

# Medal predictions for the Rio Games - the competition between national elite sport systems

## Summary

USA and China will be the two most successful nations in the forthcoming Olympics in Rio. Russia will end up as the third best nation in spite of the ban of more than 100 of the Russian athletes qualified for the Games. Great Britain will experience a successful Olympics, only marginally behind Russia. These are some of the main conclusions from the medal predictions presented in this article. The prediction method is based on results in recent world championships in the Olympic sport disciplines and other recent measures such as world rankings. The method is unique in several respects. For instance, it takes into account what is known about absent and banned athletes six days before the start of the Games. Further, it applies a novel measure (medal points) in historical comparisons of the predicted results in the forthcoming Games with results at the last five Summer Olympics. France and Japan are predicted to experience their most successful Games since 1996 and Brazil may break into the top 10 group of nations in their home Olympics. However, the most remarkable success stories in Rio will be the Netherlands and New Zealand who are both predicted to significantly increase their medal tally in Rio. The predictions further show that the medal share of the Asian countries will increase at the expense of the share of European countries. The Eurozone crisis countries will experience significant decline and Italy will drop out of the top 10 nations.

## Manifold medal predictions

Officially, the Olympic Games is not a contest between nations but rather a competition among individual athletes and teams in various disciplines. However, it is no doubt the tables where nations are ranked according to their medal tally that attracts most attention at all. National governments invest huge sums of money in nurturing their elite sport systems and funding individual athletes. Their predominant explicit success criterion is the medal tally and the ranking in the medal table. National elite sport organizations make their expectations clear in terms of medal targets for their athletes prior to forthcoming Olympic Games. For instance, UK Sport has the explicit goal to win more medals in Rio than in the Olympics in Beijing 2008.

Prior to the Olympic Games there are many attempts to predict medals per nation and medal tables<sup>1</sup> Academic journals publish papers with rigorous prediction methods. A selected list of papers is included in the bibliography to this article.

The prediction models can be divided into two different types. One type consists of econometric models using a range of objective data as the basis for predictions. For instance, researchers at the School of Business, Dartmouth College, USA base their model on four factors: a country's population; its national income (GDP); its performance in previous

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<sup>1</sup> See an incomplete list: <http://www.topendsports.com/events/summer/medal-tally/rankings-predicted.htm>.

Olympic Games; and whether it is hosting the Games<sup>2</sup>. The second type of predictions is based on results in relevant competitions leading up to the Olympics. One often cited example is the one developed by Gracenote (earlier Infostrada)<sup>3</sup>.

Birkbeck Sport Business Centre has contributed its own predictions prior to the last Summer Olympic Games in London and the last Winter Olympics in Sochi<sup>4</sup>. This article includes a similar prediction for the Rio Olympic Games. The prediction is of the second type mentioned above. It is based on results in the most recent world-level competitions in each Olympic discipline.

The article contributes novel knowledge in several ways. First, it includes very recent results which other predictions do not cover. Second, it is objective in the sense that it is based on results rather than estimates based on athlete's recent form curves. Third, the prediction takes account of what is known about participating athletes six days before the Games commences. This is particularly important in this Olympic Games because of the late decisions by international sport federations to ban Russian athletes from participating in the Games. Fourth, in addition to the traditional medal tables and medal counts a novel performance measure (medal points) is applied in the analysis.

### **How are the medal predictions calculated?**

Table 1 is the predicted medal table for the Rio Olympic Games. The table is predominantly based on the results in the last world-level competitions for each sport and discipline (258 of 306 disciplines)<sup>5</sup>. For the remaining 48 disciplines, the prediction is based on current world ranking<sup>6</sup>.

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<sup>2</sup> [https://www.weforum.org/agenda/2016/07/this-model-predicts-the-final-olympic-medal-table-using-nothing-but-economics?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+inside-the-world-economic-forum+\(Inside+The+World+Economic+Forum\)](https://www.weforum.org/agenda/2016/07/this-model-predicts-the-final-olympic-medal-table-using-nothing-but-economics?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+inside-the-world-economic-forum+(Inside+The+World+Economic+Forum))

<sup>3</sup> <http://www.gracenote.com/gracenote-refreshes-2016-olympic-medal-predictions-30-days-opening-ceremonies/>

<sup>4</sup> <http://www.sportbusinesscentre.com/news/china-usa-great-britain-and-the-rest-olympic-medal-prospects-a-forecast/>  
<http://www.sportbusinesscentre.com/news/medal-table-winter-olympics-2014-prognoses-and-relative-performance-sochi/>

<sup>5</sup> In most sports the table is based on the results from the last world championships. In most sports (209 of 306 disciplines) the most recent world championships were in 2015 (archery, athletics, badminton, beach-volley, boxing (men), canoeing (slalom and sprint), cycling (road), diving, football (women), fencing, gymnastics, handball, judo, rowing, shooting (shotgun), swimming (open water), taekwondo, triathlon, water polo, weightlifting and wrestling). In 29 disciplines the last world championships were in 2016 (boxing (women), cycling (track, mountain bike, BMX), modern pentathlon and sailing) whereas in 20 disciplines, the calculation is based on the results from the most recent world championships in 2014 (basketball, equestrian, hockey and shooting (rifle & pistol)).

<sup>6</sup> Football (men), golf, rugby 7s, table tennis, tennis, swimming (indoor), volleyball

The table takes into account what is known at the time of writing about who will actually participate in the Games. The international federations in athletics and weightlifting have decided to ban all Russian participants from the Games and a number of athletes from some other sports have also been banned. At the time of writing (six days before the opening ceremony), four federations have still not made a decision (boxing, golf, gymnastics and taekwondo). If the boxing and gymnastics federations decide to ban it may influence the medal table in a way which has not been taken into account in Table 1.

