SCIENTIFIC CRITICISM, CONTROVERSY

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THE RELATIONSHIP OF SITUATION EFFICIENCY IN THE BASKETBALL PLAYER REPRESENTATIONS PARTICIPANTS AT EUROPEAN CHAMPIONSHIP 2017

SUMMARY

The subject of this research is the standard situational features of basketball teams at the European Championship 2017. On the basis of the given subject, we defined the aim of this research to determine the connection of situational efficiency in basketball with the achieved placement of national teams participating in the 2017 European Championship. The sample of variables in this survey includes fourteen variables for assessing situational efficiency in basketball, determined by the World Basketball Federation (FIBA). On the basis of the obtained results, we came to the conclusion that the representations of the participants with a better overall percentage of the shot, the percentage of two-and-three points, more jumps and more points scored per game during the European Championship have a better performance

***Key words**: European Championship 2017, situational efficiency*

INTRODUCTION

A basketball game can be viewed as an ordered series of activities that each player has to perform with respect to the place and role of the team in the particular concept of the game. For the purpose of monitoring events at the basketball game, FIBA has standardized the situation-based performance indicators that are monitored at every official match. The suggested indicators of situational efficiency are: the number of balls in the game in the basket for two points, the number of attempts to throw the ball out of the game to the basket for two points, the number of balls in the game in the basket for three points, the number of attempts to throw the ball out of the game to the basket for three points, the number of balls in the basket behind the free throw line (one, two, and three), the percentage of success for all the listed shots, defense leap, jump in attack, assists, personal errors, lost balls, won balls and blockade shots. In this paper, we analyzed the fourteen parameters of situational efficiency in the game (percentage of penalty for 1, 2 and 3 points, the number of attempts to throw a ball for 2 and 3 points, jump in attack and defense, jump total, assisted, scored balls and lost balls and total number of points.

METHOD OF WORK

Sample respondents

The survey was conducted on a sample of twenty four (24) representations of the participants of the European Championship 2017. The data has been collected from all matches of the 2017 European Championship.

Sample variables

The data was downloaded from the official website of the European Basketball Championship 2017. The sample of variables consists of fourteen variables for the assessment of situational efficiency, as determined by the World Basketball Federation (FIBA), which are: average number of shots per game (SHUTG); percentage of total penalty (SUT%); number of attempts to score 2 points (ŠUT2P); percentage of shots for 2 points (ŠUT2P%); number of attempts to score 3 points (ŠUT3P); 3-point penalty score (ŠUT3P%); percentage of inserted free throws (FT%); total rebounds achieved (SKOK); jump in attack SKOKOF); defense rebounds achieved (SKOKDF); Assisted Assistance (ASS); lost balls (TOURN); the winning balls (STOL); average number of points scored in the match (POENG).

RESULTS WITH DISCUSSION

The research was conducted on the basis of an analysis of basketball matches at the European Championship 2017. In the formation of the database, standard indicators from all played matches in the championship were used. Appropriate mathematical-statistical methods and procedures were used for processing, data entry and analysis of results. For all applied variables, mean, Mean and Minimum values (MIN and MAX), standard deviation (SD) are calculated. Data processing is done in the SPSS software package for Windows. Of the statistical procedures, we used the T test for differences between successful failing teams and regression analysis for the connection of predictor variables with the criterion variable.

Table 1 shows the average achieved values of all situational efficiency parameters for all representations of the participants at the European Championship 2017. By comparing the values obtained with the values of the previous research (Korjenic et al., 2013), in a survey carried out on a sample of twelve (12) players representing the Olympic Games in 2012 in London, we found that basketball players from 24 national teams at the European Championship of 2017 had better percentages shot for 2 points (48.97-50.85), significantly better percentage of free-throw shots (68.70-75.44) and almost identical percentage points for 3 points (34.37-34.07). A similar study was carried out (Džajić and al, 2009) on a sample of basketball teams that took part in the 2008 Beijing Olympic Basketball Tournament. A comparison with the results from this survey suggests that basketball players who took part in the 2017 European Championship achieved better Results in the offensive jump (6.35-10.10) in the defensive jump is a drastic difference (14.12-25.06), as well as in the assisted assists (8.13 to 18.41).

Table 1. Descriptive statistical parameters of basketball players at the European Championship 2017

Varijabla	N	Mean	Min.	Max.	Std.Dev.	Skew.	Kurt.
ŠUTG	24	61,46	55,00	69,00	4,02	0,12	-0,882
ŠUT%	24	44,69	37,90	50,70	3,85	-0,17	-1,03
ŠUT 2 P	24	38,17	28,30	45,80	4,81	-0,53	-0,20
ŠUT2P%	24	50,85	41,50	58,40	4,87	-0,25	-1,06
ŠUT3P	24	23,28	15,00	28,60	3,48	-0,46	-0,25
ŠUT3P%	24	34,07	26,30	39,90	4,02	-0,41	-0,97
FT%	24	75,44	62,40	84,40	6,28	-0,77	-0,31
SKOK	24	34,74	27,60	42,00	3,62	-0,11	-0,19
SKOKDF	24	25,06	19,80	35,20	3,43	0,98	1,81
SKOKOF	24	10,10	6,40	12,80	1,83	-0,11	-0,92
ASS	24	18,41	13,00	24,30	2,60	0,24	1,00
TOURN	24	13,08	10,80	16,20	1,56	0,22	-0,65
STOL	24	6,82	4,80	9,20	1,29	0,07	-0,91
POEN G	24	77,32	63,20	91,60	7,383	0,23	-0,55

