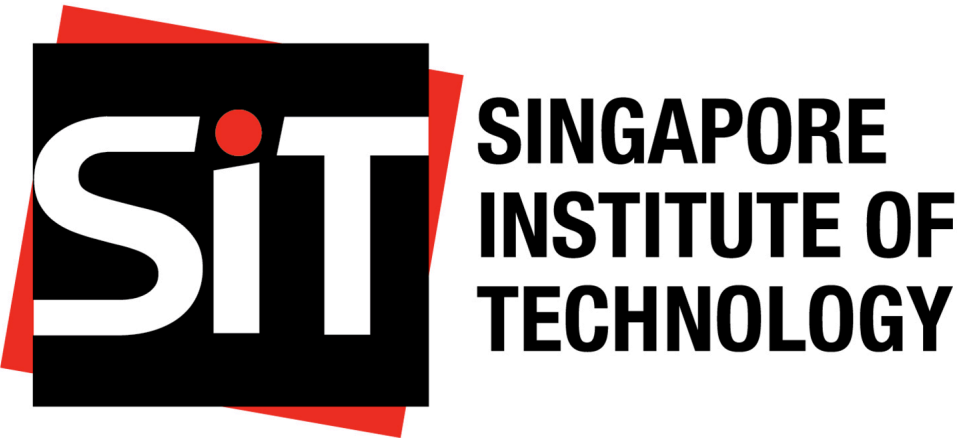# Visualising Inflation in Singapore Across Various Industries

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Introduction

This infographic published by The Straits Times, attempts to provide a comprehensive overview of how prices have changed in 2023. It features a heat map illustrating the monthly inflationary impact on various key items, showing how different range of goods and services have experienced varying rates of price changes throughout the year. This visual representation tries to help the average reader understand the broader inflation trends and their specific impacts on essential goods and services in Singapore. With the information provided to the reader, they can then access if their personal opinion on inflation matches with actual data collected.
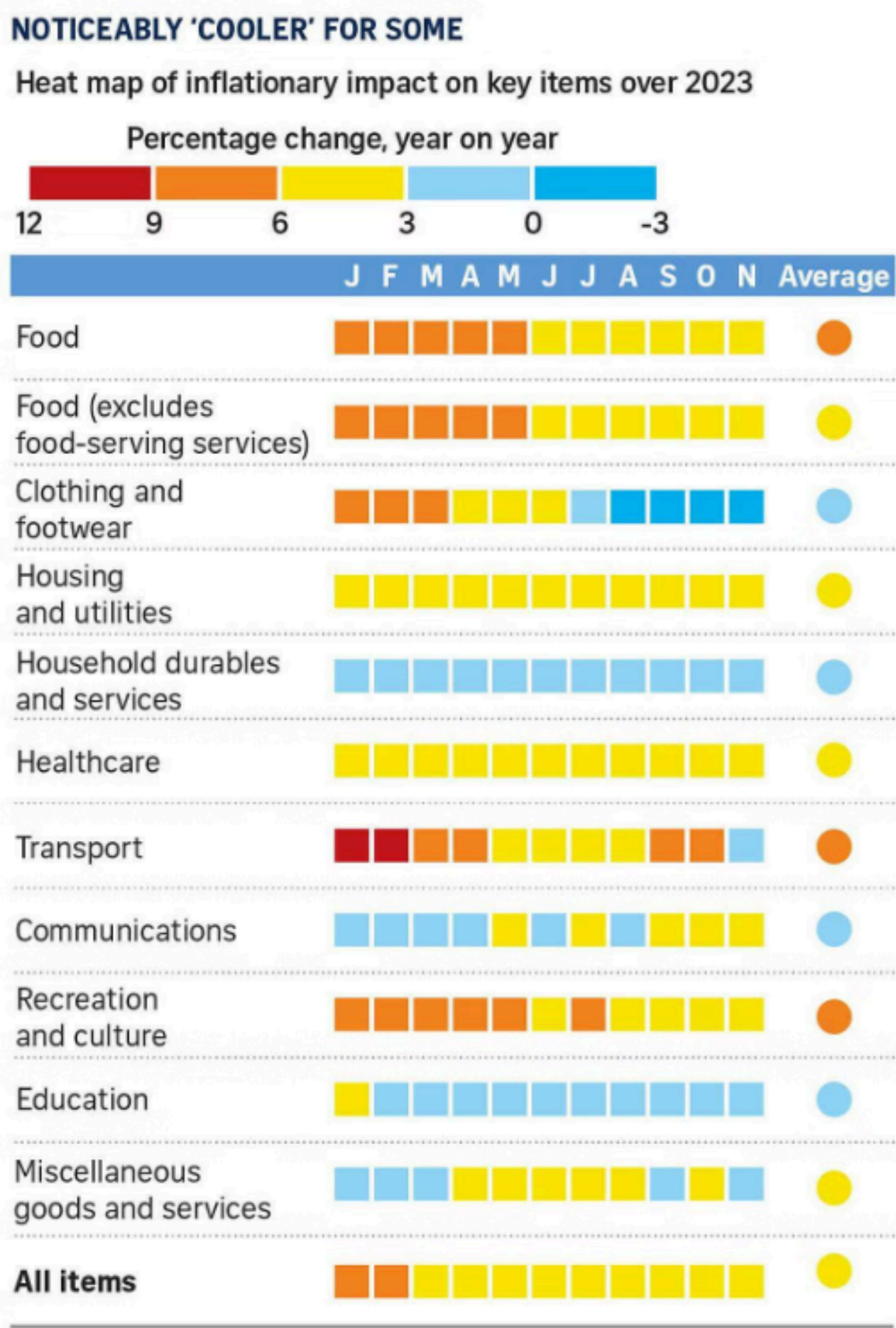
Previous Visualization

