Submission for the WSD2015 Data Visualization Challenge.

Piero Savastano (pieroit)

Live demo

Abstract

The MDGs website provides exaustive documentation about the indicators and their importance for development. Despite this information being accurate, I had difficulties obtaining the big picture, a visual overview on how the data was distributed in space and time. So I decided to make space and time the primary elements of the visualization, with two user interface features: 1) a world map and 2) a timeline slider.

Problem and Motivation

As a person non informed about the details of the MDGs, I studied the website to get an idea of the indicators and their meaning. While being amazed by the precision of the descriptions (mdgs.un.org) and the quality of the data (data.un.org), I had a frustrating experience trying to put all the pieces together. It takes some time to understand how the MDGs are organized and it is difficult to explore the data for a non-analytical person. As a consequence, most of the informative content was somehow invisible.
I decided on purpose to deviate from answering a specific developmental policy question, opting for a divulgative approach. My goal was to provide an holistic view on which are the indicators, how are they organized, how they evolved over time, and in what region of the world. This is very useful in my opinion for three reasons:
- anybody can get an overall idea of the MDGs status and stimulate reflection and question answering.
- development practitioners can easily communicate about the issues they are working on to the ouside world.
- interested persons can get interested to the development debate without having a degree in international relations and economics.

Approaches

A good work was already done with the indicators tree, so the idea was simply to put a choropleth map behind it, with the ability to navigate the Series, click one and see both how the numbers are distributed spatially and temporally.
The visualization condenses three capabilities:
- Choice of a series among the ones present in the hierarchy Goal → Target → Indicator. I included small icons to both characterize the Goals, and more importantly to give a fast visual hint on the dichotomies Rural/Urban and Men/Women.
- Explore the evolution of the series values over time. An animations starts as soon as a series is clicked, and it is possible to pick, pause, play and repeat it any number of times with a timeline slider.
- Explore the geo-political distribution of the values. There are little buttons in the lower right that allow zooming on a specific MDG region.

The visualization serves on its purpose of letting an user comprehend the overall trend of the

indicators and their spatial distribution, as well the Goal → Target → Indicator hierarchy. The missing (and rather necessary) part is the possibility to drill down and compare the series in each country or across countries. I included buttons to zoom the map instead of a conventional panning and zooming system (leaflet.js style) because I wanted the map to be clicked and display plots. With more time I would have implemented two more features: 1) clicking on a single country one would see a line plot of the chosen series over time, and the possibility to add lines referring to other Series to visualize the interaction between development targets in this specific country. 2) dragging one country on another, one could see a two-line plot – one line per country, to visualize how a country is doing respect one another.
I regret to not have utilized Linked Data (both from the UN endpoint and from dbPedia), for example to gather contextual information about countries and embed links to in-depth resources. This also would require more time and a better planned architecture.

Tools Utilized

The visualization is an HTML5 application relying on open source software libraries: jQuery, d3, simple-statistics, font-awesome. Extensive comments are embedded into the code itself (see *index.js*).

- Backend
As a first step I used a python script to load the provided dataset into a mySQL database. The data were already clean and well organized (no duplicates, no typos). I wrote a PHP script that would serve as an AJAX endpoint for the visualization, implementing methods to retrieve the list of series or a specific series' values.

- Frontend
The Javascript code was built with the help of jQuery to bind events on the page. The map, animations and part of the data manipulation are done through d3. Some statistics are made with simple-sttistics, mainly to attribute a color to a series (see function *isPositiveIndicator* in *index.js*).

Results

The visualization gives an holistic view on the MDGs, stimulating practitioners on their everyday work and introducing interested people to the UN practices. It is a clear testimonial of the power of data gathering, elaboration and visualization to support the work of humanitarian organizations, and a confirmation of the utility in setting measurable development goals on a global level. I hope the tool will serve as prototype for a more visual and interactive presentation of MDGs data, especially as a divulgative asset.

The title is “We'll be” because once obtained the aerial view on the indicators, I noticed their general improvement over time and felt optimistic about the future of our planet. “We” suggests that the world is one community, “will” that there is a tomorrow, and “be” that we will live it.