Original Article

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Interaction Effect between Sports Participation and Elite Sports Development

Authors' contribution:
A. Conception and design of the study
B. Acquisition of data
C. Analysis and interpretation of data
D. Manuscript preparation
E. Obtaining funding

Saeed Khanmoradi[1A-E*]
Shirin Zardoshtian[2A-D]
Shahram Fatahi[3B-C]
Geoff Dickson[4D]

[1]*PhD of Sport Management, Faculty of sports sciences, Razi University, Kermanshah, Iran
[2]Assistant Professor of Sport Management, Faculty of Sports Sciences, Razi University, Kermanshah, Iran
[3]Associate Professor of Econometrics, Faculty of Economics and Entrepreneurship, Razi University, Kermanshah, Iran
[4]Associate Professor of Sports Management and Director of Research Partnerships, Business School, Latrobe University, Melbourne, Australia

Corresponding author: Saeed Khanmoradi, PhD of Sport Management, Faculty of sports sciences, Razi University, Kermanshah, Iran
E-mail: khanmoradisaeed@gmail.com

Article History:
Received: *March 27, 2021*
Revision: March 30, 2022
Accepted: *April 4, 2022*
Published: *April 11, 2022*

How to Cite: Khanmoradi, S., Zardoshtian, S., Fatahi, S., & Dickson, G. (2022). Interaction Effect between Sports Participation and Elite Sports Development, *Indonesian Journal of Sport Management*, 2(1), 45-63. https://doi.org/10.31949/ijsm.v2i1.2261

Abstract. Elite athlete success in international events and sports development promotes sports participation and this is main concern for many researchers to develop the elite sport. If the economic conditions are not desirable, it is not possible to develop elite sport and promote sports participation to achieve this goal. Economic crises have made the managers employ a deep insight into the effect of the economic conditions of the country on the sport. Therefore, the purpose of this study is to investigate the interaction effect of sports participation and elite sports development with an emphasis on macroeconomic variables using an econometric model with a simultaneous equation approach based on the 2SLS method in Iran. The results showed that inflation and unemployment rates have significant and negative effects on sports participation. Rural household income has a significant and positive effect on sports participation but urban household income has a significant and negative effect on sports participation. Standard of living has a significant and positive effect on sports participation. The effects of sports media, sports budget, and Non athlete participants on elite sports development are significant and positive. Finally, the interaction effect of sports participation and elite sports development is positive and significant.

Keywords: elite sports development, sport economics, sports participation.

INTRODUCTION

There is a common perception that elite athlete success in international events increases sports participation in a country (Downward, et al, 2009). Sport development systems aim to increase the number of participants who actively work in sport and employ measures to enhance the quality of sports performance (Kumar et al., 2017). Therefore, it is important to investigate the interaction effect of sports participation and elite sports development.

Iran is a novel context to study the relationship between sports participation and elite sports development. In Iran, government influence of sport is very strong. In 1979, the new government mandated that all clubs must have names reflecting an association with the armed services, the security forces, government departments or the trade unions. The Iranian government provides funding through the Physical Education Organization (Dousti, et al., 2013). The Ministry of Youth and Sport is the central administrative agency for sport and recreation in Iran. In terms of sports, the stated objectives and functions of the Ministry of Youth and Sport are to increase the number of people participating in an active and healthy lifestyle and to increase excellence in sports at the national and international levels (Dousti et al., 2013). The Iranian governments interest in sport is also predicated on preparing young people for military service. Sport has also historically been used to distract "the attention of the people from pressing social problems of authoritarian social control" (Dousti et al., 2013).

In recent years, Iran has been able to achieve sports success in some sports such as volleyball and football and introduce many elite athletes to the world at the international level. These successes have increased the interest of teenagers and promoted sports participation. Also, in recent years, Iran, as a developing country, has faced many economic problems. These problems are mostly due to international sanctions on Iran. These problems have had a great impact on Iran's economy and livelihood and sport. Elite sports and sports participation have suffered due to problems such as rising prices, rising exchange rates, and so on.

Therefore, this study investigates the interaction effect of sports participation and elite sports development with an emphasis on macroeconomic variables. Within this approach, we also measure the impact of inflation rate, unemployment rate, both rural and urban household income and standard of living on sport participation levels. Finally, the study also measures the impact of sport media, sport budget, and non-athlete participants on elite sport development. The study uses an econometric model with a simultaneous equation approach based on the 2SLS method. In the next section, the theoretical foundation and hypotheses are outlined.

