# Do Social Factors Contribute to International Sports Performance: A Panel Data Analysis of Countries' Performance in the Asian Games

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**Abstract**

Asia has become a leader in international sports championships, which justifies a greater emphasis on the region's sporting achievements. However, different economic, political, and social elements influence the region's performance since deteriorating social or economic systems can harm performance. This study examined the impact of social factors on the international athletic performance of Asian nations. To do so, we analyzed the effect of health expenditure, education expenditure, and development on sports performance from 1961 to 2018 while adjusting for gross domestic product and population growth. The data was evaluated using VAR, and the study's conclusions demonstrated a considerable correlation between social growth and national sporting performance. The paper includes recommendations for further research and consequences for the government and policymakers.

**Keywords:** education expenditure, healthcare expenditure, social development, Asian games, and sports performance

## 1. Introduction

With sustaining long-term economic expansion, Asian nations are developing as major sports markets. The region's domestic sports business has grown steadily during the past several decades (Lee & Watanabe, 2019). Revindo et al. (2019) note that the Asian Games are a multi-discipline sporting event that involves nearly all of the continent's nations. Current empirical studies have a large emphasis on economic issues. However, Li and Luk (2011) point out that, consistent with this investigation, there are other key dimensions whose impact on sports performance can be evaluated. In this context, sports activism is motivated by various reasons, with social considerations being the primary emphasis of this research. This exploratory study analyzes the impact of societal factors on the athletic performance of Asia. The primary theoretical impetus for this study comes from previous research demonstrating that diverse performance logics (economic, social) generates a good level of performance and advantages for all (Ferri et al., 2017). As depicted in figure 1, many countries in the Asian region are strengthening their sports markets, highlighting the need for investment by other nations to improve the sports performance of the entire region considerably.

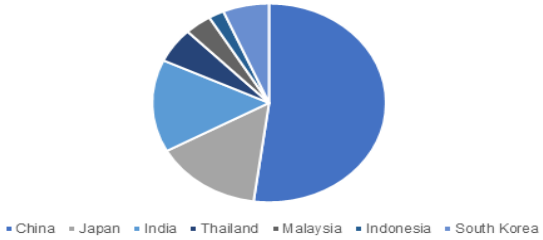


***Figure 1.*** Sports market of Asian countries
Source: (Graphical Research, 2020)

Eigenschenk et al. (2019) note that beyond the health-enhancing effects of sports, they are also connected with many social benefits, such as the region's development and the active citizenship of its residents, resulting in a variety of good outcomes. Among social aspects, the study on sports education has been organized into two major categories: the implementation tactics necessary for sports

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education and the effects of this educational model (Araújo, Mesquita, & Hastie, 2014). Regarding this, education expenditures have the potential to generate considerable social development and sports performance outcomes. Gavrilova, Donohue, and Galante (2017) assert that athletes are exposed to mental and physical health conditions that negatively impact their performance, attitude, and conduct, affecting the overall performance of sports. The Optimal Performance Program in Sports (TOPPS) increases the application of certain therapies and treatments to improve the athletic performance of regional athletes. Hence, health expenditures are a key societal component that must be investigated in the context of sports performance.

Thus, many academics challenge the existence of numerous societal influences, but their impact on Asian sports has not yet been determined. In addition, the present scientific research analyzing the effect of social factors on athletic performance has produced contradictory and fragmented findings. As a result of these concerns, the purpose of this study is to determine the effects of societal factors on Asian sports, with a particular focus on education spending, health spending, and development. Considering its fundamental purpose, the following list of relevant research questions has been established for this study.

RO1: How does the social development of a region contribute to sports performance?

RO2: Is there any linkage between social development factors like education and healthcare and national sports performance within Asia?

RO3: At what levels of development, like access to water and electricity, impacts sports performance in Asia?

