

# Intro to Econometrics Software: Excel

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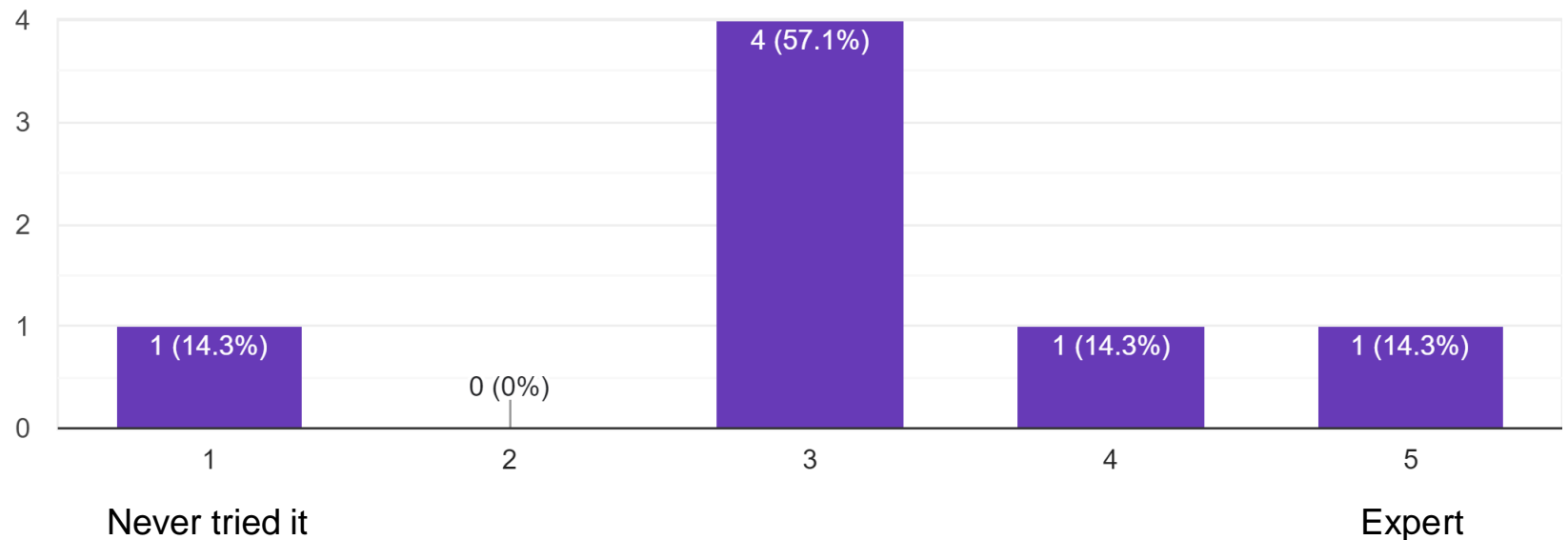
Advanced Economics and Business Statistics  
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# About You: Software experience

