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Summary of the PhD thesis:

„Position of the companies from SME sector in the construction works market and system of public procurement”

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Warsaw, 2015
From the point of view of Polish national economy as a macro system, crucial importance have the competitiveness of micro systems, i.e. enterprises and mezzo systems i.e. industries\(^1\). Thus, the assumption has been made, that the competitive position of small and medium enterprises (hereinafter referred to as SME) from the construction works on the market of construction works has a significant impact on the entire Polish national economy. Nowadays, the increase of the competition intensity and increase in the demand barriers are observed in the construction industry. To cope with the market demands, companies that organize and coordinate construction and assembly of civil engineering projects become the owners of production orders by acting as a general contractor. Between small and medium entrepreneurs, the increased contest is observed for subcontracts, especially when they are offered by large and recognized construction industries, with high likelihood of sustainability for the general contract. Thus, a growing competitiveness between subcontractors is observed, leading to the perfectly replaceable market for suppliers with low price elasticity of supply, low-tender the position of subcontractors. This puts a strong demand on the reduction of transaction costs for the SME present on the construction market\(^2\). Overall phenomena inspired the conception of this PhD thesis.

The subject of this PhD dissertation is to explore and assess the impact of public procurement system in Poland on the competitive position of the companies from small and medium-sized enterprises sector (SME) on the market of construction works, understood as the market for public procurement contracts and concessions for construction works and infrastructure public-private partnership projects (hereinafter referred to as PPP). The main emphasis was placed on examination of both authorities awarding public procurement contracts, concessions for construction works and infrastructure PPP projects, and contractors (both SME and large construction companies) who apply for public procurement contracts, concessions and PPP projects. It enabled to assess whether the functioning of Polish public procurement system accounts for the specificity of SME, or it benefits large construction companies. The importance of public procurement system regulations in the construction market was emphasized in the report Construction works

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in Poland 2013 which estimated that 92% of construction companies actively participate in public tenders\textsuperscript{3}.

Financial crisis of the years 2009-2014 was a challenging period for SME in the construction industry. The construction sector was one of the sectors dearly hit by the recession, which resulted in bankruptcy announced by a record number of 5,693 enterprises (3% of the market). This gave Poland 6\textsuperscript{th} place in the EU in terms of number of companies that collapsed in 2012 in construction sector.

One of the causes of the business cycle in building and civil engineering in years prior to the crisis, were EU funds from the 2007-2013 financial perspective. They caused accumulation of the record number of tenders for public procurements for construction works in area of civil engineering construction in years 2008-2011. The accumulation of tenders destabilized supply and demand on the market. Because demand exceeded supply, unemployment in the construction industry fell below the natural rate of unemployment, resulting in an increase in wages and, consequently, increase in prices of construction works. In addition, the cost of construction materials increased significantly. The specificity of public procurement contracts and procedures, disallowed the transfer of progressive increase in costs to the contracting authority. These conditions overheated economy of construction works in 2012. Incorrect cost assessments made by both, the economic operators (i.e. Chinese consortium Covec, Hydrobudowa, Alpine Bau or PSB) and the contracting authorities (i.e. General Directorate for National Roads and Motorways) have driven the construction sector into recession and intensified the problems in the implementation of projects. Result were the bottlenecks in payments, from the side of contracting authorities to the general contractors in connection with the claims of inapt quality of works or delays in the realization of contract. In addition, many of general contractors (predominantly large companies) in trying to salvage their financial liquidity to secure further existence, suspended realization payments for their subcontractors. Thus SME were forced to credit large companies, which resulted in the record number of bankruptcies.