In addition, the table also excludes athletes who are absent for other reasons such as health concerns (e.g., several male golf players and the Bryan brothers in tennis) or injuries (e.g., Roger Federer in tennis and Javier Gomez in triathlon). If for whatever reason a medal winner from the most recent world championships does not participate in Rio the next placed athlete is included instead.

### **Different measures**

There are many ways to measure the performance of nations in Olympic Games. One method is the traditional medal table where nations are ranked according to, first, the number of gold medals, second, the number of silver medals for nations with the same number of gold medals, and third, the number of bronze medals. This method has the disadvantage of attaching disproportionate weight to gold medals compared to other medals. An example can be seen in Table 1 where Slovakia is ranked higher than the Netherlands because they are predicted to win four gold medals whereas the Netherlands will win one gold medal less. However, the Netherlands is predicted to win 28 additional medals and Slovakia none. It is obvious that the performance of the Netherlands is far superior but this is not reflected in the ranking.

This is the reason why the total number of medals is often used as an additional measure. The problem with the medal table described above is solved by including all medals. However, this method gives equal weight to all medals and ignores the fact that gold is better than silver and silver better than bronze<sup>7</sup>. This study pioneers a new measure that gives 5 points to a gold medal, 3 points to a silver medal and 2 points to a bronze medal. The respective weights corresponds better to the general perception to value of medals: one gold medals is (almost) valued as much as two silver medals; a silver medals is 50% more worth than a bronze medal: and a silver and a bronze medals together is equivalent to one gold medal. The last column in Table1 lists the medal points for each nation and the figures shows the development in medal points since 1996 for selected nations.

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<sup>7</sup> Other methods take account of this by attaching points to medals with decreasing number of points attached to medals, often 3 points for gold, 2 for silver and 1 for bronze. The problem with this measure is the counterintuitive proportions attached to different types of medals. A gold medal is seen to be worth 50% more than a silver medal whereas a silver medal is 100% more valuable than a bronze medal. It should rather be the other way round. The general consensus is that a gold medal is valued significantly higher than a silver medal whereas there is less difference in the values of silver and bronze medals. Some measures reflect this by using the following weights: 5/2/1 or 7/3/1 to the three medal categories. This seems to attach a disproportionate high weight to gold medals. Is one gold medal equivalent to five or seven bronze medals? This is hardly reasonable.

## **Predicted medals – the top 3 nations**

The calculation predicts that USA will end on top of the medal table succeeded by China and Russia. This is no surprise as these are the traditional top 3 nations in the Summer Olympics. However, all three nations are predicted to win fewer medals than in recent Olympics. The top-3 nations' share of the total number of medals is predicted to be 25% whereas it was 30% and 28%, respectively, in the two previous Olympics. This is mainly caused by a decline in Russia's market share but also USA and China are predicted to win fewer medals than in the two last Summer Olympics.

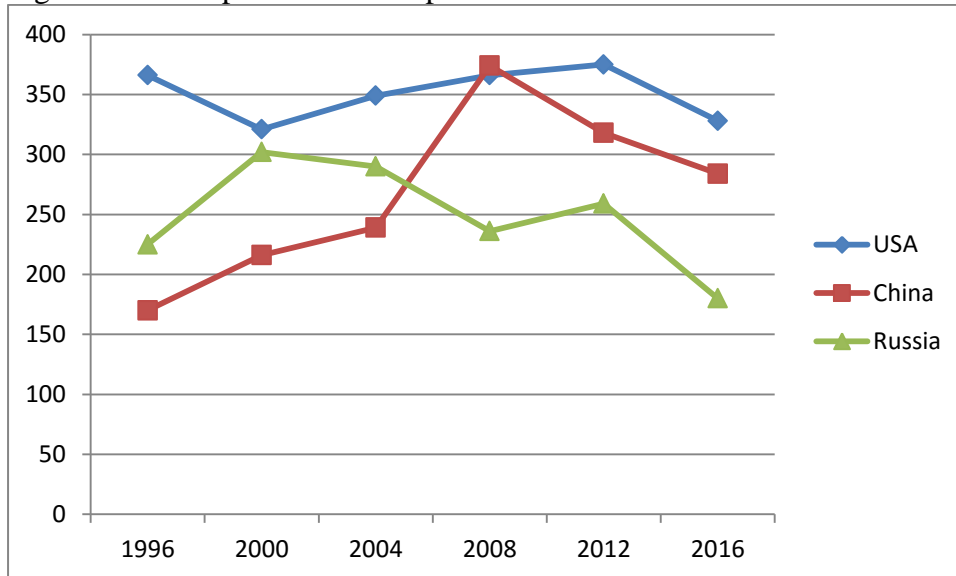
The total predicted medals for USA is 97 compared to 110 and 103 in 2008 and 2012, respectively. This is partly an effect of a relatively poor performance of US track and field athletes at last year's world championships. USA often perform better at the Olympics than in world championships in years in-between Olympic Games so it could well be that they will win more medals than projected. Whereas earlier USA won the bulk of its Olympic medals in athletics and swimming this is no longer the case. Now, USA wins medals in many sports where they were previously not competitive. US athletes are predicted to win medals across the board in 21 out of 33 sports which is more than any other nations.

China and Russia are predicted to win medals in 18 and 15 sports respectively. The number of Chinese medals is predicted to decline from 88 in 2012 to 83 in 2016. The predominance of China in a number of sports such as badminton, diving, table tennis and weightlifting is maintained and Chinese athletes also several win many medals in gymnastics and shooting but they have not succeeded to broaden its basis in sports across the board as it seemed to be on its way to do following the huge investments in improving its medal tally at its home Olympics in Beijing.

