

BMI-PriceBite

USER GUIDE



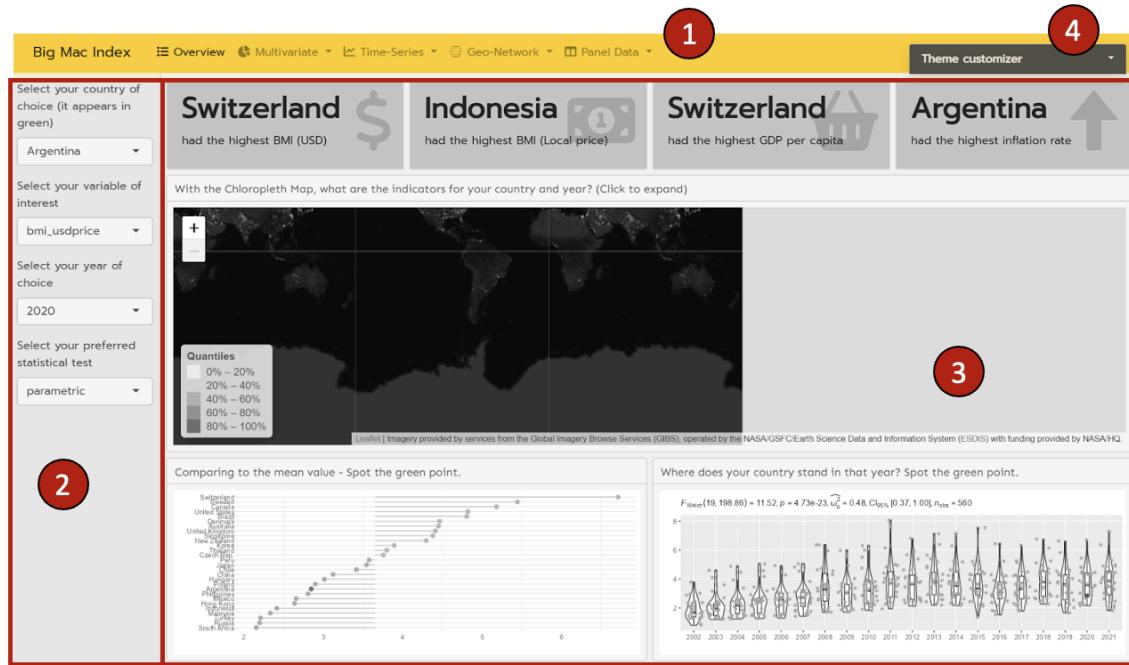
BY

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1. APP OVERVIEW



This RShiny App offers 5 different types of analysis, which can be conveniently accessed and toggled from the navigation bar:

- Overview
- Multivariate
- Time Series
- Geo-network
- Panel Data

For all dashboard pages, it consists of three sections:

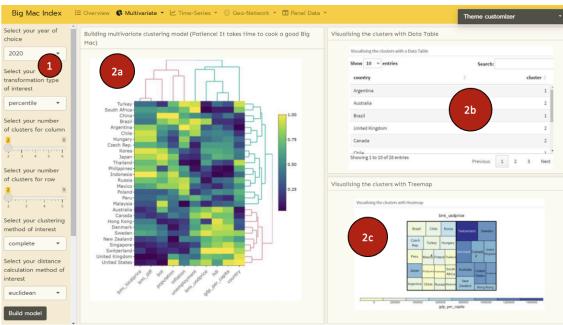
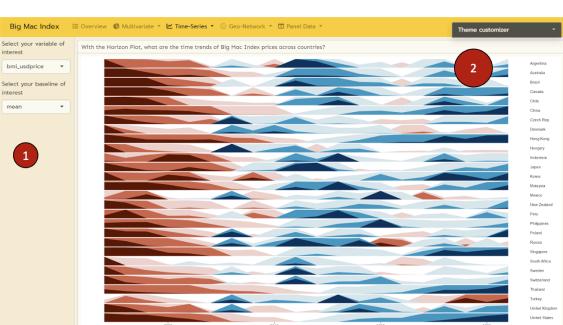
1. The navigation bar provides quick links to navigate between different types of analysis.
2. The Parameters Tuning Panel allows users to adjust input variables, statistical variables, or even model tuning parameters without writing a single line of code.
3. This is the main plotting panel of the dashboard, which provides essential plots for EDA and CDA, modeling results for different models. Some insights are also highlighted within this panel.

