FIN 373 Policy Research Lab

TEXAS
The University of Texas at Austin

FACTORS AFFECTING GLOBAL TOURISM

Manay Divatia and Heinrick Gonzales

TEXAS
The University of Texas at Austin

RESEARCH QUESTION

Significance of Tourism | Initial Hypothesis

Research Question

How do different factors contribute to levels of tourist arrivals among countries?

Significance of Tourism

Tourism serves as a vital component of the global economy, encompassing a diverse range of activities, including leisure, business, and cultural exploration. Understanding factors that influence global tourism is essential for several reasons:

Economic Impact

- Maximizing economic benefits
- Influencing legislation and policymakers

Destination Development

- Enhancing offerings and infrastructure
- Improving visitor experience

Competitive Advantage

- Competing for tourist dollars and market share
- Developing niche offerings

We predict that countries with higher GDP, longer life expectancy, and larger population sizes are more likely to attract global tourism. This prediction is based on the premise that economic prosperity, better health outcomes, and larger populations contribute to increased travel demand and accessibility.

Initial Hypothesis

TEXAS
The University of Texas at Austin

DATA

Summary | Limitations

Data

Summary

- 145 countries with 50 variables
- Notable variables include: population density, birth rate, life expectancy, minimum wage, labor force participation, etc.
- Other variables: capital city, abbreviation, currency, largest city, country code

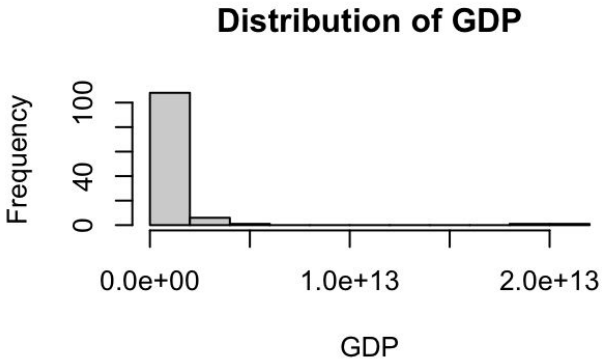
Limitations

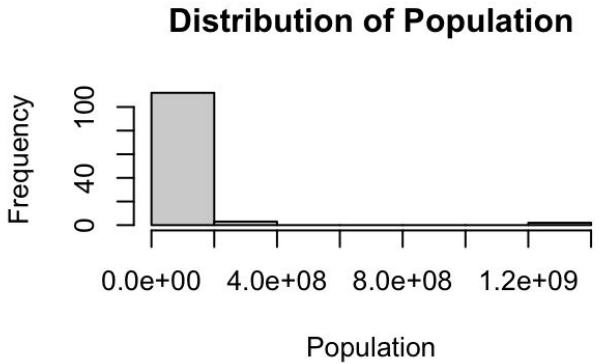
- Time Limitation: Arrival data concludes in 2018
- Geographical Coverage: 145/195 countries
- Missing Values: Some variables have missing outputs
- External Factors: Immigration vs Tourism