Russia is predicted to win only 53 medals. This is much lower than in 2012 where Russia won 79 medals and partly caused by the ban of a number of Russian athletes because of the doping revelations. If the banned athletes are not excluded in the predictions Russia would win 70 medals which is still significantly less than its medal tally in the London Olympics. It is mainly the blanket ban of Russian weightlifters that reduces its predicted medal tally. The results from last year's world championships indicate that 9 of the 10 Russian weightlifters would have won medals in Rio. The Russian medal tally is also influenced by the decision of the international athletics federation to ban all Russian athletes. However, this is much less so. At last year's world championships in athletics Russia won only four medals. From 2014 Russian athletics has been in significant decline as indicated in very few top performances in the official annual rankings. In addition, Russia would also be predicted to win medals in swimming (2 medals to Yulia Efimova in breaststroke), and in canoeing and wrestling (one medal each). However, even if none of the Russian athletes had been banned from the Rio Olympics the predictions show signs of decline. In the last three Summer Olympics the total number of Russian medals has been significantly lower than in 2000 and 2004. Another sign of decline is the poor performance of Russia in team sports. Whereas USSR/Russia was competitive in almost all team sports 2-3 decades ago, Russia only qualified for the Rio Games in four of 14 team sports which is much lower than the USA (10) but also lower than Spain (9), France (8) and several other countries.

Figure 1 shows the development in medal points (gold: 5 points, silver: 3 points, bronze: 2 points) for the top 3 nations in the last five Olympics plus the predictions for 2016.

Figure 1: Medal points for the top 3 nations 1996-2016



### Predicted medals – Great Britain

In the London Olympics Team GB won an unprecedented total of 65 medals, far higher than in any previous modern Olympics. The funding of British Olympic sports has been maintained at the same level since 2012, and following the success in 2012, the funding agency UK Sport set the ambitious target of becoming the first host nation to win more medals in more sports at the Games that followed. This ambition has not been totally abandoned in the sense that 66 medals are still seen to be ‘within range’. However, based on recent results a more realistic minimum target of 48 medals has been made public. This will be one more medal than in Beijing 2008 which was at the time seen as extremely successful to the extent that many feared that it would be difficult to do even better at the home Olympics four years later. Now, UK Sport has a minimum target of 47 medals and a maximum target of 79 medals. There are medal targets for each sport. 17-21 sports are targeted as medal winners in Rio.

The medal predictions in Table 1 shows that the medal targets of UK Sport is realistic. Team GB is predicted to win 19 gold medals which is significantly fewer than the 29 gold medals won in the London Olympics. The predicted total number of medals is 51 which is above the minimum target but significantly lower than in 2012 where Britain won 65 medals. In addition, Britain is predicted to win medals in only 13 sports which less than in 2012 (17 sports) and less than the UK Sport targets. Among the top medal winning sports, rowing and sailing are predicted to do as well in Rio as in London. On the other hand, the British cyclist will not be able to do as well as in the two preceding Games. Britain is predicted to win more medals than in 2012 in athletics, gymnastics and swimming. Gymnastics is the extreme British success story. The huge investment in elite sports has had spectacular results. From having no tradition of excellence and being mediocre in international competitions until a decade ago British gymnastics has gone from strength to strength. Britain is now one of the top 5 nations and a potential medal winner in the artistic gymnastics team events for both men and women which is the most reliable measure of a nation’s international standing in gymnastics.

Figure 2: Medal points for Great Britain 1996-2016

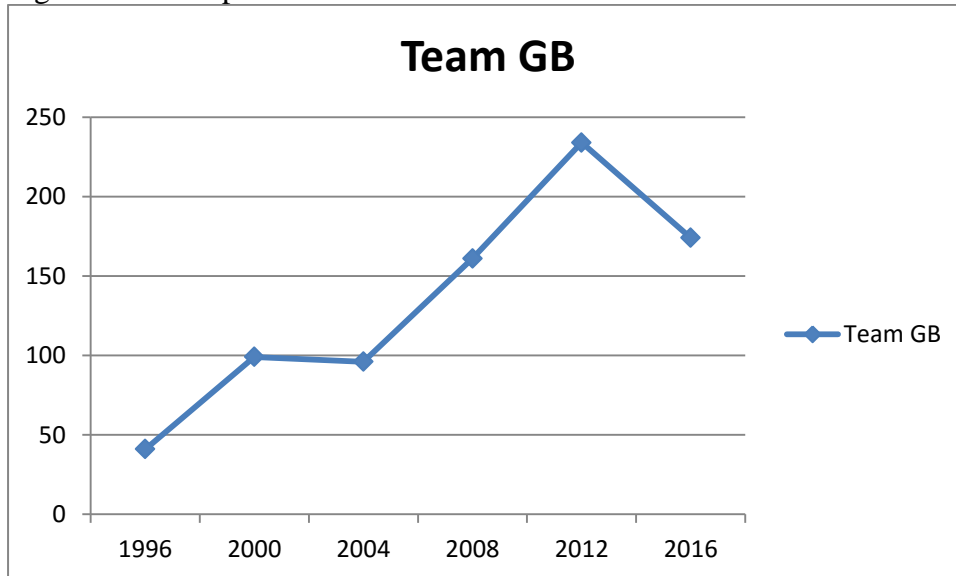


Figure 2 shows the dramatic improvement in Britain's international standing since the 1996 Olympics. It is worth adding that the predicted British medal tally is not boosted by the ban of Russian athletes. None of the British medals is a result of adapted predictions in cases where Russian athletes are absent.

### **Predicted medals – other top 10 nations**

The other top 10 nations in the Summer Olympics are Germany, France, Japan, Australia, South Korea and Italy. In the last five Games, these nations have almost always been among the top 10 nations in terms of number of medals. According to the predictions this will also be the case in Rio with the exception of Italy who is predicted to experience a very poor Olympics with only 19 medals. This is much lower than the medal tally in the last five Olympics that has varied from 27 to 35 medals. Italy has experienced decline in most sports. Last year Italy did not win a single medal in the world athletics championships. Only fencing and swimming can be relied upon as multiple medal winning sports.

