



Going for the GOLD

Exploring Data on Olympic Medal
Wins, 1896-2012

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GT Data Analytics Bootcamp, 2018

Research Question:

What factors affect Olympic Medal wins?

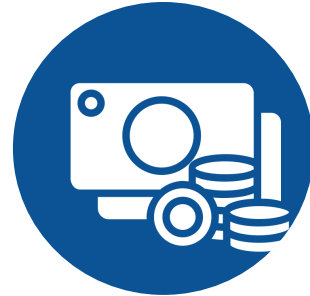
The goal of our project is to understand trends in olympic medal wins. Specifically,, we aim to understand the relationship between 3 country-level factors on medal wins:



**HOST STATUS/
EFFECT**



**FEMALE
PARTICIPATION**



**LEVEL OF
DEVELOPMENT**

3 Key Data Sources

Summer Olympic Winners Dataset via *The Guardian* on Kaggle

- Huge dataset on the olympics wins. Lists every athlete who has won a bronze, silver, gold medal
- Includes all Summer Olympic games except the most recent, Rio 2016
- 31,000+ rows of data

Total Olympic Participation Dataset via Kaggle

- <https://www.kaggle.com/bharathsh/olympics-data-analysis/data>
- Dataset that includes all olympic competitors per country (winners and losers) for the summer and winter olympics, up to the most recent olympic games
- 270,000+ rows of data

World Bank API for Development Data

- Includes information on GDP and population for all countries

Data Exploration + Cleanup

- Review data on excel first, to get a sense of what's there
- Convert csv files to pandas dataframe and use .loc and .groupby functions to isolate data of interest per research question
- Example cleanup Female Participation
- Example cleanup for Economic Development

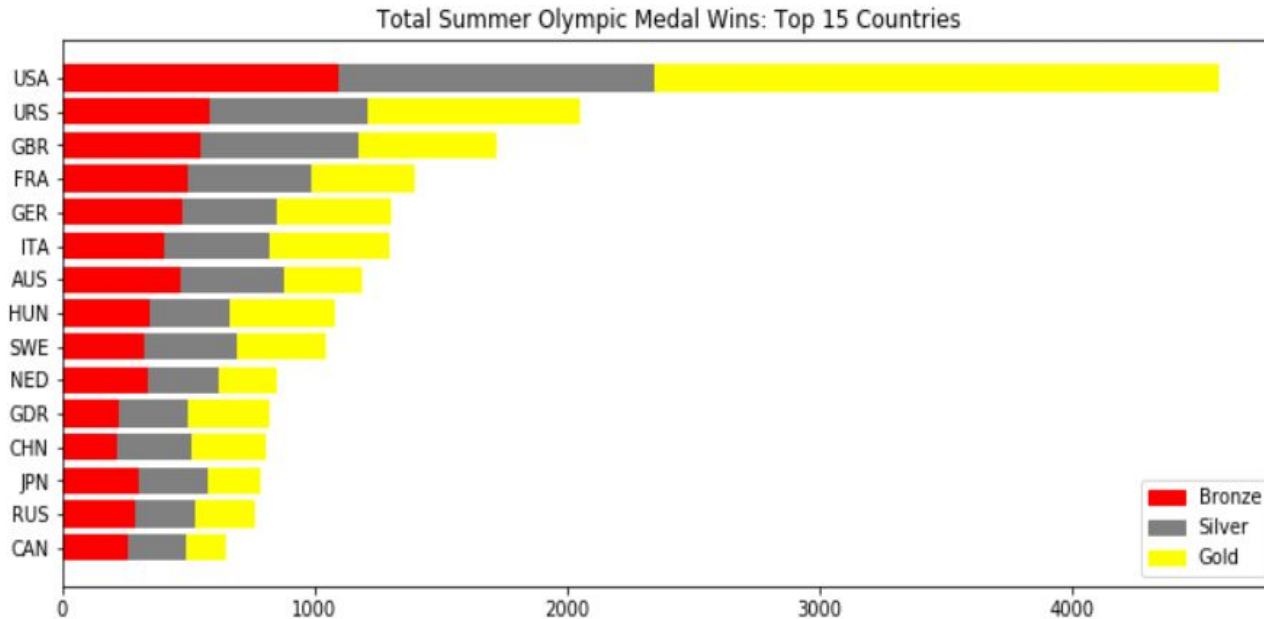
https://github.com/anumam91/GroupProject1_Olympics/blob/master/Female_Effect.ipynb

