Meeting 2

Development Economics Cohort

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Overview

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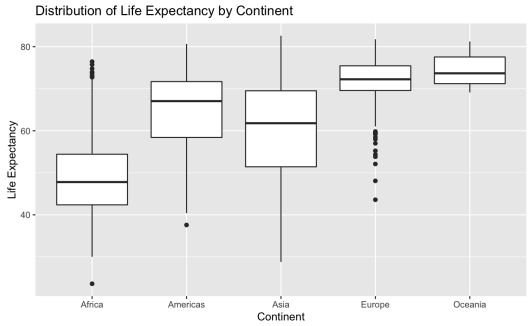
Statistical Concepts & Programming

- Since economists tend to employ a more **quantitative** approach to solve economic problems in their research, statistics and programming tools have become much more useful if you are considering working in the academia in future.
- Important concepts: mathematical probability; statistical distributions; expectation and variance; linear regression; sampling distribution; ....

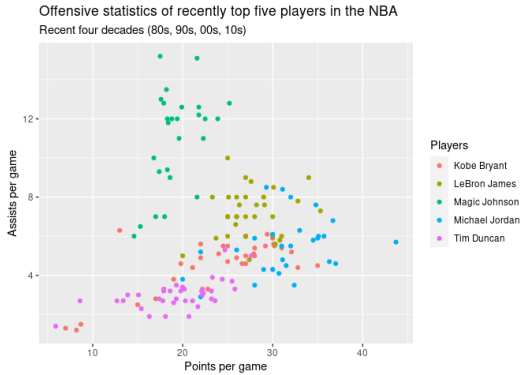
Graph Example 1

Figure 1: What is the distribution of life expectancy throughout the world?



Graph Example 2

Figure 2: Who is the GOAT in the NBA? How do we visualize players' offensive statistics, then?



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Intro to Probability

- *Definition*: **Sample space**, usually denoted as Ω, is a set that contains every possible outcome of a random experiment.
- *Definition*: An **event** is an unambiguous outcome of the experiment that can be determined by yes or no; importantly, an event should be a subset of sample space.

Coin Example

Let's simplify everything with an example of coin tossing. Assume this coin is fair, and the result could only be either H (heads) or T (tails).

- What is the sample space if we toss the coin once?
- What is the sample space if we toss the coin twice?

More Examples

- (Apply to college) For this random experiment of applying to college, the sample space is: $\Omega = \{a, r, w\}$, where a represents admission, r means rejection, and w stands for waitlist.
- (Roll a die) Assume this die to be six-sided and fair. The sample space $\Omega = \{1, 2, 3, 4, 5, 6\}$.

Next time: Set Theory & Probability Measure

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