\textsuperscript{3} J. Vacek, S. Baxted, M. Mroczek, Budownictwo w Polsce, Edycja 2013, KPMG 2013, pages 3-19.
Based on the results of both quantitative\(^4\) and qualitative\(^5\) research confirmed was the main hypothesis of this dissertation: "Public procurement system in Poland, understood as the catalogue of regulations adversely affects competitive position of the Polish SME sector in the construction works market understood as the market for public procurement, concession for construction works and infrastructure PPP projects". The study linked, for the first time in the known literature, the competitive position of SME in the market of construction works with regulations accounting for the specificity of SME, applied by contracting authorities. In addition, results suggest the impact of transaction costs inherent to the functioning of public procurement system, on the competitive position of SME in the market of construction works.

To verify main hypothesis of this PhD dissertation, the four specific hypotheses were formulated and confirmed. Primarily, the regulations of public procurement system in Poland constitute a barrier for the growth of the competitive position of SME in the market of construction works. Secondly, the market of construction works in Poland, understood as public procurement, concessions market for construction works and infrastructure PPP projects, evolves in the direction of cooperation between large enterprises and SME rather than the direction of direct competitiveness. Thirdly, the competitive position of Polish SME sector in the market of construction works, understood as the market for public procurement, concessions market for construction works and infrastructure PPP projects, is inadequate to the economic potential of SME sector. Finally, transaction costs associated with the public procurement system in Poland negatively affect the competitive position of SME in the market of construction works, understood as the public procurement and concessions market for construction works and infrastructure PPP projects.

Upsurge of the participation of SME in public procurement, concessions market for construction works and infrastructure PPP projects is beneficial, because it increases the competitive position of SME in the market of construction works and reduces the transaction costs associated with the public procurement system for both the economic operators and economic operators.

\(^4\) In the framework of the quantitative research was conducted: CATI \(n = 101\) SMEs and \(n = 50\) large companies from civil engineering and survey \(n = 257\) contracting authorities, ie. the local government units. Moreover, there has been made an analysis of institutional data for \(n = 193\) tender procedures and a comparative analysis of economic and financial data from 10 largest companies of large, medium and small size enterprises in area of civil engineering by EMIS base.

\(^5\) As a part of qualitative research study was conducted IDI \(n = 32\), including \(n = 16\) with public party (contracting authorities) and \(n = 16\) from a private party (economic operators) implementing projects of public-private partnerships in Poland, a panel of experts from the public procurement system in Poland, analysis case study for all implemented PPP projects in Poland, as well as preexperiment.
contracting authorities. Such approach to the analysis of the competitive position of SME in the market of construction works is fresh and has not been previously reflected in the literature. The increase in the number of economic operators in public procurement, concessions market for construction works and infrastructure PPP projects, results in greater competitiveness, attractive offers for the contracting authorities in terms of evaluation criteria specified in the terms of the contract, and reduces the tendency to divide the market of construction works between construction groups. In addition, greater the number of economic operators on the market of public procurement and concessions for construction works and infrastructure PPP projects, the stronger the pressure for innovative approach to gain a competitive advantage by optimization of costs and reduction of price.

In this PhD dissertation, an economic analysis was conducted of the functioning regulations of public procurement system in Poland for the specifics of the SME sector or benefits for large construction companies. An attempt was made to examine how SME shape their competitive position on the market of construction works and how this position is influenced by market network model. On the base of the identified micro-, macro- and meso-economic determinants of the competitive position of SME in the market of construction works an attempt was made to measure the competitive position and economic potential of SME in the market of construction works. A catalogue of regulations of public procurement system, that have the positive and the negative impact on the competitive position of SME in the market of construction works was proposed.

Finally, for the first time, the PPP was discussed as an opportunity for the development of SME and increase of their competitive position on the market of construction works in Poland. As shown by the analysis, the PPP market in Poland is the market of micro projects, worth less than 5’000’000 PLN, which account for almost 50% of all PPP projects. Although the transaction costs of micro PPP projects are lower than the transaction costs of large PPP projects, due to fixed costs, independent of the project size (the necessary analyses of the legal, economic, financial and technical aspects) large enterprises are not, in principle, interested in the implementation of PPP projects valued less than 40’000’000 PLN. This creates new opportunities for medium-sized enterprises in particular in the fields of civil engineering construction (small infrastructure) e.g. car parks, sewage treatment plants and schools.