Data Wrangling

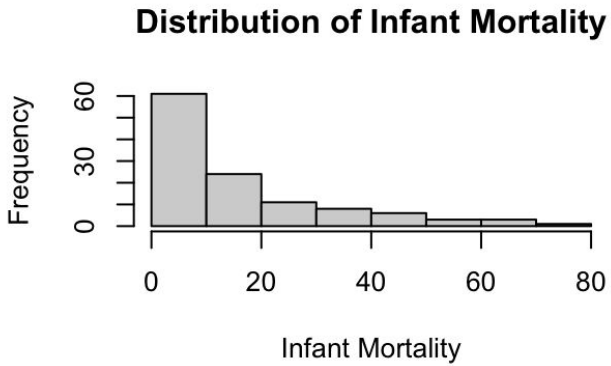
Summary

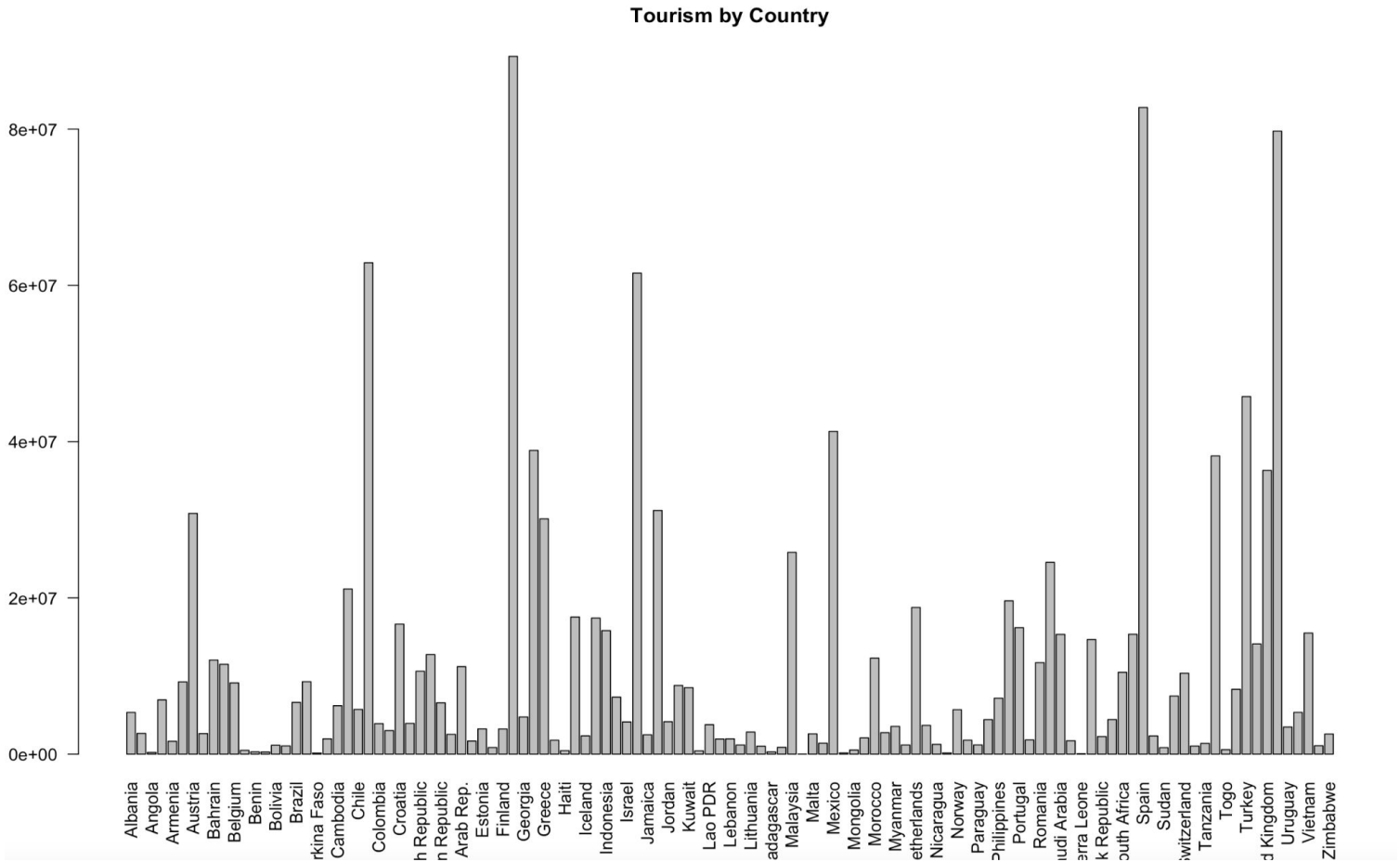
- Combining 4 datasets together
- Variable and variable type not aligned
- Null values
- Dropping unnecessary variables

