BEMM461 – Assignment 1
Visualization Critique Presentation

Video Link : https://youtu.be/TQsp4jHKfv4

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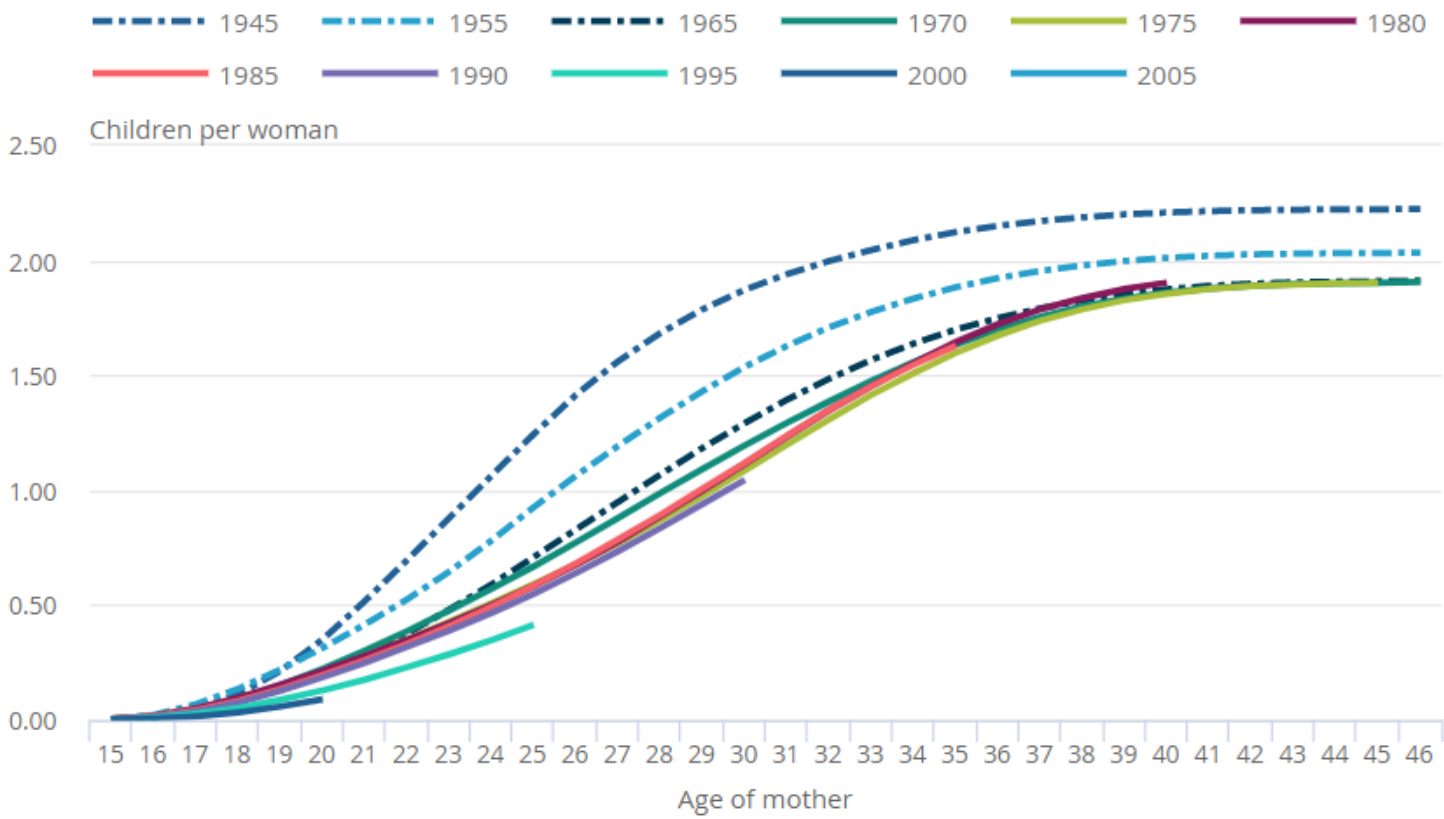
Objectives

1. To choose an existing data visualization and identify its pros and cons.
2. Verify Tufte’s measures of effectiveness to visualization on the chosen visualization.
3. Apply Norman’s four fundamental principles of human centered design to analyze the visualization.
4. Rectify the areas of improvement and come up with an alternative visualization by applying the data visualization concepts.

