HW 7– Answers Multiple Regression

The California syntax consists of four Multiple Regression Analyses, each predicting attitudes toward immigration as measured by the four-item index RawImm4. The first multiple regression uses three demographic items as predictors. In the second multiple regression these same predictors are converted to dummy variables. The third regression adds a number of additional dummied independent variables. The fourth regression adds three political independent variables. In answering the questions be sure to read through the relevant syntax.

Part 1—California results

Cal1. What proportion of the variation in the DV is explained by Multiple Regression Analysis 1 (through line 70) of the California syntax file?
4%

Cal2. What is the equation for this regression analysis?
RawImm4 = 3.217 - .781 (age) + .459 (educR) - .400 (income)

Cal3. Draw the simple arrow diagram illustrating this model including Beta coefficients, Adjuster R^2 and N.

age **-.178**

educR **.099** **RawImm4**

income **-.091** **Adj R^2 =.048**
N = 1450

Cal4. What is the proper interpretation for the strongest predictor?
For each one standard deviation unit increase in age, support for immigration decreases by .178 units.

Cal5. In the analysis produced by Multiple Regression Analysis 2 (through line 97) of the California syntax, what proportion of the variation in the DV is explained?
4.8% as indicated by Adj R^2 = .048

Cal6. What is the reference category for the age variable in this regression?
agegt45

Cal7. Do these results suggest older or younger Californians more supportive of immigration?
Younger

Cal 8. In Multiple Regression 2, are those with a college education more or less supportive of immigration than those with a high school education? How do you know?
No significant difference because college is the reference category and the coefficient for high school is not significant.

Cal9. In the analysis produced by Multiple Regression Analysis 3 (through line 97) of the California syntax, how well does the multivariate equation fit the data?
Adj R^2 = .124

Cal10. What is the overall significance of this equation?
Sig <.001

Cal11. Which is its strongest predictor?
Hispanic

Cal12. How should the coefficient for white be interpreted?
Whites are significantly less supportive of immigration than the reference category (other).

Cal13. What percent of the variation in the DV is explained by the analysis produced by Multiple Regression 4 (through line) of the California syntax?
43.7%

Cal14. What is the proper interpretation of the Beta coefficient for interest?
As interest increases by one standard deviation, support for RawImm decreases by .052 units. The more interested the respondent, the less support for RawImm4

Cal15 Should we be concerned over multi-collinearity in Multiple Regression 4? Why?
No b/c lowest tol score =.535

Part 2—Texas results

Tex1. What proportion of the variation in ImmIncl is explained by the analysis produced by Multiple Regression 1a (through lines 986) of the Texas syntax file?
7.3% since Adjusted R^2 = .073

Tex2. What proportion of the variation in ImmExcl is explained by the analysis produced by Multiple Regression 1b procedure (through line 96) of the Texas syntax file?
8% since Adjusted R^2 = .080

Tex3. What is the equation for ImmIncl?
ImmIncl = 1.919 - .583(AgeR) + .157(EducR) + .251 (incomeR)

Tex4. What is the equation for ImmExcl?
ImmExcl = 1.973 + .636(AgeR) - .384(EducR) + .215 (incomeR)

Tex5. Which is the strongest predictor of variation in both ImmIncl and ImmExcl?
AgeR

Tex6. In Multiple Regressions 2a and 2b what are their respective adjusted R^2 values?
2a: R^2 = .027; In 2b R^2 = .036

Tex7. Why might these values be lower than the adjusted R2 values in Multiple Regression 1a and 1b?
As stated in the syntax, Anova in HW5 shows inconsistent results for age, educ and income.

Tex8. In Multiple Regressions 3a and 3b what are their respective values of R^2?
3a: R^2 = .079; In 3b R^2 = .123

Tex9. What is the strongest predictors in Multiple Regressions 3a & 3b?
Urban & White

Tex10. What is the proper interpretation of their respective Beta coefficients?
Compared with rural Texans those in Urban areas are .226 standard deviations higher on ImmIncl.
Compared with those classified as Other (neither white nor hispanic) whites score .195 standard deviation units higher on ImmExcl.

Tex11. What are the respective Adjusted R2 values for Multiple Regression 4a & 4b?
4a: R^2 = .246; In 4b R^2 = .413

Tex12 Apart from being ideologically liberal, in Multiple Regression 4a, what is the best predictor of ImmIncl?
Urban residence

Tex13. How does that same variable fare in predicting ImmExcl? Be precise.
It is not significant: Beta = -.051; p = .165.

Tex14. What is the Beta and significance of the best predictor of ImmExcl in Multiple Regression 4b?
liberal5 Beta = -.440 p < .001

Tex15
In the analyses produced by Multiple Regressions 4a & 4b predicting ImmIncl and ImmExcl repectively, what is the proper interpretation of the Beta coefficients for interest?
4a: As political interest has no significant effect on inclusive attitudes regarding Immigration attitudes. Beta =.014; p < .654

4b: As political interest increases so does support for Exclusive Immigration attitudes. Beta =.095; p < .001