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Data Visualization Effectiveness Profile

Google Forms <forms-receipts-noreply@google.com>   Tue, Feb 7, 2023 at 11:58 PM
To: yilincao@andrew.cmu.edu

Thanks for filling out Data Visualization Effectiveness Profile

Here's what was received.

Data Visualization Effectiveness Profile

Reference

Few, Stephen. "Data Visualization Effectiveness Profile," 2017, 11.
http://www.perceptualedge.com/articles/visual_business_intelligence/data_
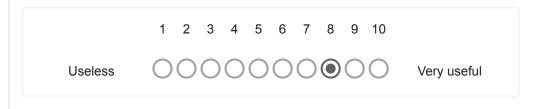visualization_effectiveness_profile.pdf

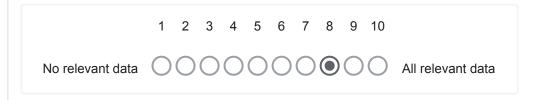Email *

yilincao@andrew.cmu.edu

Your name *

Yilin Cao

What visualization are you ranking? Provide the title and web-accessible URL. *

Unemployment and inflation rate for the US economy
https://www.economicshelp.org/wp-content/uploads/2012/11/unemployment-inflation-trade-off-78-111.png
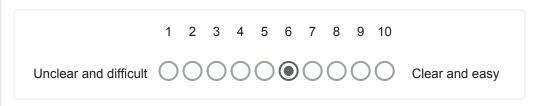
Usefulness. Is it useful for the intended audience? Does it communicate valuable information?

1 2 3 4 5 6 7 8 9 10

Useless ⓞⓞⓞⓞⓞⓞⓞ◉ⓞⓞ Very useful

Completeness. Does the visualization have everything necessary to make it understandable?

1 2 3 4 5 6 7 8 9 10

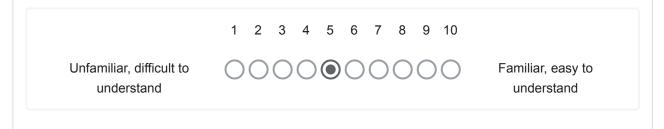No relevant data ⓞⓞⓞⓞⓞⓞⓞ◉ⓞⓞ All relevant data

Perceptibility. Can the reader understand the information with minimal effort? Is the visualization type appropriate? Does it use illogical comparisons?

1 2 3 4 5 6 7 8 9 10

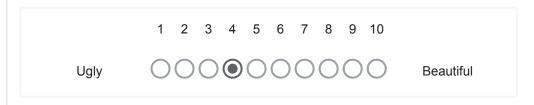Unclear and difficult ⓞⓞⓞⓞⓞ◉ⓞⓞⓞⓞ Clear and easy

Truthfulness. Is the visualization accurate, reliable and valid? Is it representing what it says it is, and in the most complete and truthful manner? Does it misrepresent the data or make comparisions that aren't correct?

1 2 3 4 5 6 7 8 9 10

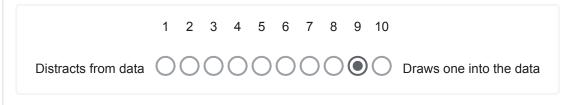Innacurate and / or invalid ⓞⓞⓞⓞⓞⓞⓞⓞⓞ◉ Accurate and valid

Intuitiveness. Is it easy to understand and clearly communicates the information? If unfamiliar, does it include easy to understand instructions on how to interpret it?

1   2   3   4   5   6   7   8   9   10

Unfamiliar, difficult to understand   ○○○○◉○○○○○   Familiar, easy to understand

Aesthetics. It is interesting / enjoyable to look at? Is it a good example of what a beautiful data visualization might look like? Is it somewhere in the middle - pleasing but otherwise not distracting to look at?

1   2   3   4   5   6   7   8   9   10

Ugly   ○○○◉○○○○○○   Beautiful

Engagement. Does it lead the audience to learn more about the topic? Does it inspire the audience to talk about the data or share it with others?

1   2   3   4   5   6   7   8   9   10

Distracts from data   ○○○○○○○○◉○   Draws one into the data

Describe your overall observations about the data visualization here. What stood out to you? What did you find worked really well? What didn't? What, if anything, would you do differently?   *

The two trendlines are the first thing that stood out to me. Using contrasting colors was a great choice which made it easy for me as an audience to differentiate between the two variables. The horizontal grid is also a good choice that stood out to me, as it makes it easier to backtrack data values farther away from the y-axis.
However, the x-axis and y-axis didn't quite work well. The x-axis labels contain unnecessary information such as month and day, making the whole picture visually unpleasant and distracting. The y-axis title is vague providing no information describing the data but only the unit of measurement. The title is too simple to convey any information. At the same time, too many small upside downs in both curves gave me a hard time to compare and interpret how

the two variables relate to each other.

If I were to make a visualization built upon the same dataset, I would label the x-axis with year intervals and change the position of labelling to the bottom instead of y=0. I would re-name the y-axis title as _Percentage Rate (%)_ and move the legend into the figure so the audience does not need to take their eyes off the lines to find the corresponding color representation. Due to the large time span, I would probably use quarterly data instead of monthly to do the comparison and find an alternative to make the transition between the two data points smoother.

Who is the primary audience for this tool? Do you think this visualization is effective for reaching that audience? Why or why not? *

Primary audience:

People who are interested in understanding the relationship between inflation and unemployment.

People who need to leverage their relationship to make relevant business decisions.

The line graph format is a common and well-understood visual representation of time-series data, and the appropriate units of x-axis and y-axis makes it easy to understand the data being presented. The use of colors, labels, and design add to the overall engagement of the graph and make it an effective tool for communicating the data to this audience. The main failure of this visualization stems from the inability to clearly communicate the relationship between unemployment and inflation.

Final thoughts: how successful what this method at evaluating the data visualization you selected? Are there measures you feel are missing or not being captured here? What would you change? Provide 1-2 recommendations (color, type of visualization, layout, etc.) *

In general, this method can be considered as a useful tool for evaluating the effectiveness of my selected data visualization. It helped me evaluate the visualization from multiple dimensions and gave me a more holistic understanding of the topic. As I evaluate it more deeply, it made me more aware of what information I want this visualization to communicate, and what this visualization lacks in terms of effective storytelling. Although the standard details of some criteria seems to be overlapping, it is still able to provide me a more complete picture on the redesign process of the visualization.

I don't feel any missing measures that needed to be captured at this point.

I would redesign the visualization by creating the shaded gray background on when the United States is in recession and possibly extend the timeline to current years.

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