CE 1: Billionaires and GDP

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2024-03-29

1 Introduction

This report aims to answer the following research question:

Did countries with a higher proportion of billionaires have a higher GDP growth rate in the early 21th century?

2 Hypothesis

We hypothesise that countries with a higher proportion of billionaires don't have a higher GDP growth rate in the early 21th century. And if they do, we suspect a causation instead of a causality.

3 Code

To answer we used the following code:

3.1 Loading, cleaning and merging the Datasets (GDP and Billionaires)

```
# load billionaires dataset
billionaires <- here("data_prep", "df_ready.csv") %>%
  read_csv()

# aggregate the number of billionaires by country and assign it to object billionaires_by_country
billionaires_by_country <- billionaires %>%
  group_by(country_of_residence) %>%
  summarise(num_billionaires = n_distinct(full_name))

# Load the GDP dataset
gdp_growth_df <- here("data_prep", "GDP_growth.csv") %>%
  read_csv()

# Sort by year 2021
gdp_growth_2021 <- gdp_growth_df %>%
  filter(Year == 2021)

#rename columns "Entity" and "17.13.1 - Annual GDP growth (%) - NY_GDP_MKTP_KD_ZG"
gdp_growth_2021 <- gdp_growth_2021 %>%
  rename(country_of_residence = Entity) %>%
  rename(gdp_growth_country = "17.13.1 - Annual GDP growth (%) - NY_GDP_MKTP_KD_ZG")

# merge the two dataframes
```

```r
billionaires_by_country_gdp <- billionaires_by_country %>%
  left_join(gdp_growth_2021, by = "country_of_residence")

# remove the NA from the dataset
billionaires_by_country_gdp <- billionaires_by_country_gdp %>%
  drop_na()
```

3.2 Create a Graph

```r
# create a regression plot comparing the gdp of each country with the number of billionaires. On the x-
ggplot(billionaires_by_country_gdp, aes(x = reorder(country_of_residence, -num_billionaires), y = num_bi
  geom_point(aes(color = gdp_growth_country), size = 3) +
  scale_color_gradient2(low = "red", mid = "yellow", high = "green", midpoint = 0) +
  labs(x = "Country", y = "Number of Billionaires", title = "Number of Billionaires by Country and GDP
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# create a regression plot comparing the gdp of each country with the number of billionaires. On the x-
ggplot(billionaires_by_country_gdp, aes(x = gdp_growth_country, y = num_billionaires)) +
  geom_point(aes(color = gdp_growth_country), size = 3) +
  scale_color_gradient2(low = "red", mid = "orange", high = "green", midpoint = 0) +
  labs(x = "GDP Growth", y = "Number of Billionaires", title = "Number of Billionaires by Country and GI
  theme(axis.text.x = element_text(hjust = 1))
```

3.3 Run a regression model

```r
# run a regression model
Regression_billionaires_gdp <- lm(gdp_growth_country ~ num_billionaires, data = billionaires_by_country_
summary(Regression_billionaires_gdp)
```

4 Results

The Data shows that the number of billionaires is not a significant predictor for the GDP growth rate of a country. The p-value of the regression model is 0.652, which is higher than the significance level of 0.05. This means that the number of billionaires does not have a significant impact on the GDP growth rate of a country.

5. Discussion

As suggested in the results section, the number of billionaires does not have a significant impact on the GDP growth rate of a country. Considering that the GDP growth rate is impacted by a multitude of different factors, it is not surprising that the number of billionaires alone does not explain the variation in GDP growth rates across countries.

Various other factors such as the size of the economy, the political stability of the country, or the level of corruption could have a more significant impact on the GDP growth rate. It would also make sence to use a multi-variate regression model to account for the influence of other factors on the GDP growth rate. Further research is needed to explore the relationship between the number of billionaires and the GDP growth rate of a country.