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Demo: Creating Trellis Plots and Using Overlay Variables

In this video, we show how to graph multidimensional data using trellis plots and overlay variables with the Mobile Cellular data.

This is data about mobile cell phone subscriptions per 100 people, from 1990 to 2017.

The data set includes information about 217 countries grouped into seven regions and four income groups.

A trellis plot is a matrix of graphs, where each graph shows a subset of the data.

An overlay plot is a plot with different variables, or different categories of a variable, plotted in the same graph frame.

We are interested in exploring the increase in mobile cellular subscriptions over time, across the different countries, regions, and income groups.

To start, we use Graph Builder from the Graph menu to create a run chart. We drag Mobile (per 100) to the Y zone, and Year to the X zone. Year is coded as a categorical variable, so by default we see a box plot for each year.

The center of a box plot is the median. So, you can see that, over time, mobile phone subscriptions are increasing. Notice how tall, or long, the box plots are.

There is a lot of variability in this data set.

Remember that this is data for every country within every region. To see the overall trend over time, we click the line icon.

You can see that in the early 1990s there were very few cell phones. From the late 1990s to around 2012, there is a steep increase, and this levels off somewhat after that.

To see this curve for the different geographic regions, we'll use Region as an overlay variable. To do this, we drag Region to the Overlay zone.

Now there is a separate curve for the different regions. You can see that some regions got cell phones before others, and that the number of cell phones per 100 people in 2017 is different across the regions.

We also have data for the different income groups. When we drag Income Group to the overlay zone, the graph automatically updates.

You can see that, overall, countries that are in the High income group have more mobile phones per person than countries that are in the Low income group.

To see income by both group and region, we can use a trellis plot. To do this, we drag Region to the Wrap zone.

Now, there is a different overlay plot of Income Group for each of the regions. If we want to see a trellis plot for the income groups instead, we can swap the roles for Region and Income Group.

As you can see, trellis plots and overlay plots enable you to efficiently graph data for many variables at a time, all in the same plot. Here, we created run charts. But you can create trellis and overlay plots for other graph types as well.

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