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**Particularities of the Public Procurement Contracts  
Concluded by Public Hospitals in Romania  
in the Pandemic Year 2021**

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**Abstract**

*The article aims to analyse the public procurements in Romanian public sector hospitals in the pandemic year 2021, with the aim of identifying and analysing their particularities compared to the contracts concluded under normal conditions. The information used was extracted from the open data portal data.gov.ro and was processed with SPSS to identify the particularities that appeared in the case of public procurements carried out during the health crisis generated by the COVID-19 pandemic in the Romanian public sector, in order to identify possible solutions to be considered in the future, in the event of similar crises occurring in the future. Also, the article aims to analyse the possible correlations between various variables that were the basis for the awarding of public procurement contracts made by public hospitals in 2021.*

**Keywords:** COVID-19, public procurements, public hospitals, contracts, sanitary crisis.

**JEL Classification:** H83, I15, M48.

**1. Introduction**

The efficient management of public resources allocated for public procurement falls to the contracting authorities, i.e. public institutions/authorities in Romania,

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which have the obligation to use them in compliance with the principles of economy, efficiency, and effectiveness.

The COVID-19 pandemic has brought with it a series of particularities regarding public procurement, especially regarding the health field. In this context, carrying out an objective analysis regarding the public procurements made by public hospitals in 2021 may highlight some phenomena that manifested themselves in crisis conditions and that had a series of effects on the public procurement process and, implicitly, on the use of public funds.

The crisis situation generated by the COVID-19 pandemic has led to a strong reaction in the supply chain of medicines, medical equipment and, above all, sanitary materials, which has resulted in enormous costs in terms of their acquisition, due to the huge demand, which led to the allocation and use of enormous sums from the state budget for this purpose. Another consequence of the shortage of sanitary materials was the entry into the market of some noncompliant products, the crisis situation being, in some cases, the perfect opportunity for fraud and corruption phenomena in this area.

In Romania, in the field of public procurement, given the crisis situation generated by the COVID-19 pandemic that led to the need to purchase medicines, medical equipment and sanitary materials, the legislative framework has undergone numerous changes, being necessary to adopt normative acts with the purpose of reducing the terms of public procurement procedures, but also to simplify the way of awarding public procurement contracts, especially in the sanitary field.

Given the fact that the legislation on public procurement provides the obligation of contracting authorities to use competitive public procurement procedures for those procurements whose estimated value exceeds a certain threshold, a series of normative acts were adopted during the pandemic, especially in the state of emergency decreed by the President of Romania, as follows: 39 primary-level normative acts, 12 secondary-level normative acts, 75 tertiary-level normative acts, i.e. a total of 126 amendments.

The changes made in the field of public procurement were aimed both at reducing the terms related to the procurement procedure (from its initiation to the signing of the contract), as well as the possibility for some contracting authorities to directly purchase products and services necessary for the prevention and combating of the COVID-19 pandemic, without being obliged to take into account the value thresholds imposed by the legislation in force in the field of public procurement, according to the American model applied as a result of the disaster caused by Hurricane Katrina in 2005.

## **2. Problem Statement**

The COVID-19 pandemic brought with it a crisis situation, we can say a “*black swan*” type (Taleb, 2016), that is a very rare and unpredictable event, but which had a significant impact on all humanity. Some authors even consider that this crisis falls under a new concept, derived from the concept of black swan, called “*green swan*” (Lim, 2021), that is a serious and complex event, with a certain risk

of occurring in the future in a certain form, given the fact that the World Health Organisation (WHO) has already launched the PRET initiative, with the objective of enhancing global readiness for a potential future pandemic, the goal is to improve the level of preparation in all nations (WHO, 2023).

Regarding the reaction of the world's states to the COVID-19 pandemic, the way to prevent and fight infections with the SARSCov2 virus depended a lot on their level of development, the degree of development of medical services and the health system in general, the existence of policies and procedures for reacting to natural disasters, as well as the degree of their digitisation. However, the COVID-19 pandemic affected all of humanity, without exception, the situation being catastrophic for some underdeveloped states that did not have quick access to medical equipment, medicines, and sanitary materials.

Although there is some research (Arrowsmith, 2010; Ayhan and Üstüner, 2015; Wren, 2023) mentioning that, in order to be effective, the public procurement system must contain simple and clear rules and that the existence of a large number of rules in this field can suffocate the administrative apparatus and can also create opportunities for fraud and corruption phenomena (Søreide, 2002; Thomann et al., 2023; Sommersguter-Reichmann and Reichmann, 2024), however, the legislation on public procurement in Romania is extremely dense and has undergone numerous changes during the COVID-19 pandemic, as we previously mentioned.