https://github.com/anumam91/GroupProject1_Olympics/blob/master/GDP%20Effect_Data%20ID%20%2B%20Cleaning.ipynb



Host Status

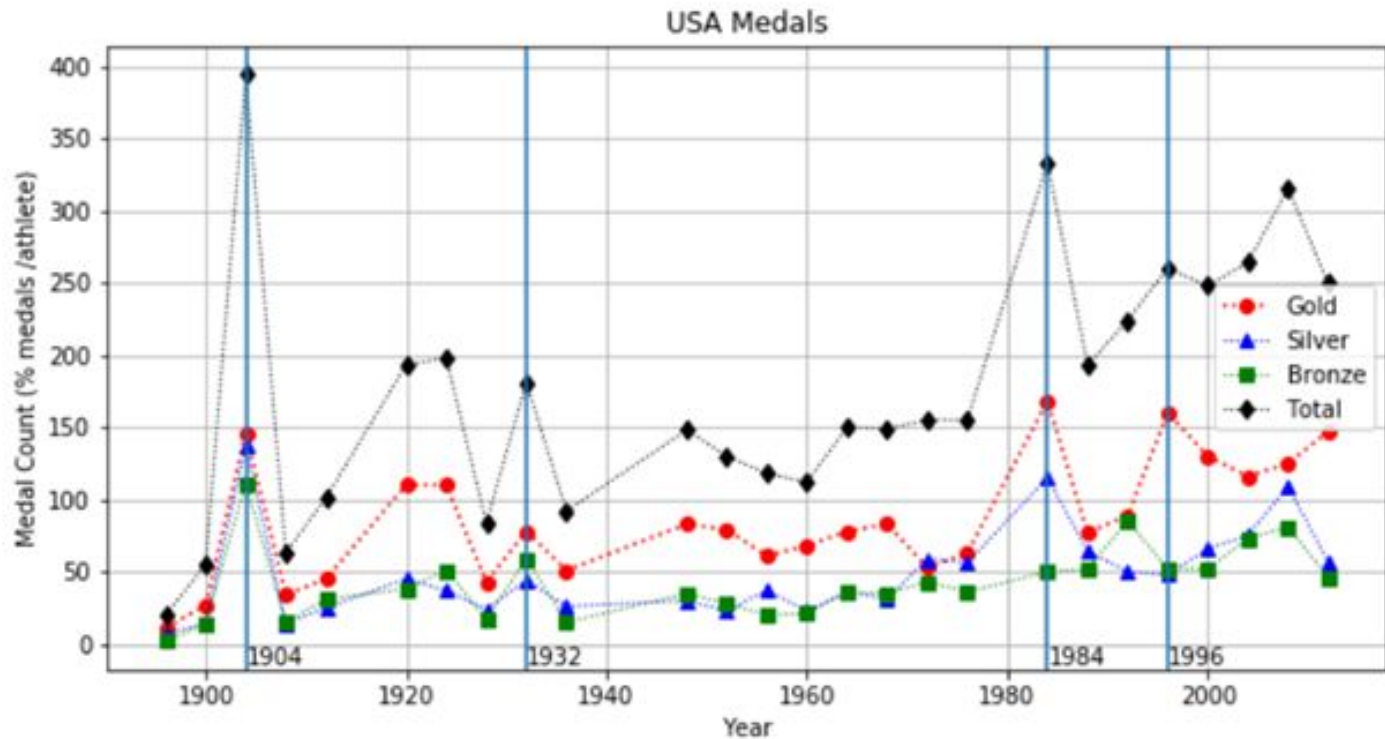
Of the top 5 medal winning countries of all time,
4 have hosted the olympics multiple times.



