CS 571 - Data Visualization & Exploration

Visualization Critique

Instructor: Hamza Elhamdadi

UMassAmherst

Upcoming Dates

Apr 11: Homework 3 and Project Milestone (Due at 11:59pm Eastern)

Quiz 5 available at 3pm today (due Apr 14)

Homework 4 released Apr 14 (due Apr 28)

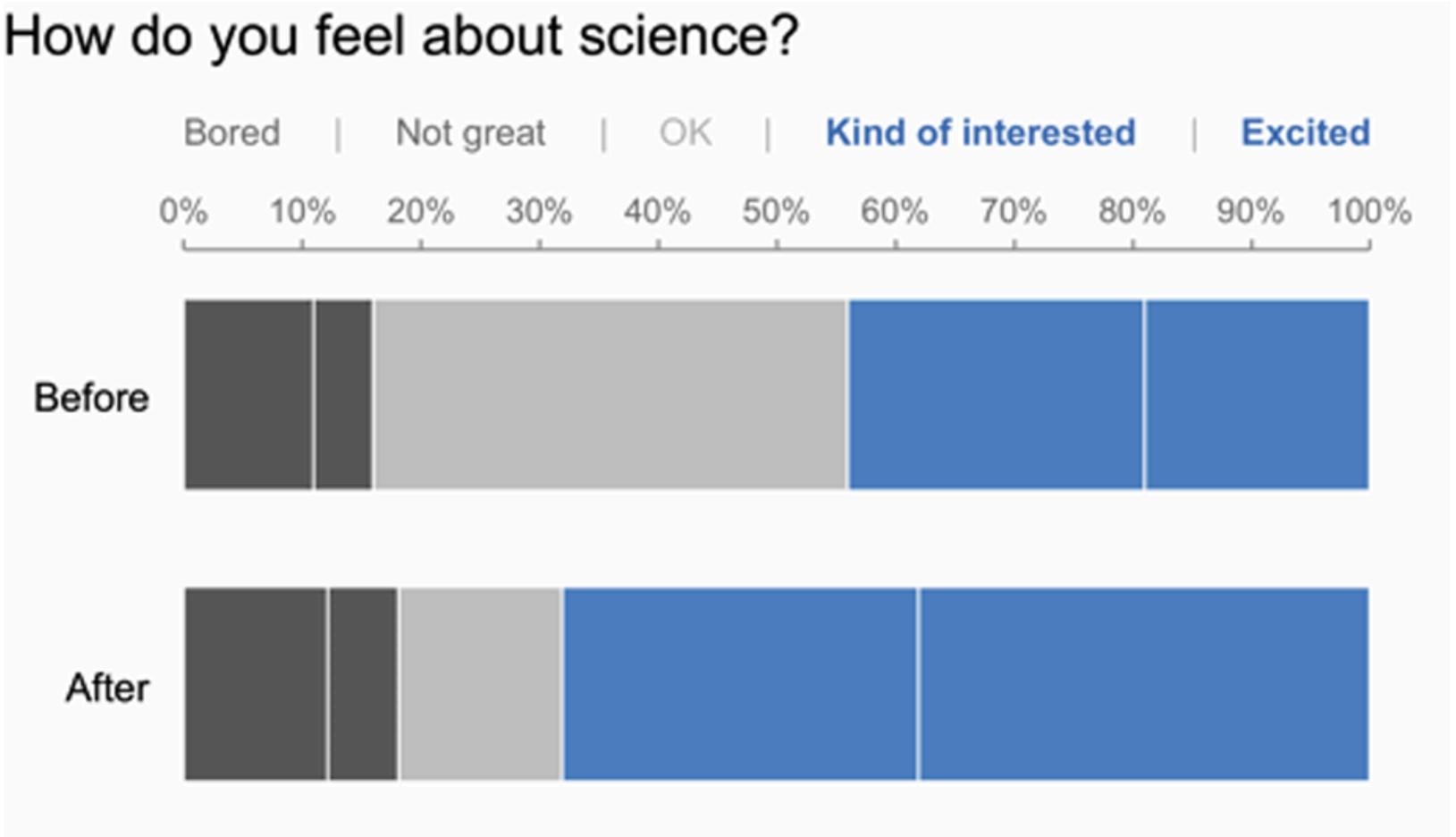
How to Critique a Visualization

Step 1: Identify the Data, Tasks / Intentions

For example:

- If the data is quantitative and time-series:
  - the task/intention may be to discover how the trend changes over time
- If the data is quantitative and categorical (binary)
  - the task/intention may be to compare the distributions of the two categories

Step 1: Identify the Data, Tasks / Intentions



Step 2: Identify Marks and Channels

- A mark identifies the existence of an item
  - points, lines, areas
- Channels encode the magnitude of an attribute associated with the item
  - position, size, hue, saturation, etc.

