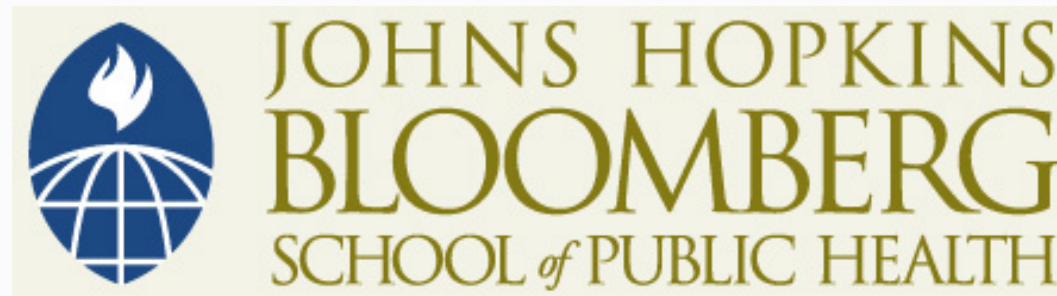


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JOHNS HOPKINS
BLOOMBERG
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Lecture 5d: Practice Problems

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CE Charges

1. The following MLR relates total charges from the carotid endarterectomy procedures to the subject's race. To start, the race is coded as 0 for Caucasians, 1 for African Americans, and 2 for others in neither of the first two race categories. Here is the distribution of race in the sample of persons from 1995 in Maryland who had such a procedure.

```
. tab race
```

Race	Freq.	Percent	Cum.
-----+-----			
Caucas	2,488	92.87	92.87
AfroAm	167	6.23	99.10
Other	24	0.90	100.00
-----+-----			
Total	2,679	100.00	

```
. tab race, nolab
```

Race	Freq.	Percent	Cum.
-----+-----			
0	2,488	92.87	92.87
1	167	6.23	99.10
2	24	0.90	100.00
-----+-----			
Total	2,679	100.00	

CE Charges

1. Now, here is the MLR using the “xi” option in Stata. Caucasians are the reference group.

```
. xi: regress totchg i.race
i.race          _Irace_0-2          (naturally coded; _Irace_0 omitted)

-----+-----
Source |           SS          df           MS              Number of obs =      2679
-----+-----
Model  | 1.3918e+09           2          695906243          F( 2, 2676) =      25.91
Residual | 7.1861e+10         2676          26853776.6          Prob > F      =      0.0000
-----+-----
Total  | 7.3253e+10         2678          27353442.4          R-squared     =      0.0190
                                           Adj R-squared =      0.0183
                                           Root MSE    =      5182.1

-----+-----
totchg |           Coef.      Std. Err.      t    P>|t|     [95% Conf. Interval]
-----+-----
_Irace_1 |    2934.388      414.2395       7.08  0.000     2122.127     3746.65
_Irace_2 |    1549.089     1062.874       1.46  0.145    -535.0484    3633.226
   _cons |    6888.995     103.8909      66.31  0.000     6685.28     7092.709
-----+-----
```

CE Charges

- a) What does the overall F-test conclude about a population-level association between total CE charges and race (assume a significance level of 0.05)?
- b) What is the estimated mean difference in CE charges for African-Americans compared to Caucasians?
- c) What is the estimated mean CE charges for African-Americans?
- d) What is the estimated mean difference in CE charges for African-Americans compared to non-Caucasians/non-African Americans?