Public procurement in the healthcare system being characterised by a series of particularities, such as the fact that the market is divided between several competitors, being practically a limited competition (Spieske et al., 2022, García-Altés et al., 2023), it is necessary to analyse the method of awarding public procurement contracts during the pandemic period, especially that, as regards the health system, the public procurements made during this period were carried out chaotically (Sadiq and Kessa, 2020; Harland et al., 2021; Njanji and Zhou, 2021), resulting in the use of huge sums from public funds (Dube et al., 2022).

The research carried out by some authors in this field has identified a series of correlations between various variables associated with public procurement processes during the pandemic period. For example, some studies have revealed that there is a strong positive correlation between the use of export restrictions that targeted medical products and the average time required to complete a competitive procurement procedure (Mathiba, 2020; Hoekman et al., 2022).

In the framework of this research, we propose to observe other correlations that intervened between different variables related to the public procurement process in the health field during the COVID-19 pandemic.

### **3. Aims of the Research**

The article aims to analyse the public procurements in Romanian public sector hospitals in the pandemic year 2021, with the purpose of identifying and analysing their particularities compared to the contracts concluded under normal conditions.

#### 4. Research Methods

In order to identify some phenomena that manifested in the field of public procurement during the COVID-19 pandemic in Romania in sanitary field, we extracted a database in Excel format regarding the public procurement contracts concluded by public hospitals in Romania in 2021 from the portal of open data data.gov.ro, a database that is containing 32,344 records. For the data analysis, the database in Excel format was imported in SPSS software version 29.0.1.0 (developed by IBM), generating a SAV type database.

Regarding public procurement contracts, some authors (Onur et al., 2012) have identified correlations between the number of offers and the value of the contract. Thus, following the analysis on a public procurement database in Turkey (a sample of 90,089 public procurement procedures), it was found that the number of bids received influences the price of the contract. Practically, based on the analyses carried out on the Turkish database, the authors of the analysis concluded that the size of the estimated value of the public procurement contract has a direct proportional impact on the number of offers received.

Furthermore, the research analyses whether this correlation is also identified with regard to public procurement contracts awarded by hospitals in the Romanian public health system in the pandemic year 2021.

#### 5. Findings

In order to obtain an overview of the contracts concluded by public hospitals in Romania in 2021, we carried out a descriptive analysis with SPSS software on the database selected from the open data portal data.gov.ro (<https://data.gov.ro/dataset/achizitii-publice-sanatate/resource/5479f2bd-d8bf-4905-a00a-d458db619365>, accessed in 2023), the results being presented below:

**Table 1. Distribution of relative frequencies and absolute frequencies regarding contracts concluded by lots**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	31854	98.5	98.5	98.5
	NO	490	1.5	1.5	100.0
	Total	32344	100.0	100.0	

*Source:* data generated by SPSS.

From the analysis of the data presented in Table 1, it can be observed that most of the contracts concluded in 2021 by public hospitals in Romania were concluded in batches, respectively, 98.5% of them.

Regarding the type of contract concluded, the data presented in Table 2 show us that most of the contracts concluded were supply type contracts (96.7%),

the proportion of works and services contracts being insignificant in relation to the first (0.2% and 3.1%, respectively). This fact is easily explained by the fact that the reduction of activity in all sectors as a result of preventing and combating infections with the SARS Cov 2 virus, as well as the introduction of movement restrictions, implicitly led to a reduction in the number of contracts for works and services in the sanitary field.

**Table 2. Distribution of relative frequencies and absolute frequencies regarding the concluded contracts**

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	<b>Supply</b>	31277	96.7	96.7	96.7
	<b>Works</b>	57	.2	.2	96.9
	<b>Services</b>	1010	3.1	3.1	100.0
	<b>Total</b>	32344	100.0	100.0	

Source: data generated by SPSS.

Regarding the type of the award notice published by the contracting authorities, the data presented in Table 3 indicate that the most notices were award notices for open tenders/accelerated open tenders (relative distribution=83.3%), compared to a weight of 16.7% in terms of award announcements for simplified procedures carried out during this period.

**Table 3. Distribution of relative frequencies and absolute frequencies regarding the type of award notice published**

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	<b>Award Notice</b>	26936	83.3	83.3	83.3
	<b>Award notice to simplified call for tenders</b>	5408	16.7	16.7	100.0
	<b>Total</b>	32344	100.0	100.0	

Source: data generated by SPSS.

Also, the data presented in Table 3 show us that in 2021, public hospitals carried out a smaller number of simplified procedures compared to the other award procedures, a possible explanation being that the estimated value of the public procurement contracts that were to be assigned by the contracting authorities (public hospitals) exceeded the value thresholds provided by the legislation on public procurement, which is also confirmed by the data presented in Table 4 below:

**Table 4. Distribution of relative frequencies and absolute frequencies regarding the type of public procurement procedure**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>Valid</b>	<b>Open tender</b>	26549	82.1	82.1	82.1
	<b>Accelerated open tender</b>	387	1.2	1.2	83.3
	<b>Simplified procedure</b>	5408	16.7	16.7	100.0
	<b>Total</b>	32344	100.0	100.0	

Source: data generated by SPSS.