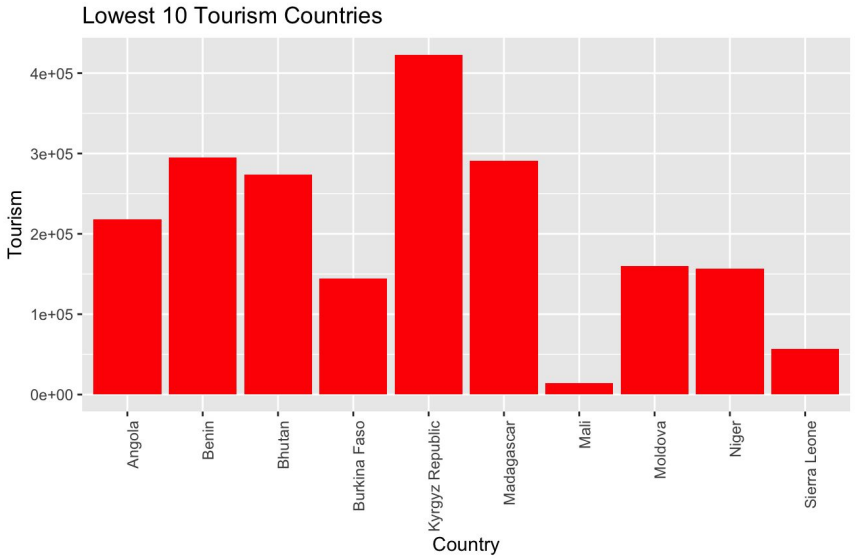

Distribution of GDP
Frequency
0
40
100
0.0e+00
1.0e+13
2.0e+13
GDP

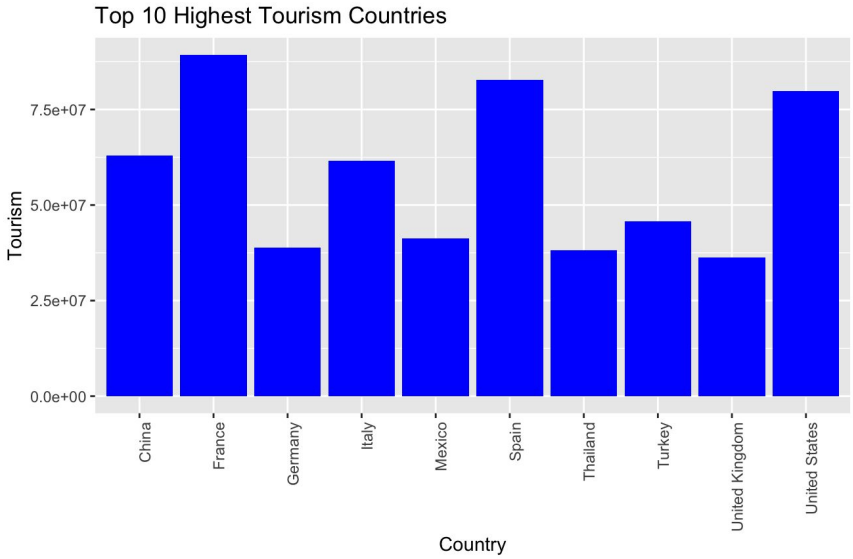

Distribution of Population
Frequency
0
40
100
0.0e+00
4.0e+08
8.0e+08
1.2e+09
Population

Distribution of Life Expectancy
Frequency
0
15
30
50
55
60
65
70
75
80
85
Life Expectancy


Distribution of Infant Mortality
Frequency
0
30
60
0
20
40
60
80
Infant Mortality


Tourism by Country
8e+07
6e+07
4e+07
2e+07
0e+00
Albania
Angola
Armenia
Austria
Bahrain
Belgium
Benin
Bolivia
Brazil
Cambodia
Chile
Colombia
Croatia
Estonia
Finland
Georgia
Greece
Haiti
Iceland
Indonesia
Israel
Jamaica
Jordan
Kuwait
Lao PDR
Lebanon
Lithuania
Malaysia
Malta
Mexico
Mongolia
Morocco
Myanmar
Nicaragua
Norway
Paraguay
Portugal
Romania
Spain
Sudan
Tanzania
Togo
Turkey
Uruguay
Vietnam
Zimbabwe


Lowest 10 Tourism Countries
Tourism
4e+05
3e+05
2e+05
1e+05
0e+00
Angola
Benin
Bhutan
Burkina Faso
Kyrgyz Republic
Madagascar
Mali
Moldova
Niger
Sierra Leone
Country


Top 10 Highest Tourism Countries
Tourism
7.5e+07
5.0e+07
2.5e+07
0.0e+00
China
France
Germany
Italy
Mexico
Spain
Thailand
Turkey
United Kingdom
United States
Country

