

Tracking the Success of Nations

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Research Question

The objective of the following paper is to track and analyze the effect that economic and political freedom have on the overall success of a nation.

The paper will first detail which nations are ranked highest/lowest in terms of success as well as which regions throughout the world have the highest rates of success. Further, the paper will investigate if there is a positive correlation between economic freedom and success as well as political freedom and success, i.e. will the rate of success rise in a consistent, positive trend as the rate of economic freedom or political freedom increases. Finally, the research will track whether there is a greater correlation between the type of government or the economic system in how successful a nation is.

Background

For the research, two data sets

Defining Success

In order to calculate the success of a nation, the term “success” must first be defined. For the sake of the following research, a successful nation has been defined as one that has attained high levels of economic prosperity, education, safety, and health among its population as well as an overall positive quality of life. When combined, these five categories should work together to create a successful citizenry and nation.

In order to measure the categories, then, two variables have been assigned to each of the five: economic prosperity (GDP, unemployment rate), safety (crime index, homicide rate), education (secondary school enrollment rate, literacy rate), health (life expectancy, infant mortality), and quality of life/lifestyle (median income, world happiness rating). By measuring each of the five predictors with the same number of variables, no category will be weighted as more crucial in the success of a nation than any of the others.

By including five different categories and weighting them evenly, the risk of preferential treatment towards one category will be removed. In many previous studies of the success of countries, research focused solely on economic factors (or weighted them heavier than other variables). However, under this current study, the goal is to gain a more robust picture of what success means and looks like for a nation; thus, it becomes necessary to weight economic prosperity the same as the remaining four categories.

Calculating Success

To calculate success, proportions were calculated for each of the ten variables.

```
head(success_na)
```

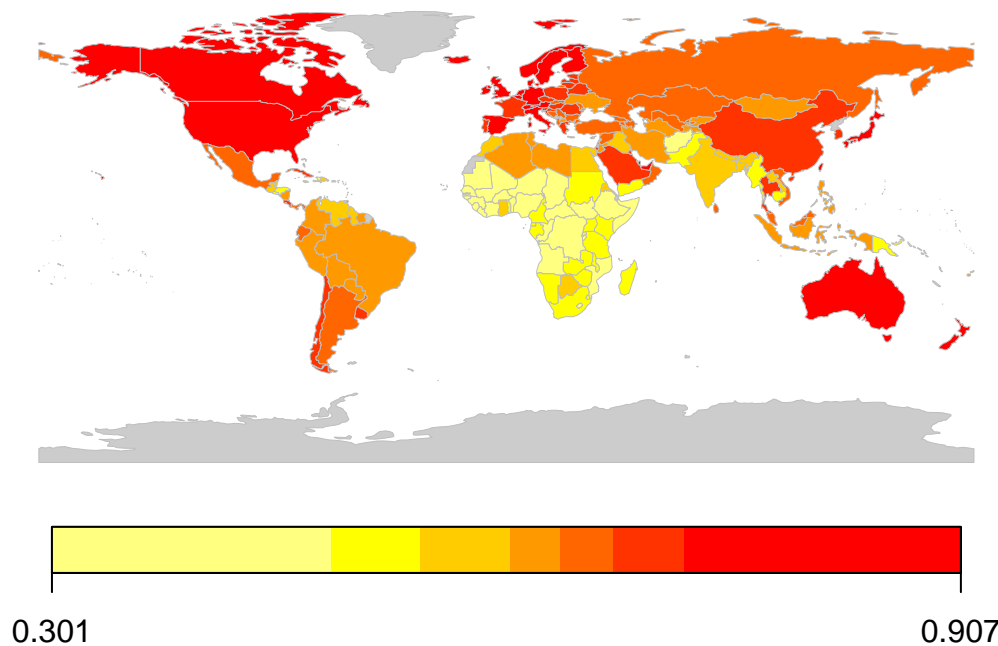
```
## # A tibble: 6 x 15
##   country_name region econ_freedom poli_freedom    gdp unemployment
##   <chr>         <chr>         <dbl>         <dbl>    <dbl>         <dbl>
```

```
## 1 Afghanistan Asia~ 0.513 0.26 1.07e-3 0.761
## 2 Albania Europe 0.645 0.68 6.72e-4 0.86
## 3 Algeria Middl~ 0.447 0.35 8.79e-3 0.883
## 4 Angola Sub-S~ 0.486 0.26 6.41e-3 0.934
## 5 Argentina Ameri~ 0.523 0.83 3.29e-2 0.919
## 6 Armenia Europe 0.687 0.45 5.95e-4 0.811
## # ... with 9 more variables: crime_index <dbl>, homicide <dbl>,
## # enrollment <dbl>, literacy <dbl>, life_expectancy <dbl>,
## # infant_mortality <dbl>, median_income <dbl>, happiness <dbl>,
## # success <dbl>
```