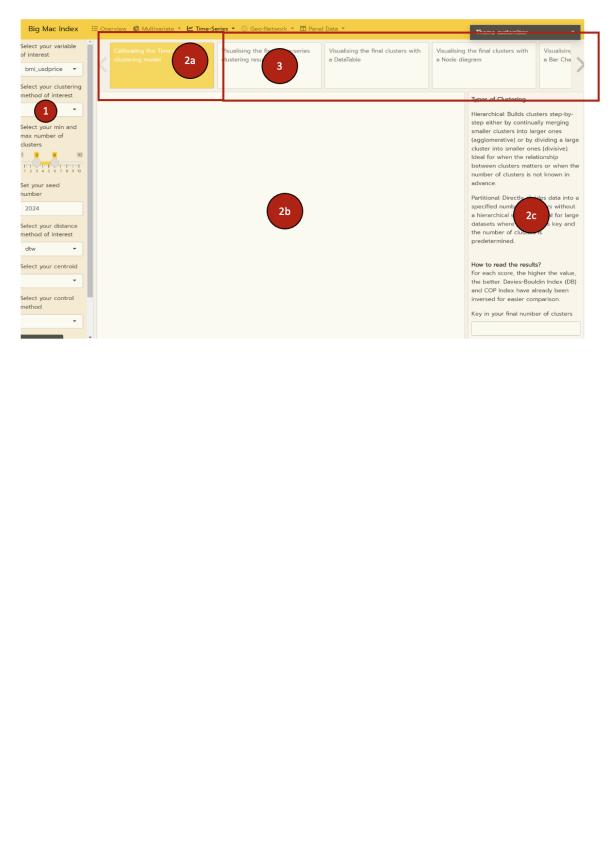
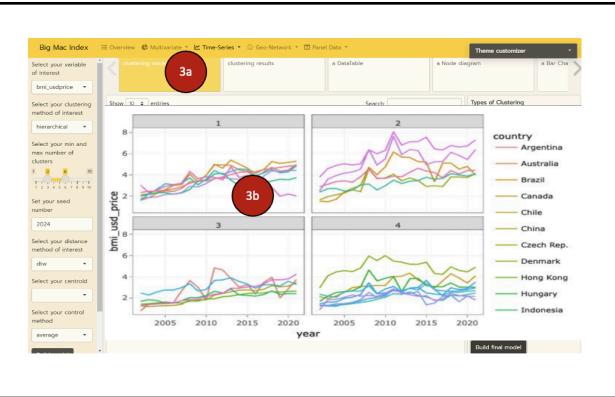
The input panel (panel 2) and output panel (plotting panel) are highly interactive, with outputs changing dynamically based on the input. Additionally, within panel 2, it is interactive among the plots; clicking one plot highlights corresponding points of interest in the other plots. For detailed interactivity, please refer to section 2.

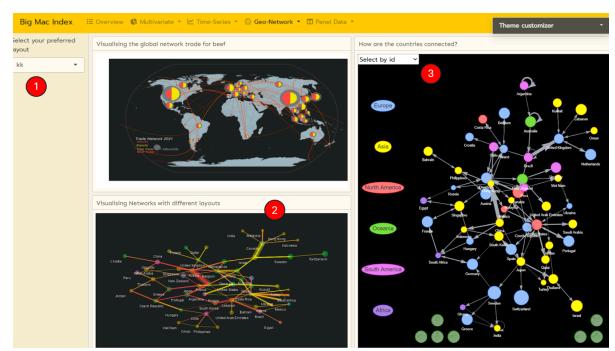
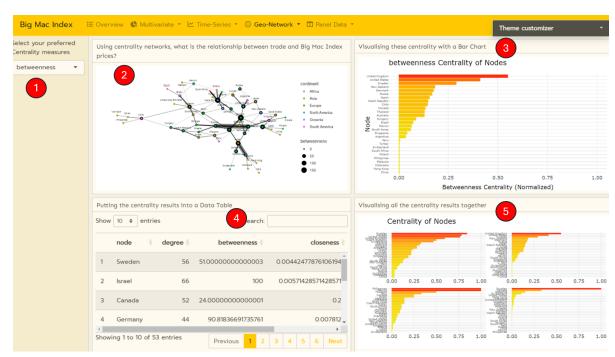
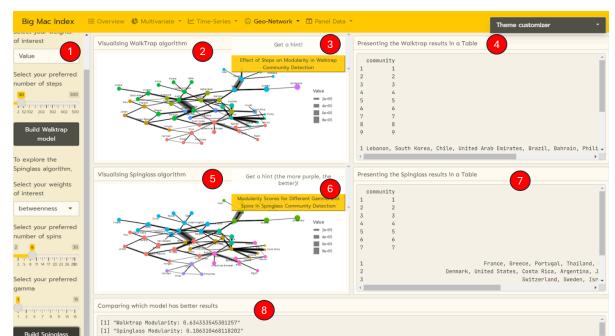
Special Features: This app also provides a theme selection option, highlighted at point 4, allowing users to choose between different themes of interest.

