Reading and Interpreting Multivariate Regression Output

DV = Total family income
IV = Number of children
IV = Years of education of the head
IV = County unemployment rate
IV = Number of years with emotional problems

ADJUSTED R^2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.306[a]	.094	.093	75308.88168

a. Predictors: (Constant), EMOTWYRS, KIDS, UNCY, EDHD

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.81E+12	4	4.528E+11	79.838	.000[a]
	Residual	1.75E+13	3081	5671427660		
	Total	1.93E+13	3085			

SIGNIFICANO OF THE MODEL

a. Predictors: (Constant), EMOTWYRS, KIDS, UNCY, EDHD

b. Dependent Variable: TOTAL FAMILY INCOME

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-38354.0	8230.250		-4.660	.000
	KIDS	3462.636	1167.626	.051	2.966	.003
	EDHD	8579.895	500.461	.297	17.144	.000
	UNCY	33.421	616.491	.001	.054	.957
	EMOTWYRS	-621.497	359.235	-.030	-1.730	.084

a

P VALUES FOR EACH INDIVIDUAL IV

a. Dependent Variable: TOTAL FAMILY INCOME

b FOR EACH INDIVIDUAL IV

What we can determine from this information:

1. Adjusted R^2 = .093 = 9.3% of the variation in family income is explained by the set of independent variables (or model).

2. The model is significant at the <.001 level.

3. a = $-38,354.00 = When each of the independent variables is 0, the family income is predicted to be $-38,354.00.

4. b coefficients:
   a. Kids = $3,462.64 = For each additional kid, family income is predicted to increase by $3,462.64. This relationship is significant at the .003 level.
   b. Edhd = $8,579.90 = For each additional year of education of the head, the family income is predicted to increase by $8,579.90. This relationship is significant at the <.001 level.
   c. UNCY = $33.42 = For each additional percentage increase in the county unemployment rate, the family income is predicted to increase by $33.42. This relationship is not significant (.957>.05).
   d. EMOTWYRS = $-621.50 = For each additional year of emotional problems, the family income is predicted to decrease by $621.50. This relationship is not significant (.084>.05).

5. We can make predictions using the regression equation - $Y' = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4$

   $Y' = -38,354.00 + 3462.64(x_1) + 8,579.90(x_2) + 33.42(x_3) - 621.50(x_4)$

   Predicted family income for someone with 3 kids, 13 years of ed, unemployment rate of 13% and 2 years of emotional problems = $82,764.08

   $Y' = -38,354.00 + 3462.64(3) + 8,579.90(13) + 33.42(13) - 621.50(2)$
   $= -38,354.00 + 10,387.92 + 111,538.70 + 434.46 - 1,243.00$
   $= -38,354.00 + 121,118.08$
   $= 82,764.08$

   Predicted family income for someone with 1 kids, 9 years of ed, unemployment rate of 2% and 0 years of emotional problems = $42,394.58

   $Y' = -38,354.00 + 3462.64(1) + 8,579.90(9) + 33.42(2) - 621.50(0)$
   $= -38,354.00 + 3462.64 + 77,219.10 + 66.84 - 0$
   $= -38,354.00 + 80,748.58$
   $= 42,394.58$