Empirical rule essay sample

When the mean= median and the values often tend to cluster around the mean and median, producing a bell-shaped distribution. Then we can use the empirical rule to examine the variability. Usually in this bell-shaped data set, we can calculate the mean the standard deviation. The mean means the average value of this set of data. The standard deviation means the average scatter around the mean. If we allow to represents the mean and to represents the standard deviation. Then we can say 68% of the data are within, 95% of the data are within, 99. 7% of the data are within.

The picture gives us a clear overview of what the empirical rule look like. The Empirical Rule is useful for estimating the possibility of each interval for a bell-shaped distribution. For example, if we have 100 data for a variable which has a bell-shaped distribution. Then we can say that: approximately 68 data are lie within,

95 data are lie within,
27 (95-68= 27) data are lie within,
4. 7 (99. 7-95) data are lie within,
0. 3 data lies within.

Here is an example of the use of the Empirical Rule: Suppose that the distribution of monthly earning for all people who possess a bachelor’s degree is known to be bell-shaped and symmetric with a mean of $2000 and a standard deviation of $500. How do we know the percentage of the individuals with a bachelor’s degree earn less than 1500 per month? Well, Z=. The data should be lie within, The percentage should be 1-(50+68/2)%= 16%

B. How do we know the percentage of a individual with bachelor’s degree earns more than 1000 per month?

The data are lie within, the percentage should be (50+95/2)%= 97. 5%

C. How do we know the percentage of a individual with a bachelor’s degree earns between 3000 and 3500 per month?

The data are lie within. The percentage should be (99. 7-95)/2×100%= 2. 35%.

The Empirical Rule can be used only in the bell-shaped distribution. If the distribution is not bell-shaped, then we can use Chebyshev Rule for any other distributions. The possibility of each interval is changed: at least 0% of the data are lie within, at least 75% of the data are lie within, at least 88. 89% of the data are lie within.

The Z value can be-to +. And the probability of less than a certain Z value can be found in the ” The Cumulative Standardized Normal Distribution” Table on the back of the textbook. This is important because after you calculate your Z value, you can find the probability of less than the Z value using the Table. Also if you already know the expected probability, you can calculate the Z values and the certain value X (X=) for the variable that fits the situation. The example of the distribution of monthly wage can be also calculated through referring to ” The Cumulative Standardized Normal Distribution” Table. And this is an easier way to figure out the probability.