Excel

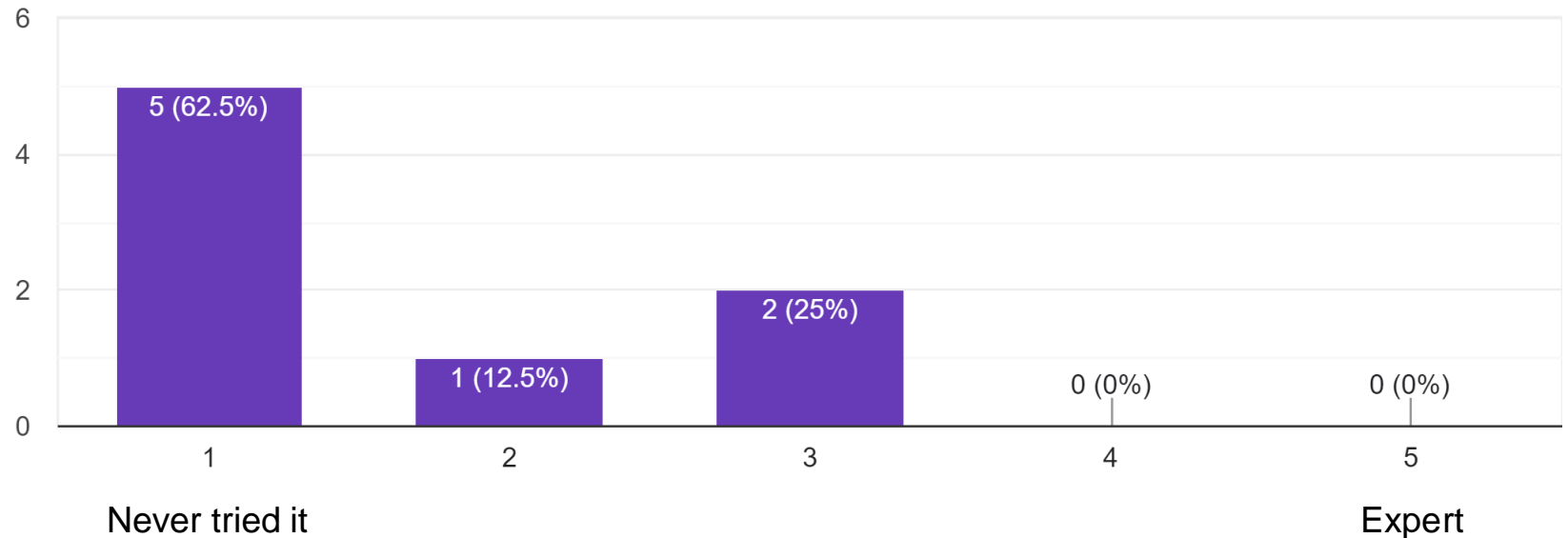
7 responses



# About You: Software experience

R

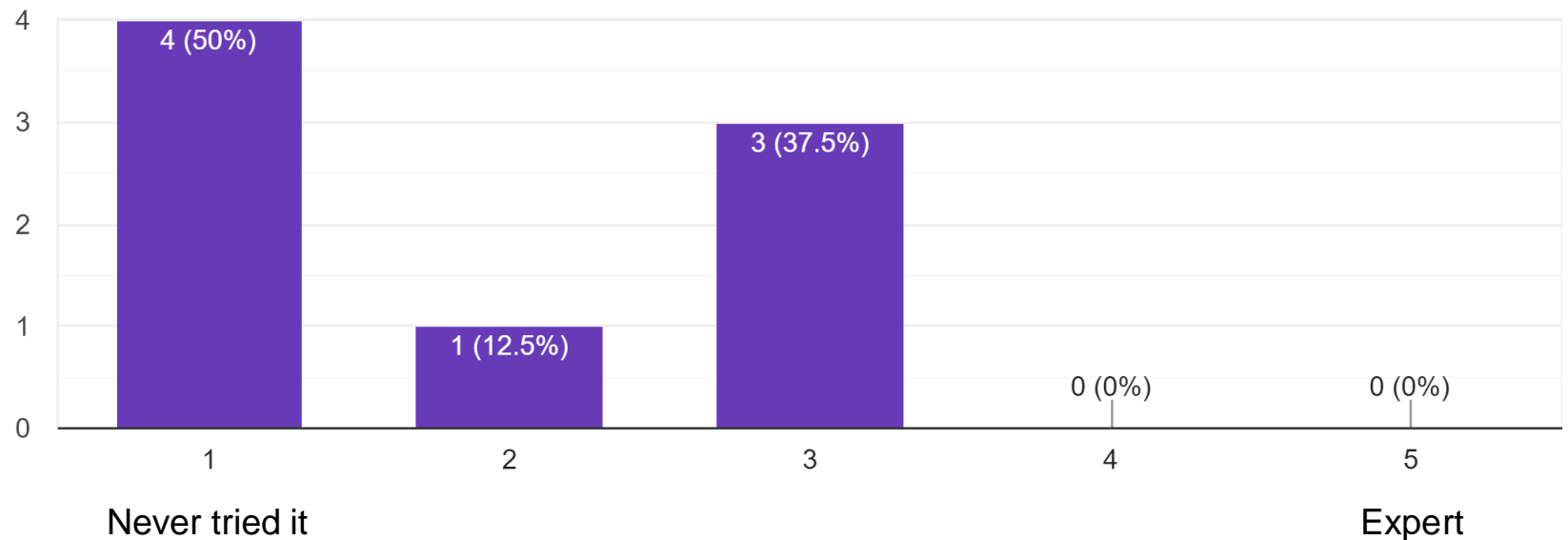
8 responses