Both France and Japan are predicted to win more medals in Rio than in any of the five preceding Olympics. Japan did very well in London (38 medals) and is predicted to do marginally better in Rio (39 medals). This is a huge improvement compared to the past. For instance, in 1996 and 2000 Japan won only 14 and 18 medals, respectively. In terms of gold medals they are predicted become even with Russia and Britain with 19 medals in total. Japan may well end up as number three in the medal table. Japan has traditional strongholds in gymnastics, judo and (female) wrestling and Japanese swimmers are improving across the board so it would not seem unrealistic if Japan aims at being the third best nation in its home Olympics in Tokyo in 2020.

France is also improving and is on the way to repeat the British success in a home Olympics if Paris becomes the host of the 2024 Olympics as it seems likely. The special feature of the French success is that it is very broadly based. French athletes are competitive at the top level in a high number of Olympic sports. France is predicted to win medals in 18 sports. Only USA and Germany wins medals in more sports.

Germany is predicted to win more medals than at the two last Olympic Games (49 versus 41 in 2008 and 44 in 2012). Germany has medal winning potential across a wide range of sports and has strongholds in canoeing, cycling and equestrian sports. However, apart from cycling Germany only wins few medals in sports with many medal disciplines such as gymnastics, swimming and wrestling.

Australia has won a steady declining number of medals at all Games since their home Olympics in Sydney in 2000, and the London Olympics was a low point with 37 medals of which only one was of gold. The trend is predicted to be reversed in Rio where Australia is predicted to win 39 medals of which 14 will be gold medals. However, the end result can easily be less positive. Australia only wins medals in 12 sports and only a few medals (1-3) in each of these sports apart from cycling and swimming. The predictions may be slightly flawed in favour of Australia in the sense that the Australian swimmers are very strongly represented in the current world ranking list which is the basis for the predictions. If Australian swimmers live up to their 2016 ranking they will win 9 gold medals and 20 medals in total in swimming. This is significantly lower than the Australian medal tally in swimming at the London Olympics (10 medals) but also the two last world aquatic championships (12 and 14 medals in 2013 and 2015, respectively). Although the trend seems to be upward it is hardly realistic that Australia can improve as much as predicted. It is likely that Australia's decline as an Olympic heavyweight will continue, and, actually, there is a risk that Australia may end up below New Zealand in the medal table which will hardly please the sports mad Australians.

Figure 3: Medal points for other top 10 nations 1996-2016

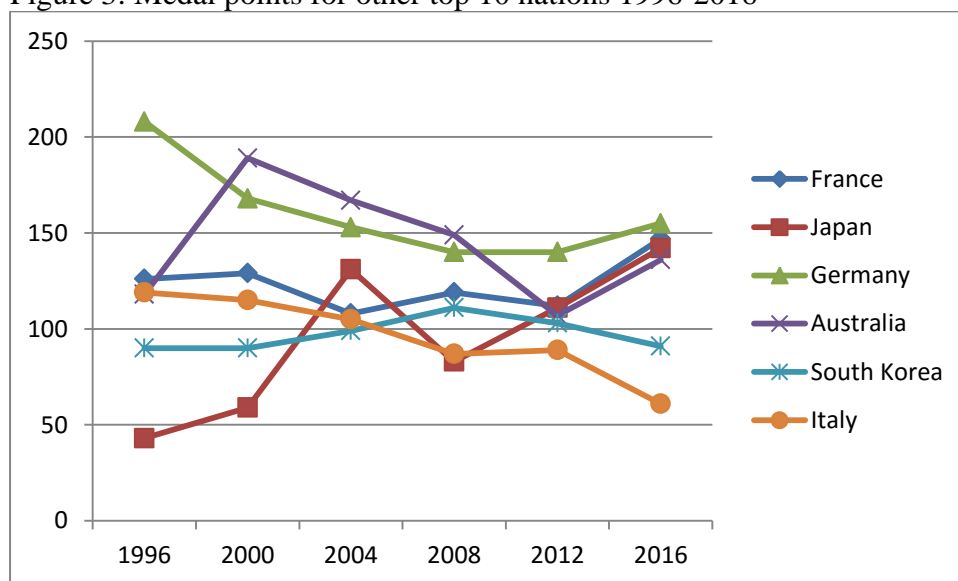


Figure 3 shows the stabilization of Germany's performance level after years of sharp decline. It also shows the significant recent increase in medal points for France and Japan. Germany, France, Japan and Australia are almost equal in terms of predicted medal points for 2016.

## **Predictions – the challengers**

Italy will drop out of the top 10. The candidates for inclusion in the top 10 medal winners are Brazil, the Netherlands, New Zealand and, less likely, Canada and Ukraine.

The official target for the host nation is to end in the top 10. They may well succeed. According to the predictions they will win 17 medals. However, this does not take home advantage into account. Brazil is strongest in team sports with only a few medals. They may sweep the board in beach-volley and (indoor) volleyball and win the tournaments in football and handball (women), but there are only a few medals to win in the big team sports. In addition, Brazil may win medals in 6-10 other sports which may well add up to a medal tally sufficient for inclusion in the top 10. The medals won by Brazilian athletes in the Olympic disciplines in the three years in-between the London and Rio Olympics (28, 23 and 20 medals, respectively, in 2013, 2014 and 2015) indicates that this is not unlikely.