THEORETICAL FOUNDATION AND HYPOTHESIS DEVELOPMENT

Sports participation and elite sports development

Around the world, sport is increasingly emphasized by developed and non-governmental and governmental organizations and is considered as a strategic tool to achieve social development, cultural, physical, educational, and economic goals (Hoekman, et al., 2018). One of the significant features of contemporary sport development is the interest of the government in elite sports development. As Houlihan (2011) states, elite sport success is an undeniable goal for many governments. In this context, many researchers have investigated the management of elite sport policies (Bernard & Busse, 2004; De Bosscher, et al., 2015; Green & Houlihan, 2005; Zheng, et al., 2017). There are a significant number of empirical evidences that teens choose famous athletes as role models (Biskup & Pfister, 1999; Bromnick & Swallow, 1999; Buford May 2009; Duck, 1990; Vescio, et al., 2005). Various studies on the effect of professional sport on sports participation are found around the world. For example, membership in Rugby in Australia is increased after the World Cup 2003. Also, in Germany, 23% of the population reported that the victories of national athletes in the Olympics have increased their motivation for sports participation (Breuer & Hallmann, 2011).

In many countries, there are clearly designed pathways. For example, the Chinese system is structured according to three levels - sport schools for children, sport schools at the city level and then national and provincial teams (Zheng, et al., 2017). But in Iran, there is not elite sport system and athletes who are active in various sports, after a while, due to various reasons that the most important one is economic and financial issues, get far from sport fields. Based upon this collective evidence, we propose hypothesis 1: There is a positive and significant interaction effect between sports participation and elite sports development

Inflation and unemployment rate and sports participation

Inflation reduces the value of the currency and this effect can be significant (Urminsky & Zauberman, 2014). Decision-makers should be sensitive about inflation rates (Frederick, et al., 2002). Some countries have a high inflation rate such as Venezuela that in 2016 has an inflation rate of 800% and Zimbabwe in 2008 that experienced an inflation rate of 100% (Macchia, et al., 2018). It can be expected that sports participation decreases with high inflation rates.

Other studies show that unemployment has a negative impact on sport participation. Gough (2017) concluded that unemployment for men is not associated with changes in physical activity time. However, for women, their unemployment is associated with increases in physical activity, whereas a partner's unemployment is associated with decreases in physical activity. Unemployment and the associated lack of income reduced leisure participation for both males and females (Roberts, et al., 2013). Aizawa, et al. (2018) studied the long-term effect of 1964 Tokyo Olympics on sports participation, concluding that that unemployment had a significant positive effect on sports participation. In contrast, Rowe, et al. (2013) consider employment as an important determinant of sports participation. Unemployment in the UK (0.50) has a more negative impact than Spain (0.73) on sport participation and the unemployed probably have a longer time but less income to sports participation (Kokolakakis, et al.). Ultimately, unemployment limits both motivation and the financial capacity to sports participation. Therefore, in the present study, the effects of the inflation rate and unemployment on sports participation were investigated and based upon this collective evidence, we propose: hypothesis 2: There is a negative relationship between inflation rate and sports participation. hypothesis 3: There is a negative relationship between unemployment rate and sports participation.

Household income and sports participation

The research literature provides evidence that low income may be considered as an obstacle to sports participation (Breuer & Wicker, 2008; Farrell & Shields, 2002; Humphreys & Ruseski, 2007; Lera-Lopez & Rapun-Garate,2007; Wicker, et al., 2009; Garcia, et al., 2011). Governments subsidies can make sport more accessible for low-income households (Thibaut, et al., 2017). Low-income families are often excluded from sports because they face more difficult financial problems (Bittman, 2002; Thibaut et al, 2016). Therefore, the effect of household income on sports participation is very important. Based upon this collective evidence, we propose hypothesis 4: There is a positive relationship between (urban and rural) household income and sports participation.

Standard of living and sports participation

Standard of living refers to the level of wealth, comfort, material goods and necessities available to a certain socioeconomic class or geographic area. Shin (2007, p. 3) wrote that "economic conditions and standards of living have influenced the development of sports in terms of both direct participation for physical fitness and competition and participation as fans and spectators of the sporting events for entertainment". Poverty is synonymous with a lack of resources. Poverty is a specific form of social exclusion. Poverty and social exclusion are seen

as social problems that warrant public policy intervention (Vandermeerschen & Scheerder, 2017). Poverty and social exclusion are linked to the inability to participate (Ferragina, et al., 2013). Based on these explanations, this paper examines the standard of living using GDP per capita On this basis we propose hypothesis 5: There is a positive relationship between standard of living and sports participation