TEXAS
The University of Texas at Austin

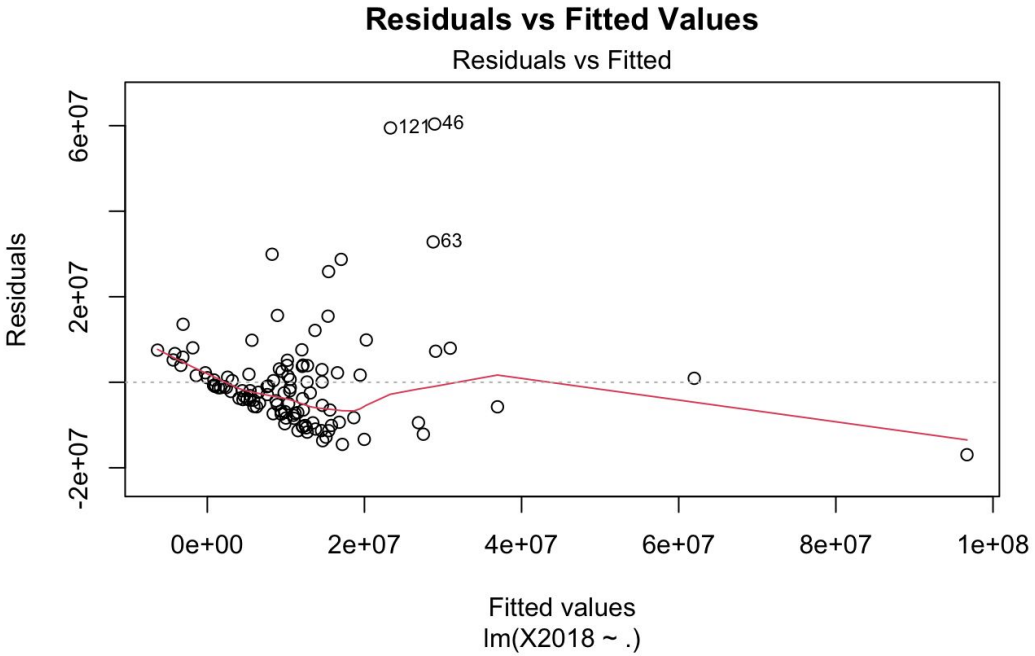
METHODS & INTERPRETATION OF RESULTS

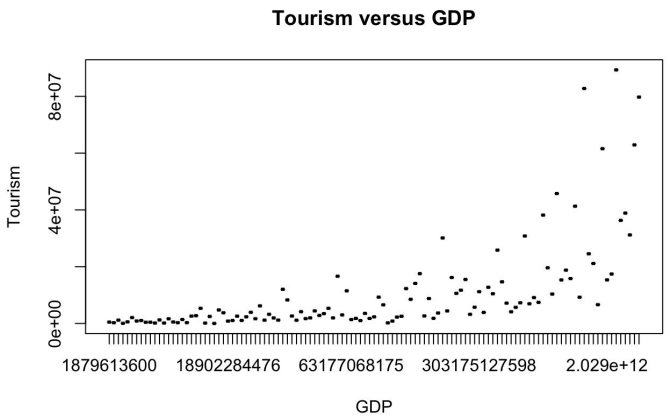
Linear Regression | Correlation Matrix | Clustering