# About You: Software experience

Python

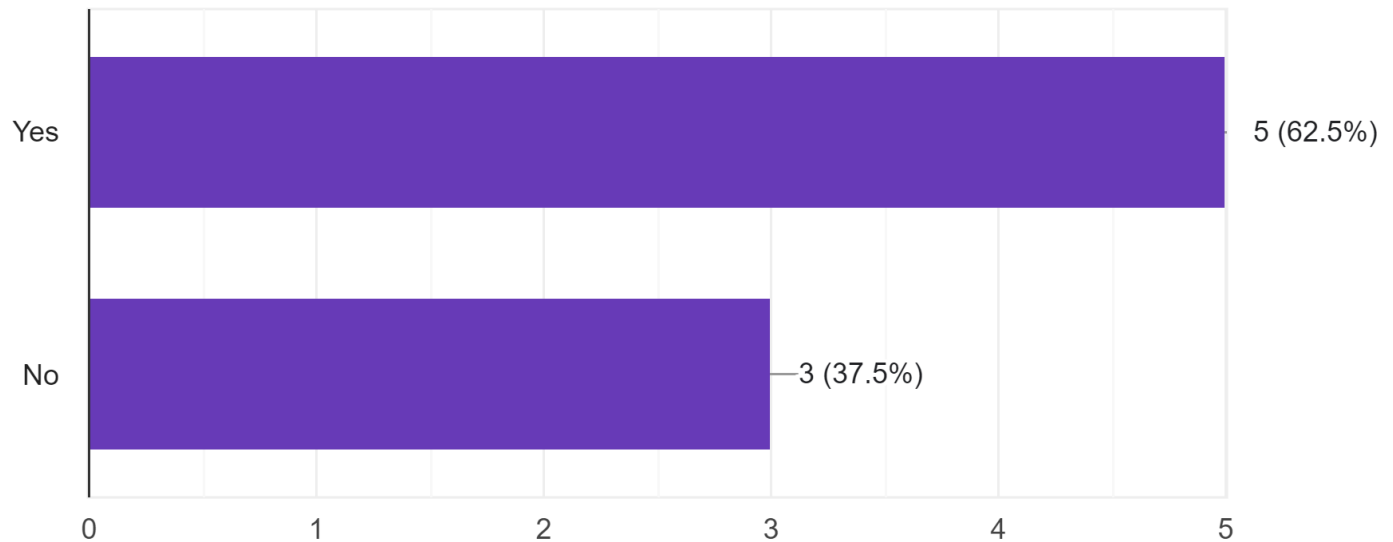
8 responses



# About You: Econometrics

This is my first econometrics course