Sports media and elite sports development

The relationship between sport and media is symbiotic. Sport is a key area of national and cultural property of the world and is an important product of media. In the analog era, the media industry formed a set of relatively discrete markets (i.e., TV, radio, and newspaper, magazine) that each of them was covering the content generated by sport in unique ways (Sanderson, 2011). National sports agencies and sport governing bodies should be informed of changes in youth consumption habits and respond to new platforms such as programs, digital media, and social networks to provide people with sport content better (Funahashi et al., 2019). Engaged Participants in different sports (action, extreme, alternative, or ‘‘lifestyle) have a long history of creating and consuming media content (Smith, 2020). Dawson and Downward (2011) concluded that participation in professional sports events and watching sports on mass media are positively related to increased active participation in sport. Both Andersen and Ronglan (2012) and Wijk’s (2012) believe that promotion and exposure of tennis in the media in Sweden are closely linked to the popularity of tennis in Sweden and the success of their elite players. The media also plays an important role in promoting the hosting of big events. According to the explanations and examples, investigating the effect of sports media on elite sports development is very important. Based upon this collective evidence, we propose hypothesis 6: There is a positive relationship between sports media and elite sports development.

Sports budget and elite sports development

One of the key discussions about elite sport competition is to what extent medals can be “bought”. There is mounting evidence that the countries that invest most money in elite sport are also the most successful nations in major international sport events (de Bosscher, 2018; De Bosscher, De Knop, et al., 2009; de Bosscher, Shibli, et al.; 2010). Based upon this collective evidence, we propose hypothesis 7: There is a positive relationship between sports budget and elite sports development.

Non-athlete participants and elite sports development

Sports coaching and youth sports in industrial countries in the past decade have experienced major transformations. For example, in several European countries, health programs are created to provide qualitative opportunities for children to engage in sports activities after school. This has increased the budget for sports coaching (Côté, et al., 1995; Kidd & Donnelly, 2000; MacPhail, et al., 2003; Taylor & Garratt, 2010; Kjær, 2019). In the United States, it is suggested that competitive youth sport should be converted into an industry that is influenced by money, long-term objectives, parents, and coaches (Kjær, 2019). DeBosscher et al. (2006) divided elite sport development factors and international sport success into three groups Group 1 includes human and financial resources. Group 2 includes training facilities, coach, competitions, and scientific studies. Group 3 includes the results of championship sport development and is characterized by medals, athletes, and ranks. Coaching is critical to the growth and excellence of elite athletes and the coach has to be able to co-ordinate and manage different sections (referees, supervisors, coaches, sports scientists and sports medicine personnel) (Green & Oakley, 2001). Therefore, in this study, we hypothesized hypothesis 8: There is a positive relationship between non-athlete participants and elite sports development.

METHOD

Data

This study, a simultaneous equations approach (SEA) was used to investigate the interaction effect of elite sport development and sports participation. The data in this study are of the panel data type. Therefore, Panel data for these variables was sourced from the Iranian Statistics Center (ISC), Iranian Ministry of Youth and Sport (IMYS), Iranian National Olympic Committee (INOC), Iranian Ministry of Economy and Finance (IMEF), the Iranian Central Bank (ICB), and Iranian Broadcasting Organization (IBO) from 2004 to 2017 for each of Iran's 28 provinces.

The variables in the model are Inflation (IR), Unemployment rate (UR), Income - Rural Household (IRURAL), Income - Urban Household (IURBAN), Standard of Living (SL), Sports Media (SM), Sports Budget (SB), Non-Athlete Participants (NAP), Sports Participation (SP) and Elite Sports Development (ESD). Table 1 provides a definition for each variable, whilst also indicating the measure and source.

Table 1. Variable, definition, measure, and source

Variable	Definition	Source
Inflation Rate (IR)	Increase in the level of prices of the goods and services that households buy	ISC
Unemployment rate (UR)	Ratio of unemployed to employed people	ISC, IMEF
Income - Rural (IRURAL)	Average combined household income within rural communities	ISC
Income - Urban (IURBAN)	Average combined household income within urban communities	ISC
Standard of living (SL)	Level of wealth, comfort, material goods, and necessities available to a certain socioeconomic class or a certain geographic area. Measured using GDP per capita.	ICB, IMEF
Sports media (SM)	Duration of radio and television sports programs broadcast	IBO
Sports budget (SB)	Government's financial allocation to sport-related programs	IMSY
Non-athlete participants (NAP)	Coaches, referees, supervisors, and associates of sports teams with a sports insurance card	INOC
Sports participation (SP)	Athletes with insurance card	INOC, IMSY, ISC
Elite sports development (ESD)	The use of the facilities and infrastructure of a country to obtain international medal and success	INOC, IMSY, ISC

Principal Component Analysis (PCA)

