



# *Worth Noting*

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***Worth Noting is the journal of research and conferences company L21. It is focused on issues of relevance and interest to senior executives.***

The Olympic Games in Athens are almost upon us. To many, this will mean late nights & early mornings, cheering gold medal performances, drug scandals and how Athens compares to Sydney's effort in 2000. Will Athens win the accolade every four years of 'the greatest games ever'?

Everyone knows that the U.S. is the greatest Olympic performer don't they? This depends on what standard we use. If we go by medals won, then they are the clear winner.

However, if we use criteria that takes into account different demographic, lifestyle and economic conditions across countries, do the top medal winners like U.S., Russia and China still stand out?

In this edition of *Worth Noting*, we will use a series of economic standards and comparisons to determine the highest achieving country (from the top 20 medal winners) from the Sydney Games. Some of the results might surprise you.

## Sydney Olympics 2000 Medal Tally and Comparative Statistics

Country	Total Medals in 2000	Medals per million people	GDP per capita (\$US) / Number of medals	UN Human Development Index (x1000) / Number of Medals
U.S.	97	0.33	371	9.68
Russia	88	0.6	110	9.03
China	59	0.04	78	12.62
Germany	57	0.69	460	16.22
Australia	58	2.9	459	16.31
France	38	0.63	681	24.52
Italy	34	0.58	737	27.06
Cuba	29	2.57	94	27.90
U.K.	28	0.47	908	32.86
South Korea	28	0.58	696	31.71
Romania	26	1.16	292	33.82
Netherlands	25	1.54	1084	37.68
Ukraine	23	0.47	197	33.78
Japan	18	0.14	1594	52.11
Hungary	17	1.69	784	49.76
Belarus	17	1.64	513	46.47
Poland	14	0.36	690	60.71
Canada	14	0.43	2071	67.36
Brazil	12	0.06	630	64.58
Greece	13	1.21	1466	69.38
<b>Average</b>		<b>0.77</b>	<b>696</b>	<b>36.18</b>

Source: Olympic Games Statistics 2000; Nation Master; UN Development Report 2002; L21 Research; L21 Analysis

We will explain what all the numbers above mean and the significance of the findings.

As our sample, we have taken the top 20 medal winners from 2000. There has to be a minimum number of medals won to enter the contest – otherwise, the winners would invariably be countries like Uganda or Tonga who won one and two medals respectively but would rate very high on any proportionate comparisons of wealth, population etc. It's like a minimum number of wickets in deciding the greatest cricket bowler or a minimum number of tries to determine the greatest try scorer.

The 'medals per million' column is self-explanatory. The higher the number, the better because this means that there are more medals won by that country as a proportion of the population if our score is higher.

The '**GDP per capita / Number of Medals**' column is slightly more complicated. The lower the number the better, based on the (rather sweeping) assumption that it is a greater achievement for a country with a low GDP/person to win the same number of medals as a richer country with a higher GDP/person. Hence, if a country with a low GDP/person like Bangladesh wins as many medals as the United States which has a higher GDP/person, there would appear to be more merit in the achievements of Bangladesh than for the U.S.

The '**UN Human Development Index (x 1000) / Number of Medals**' is a more involved calculation based on economics and living standards. The UN Human Development Index (HDI) measures factors such as poverty, literacy, education and life expectancy. The index was developed in 1990 by a Pakistani economist Mahbub ul Haq, and is now one of the main indices used by the UN Development Programme in determining the standard of living for different countries. In fact, the HDI is arguably the most accurate measurement for real living standards we have. What is particularly noteworthy is that the HDI relies heavily on the 'Purchasing Power Parity' per person (in \$US) standard. This probably gives a greater measurement of true economic wealth per person than any other broad measurement because it compares what the average individual in each country can buy and afford in terms of goods and services.

In terms of trying to gain some broad comparison between the Olympic successes of the top 20 countries, we believe that the HDI is a good measurement because the standard of living economically and socially has a huge impact on how much resources and emphasis individuals can and will devote to elite level sport (which is essentially a leisure category of activity.)

The difference, for our purposes, between 'GDP per capita' divided by medals won and HDI divided by medals won is what each index focuses on – although they are different sides of the same coin.

