

## Chapter 21 Problems

Predictors	$R^2$	k
Bar	.592	1
Gender	.016	1
Bar, Gender	.595	2
Bar, Gender, Bar x Gender	.603	3

a.  $\Delta R^2 = .595 - .592 = .003$

$$F = \frac{[(R^2_{k_{14}} - R^2_{k_1}) / (k_{14} - k_1)] / [(1 - R^2_{y, \max}) / (N - k_{\max} - 1)]}{= \frac{[(.595 - .592) / (2 - 1)] / [(1 - .595) / (20 - 2 - 1)] = 0.13, \text{ not sig.}}$$

Gender does not provide a significant increment in the predicted variance of performance, beyond that explained by bar exam scores.

b. Step 1: Test for significance of the Bar x Gender interaction.

$$\Delta R^2 = .603 - .595 = .008$$

$$F = \frac{[(.603 - .595) / (3 - 2)] / [(1 - .603) / (20 - 3 - 1)] = 0.32, \text{ not sig.}}$$

There is not good evidence that the regression lines for men and women are non-parallel.

Step 2: Test for significance of gender (beyond bar scores)

$$\Delta R^2 = .595 - .592 = .003$$

$$F = \frac{[(.595 - .592) / (2 - 1)] / [(1 - .603) / (20 - 3 - 1)] = 0.12, \text{ not sig.}}$$

There is not good evidence that the regression lines for men + women have different intercepts.

Step 3: Test the validity of bar scores (beyond gender)

$$R^2 = .595 - .016 = .579$$

$$F = \frac{[(.595 - .016) / (2 - 1)] / [(1 - .603) / (20 - 3 - 1)] = 23.34, p < .05$$

There is good evidence for the predictive validity of bar exam scores (beyond the variance explained by gender).

## Regression - Part a

### Variables Entered/Removed<sup>b</sup>

Model	Variables Entered	Variables Removed	Method
1	Bar exam score	.	Enter
2	Gender <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Performance

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769 <sup>a</sup>	.592	.569	1.056
2	.771 <sup>b</sup>	.595	.547	1.083

### Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.592	26.125	1	18	.000
2	.003	.117	1	17	.737

a. Predictors: (Constant), Bar exam score

b. Predictors: (Constant), Bar exam score, Gender

## Regression - Part b

Variables Entered/Removed<sup>c</sup>

Model	Variables Entered	Variables Removed	Method
1	Bar exam score	.	Enter
2	Gender <sup>a</sup>	.	Enter
3	Bar exam x Gender	.	Enter
4	<sup>a</sup>	Bar exam x Gender, Bar exam score	Remove

- a. All requested variables entered.  
 b. All requested variables removed.  
 c. Dependent Variable: Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769 <sup>a</sup>	.592	.569	1.056
2	.771 <sup>b</sup>	.595	.547	1.083
3	.776 <sup>c</sup>	.603	.528	1.106
4	.128 <sup>d</sup>	.016	-.038	1.640

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.592	26.125	1	18	.000
2	.003	.117	1	17	.737
3	.008	.309	1	16	.586
4	-.586	11.800	2	16	.001

- a. Predictors: (Constant), Bar exam score  
 b. Predictors: (Constant), Bar exam score, Gender  
 c. Predictors: (Constant), Bar exam score, Gender, Bar exam x Gender  
 d. Predictors: (Constant), Gender