

The impact of socio-economic factors on suicide rates among countries

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Introduction

Research question:

How do country's socio-economic factors influence the suicide rate?

Socio-economic factors to be considered:

1. Income per capita, \$
2. The employment rate, % (>15 years)
3. Murders per 100000
4. Internet users per 100

Hypotheses:

1. income per capita had a negative effect on suicide rates in 2005;
2. the higher the employment rate, the higher the suicide rate;
3. the number of murders had a positive effect on the number of suicides.

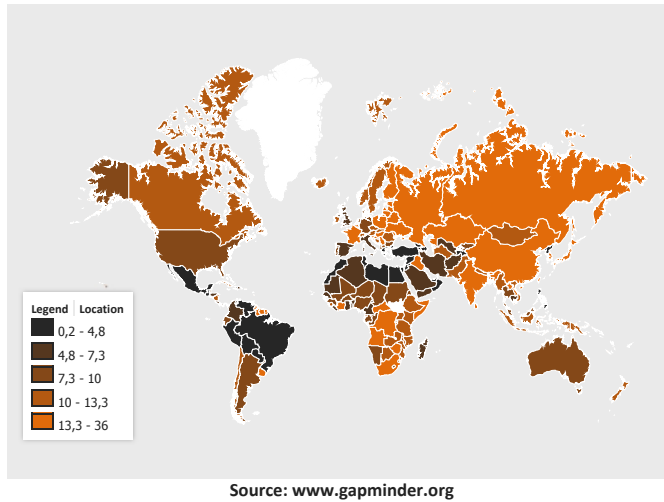
Results

1. 1\$ increase in income per capita would lead to the rise in suicides by 0,0042%
2. growth in the number of internet users could result in decline of suicides by 4,9%
3. 1% increase of the number of murders determined 0,152% rise in suicides
4. increase in employment by 1%, the number of suicides would boost by 1.2%

References (some of them)

1. Piérarda, E., & Grootendorst, P. (7 March 2014 r.). Do downturns cause desperation? The effect of economic conditions on suicide rates in Canada. *Applied Economics*, стр. 1081–1092.
2. Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S., & Montgomery, P. (30 October 2013 r.). The Power of the Web: A Systematic Review of Studies of the Influence of the Internet on Self-Harm and Suicide in Young People. *PLoS ONE*, 8 (10), стр. 1-6.
3. Ruhm, C. J. (May 2000 r.). Are recessions good for your health? *Quarterly Journal of Economics*, стр. 617-650.

Suicides per 100'000 in 2005 year



Methodology

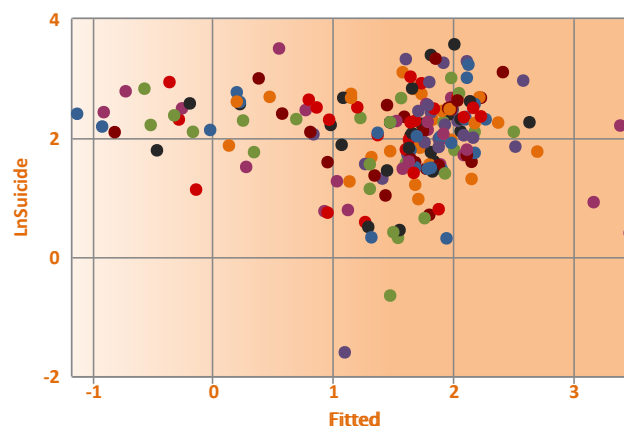
OLS method

1. $\text{suicide}_i = \beta_0 + \beta_1 \cdot \text{income}_i + \beta_2 \cdot \text{employ}_i + \beta_3 \cdot \text{inet}_i + \beta_4 \cdot \text{murder}_i + \varepsilon_i$
2. $\log(\text{suicide}_i) = \beta_0 + \beta_1 \cdot \text{income}_i + \beta_2 \cdot \text{employ}_i + \beta_3 \cdot \text{inet}_i + \beta_4 \cdot \text{murder}_i + \varepsilon_i$
3. $\log(\text{suicide}_i) = \beta_0 + \beta_1 \cdot \text{income}_i + \beta_2 \cdot \text{employ}_i + \beta_3 \cdot \text{inet}_i + \beta_4 \cdot \log(\text{murder}_i) + \varepsilon_i$

Gauss-Markov assumptions

- o heteroskedasticity;
- o autocorrelation;
- o endogeneity;
- o multicollinearity.

Results



Data

Initial sample: 198 countries

After the analysis of outliers...

Final sample: 129 countries

Source: www.gapminder.org

Descriptive Statistics

		2005
Employment rate	Sum(Mean)	59,32
	Sum(Std. Dev.)	11,68
	Sum(Maximum)	84,30
	Sum(Minimum)	33,20
Income per capita	Sum(Mean)	4 840,41
	Sum(Std. Dev.)	4 678,34
	Sum(Maximum)	23 004,00
	Sum(Minimum)	330,00
Internet users	Sum(Mean)	3,89
	Sum(Std. Dev.)	4,21
	Sum(Maximum)	15,46
	Sum(Minimum)	0,00
Murders	Sum(Mean)	14,51
	Sum(Std. Dev.)	13,06
	Sum(Maximum)	62,41
	Sum(Minimum)	0,62
Suicides	Sum(Mean)	9,58
	Sum(Std. Dev.)	6,17
	Sum(Maximum)	29,86
	Sum(Minimum)	0,20

Limitations

1. The impact of socio-economic factors on suicides were considered only for 2005 year. The time range must be expanded.
2. Not all countries were investigated. The more observations we will have, the more effective estimations we will get.