However, a more likely top 10 candidate is the Netherlands which may even push South Korea down the list and end up as the ninth most medal winning nation. According to the predictions, The Netherlands will win 31 medals in total whereas South Korea will only win 26 medals. The Dutch elite sport agency aims for a top 10 place in the Games which seems realistic. It will not only be the sprinter Dafne Schippers who will shine in Rio. Whereas the Netherlands previously only excelled in a relatively small number of top priority sports, they are predicted to win medals in 15 sports in Rio – one more than Team GB. The results in world championships in the Olympic disciplines in the years in-between the London and Rio Games, further indicates that the Netherlands will do exceptionally well in Rio. The Netherlands may end up with only a handful of gold medals but in terms of the total number of medals, the Dutch will provide one of the great success stories in the forthcoming Games.

Another top success story in Rio will be the performance of the New Zealand team. They are predicted to end up with 20 medals of which 9 medals will be of gold. This represents resounding progress compared to the London Olympics which was the previously most successful Games for New Zealand with 13 medals. The results in the years since 2012 is consistent with a medal tally of 20. New Zealand tops the medal table in rowing and wins several medals in cycling and sailing. The increase in the number of medals is slightly flawed in the sense that it reflects the inclusion of new sports on the Olympic program rather than an improved New Zealand performance. New Zealand is expected to win medals in three of the four disciplines which are new in Rio (rugby 7s and golf, men and women). However, even so if the small antipodean nation lives up to the predictions it will certainly represent an exceptional success for Olympic sports in a nation where non-Olympic team sports (rugby union, rugby league and cricket) take up much of the public interest and talent recruitment.

Canada aims for a top 12 place and may just make it even they will just come short according to the predictions. Ukraine will come close with 17 medals in total although only 2 medals are predicted to be of gold. However, the predicted Ukrainian medal tally is significantly boosted by the absence of Russian athletes. Three of the predicted Ukrainian medals are the result of an adjusted medal tally. The prediction therefore exaggerates the strength of the Ukrainian elite sport system.



Figure 4: Medal points for the challengers 1996-2016

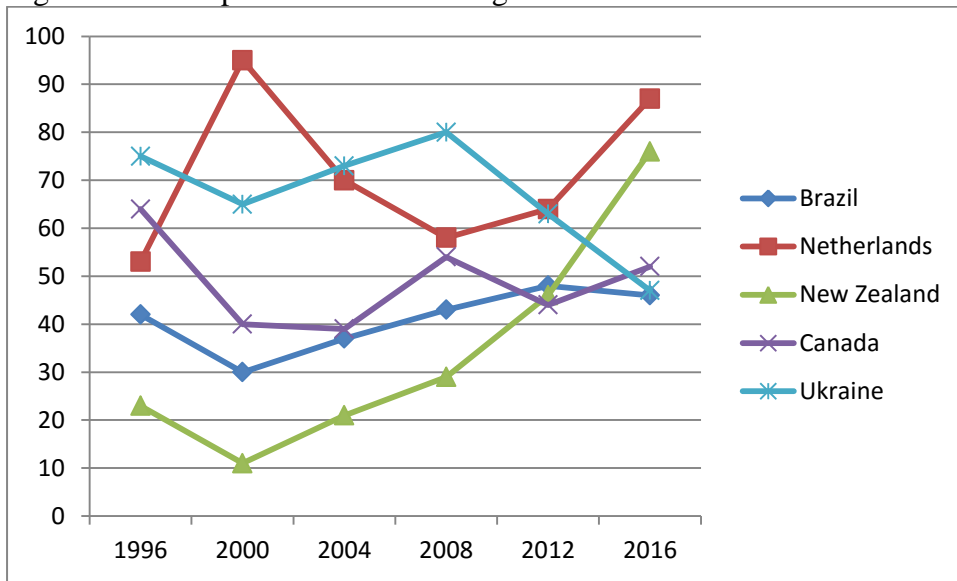


Figure 4 shows the remarkable rise of New Zealand and the Netherlands. However, the Dutch progress is less impressive measured in medal points than in terms of total medals. This is because of the high proportion of predicted silver and bronze medals in 2016. Actually, the Netherlands did slightly better in 2000 if performance is measured by medal points. Similarly, Ukraine has experienced a significant decline in performance level measured in medal points. The decline is less evident when measured by means of total number of medals.

### Predictions – other nations

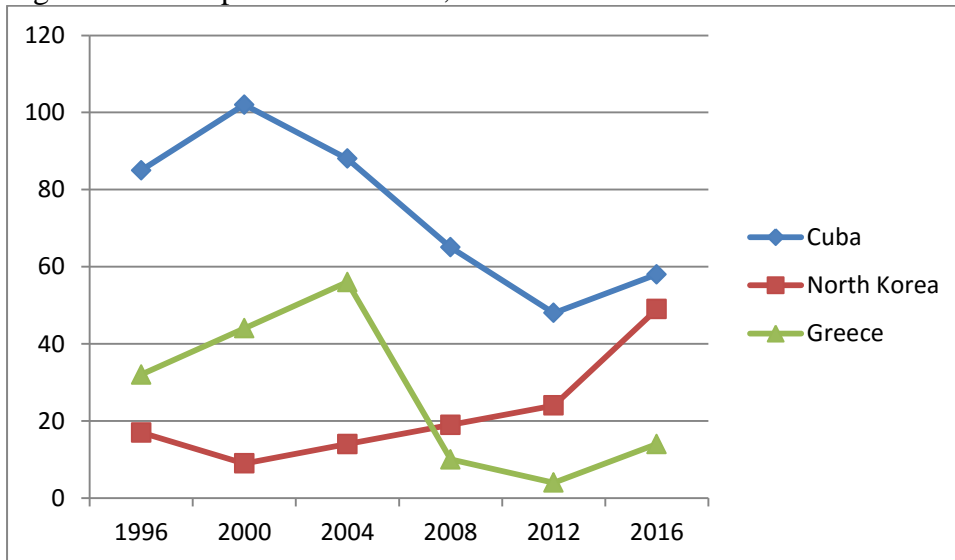
Table 1 includes the full list of predicted medals per nation. It is worth noting other interesting details. The performance level has nosedived for Greece. It is normal that Olympic host nations are able to boost their performance level in Olympic sports on a permanent basis. This was very much the case for South Korea and Spain after the 1988 and 1992 Games, and it seems to be the case for China and Britain as well. Greece is an exception. It has not been able to boost its performance level in Olympic sports despite its role as host of the 2014 Games. After a huge increase in its medal tally in 2000 and 2004 (13 and 16 medals, respectively), it fell to 4 and 2 in 2008 and 2012. It is not expected to become better in Rio where the predicted number of medals is 4.

