

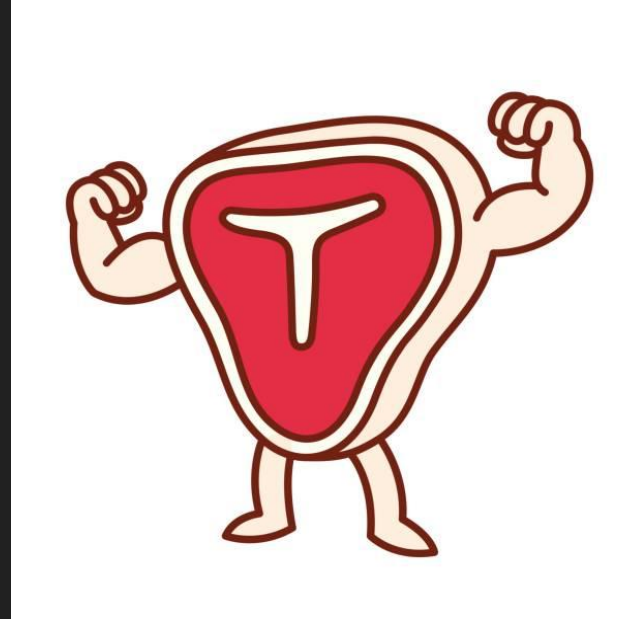
# How does a country's meat consumption relate to other metrics?

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# Hypothesis

Richer, happier, longer-lived, more fertile and more urban countries will consume more meat.



# What data did we use?



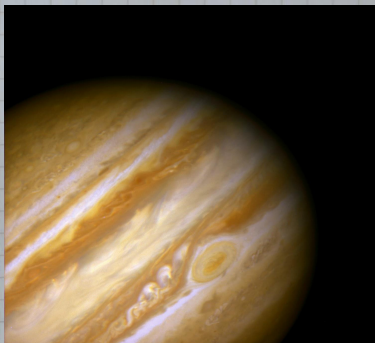
Kaggle.com: dataset of extracted metrics from Wikipedia, by [Daniboy370](#)