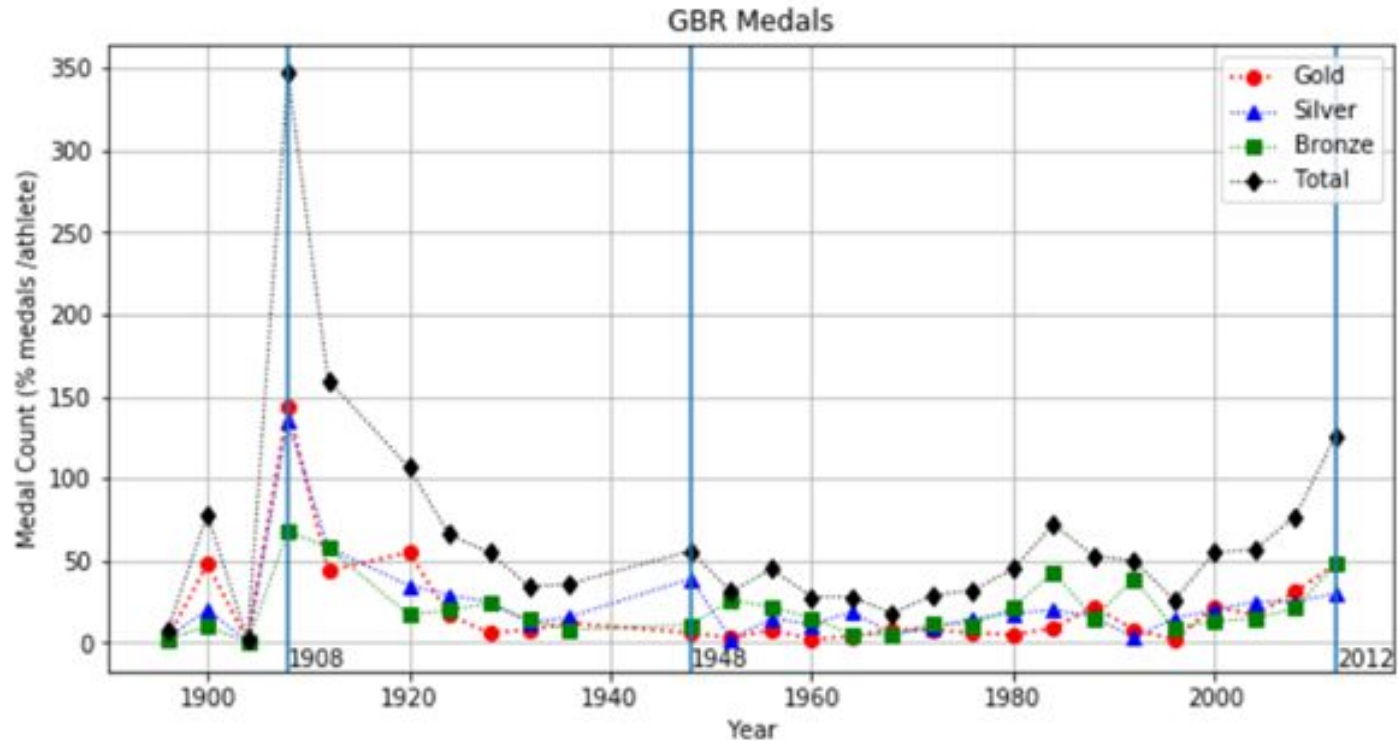
Times Hosted	
USA	4
UK	3
Germany	2
Greece	2
France	2
Mexico	1
Belgium	1
Sweden	1
Netherlands	1
Norway	1
Australia	1
South Korea	1
Australia/Sweden	1
Canada	1
Italy	1
China	1
Russia	1
Spain	1
Japan	1

Host-effect: Does hosting the Olympics have an effect on number of medals won?