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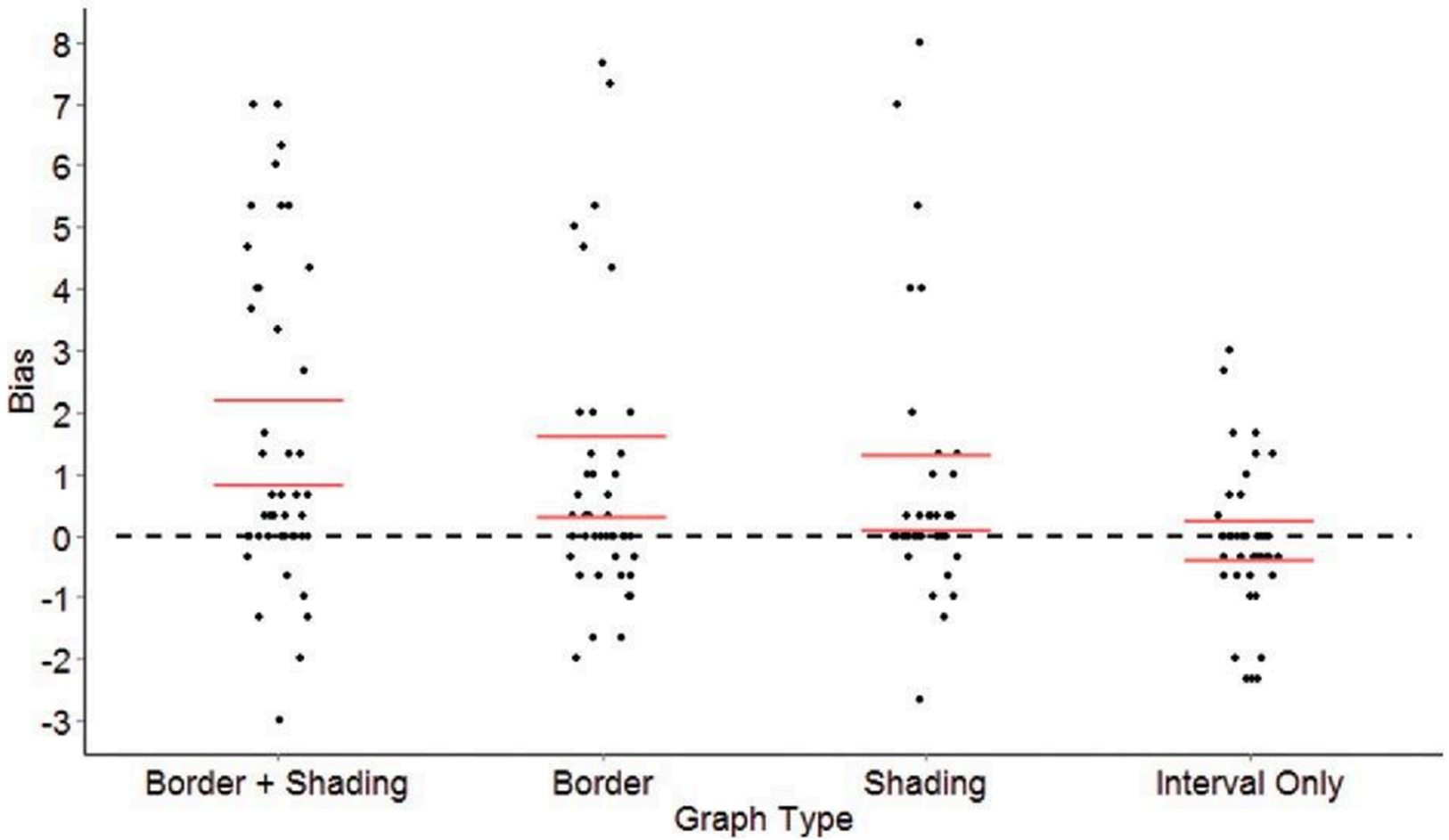

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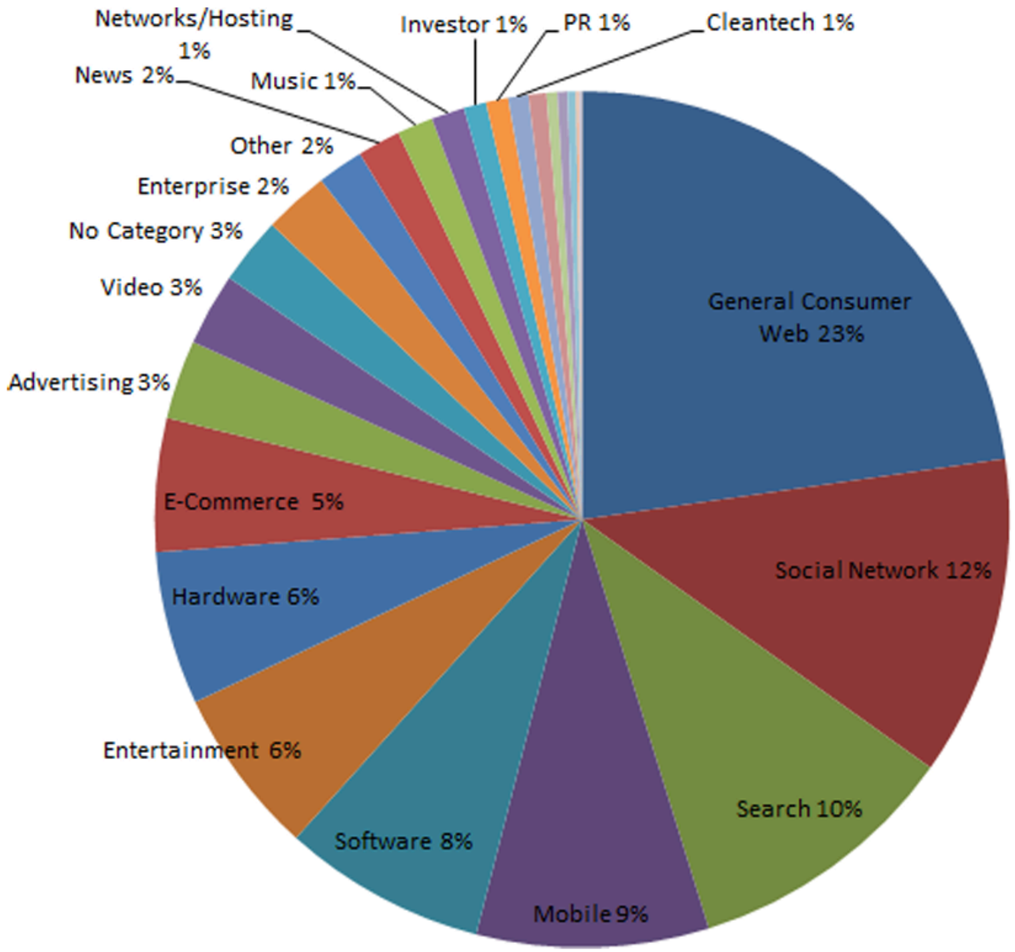
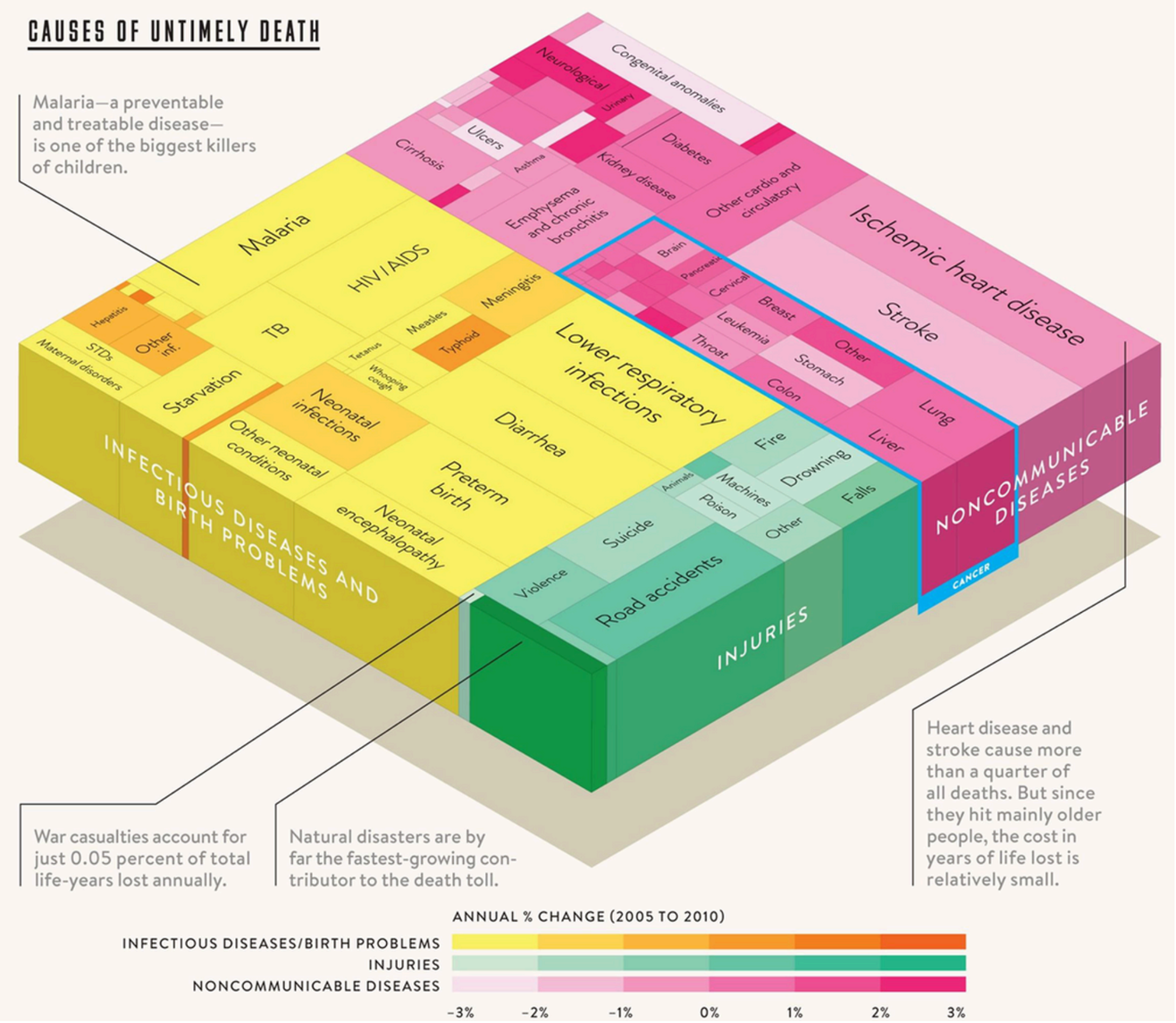