World Happiness Report  
2020 Scores

# Data Clean-up, Exploration, and Analysis

Find the  
jupyter  
notebook  
[here](#) on  
Github



```
In [27]: #most consumption vs urbanization rate
urban_data_of = read_csv('data/urban_data_of.csv', columns=["Country", "Region", "Meat Consumption", "Urbanization Rate"])

#which countries were dropped?
blank_urban = urban_data_of.loc[urban_data_of["Urbanization Rate"].isna()]
blank_urban_list = list(blank_urban["Country"])
print("The following " + str(len(blank_urban_list)) + " countries were removed from analysis for lack of data on urbanization rate [blank_urban_data_of_nona = urban_data_of.dropna(subset=['Urbanization Rate'])]

The following 4 countries were removed from analysis for lack of data on urbanization rate ['Kazakhstan', 'Samoa', 'San Jose and Pr
incipe', 'Virgin Islands']

In [28]: #most meat consump. and urbanization columns to variables for plotting
meat_only = urban_data_of_nona["Meat Consumption"]
urban_only = urban_data_of_nona["Urbanization Rate"]

Urbanization rate boxplot

In [29]: #show boxplot spread of urbanization rate data
plt.boxplot(urban_only)
plt.title("Urbanization Rate", fontsize=15)
plt.ylabel("% change in urbanization", fontsize=12)
plt.xticks([0, 100])
plt.savefig("Output/urbanization_boxplot.png")

Urbanization Rate
100
80
60
40
20
0
% change in urbanization

In [30]: #quartile calculations for urbanization rate
quartiles = urban_only.quantile([.25, .5, .75])
lowerq = quartiles[0.25]
upperq = quartiles[0.75]
iqr = upperq - lowerq

print("The lower quartile of urbanization rate is: [lowerq]")
print("The upper quartile of urbanization rate is: [upperq]")
print("The interquartile range of urbanization rate is: [iqr]")
print("The median of urbanization rate is: [quartiles[0.5]]")

lower_bound = lowerq - (1.5*iqr)
upper_bound = upperq + (1.5*iqr)
print("Values below [lower_bound] could be outliers.")
print("Values above [upper_bound] could be outliers.")

The lower quartile of urbanization rate is: 42.425
The upper quartile of urbanization rate is: 78.25
The interquartile range of urbanization rate is: 35.825
The median of urbanization rate is: 59.25
Values below -11.250000000000000 could be outliers.
Values above 131.5875 could be outliers.

Urbanization rate scatter plot

In [31]: #scatter plot for meat vs urbanization
plt.scatter(meat_only, urban_only)
plt.grid()
plt.ylabel("Urbanization Rate", fontsize=12)
plt.xlabel("Meat Consumption", fontsize=12)
plt.title("Urbanization Rate vs Meat Consumption", fontsize=15)

(slope, intercept, r_value, pvalue, stderr) = linregress(urban_only, meat_only)
regress_values = urban_only * slope + intercept
lin_eq = "y = " + str(round(slope, 2)) + "x + " + str(round(intercept, 2))

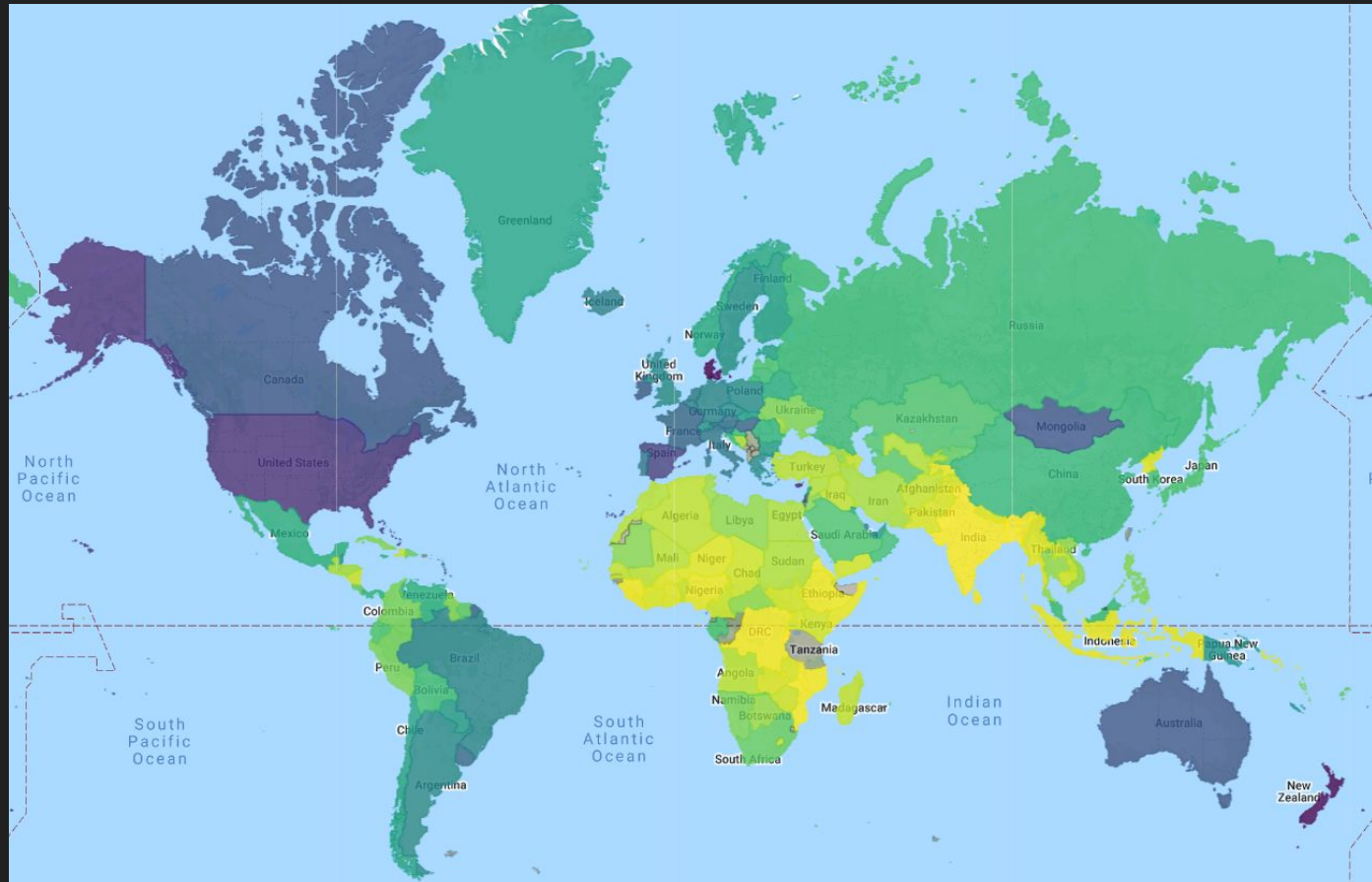
plt.plot(urban_only, regress_values, "r")
plt.annotate(lin_eq, (80, 10), fontsize=15, color="red")

print("The r value is: [round(r_value, 5)]")
print("The r-squared value is: [round(r_value**2, 5)]")

plt.savefig("Output/urbanization_meat_scatter.png")

The r value is: 0.53487
The r-squared value is: 0.28609
```

