

The 2018 Winter Games in PyeongChang

How will the hosting nation, South Korea perform?

A focus on South Korea participating in the international comparison of the Sports Policy factors Leading to International Sporting Success (SPLISS 2.0)

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1. Introduction

With the 2018 Olympic Winter Games starting this week, our newsletter focusses on the host nation, South Korea. In the first section, South Korea's success and successful disciplines are identified. Second, as South Korea was a partner nation involved in the SPLISS 2.0 project, we will show the overall results of the country on the nine elite sport policy pillars used in the SPLISS 2.0 benchmarks, and discuss the main strengths and weaknesses of the national elite sport system. It is worth noting that the world of elite sport moves quickly as perhaps best demonstrated by South and North Korea uniting to bring about a joint women's ice hockey team; and Russia who topped the table in Sochi 2014 being banned from taking part.

2. Performance analysis of South Korea's strong Olympic winter disciplines

General performance

Table 1 shows the performance of the nine SPLISS-nations that won medals at the 2014 Sochi Games. The nations are ordered according to the total number of medal won and the resulting rank in the medal table. At the 2014 Sochi Games, these nine nations combined for 103 medals out of the 291 medals (35%) won by 26 nations. Canada and the Netherlands outperformed the other SPLISS-nations by winning 25 and 24 medals respectively with both achieving a top-5 ranking in the overall medal table. The nine medals won by South Korea puts the 2018 host nation in 12th place together with Japan.

Rank	NOC	Gold	Silver	Bronze	Total
4	Canada (CAN)	10	10	5	25
5	Netherlands (NED)	8	7	9	24
8	France (FRA)	4	4	7	15
10	Switzerland (SUI)	6	3	2	11
12	South Korea (KOR)	3	3	2	8
12	Japan (JPN)	1	4	3	8
22	Finnland (FIN)	1	3	1	5
23	Great Britain (GBR)	1	1	2	4
25	Australia (AUS)	0	2	1	3

Table 1: Medal performance of SPLISS-Nations at the 2014 Sochi Games

Performance by Sport

The graph below gives an overview of the Olympic disciplines that contributed most to the medal success of South Korea between 1988 and 2014.

South Korea possesses a competitive advantage in the skating sports, mainly in Short Track

Overall, South Korea won 53 Olympic medals in three Olympic disciplines. The majority of their medals were won in short track (42 medals, 79%), followed by nine medals in speed skating (17%) and two in figure skating (4%). South Korea seems to possess a competitive advantage in short track, which was introduced to the Olympic programme at the 1992 Albertville Games. The remaining two successful disciplines are also 'ice-sports' and have a long history of being part of the Winter Games programme: Figure Skating was introduced in 1924 (male and female events) while Speed Skating was first included for males in 1924 and females in 1960 (IOC, 2011).

Medal Distribution of South Korea 1988-2014

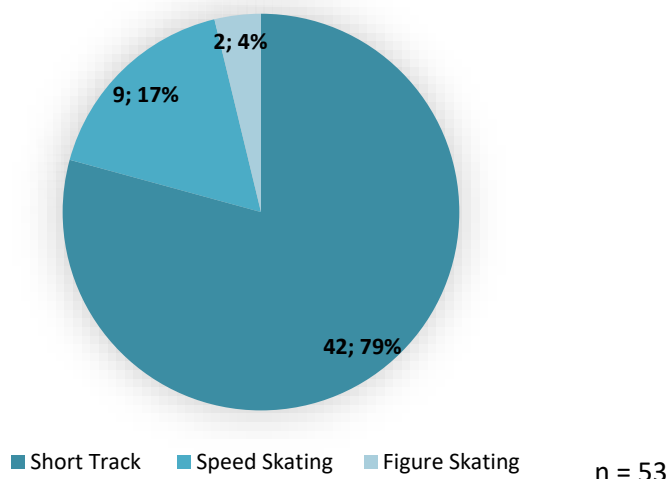


Figure 1: Medal distribution of Olympic disciplines in South Korea from 1988 and 2014

At the 2014 Sochi Games, the eight medals in the three disciplines won by South Korea resulted in 12th place in the medal table as measured in total number of medals won, while Canada won 25 medals resulting in 4th place and 24 medals won by the Netherlands places them 5th out of 26 medal-winning nations.

