Data Graphics

11

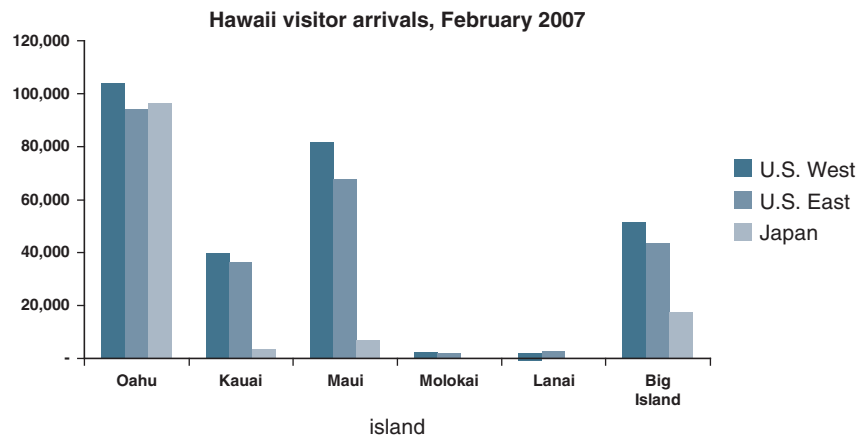## 11.A Appendix: Creating Data Graphics in Excel

Constructing simple charts in Excel is a fairly straightforward process. In this appendix, we'll walk you through three examples: one of a multicategory bar chart, one of a time series chart, and one of a scatterplot. In each case the data set can be found in the `ch11_data.xlsx` workbook.

Creating a multicategory bar chart. The worksheet `Hawaii_arrivals` has data on visitor arrivals to each Hawaiian island broken down by point of origin. To build a multicategory bar chart of this data, highlight the cells containing the data (`B3:H6`) and click on `Insert → Chart → Column → Finish`. This will produce a bar chart. If the chart is too small, the names of the islands may print diagonally, making the chart a bit hard to read. Enlarging the chart by clicking on it and then pulling on the lower right corner will take care of this problem.

The chart you have now does not contain a title or axis names. To add these, right-click (Control-click on a Mac) inside the plot area, and choose `Chart Options` from the menu that appears. The window you will see allows you to edit many of the chart's properties. From the `Titles` windowpane, type in "Visitor Arrivals, February 2007" and "island" and "number of visitors" in the first three blanks, and hit `OK`. You should wind up with a chart that looks like the one in Figure 11.A.1.
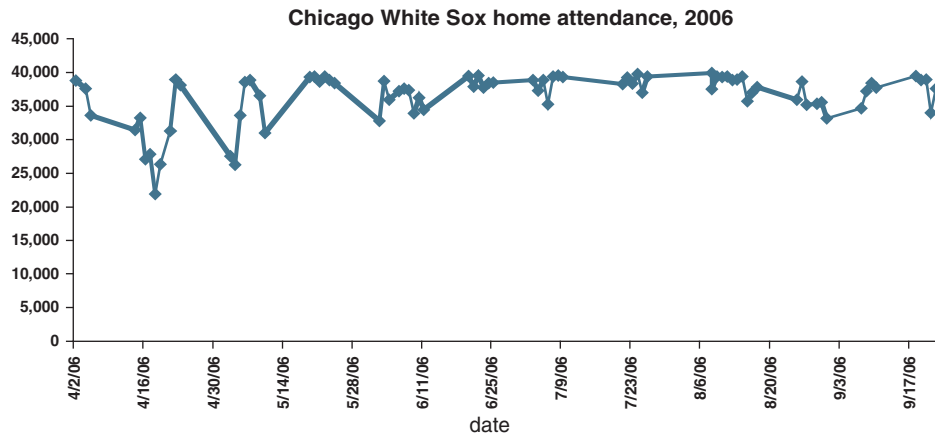
Creating a line chart of time series data. The data set in the `White_Sox` worksheet presents the dates and attendance for all 81 Chicago White Sox regular

Figure 11.A.1: Bar chart: Hawaii visitor arrivals.

**Figure 11.A.2:** Line chart: Chicago White Sox attendance.

season home games during the 2006 season. To create a time series plot of this data, select the cells containing the data (`A4:B84`) and click on `Insert` → `Chart` → `Line`. From the collection of charts that appears, choose the first one in the second row, and then hit `Finish`. Resize the figure and add appropriate titles as in the previous example; then choose `Chart Options` → `Legend` and uncheck `Show legend` to get rid of the superfluous legend. The end result should look like the chart in Figure 11.A.2.

Creating a scatterplot. The worksheet `quality_of_life` contains data on economic activity and life satisfaction in 111 countries worldwide. Economic activity is measured by per capita GDP, while the quality of life score is determined from the results of life satisfaction surveys conducted by *The Economist* magazine.[1] To construct a scatterplot of this data in Excel, select the cells containing the data (`B3:C114`) and click on `Insert` → `Chart` → `Column` → `Finish` to obtain a default chart. Now, since the quality of life values are all between 3 and 9, we can avoid wasting space by only including values in this range in our plot. To do so, right-click on the vertical axis and choose `Format Axis` → `Scale`; then unclick all the boxes, change the entries for `Minimum` and `Value (X axis) crosses at` to 3, and click `OK`. We also eliminate the legend and add a title and axes names, as above, and we can eliminate the gridlines by going to `Chart Options` → `Gridlines` and unchecking the checked box. Finally, to eliminate the gray shading and the top and right borders, right-click on the plot, choose `Format Plot Area`; then select `No Fill` and `No Line` in the two drop-down windows. The end result should look something like the scatterplot in Figure 11.A.3.

If you play around a bit, you will find that Excel offers many ways of changing the appearance of your chart. These tools can be used to make your graphics

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[1]*The Economist* Intelligence Unit, *The World in 2005*: *Quality of Life Survey*, 2005.

Figure 11.A.3: Scatterplot: Quality of life

Money and happiness, 2005
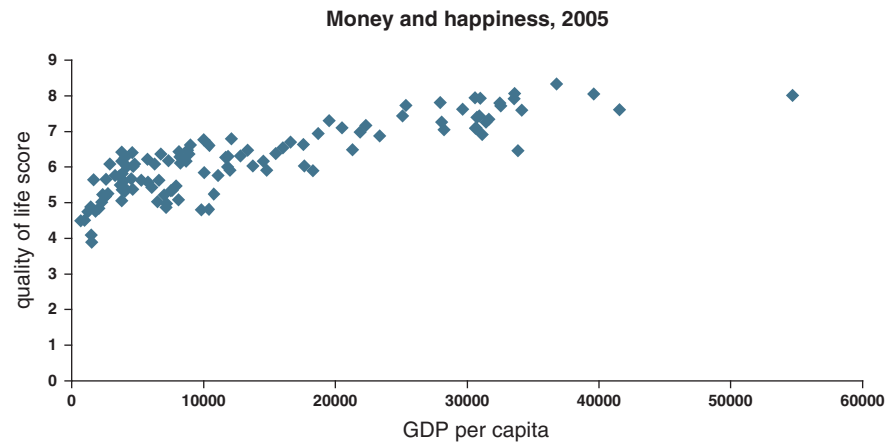
easy to follow, but they can also be used to make your graphics totally confusing. To avoid confusion, make sure you follow the principles for data graphics design described next.