```
      name:  <unnamed>
       log:  /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall20
> 23/pset1_logfile.smcl
  log type:  smcl
 opened on:   2 Oct 2023, 11:06:19

 1 .
 2 .
 3 . set more off

 4 . set varabbrev off

 5 . set linesize 255

 6 .
 7 . // See used in lasso step Q5b.
 8 . global seed_q5b 1234

 9 .
10 . if "`c(username)'" == "yfkashlan" {
11 .
12 .         global do_loc  "//Client/C$/Users/yfkas/OneDrive/Documents/GitHub/AR
   > E213_Fall2023"
13 .         global dta_loc "//Client/C$/Users/yfkas/CEGA Dropbox/Yazen Kashlan/A
   > RE213/Pset1"
14 .
15 .         // programs
16 .         net set ado "//Client/C$\Users/yfkas/Documents/stata_packages"
17 .         adopath + "//Client/C$/Users/yfkas/Documents/stata_packages"
18 .
19 . }

20 .
21 . if "`c(username)'" == "rajdevb" {
22 .
23 .         local mainfolder "/Users/rajdevb"
```

```
24 .
25 .         global do_loc   "`mainfolder'/Desktop/GIT_RajdevBrar/GitHub_are213/A
   > RE213_Fall2023"
26 .         global dta_loc  "`mainfolder'/Dropbox/ARE213/Pset1"
27 . }

28 .
29 .
30 . // install programs
31 . do "$do_loc/code/01_programs.do"

32 . /*
   > Programs to be installed
   >
   > */
33 .
34 .
35 . /*
   > local net_program_list ietoolkit // for iebaltab
   >
   > foreach program in `net_program_list' {
   >     net install `program', from ("http://fmwww.bc.edu/RePEc/bocode/i")
   > }
   >
   > * install version 6.2 of ietoolkit
   > net install ietoolkit , from("https://raw.githubusercontent.com/worldbank/ie
   > toolkit/v6.2/src") replace
   > */
36 . // ssc install heatplot
37 . // ssc install palettes, replace
38 . // ssc install colrspace, replace
39 . ssc install dmout
   checking dmout consistency and verifying not already installed...
   all files already exist and are up to date.

40 . ssc install oaxaca
   checking oaxaca consistency and verifying not already installed...
   all files already exist and are up to date.
```

```
41 .
42 . do "$do_loc/code/my_programs/fix_import.do"

43 . // This program stacks latex file into single column after tex file is
44 . // read in using import delimited
45 .
46 . capture prog drop fix_import

47 . prog define fix_import
     1.
48 .                 // but first change numerics to strings
49 .                 quietly ds, not(type string)
     2.                 foreach var in `r(varlist)' {
     3.                         tostring `var', replace
     4.                         // clear out missings
50 .                         replace `var' = "" if `var' == "."
     5.                 }
     6.
51 .                 quietly ds
     7.                 local var_count : word count `r(varlist)'
     8.                 qui gen text = v1
     9.                 forval i = 2/`var_count' {
    10.                         replace text = text + "," + v`i' if v`i' != ""
    11.                 }
    12.                 keep text
    13. end

52 .
   end of do-file

53 .
54 .
   end of do-file

55 .
56 . // clean
57 . do "$do_loc/code/02_clean.do"
```

```
58 . * ============================================================================
   > === *
59 . *                                                          ARE 213: Problem set
   >  1
60 . *                       Group members: Rajdev Brar, Yazen Kashlan, Cassandra
   >  Turk
61 . * ============================================================================
   > === *
62 . /*
   >
   >         Title:          are213_pset1.do
   >
   >         Outline:
   >
   >         Input:          pset1.dta
   >
   >         Output:         pset1_cleaned.dta
   >
   >         Modified:       Rajdev Brar on 23 Sep 2023
   >
   > */
63 . * ============================================================================
   > === *
64 .
65 .
66 . use "$dta_loc/data/pset1", clear

67 .
68 .
69 . * ============================================================================
   > === *
70 . * Question 1 (a-b)
71 . * ============================================================================
   > ===
72 .
73 .         // label values
74 .         label define yesno                                  0 "No"
   >     1 "Yes"
```

```
75 .         label define tobacco_lab                0 "Non-smoker" 1 "Smoker"

76 .         label values tobacco tobacco_lab

77 .
78 .
79 . ** Q1.a Fix missing values ------------------------------------------------
   > ----
80 . * We are told and can confirm that all variables except for cardiac - wgain
   > are without unassigned missing values.
81 .
82 .         * check missing values for vars: cardiac lung diabetes herpes chyper
   >  phyper pre4000 preterm tobacco cigar6 alcohol drink5 wgain
83 .         tab1 cardiac lung diabetes herpes chyper phyper pre4000 preterm toba
   > cco cigar6 alcohol drink5 wgain, m

-> tabulation of cardiac

    cardiac |
    disease |
     mother |      Freq.     Percent        Cum.
------------+-----------------------------------
          1 |      1,186        0.73        0.73
          2 |    160,224       99.21       99.95
          9 |         83        0.05      100.00
------------+-----------------------------------
      Total |    161,493      100.00

-> tabulation of lung

   acute or |
    chronic |
       lung |
    disease |
     mother |      Freq.     Percent        Cum.
------------+-----------------------------------
          1 |      1,336        0.83        0.83
          2 |    160,074       99.12       99.95
          9 |         83        0.05      100.00
------------+-----------------------------------
      Total |    161,493      100.00

-> tabulation of diabetes
```

diabetes mother	Freq.	Percent	Cum.
1	4,147	2.57	2.57
2	157,263	97.38	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of herpes

genital herpes mother	Freq.	Percent	Cum.
1	1,032	0.64	0.64
2	160,372	99.31	99.94
8	6	0.00	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of chyper

chronic hypertensio n	Freq.	Percent	Cum.
1	1,308	0.81	0.81
2	160,102	99.14	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of phyper

pregnancy related hypertensio n	Freq.	Percent	Cum.
1	4,929	3.05	3.05
2	156,481	96.90	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of pre4000

previous infant 4000 or more grams	Freq.	Percent	Cum.
1	2,176	1.35	1.35
2	159,234	98.60	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of preterm

previous preterm infant	Freq.	Percent	Cum.
1	2,626	1.63	1.63
2	158,784	98.32	99.95
9	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of tobacco

tobacco use during pregnancy	Freq.	Percent	Cum.
Smoker	31,977	19.80	19.80
2	129,285	80.06	99.86
9	231	0.14	100.00
Total	161,493	100.00	

-> tabulation of cigar6

average number of cigarettes per day recode	Freq.	Percent	Cum.
0	129,285	80.06	80.06
1	6,706	4.15	84.21
2	12,920	8.00	92.21
3	9,269	5.74	97.95
4	1,330	0.82	98.77
5	59	0.04	98.81

6	1,924	1.19	100.00
Total	161,493	100.00	

-> tabulation of alcohol

alcohol use during pregnancy	Freq.	Percent	Cum.
1	5,074	3.14	3.14
2	156,129	96.68	99.82
9	290	0.18	100.00
Total	161,493	100.00	

-> tabulation of drink5

average number of drinks recode	Freq.	Percent	Cum.
0	156,129	96.68	96.68
1	749	0.46	97.14
2	504	0.31	97.45
3	336	0.21	97.66
4	489	0.30	97.97
5	3,286	2.03	100.00
Total	161,493	100.00	

-> tabulation of wgain

weight gain	Freq.	Percent	Cum.
0	1,332	0.82	0.82
1	164	0.10	0.93
2	277	0.17	1.10
3	273	0.17	1.27
4	375	0.23	1.50
5	591	0.37	1.87
6	542	0.34	2.20
7	525	0.33	2.53
8	672	0.42	2.94
9	611	0.38	3.32
10	2,164	1.34	4.66
11	864	0.54	5.20
12	1,398	0.87	6.06

13	1,171	0.73	6.79
14	1,410	0.87	7.66
15	3,285	2.03	9.69
16	1,720	1.07	10.76
17	1,794	1.11	11.87
18	2,555	1.58	13.45
19	1,791	1.11	14.56
20	9,178	5.68	20.24
21	2,707	1.68	21.92
22	3,942	2.44	24.36
23	3,411	2.11	26.47
24	3,704	2.29	28.77
25	10,689	6.62	35.39
26	4,129	2.56	37.94
27	4,004	2.48	40.42
28	4,968	3.08	43.50
29	2,897	1.79	45.29
30	16,204	10.03	55.33
31	2,972	1.84	57.17
32	4,827	2.99	60.15
33	3,317	2.05	62.21
34	3,129	1.94	64.15
35	8,401	5.20	69.35
36	2,881	1.78	71.13
37	2,536	1.57	72.70
38	2,882	1.78	74.49
39	1,613	1.00	75.49
40	8,911	5.52	81.00
41	1,467	0.91	81.91
42	1,960	1.21	83.13
43	1,558	0.96	84.09
44	1,188	0.74	84.83
45	3,332	2.06	86.89
46	1,095	0.68	87.57
47	918	0.57	88.14
48	938	0.58	88.72
49	514	0.32	89.04
50	3,590	2.22	91.26
51	464	0.29	91.55
52	615	0.38	91.93
53	506	0.31	92.24
54	438	0.27	92.51
55	891	0.55	93.06
56	308	0.19	93.25
57	280	0.17	93.43
58	276	0.17	93.60
59	169	0.10	93.70
60	1,160	0.72	94.42
61	137	0.08	94.51

