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"Global Challenges and Prospects of the Modern Economic Development"****SPORT ACTIVITY OF RUSSIAN POPULATION AS A FACTOR
OF SOCIO-ECONOMIC DEVELOPMENT**

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Abstract

Resulting from a vast review of works devoted to substantiation and estimation of the influence of sport activity on social-economic development in different countries, the authors propose a comprehensive fundamental conception of the influence of sport activity, according to which sport activity facilitates the formation of financial, intellectual and social capitals within the socio-economic system. Unlike the traditional estimations of the sport sector contribution to added value in economy and creating new jobs, constituting the direct economic effects of sport sector, the present research focuses on the collateral effects of sport activity. In particular, it is shown that the increase of sport activity reduced the level of temporal disability in the Russian regions in 2008-2016. This reduction has an indirect economic effect, as the healthcare expenditures decrease and the overall productivity of the able-bodied population increases. Also, it was econometrically proved that sport activity of the population develops social capital in the Russian regions. To a great extent as a result of sport activity, one of the main elements of social capital – the capital of values and norms – is formed. The results obtained in this research, combined with the results obtained in other works, discussed above, allowed us to substantiate a number of channels of the influence of sport activity of the Russian population on the economic growth of the Russian regions.

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Keywords: Physical culture, sport activity, social capital, capital of trust, capital of social networks, capital of values and norms.



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1. Introduction

Sport activity is a specific social phenomenon, which produces a multi-side effect on the society and its development. Sport and physical culture promote healthy lifestyle and harmonious development of a personality, create favorable conditions for forming social institutions, disseminating and consolidating the moral values and norms. Absolute majority of researchers confirm the positive social and economic effects of sport activity. However, first, the authors usually touch upon individual narrow spheres of sport activity influence on the society development; second, there are actually no works giving strict mathematical substantiation of quantitative estimations of collateral effects of sport activity. The present research proposes and tests the technique of comprehensive quantitative estimation of social-economic effects of sport activity in the Russian regions.

The social capital in the society, with its key elements being the level of trust, the social links and the values and norms shared in the society, is largely formed as a result of physical culture and sport development. The characteristics of the specific factors of the influence of sport activity and their indicators will be given below.

The economic effects of sport activity were studied by Gratton and Taylor (2000), Leeds and von Allmen (2002), as well as by the authors of the report “Study on the Contribution of Sport to Economic Growth and Employment in the EU” commissioned by the Directorate-General Education and Culture of the European Commission in November 2012 (SportsEconAustria, 2012).

Besides, the previous researches were reviewed, in which the influence of sport activity on creating the social capital was substantiated.

Uslaner (1999) offered one of the few significant researches of interrelations between sport and social capital. He asserted that sport is the sphere in which social capital can be appropriately formed. The author emphasizes three processes which allow considering sport activity to be a contribution to social capital: forming self-confidence, activation of social contacts, and lessons of morality.

Warren (2001) asserted that sport organizations are strong in “civil virtues”, including three aspects – reciprocity, trust, and recognition – which are very close in their essence to social capital as interpreted by Putnam (2000).

Thus, Uslaner (1999) and Warren (2001) agree that sport organizations are well prepared for creating social capital. In particular, M. Warren asserted that the social capital appearing as a result of participation in sport organizations is most topical for forming the more general social obligations (for example, mutual trust).

Uslaner (1999) marked that participation in sport activity develops various social competencies, close in their nature to social capital, which should have positive social consequences. Similar conclusions were made by other authors: “Sport teaches young people to be independent, self-controlled, resolute, responsible and united in their views” (Papp & Prisztóka, 1995, p. 375); “Sport can teach. Sport can form. Sport can unite. Sport can console. Sport can raise.” (McNamee, 1998, p. xv). These opinions correspond to the traditional view that sport is an activity which includes developing a person’s character through social cooperation (Elias, 1971; Mandell, 1984).

Systematization and discussion of the factors of the influence of sport sector on social-economic development are given in the works by (Sanderson, Harris, Russell, & Chase, 2000; Di Palma, Raiola, & Tafuri, 2017; Di Palma, Tafuri, Ascione, & Raiola, 2018).

Thus, the above review yields a theoretical and empirical substantiation of the influence of sport activity on the development of social-economic systems. The present research puts forward and tests a number of hypotheses on the influence of sport activity on social-economic development of the Russian regions.