Also, the descriptive analysis revealed the fact that the vast majority of public hospitals in Romania concluded framework agreements (81.4%), in favour of concluding public procurement contracts (18.6%), most of which were completed without e-tender as the final stage, as it can be seen from the data presented in Table 5 and Table 6 below. A possible explanation for the large number of framework agreements may be that this special way of awarding public procurement contracts can be concluded with one or more economic operators and has as its object the establishment of the terms and conditions governing the public procurement contracts to be assigned in a certain period, in particular as regards the price and, where appropriate, the quantities envisaged.

**Table 5. Distribution of relative frequencies and absolute frequencies regarding the type of contract concluded (contract/framework agreement)**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>Valid</b>	<b>Concluding a framework agreement</b>	26317	81.4	81.4	81.4
	<b>Concluding a public procurement contract</b>	6027	18.6	18.6	100.0
	<b>Total</b>	32344	100.0	100.0	

Source: data generated by SPSS.

**Table 6. Distribution of relative frequencies and absolute frequencies regarding the completion of the contract by electronic tender**

		Frequency	Percent	Valid Percent	Cumulative Percent
	<b>YES</b>	1707	5.3	5.3	5.3
<b>Valid</b>	<b>NO</b>	30637	94.7	94.7	100.0
	<b>Total</b>	32344	100.0	100.0	

Source: data generated by SPSS.

Next, in a bivariate analysis, the Correlate-Bivariate function was used in SPSS, to identify the existence of causal relationships between the analysed items, by calculating the *Pearson Correlation Coefficient*, whose significance from a statistical point of view was verified through the *Sig coefficient*.

After importing the Excel database, a data analysis was carried out, which took into account several variables, as follows: the number of offers, the value of the contract concluded, the date of publication of the tender notice, the minimum value of the contract, the maximum value of the contract and the estimated value, the results being presented in Table 7:

**Table 7. Correlations between the main variables related to public procurement contracts concluded by Romanian public hospitals in 2021**

		Number of offers	Contract value	Participation announcement date	Minimum contract value	Maximum contract value	Estimated value participation
Number of offers	<b>Pearson Correlation</b>	1	-.003	.099**	.079**	.080**	-.141**
	<b>Sig. (2-tailed)</b>		.629	<.001	<.001	<.001	<.001
	<b>N</b>	32344	20099	32344	12574	12575	32344
Contract value	<b>Pearson Correlation</b>	-.003	1	-.010	1.000**	1.000**	.421**
	<b>Sig. (2-tailed)</b>	.629		.144	<.001	<.001	<.001
	<b>N</b>	20099	20099	20099	329	330	20099
Participation announcement date	<b>Pearson Correlation</b>	.099**	-.010	1	-.005	-.004	-.152**
	<b>Sig. (2-tailed)</b>	<.001	.144		.610	.652	<.001
	<b>N</b>	32344	20099	32344	12574	12575	32344
Minimum contract value	<b>Pearson Correlation</b>	.079**	1.000**	-.005	1	1.000**	.196**
	<b>Sig. (2-tailed)</b>	<.001	<.001	.610		<.001	<.001
	<b>N</b>	12574	329	12574	12574	12574	12574
	<b>Pearson Correlation</b>	.080**	1.000**	-.004	1.000**	1	.196**

		Number of offers	Contract value	Participation announcement date	Minimum contract value	Maximum contract value	Estimated value participation
Maximum contract value	Sig. (2-tailed)	<.001	<.001	.652	<.001		<.001
	N	12575	330	12575	12574	12575	12575
Estimated value participation	Pearson Correlation	-.141**	.421**	-.152**	.196**	.196**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	
	N	32344	20099	32344	12574	12575	32344

Note: \*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: data generated by SPSS.

Analysing the values of the Pearson correlation coefficient, presented in Table 7 above, the following conclusions can be drawn regarding the public procurement contracts concluded by the public health units in Romania in 2021: with regard to the number of offers within the analysed award procedures, it can be observed that, in the case of the analysed *public procurement contracts*, there is a positive, significant relationship between the number of submitted offers and the publication date of the tender notice ( $R=0.099$ , Sig.  $<0.001$ ), which may suggest that the number of offers was influenced by the time period from the date of publication to the date of their evaluation. Practically, the longer the period between the date of publication of the tender notice and the date of bid evaluation, the greater the number of bids submitted by economic operators.