62	175	0.11	94.61
63	155	0.10	94.71
64	131	0.08	94.79
65	331	0.20	95.00
66	97	0.06	95.06
67	74	0.05	95.10
68	93	0.06	95.16
69	46	0.03	95.19
70	340	0.21	95.40
71	39	0.02	95.42
72	49	0.03	95.45
73	40	0.02	95.48
74	42	0.03	95.50
75	99	0.06	95.57
76	28	0.02	95.58
77	23	0.01	95.60
78	24	0.01	95.61
79	15	0.01	95.62
80	108	0.07	95.69
81	14	0.01	95.70
82	11	0.01	95.70
83	7	0.00	95.71
84	11	0.01	95.71
85	28	0.02	95.73
87	5	0.00	95.73
88	8	0.00	95.74
89	5	0.00	95.74
90	23	0.01	95.76
91	2	0.00	95.76
92	3	0.00	95.76
93	5	0.00	95.76
94	2	0.00	95.76
95	2	0.00	95.77
96	5	0.00	95.77
97	1	0.00	95.77
98	57	0.04	95.80
99	6,775	4.20	100.00
Total	161,493	100.00	

```
84 .
85 .
86 .         // From the original codebook: unknown or not stated
87 .         // 99: wgain
88 .         // 5: drink5
89 .         // 9: alcohol tobacco preterm pre4000 phyper chyper herpes diabetes
   > lung cardiac
90 .         // 6: cigar6
91 .         recode wgain (99=.m)
   (wgain: 6775 changes made)

92 .         recode drink5 (5=.m)
   (drink5: 3286 changes made)

93 .         recode cigar6 (6=.m)
   (cigar6: 1924 changes made)

94 .         recode alcohol tobacco preterm pre4000 phyper chyper herpes diabetes
   >  lung cardiac (9=.m)
   (alcohol: 290 changes made)
   (tobacco: 231 changes made)
   (preterm: 83 changes made)
   (pre4000: 83 changes made)
   (phyper: 83 changes made)
   (chyper: 83 changes made)
   (herpes: 83 changes made)
   (diabetes: 83 changes made)
   (lung: 83 changes made)
   (cardiac: 83 changes made)

95 .
96 .         // From the codebook: other unknowns
97 .         // 8: herpes
98 .         recode herpes (8=.d)
   (herpes: 6 changes made)

99 .
```

```
100 .
101 .         * check tabulations to see missing values have been recoded
102 .         tab1 cardiac lung diabetes herpes chyper phyper pre4000 preterm toba
    > cco cigar6 alcohol drink5 wgain, m
```

-> tabulation of cardiac

cardiac disease mother	Freq.	Percent	Cum.
1	**1,186**	**0.73**	**0.73**
2	**160,224**	**99.21**	**99.95**
.m	**83**	**0.05**	**100.00**
Total	**161,493**	**100.00**	

-> tabulation of lung

acute or chronic lung disease mother	Freq.	Percent	Cum.
1	**1,336**	**0.83**	**0.83**
2	**160,074**	**99.12**	**99.95**
.m	**83**	**0.05**	**100.00**
Total	**161,493**	**100.00**	

-> tabulation of diabetes

diabetes mother	Freq.	Percent	Cum.
1	**4,147**	**2.57**	**2.57**
2	**157,263**	**97.38**	**99.95**
.m	**83**	**0.05**	**100.00**
Total	**161,493**	**100.00**	

-> tabulation of herpes

genital herpes mother	Freq.	Percent	Cum.
1	1,032	0.64	0.64
2	160,372	99.31	99.94
.d	6	0.00	99.95
.m	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of chyper

chronic hypertensio n	Freq.	Percent	Cum.
1	1,308	0.81	0.81
2	160,102	99.14	99.95
.m	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of phyper

pregnancy related hypertensio n	Freq.	Percent	Cum.
1	4,929	3.05	3.05
2	156,481	96.90	99.95
.m	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of pre4000

previous infant 4000 or more grams	Freq.	Percent	Cum.
1	2,176	1.35	1.35
2	159,234	98.60	99.95
.m	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of preterm

previous preterm infant	Freq.	Percent	Cum.
1	2,626	1.63	1.63
2	158,784	98.32	99.95
.m	83	0.05	100.00
Total	161,493	100.00	

-> tabulation of tobacco

tobacco use during pregnancy	Freq.	Percent	Cum.
Smoker	31,977	19.80	19.80
2	129,285	80.06	99.86
.m	231	0.14	100.00
Total	161,493	100.00	

-> tabulation of cigar6

average number of cigarettes per day recode	Freq.	Percent	Cum.
0	129,285	80.06	80.06
1	6,706	4.15	84.21
2	12,920	8.00	92.21
3	9,269	5.74	97.95
4	1,330	0.82	98.77
5	59	0.04	98.81
.m	1,924	1.19	100.00
Total	161,493	100.00	

-> tabulation of alcohol

alcohol use during pregnancy	Freq.	Percent	Cum.
1	5,074	3.14	3.14
2	156,129	96.68	99.82
.m	290	0.18	100.00
Total	161,493	100.00	

-> tabulation of drink5

average number of drinks recode	Freq.	Percent	Cum.
0	156,129	96.68	96.68
1	749	0.46	97.14
2	504	0.31	97.45
3	336	0.21	97.66
4	489	0.30	97.97
.m	3,286	2.03	100.00
Total	161,493	100.00	

-> tabulation of wgain

weight gain	Freq.	Percent	Cum.
0	1,332	0.82	0.82
1	164	0.10	0.93
2	277	0.17	1.10
3	273	0.17	1.27
4	375	0.23	1.50
5	591	0.37	1.87
6	542	0.34	2.20
7	525	0.33	2.53
8	672	0.42	2.94
9	611	0.38	3.32
10	2,164	1.34	4.66
11	864	0.54	5.20
12	1,398	0.87	6.06
13	1,171	0.73	6.79
14	1,410	0.87	7.66
15	3,285	2.03	9.69
16	1,720	1.07	10.76
17	1,794	1.11	11.87
18	2,555	1.58	13.45

19	1,791	1.11	14.56
20	9,178	5.68	20.24
21	2,707	1.68	21.92
22	3,942	2.44	24.36
23	3,411	2.11	26.47
24	3,704	2.29	28.77
25	10,689	6.62	35.39
26	4,129	2.56	37.94
27	4,004	2.48	40.42
28	4,968	3.08	43.50
29	2,897	1.79	45.29
30	16,204	10.03	55.33
31	2,972	1.84	57.17
32	4,827	2.99	60.15
33	3,317	2.05	62.21
34	3,129	1.94	64.15
35	8,401	5.20	69.35
36	2,881	1.78	71.13
37	2,536	1.57	72.70
38	2,882	1.78	74.49
39	1,613	1.00	75.49
40	8,911	5.52	81.00
41	1,467	0.91	81.91
42	1,960	1.21	83.13
43	1,558	0.96	84.09
44	1,188	0.74	84.83
45	3,332	2.06	86.89
46	1,095	0.68	87.57
47	918	0.57	88.14
48	938	0.58	88.72
49	514	0.32	89.04
50	3,590	2.22	91.26
51	464	0.29	91.55
52	615	0.38	91.93
53	506	0.31	92.24
54	438	0.27	92.51
55	891	0.55	93.06
56	308	0.19	93.25
57	280	0.17	93.43
58	276	0.17	93.60
59	169	0.10	93.70
60	1,160	0.72	94.42
61	137	0.08	94.51
62	175	0.11	94.61
63	155	0.10	94.71
64	131	0.08	94.79
65	331	0.20	95.00
66	97	0.06	95.06
67	74	0.05	95.10

68	93	0.06	95.16
69	46	0.03	95.19
70	340	0.21	95.40
71	39	0.02	95.42
72	49	0.03	95.45
73	40	0.02	95.48
74	42	0.03	95.50
75	99	0.06	95.57
76	28	0.02	95.58
77	23	0.01	95.60
78	24	0.01	95.61
79	15	0.01	95.62
80	108	0.07	95.69
81	14	0.01	95.70
82	11	0.01	95.70
83	7	0.00	95.71
84	11	0.01	95.71
85	28	0.02	95.73
87	5	0.00	95.73
88	8	0.00	95.74
89	5	0.00	95.74
90	23	0.01	95.76
91	2	0.00	95.76
92	3	0.00	95.76
93	5	0.00	95.76
94	2	0.00	95.76
95	2	0.00	95.77
96	5	0.00	95.77
97	1	0.00	95.77
98	57	0.04	95.80
.m	6,775	4.20	100.00
Total	161,493	100.00	

```
103 .
104 .
105 . ** Q1.b Recode indicators ------------------------------------------------
    > ----
```

```
106 . // From code book: indicators with 1 = yes, 2 = no
107 .
108 .         // recode indicators
109 .         ds dmar rectype pldel3 csex anemia - tobacco alcohol
    dmar      rectype   pldel3    csex      anemia    cardiac   lung      diabetes
    >   herpes
    >             chyper
    >                       phyper
    >                                 pre4000
    >                                           preterm
    >                                                     tobacco
    >                                                               alcohol

110 .         recode `r(varlist)' (2=0)
    (dmar: 51893 changes made)
    (rectype: 41672 changes made)
    (pldel3: 3208 changes made)
    (csex: 78615 changes made)
    (anemia: 159610 changes made)
    (cardiac: 160224 changes made)
    (lung: 160074 changes made)
    (diabetes: 157263 changes made)
    (herpes: 160372 changes made)
    (chyper: 160102 changes made)
    (phyper: 156481 changes made)
    (pre4000: 159234 changes made)
    (preterm: 158784 changes made)
    (tobacco: 129285 changes made)
    (alcohol: 156129 changes made)

111 .
112 .         // relabel vague indicators
113 .         label var dmar          "Mother: married (yes=1)"

114 .         label var rectype       "Resident in state and county of occurance (
    > yes=1)"
```

```
115 .         label var pldel3        "Born in hospital (yes=1)"

116 .         label var csex          "Male (yes=1)"

117 .
118 .
119 .         // Recode mrace3 as a set of indicator variables
120 .         assert !missing(mrace3) // no missing values

121 .         tab mrace3, gen(mrace3_)
```