The direct rival nations of South Korea for medals in speed skating and short track at the 2018 PyeongChang Games will be Canada and the Netherlands. As a comparison, over the same period, Canada won 132 medals in 12 disciplines while the Netherlands won 68 medals in three disciplines. The Canadian top 3 disciplines at the Winter Games from 1988 to 2014 are: 28 medals in short track (21% of total medals), 24 in speed skating (18%) and 18 in freestyle skiing (14%), while the Netherlands won almost all of its medals in speed skating (98%), followed by short track (1%, 1 medal) and snowboarding (1%, 1 medal). Hence, Canada has the most diversified portfolio of successful winter sports, while South Korea has a focused portfolio consisting mainly of short track. The portfolio of the Netherlands consists almost entirely of speed skating.

South Korea's direct rival nations are Canada and the Netherlands

3. Potential to increase success as a hosting nation: broaden the sports portfolio

Nations hosting the Games generally manage to increase their medal success; which is recognised as the home nation effect. Different causes are proposed in the literature such as increased finances or familiarity with competition venues for example (e.g., Balmer, Nevill, & Williams, 2001; Johnson & Ali, 2004; Shibli, Gratton, & Bingham, 2012). Additionally, Weber, De Bosscher, and Kempf (2017) found evidence that nations that host the Winter Games expand their portfolio of funded sports and disciplines. Hence, the questions to be asked is: In which new disciplines could South Korea be competitive to increase its medal success?

Error! Reference source not found. shows the composition of the Olympic programme of the 2014 Sochi Winter Games including 15 disciplines and 98 events (=100%) and the success of South Korea per discipline. The disciplines shown in grey were introduced before the 1988 Games and are considered *traditional Olympic winter* disciplines, while the *five new disciplines* (i. e. freestyle skiing, snowboard, short track, curling and skeleton) included since 1988 are coloured yellow. The percentages per discipline indicate the relative *size of the market*, i.e. the number of Olympic medals as provided by the IOC at the 2014 Sochi Games.

There is potential for South Korea to increase its success in speed skating at the expense of the Netherlands which traditionally dominates this discipline and increased its market share **from 19% at the 2010 Games to 64% in 2014**. Meanwhile, the two medals won by South Korea is equal to a market share of **6% in 2014 which is an important decrease from the 14% market share won in 2010**. As the IOC and the International Skating Union (ISU) have decided to include a new male and female event in speed skating at the 2018 Games, i.e. **mass start speed skating**, and thereby increased the discipline's size in the programme to 14 events, the IOC provides competitive nations with even more medal-winning possibilities in this discipline. Hence, South Korea's strategy could be to regain some of the market share from the Netherlands and increase the number of medals won compared to 2014 (i.e. 2 medals).

Could South Korea close the gap with the Netherlands in speed skating? Will it have a competitive advantage in the new event 'mass start speed skating'?

