Component II: Data Visualization
  A. Graphic Inquisition

Gestalt principles and visual structure:

The first impression looking at the graphic in page 3 is that everything is messy and haphazard, almost like confetti thrown over a rectangular space. All the elements are vying for attention. There is no discernable pattern. There is no sense of similarity or grouping even though the color and shape choices attempt to convey it. There is no symmetry.

Keep it simple: Decoding and Operations

Very difficult to crack the meaning behind the graph. The creators included a legend and made color and shape distinctions to represent the regions, however there were some over-lap in the shape, for example the diamond and squares. The color green representing Europe and Central Asia region was also used for the exponential curve. The scales on the y-axis in the two graphs are different. Very complicated to decode and understand.

Tufte Concepts: Less is more Chartjunk & Data-ink ratio, Graphical data integrity, Lie-factor

The graph is overplotted and could have benefitted from using small multiples. Better yet, the message "The higher the world risk index, the lower the social safety net coverage" could have been delivered with less chart-junk. Simpler background (without the yellow color) is better as well. Color-choices may not be color-blind friendly. It's not clear whether each data point represents a country in the region. Might have issues with printing. The y-scales are different, making the graph below larger compared with the one above.

Annotation:

The graphic is labeled and annotated. The source was cited. However, doesn't follow APA style. It takes a while to understand the title of the graphs in relation to what is being plotted vis a vis World Risk Index. Poor stand-alone readability.
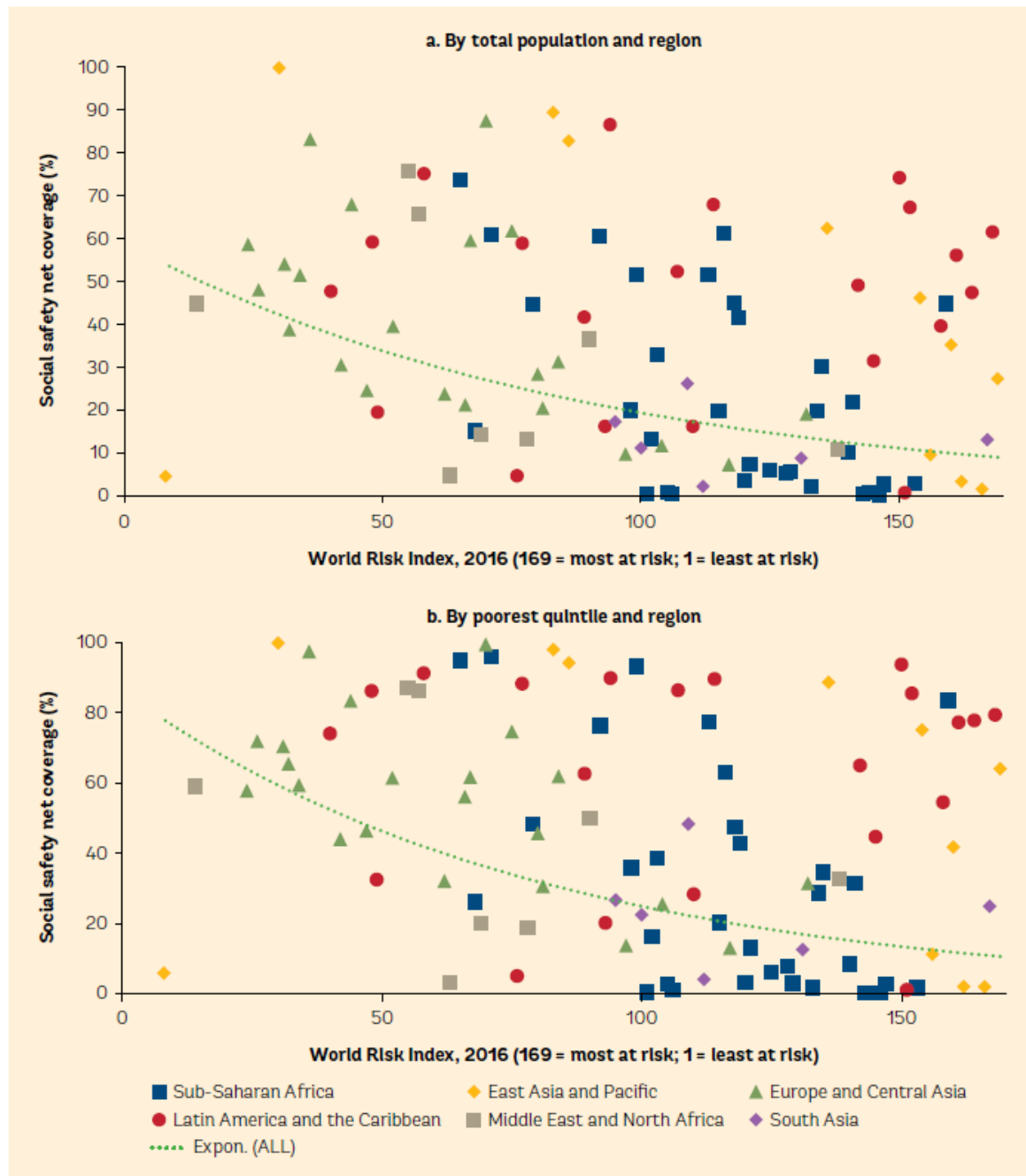
B. Graphic Design

