

Potential Factors Affecting Medal Winners in Olympics



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Introduction

The Olympics are one of the few events that bring most countries together for competition. It brings a lot of pride to the countries that are able to send the athletes to compete in the summer and winter games. Only the greatest competitors in the world are able to make it. However, are there some common factors behind the countries that send numerous amounts of athletes and come home with the medals? There are many different factors that play into the success of a country in the economic standpoint, but does economics play a part in the countries' athletes? There are certain characteristics of different countries that may play a part in the quantity and quality of athletes these countries send to the Olympics.

Results

Finding the information was not much of a problem. However, some of the data could not be converted over into the form needed. Some things were not found with shape file but only in attribute tables. Here are some of the resulting maps used for the study.

1995 Total Population By Country

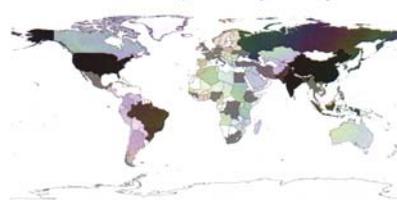


Fig. 1. Color gradient map based on total population. Had difficulty finding more up to date data.

2007 GDP per capita (PPP)



Fig. 2. Color gradient map of Gross Domestic Product at purchasing power parity per capita, or GDP (PPP) per capita for short.

Methods

The first step taken was finding world maps online. The main purpose of these maps would be for comparisons to find common factors between countries taking home medals and the characteristics of their countries. The main categories of focus were total population of each country, population density, and GDP per capita. Look at the numbers and maps to determine if there is a noticeable reason why some countries have more success than others in these competitions.



Fig. 3. Map of the countries based on total number of medals won in the 2008 Olympics. Was not able to get those figures put into a shapefile in order to map. Map courtesy of New York Times.

Countries	08OlympicMedals	08Olympians	TotalPop.	Pop.Den.(km2)	GDP/Cap.
United States	105	6365	295200000	30.71	17650
China	105	6365	131979484	138.13	8005
Russia	72	4617	148492089	8	8905
Great Britain	47	3172	58420114	246.88	27705
Australia	45	4353	1797604	9	28600
Germany	41	4653	81663702	250.89	27655
France	40	3223	58122009	110.88	27900
Korea	31	2057	45130703	491.37	17700
Italy	28	344	57274031	180.89	26630
Ukraine	27	294	51244833	79.95	5300
Spain	25	381	45243000	127.23	26000
Cuba	24	149	10860453	152.35	2600
Belarus	19	181	10205229	49.62	8000
Spain	18	288	38148115	179.62	22000
Canada	18	332	29600029	3	20700
Netherlands	18	245	1445004	395.11	28000
Italy	18	277	55244281	211.38	7600
Korea	14	95	27123005	58.00	15000
Kazakhstan	13	132	14878488	8	7500
Japan	11	367	24900000	248.38	24000
Poland	10	268	38000042	123.38	11000
Hungary	10	171	10298174	107.57	13900
Norway	10	80	439101	14.17	37700
New Zealand	9	182	3641782	15.02	21900
Romania	8	102	22600000	84.02	8900
Turkey	8	68	61180884	89.24	8700
Ethiopia	7	22	56464970	49.81	700
Denmark	7	64	523812	148.06	31200
Azerbaijan	7	39	7549200	97.36	3400
Costa Rica	6	134	4200000	103.88	21000
Slovakia	6	57	5361804	111.2	13000
Georgia	6	39	5071802	86.96	2900
Uzbekistan	6	63	21461886	100.08	10000
Argentina	6	137	3673844	14.20	11200
Australia	6	84	7181700	181.39	28900
Ukraine	6	68	20607008	49.02	17000
Armenia	6	25	3068751	100.1	3900
Slovenia	5	62	2052627	59.2	18300
Belgium	5	77	820611	312.17	7600
Indonesia	5	24	197784181	126.08	3200
Sweden	5	134	8877800	20.01	28800
China	5	185	4498800	28.51	10200
Lithuania	5	70	3073827	98.16	11200
Mongolia	4	29	2447042	2	1800
Thailand	4	51	5889258	127.32	7400
Denmark	4	110	5110042	30.84	11200
Finland	4	58	5104854	15.5	27000
Greece	4	159	11457044	80.96	18900
Nigeria	4	33	12443000	138.4	800
Chinese Taipei	4	85	21290414	584.69	23400
Mexico	3	85	92892033	83.84	8000
Latvia	3	4489008	25.48	10700	
India	3	57	917722021	328.59	2900
Austria	3	72	8047433	87.6	30000
Iran	3	64	3013000	67.14	26000
Belarus	3	92	10182000	100.81	2300
Belgium	2	86	10180480	339.71	28000
Estonia	2	28	7744607	183.67	6000
Portugal	2	47	10446000	29.47	12000
Portugal	2	77	10068843	114.36	18000
Iran	2	55	60780887	47.27	7000
Turkey	2	30	1188000	212.29	9000
Algeria	2	62	28088140	13.06	5000
Bahrain	2	19	270000	21.65	18800
Colombia	2	44	38461576	37.72	8000
Kyrgyzstan	2	21	4532223	26.90	1800
Morocco	2	87	27902485	73.29	4000
Tajikistan	2	13	5876200	60.06	1000
Bahrain	1	15	572638	1033.04	11100
Cameroon	1	33	13001162	34.45	1800
Paraguay	1	3	2638173	38.86	6000
Tunisia	1	32	8978271	61.58	6900
Chile	1	27	14298611	21.11	8000
Ecuador	1	29	11448004	47.13	3300
Uruguay	1	28	327627	3	30000
Mexico	1	33	10818008	72.64	8000
South Africa	1	136	42227201	36.38	10700
England	1	29	2842884	6386.29	21700
Sudan	1	8	30140088	16.04	1900
Vietnam	1	21	73722337	293.48	2900
Algeria	1	4	20881480	49.22	700
Egypt	1	103	63321438	77.39	3900
Israel	1	43	5320201	302.21	18700
Republic of Moldova	1	31	4420000	131.68	3900
Mauritius	1	1	1123115	603.24	14600
Togo	1	3	3885076	100.59	1800
Venezuela	1	109	21848000	37.83	4800