race of mother recode	Freq.	Percent	Cum.
1	**133,608**	**82.73**	**82.73**
2	**3,354**	**2.08**	**84.81**
3	**24,531**	**15.19**	**100.00**
Total	**161,493**	**100.00**	

```
122 .         drop mrace3

123 .         label var mrace3_1 "Mother race: White (yes=1)"

124 .         label var mrace3_2 "Mother race: Other (yes=1)"

125 .         label var mrace3_3 "Mother race: Black (yes=1)"

126 .
127 .
128 .         // Coarsen ormoth and orfath into indicator variables
129 .         tab ormoth
```

hispanic origin of mother	Freq.	Percent	Cum.
0	**154,987**	**96.09**	**96.09**
1	**587**	**0.36**	**96.45**
2	**4,098**	**2.54**	**98.99**
3	**99**	**0.06**	**99.05**
4	**630**	**0.39**	**99.44**
5	**898**	**0.56**	**100.00**
Total	**161,299**	**100.00**	

```
130 .         gen     hisp_moth = ormoth
    (194 missing values generated)

131 .         replace hisp_moth = 1 if ormoth > 0 & !missing(ormoth)
    (5,725 real changes made)

132 .         lab var hisp_moth "Mother race: Hispanic (yes=1)"

133 .
134 .         tab orfath
```

hispanic origin of father	Freq.	Percent	Cum.
0	**151,361**	**95.84**	**95.84**
1	**774**	**0.49**	**96.33**
2	**4,092**	**2.59**	**98.92**
3	**117**	**0.07**	**98.99**
4	**734**	**0.46**	**99.46**
5	**854**	**0.54**	**100.00**
Total	**157,932**	**100.00**	

```
135 .         gen     hisp_fath = orfath
    (3,561 missing values generated)

136 .         replace hisp_fath = 1 if orfath > 0 & !missing(orfath)
    (5,797 real changes made)

137 .         lab var hisp_fath "Father race: Hispanic (yes=1)"

138 .
139 .         drop ormoth orfath

140 .
141 .         // For simplicity, drop stresfip, birmon, and weekday.
```

```
142 .         tab stresfip
```

state of residence	Freq.	Percent	Cum.
0	28	0.02	0.02
1	1	0.00	0.02
4	3	0.00	0.02
6	23	0.01	0.03
8	3	0.00	0.04
9	6	0.00	0.04
10	289	0.18	0.22
11	2	0.00	0.22
12	40	0.02	0.24
13	11	0.01	0.25
17	8	0.00	0.26
19	2	0.00	0.26
21	7	0.00	0.26
22	1	0.00	0.26
23	1	0.00	0.26
24	358	0.22	0.48
25	8	0.00	0.49
26	5	0.00	0.49
27	2	0.00	0.49
28	1	0.00	0.49
29	2	0.00	0.50
30	1	0.00	0.50
31	1	0.00	0.50
32	1	0.00	0.50
33	1	0.00	0.50
34	2,277	1.41	1.91
36	739	0.46	2.37
37	18	0.01	2.38
38	1	0.00	2.38
39	417	0.26	2.64
40	3	0.00	2.64
41	1	0.00	2.64
42	157,075	97.26	99.90
44	1	0.00	99.90
45	7	0.00	99.91
46	1	0.00	99.91
47	7	0.00	99.91
48	6	0.00	99.92
51	27	0.02	99.93
53	5	0.00	99.94
54	99	0.06	100.00
55	4	0.00	100.00
Total	161,493	100.00	

```
143 .         tab birmon
```

month of birth	Freq.	Percent	Cum.
1	**13,417**	**8.31**	**8.31**
2	**12,422**	**7.69**	**16.00**
3	**13,981**	**8.66**	**24.66**
4	**13,589**	**8.41**	**33.07**
5	**13,928**	**8.62**	**41.70**
6	**13,314**	**8.24**	**49.94**
7	**14,191**	**8.79**	**58.73**
8	**14,083**	**8.72**	**67.45**
9	**13,968**	**8.65**	**76.10**
10	**13,308**	**8.24**	**84.34**
11	**12,411**	**7.69**	**92.02**
12	**12,881**	**7.98**	**100.00**
Total	**161,493**	**100.00**	

```
144 .         tab weekday
```

day of week child born	Freq.	Percent	Cum.
1	**17,737**	**10.98**	**10.98**
2	**23,163**	**14.34**	**25.33**
3	**25,511**	**15.80**	**41.12**
4	**25,370**	**15.71**	**56.83**
5	**25,136**	**15.56**	**72.40**
6	**25,518**	**15.80**	**88.20**
7	**19,058**	**11.80**	**100.00**
Total	**161,493**	**100.00**	

```
145 .
```

```
146 .         drop stresfip birmon weekday

147 .
148 .
149 . * recode potential controls
150 .         gen     dmeduc_0 = (dmeduc==0)

151 .         lab var dmeduc_0 "Education: No formal education (yes=1)"

152 .         gen     dmeduc_1 = (dmeduc>=1 & dmeduc<=8)

153 .         lab var dmeduc_1 "Highest education: Elementary school (yes=1)"

154 .         gen     dmeduc_2 = (dmeduc>=9 & dmeduc<=12)

155 .         lab var dmeduc_2 "Highest education: High school (yes=1)"

156 .         gen     dmeduc_3 = (dmeduc>=13 & dmeduc<=17)

157 .         lab var dmeduc_3 "Highest education: College or more (yes=1)"

158 .         foreach var of varlist dmeduc_* {
  2.                 replace `var'=. if mi(dmeduc)
  3.         }
(2,923 real changes made, 2,923 to missing)
(2,923 real changes made, 2,923 to missing)
(2,923 real changes made, 2,923 to missing)
(2,923 real changes made, 2,923 to missing)

159 .
160 .         tab adequacy, gen(adequacy_)
```

adequacy of care recode	Freq.	Percent	Cum.
1	**111,560**	**70.89**	**70.89**
2	**34,658**	**22.02**	**92.91**
3	**11,160**	**7.09**	**100.00**
Total	**157,378**	**100.00**	

```
161 .         lab var adequacy_1 "Adequacy of care: Adequate (yes=1)"

162 .         lab var adequacy_2 "Adequacy of care: Intermediate (yes=1)"

163 .         lab var adequacy_3 "Adequacy of care: Inadequate (yes=1)"

164 .
165 .         tab cntocpop, gen(cntocpop_)
```

county of occurence population	Freq.	Percent	Cum.
0	**50,052**	**34.75**	**34.75**
1	**20,666**	**14.35**	**49.10**
2	**43,136**	**29.95**	**79.04**
3	**30,187**	**20.96**	**100.00**
Total	**144,041**	**100.00**	

```
166 .         lab var cntocpop_1 "Population of county of origin: 1000k or more (y
    > es=1)"

167 .         lab var cntocpop_2 "Population of county of origin: 500k to 1000k (y
    > es=1)"

168 .         lab var cntocpop_3 "Population of county of origin: 250k to 500k (ye
    > s=1)"

169 .         lab var cntocpop_4 "Population of county of origin: 100k to 250k (ye
    > s=1)"

170 .
171 .         tab isllb10, gen(isllb10_)
```

interval since last live birth recode	Freq.	Percent	Cum.
0	**64,196**	**41.69**	**41.69**
1	**1,363**	**0.89**	**42.57**
2	**1,447**	**0.94**	**43.51**
3	**9,521**	**6.18**	**49.70**
4	**12,639**	**8.21**	**57.90**
5	**22,363**	**14.52**	**72.43**
6	**14,940**	**9.70**	**82.13**
7	**8,765**	**5.69**	**87.82**
8	**5,465**	**3.55**	**91.37**

9	**13,291**	**8.63**	**100.00**
Total	**153,990**	**100.00**	

```
172 .         lab var isllb10_1 "Interval since last birth: No previous live birth
    >  (yes=1)"

173 .         lab var isllb10_2 "Interval since last birth: 0 months (yes=1)"

174 .         lab var isllb10_3 "Interval since last birth: 1-11 months (yes=1)"

175 .         lab var isllb10_4 "Interval since last birth: 12-17 months (yes=1)"

176 .         lab var isllb10_5 "Interval since last birth: 18-23 months (yes=1)"

177 .         lab var isllb10_6 "Interval since last birth: 24-35 months (yes=1)"

178 .         lab var isllb10_7 "Interval since last birth: 36-47 months (yes=1)"

179 .         lab var isllb10_8 "Interval since last birth: 48-59 months (yes=1)"

180 .         lab var isllb10_9 "Interval since last birth: 60-71 months (yes=1)"

181 .         lab var isllb10_10 "Interval since last birth: 72 months or over (ye
    > s=1)"

182 .
183 .         tab totord9, gen(totord9_)
```

