Three-dimension plots

3D data does not imply the use of a 3D visualization—are the variables are inherently \textit{spatial} or they are merely \textit{statistical}?

3D scatterplot—Direct analog of 2D scatterplot. Requires special tricks to maintain the illusion of depth: lines to the floor, motion. Does not allow quantitative judgements.

Bubble plot—Scatterplot where symbol size encodes the third dimension (smaller = farther away). Susceptible to overplotting.

Vane plot—Scatterplot where symbol orientation encodes the third dimension (taller = larger).

Color plot—Scatterplot where symbol color encodes the third dimension (darker = larger).

Uses of three-dimension plots:

- Explaining the outliers and clusters in a 2D scatterplot. Response is the \(y\) axis.
- Determining which of two variables is a stronger predictor of the response. Response is the \(z\) axis.
Data set 2:
Which is the better predictor of income?