

**Performance of Olympics economic model, 2000-2010.** For more details, contact Dan Johnson, mobile 001-719-304-4410 or [djohnson@ColoradoCollege.edu](mailto:djohnson@ColoradoCollege.edu).

---

## **Overall**

Predictive accuracy over the six Games between 2000 and 2010 has been surprisingly high, showing a 93% correlation between predictions and actual medal counts, and 85% for gold medals alone.

### **Correlation of prediction with actual medals won**

<b>Olympic venue</b>	<b>All medals</b>	<b>Gold medals</b>
<b>Vancouver, 2010 (winter)</b>	87%	81%
<b>Beijing, 2008 (summer)</b>	93%	92%
<b>Torino, 2006 (winter)</b>	93%	89%
<b>Athens, 2004 (summer)</b>	94%	86%
<b>Salt Lake, 2002 (winter)</b>	94%	85%
<b>Sydney, 2000 (summer)</b>	95%	84%

Historically, the model included five key variables: income per capita, population, political structure, climate, and a host nation advantage. The effect of each characteristic on medal counts was estimated using data from every participating nation since 1952. That historical dataset is available [here](#). The full paper documenting the model and analysis is published working format [here](#), and in peer-reviewed form in [Social Science Quarterly 85\(4\): 974-993](#).

Our recent recalibration of the model is documented [here](#). This new model for the Summer Games has a historical correlation of 96% for all medals 1952-2008, and 95% with gold medals alone.

## **Examples of accuracy**

The model's primary advantage is the ability to extrapolate patterns, so most examples here represent that ability. Examples of incredible precision are due to randomness as much as they are to model accuracy.

### **Previous Summer Games**

#### *Beijing 2008*

- Forecast that US would win overall medal count, China most gold medals
- Forecast 9 of the top 10 medaling nations, 7 of 10 top gold-medal nations
- Predicted 33 gold medals for US (actual: 36 medals)
- Predicted 17 medals for Canada (actual: 18 medals)

#### *Athens 2004*

- Predicted 103 medals for US, 37 gold (actual: 103 medals, 35 gold)
- Predicted 94 medals for Russia (actual: 92 medals)
- Predicted 27 medals for Britain (actual: 30 medals)

### **Previous Winter Games**

#### *Vancouver 2010*

- Forecast 6 of the top 7 medal-winning nations
- Predicted 27 medals for Canada (actual: 26 medals)
- Predicted 12 medals for China (actual: 11 medals)

#### *Torino 2006*

- Forecast that Germany would win most total and most gold medals
- Predicted 28 medals for Germany, 10 gold (actual: 29 medals, 11 gold)
- Predicted 22 medals for US, 8 gold (actual: 25 medals, 9 gold)
- Predicted 24 medals for Russia, 10 gold (actual: 22 medals, 8 gold)

### **Examples of inaccuracy**

There are understandably (and happily, for those of us who watch), many cases where the model's predictions were inaccurate. Since the model relies on historical statistical patterns, it has no ability to reflect individual talents where they arise, so we should expect a lot of "noisiness" in any predictions. Those will be most obvious where amazing athletes hail from unexpected locations. Rather than predicting particular outcomes, the model is aiming to predict the pattern: which nations win more than others, and by how much. Here are some of the more obvious egregiously bad predictions of the model. Notice the pattern of underestimating previous, current and future host nations (an error which is hopefully corrected in the new model as documented [here](#)).

### **Previous Summer Games**

#### *Beijing 2008*

- Predicted 89 medals for host China (actual was 100)
- Predicted 95 medals for Russia (actual was 72)
- Predicted 28 medals for future host Britain (actual was 47)
- Predicted 26 medals for Australia (actual was 46)

#### *Athens 2004*

- Predicted 39 medals for next host China (actual: 63 medals)
- Predicted 26 medals for previous host Australia (actual: 49 medals)

### **Previous Winter Games**

#### *Vancouver 2010*

- Predicted 26 medals for US (actual: 37 medals)
- Predicted 20 medals for Germany (actual: 29 medals)
- Predicted 23 medals for Russia (actual: 15 medals)

#### *Torino 2006*

- Predicted 16 medals for future host Canada (actual: 24 medals)
- Predicted 18 medals for host nation Italy (actual: 11 medals)