total birth order recode	Freq.	Percent	Cum.
1	**49,137**	**30.44**	**30.44**
2	**47,868**	**29.66**	**60.10**
3	**31,074**	**19.25**	**79.35**
4	**16,391**	**10.15**	**89.51**
5	**8,234**	**5.10**	**94.61**
6	**4,247**	**2.63**	**97.24**
7	**2,014**	**1.25**	**98.49**
8	**2,444**	**1.51**	**100.00**
Total	**161,409**	**100.00**	

```
184 .         lab var totord9_1 "Total birth order: First child (yes=1)"

185 .         lab var totord9_2 "Total birth order: Second child (yes=1)"

186 .         lab var totord9_3 "Total birth order: Third child (yes=1)"

187 .         lab var totord9_4 "Total birth order: Fourth child (yes=1)"

188 .         lab var totord9_5 "Total birth order: Fifth child (yes=1)"

189 .         lab var totord9_6 "Total birth order: Sixth child (yes=1)"

190 .         lab var totord9_7 "Total birth order: Seventh child (yes=1)"

191 .         lab var totord9_8 "Total birth order: Eight child or more (yes=1)"

192 .
193 .         gen     dplural_1 = (dplural==1 )

194 .         replace dplural_1 = . if mi(dplural_1)
    (0 real changes made)

195 .         lab var dplural_1 "Single child birth (yes=1)"

196 .
197 .
198 .
199 . * Label variables
200 .         lab var dbrwt    "Birthweight (grams)"

201 .         lab var tobacco  "Tobacco use during pregnancy (yes=1)"

202 .         lab var dmage    "Age of mother (years)"

203 .         lab var alcohol  "Alcohol use during pregnancy (yes=1)"

204 .         lab var phyper   "Pregnancy-related hypertension (yes=1)"
```

```
205 .         lab var diabetes "Mother has diabetes (yes=1)"

206 .         lab var anemia   "Mother has anemia (yes=1)"

207 .         lab var dgestat  "Gestation (weeks)"

208 .         lab var dlivord  "Number of live births, now dead"

209 .         lab var pre4000  "Previous infant 4000+ grams (yes=1)"

210 .         lab var lung     "Mother has acute or chronic lung disease (yes=1)"

211 .
212 .
213 .         qui ds

214 .         local all_vars `r(varlist)'

215 .         egen miss_ct = rowmiss(`all_vars')

216 .         gen  miss_any = (miss_ct > 0)

217 .         label define miss_any_lab 0 "No missings variables" 1 "Any missing v
    > ariables"

218 .         label values miss_any miss_any_lab

219 .
220 .
221 . save "$dta_loc/data/pset1_clean_miss.dta", replace
    file /Users/rajdevb/Dropbox/ARE213/Pset1/data/pset1_clean_miss.dta saved

222 .
223 .         // drop missings to achieve final obs count of 114,610.
224 .         drop if miss_any == 1
    (46,883 observations deleted)
```

```
225 .         drop miss*

226 .         assert _N == 114610 // as required in prompt

227 .
228 .
229 . save "$dta_loc/data/pset1_clean.dta", replace
    file /Users/rajdevb/Dropbox/ARE213/Pset1/data/pset1_clean.dta saved

230 .
231 .
232 .
233 .
    end of do-file

234 .
235 . // analyze
236 . do "$do_loc/code/03_analysis.do"

237 . * ============================================================================
    > === *
238 . /*
    >
    >         Title:          03_analysis.do
    >
    >         Outline:        Analysis
    >
    >         Input:          pset1_clean.dta
    >
    >         Output:         tables
    >
    > */
239 . * ============================================================================
    > === *
240 .
241 .
242 .
```

```
. * ============================================================================
> === *
. * Question 1 (c-d)
. * ============================================================================
> === *
.
. * ----------------------------------------------------------------------------
> --- *
. * Question 1c: Produce analysis dataset
. //Q: Do the data appear to be missing completely at random?
.
. * import data
. use "$dta_loc/data/pset1_clean_miss.dta", clear

.
. // Compare group averages
. local balance_list dbrwt ///
>                                         tobacco ///
>                                         mrace3_3 ///
>                                         hisp_moth ///
>                                         dmeduc_1 dmeduc_2 dmeduc_3  ///
>                                         dmage ///
>                                         dmar ///
>                                         csex ///
>                                         alcohol ///
>                                         phyper ///
>                                         diabetes ///
>                                         lung ///
>                                         anemia ///
>                                         pre4000 ///
>                                         dgestat ///
>                                         dlivord ///
>                                         dplural_1

.
.
. iebaltab `balance_list', stdev ///
>         grpvar(miss_any) ///
>         rowvarlabels normdiff starsno ///
>         savetex("$do_loc/tables/table0_balance_miss.tex") ///
>         tblnote("Notes: Insert footnote")                              ///
>         tblnonote                                ///
>         texnotewidth(1) replace
    Balance table saved to:
        /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall2023/
        > tables/table0_balance_miss.tex
```

```
259 .
260 .
261 .
262 . * ------------------------------------------------------------------------
    > --- *
263 . * Question 1d: Generate summary table
264 .
265 . *Import data
266 . use "$dta_loc/data/pset1_clean.dta", clear

267 .
268 . local covar_list        dbrwt ///
    >                                       mrace3_3 ///
    >                                       hisp_moth ///
    >                                       dmeduc_1 dmeduc_2 dmeduc_3  ///
    >                                       dmage ///
    >                                       dmar ///
    >                                       csex ///
    >                                       alcohol ///
    >                                       phyper ///
    >                                       diabetes ///
    >                                       lung ///
    >                                       anemia ///
    >                                       pre4000 ///
    >                                       dgestat ///
    >                                       dlivord ///
    >                                       dplural_1

269 .
270 .
271 .
272 . // generate balance table
273 . iebaltab `covar_list', ///
    >         grpvar(tobacco) ///
    >         savetex("$do_loc/tables/table1_balance.tex") ///
    >         rowvarlabels ///
    >         total stdev ///
    >         starsno ///
    >         tblnote("Notes: Insert footnote")       ///
    >         tblnonote                                                   ///
    >         replace normdiff  onerow
        Balance table saved to:
            /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall2023/
            > tables/table1_balance.tex
```

```
274 .
275 .
276 .
277 .
278 . * ============================================================================
    > === *
279 . * Question 2
280 . * ============================================================================
    > === *
281 . * ----------------------------------------------------------------------------
    > --- *
282 . * Question 2a: Compute mean difference in birthweight by smoking status
283 .
284 .         * difference in means table: birthweight by mother's smoker status
285 .         eststo: reg dbrwt tobacco , robust

Linear regression                               Number of obs     =    114,610
                                                F(1, 114608)      =    2701.65
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0226
                                                Root MSE          =     578.52

------------------------------------------------------------------------------
             |               Robust
      dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tobacco |  -240.4778   4.626581   -51.98   0.000    -249.5458   -231.4098
       _cons |   3411.617   1.867738  1826.60   0.000     3407.956    3415.278
------------------------------------------------------------------------------

(est1 stored)

286 .         esttab using "$do_loc/tables/table2_diffmeans.tex", nostar label  te
    > x  replace  se
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
    > Fall2023/tables/table2_diffmeans.tex)

287 .         eststo clear
```

```
288 .
289 .         * means in birthweight by number of cigars smoked by mother on avera
    > ge
290 .         tabstat dbrwt, by(cigar6) stats(mean N)

    Summary for variables: dbrwt
         by categories of: cigar6 (average number of cigarettes per day recode)
```

cigar6	mean	N
0	**3411.617**	**96344**
1	**3208.195**	**4082**
2	**3164.401**	**7759**
3	**3159.769**	**5648**
4	**3124.754**	**749**
5	**3170.429**	**28**
Total	**3373.291**	**114610**

```
291 .
292 .
293 . * ------------------------------------------------------------------------
    > -- *
294 . * Question 2b: choose controls
295 .
296 . * create global of controls
297 .         global covar_list alcohol mrace3_2 mrace3_3 hisp_moth ///
    >                                                   adequacy_2 adequacy_3 ///
    >                                                   cardiac pre4000 phyper diabe
    > tes anemia lung  ///
    >                                                   dlivord dmeduc_1 dmeduc_2 dm
    > educ_3 dgestat ///
    >                                                   dmage dmar ///
    >                                                   totord9_2 totord9_3 totord9_
    > 4 totord9_5 totord9_6 totord9_7 totord9_8 ///
    >                                                   csex  ///
    >                                                   isllb10_2 isllb10_3 isllb10_
    > 4 isllb10_5 isllb10_6 isllb10_7 isllb10_8 isllb10_9 isllb10_10 ///
    >                                                   dplural_1
```

```
298 .
299 .
300 . * ----------------------------------------------------------------------
    > --- *
301 . * ======================================================================
    > === *
302 . * Question 3:
303 . * ======================================================================
    > === *
304 . use "$dta_loc/data/pset1_clean.dta", clear

305 .
306 .
307 . * See 3a after 3b
308 .
309 . * ----------------------------------------------------------------------
    > --- *
310 . * Question 3b: Results sensitive to dropping controls one at a time?
311 . eststo clear

312 . preserve

313 .
314 .         local num_controls: list sizeof global(covar_list)

315 .         di `num_controls'
    37

316 .
317 .         * drop controls one at a time
318 .         forvalues i=1/`num_controls' {
      2. //               dis "`i'"
319 .                  local control_num: word `i' of $covar_list
      3.                   unab varlist: $covar_list
      4.                   unab exclude: `control_num'
      5.                   local control_exclude: list varlist-exclude
      6.                   dis as error "Running reg dbrwt of tobacco and all but co
    > var `control_num'"
      7.                   qui eststo: reg dbrwt tobacco `control_exclude', robust
      8.                   qui estadd local dropped_var "`control_num'"
      9.
```

```
320 .                 if inlist(`i', 8, 16, 24, 32, 37) {
 10.                         esttab using "$do_loc/tables/table_3b_`i'.tex",
    >                 ///
    >                             style(tex)
    >                                                   ///
    >                             nogaps
    >                                                   ///
    >                             nobaselevels
    >                                         ///
    >                             noconstant
    >                                                   ///
    >                             nodepvars
    >                                                   /// remove ylabel
    >                             label
    >                                         ///
    >                             varwidth(50)
    >                                         ///
    >                             wrap
    >                                                   ///
    >                             cells (b(fmt(2)) se(fmt(2) par))
    >                          ///
    >                             keep(tobacco)
    >                                         ///
    >                             stats(N
    >                                                   ///
    >                                       dropped_var,
    >                                         ///
    >                                       fmt(%9.0f)
    >                                         ///
    >                                       labels("Observations" "Dropped cov
    > ariate"))   ///
    >                             replace
 11.
321 .                       // clear estimates after tabulating what's regressed
    >  so far.
322 .                       eststo clear
 12.                 }
 13.         }
Running reg dbrwt of tobacco and all but covar alcohol
Running reg dbrwt of tobacco and all but covar mrace3_2
Running reg dbrwt of tobacco and all but covar mrace3_3
Running reg dbrwt of tobacco and all but covar hisp_moth
Running reg dbrwt of tobacco and all but covar adequacy_2
Running reg dbrwt of tobacco and all but covar adequacy_3
Running reg dbrwt of tobacco and all but covar cardiac
Running reg dbrwt of tobacco and all but covar pre4000
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_3b_8.tex)
Running reg dbrwt of tobacco and all but covar phyper
```

