Print

Practice: Exploring Data Using Bubble Plots and Heat Maps

In this practice, you create a bubble plot and a heat map for the **Mobile Cellular** data.

These are data about mobile cell phone subscriptions per 100 people, from 1990 to 2017. The data set includes information on 217 countries grouped into seven regions and four income groups. It also includes information on the number of fixed telephones per 100 people. Fixed telephones are the focus of this practice.

1. Open the file **Mobile Cellular.jmp** from the course data folder.

2. Create a bubble plot for **Fixed Telephones (per 100)** over time, by **Region** and **Country**. Size the bubbles by **Population** and color them by **Region**.

    - Use **Bubble Plot** from the **Graph** menu.
    - Use **Year** as the **X** variable, **Region** and **Country** as the **ID** variables, and **Year** as the **Time** variable.
    - Select **Size** by **Population** and **Color** by **Region**.
    - Turn on **Trail Lines**, **All** from the red triangle, and look at the bubbles over time.
    - Use the slider for **Year** to see the changes over time.

3. Describe the lines for South Asia and Sub-Saharan Africa. What do you observe?

    The lines are close to zero, indicating that there are very few fixed phones in these regions. There is a small and gradual increase in both regions, and then a decline in the mid-2000s.

4. Describe the line for Europe and Central Asia. What do you observe?

    There are more fixed phones in this region than in all other regions except North America. There is an increase in fixed phones until around 2000 and then a gradual decline.

5. Describe the line for North America. What do you observe?

    North America saw a relatively sharp increase in fixed phones until around 2000. Then there was a decline. There were some unusual spikes and dips starting in 2010, and in 2015 the number of fixed phones dropped dramatically.

6. Split the bubble for North America. What do you notice?

    There is a steady drop in fixed phones since 2000 for the US and Canada, but there are some missing data and an unusual pattern for Bermuda starting in 2010. The data for North America are an average of the values for Canada, the US, and Bermuda,

independent of the population of the countries. A better analysis might take population into account.

7. Create a heat map for fixed telephones over time for the countries in East Asia and Pacific using the Graph Builder. Use a sequential color theme.

    - Use **Graph Builder** from the **Graph** menu.
    - Drag **Country** to the **Y** zone, drag **Year** to the **X** zone, and drag **Fixed Telephones (per 100)** to the **Color** zone. Then click the heat map icon.
    - Select **Local Data Filter** from the red triangle, and then select **Region** and then **Add**. Select **East Asia & Pacific** on the Local Data Filter.
    - To change the color gradient, right-click the legend for **Fixed Telephone (per 100)** and select **Gradient**, and then select a sequential color theme of your choice.
    - Note that you might need to resize the graph to see all of the labels.

8. Describe what you see in the heat map for Hong Kong SAR, China.

    This country has a lot of fixed phones, and the number is increasing.

9. Describe what you see in the heat map for Korea, Rep. (South Korea).

    The number of fixed phones appears to be increasing.

Hide Solution

Close