Figure 1: More recent birth cohorts have lower fertility in their 20s

Average achieved family size by age, UK, 1945 to 2005 birth cohorts



Source: Office for National Statistics – Birth registration and notification data, National Records of Scotland, and Northern Ireland Statistics and Research Agency – Birth registration data

https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/methodologies/nationalpopulationprojectionsfertilityassumptions2020basedinterim

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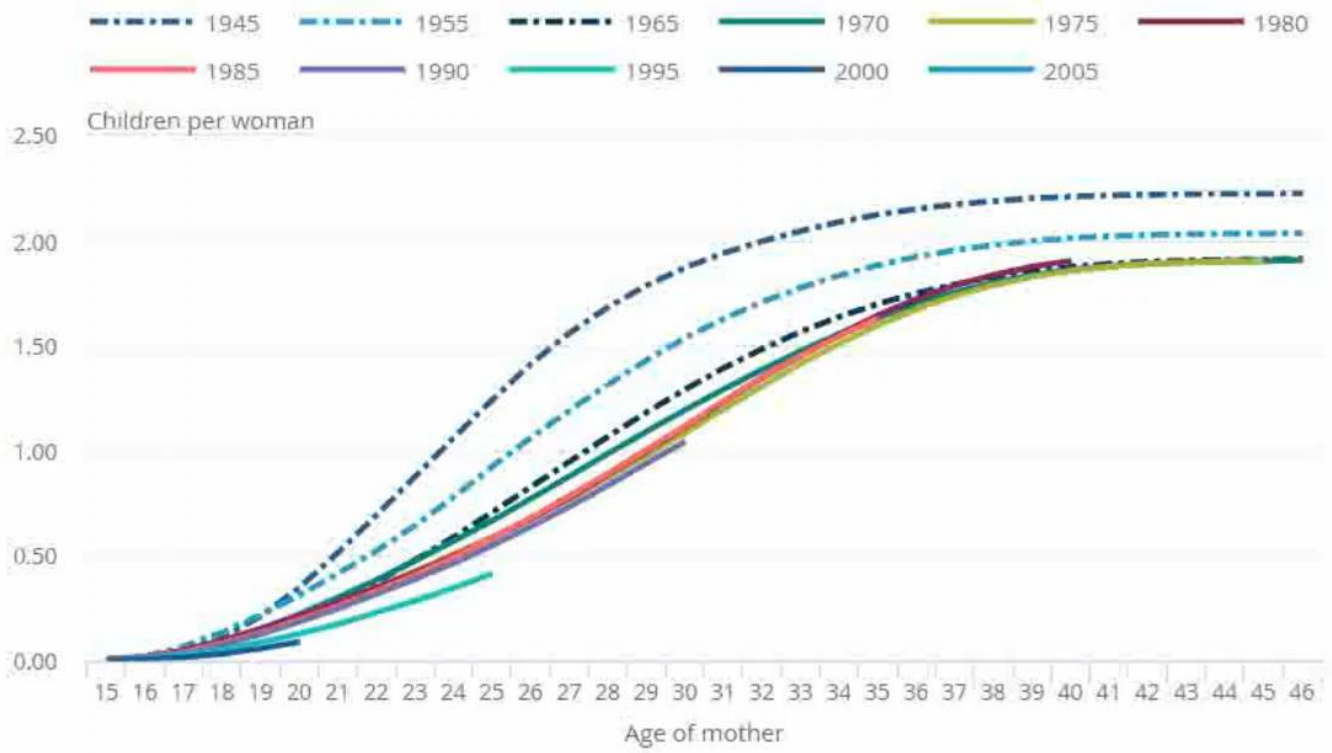

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- Selection of Graph

✓Choice of line graph over bar graph to make the visualization look readable.

- Popups of fertility rate by age for different years are provided.

- Use of color to differentiate data over the years for better understanding.

Areas of Improvement

- The story the visualization tells cannot be understood without reading the article.
- Usage of both dotted and solid lines.
- Selection of scale on both axes.
- Bold text – diverting attention from graph.