Running reg dbrwt of tobacco and all but covar diabetes
Running reg dbrwt of tobacco and all but covar anemia
Running reg dbrwt of tobacco and all but covar lung
Running reg dbrwt of tobacco and all but covar dlivord
Running reg dbrwt of tobacco and all but covar dmeduc_1
Running reg dbrwt of tobacco and all but covar dmeduc_2
Running reg dbrwt of tobacco and all but covar dmeduc_3
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_3b_16.tex)
Running reg dbrwt of tobacco and all but covar dgestat
Running reg dbrwt of tobacco and all but covar dmage
Running reg dbrwt of tobacco and all but covar dmar
Running reg dbrwt of tobacco and all but covar totord9_2
Running reg dbrwt of tobacco and all but covar totord9_3
Running reg dbrwt of tobacco and all but covar totord9_4
Running reg dbrwt of tobacco and all but covar totord9_5
Running reg dbrwt of tobacco and all but covar totord9_6
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_3b_24.tex)
Running reg dbrwt of tobacco and all but covar totord9_7
Running reg dbrwt of tobacco and all but covar totord9_8
Running reg dbrwt of tobacco and all but covar csex
Running reg dbrwt of tobacco and all but covar isllb10_2
Running reg dbrwt of tobacco and all but covar isllb10_3
Running reg dbrwt of tobacco and all but covar isllb10_4
Running reg dbrwt of tobacco and all but covar isllb10_5
Running reg dbrwt of tobacco and all but covar isllb10_6
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_3b_32.tex)
Running reg dbrwt of tobacco and all but covar isllb10_7
Running reg dbrwt of tobacco and all but covar isllb10_8
Running reg dbrwt of tobacco and all but covar isllb10_9
Running reg dbrwt of tobacco and all but covar isllb10_10
Running reg dbrwt of tobacco and all but covar dplural_1
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_3b_37.tex)

```
323 . restore

324 .
325 .
326 . * ------------------------------------------------------------------------
    > --- *
327 . * Question 3a: Basic, uninteracted linear regression model to estimate impac
    > t of smoking
328 .
329 .         eststo clear

330 .
331 .         * without controls
332 .         eststo: reg dbrwt tobacco , robust

Linear regression                               Number of obs     =    114,610
                                                F(1, 114608)      =    2701.65
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0226
                                                Root MSE          =     578.52

------------------------------------------------------------------------------
             |               Robust
      dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tobacco |  -240.4778   4.626581   -51.98   0.000    -249.5458   -231.4098
       _cons |   3411.617   1.867738  1826.60   0.000     3407.956    3415.278
------------------------------------------------------------------------------

(est1 stored)

333 .         qui estadd local covar_entry = "", replace

334 .
335 .         * with controls
336 .         eststo: reg dbrwt tobacco $covar_list, robust

Linear regression                               Number of obs     =    114,610
                                                F(38, 114571)     =    1325.58
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3770
                                                Root MSE          =     461.94
```

dbrwt	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
tobacco	-209.5893	4.061964	-51.60	0.000	-217.5507	-201.6279
alcohol	-60.19817	14.65071	-4.11	0.000	-88.91334	-31.483
mrace3_2	-185.5099	9.360672	-19.82	0.000	-203.8567	-167.1632
mrace3_3	-139.8075	5.003276	-27.94	0.000	-149.6139	-130.0012
hisp_moth	-97.18974	7.79031	-12.48	0.000	-112.4586	-81.92085
adequacy_2	-41.10719	3.598776	-11.42	0.000	-48.16073	-34.05364
adequacy_3	-77.02032	7.407294	-10.40	0.000	-91.5385	-62.50213
cardiac	-25.69417	16.61585	-1.55	0.122	-58.26098	6.87264
pre4000	392.0379	12.16168	32.24	0.000	368.2012	415.8746
phyper	-90.99884	9.3649	-9.72	0.000	-109.3539	-72.64378
diabetes	147.594	10.00845	14.75	0.000	127.9776	167.2104
anemia	12.11103	13.71164	0.88	0.377	-14.76358	38.98563
lung	-22.29955	16.40086	-1.36	0.174	-54.44499	9.845892
dlivord	24.75449	2.782257	8.90	0.000	19.30131	30.20767
dmeduc_1	-35.81313	75.9686	-0.47	0.637	-184.7104	113.0842
dmeduc_2	-41.66683	75.55671	-0.55	0.581	-189.7568	106.4232
dmeduc_3	-11.5063	75.56865	-0.15	0.879	-159.6197	136.6071
dgestat	114.8325	.8470527	135.57	0.000	113.1723	116.4927
dmage	.9550047	.3329912	2.87	0.004	.3023471	1.607662
dmar	41.78916	4.232433	9.87	0.000	33.49365	50.08466
totord9_2	11.9864	5.112354	2.34	0.019	1.966267	22.00654
totord9_3	9.038731	5.978106	1.51	0.131	-2.678264	20.75573
totord9_4	10.14216	7.253153	1.40	0.162	-4.073908	24.35823
totord9_5	-8.125805	9.158775	-0.89	0.375	-26.07686	9.825253
totord9_6	-8.025305	12.40106	-0.65	0.518	-32.3312	16.28059
totord9_7	-25.50803	16.66702	-1.53	0.126	-58.17513	7.159072
totord9_8	-47.27891	19.67544	-2.40	0.016	-85.84247	-8.715348
csex	139.2315	2.727905	51.04	0.000	133.8848	144.5781
isllb10_2	-18.44109	17.48251	-1.05	0.292	-52.70654	15.82436
isllb10_3	-45.52064	18.98067	-2.40	0.016	-82.72246	-8.318822
isllb10_4	53.02175	8.297368	6.39	0.000	36.75904	69.28446
isllb10_5	93.59586	7.502277	12.48	0.000	78.89151	108.3002
isllb10_6	97.5968	6.640175	14.70	0.000	84.58216	110.6114
isllb10_7	89.64342	7.016067	12.78	0.000	75.89203	103.3948
isllb10_8	86.76162	7.962537	10.90	0.000	71.15517	102.3681
isllb10_9	65.55857	9.103231	7.20	0.000	47.71638	83.40076
isllb10_10	52.49034	7.389141	7.10	0.000	38.00773	66.97294
dplural_1	569.6762	9.836363	57.92	0.000	550.3971	588.9554
_cons	-1815.75	82.67474	-21.96	0.000	-1977.791	-1653.709