Paradoxically, in the case of the analysed contracts, regarding the correlation between the number of offers and the estimated value, the value of the Pearson correlation coefficient indicates that there is a negative but statistically significant relationship ( $R = -0.141$ , Sig.  $<0.001$ ). Practically, the higher is the estimated value of the contracts, the lower is the number of offers, a possible explanation being that in the pandemic year 2021 in the sanitary field there was a shortage in terms of sanitary materials and medical equipment and it makes sense that, when the estimated value was high, there would be a lower number of offers, if we take into account the fact that a high estimated value can be based on a large amount of goods, which could only be made available by those economic operators who had the capacity to honour the respective contracts.

Thus, considering what was presented previously, we can state that during the COVID-19 pandemic, the use of export restrictions in the case of medical equipment, medicines and sanitary materials had a significant impact in terms of competition in public procurement in the sanitary field, a fact that influenced both the estimated value of the public procurement contract and its final value. Here, the use of these restrictions regarding the sanitary field had other consequences than those presented by the researchers in Turkey (Morales-Contreras et al., 2021; Hoekman et al., 2022).

In the case of *framework agreements* from the analysed database, the value of the Pearson correlation coefficient indicates that the number of offers was influenced by the minimum value and the maximum value of the public procurement contract

( $R_1=0.079$ ,  $R_2 = 0.080$ , Sig.  $<0.001$ ). Practically, between the analysed variables there is a positive relationship from a statistical point of view, which indicates that, in the case of framework agreements in the field of health concluded in the pandemic year 2021 by public hospitals in Romania, there was a greater number of offers when the minimum and maximum values of a framework agreement were high, meaning that there was more competition between large economic operators in the area of framework agreements with higher minimum and maximum values.

The situation presented above also has an explanation: the framework agreement is based on the conclusion of subsequent contracts for a certain period, and unlike the situation of contracts presented above, the conclusion of framework agreements allows economic operators to have time to stock up, in order to honour the contracts. It can be stated that the framework agreements were concluded with those economic operators who had the technical capacity to supply themselves with the medical equipment, sanitary materials, and medicines requested by the contracting authorities analysed, respectively, by the public hospitals in Romania.

## **6. Conclusions**

The main effects on the value of public procurement contracts concluded by Romanian public hospitals in 2021 were generated by their estimated value, as well as the publication date of the tender notice/simplified tender notice. The least effects on the final value of public procurement contracts in the analysed period were related to the possibility of awarding contracts in batches, as well as the possibility of finalising purchases by choosing the electronic tender.

In the conditions of the COVID-19 pandemic, the conclusion of framework agreements also represented a safety measure for the contracting authorities, respectively public hospitals, by the fact that the conclusion of such framework agreements made possible that, in the event that one of the economic operators could not make available the medicines/medical materials requested by the contracting authority on the basis of the concluded framework agreement, the latter being able to purchase from another economic operator participating in the framework agreement, and in the event that none of the economic operators party to the framework agreement can make available to the contracting authority the products that are the subject of the framework agreement, the contracting authority can turn to another economic operator for their supply, in accordance with the Romanian law.

Also, based on the conclusion of researchers from Turkey and not only (Gereffi, 2020; Hoekman et al., 2022; Hanspach, 2023), regarding the fact that there is a strong positive correlation between the use of export restrictions that targeted medical products and the average time required to complete a competitive procurement procedure, we can conclude based on the results generated by SPSS that there is a positive correlation between import restrictions, the average time required to carry out a public procurement procedure and the number of bids submitted, a fact that practically influences the number of economic operators participating in public procurement procedures in the sanitary field, thus limiting competition between

them, with an impact both on the price of the public procurement contract as well as on the amounts used from public funds.

Summarising the above, the main conclusion is that, in crisis situations, the behaviour of economic operators participating in the awarding procedures carried out by contracting authorities in the health field is different in periods of crisis compared to periods of normality, in the sense that there is a series of factors that can affect their ability to honour public procurement contracts. In the case of public authorities, they must create risk indicators and performance indicators based on the careful analysis of these behaviours, both from the perspective of periods of crisis and from the perspective of periods of normality.

Also, decision-makers at the governmental level must take into account the current regulatory framework in the field of public procurement and develop special procedures for emergency situations, taking into account the fact that some of these cannot be foreseen and can have a devastating impact on both society as was the case with the COVID-19 pandemic, as well as on the use of public funds in conditions of efficiency, effectiveness, and economy.

At the same time, for periods of crisis, the public authorities must be prepared, first of all, from the perspective of securing the necessary funds, but also from the perspective of using performance indicators and risk indicators adapted to these periods, in order to make spending from public funds more efficient, but and in order to combat and eliminate the risks that may arise in times of crisis regarding the good running of public procurement contracts.

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