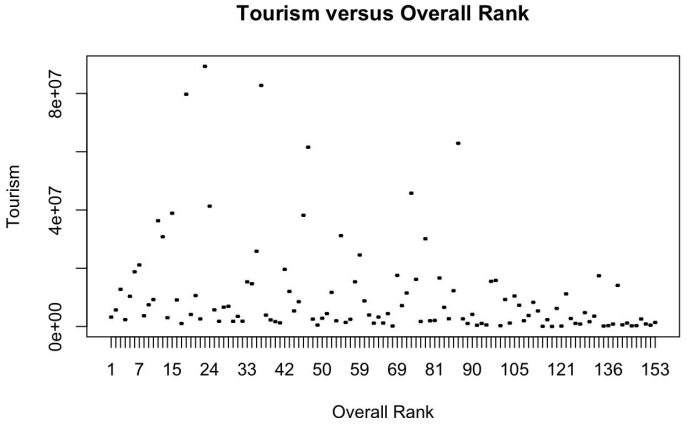
Linear Regression

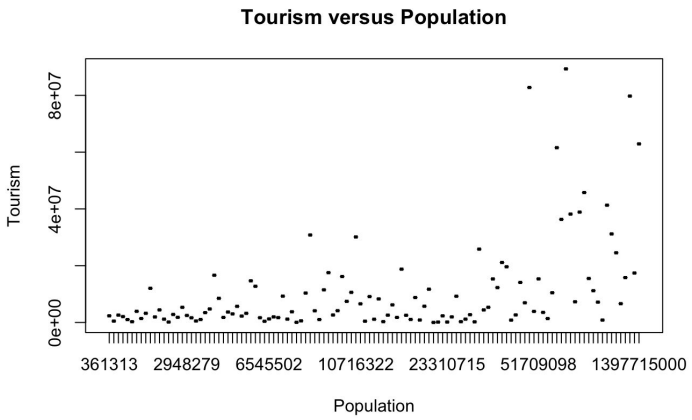
```
Call:
lm(formula = X2018 ~ ., data = relevant_data)

Residuals:
      Min        1Q    Median        3Q       Max
-16943153  -7039039  -1977533   2849941  60385008

Coefficients:
                               Estimate Std. Error t value Pr(>|t|)
(Intercept)                  -3.911e+07  4.718e+07  -0.829   0.4092
Forested.Area....             2.728e+04  6.282e+04   0.434   0.6650
Freedom.to.make.life.choices -2.058e+07  1.054e+07  -1.953   0.0537 .
Latitude                      4.242e+04  5.539e+04   0.766   0.4457
Overall.rank                 -2.270e+04  5.863e+04  -0.387   0.6994
GDP.per.capita                7.090e+06  8.026e+06   0.883   0.3793
GDP                           5.645e-06  1.303e-06   4.331 3.62e-05 ***
Population                    2.284e-02  1.346e-02   1.697   0.0929 .
Life.expectancy               6.502e+05  5.858e+05   1.110   0.2698
Infant.mortality              1.333e+05  2.192e+05   0.608   0.5447
Tax.revenue....              -5.709e+04  2.087e+05  -0.273   0.7851
Co2.Emissions                -9.013e+00  4.517e+00  -1.995   0.0488 *
CPI                           4.116e+03  2.281e+04   0.180   0.8572
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 12830000 on 97 degrees of freedom
  (7 observations deleted due to missingness)
Multiple R-squared:  0.5115,    Adjusted R-squared:  0.4511
F-statistic: 8.464 on 12 and 97 DF,  p-value: 9.465e-11
```

