# Health Expenditure and Suicide Rates

## Team:

* Justin Field
* Sherry Javed
* Shona Critch

## Description / Outline

This project will use World Bank, World Health Organisation (WHO), and International Monetary Fund (IMF) data to investigate health expenditure per capita and suicide rates (per 100,000) across a selection of countries.

Along with a descriptive analysis of each dataset, we will run a linear regression to determine the strength of any relationship between health expenditure per capita (IV) and suicide rates (DV). In addition, we will display a heat map showing health expenditure by country and suicide rate.

The data will be merged by country and measurement years, for approximately 10 years and across a myriad of countries. This will be up to and including the most recently reported year that matches both datasets.

Further, complete dataset will be split into two subsets, based on IMF classification on whether they are developed or developing economies. We will then conduct the above analyses on these subsets, to ascertain if there is any difference in effect on suicide rates by health expenditure, between the subsets.

## What do we think we will find?

We think that there will be a correlation between how much a country spends on health per capita and its suicide rate. We think that suicide rate is influenced by equity of access to appropriate health services, in particular mental health services, and that health expenditure is an indicator of the likelihood that a country has in place appropriate and accessible health services to meet the needs of its population.

## Dataset sources:

World Bank: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD>

World Health Organisation: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/suicide-mortality-rate-(per-100-000-population)>

International Monetary Fund: <https://www.imf.org/external/pubs/ft/weo/2020/01/weodata/groups.htm>

## API source:

Google Maps : <https://developers.google.com/maps/documentation>

## Task plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | What | Who | When by | Dependencies | Status |
| 1 | Brainstorm ideas for project and identify data sets | All | Tues 29th Sept | None | Complete |
| 2 | Create repo in GitHub and add team as contributors | Justin | Tues 29th Sept | None | Complete |
| 3 | Write up project proposal draft for review of team and once complete submission to Oscar | Shona | Thurs 1st Oct | Step 1 | Complete |
| 4 | Allocation of Tasks | Justin  Input from all | Thurs 1st Oct | Step 1 | Complete |
| 5 | Extract World Bank health expenditure data | Sherry | Thurs 1st Oct | Step 1 | Complete |
| 6 | Extract World Health Organisation data | Justin | Thurs 1st Oct | Step 1 | Complete |
| 7 | Extract International Monetary Fund data | Justin | Thurs 1st Oct | Step 1 | Complete |
| 6 | Check google maps API documentation for country level mapping endpoint | Shona | Thurs 1st Oct | None | On track |
| 7 | Determine dependencies for coding in jupyter notebook | All | Thurs 1st Oct | Step 3 | On track |
| 8 | Compare data sets to determine years of alignment | Sherry | Thurs 1st Oct | Steps 5 and 6 | Complete |
| 9 | Merge datasets by year and country name | Sherry | Thurs 1st Oct | Step 10 | Complete |
| 10 | Clean data - remove countries without full range of year data in both variables | Justin | Thurs 1st Oct | Step 11 |  |
| 11 | Run descriptive analysis and check for outliers, plot descriptives | Shona | Sat 3rd Oct | Step 12 |  |
| 12 | Run linear regression and scatter plot | Justin | Tues 6th Oct | Step 12 |  |
| 13 | Run Hypothesis Testing? | Shona | Tues 6th Oct | Step 12 |  |
| 14 | Get google maps country co-ordinates from API | Sherry | Tues 6th Oct | Step 12 |  |
| 15 | Plot google-map heat map with descriptive median Health Expenditure for heat map and median suicide rate to display in country token | Sherry | Tues 6th Oct | Steps 8 and 14 |  |
| 16 | Write analysis of findings | All | Thurs 8th Oct | All steps above |  |
| 17 | Present to class | All | Sat 10th Oct | All steps above |  |