Figure 1: Heat map of inflationary impact on key items over 2023.

Strengths

- The use of heatmap design allows the data to be visually intuitive, enabling the users to determine changes in inflation rate more efficiently on a year on year basis.
- The heatmap has organized the information in different categories which allow users to compare the impact of inflation towards different domains over the months from 2022 to 2023.
- Each category is clearly labelled while being separated with padding and a line to ensure users can focus on one category at a time without accidentally reading information from another category. This eases the visual load of the user which reduces the time needed for the users to understand the heatmap
- The average column calculates the average change between the years which allows the users to see the overall impact of the inflation for the different domains.
- Data source has been credited at the end of the heatmap where the source is from the Singapore Department of Statistics

Suggested Improvements

1. *A more descriptive chart could be used* to better explain the change in inflation rate on a year on year basis.
2. *Spelling out the months instead of just letters* could provide better understanding of the graph rather than letters which result in the reader needing to interpret the graph for a slightly longer period of time before realising what the letters mean.
3. *Simply using a heatmap doesn't explicitly show the changes.* A line chart could be used to show the increase or decrease in inflation rate, the heatmap does not show this change really well.
4. *Better color scheme can be used.* With the current color scheme, it is hard to interpret whether the colors indicate an increase or decrease in inflation rate.
5. *Clarify or remove vague sections* such as "Food (excludes food-serving services)" and "Miscellaneous goods and services".

Implementation

Data

- Weekly counts of measles cases by state were obtained from Project Tycho.[1] The data have missing weeks, which were treated as zero in **?@fig-wsj-on-poster**, potentially underestimating the annual total. Instead, we calculated the weekly mean case count on the basis of non-missing data only.
- Decennial U.S. census data for each state.[2]

Software

We used the Quarto publication framework and the R programming language, along with the following third-party packages:

- *readxl* for data import
- *tidyverse* for data transformation, including *ggplot2* for visualization based on the grammar of graphics
- *knitr* for dynamic document generation
- *zoo* for interpolating annual population data from the decennial U.S. census

Improved Visualization

[1]https://doi.org/10.25337/T7/ptycho.v2.0/US.14189004
[2]https://www.stats.indiana.edu/population/PopTotals/historic_counts_states.asp

Further Suggestions for Interactivity

Because our visualization was intended for a poster, we did not implement any interactive features, including the infotip. However, if the data are visualized in an HTML document, interactive features can be achieved using the R packages such as *plotly*. In that case, we recommend that the tile does not change its fill color. In contrast, the original visualization changes the fill color of the activated tile to light blue (see **?@fig-infotip_color_change**), which can be misinterpreted as a change in incidence. Instead, we suggest highlighting the activated tile by thickening its border.

Conclusion

We successfully implemented all suggested improvements for the non-interactive visualization. By labeling every state and choosing a colorblind-friendly palette, the revised plot is more accessible. The logarithmic color scale makes the decrease in incidence after the introduction of the vaccine less striking but enables readers to detect patterns in the low-incidence range more easily.