There is no single data to calculate the development of elite sports in Iran and many time series can include the development of elite sports in Iran. Elite sports development (ESD) in this study was estimated using the PCA method by considering proxies such as 1.the population of Iran, 2. The number of indoor and outdoor sports facilities, 3.the Number of capacities of sports facilities includes Ground, Square, Runway, Gym, and Pool,4. Medals of Iran in the Olympics and Asian Games 5. organized athletes engaged in Inter-provincial and national sports competitions with a sports insurance card. Measurement of a variable only using a proxy may lead to unreliable results. Therefore, the natural idea is to integrate these proxies and control different errors. One of the methods that is used for this purpose is Principal Component Analysis (PCA). PCA is a statistical technique to reduce the number of variables in a dataset without losing too much information (Groth, et al., 2013). PCA is a method to identify patterns on raw data and expresses data and highlights differences and similarities. This method follows the use of linear combination of the main variables to obtain an index from multivariate data while the variable receives maximum variance (Shlens, 2005; Zhang, et al., 2015). Assume that

X is a set of input data (X= [x1, x2, …., xn]) while each column is one of d-dimensionals of the input pattern. Moreover, assume that the means in each data set are zero (E(X)=0). Orthonormal conversion of A can be used to insert X into Y:

$$Y = AX$$

Assume that E(X) = 0 and E(Y) = 0 and Y is covariance matrix.

$$R_Y = AR_XA^T$$

Where Rx is a covariance matrix of X. If rows of A are specifically from Rx, this conversion can be used. In this condition, samples in the new space become irrelevant. This shows that samples in the space are two-dimensional. However, the purpose of PCA conversion is to create k < d conditions and mapped samples that are close to X. Therefore, X can be converted as X=ATY and instead of X generation using special vector devices, it is possible to estimate it with lower special values. Therefore, X = A T¦KY where K is special value. In this condition, we have the following relationship:

$$err = \sum_{i=1}^{d} \lambda i - \sum_{i=1}^{k} \lambda i = \sum_{i=k+1}^{d} \lambda i$$

In this relationship, λi is a special value of covariance matrix X and d is a number of special values. If $\hat{x}$ is reconstructed using the largest special value, the least error is created (Jafarzadegan, et al., 2019).

Model specification

The main objective of this study is to investigate the interaction effect of sports participation and elite sports development. Also, both variables are influenced by a series of economic and Sports variables. Therefore, according to these explanations, a conceptual model can be considered for this study (Fig.1). In this model, econometric equations are investigated. In the first equation, SP is a function of the IR, UR, IRURAL, IURBAN, SL, and ESD. Also, in the second equation, ESD is a function of SM, SB, NAP, and SP.

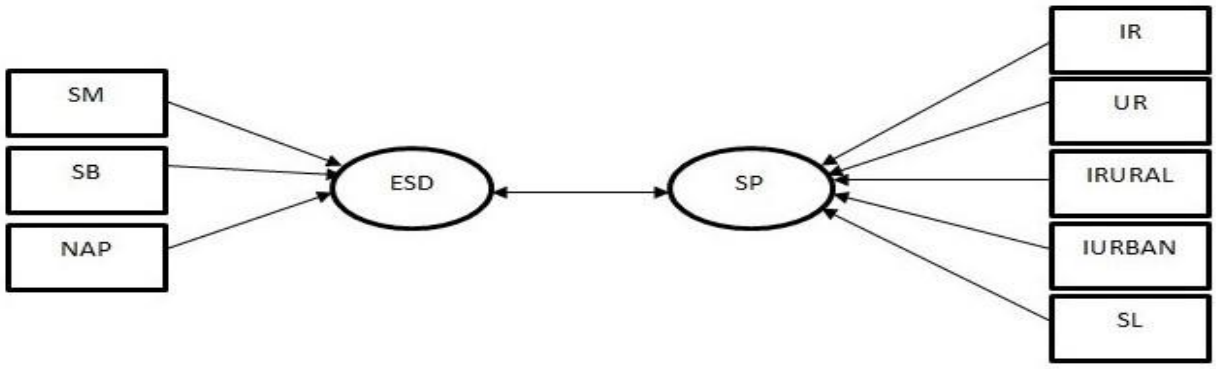

Figure 1. Research conceptual model

1) $SP_{it} = \delta_0 + \delta_1 ESD_{it} + \delta_2 IR_{it} + \delta_3 UR_{it} + \delta_4 IRURAL_{it} + \delta_5 IURBAN_{it} + \delta_6 SL_{it} + \varepsilon_{it}$

2) $ESD_{it} = \beta_0 + \beta_1 SP_{it} + \beta_2 SM_{it} + \beta_3 SB_{it} + \beta_4 NAP_{it} + \varepsilon_{it}$

Therefore, according to the mentioned model and equations, the research hypotheses are as follows: H1: Sports participation (SP) and elite sport development (ESD) have interactive, significant, and positive effects on each other (δ1, β1>0). H2: Inflation rate (IR) has a significant

and negative effect on sports participation (SP) (δ2 <0). H3: the unemployment rate (UR) has a significant and negative effect on sports participation (SP) (δ3<0). H4: Rural and urban household incomes (IRURAL AND IURBAN) have a significant and positive effect on sports participation (SP) (δ4, δ5>0). H5: standard of living (SL) has a significant and positive effect on sports participation (SP) (δ6 >0). H6: Sports media (SM) has a significant and positive effect on elite sports development (ESD) (β2 >0). H7: Sports budget (SB) has a significant and positive effect on elite sports development (ESD) (β3 >0). H8: Non-athlete participants (NAP) has a significant and positive effect on elite sports development (ESD) (β4 >0).