Cuba is predicted to win 16 medals. This is at level with its medal tally in London but significantly lower than in the three preceding Olympics where Cuba won 25, 29 and 27 medals in 1996, 2000 and 2004, respectively. The previously highly successful Cuban elite sport model is in steep decline. Cuba still wins many medals in boxing but only few in other sports.

North Korea is a contrasting story. In the five last Olympics, North Korea won 5,4,5,6 and 6 medals, respectively. However, the secretive state whose athletes only rarely take part in international competitions outside the Olympics is predicted to win 16 medals in Rio. The prediction is slightly flawed as the medal tally of North Korea is boosted by the ban of Russian athletes, in weightlifting, in particular. Even if this is taken into account the improvement of the North Korean standing represents unprecedented progress. It is slightly

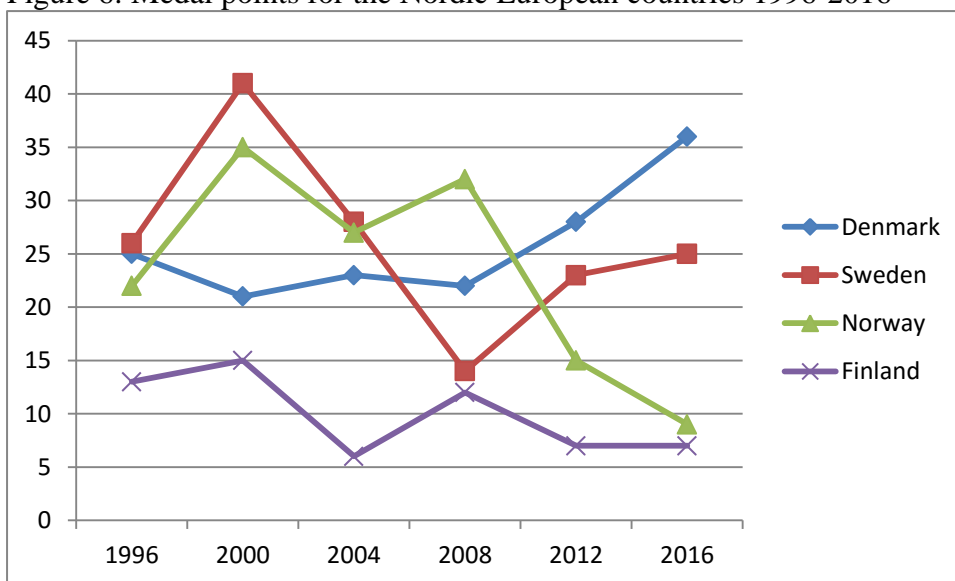
ironic that it is North Korea benefits mostly from the focus on the Russian state sponsored obstruction of anti-doping and the subsequent ban of Russian athletes from the Olympics. The implementation of anti-doping regulations in North Korea is not exactly transparent. Pumped up weightlifters win the bulk of their medals, and it would be interesting what a similar focus on doping and anti-doping in North Korea would reveal.

Figure 5: Medal points for Greece, Cuba and North Korea 1996-2016



In addition to Britain, France and the Netherlands, Denmark is another Western European success story. Denmark’s medal tally in 2012 was the highest at any modern Olympics, and in Rio it is expected to increase its number of medals from 9 to 11. Denmark has taken over from Sweden as the most successfully Nordic nation in the Summer Olympic disciplines. Norway was in 2008 the best Nordic nation but has since then nosedived spectacularly as is evident from Figure 6.

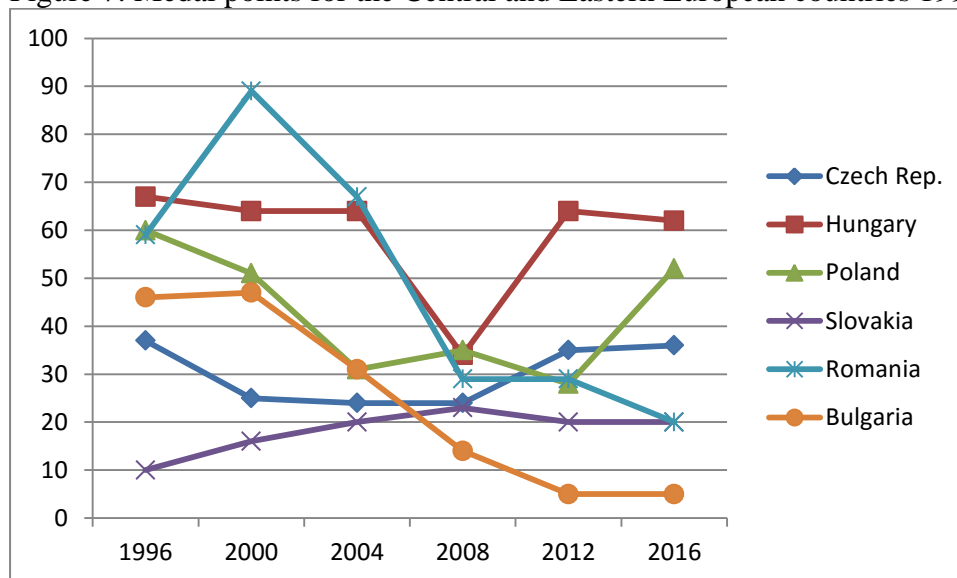
Figure 6: Medal points for the Nordic European countries 1996-2016



Finland is one of the all-time best nations in the Olympics. Romania was no. 2 in the medal table in 1984 and as recently as in 2000 they won 11 gold medals and 25 medals in total. Bulgaria was several years in the top 10 in previous Olympics. None of these previous Olympics heavyweights are predicted to win a single gold medal in Rio.