The design concept of my graphic in page 4 stems from the following questions: "Which airline departing from New York City, will bring you to your destination on time?" and "Will departure status affect arrival time?" I used flights and airplanes from nycflight13 package. I added a few variables in the data set including the mean departure/arrival delays as well as a status based on the Federal Aviation Administration definition of 15 minutes. By doing so, I could minimize overplotting of data and be able to send the info I wanted to convey – airline performance vis a vis delay in departure and arrival. For design choices, I tried to incorporate the principles we learned in class. Symmetry, simplicity and grouping. I used a light background theme and removed the horizontal grids. I kept the vertical grids because I felt it is useful but I made sure to use a lighter color so as not to cause distraction. By looking at the graph, one can tell which airline performs better depending on which airport it was departing from. Most airlines that depart on time, arrive to their destination on-time, and vice-versa. However, some airlines, even departing late, will try to make up the delay and arrive at the destination on time. And some (i.e. Alaskan Airlines) on average arrive early.

Annotation: Since I meant this figure to be read by lay-people, I used casual language (i.e. Average) rather than Mean. I also used abbreviations for the three airports which I included in the notes.

Color /shape choices: I used a color scheme in this case to highlight the arrival status (qualitative data). I made sure to choose from the color-blind friendly palette of R brewer. Also, I used different geom-point values, so in case this was printed in B/W, the difference can still be seen.

FIGURE 5.3 Ranking of Natural Disasters and Safety Net Coverage

a. By total population and region

Y-axis: Social safety net coverage (%)
X-axis: World Risk Index, 2016 (169 = most at risk; 1 = least at risk)

b. By poorest quintile and region

Y-axis: Social safety net coverage (%)
X-axis: World Risk Index, 2016 (169 = most at risk; 1 = least at risk)

Legend:
- ■ Sub-Saharan Africa
- ◆ East Asia and Pacific
- ▲ Europe and Central Asia
- ● Latin America and the Caribbean
- ■ Middle East and North Africa
- ◆ South Asia
- ···· Expon. (ALL)

From:
Copley, A. (2019, April 12). *Figures of the week: The state of social safety nets in Africa.* Africa in Focus. https://www.brookings.edu/blog/africa-in-focus/2018/04/12/figures-of-the-week-the-sate-of-social-safety-nets-in-africa/