Econometric methodology (simultaneous equations approach)

This study used panel data and a simultaneous equations approach. Before estimating the simultaneous equations Model, it is necessary to test the reliability of the variables. In this study, we followed the advice of Baltagi (2005) to test the reliability of variables using the Levin, Lin & Chu (LLC) test. This is because if the variables are not reliable, pseudo-regression is possible and subsequent regression estimates may be ambiguous (Engle & Granger, 1987). Then, to determine whether the model is pool or panel, the F-limer test is used (Baltagi, 2005). To make a distinction between the use of a fixed-effects or random effects model, the Hausman test will be used. Therefore, the best model should be selected (Wooldridge, 2001). Despite the use of the Ordinary Least Squares (OLS) method, the results may be inconsistent. Therefore, a regression model needs to control the correlation among variables. To solve this problem, several regression models exist that use tools to limit the effects of correlation between independent variables and residuals (Wang, et al., 2018). One of these methods is the Two-Stage Least Squares (2SLS) method. Therefore, in the simultaneous equations model, the explanatory variable is related to a disturbing sentence. In this condition, OLS is not suitable and 2SLS is used.

RESULT AND DISCUSSION

Result

The descriptive statistics for the ten variables are summarized in Table 2. The Elite sports development averaged 1543409 in each of Iran's 28 provinces from 2004 to 2017. The sports participation mean is 88513.71. The average IR was 16.01% but had maximum and minimum values of 86.9 and 6.9% respectively. Average unemployment rate was 12.63%, with a maximum value 39.9%. The average rural income of IRR98.64 was much lower than the urban income average of IRR153.97. standard of living mean was IRR88667.76. The SM mean was 1046.24. SB mean was IRR43435.34. The NAP mean was 10010.93.

Table 2. Summary statistics

Variables	Mean	Median	Standard deviation	Max.	Min.
Elite sports development	1543409	973201.9	1777396	18469960	298270.8
Sports participation	88513.71	55664.00	87341.97	566235	10453
Inflation rate	16.01	13.19	8.01	86.95	6.93
Unemployment rate	12.63	11.60	5.13	39.90	4.10
Rural income	98.64	73.33	81.04	589.19	0.30
Urban income	153.97	111.98	129.03	922.33	5.91
Standard of living	88667.76	67198.00	81713.05	6832.00	481100.0
Sports media	1046.24	445.00	2968.88	25546.00	32
Sports budget	43435.34	24289.00	73794.86	960251.0	140
Non-athlete participants'	10010.93	7585.50	10484.70	86401	492

The LLC test was used to determine the reliability of the variables. The results showed that all research variables are reliable according to the significance level smaller than 0.05 (Table 3).

Table 3. LLC Test: Summary statistics

Variables	Prob.	Statistics
Elite sports development	0.0000	-41.17
Sports participation	0.0000	-4.98
Inflation rate	0.0000	-6.78
Unemployment rate	0.0000	-4.82
Rural income	0.0006	-3.23
Urban Income	0.0000	-6.50
Standard of living	0.0044	-2.61
Sports media	0.0000	-8.37
Sports budget	0.0000	-13.70
Non-athlete participants	0.0000	-5.35

Before estimating equations, F-limer test determined whether data should be used as pool or panel. The results showed that the significance level in both equations for F-limer (Chow) test is smaller than 0.05 (Table 4). Therefore, in this study, panel data are used. In the next step, Hausman test is used to determine fixed or random effects model. In both equations, the significance levels were less than 0.05, which permits rejection of the null hypothesis. Therefore, we elected to use a fixed effects model (Table 4). Equations were estimated with 2SLS method estimation. Also, OLS results are presented for comparisons but the analysis criterion is 2SLS estimation.

Table 4 .F-limer and Hausman tests: Summary statistics

Test	Equations	statistics	df	Prob.	Result
F-limer	Equation 1	46.97	27.31	0.0000	Estimation by panel
	Equation 2	9.41	27.34	0.0000	Estimation by panel
Hausman test	Equation 1	109.85	6	0.0000	Estimates with fixed effects
	Equation 2	40.40	4	0.0000	Estimates with fixed effects

OLS and 2SLS results related to Equation 1 are presented in Tables 5 and 6.