Legend: N- number of respondents; Mean - arithmetic mean; **Min**. - minimum score; Max. - maximum score; **Std.Dev**. - standard deviation of the arithmetic mean; **Skew** - the asymmetry of the distribution curve**; Kurt**. - Flexibility of the results distribution curve.

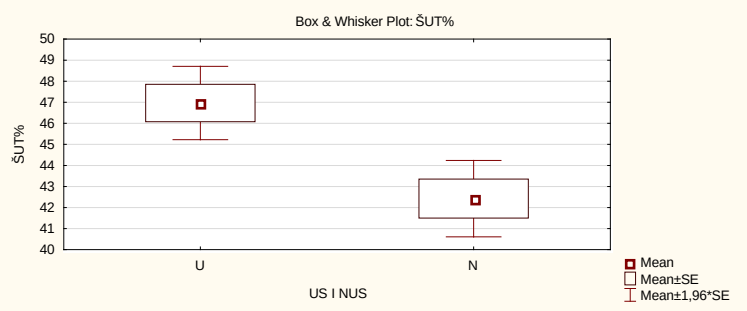
Table 2 shows whether there is a statistically significant difference and what are the variables that contribute to the difference between the successful teams (the top 12) and the unsuccessful teams (last 12) at the 2017 European Basketball Championship. Data analysis showed that there is a statistically significant difference (p = .00) between the observed variables (ŠUT%, ŠUT2P%, ŠUT3P%, SKOK, and POENG), which means that there is a very high correlation between the achieved placements and the mentioned variables. We can conclude that the representations with a better percentage of the total penalty, the percentage of shots by 2 points, the percentage of shots by 3 points, the better total number of jumps and the higher number of points achieved, on average per match, achieved better placement in this competition.

Table 2. Differences in Arithmetic Meanings between Successful and Unsuccessful Teams at the European Championship 2017.

Varijabla	Mean-U	Mean-N	df	t-test	p
ŠUTG	60,60	62,32	22	-1,04	0,30
ŠUT%	46,96	42,42	22	3,53	0,00
ŠUT 2 P	36,92	39,43	22	-1,29	0,20
ŠUT2P%	53,76	47,94	22	3,61	0,00
ŠUT3P	23,68	22,89	22	0,54	0,58
ŠUT3P%	36,06	32,09	22	2,73	0,01
FT%	76,79	74,10	22	1,05	0,30
SKOK	36,19	33,30	22	2,09	0,04
SKOKDF	25,84	24,29	22	1,11	0,27
SKOKOF	10,37	9,83	22	0,71	0,48
ASS	19,10	17,73	22	1,30	0,20
TOURN	12,70	13,46	22	-1,19	0,24
STOL	6,50	7,13	22	-1,19	0,24
POEN G	81,87	72,76	22	3,80	0,00

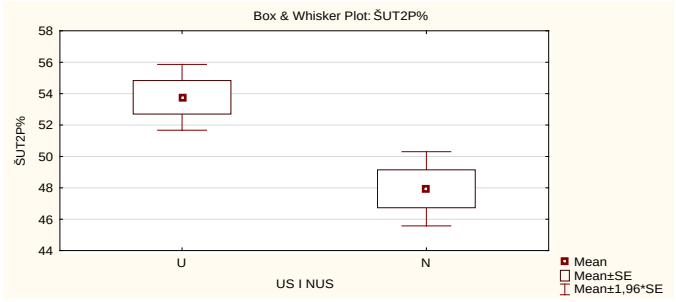
Legend: **Mean successful** - arithmetic mean of the group successful; **Mean unsuccessful** - group's arithmetic unsuccessful**; t value** - the value of the t-test coefficient for testing the significance of the differences; **Df** - degrees of freedom; **p-** coefficient of significance difference arithmetic mean; * - statistically significant level of differences in arithmetic meanings

Chart 1. Percentage of the success of the total penalty at the match



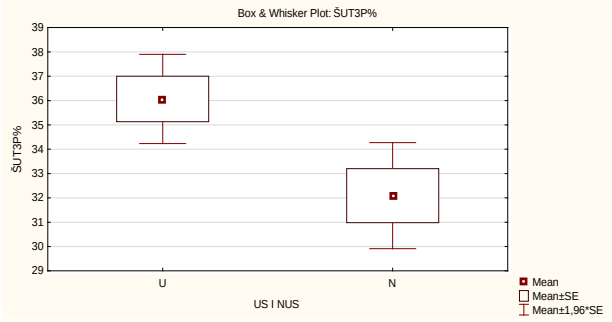
The mid-range chart for the percentage of shots indicates that better placed teams are four percent more successful in overall squad play than the weakly placed teams.

