Multiple Regression Analysis: SFA Professors' Salaries

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There is always a certain curiosity and controversy surrounding professor's salaries and whether they are overpaid or not paid enough. We have decided to try and untangle this wonder by creating a regression model in which the average person could easily understand while solving this lingering question. It is the average student's opinion that professors make way too much compared to their daily tasks.

On the other hand, many professors are always complaining that they are not paid enough with their advanced degree and work load, not to mention the option always hovers over their head of pursuing a different career with greater return. Other studies have proven that professors at SFASU do earn less, on average holding all other variables constant, than other schools of its caliber in peer-group comparison.

With this data, the public can better understand what all goes into determining each professor's salary and in turn, prove that all the tuition funds spent on the salaries is justified.

> "The less a man knows the bigger the noise he makes and the higher the salary he commands."
>
> - Mark Twain-

Descriptive Statistics

	Mean	Std. Dev.	Variance	Min.	Max.	Count
Salary	70,039.19	18,298.14	334,821,987.89	28,325.00	118,474.00	150
Contract months	9.24	0.74	0.55	9	12	150
Ph.D. Earned	0.64	0.48	0.23	0	1	150
College of Business	0.30	0.46	0.21	0	1	150
Quality Ratings	3.71	0.81	0.66	1.3	5	150
Full Professor	0.45	0.50	0.25	0	1	150
Associate Professor	0.26	0.44	0.19	0	1	150

Expectations

Contract Length	+
Ph.D. Holding	+
College of Business	+
Quality Ratings	+
Full Professor	+
Associate professor	-

Regression Analysis

Hypotheses Testing:

In a test where the alternative hypothesis is that the coefficient on contract months is greater than zero:

T-crit: $t_{.05,150} = 1.645$

Reject the null if t stat > 1.645

T-test: = 12.1684

Reject the null hypothesis

At the 95 percent confidence level, we have proven that contract length has a positive impact on salary in our model.

In the test where the null hypothesis is that all of the slope coefficients are jointly equal to zero:

F- crit= $F_{.05,6,143} = F_{.05,149} = 2.1$

Reject the null hypothesis if F stat is > 2.1

F Test= = 99.3153

Reject the null hypothesis

We are 95 percent confident that our independent variables taken together help determine professor's salaries.

Results for Regression Annalysis on Professor Salary

Intercept	-56178.1633	***
	(9990.027)	
Contract months	11765.6793	***
	(966.902)	
Ph.D. Earned	4670.7730	***
	(1441.366)	
College of Business	22630.7596	***
	(1506.605)	
Quality Ratings	-21.9376	
	(865.323)	
Full Professor	15643.9899	***
	(1647.038)	
Associate Professor	3296.1132	*
	(1858.672)	
Observations	150	
Adjusted R Square	0.7983	
F Test	99.3153	***

$$\hat{Y}_i = -56178.1633+11765.6793(x_1)+4670.773(x_2)+22630.7596(x_3)-21.9376(x_4)+15643.9899(x_5)+3296.1132(x_6)$$