Anova:

Gender and Education
vs
Job Holds

BAN100: ASSIGNMENT 3 (PROBLEM 2)

Problem

A. Test to determine whether there is interaction between gender and education in holding jobs.

B. Test to determine whether there are differences in holding jobs between men and women.

C. Test to determine whether there are differences in holding jobs between the educational levels.

Summery of dataset

Alphabetic List of Variables and Attributes						
#	Variable	Type	Len	Format	Informat	Label
2	Education	Char	2	$2.	$2.	Education
1	Gender	Char	6	$6.	$6.	Gender
3	JobHolds	Num	8	BEST.		JobHolds

Sort Information	
Sortedby	Education
Validated	YES
Character Set	ASCII

Anova Test:

- **Class** = Gender, Education **Model** = Job Holds
- **Gender**
  - ✓ H0 = Gender does not affect the Job Holds
  - ✓ H1 = Gender Does affect the job holds.
- **Education**
  - ✓ H0 = Number of Job holds are not varies by Education Level
  - ✓ H1 = Number of job holds varies by the Education Level
- **Gender*Education**
  - ✓ H0 = There is No Interaction between Gender and Education in Holding Jobs
  - ✓ H1 = There is Interaction between Gender and Education in holding jobs

The GLM Procedure

Class Level Information		
Class	Levels	Values
Gender	2	Female Male
Education	4	E1 E2 E3 E4

Number of Observations Read	80
Number of Observations Used	80

Anova Test: Statistical Tables

- **Gender**
  - ✓ H0 = Gender does not affect the Job Holds
  - ✓ ~~H1 = Gender Does affect the job holds.~~
- **Education**
  - ✓ ~~H0 = Number of Job holds are not varies by Education Level~~
  - ✓ H1 = Number of job holds varies by the Education Level
- **Gender*Education**
  - ✓ H0 = There is No Interaction between Gender and Education in Holding Jobs
  - ✓ ~~H1 = There is Interaction between Gender and Education in holding jobs~~

The GLM Procedure

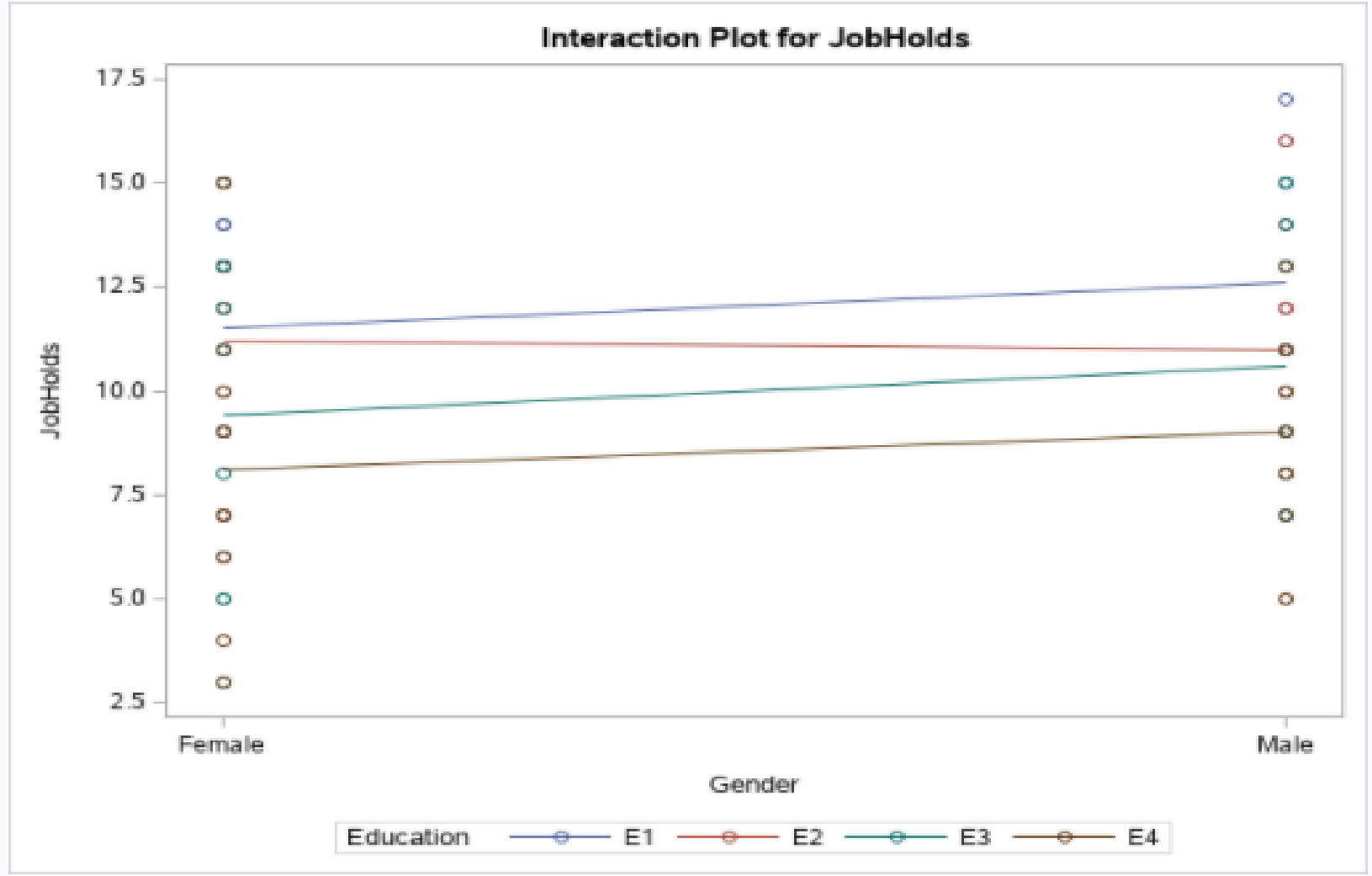
Dependent Variable: JobHolds JobHolds

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	153.3500000	21.9071429	2.17	0.0467
Error	72	726.2000000	10.0861111		
Corrected Total	79	879.5500000			

R-Square	Coeff Var	Root MSE	JobHolds Mean
0.174351	30.46392	3.175864	10.42500

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education	3	135.8500000	45.2833333	4.49	0.0060
Gender*Education	3	6.2500000	2.0833333	0.21	0.8915

Anova Test: Interaction Plot



Mean tables by Gender

- The table clearly depicts that, there in no mean difference between gender Male and Female

The MEANS Procedure

Gender=Female

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
40	10.0500000	3.5730473	3.0000000	15.0000000

Gender=Male

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
40	10.8000000	3.0817910	5.0000000	17.0000000

Mean tables by Education

- One can See the Clear difference between means of Education Level

Education=E1

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
20	12.0500000	2.8557421	6.0000000	17.0000000

Education=E3

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
20	10.0000000	3.6992176	3.0000000	15.0000000

Education=E2

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
20	11.1000000	2.9540338	5.0000000	16.0000000

Education=E4

Analysis Variable : JobHolds JobHolds				
N	Mean	Std Dev	Minimum	Maximum
20	8.5500000	2.9285348	3.0000000	15.0000000

Conclusion

- From the analysis we came to an conclusion that:
  - ✓ Holding of Job does not change between the genders
  - ✓ Holding of Job does varies by the Education Level
  - ✓ There is no interaction between Gender and Education level in Holding of Job.