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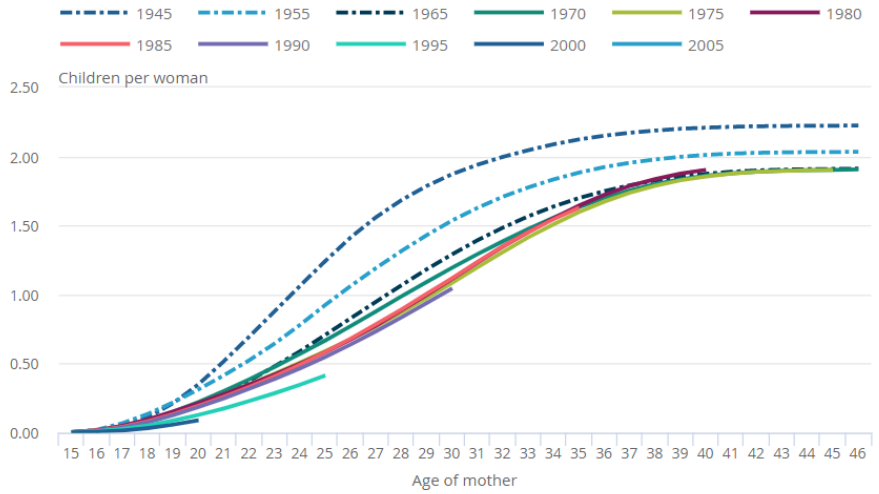

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Using Tufte's measures of effectives to visualization for analysis (Tufte, E. R. (2001))

Parameter	Does the chosen data Visualization comply with the theory?
Data Ink ratio (should be maximum).	Maximum ink is not used to represent the graphic instead used on axes and headings.
Data Density (should be high).	Maximum area of the graph is occupied by axes, headings and source.
Measuring Misrepresentation (Lie Factor - Should be close to 1).	The data is represented as such without discrepancies making lie factor close to 1.
Chart junk (Should be minimum).	The bold texts(headings and source) contribute to the chart junk.

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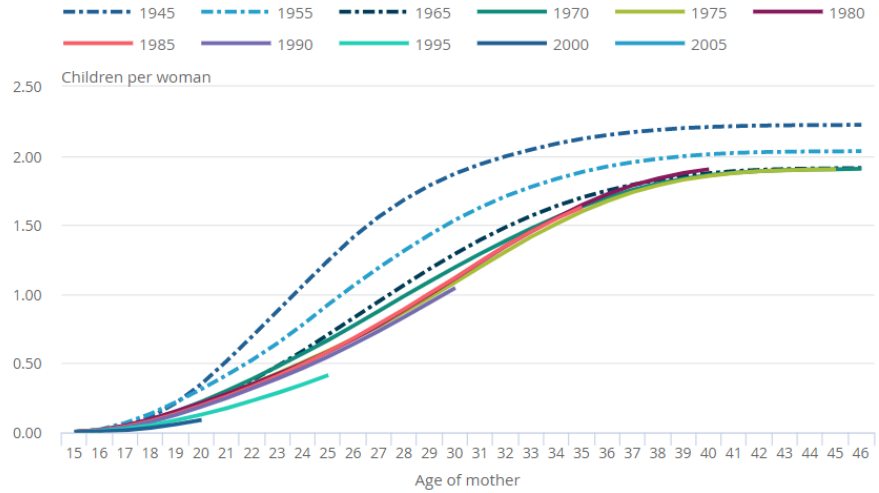

Source: Office for National Statistics – Birth registration and notification data, National Records of Scotland, and Northern Ireland Statistics and Research Agency – Birth registration data

Using Norman's four fundamental principles of human-centered design for analysis (Norman, D. (2019, August 1))

1. Understand and Address the Core Problems.
2. Be People-Centered.
3. Use an Activity-Centered Systems Approach.
4. Use Rapid Iterations of Prototyping and Testing.