This research examines the significant relationship between social factors and athletic performance in Asia. Thus, the results of this study are significant because, on the one hand, they expand the current literature on sports studies. On the other hand, they motivate future researchers to investigate the influence of more social elements on the effective sports performance of their region. The outcomes of this study are crucial not just for Asian policymakers but also for all relevant departments worldwide. The remainder of the study is organized so that Section 2 focuses on the literature review and highlights relevant reviews from existing evidence that support the study's aims. The third section, entitled "Methodology," describes the research approaches and methods used to generate the effective outcomes of this study. Part 4 summarizes the pertinent data, while Section 5 discusses the results and their theoretical and practical consequences, along with the study's limits and suggestions for future research.

## 2. Literature Review

Green (2005) offered a normative theory of sports development that illustrated sports growth's institutional and ideological foundation. Societal advancements in sports education, healthcare funding, and fundamental needs are rooted in sports participation and competitiveness. The following three major justifications promote sports participation for competitive reasons: 2) Economic benefits (Siedentop, 2002), 3) increased pool of athletes for internal competitions and accomplishments (Oslin, 2002). Hence, the concern of sports policies and standards is the enhancement of social elements that contribute to the success rate of the nation's athletes (GuoJie, 2021; Moore et al., 2014). In addition, the sports theories and research investigations stressed the importance of social, political, and economic aspects in shaping the sports systems. This substantial volume of sports development highlights the expenditures and investments for this specific cause (Savić et al., 2018). Much emphasis has been placed on the role of government authorities and sporting institutions in improving sports quality (Berthelot et al., 2015; De Bosscher et al., 2009; Geeraert, Alm, & Groll, 2014). By enhancing the potential and performance of international athletes, governments ensure medals and victories in mega-sporting events.

The Asian Games are the largest sporting event in the Asian region. Originally organized by the Asian Federation Games, the Olympic Council of Asia (OCA) now oversees the Asian Games (Hong, 2013). There are numerous metrics for measuring the success of countries at mega-sporting events (Kavetsos & Szymanski, 2010; Storm & Jakobsen, 2020). The "lexicographic ranking" is one of the most widely used ways to compare the sporting performance of nations at a sporting event (Jablonsky, 2018). Most of the ranking is determined by the amount of medals, including silver, gold, and bronze. On this premise, it can be concluded that the ranking of countries in the Asian Games depends solely on the quality and quantity of medals (Kim, Gursoy, & Lee, 2006). Hence, the rankings at the international sporting event represent the successful aspects of sports and games in any nation. In addition, around the turn of the 20th century, earning international medals, particularly Asian sporting achievements, became of interest to Asian nations. In the past two decades, sports analysts and researchers have studied international sports performance's demographic and economic drivers (Hallmann & Breuer, 2014; Pauna et al., 2020; Vagenas & Vlachokyriakou, 2012). Regarding socioeconomic variables, however, there are numerous undiscovered territories. While social elements are the most significant predictors of sports development and performance across all sports, their importance in analyzing the entire sports network is crucial.

**Table 1**

*Summary of literature*

| Author | Country/Group | Period/Year | Variables | Results |
|---|---|---|---|---|
| De Bosscher et al. (2011) | Swedish | 2011 | Elite Sports Policies & International sporting success | Motivation and the intervention of government and local bodies in sports development regulate the success factor of sporting success |
| Liu and Zhang (2023) | Japan | 2023 | Healthcare spending & Improved Health | Healthcare spending is positively associated with improved sports health and achievement |
| Dehghansai et al. (2020) | National Sports | 2020 | Olympics education and social support | Sports education programs promote health literacy and the potential of candidates and are positively associated with the sporting achievement |
| Banack, Sabiston, and Bloom (2011) | Canada | 2011 | Basic needs availability | Psychological and biological necessities shape the motivation and performance of athletes, increasing their chances of medal achievement. |
| Andrade Rosas and Flegl (2019) | Denmark | 2019 | GNI and country's winning rate | A country in case of improved GNI has a higher probability of achieving medals and sports achievements. |