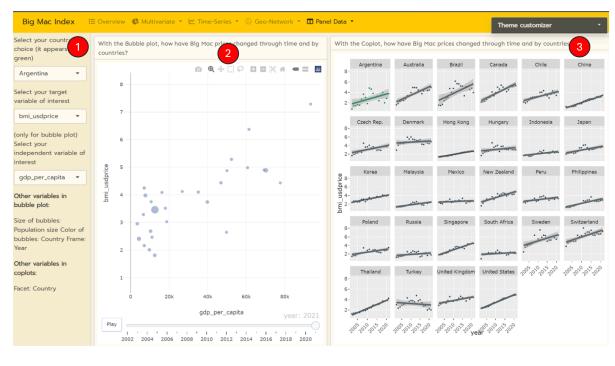
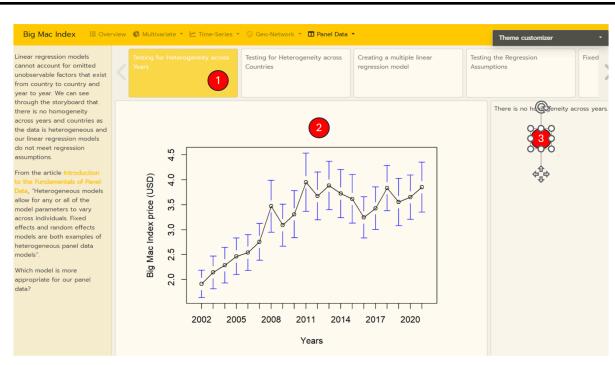
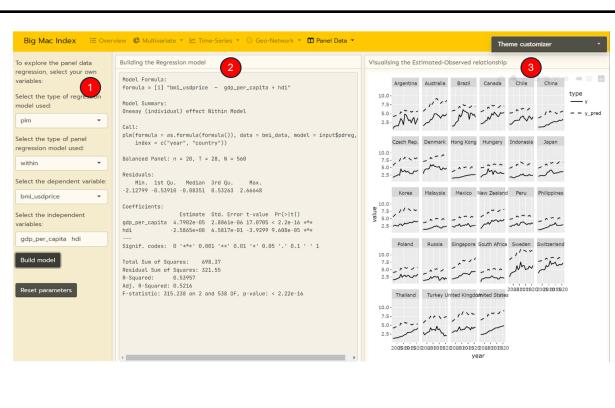
2. DETAILED GUIDE ON INDIVIDUAL PAGE

<p>Overview</p>	<p>This section provides an overview of the project whereby the user is able to see some of the key metrics as well as to conduct simple EDA.</p>
	<p>Panel 1 provides some key insights of the dataset</p> <p>Panel 2 allows the user to choose from</p> <ol style="list-style-type: none"> 1. different input such as country, variables of interest, and year 2. different statistical testing method <p>Panel 3 consists of 3 key plots for visualizations. It provides 2 different interactivity.</p> <ol style="list-style-type: none"> 1. These visualizations will be updated automatically based on the input, and the interest point will be highlighted in green. 2. the user can click on any point of interest within the panel, the corresponding point of interest will be highlighted between the plots
<p>Multivariate</p>	<p>This section of analysis provides an overview of analysis among different variables. It is cross sectional, and focuses on a particular year only.</p>
	<p>Panel 1 allows the user to choose from different year of interest, the statistical argument was not exposed due to</p> <ol style="list-style-type: none"> 1. The limitation of the library chosen. The team has decided to go for interactivity 2. There is insignificant difference upon offline testing between different statistical method due to the nature of the dataset <p>Panel 2a will show up and get updated immediately with the change of user input in Panel 1.</p> <p>Panel 2b corresponding scatter plot will show up when the user click on any pixel in 2a</p>