Medals of South Korea at 2014 Sochi Games

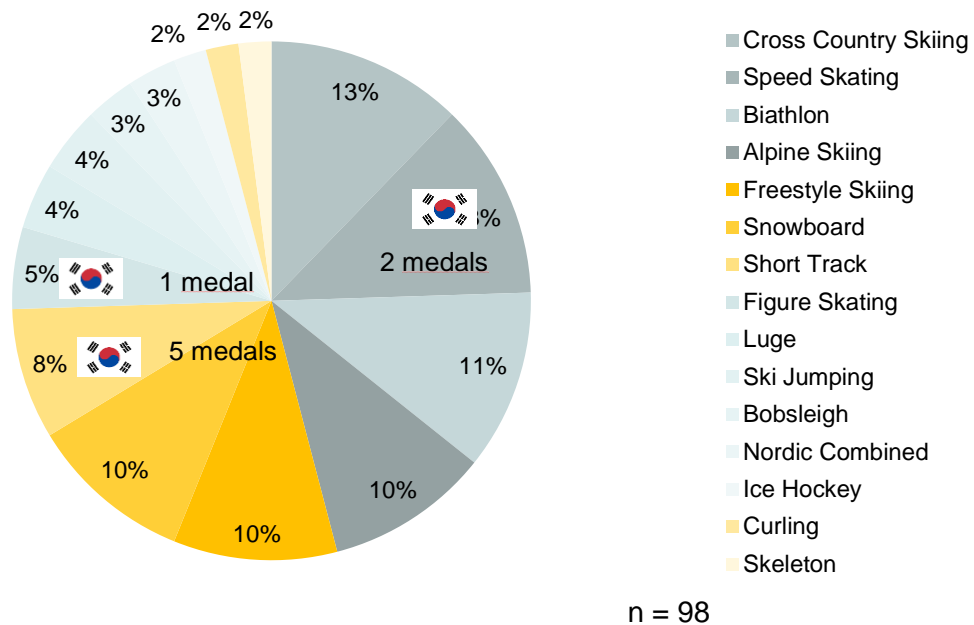


Figure 2: Distribution of Success of South Korea at the 2014 Sochi Games per discipline

Furthermore, South Korea could **develop its success** in ice sports by targeting Curling or one of the new snow-based, **medal-rich disciplines** like Snowboarding (i.e. 10% of the total number of medals) for example.

The results at the Games from the 9th to the 25th of February 2018 in PyeongChang will be an interesting test of the extent to which South Korea is able to use the host nation effect to grow its portfolio of successful winter sports and increase its medal success.

4. South Korea's elite sport policy results from the SPLISS 2.0 study: a comparison with 15 nations

About SPLISS and its methods: www.spliss.net

The SPLISS 2.0 project compared elite sport policy in 15 nations worldwide across nine Pillars ((De Bosscher, Shibli, Westerbeek, & van Bottenburg, 2015). In this project the research team identified, compared and contrasted elite sport policies and strategies in place for the Olympic Games and other events in 15 distinct nations. With input from 58 researchers and 33 policy makers worldwide and the views of over 3,000 elite athletes, 1,300 high performance coaches and 240 performance directors that were surveyed, this work is the largest benchmarking study of national elite sport policies ever conducted. The nations taking part in SPLISS 2.0 were: Australia, Brazil, Canada, Japan and South Korea, Belgium (Flanders & Wallonia), Denmark, Estonia, Finland, France, The Netherlands, Northern Ireland, Portugal, Spain and Switzerland. The methods are based on the 9-Pillar model that measures elite sport policies of 96 critical success factors (and 750 sub factors). The Pillars are: (1) financial support; (2) organisation and structure of elite sport policies; (3) sports participation; (4) talent identification and development; (5) athletic career support; (6) Sport facilities; (7) coach provision and development; (8) national and international competition; (9) Scientific research and innovation. See De Bosscher, De Knop, Van Bottenburg, and Shibli (2006) for more information about this model.

The objective of the SPLISS project is to better understand which sport policies lead to international sporting success (and how), and to obtain further insight into the effectiveness and efficiency of elite sport policies of nations at an overall sports level. See De Bosscher et al. (2015) for the complete project results.

The Pillars that had the strongest relationship with success in winter sports were (in order of importance): research and innovation (Pillar 9), Coaches (Pillar 7), organization and structure of elite sport policies (Pillar 2) and Financial support (Pillar 1).

Research and innovation, coaches, organization and structure of elite sport policies and Financial support have the strongest relationship with success in winter sports

How did South Korea perform on the 9 pillars of elite sport policies?