Figure
Airline Performance: Departure Time vs Arrival Status
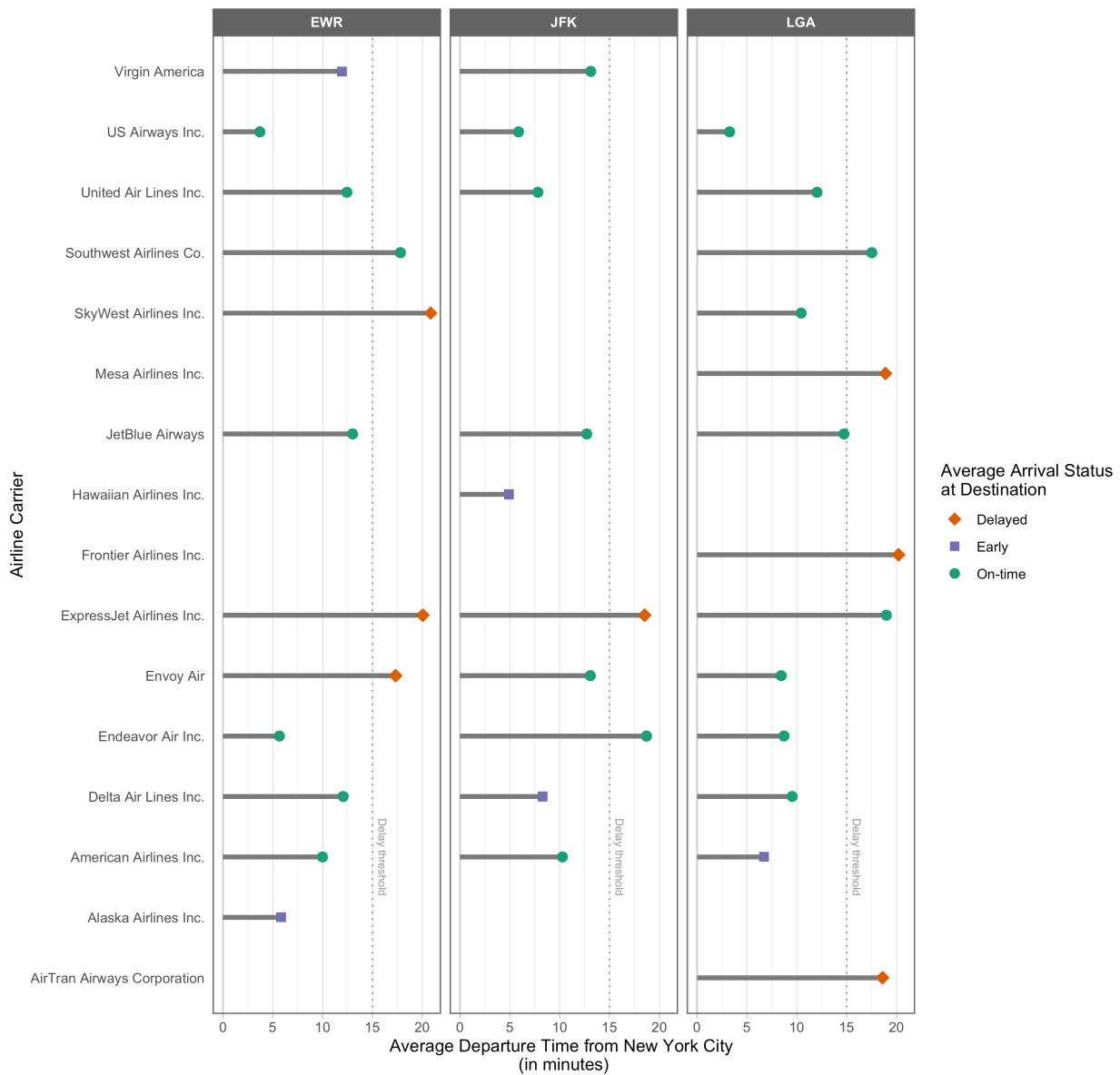
Note: Figure demonstrates how mean departure status from New York City airports affects airline performance as mean arrival status at destination. Delayed status > 15 minutes as defined by Federal Aviation Administration. EWR = Newark Liberty International Airport, JFK = John F. Kennedy International Airport, LGA = LaGuardia Airport, NYC = New York City. Data Source: Wickham H (2022). *Nycflights13: Flights that Departed NYC in 2013.* R package version 1.0.2, (https://github.com/hadley/nycflights13).