

The Lesser of Two Evils: A Comparison Between the Effects of Economic Development and Corruption on Suicide Rates

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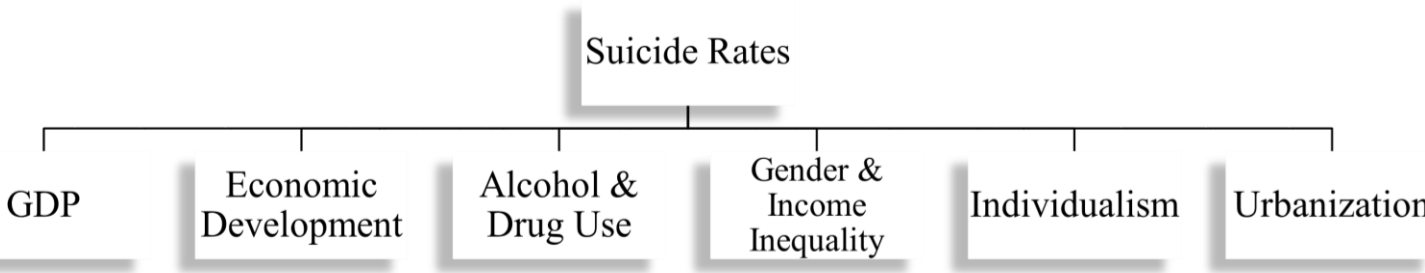
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Introduction

What could be done with 565 million euros? A lot. 565 million euros (\equiv 38,038 years of working life) were lost in 2013 to suicide. Several studies have tried to understand the cause of the high suicide rates, especially in highly developed economies. Economic Development was found to be highly correlated to suicide. This pegged questions about why improved standard of living would lead to suicide, which led to researchers trying to find other factors that could explain this phenomenon. Corruption was found to be the cause of poor wellbeing in many studies. The aim of this paper was to analyze whether Economic Development or Corruption had the greater effect on Suicide Rates.

Suicide and Economic Development

Economic performance and socioeconomic factors that had a relationship with suicide included:

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- Some factors had predictable relationships with suicide, ex: alcohol & drug use, and inequality have a +ve relationship with suicide.
 - GDP, Economic Development, Individualism and Urbanization had unpredictable relationships with suicide. Economic growth and urbanization were found to increase suicide due increase in individualism and loss of social integration.