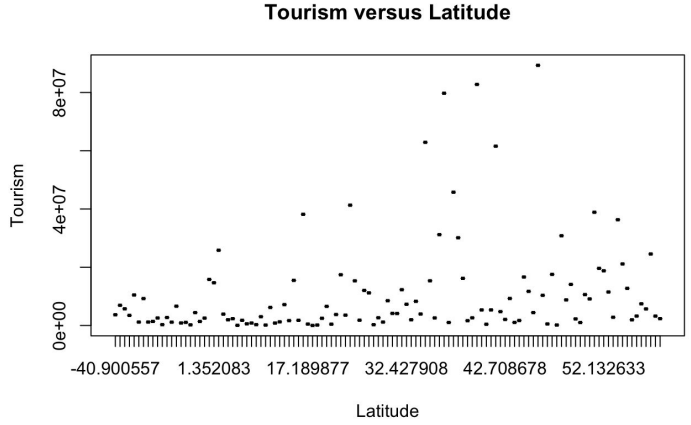
Residuals vs Fitted Values of Tourism

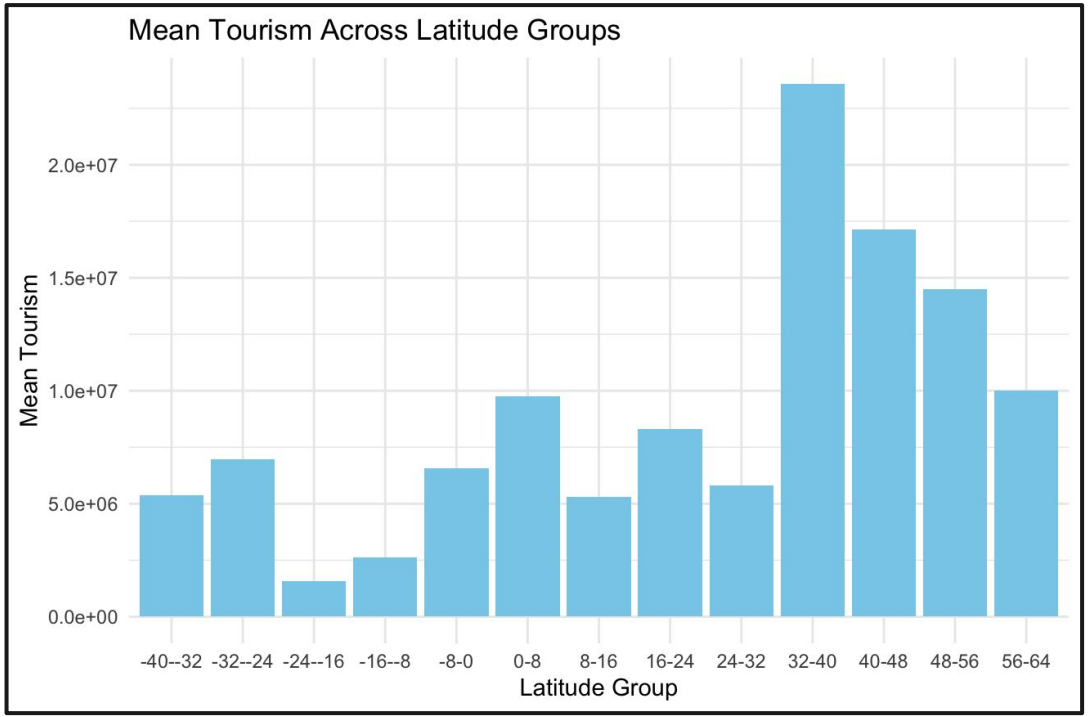



Tourism versus GDP
Tourism
0e+00
4e+07
8e+07
1879613600
18902284476
63177068175
303175127598
2.029e+12
GDP

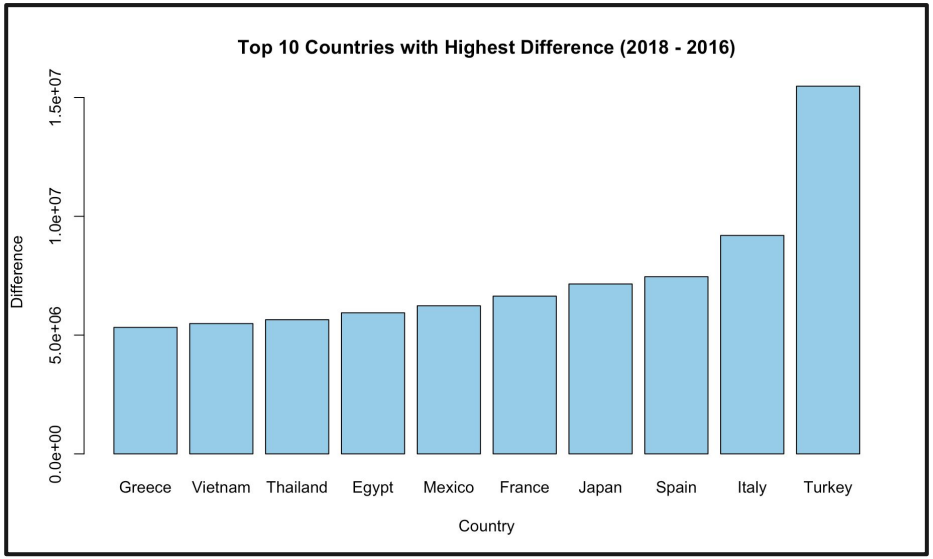

Tourism versus Overall Rank
Tourism
0e+00
4e+07
8e+07
1
7
15
24
33
42
50
59
69
81
90
105
121
136
153
Overall Rank