The level of expenditure on sports activities, such as education and healthcare, has been determined to be the most influential factor in international sporting performance. Wealthy nations make substantial investments in sports education and health facilities, which are vital for the sustainability of sports. Volf et al. (2022) observed that sports policies prioritizing healthcare needs are crucial for assuring the involvement of prospective athletes and the success of sports. Furthermore, increased Health is closely linked to healthcare facilities, enhancing athletic performance on competitive platforms. Physical fitness and sports health increase participants' motivation, which is indirectly proportional to the number of accomplishments (Pauna, Campan, & Borlea, 2022). In addition to healthcare investments, sports education expenditures appeared to be a factor in predicting the performance of international athletes and medal hauls. Siedentop, Hastie, and Van der Mars (2019) emphasized that sports education enhances players' sports knowledge and motivation, which is essential for gaining better results in domestic and international events. From the perspective of Naul et al. (2017), Olympic education and other sports education programs are more likely to encourage young people to potentially compete on international platforms, which can boost a country's prospects of achieving notable success and winning medals.

In this situation, government initiatives for social development, such as the presence of water, electricity, or basic sports equipment. Due to the impact of economic and social progress, the relationship between social development and the winning rate is crystal evident. Krishna and Haglund (2008) highlighted the contrasts between countries with a high medal count in internal sports and those with the lowest medal count. Reportedly, social hardship, poverty, and the inability to afford basic needs are the primary reasons countries perform poorly in the Olympics and other games. Hosein, Khadan, and Paul (2013) proved that the country's people are the source of national pride and play an important impact in influencing medal outcomes. Yet, the influence varies depending on a country's economic state and demographic resources. Flegl and Andrade (2018) noted that countries with the most medals and the best performance at the 2016 Summer Olympics are classified as high-income economies according to the Gross National Income. This demonstrates that, in some instances, the GNI and population have a controllable effect on the internal performance of countries in the Asian Games. Theoretically, the aforementioned demonstrates that social elements play a crucial part in determining the international sporting performance of nations. In addition, most research investigations were undertaken within the setting of the Olympics and European games. Unstudied was the effect of social elements on a nation's performance in the Asian Games. To address this deficiency, the report includes a comprehensive analysis of social aspects during the last six Asian Games and the countries with the highest sporting success.

## 3. Method

The primary emphasis of the present study was the impact of social factors on the national athletic performance of

Asian nations. The study included data from China, India, Indonesia, Iran, Japan, North Korea, South Korea, Pakistan, Thailand, and the Philippines and was based on panel data. The web database of the World Bank and the Asian games organization were scoured for annual statistics from 1960 to 2018. Since the Asian Games are held every four years, the researcher only included observations for those years, i.e., 1962, 1966, 1970, 1974, 1978, 1982, 1986, 1990, 1994, 1998, 2002, 2006, 2010, 2014, and 2018. To illustrate the socioeconomic structure and performance of the region, three variables were chosen: health expenditure, development expenditure, and educational expenditure. The variables used to measure the factors and their sources are presented in Table 2.

**Table 2**

*Variable measurement and sources*

| Factor | Abbreviation | Variable | Source |
|---|---|---|---|
| Dependent | | | |
| *National sports performance* | NSP | Medals won by a country in tournament year in Asian games. | News clips, reports, and tournament bulletins. |
| Independent | | | |
| *Health expenditure* | HE | Health expenditure as a percentage of GDP | WDI |
| *Development* | ACE | Access to clean water | WDI |
| | DVW | Access to electricity | WDI |
| *Educational spending* | EE | Education expenditure as a percentage of GNI | WDI |
| Control | | | |
| *Population* | POP | Population growth percentage | WDI |
| *Gross national income* | GNI | Represents the gross national income of the country. | WDI |

This research is based on Love and Zicchini's panel data vector autoregressive model (2006). This enabled the researcher to account for the unobserved heterogeneity in the entire series by introducing fixed effects to improve measurement consistency and coherence. In addition, the method offers various advantages over others, including the ability to estimate variables when there is no long-run connection. In addition, the technique fails to differentiate between exogenous and endogenous variables. Instead, each element is handled as an endogenous factor. Each variable in the model is dependent on its past values and other values, showing a concurrent relationship between the variables and themselves. Consequently, the model has clear utility as a practical tool for evaluating the mutual impact of the social elements impacting national sports performance in the Asian region and developing strategic recommendations.