# Where in the world do people eat meat?



Less meat  
consumption

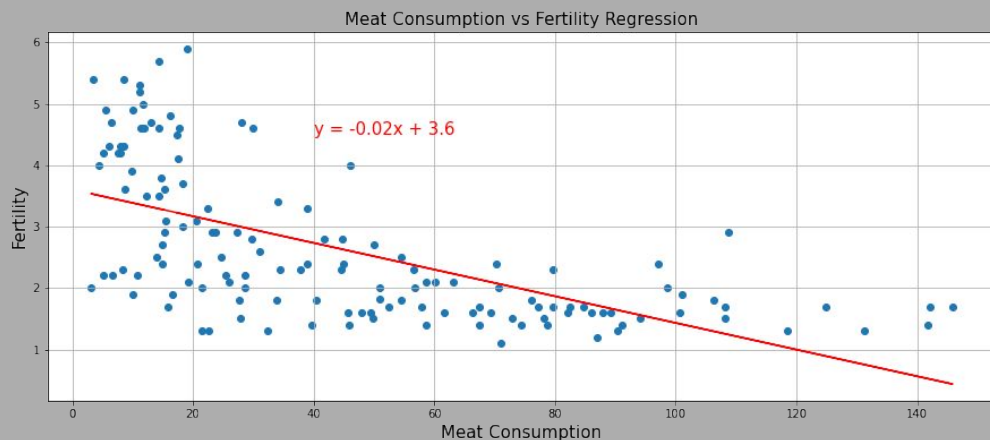
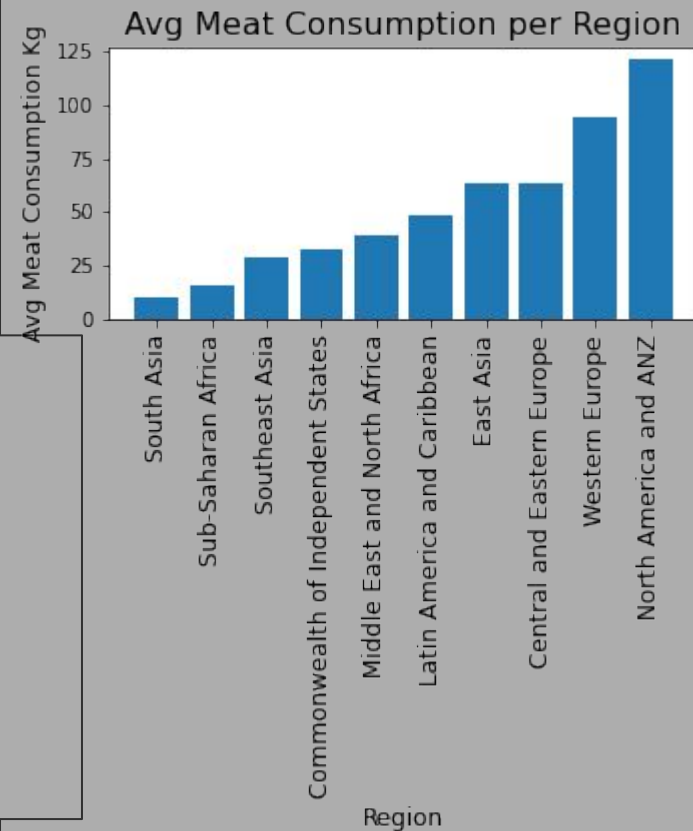
More meat  
consumption

# Conclusions

Hypothesis: Richer, happier, longer-lived, more fertile and more urban countries will consume more meat.

Conclusion : Our Hypothesis is supported for all aspects except for fertility

Looking at meat consumption by region- North America has the most and South Asia the least.



# So what?

- o Limitations of data source
  - Gaps in data
  - Grouping of regions (ex. North America and ANZ)
  - Other factors contributing to meat consumption (Cultural differences, Resources, etc.)
  - Data collection and sample size
- o What does it mean?
  - Although meat consumption has shown positive correlations with 4 of the 5 hypothesized metrics, it is difficult to make a firm conclusion about the effects of meat consumption on world populations due to gaps in the data and other contributing factors.

Questions?