Share of coverage on TechCrunch

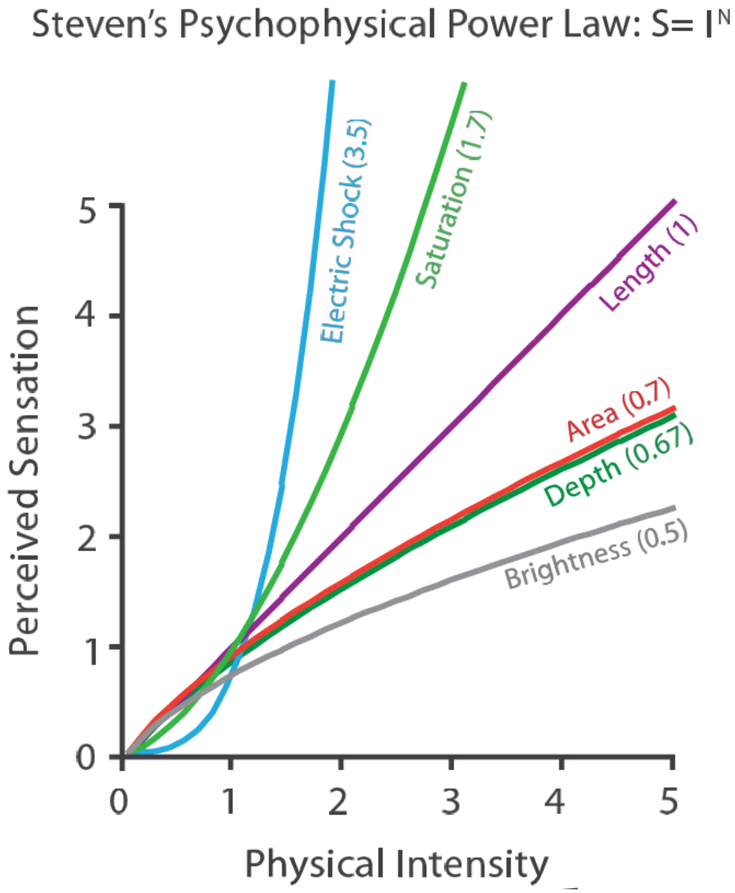
Cole Nussbaumer

Step 2: Identify Marks and Channels



Step 3: Is the Effectiveness Principle Followed?

- Does the visualization use the best visual channel available for the most important aspect of the data?
- Are the visual channels appropriate?