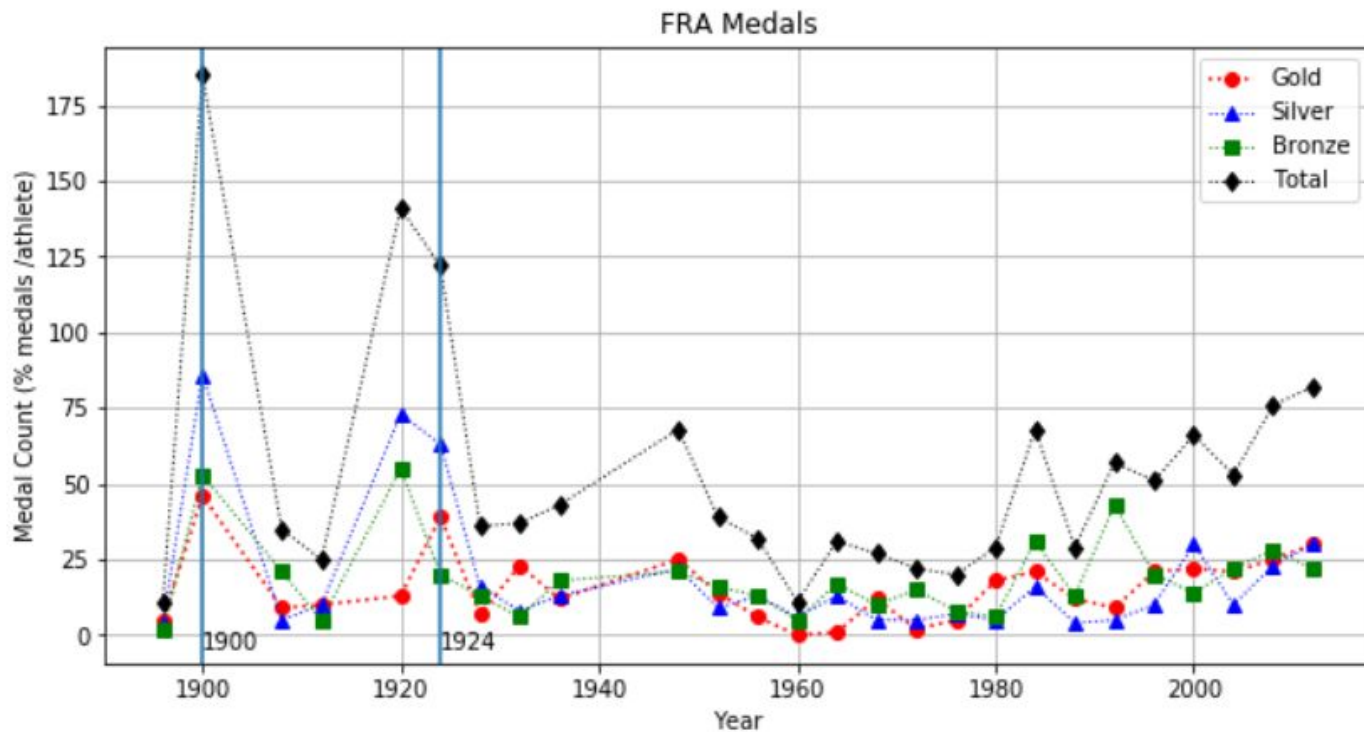
Host-effect: USA



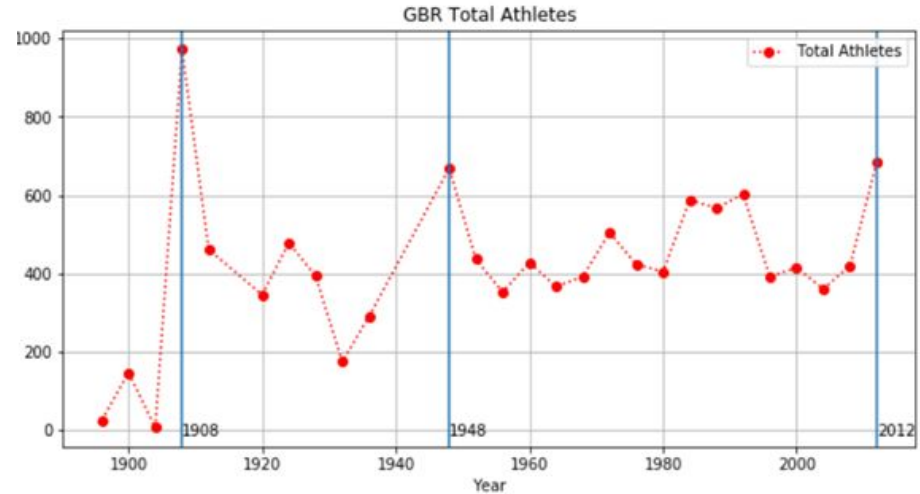