Comparing Economic/Political Freedom and Success

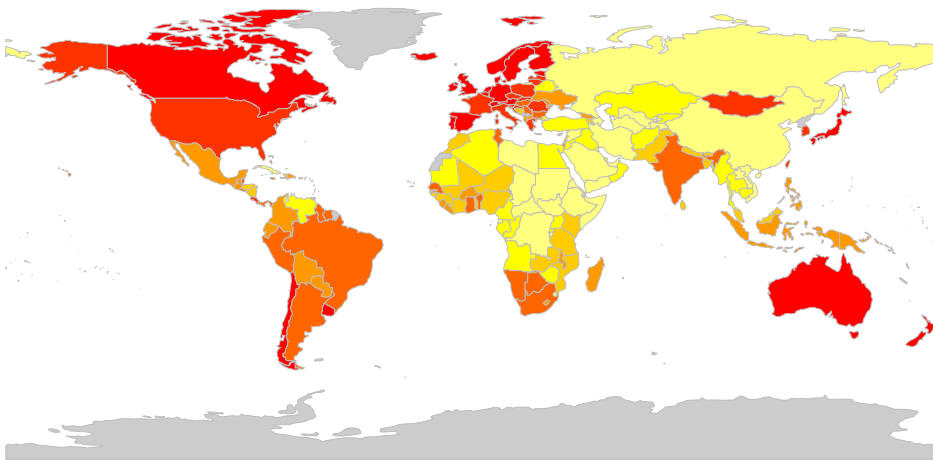
```
## Loading required package: sp
## ### Welcome to rworldmap ###
## For a short introduction type : vignette('rworldmap')
## 179 codes from your data successfully matched countries in the map
## 0 codes from your data failed to match with a country code in the map
## 64 codes from the map weren't represented in your data
```

Success of Nations



```
## 179 codes from your data successfully matched countries in the map
## 0 codes from your data failed to match with a country code in the map
## 64 codes from the map weren't represented in your data
```

Poli Freedom of Nations

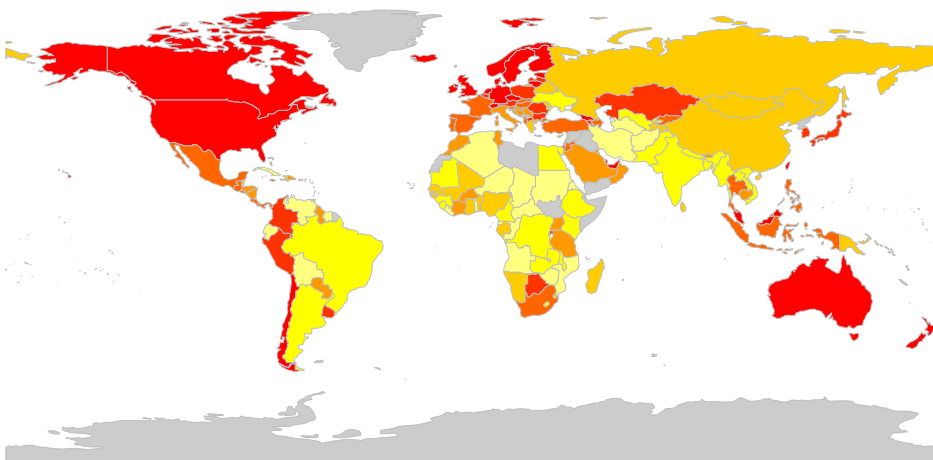


-0.01

1

179 codes from your data successfully matched countries in the map
0 codes from your data failed to match with a country code in the map
64 codes from the map weren't represented in your data

Econ Freedom of Nations



0.252

0.888

Most Successful Nations

Least Successful Nations

Success by Region

```
df_region_poli
```

```
## # A tibble: 5 x 2
##   region          mean
##   <chr>          <dbl>
## 1 Asia-Pacific    0.518
## 2 Europe          0.812
## 3 Middle East / North Africa 0.288
## 4 Sub-Saharan Africa 0.452
## 5 Americas        0.726
```

```
df_region_econ
```

```
## # A tibble: 5 x 2
##   region          mean
##   <chr>          <dbl>
## 1 Asia-Pacific    0.617
## 2 Europe          0.689
## 3 Middle East / North Africa 0.615
## 4 Sub-Saharan Africa 0.546
## 5 Americas        0.601
```

```
df_region
```

```
## # A tibble: 5 x 2
##   region          mean
##   <chr>          <dbl>
## 1 Asia-Pacific    0.630
## 2 Europe          0.711
## 3 Middle East / North Africa 0.649
## 4 Sub-Saharan Africa 0.491
## 5 Americas        0.624
```

Political Freedom and Success

```
mean_poli_prop
```

```
## # A tibble: 10 x 2
##   prop_success mean_success
##   <chr>          <dbl>
## 1 0 - 0.1      NaN
## 2 0.1 - 0.2    NaN
## 3 0.2 - 0.3    NaN
## 4 0.3 - 0.4    NaN
## 5 0.4 - 0.5     0.26
## 6 0.5 - 0.6    0.524
```

```
## 7 0.6 - 0.7          0.581
## 8 0.7 - 0.8          0.784
## 9 0.8 - 0.9          0.910
## 10 0.9 - 1.0         0.93
```

Economic Freedom and Success

```
mean_econ_prop
```

```
## # A tibble: 6 x 2
##   prop_success mean_success
##   <chr>          <dbl>
## 1 0.70 - 0.75    0.689
## 2 0.75 - 0.80    0.751
## 3 0.80 - 0.85    0.787
## 4 0.85 - 0.90    NaN
## 5 0.90 - 0.95    0.766
## 6 0.95 - 1.0    NaN
```

Overall Correlation between Freedom Type and Success

```
lm_both
```

```
##
## Call:
## lm(formula = success ~ econ_freedom + poli_freedom, data = success_na)
##
## Coefficients:
## (Intercept) econ_freedom poli_freedom
##      0.21008      0.62008      0.04259
```

Determining the Effect of the Economic Prosperity Indicators

```
lm_both_four
```

```
##
## Call:
## lm(formula = success ~ econ_freedom + poli_freedom, data = success_four)
##
## Coefficients:
## (Intercept) econ_freedom poli_freedom
##      0.21008      0.62008      0.04259
```