## 4. Results

Table 3 displays a descriptive summary of the data. As indicated by the skewness, kurtosis, and Jarque-Bera tests, the data for access to electricity, education expenditure, and population were regularly distributed.

**Table 3**

*Descriptive Summary*

| | ACE | DVW | EE | GNI | HE | NSP | POP |
|---|---|---|---|---|---|---|---|
| Mean | 35.27879 | 36.68657 | 2.132941 | 7.22E+11 | 1.399643 | 82.18667 | 1.717427 |
| Median | 0.000000 | 9.674233 | 2.202812 | 1.07E+11 | 0.000000 | 33.00000 | 1.633763 |
| Maximum | 100.0000 | 354.3091 | 6.595267 | 1.38E+13 | 10.74839 | 2016.000 | 4.878937 |
| Minimum | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | -0.132694 |
| Std. Dev. | 44.21228 | 79.88177 | 1.508006 | 1.81E+12 | 2.446278 | 182.8492 | 0.953852 |
| Skewness | 0.536112 | 3.019430 | 0.200907 | 4.420155 | 1.782961 | 8.103545 | 0.273542 |
| Kurtosis | 1.411608 | 10.88215 | 2.727871 | 26.44544 | 5.663485 | 84.76559 | 2.757371 |
| Jarque-Bera | 22.95409 | 616.2253 | 1.471929 | 3923.998 | 123.8122 | 43426.76 | 2.238555 |
| Probability | 0.000010 | 0.000000 | 0.479043 | 0.000000 | 0.000000 | 0.000000 | 0.326516 |
| Sum | 5291.818 | 5502.985 | 319.9411 | 1.08E+14 | 209.9465 | 12328.00 | 257.6140 |
| Sum Sq. Dev. | 291254.1 | 950783.5 | 338.8380 | 4.88E+26 | 891.6568 | 4981643. | 135.5652 |
| Observations | 150 | 150 | 150 | 150 | 150 | 150 | 150 |

Table 4 reveals that at a level, all variables were non-stationary; however, following the estimate of the unit root test at the first difference, all indicators were stationary. Consequently, only the variables at the first difference exhibited stationarity (García-Cintado, Romero-Ávila, & Usabiaga, 2015).

Next, the researcher applied the Pedroni co-integration tests to examine the long-run co-integration of the variables (Pedroni, 2004). The within-dimension and between-dimension statistics imply that the variables have no long-term connection. Consequently, the data indicate that social influences have a little long-term effect on national athletic performance.

**Table 4**

*PP Unit root test*

| Variable | Level | First difference |
|---|---|---|
| ACE | 10.15 | 46.46** |
| DVW | 7.38 | 92.88** |
| EE | 24.26 | 95.25** |
| GNI | 2.49 | 38.3** |
| HE | 6.89 | 55.36* |
| NSP | 51.69 | 152.2** |
| POP | 28.95 | 126.13 |