(**est2** stored)

```
337 .         qui estadd local covar_entry = "X", replace

338 . //      sum $covar_list
339 .
340 .
341 . * ------------------------------------------------------------------------
    > --- *
342 . * Question 3c: Control for covariates in a more flexible functional form
343 .
344 . gen dgestat_sq=dgestat*dgestat

345 . gen dmage_sq=dmage*dmage

346 . gen int_tobacco_dmage=tobacco*dmage

347 .
348 . eststo q3c: reg dbrwt tobacco $covar_list dgestat_sq dmage_sq int_tobacco_dm
    > age, robust

    Linear regression                               Number of obs     =    114,610
                                                    F(41, 114568)     =    1268.21
                                                    Prob > F          =     0.0000
                                                    R-squared         =     0.4023
                                                    Root MSE          =     452.47

    ------------------------------------------------------------------------------
    > -----
                 |               Robust
           dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Inte
    > rval]
    -------------+----------------------------------------------------------------
    > -----
            tobacco |  -115.5547   18.50278    -6.25   0.000    -151.8199   -79.
    > 28957
            alcohol |  -55.29623   14.44417    -3.83   0.000    -83.60657   -26.
    > 98588
           mrace3_2 |  -194.6274   9.270588   -20.99   0.000    -212.7976   -176
    > .4572
           mrace3_3 |  -136.7419   4.906347   -27.87   0.000    -146.3583   -127
    > .1256
          hisp_moth |  -97.48474   7.598835   -12.83   0.000    -112.3783   -82.
    > 59114
         adequacy_2 |  -35.24927   3.512151   -10.04   0.000    -42.13303   -28.
    > 36551
         adequacy_3 |    -69.906   7.281008    -9.60   0.000    -84.17666   -55.
    > 63534
            cardiac |  -32.07715   16.33091    -1.96   0.050    -64.08549   -.06
    > 88114
            pre4000 |   396.2326   11.95001    33.16   0.000     372.8108    419
```

```
> .6545
          phyper |  -98.57412   9.193208   -10.72   0.000    -116.5927   -80.
> 55557
       diabetes |   137.3622   9.751837    14.09   0.000     118.2488    156
> .4757
         anemia |   14.62944   13.52285     1.08   0.279    -11.87515    41.
> 13402
           lung |   -21.2107   15.94923    -1.33   0.184    -52.47096    10.
> 04955
        dlivord |   24.35036   2.713617     8.97   0.000     19.03171       2
> 9.669
       dmeduc_1 |  -58.73213   72.72985    -0.81   0.419    -201.2815    83.
> 81727
       dmeduc_2 |   -64.5809    72.3138    -0.89   0.372    -206.3148    77.
> 15303
       dmeduc_3 |  -40.12953   72.32496    -0.55   0.579    -181.8853    101
> .6263
        dgestat |   526.4294   9.795578    53.74   0.000     507.2303    545
> .6286
          dmage |   11.51213   2.186543     5.26   0.000     7.226537    15.
> 79772
           dmar |   30.90334   4.290848     7.20   0.000     22.49334    39.
> 31333
      totord9_2 |   12.15576   4.999025     2.43   0.015     2.357745    21.
> 95377
      totord9_3 |    10.3327    5.84463     1.77   0.077    -1.122689    21.
> 78808
      totord9_4 |    12.4807   7.093028     1.76   0.078    -1.421529    26.
> 38292
      totord9_5 |  -4.410137   8.956371    -0.49   0.622    -21.96449    13.
> 14421
      totord9_6 |  -1.566648   12.13172    -0.13   0.897    -25.34464    22.
> 21135
      totord9_7 |   -18.8197   16.29542    -1.15   0.248    -50.75847    13.
> 11907
      totord9_8 |  -30.29389   19.16972    -1.58   0.114    -67.86625    7.2
> 78466
          csex |   138.5567   2.672773    51.84   0.000     133.3182    143
> .7953
      isllb10_2 |  -21.67141   17.43349    -1.24   0.214    -55.84079    12.
> 49797
      isllb10_3 |  -21.65004    18.2946    -1.18   0.237    -57.50719     14
> .2071
      isllb10_4 |   45.04913   8.122326     5.55   0.000     29.12949    60.
> 96876
      isllb10_5 |   83.19628   7.347979    11.32   0.000     68.79435     97
> .5982
      isllb10_6 |   85.13928    6.48543    13.13   0.000     72.42794    97.
> 85063
```

```
        isllb10_7 |   78.10357   6.857748    11.39   0.000     64.66249    91.
> 54465
        isllb10_8 |   75.43358   7.791356     9.68   0.000     60.16264    90.
> 70452
        isllb10_9 |   56.39312   8.898644     6.34   0.000     38.95192    73.
> 83433
       isllb10_10 |   49.19365   7.207927     6.82   0.000     35.06623    63.
> 32108
        dplural_1 |   546.3305   9.705458    56.29   0.000      527.308    565
> .3531
      dgestat_sq |  -5.541441   .1278248   -43.35   0.000    -5.791976   -5.2
> 90907
         dmage_sq |  -.1857966   .0375284    -4.95   0.000    -.2593518   -.11
> 22415
int_tobacco_dmage |  -3.551741   .6871286    -5.17   0.000    -4.898503   -2.2
> 04979
            _cons |  -9486.477   202.1013   -46.94   0.000    -9882.593   -909
> 0.362
------------------+------------------------------------------------------------
> ------

349 .         qui estadd local covar_entry = "X", replace

350 .
351 .
352 . * ------------------------------------------------------------------------
> --- *
353 . * Question 3d:  Add "bad controls"
354 . eststo q3d: reg dbrwt tobacco $covar_list omaps fmaps cigar6 drink5, robust

Linear regression                               Number of obs     =    114,610
                                                F(42, 114567)     =    1310.47
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3829
                                                Root MSE          =     459.79

------------------------------------------------------------------------------
             |               Robust
       dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tobacco |  -111.7678   9.867506   -11.33   0.000    -131.1079   -92.42759
     alcohol |   53.22755   28.69403     1.86   0.064    -3.012303    109.4674
    mrace3_2 |  -187.9946   9.368806   -20.07   0.000    -206.3573   -169.6319
    mrace3_3 |  -136.7458   4.987402   -27.42   0.000     -146.521   -126.9705
   hisp_moth |  -94.28507   7.741453   -12.18   0.000    -109.4582   -79.11194
  adequacy_2 |  -41.77612   3.577566   -11.68   0.000     -48.7881   -34.76415
  adequacy_3 |  -75.70309    7.32683   -10.33   0.000    -90.06357   -61.34262
     cardiac |  -24.50758   16.49656    -1.49   0.137    -56.84058    7.825421
     pre4000 |   394.1374   12.13116    32.49   0.000     370.3605    417.9143
```