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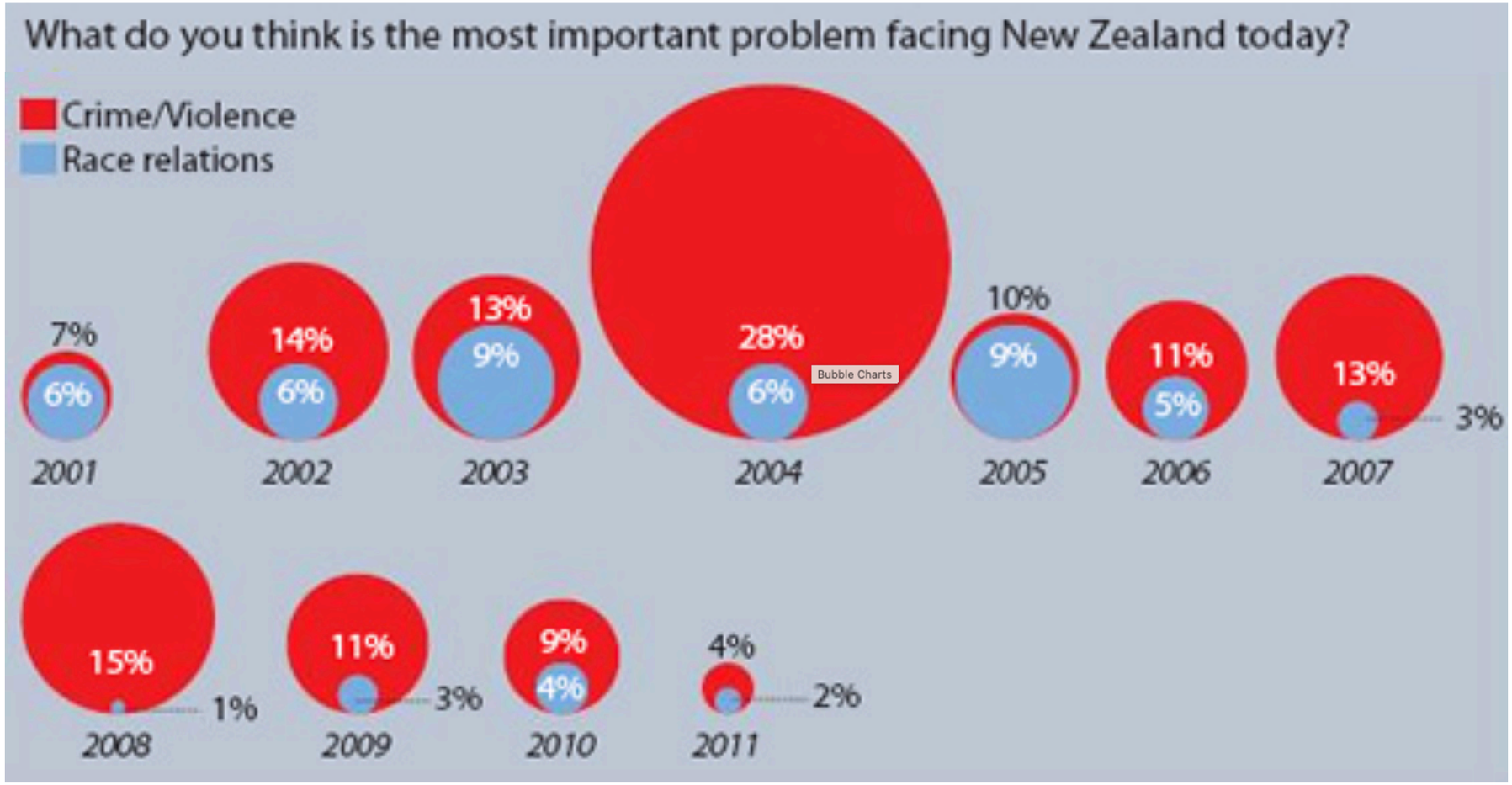