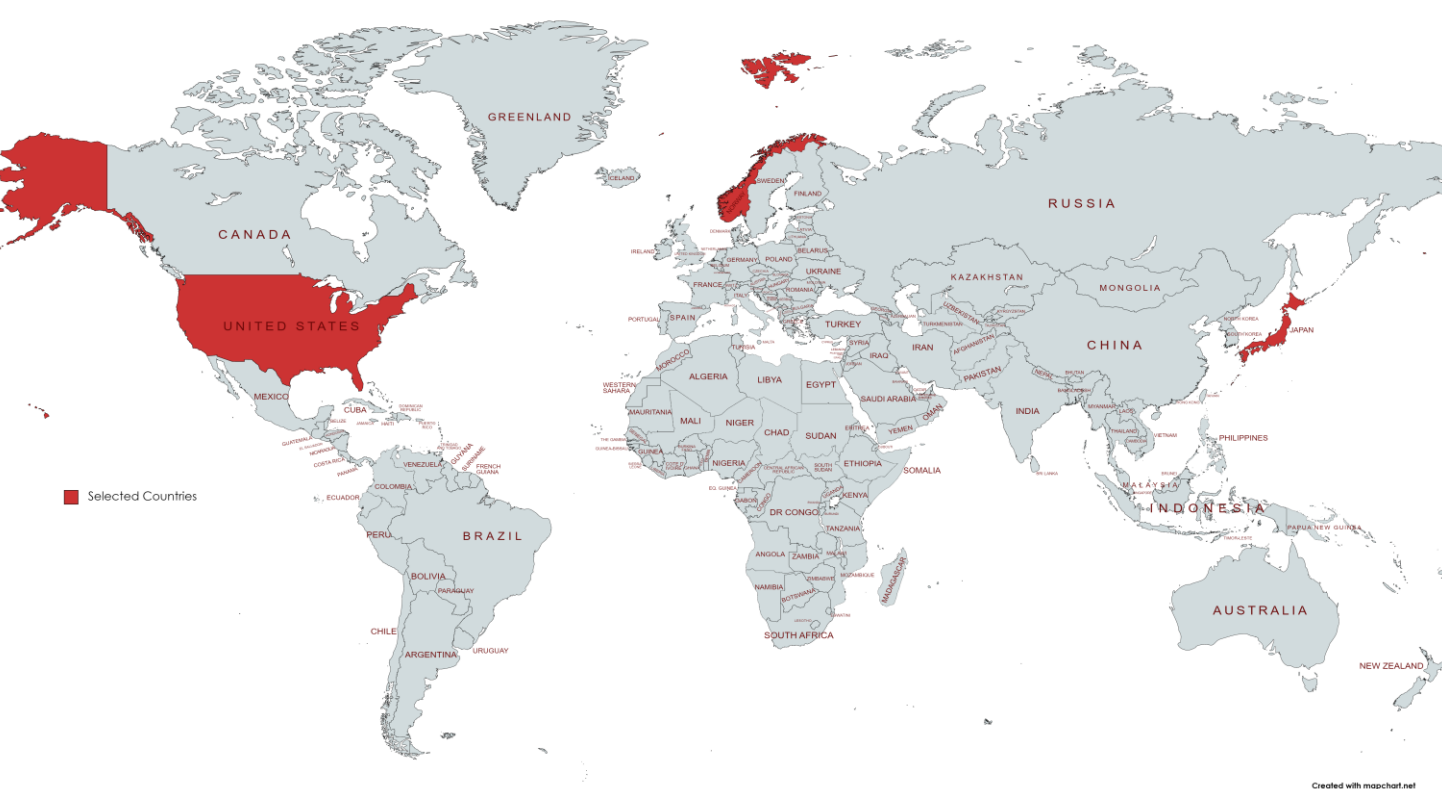
Suicide and Corruption

Corruption has an adverse effect on subjective wellbeing. Since wellbeing constitutes mental health, it goes hand in hand with suicide rates. Corruption damages the economy and individuals' wellbeing through:



Selected Countries

With HDI having a significant relationship with suicide in previous studies 3 highly developed economies were included in the panel data:



Methodology

The variables used in the analysis are:

- Suicide Mortality Rate (SMR) \rightarrow As an indicator for Suicide, i.e. the dependent variable
- Human Development Index (HDI) \rightarrow As an indicator for Economic Development
- Government Effectiveness (GOVE) \rightarrow as a proxy for Corruption

Panel data for Japan, Norway, and the USA was collected for years 2000-2019 (n=60) from The World Bank and the UNDP. The relationships were tested separately using OLS regression method. And the R-squared was used as the metric used to compare the strength of the relationships.

Results

- The relationship between Suicide and Economic Development was tested through the following steps:
 - Running a simple regression model \rightarrow produced an unsatisfactory R-squared ($=0.53$)
 - Adding Log GDP per capita as a control variable \rightarrow didn't change the R-squared value significantly
 - Accounting for the lag in Log GDP per Capita \rightarrow Raised the R-squared to 0.74

However, there was an issue of multicollinearity in the model, so to improve the reliability of the model Log GDP per capita was substituted with Inflation (INF) to produce the following model:

$$smr = 104.061258237 - 93.9566309694*hdi - 1.71310281163*inf$$

Dependent Variable: SMR Method: Panel Least Squares Date: 05/15/22 Time: 21:18 Sample: 2000 2019 Periods included: 20 Cross-sections included: 3 Total panel (balanced) observations: 60				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	104.0613	14.13360	7.362684	0.0000
HDI	-93.95663	15.71862	-5.977409	0.0000
INF	-1.713103	0.292758	-5.851605	0.0000
R-squared	0.710063	Mean dependent var	15.86333	
Adjusted R-squared	0.699890	S.D. dependent var	4.827533	
S.E. of regression	2.644635	Akaike info criterion	4.831650	
Sum squared resid	398.6633	Schwarz criterion	4.936367	
Log likelihood	-141.9495	Hannan-Quinn criter.	4.872610	
F-statistic	69.79720	Durbin-Watson stat	0.815053	
Prob(F-statistic)	0.000000			

- The relationship between Suicide and Corruption was tested through the following steps:
 - Running a simple regression model, using Corruption Perception Index (CPI) as the indicator for corruption \rightarrow produced a very low R-squared ($=0.24$)
 - Substituting CPI with GOVE and running simple regression \rightarrow improved R-squared ($=0.48$)
 - Adding Political Stability (POLS) as a control variable \rightarrow improved R-squared further ($=0.63$)

This produced the final regression model of:

$$smr = 40.6593308373 - 17.7445762749*gove + 4.93150776104*pols$$

Dependent Variable: SMR Method: Panel Least Squares Date: 05/15/22 Time: 19:40 Sample: 2000 2019 Periods included: 20 Cross-sections included: 3 Total panel (balanced) observations: 60				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	40.65933	2.806538	14.48736	0.0000
GOVE	-17.74458	1.790551	-9.910122	0.0000
POLS	4.931508	0.995576	4.953421	0.0000
R-squared	0.639123	Mean dependent var	15.86333	
Adjusted R-squared	0.626460	S.D. dependent var	4.827533	
S.E. of regression	2.950486	Akaike info criterion	5.050524	
Sum squared resid	496.2061	Schwarz criterion	5.155241	
Log likelihood	-148.5157	Hannan-Quinn criter.	5.091484	
F-statistic	50.47421	Durbin-Watson stat	0.563316	
Prob(F-statistic)	0.000000			

Coefficient Correlation & Residual Normality Tests were conducted on both models and showed that the models and the R-squared values are reliable.

\rightarrow R-squared of SMR-HDI Model > R-squared of SMR-GOVE Model

Conclusion

The study showed that the relationship between Economic Development and Suicide is stronger than that between Suicide and Corruption. HDI had a negative relationship with SMR, which implies that with improved quality of life, i.e. Human Development, suicide would decrease. And GOVE had a negative relationship with SMR, meaning that with improved quality of governance, i.e. low corruption, suicide would decrease. The paper adds to the literature in regards to the significance of the effect of corruption on suicide rates found in the results. Further studies should be made to improve the understanding of the relationship and the extent of the effect of corruption on general wellbeing. Furthermore, the studied relationships were tested in highly developed economies. Thus, further research on how these relationships behave in less developed and developing economies would be required to be able to generalize the findings of the study.

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