

## Relationship between economic and well-being measures and suicide rate in Europe

In 2015 out of the 5 million deaths in the European Union, 1.2% were due to intentional self-harm. There are big differences between the European countries. In 2015 Lithuania had the highest suicide rate among the EU Member States and Greece had the lowest. In our study the average suicide rate in the EU countries was about 13 deaths per 100 000 inhabitants. In most of the EU countries suicides became rarer in 2011-2015.

According to WHO only 60 countries have good-quality vital registration data on suicide. That is why, we had difficulties to find good data. That is why we focused only on Europe. Unfortunately we didn't get data from Ukraine, Belarus or the former Yugoslavian countries.

### Suicides in Europe

The situation is the worst in Eastern Europe.(Pic 1.2.) Many of the poorest European countries are located in Eastern Europe. Only in Romania and Bulgaria the suicide rate is below the EU average.

Finland has quite high rate compared to other countries in Northern Europe, but our situation has become better. (Pic 1.3.) Iceland had a big jump in suicide rate in 2013 and it could be result from the financial crisis in 2008-2011.

In Mediterranean Europe the situation has stayed stable during the past years, but there is a lot of variation between the countries. (Pic 1.4.). Greece has the lowest suicide rate and Slovenia has almost the highest in Europe.

In almost all Western European countries suicide rates are below the European average. (Pic 1.5.) The United Kingdom has almost the lowest suicide rate in Europe. Belgium is an exception in Western Europe.

### Well-being and economic factors behind suicides

Many things will have an influence on the suicide of an individual and our study will definitely not find all of them. We were still wondering, if for example financial situation or economic inequality could have an impact on the suicide rate. Our goal is to explain variation in our response variable suicide rate. We want to find out the strength of the relationship between the suicide rate and wellbeing and economic variables.

When suicide rate has been decreasing, employment rate has been increasing in EU in past years. (Pic 2.1.) If the worst comes to the worst, unemployment can lead to depression or suicide. The Average of the General Government Gross Debt has been rising clearly 2011 - 2013. This was result from The European debt crisis. We expect that the General Government Gross Debt to GDP will hardly have a big influence on suicide rate.

The at-risk-of-poverty rate has been falling and rising in past years. (Pic 2.2.) The youth-down-and-out indicator measures the share of the population aged 15 to 29 who is not employed and not involved in education or training. The indicator has been increasing, but 2013 it started finally to decrease. Small values mean a better situation than big values in both indicators.

The Income quintile share ratio measures the ratio of total income received by the 20 % of the population with the highest income to that received by the 20 % of the population with the lowest income. Big values mean strong inequality. The Income quintile share ratio and share of at least upper secondary educational attainment have been increasing in past years. (Pic 2.3.)

In our study the Income quintile share ratio, the share of at least upper secondary educational attainment, at-risk-of-poverty rate for pensioners, the youth-down-and-out indicator, employment rate in age group 20-64 and General Government Gross Debt to GDP belong to our explanatory variables

## Results

We created a model that can predict the suicide rate. We didn't have a lot of data, but we anyway wanted to see what we could find out.

First we tried to predict the suicide rate. (Pic 3.1.) The result was moderate. After this we tried to find out the strength of the relationships between our explanatory variables and suicide rate.(Pic 3.2.) It turned out that the at-risk-of-poverty rate for pensioners indicator and General Government Gross Debt to GDP had a small impact on suicide rate. (Their values are near zero). The employment rate, the youth-down-and-out indicator and the share of at least upper secondary educational attainment had a negative influence on suicide rate and only the income quintile share ratio had a positive influence.

It was very surprising that the youth-down-and-out indicator had a negative impact on suicide rate. It means when the share of jobless youth increases, the suicide rate decreases.