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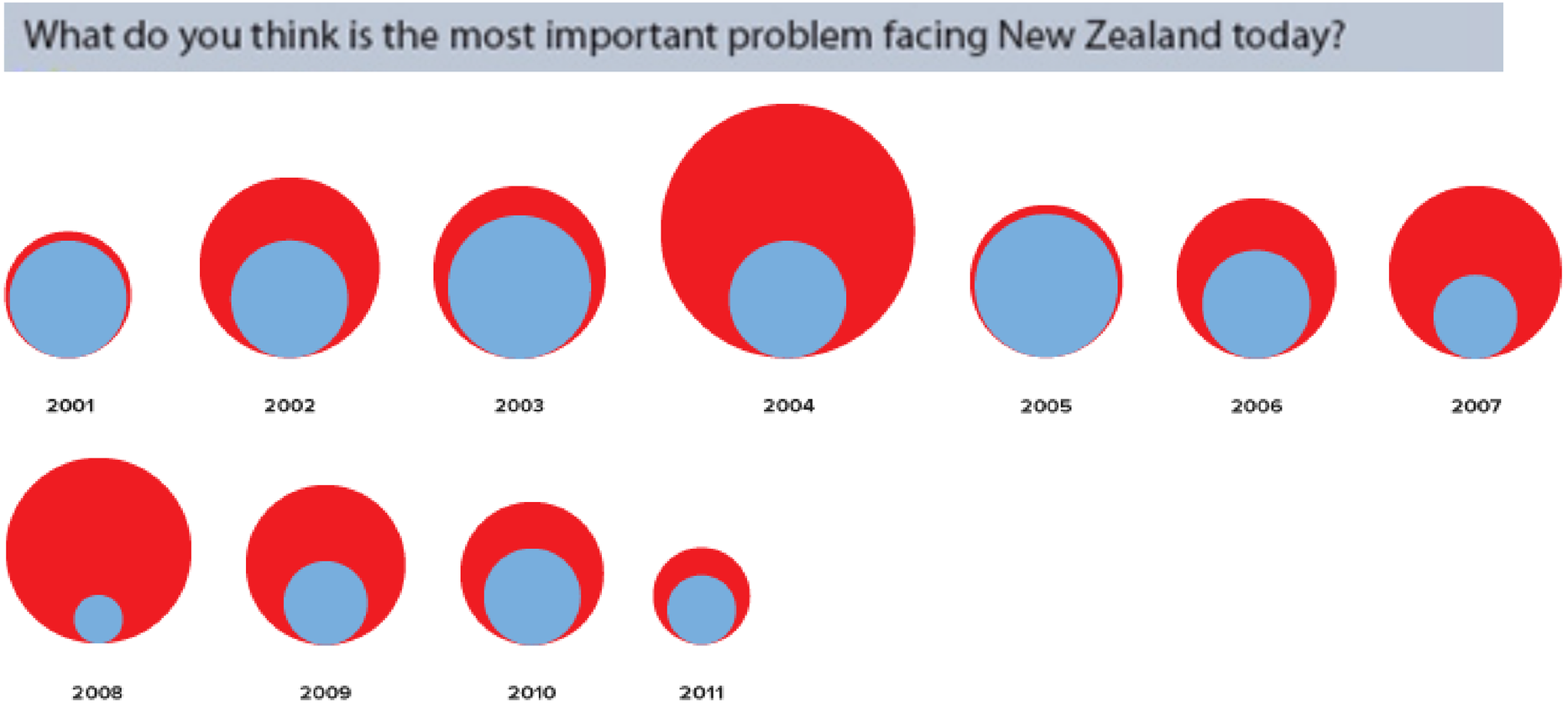
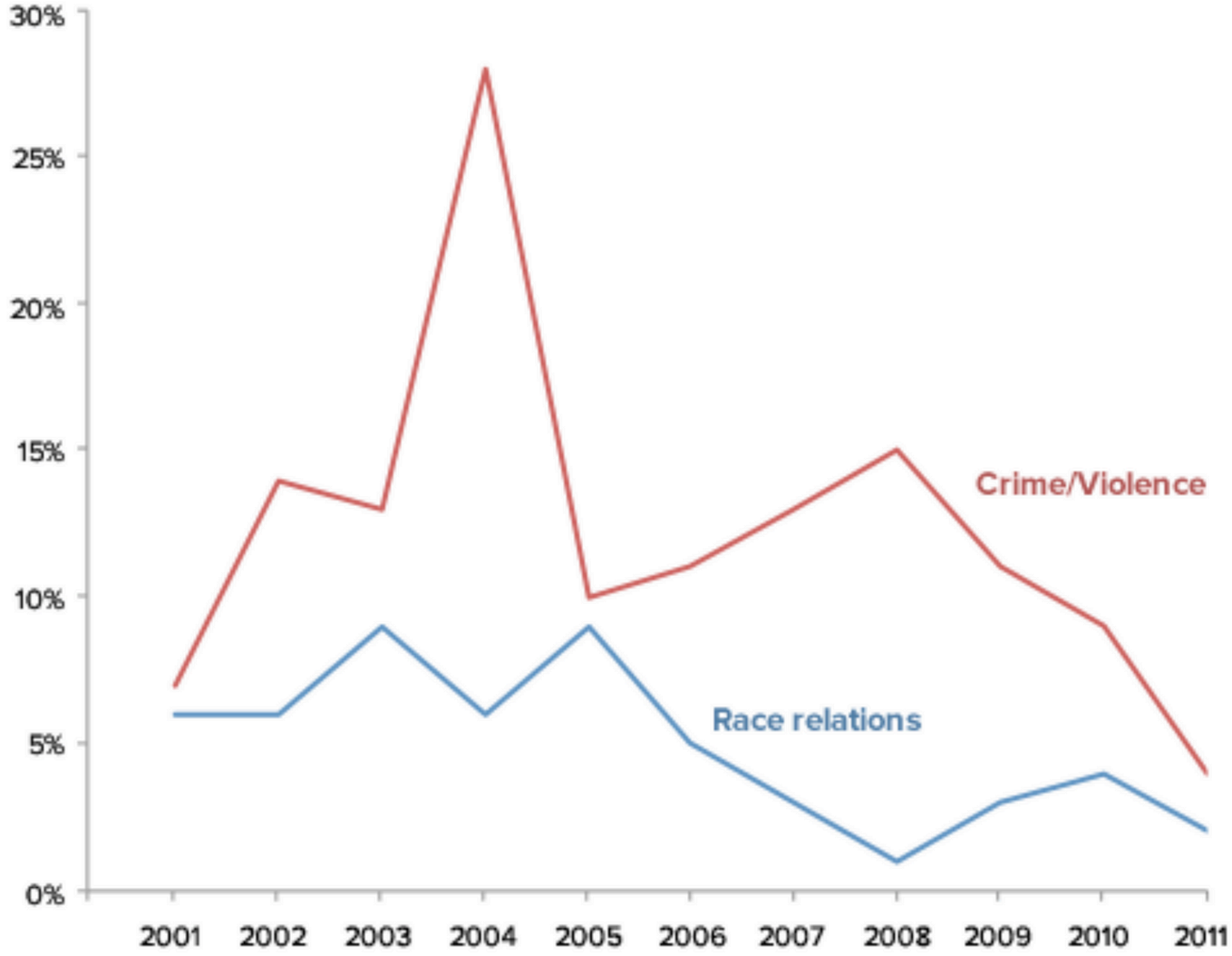


Step 3: Is the Effectiveness Principle Followed?

What do you think is the most important problem facing New Zealand today?



Step 4: Is the Expressiveness Principle Followed?

- Does the visualization show all of the data and only the data?
- If not, is it justified? (e.g., memorable chart junk)