Chart 2. Percentage of success of two-point shots



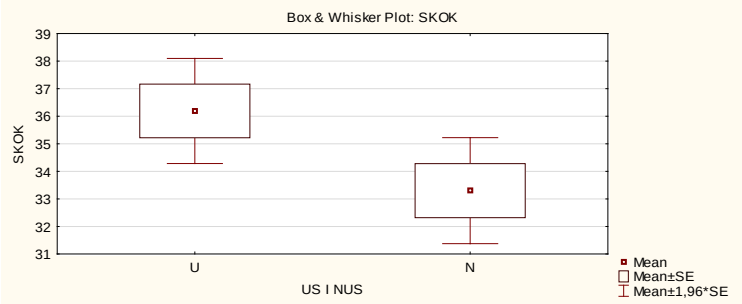
The mid-range figure of the variable percentage of the two-point shot indicates that the better placed teams are for six percent more successful than the weakly placed teams.

Chart 3. Percentage of success of the penalty for three points



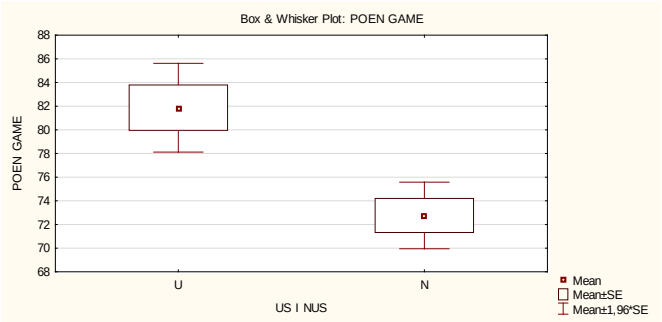
The mid-range figure of the variable percentage of the shot for three points indicates that better placed teams are four percent more successful than weakly placed teams. For example, the results in the work (Ćeremidzic, D.) from 2010 in a survey conducted on the sample of basketball teams of the NLB and NBA League in the regular part of the season when the distance of the line for three points was 6.25 meters indicates that the teams from the then NLB League have a lower percentage of shots for three points 35.73% of the team from Euroleague 37.25%. When we compare these percentages with the percentages of successful teams from this research we can notice that the differences are minimal (36.06), which is not the case with unsuccessful teams, which achieved far less percentages in this variable (32.09).

Graph 4. Number of jumps per game



The chart of mean values of the variation total jump shows us that better placed teams for three jumps on average per game are more successful than weakly placed teams. When we compare the data with the survey (Ćeremidžić D) conducted on the team from Euroleague, we can conclude that the total jump in the match differs in one attempt (36,19-34,37) in favor of the successful teams from the 2017 European Championship.

Graph 5. Number of points per game



The average median score of the variable total number of points scored in the match indicates that the better placed teams for 9 points were average per match more successful than the weakly placed teams (81-72).

Regression analysis

Regression analysis has determined the connection of the predictor variables (fourteen parameters of situational efficiency) with the achieved placement at the European Championship 2017. The value of the multiple correlation coefficient is R 0.962, and it serves to determine the quality of the prediction of the dependent variable variable, in this case the placement of the team. The value of 962 represents a good predictor level. The "R Square" column represents the decision-making coefficient, i.e. the proportion of the dispersion of a dependent variable that can be explained independently. Our value of 0.925 is 92.5% of the variability of the dependent variable that can be explained by the independent variable, so the binding strength is very strong.

Table 3. Regression analysis

MODEL	R	R^2	Adjusted R^2	Std.Error of estimate
1	,962	0,925	,844	2,90

The F-value in the table ANOVA, which is shown below, tests whether the regression model is good for these values. The table shows that independent variable well-statistically predict the dependent variable that has been placed in this study. In other words, the regression model is good.

Table 4. Analysis of variance

Analysis of Variance; DV: (EURO 2017)					
	Sums of - Squares	**df**	**Mean - Squares**	**F**	**p-value**
Regress.	1160,72	12	96,72	11,43	0,00
Residual	93,01	11	8,45		
Total	1253,74				

CONCLUSION

It can be noted that the situational efficiency in the basketball game is in direct relation with the achieved placement, ie, the connection directly influenced the general placement of national team representations at the European Championship 2017. The distribution of situational efficiency parameters on average follows the "usual" distribution of events at the basketball level and basketball competition as a whole, which are statistically significantly related to each other. On the basis of the given variables for the assessment of situational efficiency, we have established that the representations of the participants with a better overall percentage of shots, the percentage of shots for two and three points, more achieved jumps

and higher points on average per game during the European Championship have a better performance.

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