

Final Project -Narrative Visualization

Link: <https://skuppan2.github.io/NarrativeVisualization/>

Source: <https://github.com/skuppan2/NarrativeVisualization>

Messaging :

The chart shows the trends of last 2 decades wage and salary growth rate. For example, regardless of male or female, the worldwide rate for wage, salary worker has been increasing for years, and now it reaches over 50%. It is known that as a country being developed well, this rate should go up, means self-employment rate should have decreased. However, while this wage, salaried worker's rate stays around 50%, some countries like the US has more than 90%. And it was similar for many developed western countries.

Thus, it was natural to think that the rate of highly developed country's WDI indicator will be higher than developing country's one. But this hypothesis wasn't correct when I checked China and Russia. I expected a 50% rate for both countries, and if there is one country higher than the other, I thought it's China over Russia. But well, Russia's plotting showed pretty much the same as the US, while China's number is just over 50%. So, I wanted to share what I found previously, and make it a narrative story so that viewers can have time to think, and hope to see other evidence and data to answer these differences. Also, I gave a feature to investigate other country's WDI data for employment rate.

Narrative Structure.

Martini Glass structure is used for this project. Three scenes added to show the World, USA and different country's line chart, the last scene in the visualization with a few controllable options that viewer can navigate different country's data, including filter data with Male, Female, or total ratio.

Visual Structure.

Three scenes in the visualization use the same template. The top area of the template tells what data viewer see, followed by a detailed message that I asked myself and wanted to show other viewers. Plotting section (SVG) comes in the middle of the page, Legend describes the line chart color information to explain the meaning of each different color in the line chart. At the bottom, I added WDI indicator explanation section in 3 scenes so when a viewer can double-check the meaning of current WDI indicator without moving to the previous page or clicking the help button when they needed.

Scenes.

Those three scenes are re-ordered as the way I wanted to tell the story. First, it shows world average data so that viewers can have a measure for the following scene. 2nd scene is for the US, which is a highly developed country and has a high rate of wage/salaried employment rate. I let viewer to navigate 3rd scene to find out the wage /salary rate between other developing and underdeveloped countries.

China is one of the most powerful countries in the 21st century, not just for the military but economically as well whereas Russia is still a powerful country for military perspective but not as much as China when it goes to the economy. Thus, my visualization shows two countries, China and Russia, one by one, but the first one has world average level of wage/salary employment rate (China) whereas second country(Russian) has a surprisingly high percentage, almost same as the US. I wanted to make the viewer think, "Hmmm, that's interesting. Yeah, now I want to know why?". If you feel the way as I hoped, I can say my narrative visualization completed the mission.

Annotations.

I added each year's rate value as d3-tooltip on each datapoint's circle, so when a viewer performs mouseover event, tooltip annotation pops up and shows what the rate for that specific year was. d3-tooltip also provides 3-digit country code in the last scene and help the viewer to distinguish between multiple line charts. I've tried to add general annotation on the chart, but there weren't significant changes I found for the wage/salary worker's average ratio. If zoomed in, the rate might drop 2~3% on a specific event; however, the overall percentage doesn't get impacted by individual activities. That said, I've decided not to add redundant and useless annotation on the chart.

Parameters.

Current visualization implementation has a few parameters internally. 1) Plotting works differently based on given 3-digit country code. 2) Gender type for data navigation. D3 code calls different APIs to get separate dataset, and also draw a chart with different color based on this selection. (orange: total, blue: male, red: female) 3) Based on current scene location, visualization page shows different option. For page 1~2, it doesn't show any option for viewer to navigate; However the page shows gender radio box and country select box in scene 3.

Triggers.

1) Page navigation link: D3 code internally keep track of current scene location and call different WDI APIs and different function with parameter to draw different chart. In World Bank WDI API side, there are three different indicator name depends on "total", "male", and "female", and JSON query in the code also need to be changed. 2) Radio box: gender radio box in scene 5 directly decide which parameter to use for data query. 3) country select list: Depends on which country viewer choose in

scene 3, it also impacts the behavior of WDI API call, and D3 code either calls world data or each country's data