《 * 》

Corruption and Inequality

Kayla Onyango, Jullius Koychev, Eathan Getgen

ECON 0150

T. Weidman

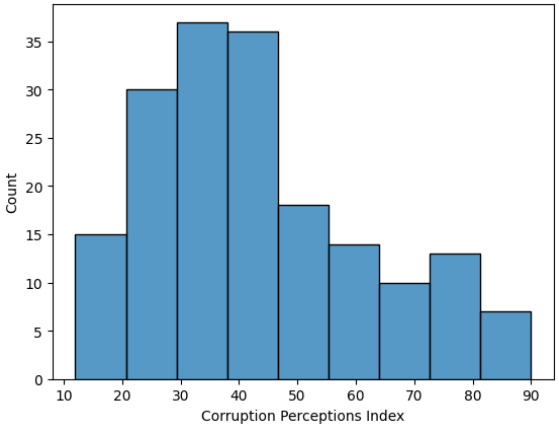
《 * 》

Introduction

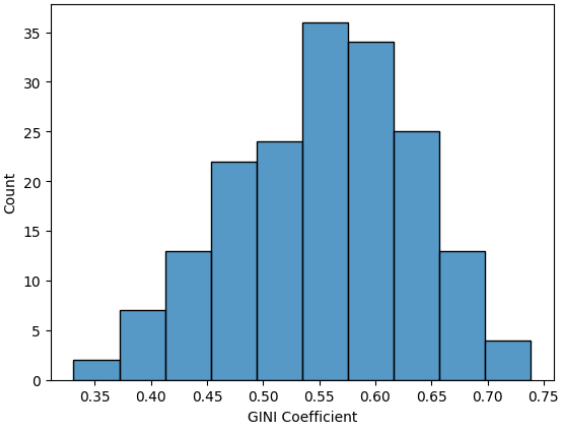
It's easy to say corruption is bad, but what are the tangible consequences of corruption on a nation? We hoped to answer that question in part with this study where we observed the relationship between corruption and wealth inequality. Does income and wealth inequality increase with corruption? Let's find out.

Data

To measure corruption, we used data on each country's Corruption Perceptions Index from Our World In Data. The CPI ranks countries and territories based on the perceived level of public sector corruption, as judged by experts and business leaders. A lower CPI indicates more corruption. For the purposes of this study, the measure was reversed.



To measure wealth inequality, we used data from the World Bank to find each country's Gini Coefficient, which measures how wealth is distributed through its population. A higher Gini coefficient indicates more inequality.



Methods

To test our hypotheses, we used the following statistical model:

$$[\text{Gini Coefficient}] = \beta_0 + \beta_1\ [\text{Corruptions Perceptions Index}] + \varepsilon$$

β_0: The intercept, or the estimated Gini coefficient of a country with a 0 CPI.

β_1: The slope, or the increase in the Gini coefficient of a country for each one point increase in CPI.

ε: Error, or residual term.

Results

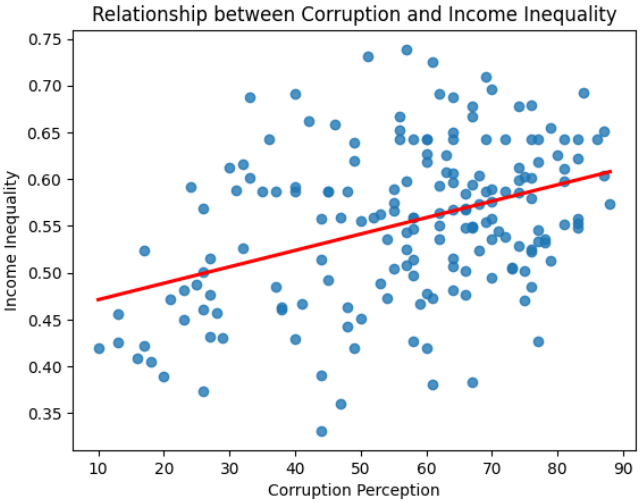
After using our model to run a linear regression, we got the following results:

$$\beta_0 = 0.4537$$

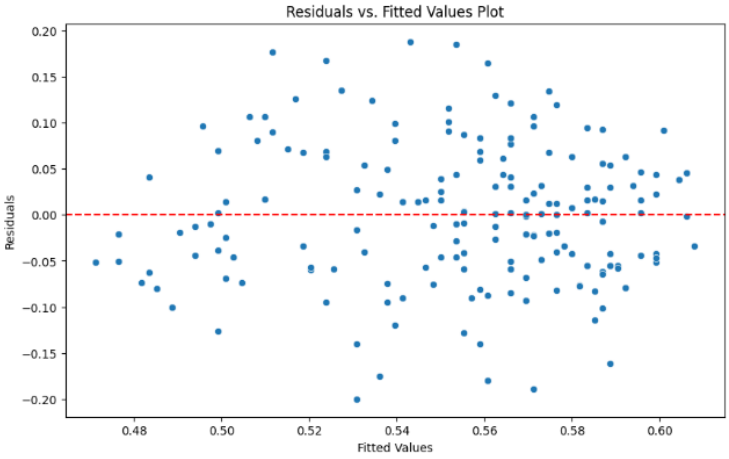
$$\beta_1 = 0.0018$$

$$\text{p-value} = 0.000 < 0.05$$

*Full summary listed with references



Homoscedasticity: In order to ensure our model's accuracy, we checked to make sure that our data was homoscedastic, or that it had a constant variance. After creating the residual plot below, we concluded that our data was indeed homoscedastic.



Conclusion

Our β_0 value of 0.4537 tells us the estimated Gini coefficient when the Corruption Perceptions Index is equal to 0, or that a CPI of 0 would be associated with a Gini value of 0.4537. Our β_1 value of 0.0018 tells us that for every 1 unit increase in the Corruption Perceptions Index, the GINI Coefficient is estimated to increase by 0.0018. This would support our alternate hypothesis that income inequality increases as corruption does, if the results were found to be statistically significant.

The p-value is the likelihood that we would get these results—or more extreme ones—if there were truly no relationship between CPI and Gini coefficients, but a p-value as small as 0.000 indicates that these results are unlikely due to random chance and are statistically significant. Therefore, we can reject the null hypothesis and accept our alternative one; wealth inequality increases as corruption increases.

References

CPI – Our World in Data

https://ourworldindata.org/grapher/ti-corruption-perception-index?tab=table&tableSearch=bul

Gini Coefficient – World Bank

https://data.worldbank.org/indicator/SI.POV.GINI

Full Regression Summary:

	coef	std err	t	P>|t|	[0.025	0.975]
Intercept	0.4537	0.018	24.666	0.000	0.417	0.490
I(100 - Q("Corruption Perceptions Index"))	0.0018	0.000	5.718	0.000	0.001	0.002

Co-lab Notebook:

https://colab.research.google.com/drive/1P7I4YqodNJ7gUSg7SJ_0RlmDsHb0iVRF?usp=sharing