Table 1. The table that was put together in order to try and create these maps and used for comparisons. List of every country that received a medal in the 2008 Olympic games in Beijing, in order of total medals received. Also, data with total number of participants from each country, total population, population density, and GDP per capita (PPP).

Conclusions

Throughout this entire study, there was the opinion that maybe there is something one can look at in order to see what countries will end up performing well in the Olympics. There was not a major individual thing that stood out, but what was seen by this study was a bit interesting.

- Total population was not a major factor in determining strong performances in the Olympics. It did help in the total number of athletes sent, but not in the medaling total.
- Population density played almost no role in the success in the Olympics. Russia and Australia both finished in the top 5 with population density at 8 and 3 people per square kilometer, respectively. Then you have countries like the UK and Germany with population densities over 230 people per square kilometer. (Finished 4th and 6th, respectively)
- GDP per capita had the biggest relevance in terms of finding a similarity. 87 total countries ended up with at least one medal. 62 of these countries are in the top 40% of all countries in GDP. All of the top 25 countries in medal counts were in the top half in GDP per capita.

This study definitely has some flaws. One item that came up during the project is performance of different countries based on summer and winter games. Kenya will most likely not win 14 medals in the winter Olympics. Conversely, Sweden will not often finish in the top 10 in the summer games.

Literature cited

- New York Times. [A Map of Olympic Medals](http://www.nytimes.com/interactive/2008/08/04/sports/olympics/20080804_MEDALCOUN_T_MAP.html).
 Olympics 2008. August 4, 2008.
http://www.nytimes.com/interactive/2008/08/04/sports/olympics/20080804_MEDALCOUN_T_MAP.html

- Official Website of Beijing 2008 Olympic Games. <http://en.beijing2008.cn>
 U.S. Census Bureau. 2008 Population Data by Country. <http://www.census.gov/>
 World Atlas. <http://www.worldatlas.com>
 World Facts and Figures, Miscellaneous facts and statistics about every country in the world. <http://www.worldfactsandfigures.com>

Acknowledgments

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NOTE: This poster example is adapted from an example by Colin Purrington, Swathmore College (<http://www.swathmore.edu/NatSci/cpurrrin1/posteradvic e.htm>)