**Table 5**

*Long-run Co-integration*

| **Alternative hypothesis: common AR coefs. (Within-dimension)** | | | | |
|---|---|---|---|---|
| | **Statistic** | **Prob.** | **Statistic** | **Prob.** |
| Panel v-Statistic | -1.029287 | 0.8483 | -1.378757 | 0.9160 |
| Panel rho-Statistic | 2.911606 | 0.9982 | 3.441321 | 0.9997 |
| Panel PP-Statistic | -2.855822 | 0.0021 | -2.685923 | 0.0036 |
| Panel ADF-Statistic | 1.618053 | 0.9472 | -0.557526 | 0.2886 |
| **Alternative hypothesis: individual AR coefs. (between-dimension)** | | | | |
| | **Statistic** | **Prob.** | | |
| Group rho-Statistic | 4.554581 | 1.0000 | | |
| Group PP-Statistic | -6.618639 | 0.0000 | | |
| Group ADF-Statistic | 0.426672 | 0.6652 | | |

While the long-run relationships were minor, the researcher computed the unrestricted VAR to examine social determinants' medium- and short-term effects on the NSP. Table 6 demonstrates that the impacts of social variables on NSP in its original form are insignificant; nevertheless, based on the evaluation of the numerous variants of NSP, it can be concluded that social factors have a major impact on NSP in Asia. Availability of water and power, expenditures on education, and healthcare expenses determine a country's level of development. Hence, enhancing these fundamental facilities may enhance the living conditions and performance of the populace. The model's r-square is 0.82, indicating that the model accounts for 82% of the variation (figure 2).

**Table 6**

*VAR*

| | **ACE** | **DVW** | **EE** | **GNI** | **HE** | **NSP** | **POP** |
|---|---|---|---|---|---|---|---|
| ACE(-1) | 0.754420 | -0.020971 | 8.36E-05 | 1.65E+09 | 0.004030 | -0.412762 | 0.000610 |
| | (0.09742) | (0.12748) | (0.00458) | (2.0E+09) | (0.00451) | (0.81598) | (0.00203) |
| | [ 7.74385] | [-0.16450] | [ 0.01826] | [ 0.84260] | [ 0.89368] | [-0.50585] | [ 0.29983] |
| ACE(-2) | -0.027450 | 0.022560 | -0.000694 | -2.91E+09 | 0.010300 | -1.243149 | -0.001389 |
| | (0.10455) | (0.13681) | (0.00491) | (2.1E+09) | (0.00484) | (0.87565) | (0.00218) |
| | [-0.26256] | [ 0.16490] | [-0.14130] | [-1.38602] | [ 2.12830] | [-1.41969] | [-0.63649] |
| DVW(-1) | -0.013469 | 0.964899 | -0.002558 | 2.28E+08 | -0.000652 | 0.073856 | 0.005405 |
| | (0.07114) | (0.09309) | (0.00334) | (1.4E+09) | (0.00329) | (0.59585) | (0.00148) |
| | [-0.18934] | [ 10.3649] | [-0.76536] | [ 0.15902] | [-0.19789] | [ 0.12395] | [ 3.64104] |
| DVW(-2) | 0.073950 | 0.026192 | 0.001224 | -2.28E+08 | 0.002295 | -0.085359 | -0.005999 |
| | (0.07548) | (0.09877) | (0.00355) | (1.5E+09) | (0.00349) | (0.63220) | (0.00158) |
| | [ 0.97973] | [ 0.26517] | [ 0.34521] | [-0.15038] | [ 0.65697] | [-0.13502] | [-3.80874] |