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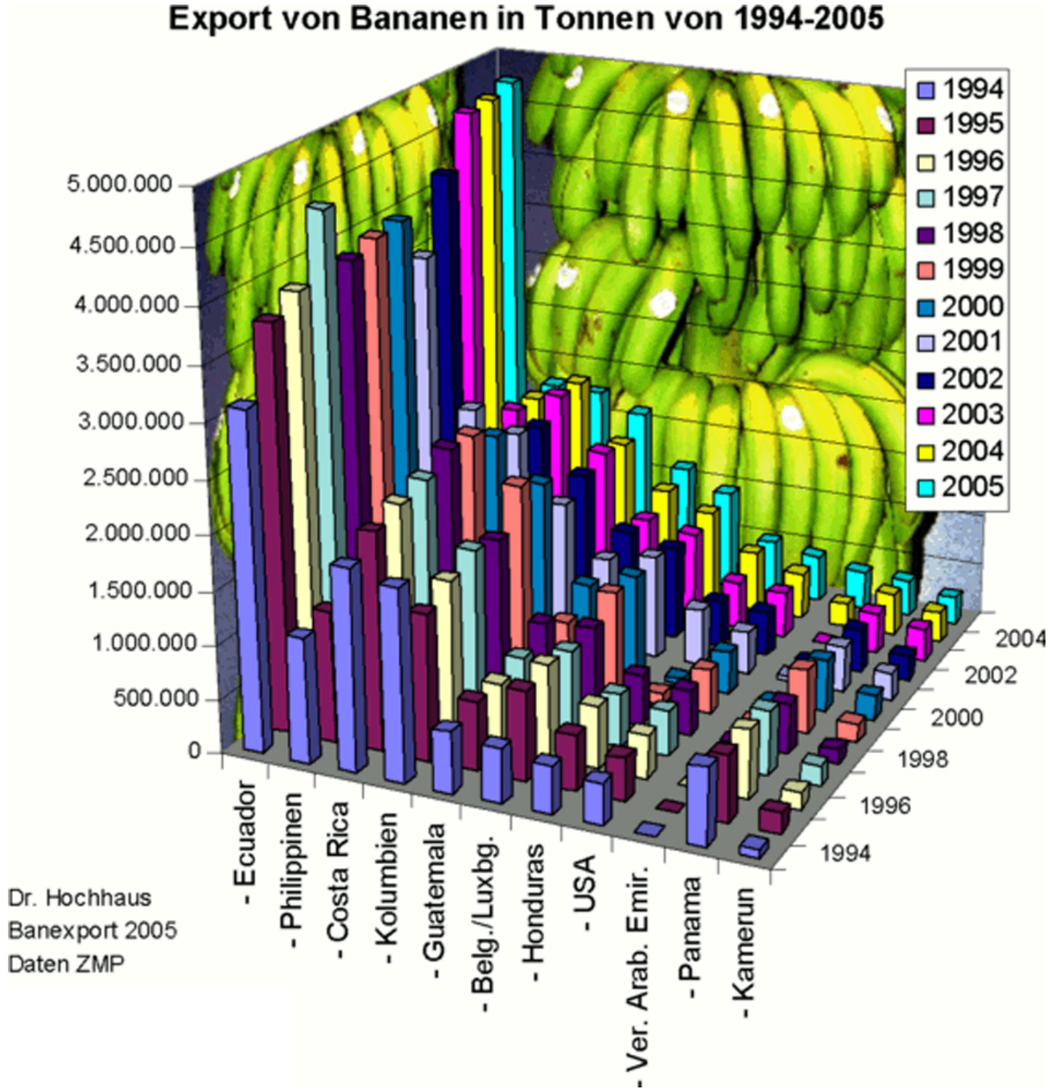

Step 5: Are the Scales Appropriate?

- Truncated axes? overextended scales?
- Is the baseline at 0? (should it be?)

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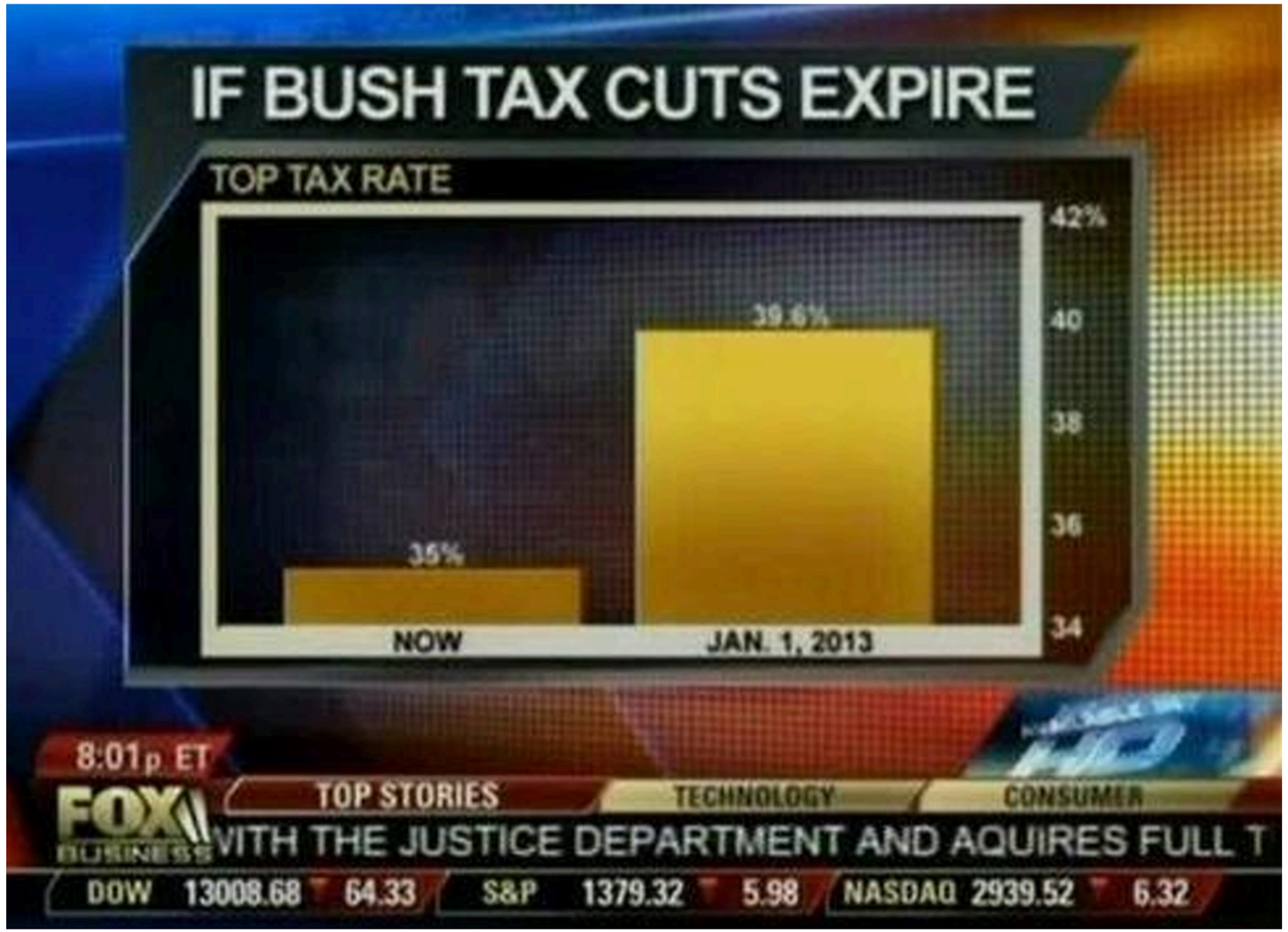