All the Central and Eastern European countries experienced declining performance in the Olympics after the collapse of the communist regimes and the associated so-called 'state amateurism'. However, now 25 years later you may expect stabilisation or improvement. Figure 7 shows that this is exactly what has happened for Poland. After decades of decline Poland is expected to improve significantly in 2016. However, this pattern is far from common. Romania and Bulgaria are extreme in the sense that the decline has been exceptionally sharp and for both nations the decline is expected to continue in Rio. However, Czech Republic, Slovakia and Hungary buck the trend. None of these nations have experienced declining performance since 1996. Despite a temporary blip in 2008, Hungary is has clearly been the best performing Central and Eastern European nation and is predicted to be so in Rio as well.

Figure 7: Medal points for the Central and Eastern European countries 1996-2016



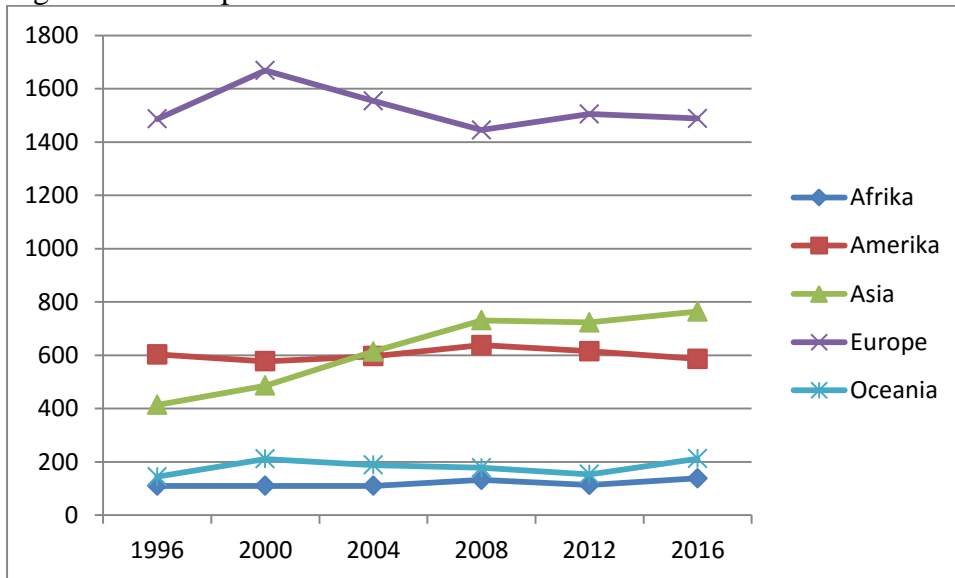
### The rise of Asia, the BRICs and the Eurozone crisis

The performance of different nations in the Olympics is closely linked to their economic strength. Sustained high growth rates provide nations with resources to invest in elite sport success. If different countries, or groups of countries, develop differently over a sustained period it can be hypothesized that their performance in the Olympic Games will be impacted with a time lag. The statistics for medal points can be used to analyse if such effects can be identified.

The countries of Europe have over a longer period experienced much lower average growth rates than the countries of Asia. You may expect that the rise of Asia is reflected in a similar improvement of the combined Olympic medal tally for the Asian countries. The total continental medal points, which are shown in Figure 8, confirm that this has actually

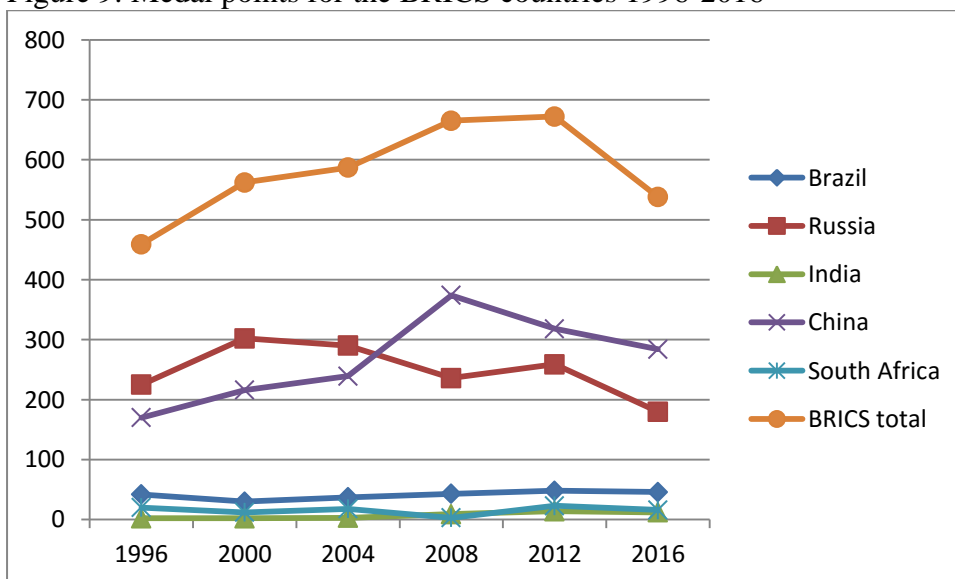
happened. From 1996 to 2012, the total medal points for Asia increased from 414 to 723 (an increase of 75%) while it was practical stagnant in Europe. The predictions for 2016 show continued growth in Asia's total medal points while Europe as a whole will experience a decline. However, still more than half of the total medal points are won by European countries.