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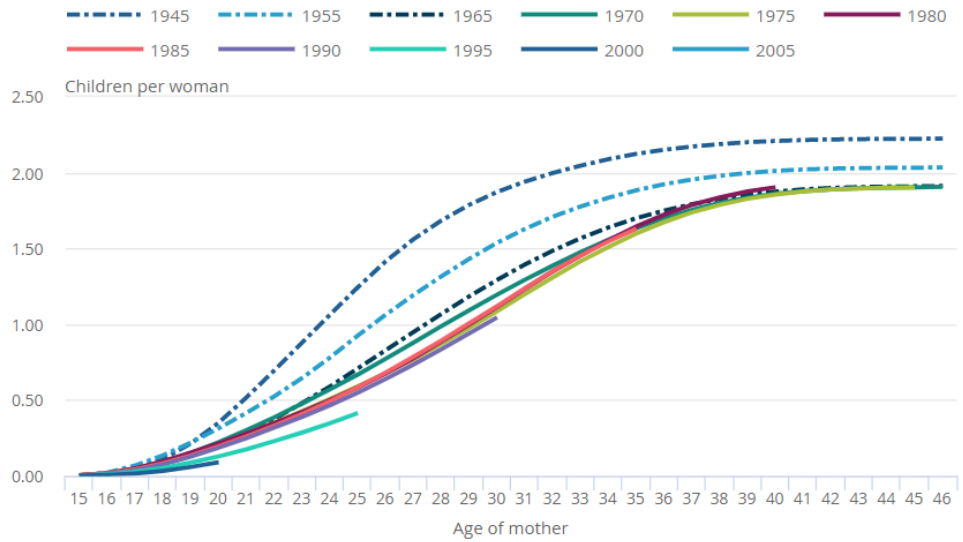