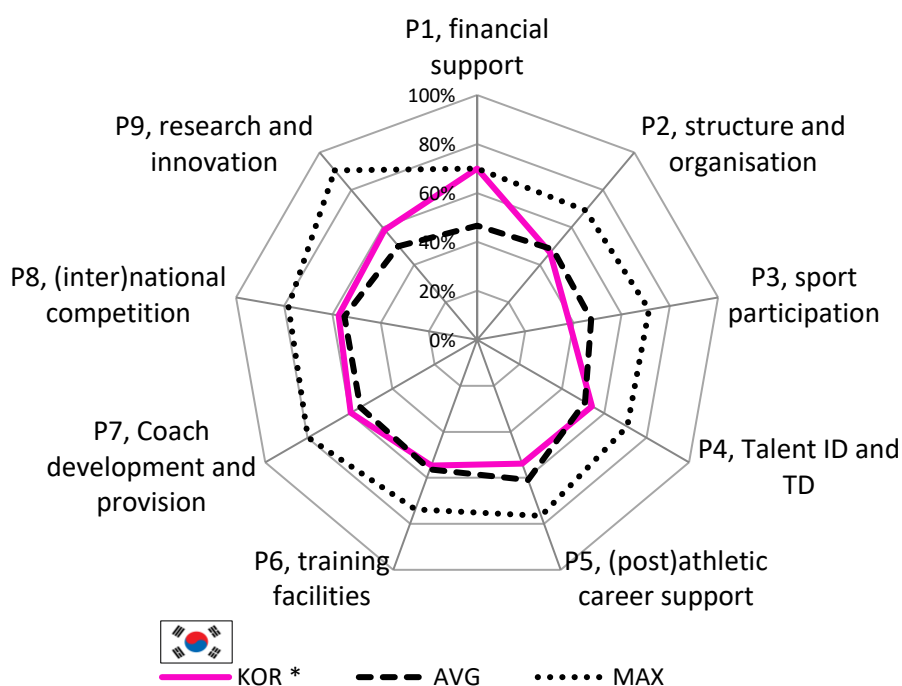


Figure 3: Scores of South Korea in the 9 Pillars of elite sport policy against the average and maximum scores of 15 nations

Figure 3 presents the Pillar scores of South Korea on the nine pillars of the SPLISS model. The country clearly is an outlier among the sample nations with substantial national funding invested in elite sport. At the time of data collection, South Korea (a country with approximately 50 million inhabitants), was the highest investor in elite sport polities with an average annual budget spent on elite sport policies of 253 million euros¹. Korea's elite sport expenditures have increased considerably, notably since 2006. These figures are partly distorted by the inclusion of expenditure on international events (Pillar 8) in our analysis, such as the Asian Games, World Student Games and World Athletics Championships (but not the Olympic Games of PyeongChang). This event funding accounts for 53% of total elite sport expenditures, which is much higher than other nations. International exposure, appears to be an important objective in South Korea. Surprisingly, Korea is not the strongest nation in its scores on Pillar 8 (international competition); here the highest score was

South Korea has the highest elite sport expenditures of all nations and scores around the average on all other Pillars

¹ Korea as an outlier: this is strengthened when PPP (purchasing power parity) values are taken, which extremely influence South Korea; for example, while elite sport expenditures are comparable to Japan in absolute values, they are almost the double in PPP values.

achieved by Japan. The surveys showed that less than half of all coaches are happy with the number of competitive opportunities available to South Korean athletes.

Looking at the other pillars, Korea's scores are around the average. Most of the support services happen through **financial resources** (such as national training centres, funding elite athletes, rewarding medalists, a national sport science centre), **but not through a strong coordinated approach to elite policy development**. For example, as shown throughout the results in Pillar 5 (athletic career support) and Pillar 7 (development and provision for elite coaches), Korean athletes and coaches were among the highest earners in the sample nations. Athletes receive post career support such as a pension for medalists, prize money for coaches of medalists, pensions for athletes who retire after injuries, and a welfare fund for athletes. Funding is clearly an important tool for South Korea to facilitate its elite sport ambitions. Still, less than 30% of the elite sport coaches indicated that their income is sufficient to operate as a full time coach. Also, coaches in Japan and Korea on average devote the most time to training, around 50 hours per week. This finding confirms global arguments that often the job of coaches is insufficiently recognized.

It should also be noted that, while athletes' perceptions of their coach's expertise was rated fairly 'high' to 'very high' in all countries (ranging 70% to 85% positive ratings), in Korea only 62% of the athletes rated the expertise of their coach as high or (very) high.

A benchmark of South Korea with successful winter sport nations

Figure 4 compares the scores of South Korea on the nine Pillars, to two other successful winter sports nations: Canada and the Netherlands. The figure confirms that a blueprint of successful elite sport policies does not exist (De Bosscher et al., 2015), as successful winter sport countries score well on different Pillars.