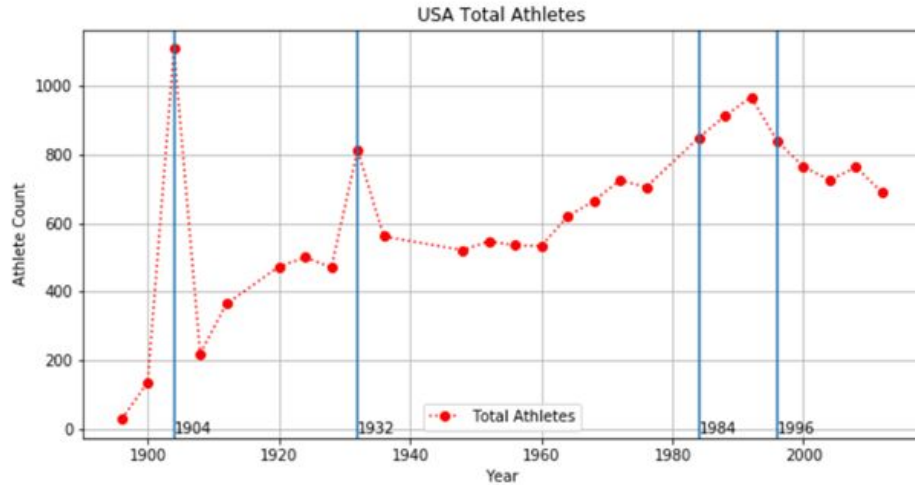
Host-effect: Great Britain/UK