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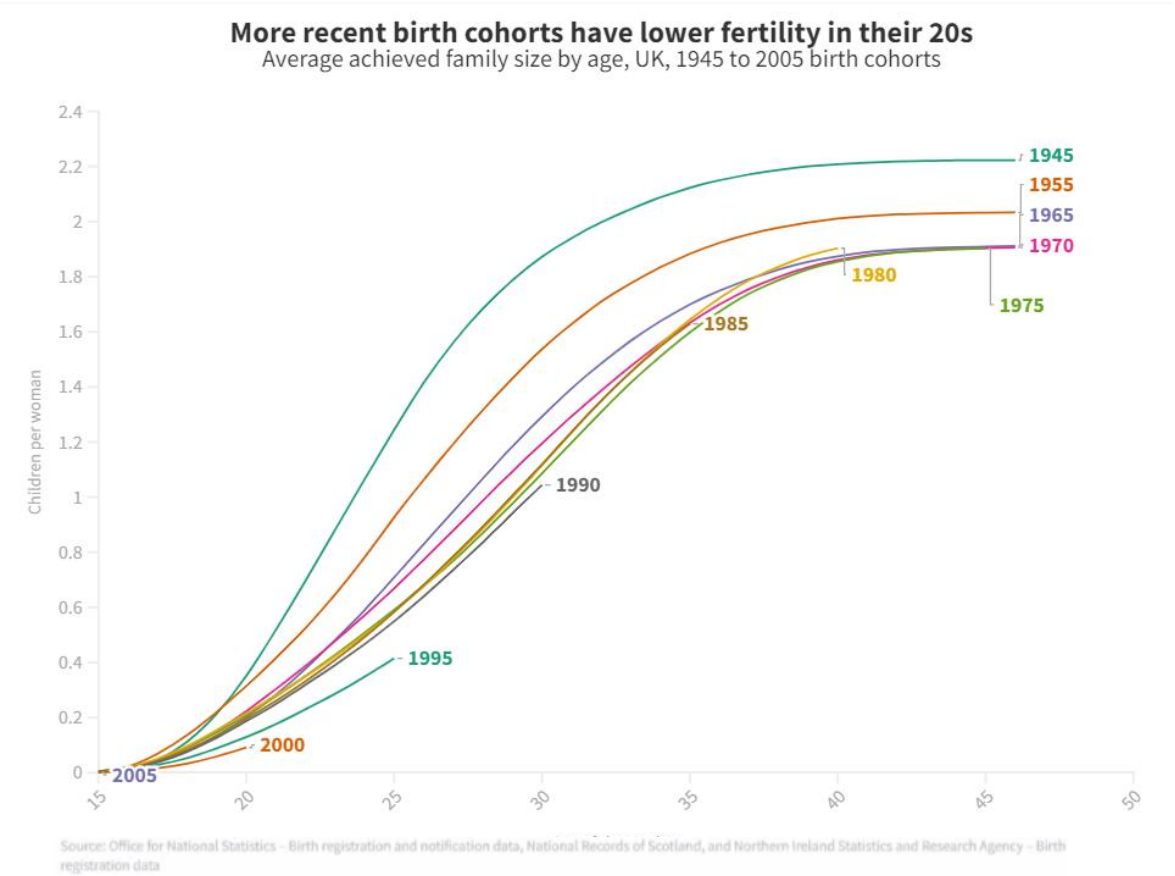
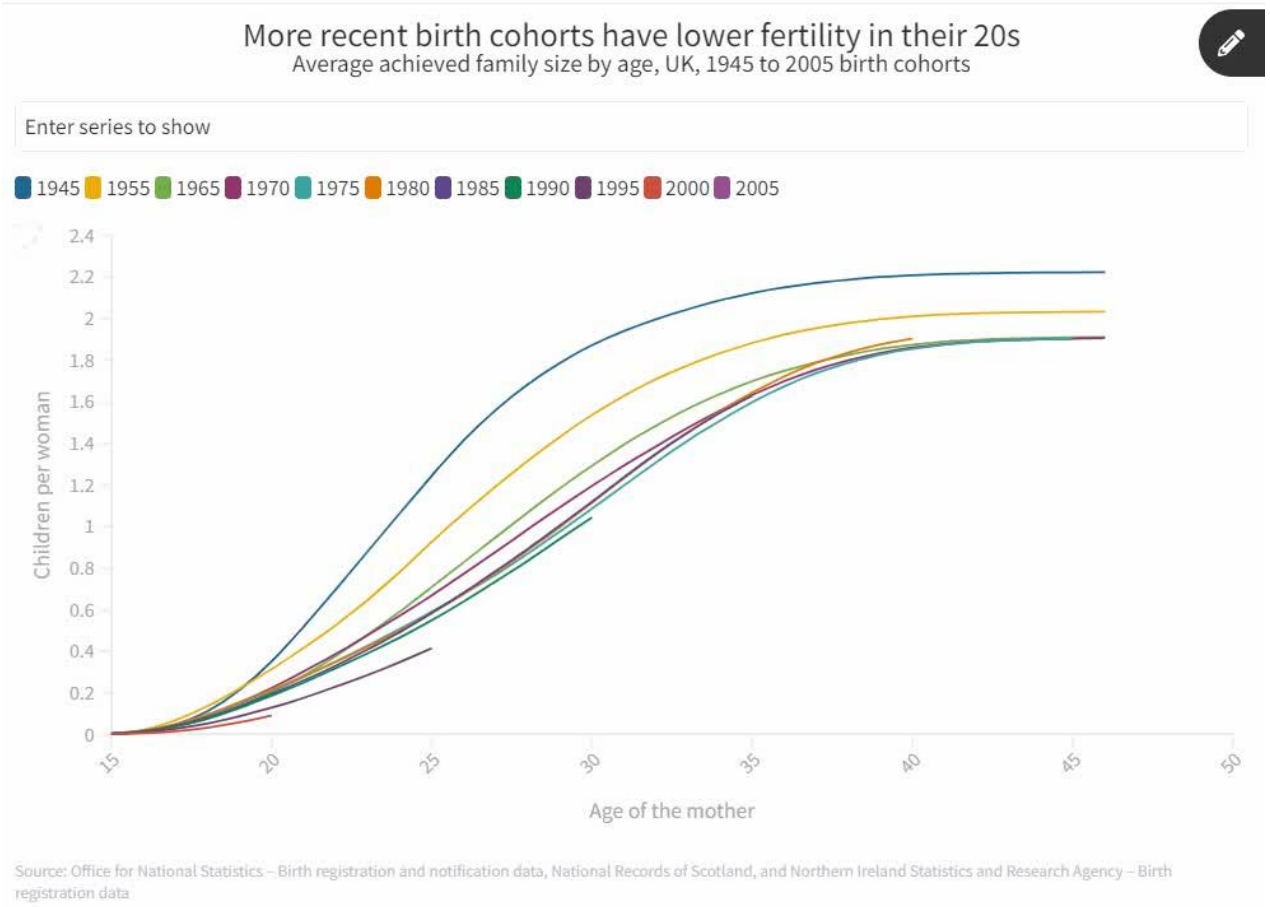
Improved Visualization





Conclusion

- Critiqued on a data visualization – found out the pros and cons.
- Found the areas of improvement
- Compared the visualization with Tufte's measures for effective visualization.
- Used Norman's four fundamental principles for human-centered design to analyze the visualization.
- Created alternative visualization by understanding of data visualization concepts.

References

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