	<p>Panel 1 allows the user to choose from</p> <ol style="list-style-type: none"> 1. different year of interest 2. Fine tuning of clustering models including variables such as: data transformation method, number of clusters for rows/columns, linkage methods, distance methods etc. 3. Variables of interest for clustering results visualization <p>Panel 2 will only show up after model buildings. Left side (2a) shows the clustering results, right side (2b & 2c) allows users to analyze and visualize the clustering results</p> <p>Panel 2a shows the clustering results with a dendrogram upon model buildings and gets updated with different model calibration. The user can hover to any of the links and pixels to understand the particular data.</p> <p>Panel 2b is consolidated data from clustering. User can sort for different columns</p> <p>Panel 2c will get updated when the user change the interest of variables</p>
<h3>Time Series</h3>	<p>This section of analysis provides an overview of analysis across different time periods for Big mac index related data across countries.</p>
	<p>Panel 1 allows the user to choose from</p> <ol style="list-style-type: none"> 1. different variables of interest 2. Different aggregation techniques <p>Panel 2 is a horizon plots get updated based on the user input</p>

	<p>Panel 1 allows the user to choose from</p> <ol style="list-style-type: none"> 1. different variables of interest 2. Fine tuning of clustering models including variables such as: clustering method, number of clusters for rows/columns, linkage methods, distance methods etc. 3. Variables of interest for clustering results visualization <p>The panel consists a few storyboards whereby the first board focus on model tuning and selection, the rest for visualization</p> <p>Panel 2a is by default selected for user to test a range of cluster numbers</p> <p>Panel 2b shows the results of various k variables and the evaluation scores are displayed in a table</p> <p>Panel 2c provides a guide on how user should choose and evaluate the performance whereby allows the user to decide on 1 optimal k value for model building</p>
	<p>Panel 3 provides a variation of visualizations for the user to visualize and analyze the clustering results.</p> <p>The user can select between panels at 3a, and the corresponding plots are updated at 3b.</p>
Geo-Network	<p>This section of analysis provides an overview of network and geospatial analysis across for Big mac index related data across countries in 2021. It focuses on trade networks on beef.</p>

	<p>This page is the EDA for geo-network analysis.</p> <p>Panel 1 allows the user to control the layouts preferred for Panel 2.</p> <p>Panel 2 consists of network visualisations that will change according to the User's selection in Panel 1.</p> <p>Panel 3 is a visual network graph of connections between countries. User can select the country in the box on the top left and see its connections being highlighted.</p>
	<p>Panel 1 allows the user to select the centrality measure of interest. This will control the centrality results in Panel 2, 3 and 4.</p> <p>Panel 2 shows the visualization of centrality analysis and this result is visualised as a bar chart in Panel 3. The results are captured for exploration in Panel 4. All types of centrality measures are patched together in Panel 5.</p>
	<p>Panel 1 allows the user to adjust the parameters for both the Walktrap and Spinglass models and these are visualised in Panels 2 and 5.</p> <p>If users are unaware of which steps (for walktrap) or gamma (for spinglass), they can expand Panels 3 and 6 to find the optimal values. The clustering results are captured in Panels 4 and 7 respectively.</p> <p>Panel 8 shows the modularity of each model and the comparison between the two.</p>
<h3>Panel Data</h3>	<p>This section of analysis provides an overview of panel data analysis across different time and country dimensions for Big mac index.</p>

 <p>Panel 1 allows the user to choose their preferred variables as inputs to the plots.</p>	<p>Panel 2 is an animated bubble plot. User can click Play to see how the data points change through time. The selected country from Panel 1 is green in colour.</p>
 <p>Panel 3 is a coplot of the selected variable against year through different countries.</p>	<p>This page is in a storyboard layout.</p> <p>Panel 1 are the titles of the different frames of the storyboard. User can scroll right to see the progression of the story.</p> <p>Panel 2 is the main plot of the story frame.</p> <p>Panel 3 is the description of the main plot.</p>
 <p>Panel 1 allows the user to choose preferred variables and selected parameters to build either a ols or panel data regression model.</p>	<p>Panel 2 displays the results of the regression model built.</p> <p>Panel 3 displays the estimated-observed values plot of the regression model built.</p>

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