phyper	-89.24437	9.337009	-9.56	0.000	-107.5448	-70.94397
diabetes	149.9104	10.00704	14.98	0.000	130.2968	169.5241
anemia	8.579098	13.62818	0.63	0.529	-18.13192	35.29011
lung	-20.76151	16.38155	-1.27	0.205	-52.86909	11.34607
dlivord	23.40416	2.765726	8.46	0.000	17.98338	28.82494
dmeduc_1	-40.16606	74.61988	-0.54	0.590	-186.4199	106.0878
dmeduc_2	-41.48482	74.20289	-0.56	0.576	-186.9213	103.9517
dmeduc_3	-12.12668	74.21304	-0.16	0.870	-157.5831	133.3297
dgestat	110.5381	.814893	135.65	0.000	108.9409	112.1353
dmage	1.116557	.3310839	3.37	0.001	.4676372	1.765476
dmar	37.4773	4.205491	8.91	0.000	29.2346	45.72
totord9_2	11.88555	5.085926	2.34	0.019	1.917211	21.85388
totord9_3	10.50948	5.938922	1.77	0.077	-1.13072	22.14967
totord9_4	12.60567	7.213826	1.75	0.081	-1.533315	26.74466
totord9_5	-5.765964	9.097463	-0.63	0.526	-23.59685	12.06492
totord9_6	-2.22989	12.32751	-0.18	0.856	-26.39162	21.93184
totord9_7	-18.38785	16.52795	-1.11	0.266	-50.78238	14.00669
totord9_8	-38.15189	19.57042	-1.95	0.051	-76.50962	.2058323
csex	140.4691	2.715857	51.72	0.000	135.146	145.7921
isllb10_2	-13.93218	17.17476	-0.81	0.417	-47.59444	19.73008
isllb10_3	-41.56469	18.63198	-2.23	0.026	-78.08307	-5.046299
isllb10_4	49.4448	8.236797	6.00	0.000	33.30081	65.5888
isllb10_5	89.45776	7.464759	11.98	0.000	74.82694	104.0886
isllb10_6	93.38643	6.609413	14.13	0.000	80.43208	106.3408
isllb10_7	85.91888	6.985625	12.30	0.000	72.22717	99.6106
isllb10_8	83.4042	7.932244	10.51	0.000	67.85712	98.95127
isllb10_9	62.2119	9.077806	6.85	0.000	44.41954	80.00426
isllb10_10	52.4079	7.343129	7.14	0.000	38.01548	66.80032
dplural_1	565.3757	9.631665	58.70	0.000	546.4978	584.2536
omaps	5.277829	1.53117	3.45	0.001	2.276759	8.2789
fmaps	54.83497	2.871095	19.10	0.000	49.20767	60.46227
cigar6	-45.56851	4.21498	-10.81	0.000	-53.8298	-37.30721
drink5	-53.08302	12.90921	-4.11	0.000	-78.38488	-27.78116
_cons	-2178.628	82.00368	-26.57	0.000	-2339.354	-2017.902

```
355 .         qui estadd local covar_entry = "X", replace
```

```
356 .
357 .
358 . // output tables 3a, c, & d
359 . esttab using "$do_loc/tables/table_3acd.tex",                    ///
    >         style(tex)
    >                               ///
    >         nogaps
    >                               ///
    >         nobaselevels
    >                         ///
    >         noconstant
    >                               ///
    >         label
    >                         ///
    >         mlabel("Question 2a" "Question 3a" "Question 3c" "Question 3d") ///
    >         varwidth(50)
    >                         ///
    >         wrap
    >                               ///
    >         cells (b(fmt(2)) se(fmt(2) par))
    >     ///
    >         stats(N
    >                               ///
    >                   covar_entry,
    >                     ///
    >                   fmt(%9.0f)
    >                     ///
    >                   labels("Observations"
    >             ///
    >                                    "Full list of covariates included"))   ///
    >         keep(tobacco
    >                         ///
    >                   alcohol mrace3_2 hisp_moth
    >             ///
    >                   adequacy_2
    >                               ///
    >                   cardiac pre4000
    >                       ///
    >                   dlivord dmeduc_1 dgestat dmage dmar                    ///
    >                   totord9_2 totord9_3
    >             ///
    >                   csex
    >                               ///
    >                   isllb10_2 isllb10_3
    >             ///
    >                   dplural_1
    >                               ///
    >                   dgestat_sq dmage_sq int_tobacco_dmage                  ///
    >                   omaps fmaps cigar6 drink5)
```

```
    >             ///
    >         replace
    (output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
    > Fall2023/tables/table_3acd.tex)

360 .
361 .
362 .
363 . * ------------------------------------------------------------------------
    > --- *
364 . * Question 3e: Oaxaca-Blinder estimator for ATE and ATT
365 . global oaxaca_covar_list alcohol mrace3_2 mrace3_3 hisp_moth ///
    >                                                   adequacy_2 adequacy_3 ///
    >                                                   cardiac pre4000 phyper diabe
    > tes anemia lung  ///
    >                                                   dlivord dmeduc_1 dmeduc_2 dm
    > educ_3  ///
    >                                                   dmar ///
    >                                                   totord9_2 totord9_3 totord9_
    > 4 totord9_5 totord9_6 totord9_7 totord9_8 ///
    >                                                   csex  ///
    >                                                   isllb10_2 isllb10_3 isllb10_
    > 4 isllb10_5 isllb10_6 isllb10_7 isllb10_8 isllb10_9 isllb10_10 ///
    >                                                   dplural_1

366 .
367 .
368 .         * generate variables needed for oaxaca
369 .         foreach var of varlist $oaxaca_covar_list {
      2.            * demean controls
370 .         egen `var'_mean=mean(`var')
      3.            gen `var'demean=(`var'-`var'_mean)
      4.            * interaction of tobacco with demeaned controls
371 .         gen `var'demeantobacco = `var'demean*tobacco
      5.            }

372 .
```

```
373 .         eststo clear

374 .         * oaxaca estimate via regression
375 .         reg dbrwt tobacco $oaxaca_covar_list *demeantobacco, robust

Linear regression                               Number of obs     =    114,610
                                                F(70, 114538)     =          .
                                                Prob > F          =          .
                                                R-squared         =     0.1638
                                                Root MSE          =     535.29

------------------------------------------------------------------------------
             |               Robust
      dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tobacco |  -218.8119   5.583105   -39.19   0.000    -229.7547   -207.8691
     alcohol |    -15.208   24.64072    -0.62   0.537    -63.50343    33.08743
    mrace3_2 |  -211.8858   10.59406   -20.00   0.000      -232.65   -191.1216
    mrace3_3 |  -206.9223   6.615471   -31.28   0.000    -219.8885   -193.9561
   hisp_moth |  -135.0967   9.539297   -14.16   0.000    -153.7936   -116.3998
  adequacy_2 |  -40.26536   4.537333    -8.87   0.000    -49.15846   -31.37226
  adequacy_3 |  -96.97666   9.859415    -9.84   0.000     -116.301   -77.65235
     cardiac |  -40.66826   20.59754    -1.97   0.048    -81.03911   -.2974003
     pre4000 |   441.8313   13.61487    32.45   0.000     415.1464    468.5162
      phyper |  -170.4147   11.92274   -14.29   0.000    -193.7831   -147.0464
    diabetes |   84.44475   11.75438     7.18   0.000     61.40634    107.4832
     anemia |  -1.472773   18.40035    -0.08   0.936    -37.53717    34.59162
       lung |  -16.66821   20.74628    -0.80   0.422     -57.3306    23.99418
     dlivord |   41.54817    3.73091    11.14   0.000     34.23564     48.8607
    dmeduc_1 |  -2.039174   81.32883    -0.03   0.980    -161.4424    157.3641
    dmeduc_2 |  -14.30287   80.78319    -0.18   0.859    -172.6367
```

```
>    144.0309
                dmeduc_3 |     13.854   80.80743     0.17   0.864    -144.5273
>    172.2353
                    dmar |   53.74733   5.431218     9.90   0.000     43.10222
>    64.39243
              totord9_2 |  -1.853111   6.780407    -0.27   0.785    -15.14261
>    11.43638
              totord9_3 |  -12.66834   7.994513    -1.58   0.113    -28.33746
>    3.000782
              totord9_4 |  -29.34058   9.743039    -3.01   0.003    -48.43679
>   -10.24437
              totord9_5 |  -52.62234   12.45936    -4.22   0.000    -77.04249
>   -28.20219
              totord9_6 |  -57.88934    16.8905    -3.43   0.001    -90.99447
>   -24.78421
              totord9_7 |  -91.17414   23.26998    -3.92   0.000    -136.7829
>   -45.56534
              totord9_8 |   -147.849   27.98782    -5.28   0.000    -202.7047
>   -92.99325
                    csex |   123.0078   3.437684    35.78   0.000       116.27
>    129.7456
              isllb10_2 |   -42.6083   28.28384    -1.51   0.132    -98.04421
>     12.8276
              isllb10_3 |  -230.9783   31.29647    -7.38   0.000    -292.3189
>   -169.6377
              isllb10_4 |   38.35505   10.71344     3.58   0.000     17.35688
>    59.35323
              isllb10_5 |   92.07232   9.629143     9.56   0.000     73.19935
>    110.9453
              isllb10_6 |   101.0564   8.629237    11.71   0.000     84.14324
>    117.9696
              isllb10_7 |   85.68228   9.139073     9.38   0.000     67.76984
>    103.5947
              isllb10_8 |   80.54712   10.26917     7.84   0.000      60.4197
>    100.6745
              isllb10_9 |   63.54103   11.58678     5.48   0.000     40.83112
>    86.25095
             isllb10_10 |    42.0208    9.87017     4.26   0.000     22.67542
>    61.36619
              dplural_1 |   960.4314   15.32247    62.68   0.000     930.3996
>    990.4632
   alcoholdemeantobacco |  -148.1035   34.78883    -4.26   0.000    -216.2891
>   -79.91792
  mrace3_2demeantobacco |    67.3415   72.42113     0.93   0.352    -74.60282
>    209.2858
  mrace3_3demeantobacco |   39.45029   15.22145     2.59   0.010      9.61648
>    69.28411
 hisp_mothdemeantobacco |    57.5947    29.2435     1.97   0.049     .2778836
>    114.9115
```

```
adequacy_2demeantobacco |  -14.25725   10.69176    -1.33   0.182    -35.21293
>    6.698427
adequacy_3demeantobacco |  -17.64652   19.72004    -0.89   0.371    -56.29749
>    21.00445
   cardiacdemeantobacco |  -41.98917   60.29143    -0.70   0.486    -160.1595
>    76.18112
   pre4000demeantobacco |  -15.64361   47.36717    -0.33   0.741    -108.4825
>    77.19533
    phyperdemeantobacco |   75.87391   37.82924     2.01   0.045     1.729179
>    150.0186
  diabetesdemeantobacco |   61.77478   30.08787     2.05   0.040     2.803024
>    120.7465
    anemiademeantobacco |  -38.94523    43.3703    -0.90   0.369    -123.9504
>     46.0599
      lungdemeantobacco |  -46.64864   49.30691    -0.95   0.344    -143.2894
>    49.99214
   dlivorddemeantobacco |  -31.15795   7.978102    -3.91   0.000     -46.7949
>   -15.52099
  dmeduc_1demeantobacco |   335.7527   88.63029     3.79   0.000     162.0387
>    509.4667
  dmeduc_2demeantobacco |   383.6532   83.83885     4.58   0.000     219.3303
>    547.9761
  dmeduc_3demeantobacco |   388.4636   84.26298     4.61   0.000     223.3094
>    553.6177
      dmardemeantobacco |  -36.73967   10.29862    -3.57   0.000     -56.9248
>   -16.55455
 totord9_2demeantobacco |  -3.293349   16.90195    -0.19   0.846    -36.42092
>    29.83422
 totord9_3demeantobacco |  -37.13478   19.39852    -1.91   0.056    -75.15559
>    .8860308
 totord9_4demeantobacco |   2.031529   23.09719     0.09   0.930    -43.23861
>    47.30167
 totord9_5demeantobacco |  -11.31723   27.66615    -0.41   0.682    -65.54247
>    42.90801
 totord9_6demeantobacco |  -18.41603   34.88144    -0.53   0.598    -86.78311
>    49.95106
 totord9_7demeantobacco |  -18.97237   46.91126    -0.40   0.686    -110.9177
>    72.97299
 totord9_8demeantobacco |   61.71432   55.92195     1.10   0.270    -47.89184
>    171.3205
      csexdemeantobacco |  -2.347968   8.715278    -0.27   0.788    -19.42978
>    14.73384
 isllb10_2demeantobacco |   41.61608   68.32935     0.61   0.542    -92.30841
>    175.5406
 isllb10_3demeantobacco |   115.4694   55.56731     2.08   0.038     6.558365
>    224.3805
 isllb10_4demeantobacco |    16.8224   24.73063     0.68   0.496    -31.64926
>    65.29406
 isllb10_5demeantobacco |   1.321313   23.32668     0.06   0.955    -44.39863
```

```
>    47.04125
 isllb10_6demeantobacco |   2.771585   20.97185     0.13   0.895    -38.33292
>    43.87609
 isllb10_7demeantobacco |    13.8397   22.20882     0.62   0.533    -29.68925
>    57.36865
 isllb10_8demeantobacco |    47.8694   24.08357     1.99   0.047     .6659598
>    95.07284
 isllb10_9demeantobacco |   23.29831    27.0869     0.86   0.390     -29.7916
>    76.38822
isllb10_10demeantobacco |   18.93379   21.63763     0.88   0.382    -23.47564
>    61.34322
 dplural_1demeantobacco |  -102.6619   37.53615    -2.74   0.006    -176.2322
>   -29.09159
                  _cons |   2302.897   82.69188    27.85   0.000     2140.822
>    2464.971
------------------------+----------------------------------------------------------------
> ----------

376 .
377 .         * estimating coeff
378 .         eststo: reg dbrwt  $oaxaca_covar_list if tobacco==1, robust

Linear regression                               Number of obs     =     18,266
                                                F(35, 18230)      =     269.98
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1040
                                                Root MSE          =     542.03

------------------------------------------------------------------------------
             |               Robust
       dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     alcohol |  -163.3115   24.57457    -6.65   0.000      -211.48    -115.143
    mrace3_2 |  -144.5443   71.69024    -2.02   0.044    -285.0639   -4.024674
    mrace3_3 |   -167.472   13.71791   -12.21   0.000    -194.3604   -140.5836
   hisp_moth |  -77.50199   27.66247    -2.80   0.005     -131.723   -23.28095
  adequacy_2 |  -54.52261   9.687742    -5.63   0.000    -73.51149   -35.53372
  adequacy_3 |  -114.6232   17.08988    -6.71   0.000     -148.121    -81.1254
     cardiac |  -82.65742   56.70201    -1.46   0.145    -193.7987    28.48385
     pre4000 |   426.1877   45.39883     9.39   0.000     337.2017    515.1737
      phyper |  -94.54083   35.92539    -2.63   0.009     -164.958   -24.12368
    diabetes |   146.2195   27.71545     5.28   0.000     91.89464    200.5444
     anemia  |    -40.418   39.29994    -1.03   0.304    -117.4496    36.61358
        lung |  -63.31685   44.75997    -1.41   0.157    -151.0506     24.4169
     dlivord |   10.39022   7.056721     1.47   0.141    -3.441614    24.22206
    dmeduc_1 |   333.7135    35.2508     9.47   0.000     264.6186    402.8084
    dmeduc_2 |   369.3503    22.4434    16.46   0.000     325.3591    413.3415
    dmeduc_3 |   402.3176   23.89931    16.83   0.000     355.4727    449.1625
        dmar |   17.00765   8.755932     1.94   0.052    -.1547998    34.1701
```