In addition, this dissertation eight specific objectives have been realized. First, the literature synthesis of new institutional economics, institutional analysis of law & economic and the applicable regulations of public procurement system in Poland and the European Union was composed. It showed that the Polish system of public procurement law contains regulations
that account for the specificities of SME. Nevertheless, the studies also showed that the contracting authorities seldom apply regulation of public procurement system concerning the specifics of SME, either due to the lack of knowledge on the subject or confusion between regulations specific to SME situation and preferences for SME, forbidden by law. Second, a model of M. E. Porter's 5 forces was developed based on the results of CATI survey among SME and large construction companies operating in construction of civil engineering projects and the results analysis of 193 institutional tender procedures conducted in the years 2006-2014 by the contracting authorities. Study showed that 69±10% of the surveyed economic operators (SME and large construction companies), believed that competition in the construction works market has strong or very strong impact on this market. For 50±10% the impact of buyers (contracting authorities) on the situation in the market of construction works was strong or very strong. For 30±10% respondents, the impact of suppliers (of construction materials, construction equipment, etc.) has been rated as strong or very strong. Moderate impact on the situation in the market of construction works according to respondents had potential incoming operators and substitutes.

Studies have confirmed that the following regulation of public procurement system, which are cost-effective in the sense of Kaldor-Hicks⁶, can positively influence the SME share in public procurement, concessions market for construction works and infrastructure PPP projects. This in turn, could positively influence the competitive position of SME on market of construction works:

1. The procedures for awarding contracts (Art. 10 Polish public procurement law): open tendering, restricted tendering, competitive dialogue and negotiations with the announcement.
2. Conditions for participation in the tender (Art. 22 in conjunction with Art. 29 and 30 Polish public procurement law) adequate and related to the described subject of the contract, in particular, the economic and financial aspects.
3. Description of the method of assessing eligibility for participation of the procurement procedure related and proportional to the tender (art. 22, paragraph 4 Polish public procurement law).
4. Division of the tender into tasks and/or parts (Art. 32 Polish public procurement law).

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5. Allowance of advanced payment in the contract (art. 143a of the Polish public procurement law).
6. The possibility of delegation of the part of the contract to the subcontractor (Art. 36a Polish public procurement law).
7. The use of non-price evaluation criteria (Art. 91 Polish public procurement law), which do not discriminate SME, such as quality, functionality, technical parameters, environmental aspects or operating costs.
8. The possibility for application to the tender procedure as the consortium (Art. 23 Polish public procurement law).
9. The possibility to rely on knowledge and experience, technical potential, personnel capable of performing the contract, financial or economic abilities of other entities (Art. 26 paragraph. 2b and 2e Polish public procurement law).
10. Performance guarantee (Art. 150 Polish public procurement law) amounting up to 5% of the total price specified in the offer and resignation from the requirement of performance guarantee, wherever possible.
11. Cancellation of the requirement of a deposit (Art. 45 Polish public procurement law) where possible, and where it is not possible, a deposit in the amount of less than 0.5% of the contract value.

Despite the extensive literature on public procurement system and SME, it seems that so far there have been none thorough analyses of the impact of public procurement system on the competitive position of SME and in this sense, this dissertation represents a new area for scientific cognition. Finally, it should be noted that the market of construction works is dealing with all major factors, that by opinion of O. E. Williamson, lead to the creation of transaction costs, i.e. a limited rationality of both, the economic operators and the contracting authorities, opportunistic behavior of the contractors, as well as with specific assets. In addition, there is also asymmetry and incompleteness of information flow between contracting authorities, and the economic operators, described by P. R. Milgrom and J. Roberts. Reflected upon the available literature, research approach presented above is relatively rare. This is particularly surprising in relation to the types of transaction costs, whose negative impact on the competitive position of SME on the market of construction works, was identified and described in this PhD dissertation.