The strengths of Canada can be seen in Pillars 7 (coaches), 8 ((inter)national competition) and 9 (research and innovation), whereas the Netherlands is relatively better on the right hand side of the graph (in Pillars 2, 3, 4, 6), showing the importance of its organizational model that not only enhances sport participation and talent development (mainly in speed skating) but also proves to be effective and efficient at subsequently turning this broad base into elite sporting success (at least in this sport). Canada had (along with France) the best score of all nations on coaching provision and development (Pillar 7). Furthermore Canada scores well on international competition (Pillar 8) and it also has a developing academic sport science culture that increasingly makes direct contributions to elite sport.

The Netherlands is almost diametrically opposed to the Canada scores, showing relative strengths in Pillars 2 (organization), 3 (participation), 4 (talent ID and development) and 5 (athletic career support). The Netherlands is ranked third in winter sport success and fifth in summer sports in spite of a score below average on Pillar 1 (financial support). However, in winter sports, 42 of the 46 (91%) medals won, were in speed skating; two in snowboard and two in short track. Still this country serves as a good example of a nation that uses its resources wisely to "punch above its weight", not just in winter sports but in summer sports too.

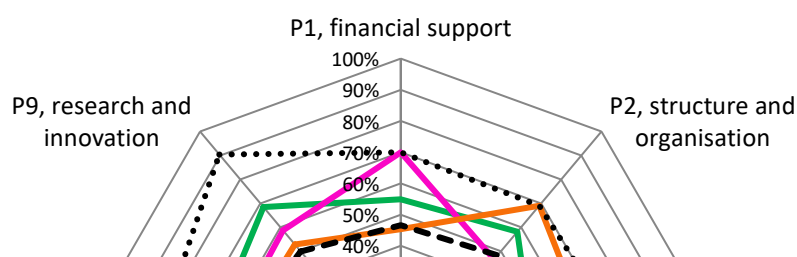


Figure 4: Radar graph of Canada, Korea*, and the Netherlands compared to the average and maximum scores of 15 nations

Money in ... medals out?

Figure 5 presents the 'money in-medals out' (efficiency) relationship for the 15 SPLISS 2.0 sample nations with expenditures and market shares of medals. For comparability reasons, values were adapted for Purchasing Power Parity (PPP)² (expressed in international \$) and are shown on the X-axis³. Elite sport expenditures in our measurement include (a) government funding, (b) national lotteries, (c) NOCs and (d) nationally coordinated sponsorship (excluding possible overlaps between each funding source).

There are three key messages arising from this analysis of Pillar 1 against success. First, there is a **strong positive relationship** between the **absolute amount of elite sport funding** invested by nations **and their success**. In general, the correlation between investment and success is lower than in summer sports (0.52*). It is expected that in winter sports, countries depend highly on natural resources to develop success (such as mountains and snow). Nation by nation diagnostics shows that Canada, the Netherlands, Switzerland and to a lesser extent Finland can be seen to perform above expectations in winter sports, given their elite sport expenditures. South-Korea is situated around the benchmark (or in line with expectations) line.

Second, there are **diminishing returns** on investment where merely investing more money does not automatically lead to more success. This point confirms the nature and continuation of the global sporting arms race. Third, within the sample there is **considerable variation in the efficiency ratios of investment to success**. There are clear indications that **some nations use the resources that are invested more efficiently than others**. This finding in itself confirms the importance of investigating in the other Pillars that represent the throughput policy factors in more depth. There is

² (a) Purchasing power parity (PPP) is an economic concept and a technique used to determine the relative value of currencies to be equivalent to (or on par with) each currency's purchasing power. It asks how much money would be needed to purchase the same goods and services in two countries, and uses that to calculate an implicit foreign exchange rate..

³ A linear regression analysis with case wise diagnostics was conducted to support this graph. The dotted line in the graphs is an estimation based on residuals. Noting the limitation of a small sample, analysis of residuals helps to, under ceteris paribus conditions, compare the predicted success, based on the independent variable (here elite sport expenditures), with actual success. The higher the residual, the better it performs given its elite sport expenditure, and the more efficient the country can be assumed to be (see De Bosscher, 2007);

much to be learned from which factors are invested in; how they relate to each other; and how they are managed in an integrated approach by policy makers.