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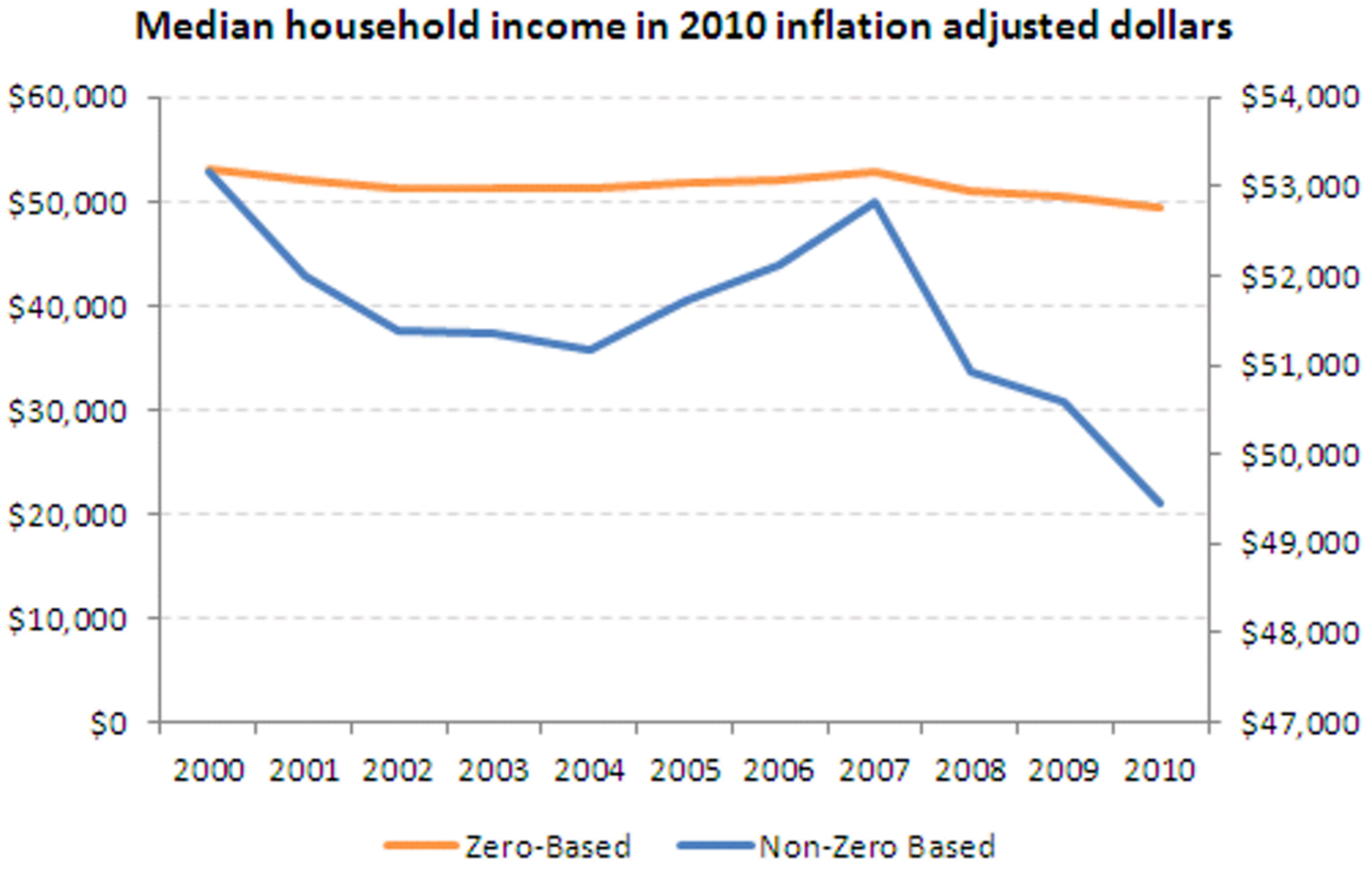

Step 6: Context

Is the data shown in the appropriate context?