2. Problem Statement

Sport and physical culture promote healthy lifestyle and harmonious development of a personality, create favorable conditions for forming social institutions, disseminating and consolidating the moral values and norms. Absolute majority of researchers confirm the positive social and economic effects of sport activity. However, first, the authors usually touch upon individual narrow spheres of sport activity influence on the society development; second, there are actually no works giving strict mathematical substantiation of quantitative estimations of collateral effects of sport activity.

3. Research Questions

Sports activity of the population has a number of positive socio-economic effects. Among them, in particular, a decrease in the incidence of the population, the formation of a harmonious personality and harmonious relations in society, the level of which can be described as social capital. The social capital in the society, with its key elements being the level of trust, the social links and the values and norms shared in the society, is largely formed as a result of physical culture and sport development. The characteristics of the specific factors of the influence of sport activity and their indicators will be in this paper below. The study answers the question of how the incidence of economic activity of the population decreases and social capital increases as a result of the growth of sports activity of the population in the regions of Russia.

4. Purpose of the Study

The present research proposes and tests the technique of comprehensive quantitative estimation of social-economic effects of sport activity in the Russian regions. To do this a number of hypotheses on the influence of sport activity on social-economic development of the Russian regions is stated and verified econometrically. The purpose of the study is to prove the beneficial effect of sports activity on the incidence rate and social capital of the population in the regions of Russia.

5. Research Methods

The main tool of this research is econometric modeling. We formulate and test a number of hypotheses to identify factors of sports activity of the population in the Russian regions based on a literature review based on the official regional statistics of Russia.

The key data for the research are the values of sport activity in the Russian regions in 2008–2016, taken from the annual reports of the Russian Ministry of Sport “Indicators for estimating the efficiency of the performance of executive authorities of the Russian Federation subjects”, published in the official web-site of the Ministry. In particular, the key indicator of sport activity of a region, used in the present research, is the indicator “A share of the population, systematically engaged in physical culture and sport, in the total number of the population (percent)” (the variable is further referred to as SP).

Another key source for the present research is the report prepared by Aventica Company on the order of the Russian Public Chamber in 2015. It gives an estimation of the main elements of social capital and its integral indicator for the Russian regions (Korobeynikov et al., 2015). In particular, the report gives estimations of the main components of the social capital: the capital of trust, the capital of social networks, the capital of values and norms, and the integral indicator of the social capital of a region.

Taking into account the social capital structure, described in the modern literature, the present paper views both the integral indicator (index) of social capital, and the indices of its main elements: the indices of the capital of trust, the capital of values and norms, and the capital of social links (social networks), see, for example, (Korobeynikov, 2017).

The regional distribution of the index of the capital of values and norms, as one of the constituents of social capital of the Russian regions is based on the above report.

In the course of modelling, we used the following variables and their signs: SC1-15 – capital of trust, SC2-15 – capital of values and norms, SC3-15 – capital of social networks, SCG-15 – integral indicator of social capital.

The data for the indicator “Number of days of temporal disability per 100 employees” for the Russian regions (further referred to as W) in 2005-2016 were found on the basis of aggregation of the data of Form No. 16-VN “Data on the causes of temporal disability”, collected and processed by the Department for Organizing Medical Prophylactics, Medical Aid and Healthcare Development of the Ministry of Healthcare of the Russian Federation. In particular, the data for the W indicator were taken from the United Inter-Departmental Information-Statistical System (UIDISS) of Rosstat (Federal Agency for State Statistics Rosstat, 2018).

The models built and described in this research use the data of annual reports “Regions of Russia. Social-economic indicators”, published by the Federal Agency for State Statistics (Rosstat), for years from 2008 to 2016.

6. Findings

The influence of sport activity on various sphere of socio-economic development in the Russian regions was found on the basis of econometric modeling. Depending on the specificity of the data available, modeling was carried out by crosssectional, time series, or panel data. The present research shows the results of modeling of the influence of sport activity in the regions on the level of temporal disability of their population for all the Russian regions and Russia as a whole. They are shown in Table 01.

