EconS 410

Problem Set 3 – Economics of Nutrition and Obesity: due June 9, 2019

Instructions:
Submit your completed problem set on D2L. Show all work. All answers must be in one file. All tables in your write-up should be labeled with full titles and names of the variables.
For Part 1: attach your Excel file
For Part 2: attach your code and dataset. To be eligible for full credit, your code must run successfully from start to finish, (without errors), must be clearly annotated, and produce results reported in your homework.

1. **Globesity**

World Health Organization provides incredible data and information on health status of people across the globe. Of great interest to us in this course, they provide data on mean BMI and prevalence of oveweight and obesity around the world. In this question we will first focus on the prevalence of **obesity (BMI > 30).**
Directions:
1. Go to the following site http://apps.who.int/gho/data/view.main.CTRY2430A?lang=en
2. Download complete data set as: CSV table
3. In Excel appropriately sort the data
Using most current data - Year 2016
List the top 10 countries with the highest obesity prevalence for men, women, and both sexes.
List the top 10 countries with the lowest obesity prevalence for men, women, and both sexes.
What are the rankings for the US?
4. Carefully describe the data (one paragraph, 250 words) and what these numbers are saying (one paragraph, 250 words).

2. **In this application exercise, you will estimate the effect of health behaviors and demographic variables on BMI. Use R to answer the questions below.**

Use the dataset hw3_data.csv

Regress BMI on age, income, education, female, employed, poverty category 1, tv-hours, computer hours, days moderate exercise, days vigorous exercise.

1) Interpret the results: select one continuous regressor and one dummy regressor, and interpret the beta-coefficients on each.
Are they what you would expect?

2) Perform the testing for multicollinearity and heteroscedasticity. Specifically:
- generate and interpret plots where necessary,
- for each test: write out H0, Ha, rejection rule, result, conclusion

- provide overall interpretation of the results and any issues they may cause

3) Suppose you believe that <u>women</u> with <u>poverty category 1</u> (under 120% of poverty threshold) are more likely to have a higher BMI. Estimate your model, including the relevant interaction variable (female*povertycat1). Interpret the overall marginal effect on BMI for women with poverty category 1.