Host-effect: France



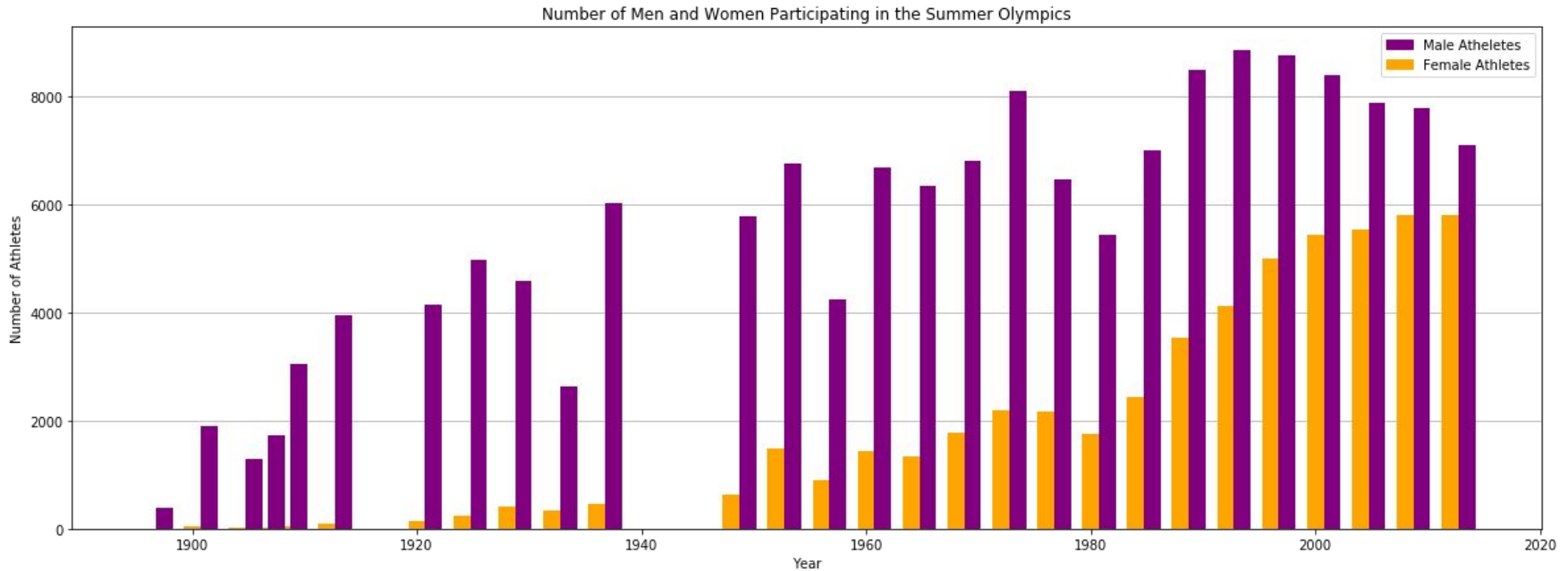
Host-effect: Total Athletes Attendance



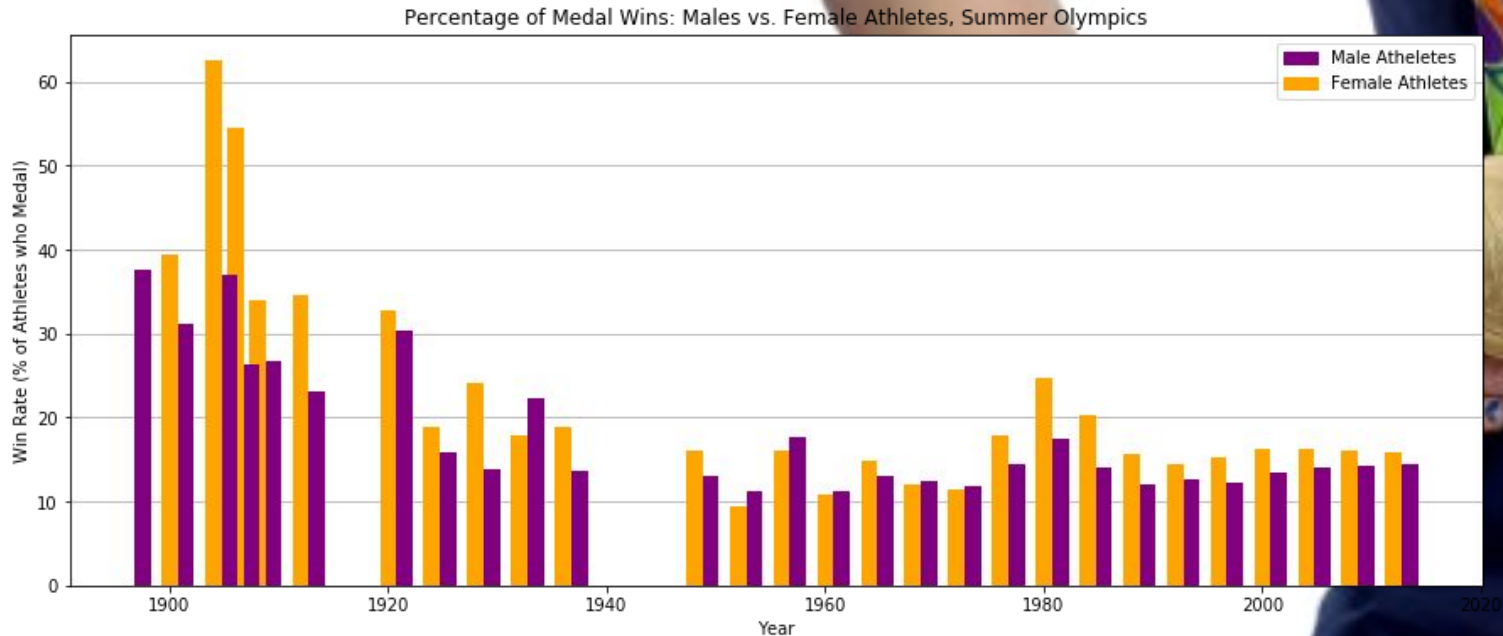


Female Participation

More men than women compete in the Olympics.



**But, women who enter
are more likely to win.**



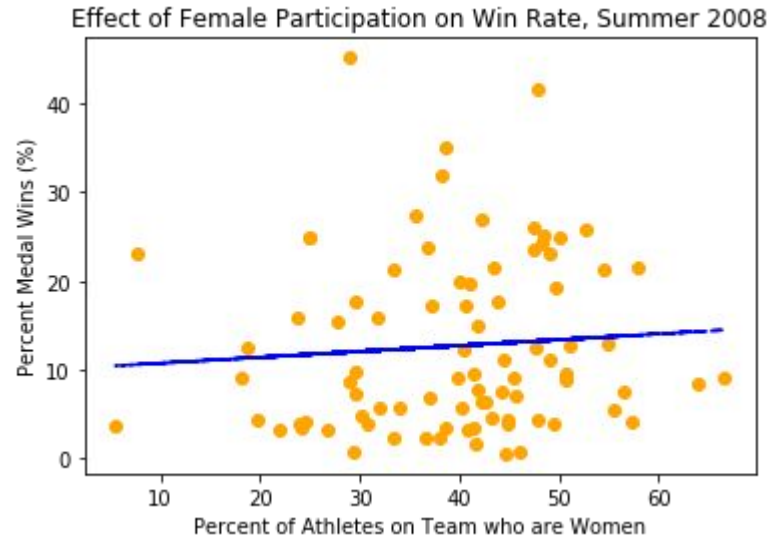
Do teams with higher levels of female representation have higher win rates?

Win rate = % of events entered that are won (any color medal)