8 responses

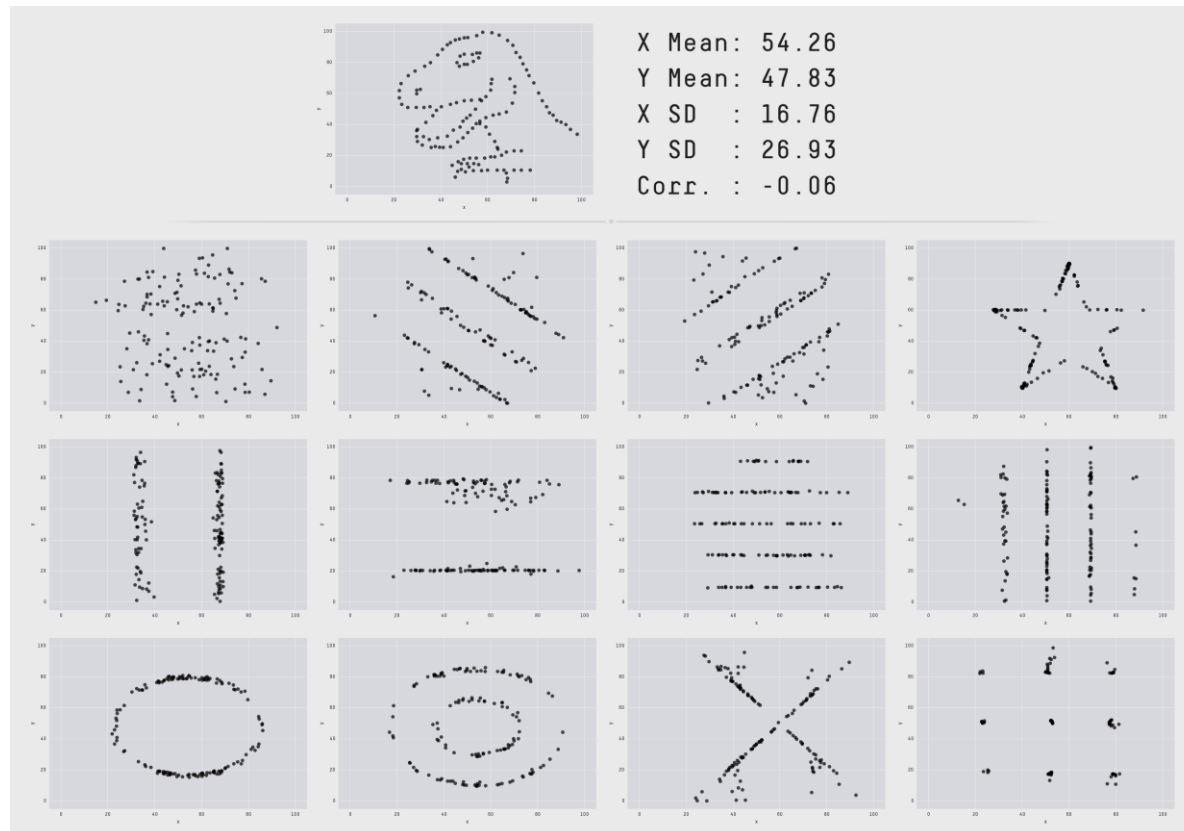


# Intro to Excel for Data Analysis

# Excel Basics

[Excel live session]