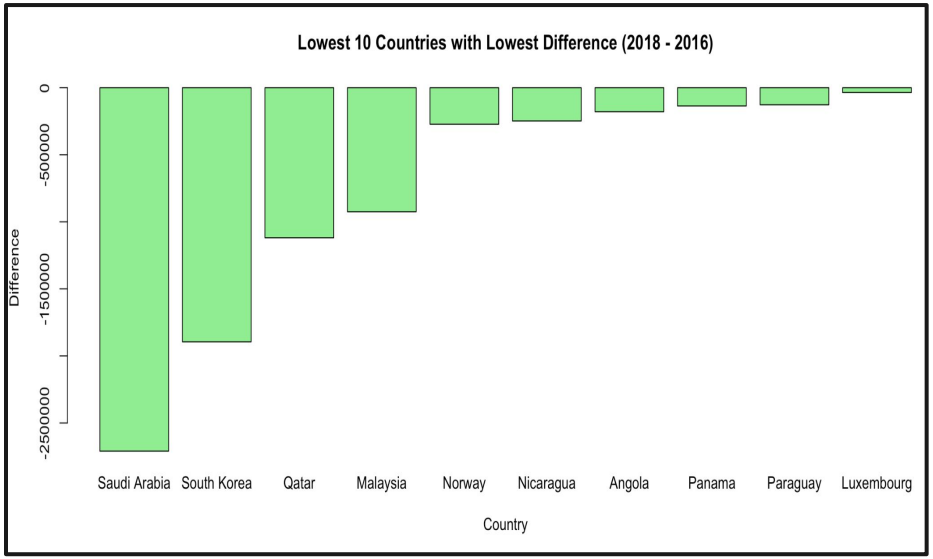

Tourism versus Population
Tourism
0e+00
4e+07
8e+07
361313
2948279
6545502
10716322
23310715
51709098
1397715000
Population


Tourism versus Latitude
Tourism
0e+00
4e+07
8e+07
-40.900557
1.352083
17.189877
32.427908
42.708678
52.132633
Latitude



