Indicators in World Development

Project 2 write-up

**Questions (per development indicator)**: Our goal was to construct a visualization that will help the viewer answer questions regarding how countries are developing over time and how specific countries of interest fit in that trend. We wanted to support:

* Comparisons between countries: In year Y was country C1 doing better or worse than country C2? E.g. does the US currently use more or less renewable energy than Russia?
* Comparisons over time: Did country C see any improvement in the past years? How does this change compare to the overall trend in the world? How does it compare to the change in country C2? E.g. did people in Norwegia start using cellular phones sooner/faster than people in China
* Distribution: Do the majority of the countries lie within a small range of values for a given indicator? E.g. do most countries provide basic sanitation services to 100% of their population?
* Regional comparisons: e.g. how does Africa compare to Europe in a given indicator in a given year?

**Why the indicators truly represent development:**

We have chosen our development indicators from a large set of indicators through 3 steps[[1]](#footnote-1):

1. Filtering the indicators for which we have enough data to make meaningful comparisons over time and countries.
2. Finding the principal components (through PCA) along which the data varies most (enough components to account for ~90% of the variance) and choosing the indicators that are the most important (projection along components weighted with eigenvalues) within that space.
3. Handpicking indicators that are interesting and do not rely heavily on the land area/population of a country.

**Interactivity:**

* Map interactivity: The choropleth map supports zooming and view changes in order to compare countries within a specific region or zoom on a country of interest.
* Time slider: A time slider under the choropleth map allows the viewer to make general comparisons over time for a specific country or region.
* Country selection: Selecting a country draws a line in the heat-map that allows the viewer to see a clear change of the indicator value over time and compare it to the change in the world.
* Changing indicators: The viewer can switch between multiple development indicators to assess the development based on.

**What the viewer can conclude:**

Based on this visualization the viewer can answer very specific question about countries he/she is interested in. The viewer can also assess the development of a country in a more meaningful way, by comparing it to the trend in the world or a region, and seeing progress in time. Both, high level trends and specific values can be extracted through this visualization.

**How the class content helped:**

We came to this final design solution by writing down the alphas that matter and thinking of potential confusers or hallucinators. We budget our color fairly by using a model similar to the charged, repelling data points. The color gradient is based on the principle of luminance variation (in order to make ordinal comparisons) with varying hue principle discussed in class. Small decisions were based on theories we covered in class such as the crispening effect, ranked perception accuracy, etc. The project was done using both d3 and react. Our team believes the class provided all the prerequisites for completing this project.

1. The Jupyter Notebooks used for data preprocessing are in the repository [↑](#footnote-ref-1)