| | ACE | DVW | EE | GNI | HE | NSP | POP |
|---|---|---|---|---|---|---|---|
| EE(-1) | 0.980098 | -1.573829 | 0.400320 | -8.00E+09 | 0.082056 | 10.22887 | 0.038267 |
| | (1.81057) | (2.36928) | (0.08507) | (3.6E+10) | (0.08381) | (15.1649) | (0.03778) |
| | [ 0.54132] | [-0.66426] | [ 4.70552] | [-0.21972] | [ 0.97904] | [ 0.67451] | [ 1.01285] |
| EE(-2) | 3.590665 | 2.225663 | 0.337736 | -3.99E+09 | 0.042378 | -2.065049 | -0.054941 |
| | (1.78654) | (2.33784) | (0.08395) | (3.6E+10) | (0.08270) | (14.9636) | (0.03728) |
| | [ 2.00984] | [ 0.95202] | [ 4.02327] | [-0.11106] | [ 0.51243] | [-0.13800] | [-1.47375] |
| GNI(-1) | 2.59E-12 | 6.27E-14 | -7.91E-14 | 1.877931 | -8.24E-13 | -5.28E-12 | 3.50E-14 |
| | (4.0E-12) | (5.2E-12) | (1.9E-13) | (0.07959) | (1.8E-13) | (3.3E-11) | (8.3E-14) |
| | [ 0.65569] | [ 0.01210] | [-0.42535] | [ 23.5938] | [-4.50013] | [-0.15927] | [ 0.42330] |
| GNI(-2) | -3.80E-12 | -4.20E-13 | 4.37E-14 | -0.881252 | 1.32E-12 | 9.36E-11 | -5.13E-14 |
| | (5.7E-12) | (7.5E-12) | (2.7E-13) | (0.11559) | (2.7E-13) | (4.8E-11) | (1.2E-13) |
| | [-0.66195] | [-0.05585] | [ 0.16192] | [-7.62400] | [ 4.97038] | [ 1.94421] | [-0.42767] |
| HE(-1) | -0.407759 | -0.200302 | 0.010081 | 3.43E+10 | 0.633612 | -0.927982 | 0.017764 |
| | (1.96824) | (2.57561) | (0.09248) | (4.0E+10) | (0.09111) | (16.4855) | (0.04107) |
| | [-0.20717] | [-0.07777] | [ 0.10900] | [ 0.86699] | [ 6.95425] | [-0.05629] | [ 0.43251] |
| HE(-2) | -0.092202 | -0.151776 | 0.000113 | -1.76E+09 | 0.031877 | 34.98030 | 0.013588 |
| | (2.09502) | (2.74151) | (0.09844) | (4.2E+10) | (0.09698) | (17.5474) | (0.04372) |
| | [-0.04401] | [-0.05536] | [ 0.00115] | [-0.04179] | [ 0.32870] | [ 1.99348] | [ 0.31082] |
| NSP(-1) | -0.004424 | 0.002205 | 0.000289 | -8.47E+08 | 0.000874 | -0.083474 | -0.000184 |
| | (0.01186) | (0.01552) | (0.00056) | (2.4E+08) | (0.00055) | (0.09935) | (0.00025) |
| | [-0.37292] | [ 0.14207] | [ 0.51888] | [-3.54997] | [ 1.59085] | [-0.84017] | [-0.74485] |
| NSP(-2) | -0.004644 | 0.002044 | 5.37E-05 | 5.68E+08 | -0.000971 | -0.205695 | -5.56E-05 |
| | (0.01371) | (0.01794) | (0.00064) | (2.8E+08) | (0.00063) | (0.11480) | (0.00029) |