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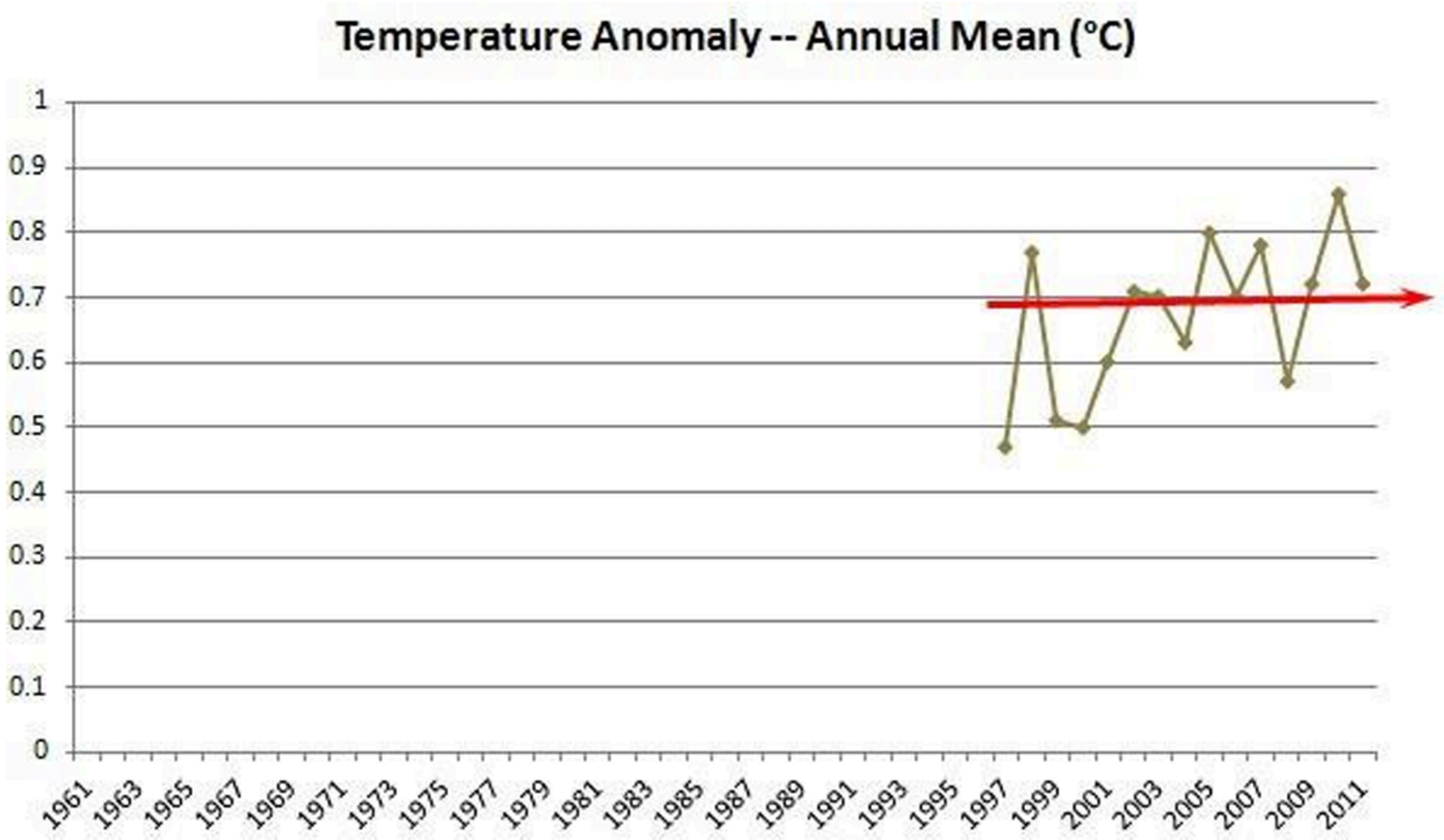
Global Warming?



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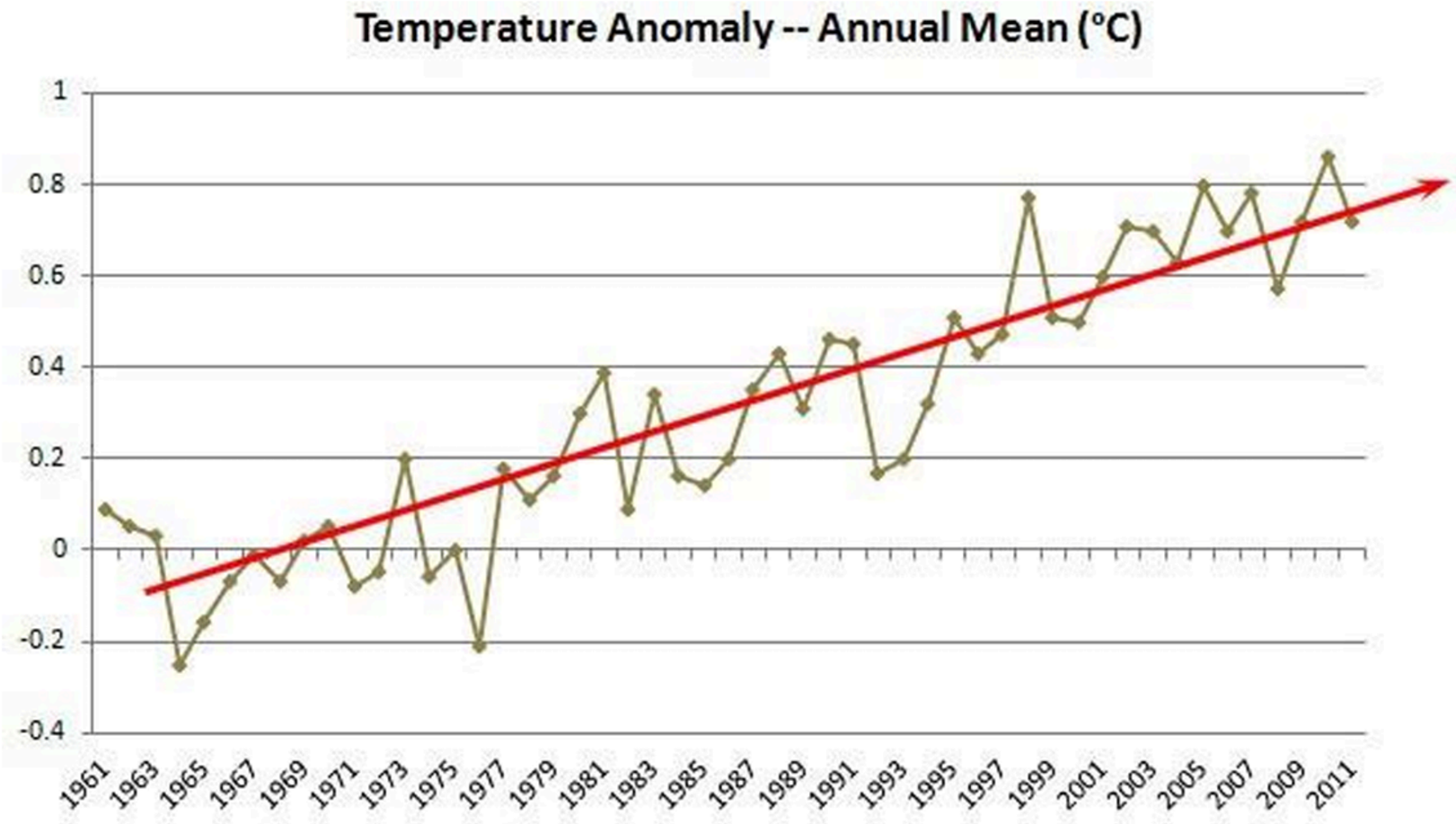

Step 7: Would Derived Data Be Better?

Visualize change instead of absolute values?

Visualize the distribution instead of the physical data points?

Step 7: Other Guidelines to Keep in Mind

- No unjustified 3D
- Perception and Gestalt Principles
- Use of popout
- Use of interaction / animation
- Appropriate legends / labels