1) $SPit = \delta 0 + \delta 1\ ESDit + \delta 2\ IRit + \delta 3\ URit + \delta 4\ IRURALit + \delta 5\ IURBANit + \delta 6\ SLit + \varepsilon 3it$

The results showed that the estimation obtained from OLS regression are not reliable (Table 5).

Table 5. Equation 1 estimation (sports participation) based on OLS

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Result
Elite sports development	0.03	0.003	10.71	0.0000	Positive
Inflation rate	-2097.75	548.29	-3.82	0.0002	Negative
Unemployment rate	1728.25	895.30	1.93	0.0544	Not significant
Urban income	-422.90	84.02	-5.03	0.0000	Negative
Rural income	750.47	120.34	6.23	0.0000	Positive
Standard of living	0.12	0.04	2.75	0.0061	Positive

Therefore, we utilized 2SLS method (Table 6).

Table 6 .Equation 1 estimation (sports participation) based on 2SLS method

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Result

Elite sports development	0.06	0.002	27.43	0.0000	Positive
Inflation rate	-3291.04	400.82	-8.21	0.0000	Negative
Unemployment rate	-1292.73	650.10	-1.98	0.0477	Negative
Urban income	-468.76	65.14	-7.19	0.0000	Negative
Rural income	505.36	94.41	5.35	0.0000	Positive
Standard of living	0.09	0.03	2.70	0.0072	Positive

The results showed that the ESD coefficient is significant and positive (β =0.06, Prob.: 0.0000). This shows that ESD leads to increased SP, and that for every 1 unit increase in ESD, SP increases by 0.06. Also, the IR coefficient is significant and negative (β= - 3291.04, Prob. = 0.0000). This shows that increased IR is associated with decreased SP. The UR coefficient is significant and negative (β= -1292.73, Prob. =0.04). This shows that increased unemployment leads to decreased SP. The IRURAL coefficient is significant and positive (β=505.36, Prob. =0.0000) but the IURBAN coefficient is significant and negative (β= -468.7651, Prob. = 0.0000). This shows that increased rural household income increases SP but increased urban household income reduces SP. The SL coefficient is significant and positive (β= 0.09, Prob. =0.007). This shows that increased SL is associated with increased SP (Table 6).

Then, according to Eq.2 that is addressed here, the OLS and 2SLS results related to this equation are presented in Tables 7 and 8.

2) $ESD_{it} = \beta_0 + \beta_1 SP_{it} + \beta_2 SM_{it} + \beta_3 SB_{it} + + \beta_4 NAP_{it} + \varepsilon_{1it}$

Estimations obtained from OLS regression are not reliable (Table 7).

Table 7 .Equation 2 estimation (elite sports development) based on OLS method

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Result
Sports Participation	6.72	1.71	3.91	0.0001	Positive
Sports media	216.30	18.36	11.77	0.0000	Positive
Sports budget	2.64	1.11	2.37	0.0179	Positive
Non-athlete participants	19.87	6.83	2.90	0.0039	Positive

Therefore, we utilized 2SLS method (Table 8).

Table 8. Equation 2 estimation (elite sports development) based on 2SLS method

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Result
Sports Participation	8.55	1.25	6.83	0.0000	Positive
Sports media	204.47	30.56	6.69	0.0000	Positive
Sports budget	2.13	0.66	3.21	0.0015	Positive
Non-athlete participants	12.36	5.45	2.26	0.0241	Positive

The results showed that SP coefficient is significant and positive (β =8.55, Prob. =0.0000). In other words, when SP increases, ESD also increases. For every unit increase in SP, ESD increases by 8.55. Also, the SM coefficient is significant and positive (β =204.74, Prob. =0.0000). This means that as SM increases, ESD also increases. The SB coefficient is significant and positive (β =2.13, Prob. = 0.001). Finally, the Non-athlete participants (NAP) coefficient is significant and positive (β =12.36, Prob. = 0.02). (Table 8).

According to the results of Equation 1, ESD leads to increases SP (Table6). The results of Equation 2 indicate that SP increases as a result of ESD increases too (Table 8). Therefore, the results of both equations show a significant and positive interaction effect between SP and ESD. The effect of SP on ESD (8.55) is larger than the effect of ESD on SP (0.06).

Discussion

This study aimed to investigate the interaction effect of sport participation and elite sport development. The study used an econometric model based on simultaneous equations approach with 2SLS method to analyze panel data. The empirical results show interesting and new findings.