| | [-0.33881] | [ 0.11397] | [ 0.08339] | [ 2.05895] | [-1.53030] | [-1.79178] | [-0.19454] |
| POP(-1) | -3.084400 | 2.230472 | 0.074273 | -5.45E+10 | 0.164897 | -50.10778 | 0.619898 |
| | (3.82990) | (5.01174) | (0.17996) | (7.7E+10) | (0.17729) | (32.0783) | (0.07992) |
| | [-0.80535] | [ 0.44505] | [ 0.41272] | [-0.70786] | [ 0.93010] | [-1.56205] | [ 7.75660] |
| POP(-2) | -8.570138 | 1.787172 | 0.020109 | -1.55E+10 | -0.368293 | -16.36359 | 0.287327 |
| | (3.97464) | (5.20115) | (0.18676) | (8.0E+10) | (0.18399) | (33.2906) | (0.08294) |
| | [-2.15621] | [ 0.34361] | [ 0.10768] | [-0.19337] | [-2.00171] | [-0.49154] | [ 3.46430] |
| C | 27.17256 | -2.693013 | 0.756892 | 2.14E+11 | 0.361344 | 188.5167 | 0.031970 |
| | (7.09995) | (9.29088) | (0.33361) | (1.4E+11) | (0.32866) | (59.4674) | (0.14816) |
| | [ 3.82715] | [-0.28986] | [ 2.26879] | [ 1.49789] | [ 1.09944] | [ 3.17008] | [ 0.21579] |
| R-squared | 0.823487 | 0.913721 | 0.562489 | 0.960649 | 0.882687 | 0.335782 | 0.827405 |
| Adj. R-squared | 0.801999 | 0.903217 | 0.509227 | 0.955859 | 0.868405 | 0.254921 | 0.806393 |
| Sum sq. resides | 46340.39 | 79352.90 | 102.3124 | 1.88E+25 | 99.29972 | 3250930. | 20.17827 |
| SE equation | 20.07386 | 26.26833 | 0.943225 | 4.04E+11 | 0.929234 | 168.1337 | 0.418883 |
| F-statistic | 38.32221 | 86.99177 | 10.56076 | 200.5308 | 61.80580 | 4.152570 | 39.37842 |
| Log-likelihood | -566.4173 | -601.3802 | -168.8942 | -3650.636 | -166.9515 | -842.7116 | -63.37168 |
| Akaike AIC | 8.944881 | 9.482772 | 2.829142 | 56.39440 | 2.799255 | 13.19556 | 1.205718 |
| Schwarz SC | 9.275750 | 9.813641 | 3.160012 | 56.72527 | 3.130124 | 13.52643 | 1.536587 |
| Mean dependent | 40.70629 | 42.33065 | 2.461085 | 8.30E+11 | 1.614973 | 89.26923 | 1.617813 |
| SD dependent | 45.11250 | 84.43722 | 1.346402 | 1.92E+12 | 2.561566 | 194.7842 | 0.951990 |
| Determinant resid covariance (dof adj.) | | 1.21E+32 | | | | | |
| Determinant resid covariance | | 5.13E+31 | | | | | |
| Log-likelihood | | -6037.270 | | | | | |
| Akaike information criterion | | 94.49646 | | | | | |
| Schwarz criterion | | 96.81255 | | | | | |