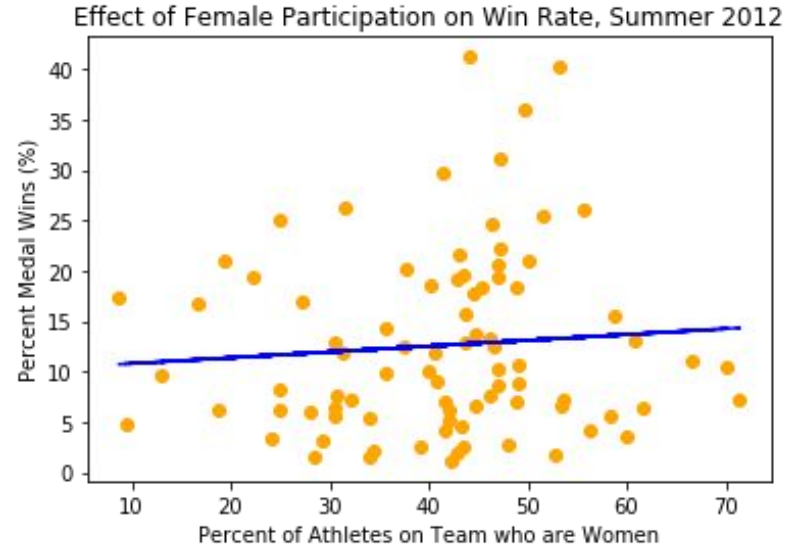


Do teams with higher levels of female representation have higher win rates?

Win rate = % of events entered that are won (any color medal)



slope = 0.06592339894132858
p-value = 0.47585518875601895



slope = 0.057491945122412895
p-value = 0.45792808675459784



Economic Development

Economic Development:

Do wealthier/more developed countries do better at the Olympics?