# Descriptive statistics not enough: important to visualize our data

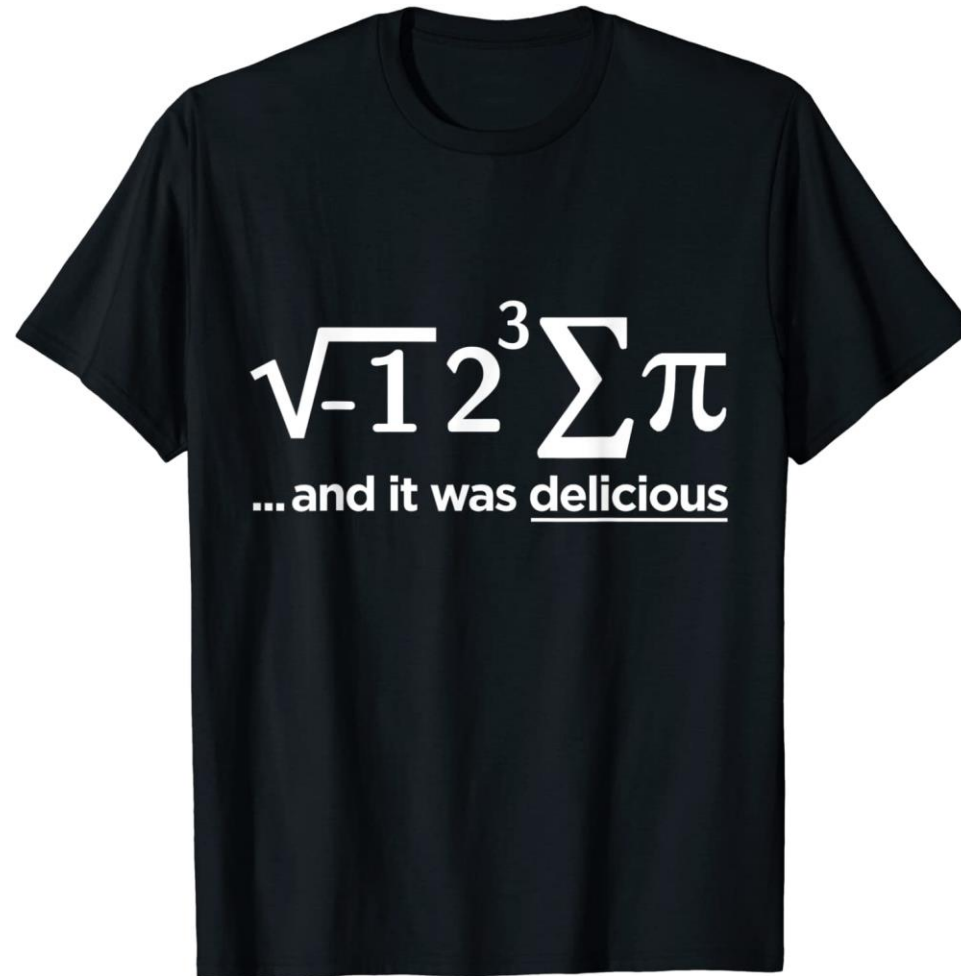


<https://www.autodesk.com/research/publications/same-stats-different-graphs>

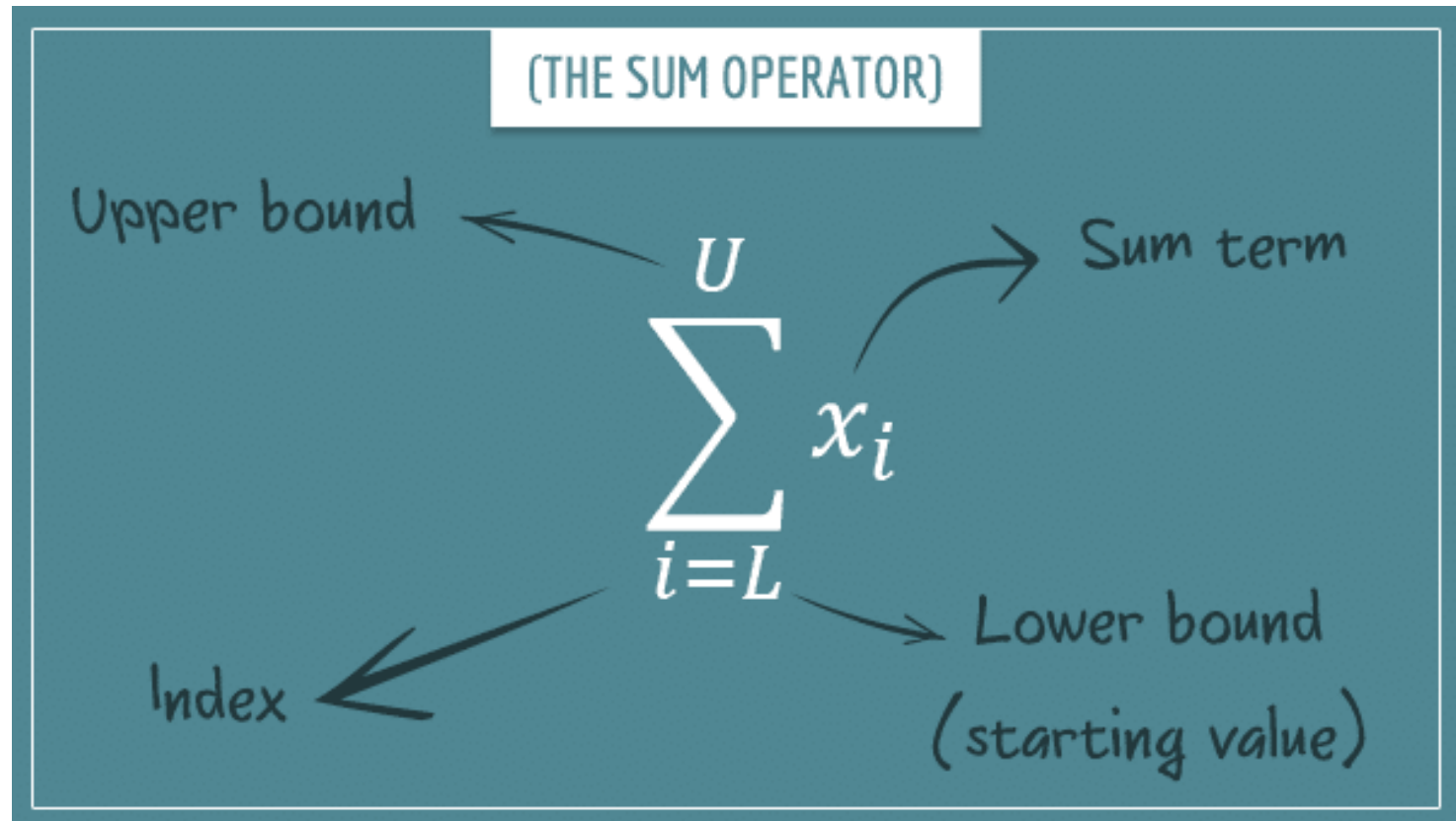


# Next Steps

# Notation



# Summation



# Summation rules

$$\sum_{i=1}^n x_i = x_1 + x_2 + \cdots + x_n$$

$$\sum_{i=1}^n a = na$$

$$\sum_{i=1}^n ax_i = a \sum_{i=1}^n x_i$$

$$\sum_{i=1}^n (x_i + y_i) = \sum_{i=1}^n x_i + \sum_{i=1}^n y_i$$

$$\sum_{i=1}^n (ax_i + by_i) = a \sum_{i=1}^n x_i + b \sum_{i=1}^n y_i$$

$$\sum_{i=1}^n (a + bx_i) = na + b \sum_{i=1}^n x_i$$

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

$$\sum_{i=1}^n (x_i - \bar{x}) = 0$$

$$\begin{aligned} \sum_{i=1}^2 \sum_{j=1}^3 f(x_i, y_j) &= \sum_{i=1}^2 [f(x_i, y_1) + f(x_i, y_2) + f(x_i, y_3)] \\ &= f(x_1, y_1) + f(x_1, y_2) + f(x_1, y_3) \\ &\quad + f(x_2, y_1) + f(x_2, y_2) + f(x_2, y_3) \end{aligned}$$

# Expected value (mean) is just SUMPRODUCT()

## KEY CONCEPT

## Expected Value and the Mean

### 2.1

Suppose the random variable  $Y$  takes on  $k$  possible values,  $y_1, \dots, y_k$ , where  $y_1$  denotes the first value,  $y_2$  denotes the second value, and so forth, and that the probability that  $Y$  takes on  $y_1$  is  $p_1$ , the probability that  $Y$  takes on  $y_2$  is  $p_2$ , and so forth. The expected value of  $Y$ , denoted  $E(Y)$ , is

$$E(Y) = y_1 p_1 + y_2 p_2 + \cdots + y_k p_k = \sum_{i=1}^k y_i p_i, \quad (2.3)$$

where the notation  $\sum_{i=1}^k y_i p_i$  means “the sum of  $y_i p_i$  for  $i$  running from 1 to  $k$ .” The expected value of  $Y$  is also called the mean of  $Y$  or the expectation of  $Y$  and is denoted  $\mu_Y$ .