Figure 8: Medal points for the five continents 1996-2016



The so-called BRICS countries experienced for a long period very high growth rates and all five countries have recently hosted or will soon host some of the biggest sporting events on the calendar including multi-sport events as the Olympics. It may also be expected that the BRICS countries will improve their standing in the Olympics. Figure 9 shows that this was indeed so until 2012. However, the predictions for 2016 show a reversal of the trend which is only partly explained by the ban of Russian athletes.

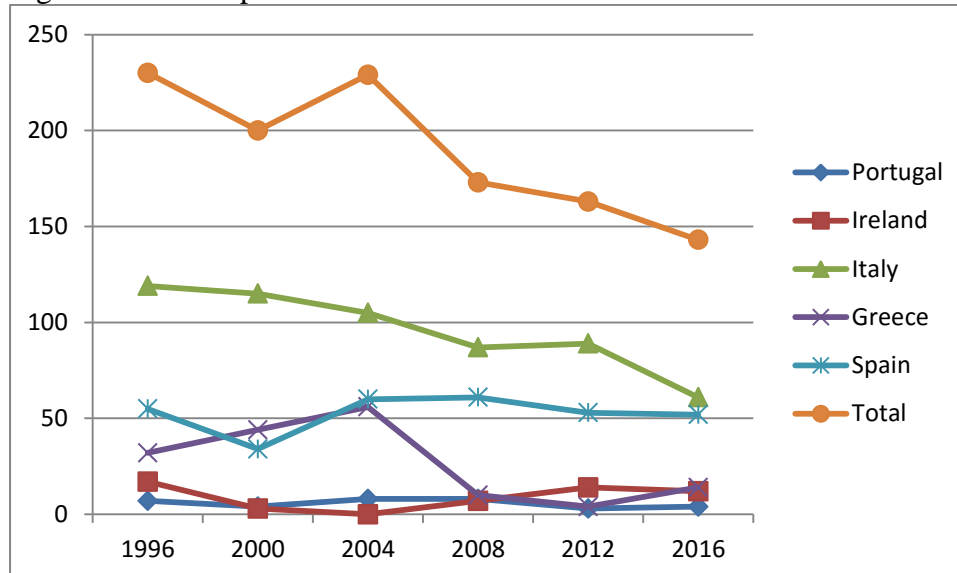
Figure 9: Medal points for the BRICS countries 1996-2016



The Eurozone crisis countries provide a sharp contrast to the BRICS countries. The economic difficulties in Portugal, Ireland, Italy, Greece and Spain are still relatively recent phenomena

and a negative effect on elite sport performance is expected although one may think that the crisis is a too recent phenomenon to show any significant effect yet. Figure 10 shows that the Eurozone crisis countries have indeed experienced a quite significant decline in performance since 2004 and the trend is predicted to continue in Rio.

Figure 10: Medal points for the Eurozone crisis countries 1996-2016



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**Table 1: Predicted medal table Rio Games 2016**

	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Medal points</b>
USA	36	26	35	328
China	31	28	24	284
Russia	19	17	17	180
United Kingdom	19	17	15	176
Japan	19	7	13	142
France	16	15	11	147
Australia	14	16	9	136
Germany	13	16	20	157
South Korea	11	6	9	91
New Zealand	9	9	2	76
Hungary	8	4	5	62
Jamaica	8	1	3	49
Kenya	7	6	3	59
Cuba	7	5	4	58
Italy	6	5	8	61
Poland	5	5	6	52
Spain	5	3	9	52
Belarus	5	1	10	48
North Korea	4	5	7	49
Czech Republic	4	4	2	36
Brazil	4	4	9	46
Slovakia	4	0	0	20
Netherlands	3	16	12	87
Canada	3	7	8	52
Denmark	3	5	3	36
Kazakhstan	3	4	7	41
Turkey	3	4	2	31
Ethiopia	3	3	2	28
Croatia	3	3	0	24
Iran	3	2	4	29
Colombia	3	1	2	22
Switzerland	3	1	2	22
Argentina	3	0	0	15
Ukraine	2	5	11	47
Azerbaijan	2	4	7	36
Sweden	2	3	3	25
Serbia	2	3	5	29
Chinese Taipei	2	2	3	22
Georgia	2	0	4	18
Uzbekistan	1	5	4	28
Slovenia	1	2	1	13
Mongolia	1	1	5	18

South Africa	1	1	4	16
Greece	1	1	3	14
Ireland	1	1	2	12
Armenia	1	0	3	11
Malaysia	1	0	2	9
Norway	1	0	2	9
Morocco	1	0	1	7
Eritrea	1	0	0	5
Fiji	1	0	0	5
Romania	0	4	4	20
Belgium	0	3	2	13
India	0	2	3	12
Lithuania	0	2	2	10
Thailand	0	2	2	10
Bahamas	0	2	0	6
Egypt	0	1	3	9
Austria	0	1	2	7
Estonia	0	1	2	7
Finland	0	1	2	7
Bulgaria	0	1	1	5
Indonesia	0	1	1	5
Israel	0	1	1	5
Latvia	0	1	1	5
Philippines	0	1	1	5
Trinidad and Tobago	0	1	1	5
Vietnam	0	1	1	5
Ivory Coast	0	1	0	3
Mexico	0	1	0	3
Qatar	0	1	0	3
Tajikistan	0	1	0	3
Tunisia	0	1	0	3
Moldova	0	0	2	4
Portugal	0	0	2	4
Singapore	0	0	2	4
Algeria	0	0	1	2
Bahrain	0	0	1	2
Bosnia and Herzegovina	0	0	1	2
Gabon	0	0	1	2
Grenada	0	0	1	2
Kuwait	0	0	1	2
Nigeria	0	0	1	2
Uganda	0	0	1	2