Regressions with Interaction Effects

	Dependent variable:			
	wages			
	(1)	(2)	(3)	(4)
Constant	22,969***	9,584***	6,323***	7,847***
	(493)	(365)	(339)	(421)
female	6,711***		6,598***	3,565***
	(698)		(309)	(595)
years:female				200***
				(34)
years		1,104***	1,102***	1,001***
		(21)	(17)	(24)
Observations	1,000	1,000	1,000	1,000
Note:				*p<0.1;* ***p<0.05;*** p<0.01

Model 1: Do men and women earn different wages, on average?

Model: $Wages = b_0 + b_1 * Female$

Test: If b0 is significant, Men's wages are different than zero. If b1 is significant, Women's wages are different than Men's.

Note: This is an unconditional average, so it might be explained by other factors like differences in experience between men and women.

Model 2: What is the wage gain related to an extra year of experience?

Model: $Wages = b_0 + b_1 * Years$

Test: If b1 is significant then it is different than zero, experience does impact wages.

Model 3: Do men and women have different initial wages at the start of their careers?

Model: $Wages = b_0 + b_1 * Years + b_2 * Female$

Test: If b2 is significant then the Female intercept (b0+b2) is different than the Male intercept (b0).

Model 4: Are the gains in wages related to experience the same for men and women?

Model: $Wages = b_0 + b_1 * Years + b_2 * Female + b_3 * Years * Female$

Test: If b3 is significant then the slope for Women (b1+b3) is different than the slope for Men (b1).

Note: If b3 is not significant it is better to use the model with one slope for both groups.

Use Model 4 to answer the following questions:

(1) How much do men earn in their first job (zero years of experience)?

(2) How much do women earn in their first job?

(3) What is the average raise men receive each year?

(4) Do men and women receive different raises? How do we know?

(5) What is the average raise women receive each year?