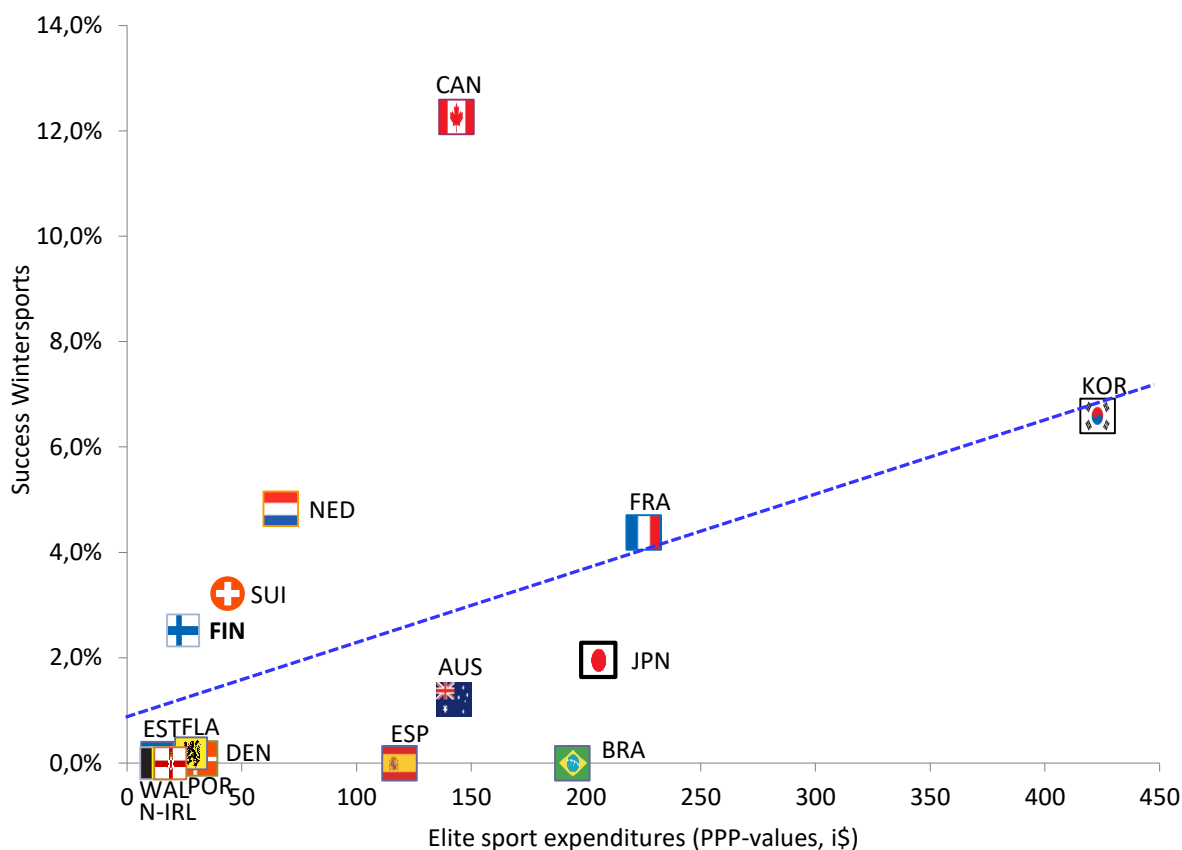


Figure 5: Elite sport expenditures per year (PPP-values) and the market share of the SPLISS nations in winter sports at world championships and Olympic Games (2009-2012) (taken from the infostrada database)

More Information

Contribution to this newsletter



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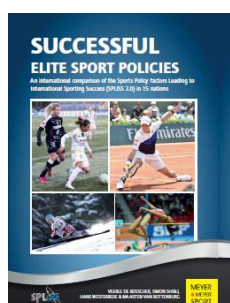
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De Bosscher, V., Shibli, S., Westerbeek, H. & van Bottenburg, M. (2015). Successful elite sport policies. An international comparison of the Sports Policy factors Leading to International Sporting Success (SPLISS 2.0) in 15 nations. Aachen: Meyer & Meyer.

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