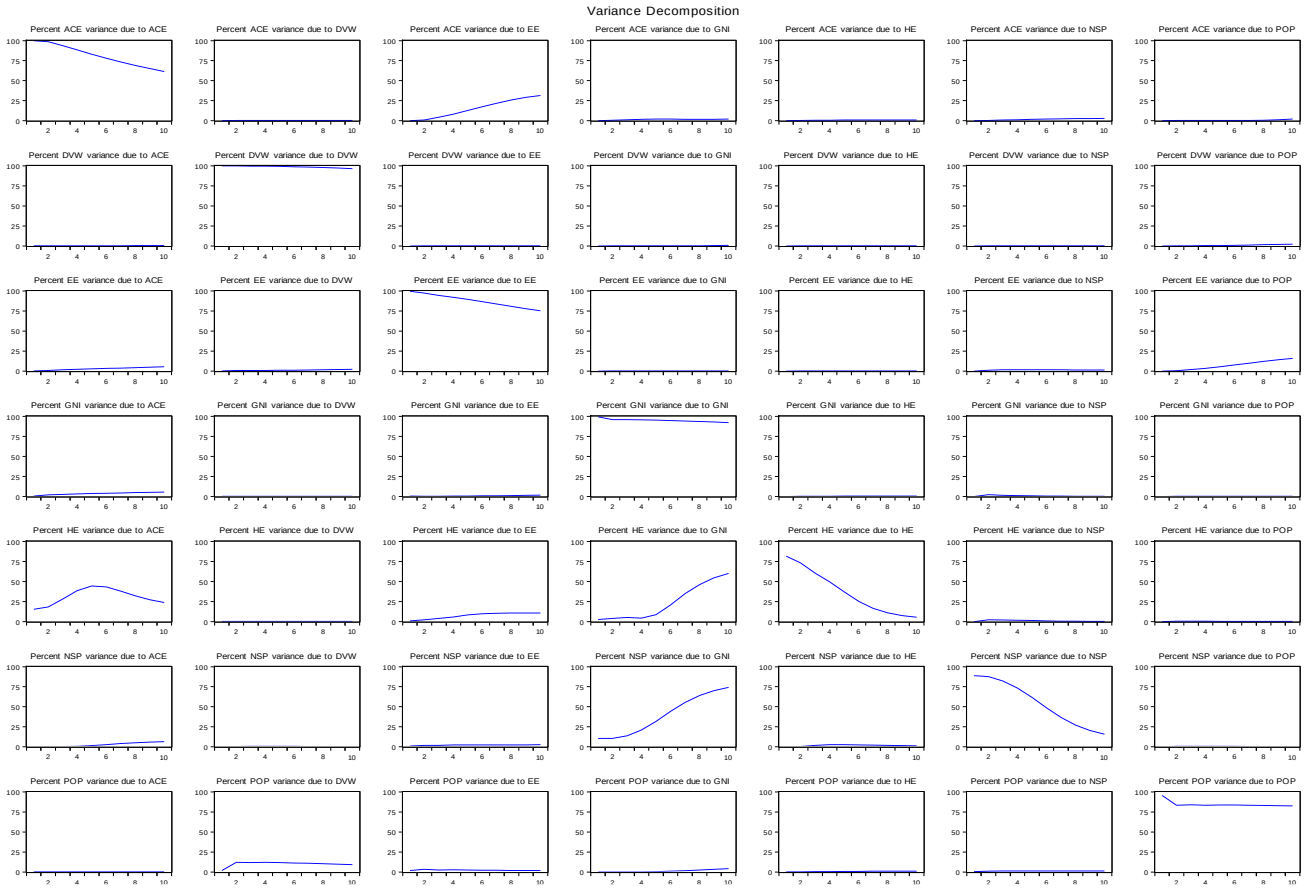


***Figure 1:*** *Variance decomposition*

## 5. Discussion and Conclusion

While the long-run relationships were minor, the researcher computed the unrestricted VAR to examine social determinants' medium- and short-term effects on the NSP. Table 6 demonstrates that the impacts of social variables on NSP in its original form are insignificant; nevertheless, based on the evaluation of the numerous variants of NSP, it can be concluded that social factors have a major impact on NSP in Asia. Availability of water and power, expenditures on education, and healthcare expenses determine a country's level of development. Hence, enhancing these fundamental facilities may enhance the living conditions and performance of the populace. The model's r-square is 0.82, indicating that the model accounts for 82% of the variation (figure 2).

**Research Limitations and implications**

Despite its thorough examination of social variables, the study has several shortcomings. Initially, the analysis was limited to social variables as additional aspects must be considered, such as the importance of sports institutions and physical education learning platforms, which also play a vital part in determining a country's sporting success. In addition, the study was limited to Asian games. Future academics can use regional restrictions and specifications to broaden this topic by including international sports competitions. In addition, the study was limited to a specified time period, demonstrating its temporal scope. This research can be expanded by including significant parameters independent of regional specification during distinct time periods.

Therefore, one might conclude that the discoveries will have major theoretical and practical ramifications. In evaluating the sociological perspectives on athletic competition and accomplishment in the Asian region, the study has significant significance for sports researchers and scholars. In addition, it will be useful for sports policymakers in institutions to evaluate the societal obstacles that proved advantageous or problematic in determining the sports ranking of the winning countries. Moreover, based on its findings, the study attracts the attention of social development analysts interested in modifying social policies to increase the sport's prestige.

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