Latitude Analysis

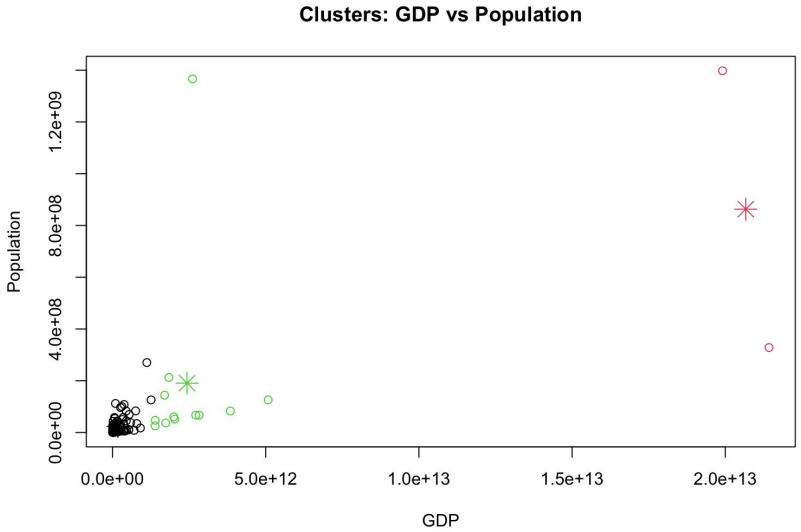


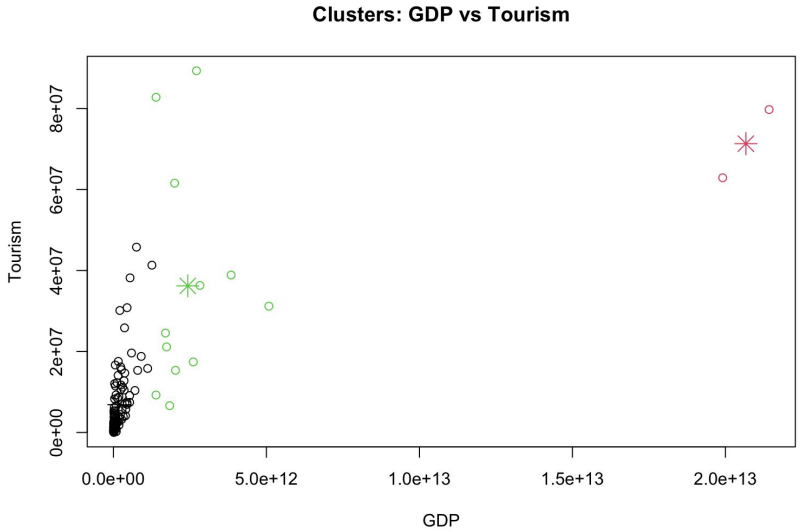


Regression Difference in Differences

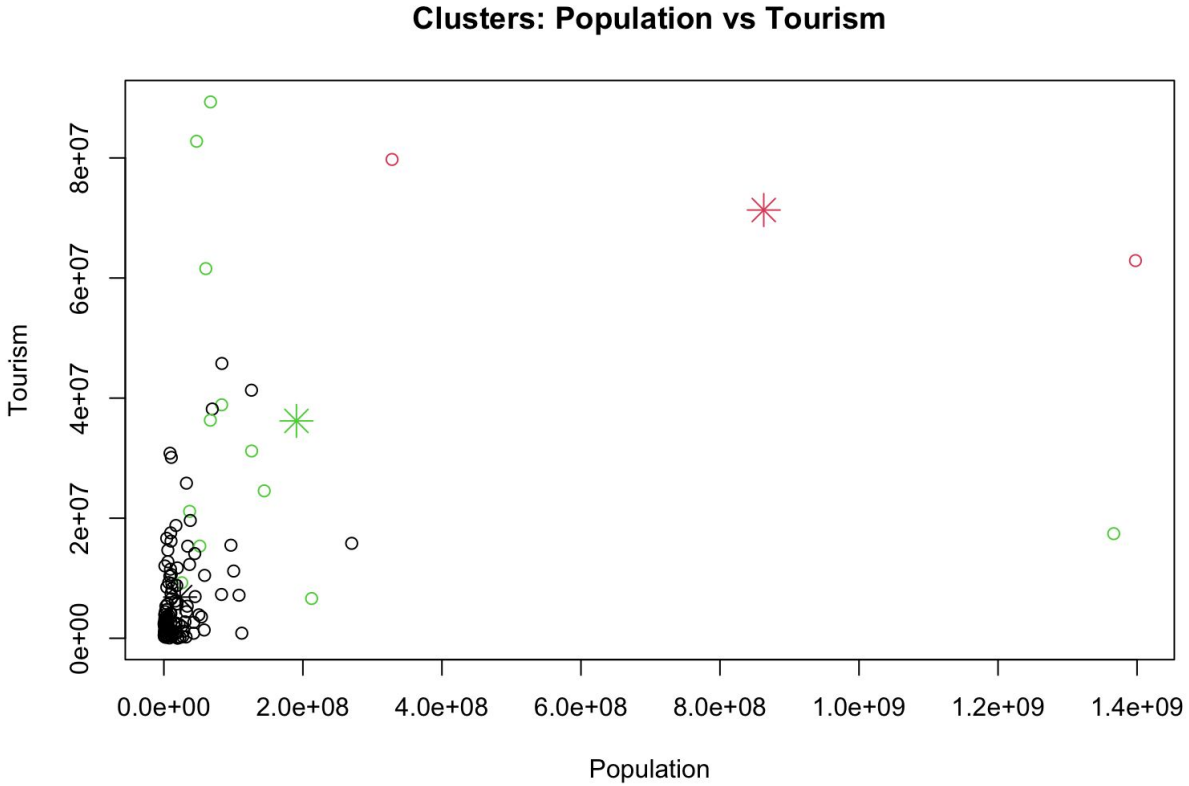
Country with the highest difference: Turkey
Country with the lowest difference: Saudi Arabia
Difference between the highest and lowest countries: 18189000

Clustering


Clusters: GDP vs Population
Population
0.0e+00
4.0e+08
8.0e+08
1.2e+09
0.0e+00
5.0e+12
1.0e+13
1.5e+13
2.0e+13
GDP


Clusters: GDP vs Tourism
Tourism
0e+00
2e+07
4e+07
6e+07
8e+07
0.0e+00
5.0e+12
1.0e+13
1.5e+13
2.0e+13
GDP

Clustering


Clusters: Population vs Tourism
Tourism
0e+00
2e+07
4e+07
6e+07
8e+07
0.0e+00
2.0e+08
4.0e+08
6.0e+08
8.0e+08
1.0e+09
1.2e+09
1.4e+09
Population

TEXAS
The University of Texas at Austin

CONCLUSION

Summary | Implications | Thank You

Summary

Ultimately, there were three major insights from our data analysis:

- Analysis reveals a noteworthy trend that countries closer to the equator experience heightened levels of tourism
- All variables except GDP and CO2 Emissions aren’t significantly correlated to tourism
- We accurately hypothesized that GDP would be correlated with tourism.

Implications

Economic Impact	• GDP is a significant factor in determining tourist arrivals • **GDP growth** is often associated with **infrastructure development**, improved transportation networks, and enhanced tourism facilities, which can further **stimulate tourism demand**
Destination Development	• For countries near the equator, **implement sustainable tourism** practices to **preserve** natural resources and minimize environmental impact • For countries further from the equator, **diversify tourism offerings** beyond natural attractions, focusing on cultural heritage and historical sites
Competitive Advantage	• Countries that appear in the **same cluste**r can identify best practices and **successful strategies** implemented by **comparable destinations**

THANK YOU

HEINRICK GONZALES
Finance

MANAY DIVATIA
Computer Science