GDP per capita gives a good indication of national wealth – the higher the GDP per capita, the more resources and time the country and community can devote to sporting pursuits. It is a **top-down** measurement (GDP divided by number of people).

HDI is more a **bottom-up** measurement. The focus is more on the standard of living of the individual in that country, and therefore for our purposes, how much time and resources *individuals* in that country can devote to sporting pursuits. The higher the HDI, the easier it is for an individual, economically and lifestyle wise, to devote time and resources to elite level sport.

Hence, in the **'UN Human Development Index (x 1000) / Number of Medals'** column, the lower the number, the better. This is because if the average individual in a particular country has a tougher standard of living (low HDI) but that country wins many medals, that is, under this scheme, a more noteworthy achievement than an individual from a country with a more affluent standard of living.

### **The Calculation**

There are almost an infinite number of things we can do with the figures above.

What we want to do is score each country for each of the three measurements. But we also want to give due weight to the degree a country fares well or badly in each category. For example, if Australia is ranked first in the 'Medals/million people' category and our measurement there is first by a long way, this needs to be recognised in any final scoring – there needs to be a multiplier effect in doing really, really well or doing really, really badly in the criteria.

To achieve this, we will:

1. Take the score of each country in each column
2. Divide the country's score by the average to give the 'Weighted Score'
3. Do this for each country for all three categories.
4. Add together the three 'Weighted Scores' for all countries
5. Produce the final ranking.
6. Declare the 'true' Olympic champion country for Sydney 2000.

Sounds complicated? An example of the calculation is below:

a) **'Medals per million people'** weighted score for Australia

1. Australia's Score = 2.9
2. Weighted Score = Australia's Score / Average =  $2.9 / .77$ .
3. Therefore, Weighted Score (Aust) = 3.77
4. Since the higher the better in this column, the weighted score is +3.77 after the first column's calculation.

b) **GDP per capita (\$US) / Number of medals** weighted score for Australia

1. Australia's Score = 459
2. Weighted Score = Australia's Score / Average =  $459 / 696$
3. Therefore, Weighted Score (Aust) = 0.66
4. Since the lower the number the better in this column, the Weighted Score is -0.66.
5. The combined Ranking Score so far is  $3.77 - 0.66 = 3.11$

c) **UN Human Development Index (x1000) / Number of Medals** weight score for Australia

1. Australia's score = 16.31
2. Weighted Score = Australia's Score / Average = 16.31 / 36.18
3. Therefore, Weight Score = 0.45
4. Since the lower the number the better in this column, the Weighted Score is - 0.45
5. The final Ranking Score is 3.77 – 0.66 – 0.45 = 2.66

**And the winner is ...**

**L21 Weighted Rankings**

Ranking	Country	Ranking Score
1	Australia	2.66
2	Cuba	2.43
3	Russia	0.37
4	Romania	0.16
5	Belarus	0.11
6	Germany	(0.21)
7	Hungary	(0.31)
8	U.S.	(0.38)
9	China	(0.41)
10	Netherlands	(0.60)
10	Ukraine	(0.60)
12	France	(0.74)
13	Italy	(1.06)
14	South Korea	(1.43)
15	UK	(1.6)
16	Poland	(2.21)
17	Greece	(2.46)
18	Brazil	(2.61)
19	Japan	(3.55)
20	Canada	(4.29)

Source: L21 Analysis

The winner is Australia followed by Cuba with daylight third. Of course, whether Australia can repeat this performance without a home ground advantage is doubtful. For example, it is predicted that Australia will win 10 less medals in Athens than they did in Sydney. If so, Australia will drop to about 1.62, still doing well at second but not as well as Cuba is predicted to do under this formula.

Australia scored highly largely because we won so many medals even though we are a country with a population less than 20 million. This gave us a high number to begin with. Cuba was similar although Cuba performed well on all three categories.

There is no doubt that an infinite number of flaws can be found in this system. For example, we could argue about the relative weightings given to each column. We could also argue for the inclusion of dozens more criteria to give a more 'comprehensive' picture.

Nevertheless, this is one way of calculating the best Olympic performing country at Sydney 2000 that includes, but goes beyond, just medals won. Essentially, we are asking questions as to how resourceful the top medal winning countries are given their relative economic and standard of living scenarios.