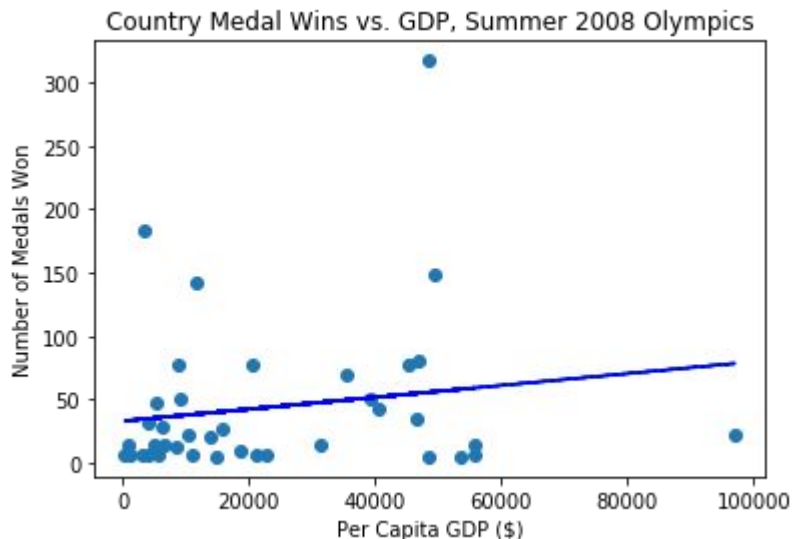
How does level of economic development affect a country's Olympic medal count?

Is there any significant correlation between per capita GDP and medal wins?

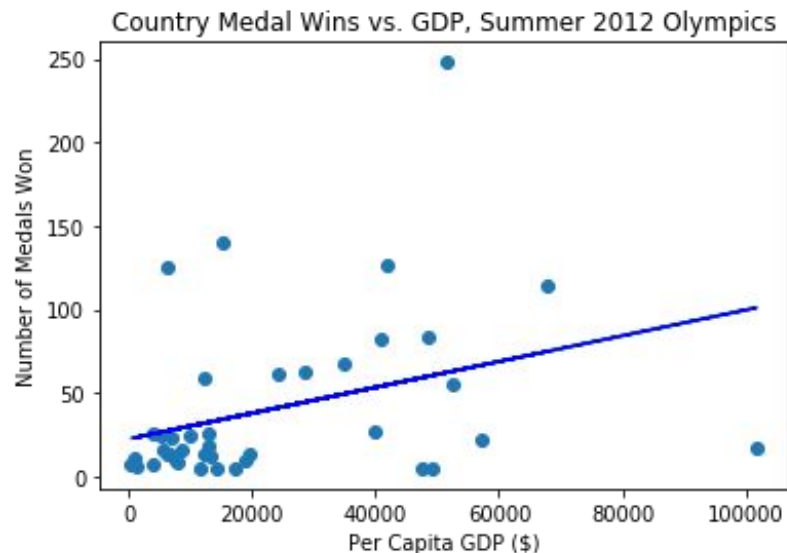
Are low-income countries at a disadvantage?



As GDP increases, do medal wins increase?



slope = 0.00046700489078327904
p-value = 0.3098971294408652



slope = 0.0007729784004581387
p-value = 0.030207419487391557

Conclusion



**HOST STATUS/
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DEVELOPMENT**

All 3 of these factors are somewhat correlated, to some extent, with **INCREASED** medal wins, but not all correlations are statistically significant.

Challenges & Limitations

- For Our Analysis:
 - Difficult to control for all factors that could possibly affect medal count
 - Possible Factors:
 - Different numbers of competitors per sporting event
 - Popularity of the Sport in the Country
 - Availability of Training Facilities in Country
 - Level of Government Support for Olympics/Athletes
- For the Project, In General
 - Identifying a good complete and accessible dataset
 - Capacity--small team and limited amount of time
 - Lack of Statistical prowess



**THANK
YOU!**

