401 Session 2

Learning Objectives

After this session, the student will be able to:

• Identify measures of dispersion and their purposes.

* Measure of Dispersion: measures concerning the degree that the scores under study are dispersed or spread around the mean, 84.

• Identify the components of tabular and visual statistics.

• Explain the components of tabular and visual statistics.

• Define mean, median, and mode.

• Apply mean, median, and mode.

• Calculate the mean, median, and mode for individual and grouped data.

• Calculate measures of dispersion.

• Use SPSS to calculate mean, median, mode, and measures of dispersion.

• Define a frequency distribution.

• Describe the shapes of frequency distributions.

• Articulate the definition, advantages, and disadvantages of measures of dispersion.

Course Content

**Reading**

Sirkin, Chapters 4 and 5

**Problem Set 1**

**Exercise 4.1, 117**

73+66+75+70+72+69+74= 499/7 = 71.2857

71+68+67+58= 264/4= 66

**Exercise 4.2 118**

7+1/2=4 =72

4+1/2= 2.5 = 67.5 or 68

**Exercise 4.3**

73+75+70+72+69+74=433/6 =72.17

Same as 4.1 = 66

Median:

6+1/2 = 3.5 = 73

Same as 4.1 = 66

Iraq is an extreme outlier

**Exercise 4.4**

Oil Exporters Non Exporters

X= F= fx= x= f=

**Exercise 4.5**

1. 3
2. 6
3. 1
4. 5
5. 4
6. 2

**Exercise 4.6**

1. Median
2. Mean
3. Median
4. Mean
5. Mean
6. Median
7. Mean
8. Median

**Exercise 4.7**

1. Health Care costs are the most important issue to both groups, but Social Workers care more with a -3.27
2. Officials
3. Social Workers
4. No, the margin is negligible

**Exercise 4.8**

Elected officials are more concerned with health and growth issues. While Appointed officials are more concerned about the other issues.

**Exercise 4.9**

Health 14.25

Suicide -3.25

Growth 6.3

Abuse 1.5

Insurance 0 the same

AIDS -4.5

Managers: care more about Health, Growth, Abuse

Social Workers: care more about Suicide and AIDS

Both groups feel the same about Insurance

**Exercise 4.10**

1. Yes, by -.57, but that amount is really small
2. MGTPOP
3. MGTPOP
4. 8.83, 11.34, As a trend, yes there is a correlation between UNION and satisfaction between management, but Mangers have a greater sense of Security and Opportunity that Unions desire more UNION intervention by 2.something.

**Exercise 4.11**

1. 1.27 in favor of upper management
2. 22.57 Top Management: This is a red Flag
3. -8.44 in favor of Mid-Management
4. Yes, Middle management is discontent in areas such as Board (22.57 discrepancy), Security (37.35), Opportunity (59.44 which is the largest and suggests middle management does not feel as if they can grow in their careers. Salary Conditions are low and the support for unions is high.

**Exercise 4.12**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | White Collar | Blue Collar | Difference | Conclude |
| Attend | 93.31 | 92.38 | .93 | The Same |
| Board | 23.89 | 56 | -32.11 | BC supports the board far more |
| DIV | 84.2 | 69.95 | 14.25 | WC supports DIV |
| Secur | 31.31 | 77.47 | -46.16 | BC feels much more secure |
| Partic | 81.89 | 30.23 | 51.66 | WC desires Part |
| Oppor | 13.17 | 69.04 | -55.87 | WC very discontent on moving up |
| Union | 92.44 | 42.09 | 50.35 | WC in favor of union |
| Salary | 35 | 79.8 | -44.8 | BC much more optimistic about raise |

White collar is much more discontent than BC. It would appear that the top and bottom are happy, the middle is pissed. It would be interesting to see the number of employees in each category.

**Exercise 4.13**

Scores

0 | 7 8 9

1 | 0 2 4 7

2 | 0 1 2 4 8 8 9

3 | 0 0 3 4 6 7 8 9

4 | 1 3 5 7 8

5 | 2 7 9

**Exercise 4.14**

31/2=15.5 =Median 30; First Quartile 15 + 1=16/2 =8. 8=20 Third Quartile 15 +1=16/2=8. 8=41

0 5 10 15 20 25 30 35 40 45 50 55 60

**Exercise 4.15**

9 | 3 2

8 | 9 8 7 8 7

7 | 5 7 6

6 | 5

5 | 4

4 | 3 7

3 | 2 8 9 3 5

2 | 0 1 9 7 7 1 0 5 3 2

1 | 9 2 0 8 6

0 | 9

This is a bimodal class with more students feeling less anxious about math than more anxious.

12+1=13/2=6.5 Median=88 LQ=3=75 TQ=3=89

50 55 60 65 70 75 80 85 90 95 100

Negative Skewness