Homework week 7 - Design justifications & process (Kim de Bie, 11077379)

Goals of visualization and theoretical background

The goal of the visualization is to allow the user to explore different statistics that are frequently used in macroeconomics. Moreover, the statistics used are especially relevant for institutional economic theory, which is becoming a very prominent brand of economics across all social sciences. It allows the user to explore (very, very tentatively) whether the relationships between institutions and economics as portrayed by scholars such as Douglas North hold. As such, the visualization is accessible for the general public, but especially interesting for students of institutional economic theory.

Choice of variables

The Gini Index and the Polity IV Index are both widely-used variables to assess institutional strength and quality. Firstly, the Gini Index, which indicates how spread wealth is throughout society, indicates (to an extent) how strong state institutions are: if the state would not have enough power to distribute wealth somewhat equally, it is quite likely that its institutions are also too weak to facilitate economic growth. Secondly, the Polity IV Index gives an indication of the kind of institutions in a country: institutional economists argue that democratic institutions are more conducive of economic growth than strongly authoritarian systems. Nonetheless, it should be kept in mind that these indicators only give a very limited indicator of institutional strength, and are inherently problematic for various reasons discussed in the literature (but then again, this is probably the case for nearly all political-economic indicators available).

I have used GNI growth as an indicator of economic performance. Firstly, this is an indicator that is widely available (compared to other variables that indicate economic wellbeing) over the time period that I chose. I preferred growth rates over absolute figures: economic underperformance and institutional weakness are often a deep-rooted problems with causes that stem from well before the term of the incumbent government. Thus, it is not so much the case that the current government and the institutions it imposed (as expressed by the Polity IV/Gini Index) can be held responsible for a country's absolute GNI compared to other countries. Instead, it seems more likely that the current government has an influence on performance relative to the years before: does the *current* government facilitate growth?

Design choices

I chose to display the former two variables (so Gini and Polity IV) on the map. The limitation of the map is that only one value at the time can be displayed (so not Polity IV over multiple years). However, Polity IV and Gini are relatively stable over time, and the advantage of the map is that geographical distribution can be shown: how do neighboring countries perform compared to

each other? I color-coded the Gini Index on one scale – there is no objective good or bad (a perfect communist state would have a Gini score of 0 which is probably not a stimulating environment for economic growth), so this seemed most appropriate and causes the least confusion. In contrast, I chose to encode the Polity IV index as green, orange and red; the authors of this index distinguish between the 3 categories (democracy 7 to 10, anocracy -7 to 7, autocracy -7 to -10) where the first is of course better than the last.

The changes in GNI are visible as a bar graph. I did this because values are relatively easy to compare in this way, and it is generally quite easy to get an idea of the economic performance of a country over the past decade. Here, something I struggled with is deciding whether the scales of the axes should be set or not. The advantage of setting the axes is that comparisons across countries are easier; the disadvantage is that the smaller values become virtually invisible or indistinguishable (the largest values are *very* large compared to the majority of the values). Therefore, for practical reasons, I decided to let the axes fluctuate with the data domain for each country.

Interactivity

The user can switch between the two variables using the drop-down menu on the right. If they select a variable, a description of the variable appears below the map, which explains the variable and encourages the user to click on countries on the map. If they do this, the GNI data appears in a bar chart below. For all data values (so both those linked to countries on the map and those linked to bars) hovering over the linked element will display the corresponding value. This allows the user to explore exact rather than approximate data values, which are otherwise not encoded (on the map) or very difficult to see (on the bar graph).

Overall

I did a few things to ensure that the overall visualization is attractive and understandable. Firstly, I included a quote at the top, which hopefully triggers the attention of the user and also clarifies what the visualization is about. Moreover, before the user selects a variable, I have included a textbox that tells the user how to initialize the visualization (namely by selecting a variable from the drop-down menu). Furthermore, I have played around with colors and fonts which hopefully increases attractiveness of the visualization. Nonetheless, I have aimed to keep the visualization as clean as possible. Something that I struggled with is the positioning of the two visualizations (map and graph) on the screen. If the user is looking at the map, the bar chart is probably not visible and quite a lot of scrolling is necessary. I have not really figured out how I could do this better other than zooming out very far, which decreases visibility in other ways.