Consistent with Hypothesis 1, there is an interaction, significant, and positive effect between sports participation and elite sports development. In other words, increased sports participation increases elite sports development and increased elite sports development increases sports participation. This finding is consistent with Mutter and Pawlowski (2013) who related the successes of German soccer team to increased demand for sports participation. Also, this study is consistent with the studies of other researchers that showed successes influence active participation (Fedderson et al, 2009, Humphreys, et al., 2012). Motivational effects from professional sport successes on sports participation are inherent (Mutto & Pawlowski, 2013). Also, the motivational effects for the youth sports participation are stronger (Frawley & Cush, 2011). This issue is reassuring, because the youth constitute is small group who are interested in more efforts for sports participation. However, elite and professional sports successes can create motivation for sports participation. Other parameters such as sport infrastructures and local and national measures are required (Mutter & Pawlowski, 2013). In Australia, the consequences of elite athlete's development include increased finance and public profile for sport and creating paths to increase interest in sport (Sotiriadou & Shilbury, 2009). On the other hand, in many countries, is hierarchical system exists for elite sport development where sports participation is at the lowest level and this participation leads to elite sports development. For example, in China, a pyramid of elite sport development (Juguo Tizhi) exists at three levels and extra-curricular sports schools are at the first level and sport schools at the city level are at the second level and national and provincial teams are at the third level and the athletes start from the lowest level to achieve elite sport development (Hong, 2008; Liang, et al., 2006; Tan & Green, 2008; Yang, 2012, Zheng et al, 2018). According to Martin et al. (2009), elite athlete development in Australia is based on a systematic way that selects and develops people. The Australian Sport Institute that is a model company is responsible to produce and create champions based on facilities, training, and sport science programs (Hooton, 2008, Sotiriadou & Shilbury, 2009). Therefore, more sports participation opportunities increase international success ways and at the same time, elite sports development increases motivation and facilities for higher sports participation.

Hypothesis 2 was supported. The results showed that increased inflation decreases sports participation. This finding is consistent with Calabuig, et al. (2014) who showed that increases costs has direct negative effect on future interests of sport users. One of the fundamental factors in increased inflation rate in Iran is increased costs in recent years in different sectors. According to Consuegra et al. (2007), costs should follow a fixed and reasonable strategy, because there should be a strategy to be perceived and accepted by users and increased costs should create a good feeling. To carry out a reasonable cost strategy, the user should receive information about the main reasons for increased costs (Homburg, et al., 2005; Kyle, et al., 2003; Calabuig et al, 2014). Therefore, sport managers, increased costs plan leads to decreased future demands of sport users (Homburg, et al., 2010). Accordingly, the primary solution to control inflation rate and prevent decreased sport participation, increased costs should be prevented, or a fixed costs strategy designed.

In support of Hypothesis 3, the results showed that increased unemployment leads to decreased sports participation. This finding is consistent with Kokolakakis et al. (2012) but inconsistent with Aizawa et al. (2018). According to Gough (2017), for men, unemployment does not have any effect on sports participation but for women, it influences sports participation and spouse unemployment influences decreases sport participation, too.

Unemployment provides more time for sports participation but at the same time, gives lower income for sports participation (Oliveira-Brochado et al., 2017).

Hypothesis 4 was supported. Yhe results showed that increased rural household income increases sports participation but increased urban income could not increase sports participation. The results of several studies are consistent with this finding. These researchers concluded that income has a positive effect on decision-making for sports participation and at the same time, the number of family members and urban or rural life can influence sports participation (Humphreys & Ruseski, 2011, 2015, Garcia et al, 2011). But in another study that is consistent with this finding, Thibaut et al. (2014) concluded that decision for sports participation is influenced by many factors that one of these factors is household income. Also, this finding is consistent with studies indicating that that parents with higher incomes are more likely to have children with sport expertise (Post et al, 2018). Economic condition is one of the effective factors in achieving opportunities in sport, because of families have lower income, and they will have fewer opportunities to join a sport club or do particular sports such as skiing and Boating, because money and equipment are needed for these sports. In these cases, people have to prefer public sports or choose sports with lower costs (cost provision with governmental budget or with lower costs) (Laker, 2002). In sum, about the relationship between socioeconomic base and sports participation, income is an important factor in explaining sports participation (Berger & Reily, 2008).

In support of Hypothesis 5, the results showed that increased standard of living leads to sports participation. This finding is consistent with Zhou and Kaplanidou (2018), Prins et al. (2012) and Lindstorm et al. (2001). Zhou and Kaplanidou (2018) concluded that participation in sport leads to social capital development. Social capital leads to supportive behavior and positively influences others and social behaviors and these positive results among participants indicates that social capital resulted from sport participation leads to Standard of living. Prins et al. (2012) in a study on Dutch teens concluded that the highest participation in sport is when the social status of families is high. In a study by Lindstorm et al. (2001) it was concluded that the socioeconomic based has a considerable effect on sports participation. In the present study, GDP Per Capita was used to indicate Standard of living. Since GDP Per Capita and income are directly related, in many countries, GDP Per Capita indicates a level of Standard of living. Also, several researchers concluded that GDP is related to sport participation (Ruseski &Maresova, 2014, Van Toyckom, 2014).