Table 01. Model of estimating the influence of sport activity of the population on the level of temporal disability in the Russian regions (denoted as W). Sample: 82 Russian regions, 2008-2016

Dependent variable: W	Russia as a whole (time series)	Panel of 82 regions	Panel of 82 regions
Variable \ Model No.	1	2	3
C	1065.56 (0.0000)	1041.636 (0.0000)	477.3702 (0.0000)
SP(-2)	-1680.05 (0.0000)	-1452.865 (0.0000)	-829.6748 (0.0000)
W(-1)			0.316153 (0.0000)
W(-2)			0.235401 (0.0000)
R²	0.9758	0.8551	0.8893
Durbin-Watson statistics	3.2491	1.3446	2.1615
F-statistics	201.6218	35.3565	46.7889
Probability by F- statistics	0.0000	0.0000	0.0000

Note: the probabilities of confirming the null hypothesis by t-statistics for the coefficients of the models are shown in parentheses (below the value of coefficient before the independent variable). W – the number of days of temporal disability on the region per 100 of employees (annually); SP – the share of population, systematically engaged in physical culture and sport, in the total number of the population (percent); the expressions (-1) and (-2) in the variable denote time lags by one or two periods respectively.

Source: authors.

Model 1 of Table 01 was built for Russia as a whole by yearly data for 2008-2016 (time series are used). Parameters of Model 1 show that the variable SP possesses a perfect explanatory ability for explaining the dynamics of the number of disability days in Russia in the studied period W. To obtain better specification of the model and to better account for the regional specificity, we used panel data of 82 Russian regions for 2008-2016 (see Model 2 of Table 01; the cross-section sample of this model excludes the Crimea, Sevastopol and Nenets Autonomous Area because of incomplete data on them). In compliance with the testing result by Hausman, the model uses territorial fixed effects.

Model 2 of Table 01 is well specified, the independent variable SP(-2) is highly statistically significant and explains over 85% of differences of the dependent variable W in the Russian regions. However, this model shows series correlation, which can be eliminated by adding auto-regression variables into the model (see Model 3 of Table 01). Adding of these variables improves all parameters of the model.

Model 3 of Table 01 is well also specified statistically and can be used for predicting the W variable for the Russian regions.

Thus, based on regression modeling for panel data of the Russian regions, it was proved that the increase of sport activity reduces the number of temporal disability days of the population in the Russian regions. As a result, one may conditionally say that the supply of qualified (employed) labor force grew due to the increase of sport activity of the population.

Besides, we present the results of modeling of the influence of sport activity of the population in the Russian regions on the level of social capital in them. We considered both the general level of social capital of the regions (SCG-15), and one of its main constituents – the capital of values and norms (SC2-

15). As an indicator of sport activity we again chose SP (see the description above). When modeling, this indicator was denoted as SP15, where the last two digits denote the year of observation – 2015. The time period of the indicator was chosen not accidentally. The indicators of social capital are calculated for the same period.

Table 02. Model of estimating the influence of sport activity of the population on the level of temporal disability in the Russian regions (denoted as W). Sample: 82 Russian regions, 2008-2016

Dependent variable	SCG-15	SC2-15
Variable \ Model No.	1	2
C	0.1810 (0.8194)	0.2083 (0.7428)
SP15	8.1342 (0.0016)	8.8177 (0.0000)
R ²	0.1163	0.1943
F-statistics	10. 6564	19.5319
Probability by F-statistics	0.0016	0.0000

Note: the probabilities of confirming the null hypothesis by t-statistics for the coefficients of the models are shown in brackets.

The variable of sport activity of the population SP15 is significant in the models explaining the differences between the regions in the level of general social capital (SCG-15) and one of its key elements – the capital of values and norms (SC2-15); see Table 02.

Table 02 shows that the variable SP15 explains 11.6% and 19.6% of differences between the regions in the level of general social capital and the capital of values and norms, respectively.

7. Conclusion

Thus, we built and interpreted a number of econometric models based on the data of the Russian regions, in which we strictly mathematically proved the influence of sport activity on various spheres of social-economic development of the Russian regions in 2008-2016. The results obtained in this research, combined with the results obtained in other works, discussed above, allowed us to substantiate a number of channels of the influence of sport activity of the Russian population on the economic growth of the Russian regions. They, in turn, will serve as the basis for forecasting the socio-economic effects of the increased sport activity. Estimation of such effects is necessary for proving the economic efficiency and cost recovery of the events in the sphere of physical culture and sport. In future, we plan to expand empirical research in order to further substantiate the methodology proposed in this study.

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