A1.3 below.

Table 3.A1.3. **Summary statistics – EEA, FYROM and Switzerland**

Variable	Observations	Mean	Median	Standard deviation
Budget/Expected value (€ '000)	39 439	27 200 000	798	5 410 000 000
Winning bid (€ '000)	39 439	4 443	582.2	21 100
Number of offers	39 439	8.3	6	9.0
Discount of winning bid (%)	39 439	24.7	21.5	19.2

Notes: The above table provides summary statistics for construction work projects in the EEA, FYROM and Switzerland, awarded following an open tender procedure. There exist some outliers (abnormally high values) in the data: for this reason, maximum values are not reported; medians are shown instead. The discount has been calculated by the OECD on the basis of estimated contract value and award value; the table shows statistics for positive discounts only.

Source: OECD calculations based on the TED data supplement to the Official Journal of the European Union.

Results and discussion

We use these data on public-work projects in a panel of 33 countries to establish whether the relationships outlined in the case of tenders for works in Greece are evident in the much richer pool of tenders in the TED data. Our empirical analysis is based on specifications equivalent to those used in the previous section:

$$(3)\quad \ln(Number\ of\ offers)_{ic} = \alpha + \beta \ln(Expected\ value)_i + a_t + a_c + \varepsilon_{itc}$$

$$(4)\quad \ln(Discount\ of\ winning\ offer)_{ic} = \alpha + \beta(Number\ of\ offers)_i + a_t + a_c + \varepsilon_{itc}$$

The dependent and explanatory variables are similar to the ones used in (1) and (2), i.e. the (logarithm of the) expected value of each contract, number of offers, and discount of winning bid. We control for combined year and month (a_t) and country (a_c) fixed effects, which control for time-dependent and country-specific characteristics. Both equations were estimated using fixed-effects panel data techniques and robust standard errors were calculated to account for heteroscedasticity across the various works.

The results are reported in Table 3.A1.4. The first two columns present the results for equation (3) both without (column 1) and with all the fixed effects (column 2). Again, there is statistically strong and positive relationship between the expected value of the work and the number of participants: a 10% increase in the value of the work increases participation by 0.5%. Similarly, the last two columns present the results for equation (4) both without (column 3) and with all the fixed effects (column 4). The number of offers has a positive effect on the discount (price) of the winning bid: an additional offer translates into a 3% increase in the level of discount offered from the winner.[20] Therefore, both relationships are qualitatively the same across the 33 countries as in Greece, although the economic magnitude of the results appears stronger in Greece.

Table 3.A1.4. **Project size, number of offers and discounts – EEA, FYROM and Switzerland**

	(1)	(2)	(3)	(4)
Dependent variable	log(Number of offers)	log(Number of offers)	log(Discount)	log(Discount)
log(Expected value)	0.091 ***	0.052 ***		
	(0.002)	(0.002)		
Number of offers			0.027 ***	0.030 ***
			(0.001)	(0.002)
Year/month dummies	no	yes	no	Yes
Country dummies	no	yes	no	Yes
Observations	39 439	39 439	39 439	39 439

Notes: Robust standard errors are reported in parentheses. * signifies estimates significant at 10%, ** significant at 5%, and *** significant at 1% level respectively. *Year/month* corresponds to month/year combinations. *Country* identifies the country where the tender took place. The specifications include a constant, which is not reported in the table.

Source: OECD calculations based on the data compiled by the General Secretariat for Infrastructure of the Ministry for Infrastructure, Transport and Networks.

Notes

1. A full list of the competent Directorates can be found in the Database sources.

2. The data has been consolidated and cleaned, e.g. the classification of projects and categorisation of works has been made uniform across all groups of tenders.

3. Whether the contract was awarded following an open procedure, negotiated procedure, direct award, or other means (such as, for example, oral, closed, or restricted procedures). This broad categorisation follows more detailed classification of tender processes, e.g. an open procedure could be based on a system of itemised discounts, single discount and most advantageous offers.

4. A tender may be completed, not completed/cancelled, pending/in final stages etc.

5. For example, road works, ports, airports, electromechanical works, environmental works and hydraulic works

6. Classification of the project is inferred by the grouping of tenders by the competent Directorates. The "other" category includes services of consultants, design/consultant projects, supervision services, and those works projects that are identified as services or legal services.

7. Other than joint ventures, and firms outside Greece.

8. For example, over half of the design projects procured by Egnatia (a public company procuring infrastructure projects) on the basis of the most advantageous offer in an open procedure resulted in a discount of exactly 20%.

9. We use the discount rate as calculated from the expected value of the tender and the value of the winning bid. The results are substantially the same when the discount reported in the original data is used instead.

10. With $\beta = 0.137$, the increase in *Discount* from a unit increase in the *Number of offers* is $e^{\beta} = 1.147$.

11. Note that this is the percentage increase in the level of discount and *not* the size of the increase itself.

12. The average discount of winning bids after an open procedure for works projects is 34.6%.

13. 35% x (100% + 14.7%) = 40%.

14. It is possible that tenders with a higher budget attract larger companies that are, on average, more efficient and benefit more from economies of scale. Those companies are consequently able to offer higher discounts. This suggests a correlation between higher budgets and higher discounts, partly explained by efficiencies related to firm size. However, the fact that larger firms are *able* to offer higher discounts does not necessarily give them an *incentive* to do so: such an incentive is provided by the level of competition for each tender, as indicated by the number of participating bidders.

15. The data is extracted from standard public-procurement forms filled in by contracting bodies.

16. Works, supplies and services.

17. For example, competitive dialogue, negotiated procedure, open and restricted.

18. Lowest price, or most economically advantageous tender.

19. Filtering done using CPV codes 45000000 (NACE code 45).

20. With $\beta = 0.030$, the increase in *Discount* from a unit increase in the *Number of offers* is $e^{\beta} = 1.030$. As explained in note 10 above, this is the percentage increase in the level of discount and *not* the size of the increase itself.

Databases

Tender data provided by the Ministry of Infrastructure, Transport and Networks, Directorate General for Transport Infrastructure (Directorates for Road Infrastructure; Safety of Road Infrastructure; Port Infrastructure; Airport Infrastructure; Operation, Maintenance and Exploitation of Concession Infrastructures; Public Works – Construction and Maintenance of Transport Infrastructure; Public Works – Construction of Concession Works – Peloponnese and Northern Greece; Public Works – Construction of Concession Works – Central and Western Greece; Metro; Cretan Development Organisation; Egnatia) and Directorate General for Hydraulics and Building Infrastructure (Directorates for Water, Drainage and Waste Management; Flood Prevention and Land Improvement Works; Buildings Infrastructure; Public Works – Construction and Maintenance of Hydraulics Infrastructure).

TED csv dataset (2006-2015), Tenders Electronic Daily, supplement to the Official Journal of the European Union. DG Internal Market, Industry, Entrepreneurship, and SMEs, European Commission, Brussels, *https://open-data.europa.eu/cs/data/dataset/ted-csv*. Version 2.1 (accessed on 29 July 2016).