According to Hypothesis 6, the results showed that sports media increases the elite sports development. This finding is consistent with Korzynskia and Paniagua (2015) who concluded that mass media and sport performance are necessary. Different studies have identified different professional sport motivations such as the impacts of famous athletes, international championships, events, and behavioral role of sport media. The watching professional sport events and elite athletes on TV increases sport participation (Mutter & Pawlowski, 2013). The results showed that the success of elite athletes is a potential factor to increase media covering and demonstrate sports and athletes. The success of elite athletes attracts media and coverage of common sports. This intense interest is creating very favorable advertising throughout the country and as Biskup and Pfister (1999) believe, outstanding people (stars) are introduced through mass media (Sotiriadou & Shilbury, 2009, Sanderson, 2011). On the other hand, live sport events that are covered by TV, create a legal personality that tries to transfer marketing messages to the customers (Cianfrone et al., 2006; Brockinton, 2001). Other researchers have concentrated on the role of media as a significant dimension to support Olympics (Kim et al, 2015, Konecke et al, 2016, Ritchie et al, 2010). Therefore, with these explanations, it can be stated that the relationship between media and elite sport development is confirmed.

According to the Seventh hypothesis, the results showed that sport budget has a positive and significant effect on the elite sports development. This finding is consistent with Brouwers

et al. (2014) who introduce financial supports as an important factor for international success. In many countries, dedication and budget increase are important factors in elite sports development. For example, elite sports development in Australia was a political priority in the early 21th century, so that Stewart et al. (2004), believe that each political party who decreases sport budget is exposed to a high risk in elections (Greens & Collins, 2008). The Australian elite sport budget is mostly from the budget dedicated to sport participation (Pedras et al., 2019). Also, in Finland, during 1995-2003, the budget dedicated to municipalities and sport facilities constituted 60% of the whole budget and in 1995, the budget dedicated to elite sport constituted 6% of the whole budget (Greens & Collins, 2008). Therefore, by investigating the budget dedicated to sport in many countries, the importance of budget in elite sports development is clarified.

Finally, according to the Eighth hypothesis, the results showed that non-athlete participants a positive and significant effect on the elite sports development. Non-athlete participants in this study included coaches, referees, supervisors, and associates of sports teams. This finding is consistent with Brouwers et al. (2014) who show the importance of the private sector and their budgets, coaches, and facilities for the progress of elite athletes in tennis. De Bosscher et al. (2006) believed that sufficient facilities with easy access, high-quality coaches and a good national competitive structure with training opportunities for athletes to participate in international events allow elite athletes achieve development. Moreover, the role of sport and competitions for elite sport development are undeniable and promote skills and advances of athletes. Therefore, competitions and planning are emphasized (Sotiriadou & Shilbury, 2009). Accordingly, the importance of high-quality coaches, referees, supervisors, and associates in elite sports development and National and international sports competitions of each country is undeniable.

CONCLUSION

The results of this study showed that sports participation leads to elite sports development and at the same time, elite sports development provides sports participation context. But before that, a country should have infrastructures and sport and cultural spaces for these developments. Iran is suffering from international sanctions and in recent years, people do not have facilities for elite sports development. In many countries such as China and Australia, a hierarchical system exists for elite athlete development where the athlete passes sports participation levels through a bottom-up procedure. Iran lacks such elite sport system but before implementing an elite sports development system, economic conditions should be desirable. Inflation and unemployment rates are the most important factors that influence sports participation to achieve elite sports development and if these rates are high, sports participation opportunity is eliminated. High inflation rate increases costs and teens may avoid sports due to lack of financial power. Also, high unemployment rate, although increases sports participation opportunities from one aspect, at the same time, due to lack of income, eliminates sports participation opportunity. Household income and Standard of living are other variables that influence sports participation. Socioeconomic bases determine sports participation, so that high level of socioeconomic base increases financial power and opportunities for sports participation and at the same time, weak socioeconomic base brings low financial power and lower sports participation.

The findings showed that sports media, sports budget, and non-athlete participants provide the context for elite sports development. Showing international successes of athletes on TV and radio and other mass media increases motivation to create elite athletes, provides many financial opportunities for the country that are manifested in advertisements, sponsorship, etc. Elite sports development in all countries is not possible without sports budget.

The presence of coaches and referees in different competitions are essential for elite sports development. If the mentioned economic factors in a country are at desirable levels, elite athlete development pyramid construction is acceptable, and it is possible to achieve elite sports development. Therefore, authorities should plan consistent with the economic conditions of the country and consider the factors that are addressed in this study and then, concentrate on sport planning.

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