EXAM 1

Convocatoria Extraordinaria

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02/07/20

Tiempo: 35' (+5' to upload)

Use the data in FERTIL2 in the attached file to answer this question. The data contains the number of children (*children*) and different socioeconomic variables for a sample of Boswana's women. Variables are described below.

Question 1 (30%): Compute the average number of children for those without electricity and do the same for those with electricity (10%). Test whether the populatiom means are the same using linear regression (10%). Can you infer that having electricity "causes" women to have fewer children? (10%).

Question 2 (40%): Consider the model

$$children = \beta_0 + \beta_1 age + \beta_2 educ + \beta_3 electric + U, \qquad (1)$$

where the error U is possibly heteroskedastic. How does the effect of having electricity compare with that in question 1? Is it still statistically significant? (10%). Now add age^2, *urban*, and the three religious affiliation dummies. Is still statistical significant? (10%) Test that the effect of being catholic is identical to the effect of being protestant (20%)

Question 3 (30%): Add the interaction between *electric* and *educ*. Is the $electric's$ coefficient statistically significant in this model ? (15%) Is still the effect of having electricity statistically significant? (15%). Justify your answers.

Variables in FERTIL2

1. $mnthborn$: month woman born

2. $yearborn$: year woman born

3. age : age in years

4. $electric$ =1 if has electricity

5. $radio$ =1 if has radio

6. tv =1 if has tv

7. $bicycle$ =1 if has bicycle

8. $educ$: years of education

9. ceb: children ever born

10. $agefbrth$: age at first birth

11. $children$: number of living children

12. $knowmeth$ =1 if know about birth control

13. $usemeth$ =1 if ever use birth control

14. $monthfm$: month of first marriage

15. $yearfm$: year of first marriage

16. $agefm$: age at first marriage

17. $idlnchld$: 'ideal' number of children

18. $heduc$: husband's years of education

19. $agesq$: age^2

20. $urban$=1 if live in urban area

21. $urbeduc$: urban*educ

22. $spirit$=1 if religion == spirit

23. $protest$=1 if religion == protestant

24. $catholic$ =1 if religion == catholic

25. $frsthalf$=1 if mnthborn $<= 6$

26. $educ0$ =1 if educ == 0

27. $evermarr = 1$ if ever married