totord9_2	-5.14646	15.49273	-0.33	0.740	-35.51366	25.22074
totord9_3	-49.80312	17.68646	-2.82	0.005	-84.47024	-15.136
totord9_4	-27.30905	20.95575	-1.30	0.193	-68.38429	13.76619
totord9_5	-63.93957	24.71844	-2.59	0.010	-112.39	-15.4891
totord9_6	-76.30537	30.53979	-2.50	0.012	-136.1662	-16.44451
totord9_7	-110.1465	40.76036	-2.70	0.007	-190.0406	-30.25237
totord9_8	-86.13464	48.44687	-1.78	0.075	-181.0951	8.825791
csex	120.6599	8.014031	15.06	0.000	104.9516	136.3681
isllb10_2	-.9922214	62.24251	-0.02	0.987	-122.9934	121.0089
isllb10_3	-115.5088	45.94664	-2.51	0.012	-205.5686	-25.44911
isllb10_4	55.17745	22.30459	2.47	0.013	11.45835	98.89655
isllb10_5	93.39363	21.26079	4.39	0.000	51.72049	135.0668
isllb10_6	103.828	19.12711	5.43	0.000	66.33706	141.3189
isllb10_7	99.52198	20.25488	4.91	0.000	59.82051	139.2235
isllb10_8	128.4165	21.79911	5.89	0.000	85.68821	171.1448
isllb10_9	86.83934	24.50006	3.54	0.000	38.81692	134.8618
isllb10_10	60.95459	19.26826	3.16	0.002	23.187	98.72219
dplural_1	857.7695	34.28942	25.02	0.000	790.559	924.98
_cons	1883.375	43.93745	42.86	0.000	1797.253	1969.496

(**est1** stored)

```
379 .         predict tob1h
(option xb assumed; fitted values)

380 .         predict tob1h_1 if tobacco==1
(option xb assumed; fitted values)
(96,344 missing values generated)

381 .
382 .         eststo: reg dbrwt  $oaxaca_covar_list if tobacco==0, robust
```

Linear regression

Number of obs	=	**96,344**
F(35, 96308)	=	**409.34**
Prob > F	=	**0.0000**
R-squared	=	**0.1518**
Root MSE	=	**534**

dbrwt	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
alcohol	-15.208	24.63758	-0.62	0.537	-63.49738	33.08137
mrace3_2	-211.8858	10.59271	-20.00	0.000	-232.6474	-191.1242
mrace3_3	-206.9223	6.614628	-31.28	0.000	-219.8869	-193.9577
hisp_moth	-135.0967	9.538082	-14.16	0.000	-153.7912	-116.4022
adequacy_2	-40.26536	4.536755	-8.88	0.000	-49.15735	-31.37337
adequacy_3	-96.97666	9.85816	-9.84	0.000	-116.2985	-77.65477
cardiac	-40.66826	20.59491	-1.97	0.048	-81.03405	-.3024601
pre4000	441.8313	13.61314	32.46	0.000	415.1497	468.5129
phyper	-170.4147	11.92122	-14.30	0.000	-193.7802	-147.0493
diabetes	84.44475	11.75289	7.19	0.000	61.40922	107.4803
anemia	-1.472773	18.398	-0.08	0.936	-37.53265	34.5871
lung	-16.66821	20.74364	-0.80	0.422	-57.3255	23.98909
dlivord	41.54817	3.730435	11.14	0.000	34.23656	48.85978
dmeduc_1	-2.039174	81.31848	-0.03	0.980	-161.4225	157.3441
dmeduc_2	-14.30287	80.7729	-0.18	0.859	-172.6168	144.0111
dmeduc_3	13.854	80.79714	0.17	0.864	-144.5075	172.2155
dmar	53.74733	5.430527	9.90	0.000	43.10355	64.3911
totord9_2	-1.853111	6.779544	-0.27	0.785	-15.14094	11.43472
totord9_3	-12.66834	7.993495	-1.58	0.113	-28.3355	2.998818
totord9_4	-29.34058	9.741798	-3.01	0.003	-48.4344	-10.24677
totord9_5	-52.62234	12.45777	-4.22	0.000	-77.03943	-28.20525
totord9_6	-57.88934	16.88835	-3.43	0.001	-90.99032	-24.78836
totord9_7	-91.17414	23.26701	-3.92	0.000	-136.7772	-45.57106
totord9_8	-147.849	27.98426	-5.28	0.000	-202.6978	-93.00013
csex	123.0078	3.437246	35.79	0.000	116.2709	129.7448
isllb10_2	-42.6083	28.28024	-1.51	0.132	-98.03726	12.82065
isllb10_3	-230.9783	31.29249	-7.38	0.000	-292.3112	-169.6454
isllb10_4	38.35505	10.71207	3.58	0.000	17.35951	59.3506
isllb10_5	92.07232	9.627917	9.56	0.000	73.20171	110.9429
isllb10_6	101.0564	8.628138	11.71	0.000	84.14536	117.9675
isllb10_7	85.68228	9.137909	9.38	0.000	67.77208	103.5925
isllb10_8	80.54712	10.26786	7.84	0.000	60.42222	100.672
isllb10_9	63.54103	11.58531	5.48	0.000	40.83396	86.2481
isllb10_10	42.0208	9.868913	4.26	0.000	22.67785	61.36376
dplural_1	960.4314	15.32051	62.69	0.000	930.4034	990.4594
_cons	2302.897	82.68135	27.85	0.000	2140.842	2464.951

(**est2** stored)

```
383 .         predict tob0h
    (option xb assumed; fitted values)

384 .         predict tob0h_1 if tobacco==1
    (option xb assumed; fitted values)
    (96,344 missing values generated)

385 .
386 .         esttab using "$do_loc/tables/table3e_oaxaca.tex", nostar label  tex
    >  replace  ///
    >         style(tex)
    >                               ///
    >         nogaps
    >                               ///
    >         nobaselevels
    >                       ///
    >         noconstant
    >                               ///
    >         varwidth(50)
    >                       ///
    >         wrap
    >                               ///
    >         cells (b(fmt(2)) se(fmt(2) par)) mtitle("birthweight if tobacco=1" "
    > birthweight if tobacco=0")
    (output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
    > Fall2023/tables/table3e_oaxaca.tex)

387 .
388 .         foreach var of varlist tob1h tob1h_1 tob0h tob0h_1 {
      2.         egen mean_`var' = mean(`var')
      3.         }

389 .
390 .         * ATE
391 .         * oaxaca coefficient by differencing
392 .         gen oaxaca_ate = mean_tob1h - mean_tob0h
```

```
393 .         di oaxaca_ate
    -218.81201

394 .
395 .         * ATT
396 .         gen oaxaca_att = mean_tob1h_1 - mean_tob0h_1

397 .         di oaxaca_att
    -224.17676

398 .
399 .
400 .
401 .
402 . * ================================================================================
    > === *
403 . * Question 4: PROPENSITY SCORE MATCHING
404 . * ================================================================================
    > === *
405 . use "$dta_loc/data/pset1_clean.dta", clear

406 .
407 . * --------------------------------------------------------------------------------
    > --- *
408 . * Question 4a: propensity score using logit with nonlinear terms and interac
    > tions
409 .
410 . // run logit regression and predict E[D|X]?
411 . eststo clear

412 . eststo: logit tobacco $covar_list

    Iteration 0:   log likelihood = -50271.669
    Iteration 1:   log likelihood = -43982.127
    Iteration 2:   log likelihood = -43207.003
    Iteration 3:   log likelihood = -43189.945
    Iteration 4:   log likelihood = -43189.827
    Iteration 5:   log likelihood = -43189.827

    Logistic regression                             Number of obs     =    114,610
                                                    LR chi2(37)       =   14163.68
                                                    Prob > chi2       =     0.0000
    Log likelihood = -43189.827                     Pseudo R2         =     0.1409
```

tobacco	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
alcohol	1.893897	.0687326	27.55	0.000	1.759184	2.02861
mrace3_2	-1.527424	.1255411	-12.17	0.000	-1.77348	-1.281368
mrace3_3	-1.138906	.0293932	-38.75	0.000	-1.196516	-1.081297
hisp_moth	-1.39965	.0548047	-25.54	0.000	-1.507066	-1.292235
adequacy_2	.1185768	.0211682	5.60	0.000	.0770879	.1600656
adequacy_3	.2902035	.0382787	7.58	0.000	.2151788	.3652283
cardiac	-.0905866	.1105393	-0.82	0.413	-.3072397	.1260665
pre4000	-.7352182	.0895311	-8.21	0.000	-.910696	-.5597404
phyper	-.4185598	.0589656	-7.10	0.000	-.5341301	-.3029894
diabetes	.0698508	.0538748	1.30	0.195	-.0357419	.1754435
anemia	.1081632	.0789457	1.37	0.171	-.0465675	.2628939
lung	.1703154	.0930831	1.83	0.067	-.0121242	.352755
dlivord	-.0199612	.0153953	-1.30	0.195	-.0501354	.010213
dmeduc_1	.8393182	1.027217	0.82	0.414	-1.17399	2.852627
dmeduc_2	1.643322	1.025604	1.60	0.109	-.3668248	3.653469
dmeduc_3	.5682429	1.025722	0.55	0.580	-1.442136	2.578622
dgestat	-.0193056	.0034458	-5.60	0.000	-.0260592	-.0125519
dmage	-.030512	.0021096	-14.46	0.000	-.0346467	-.0263773
dmar	-1.1809	.0223987	-52.72	0.000	-1.2248	-1.136999
totord9_2	.4947516	.0327896	15.09	0.000	.4304852	.559018
totord9_3	.7744276	.0377829	20.50	0.000	.7003745	.8484808
totord9_4	.9327607	.0441231	21.14	0.000	.846281	1.01924
totord9_5	1.149013	.0535804	21.44	0.000	1.043997	1.254029
totord9_6	1.215977	.0677763	17.94	0.000	1.083138	1.348816
totord9_7	1.529029	.0884182	17.29	0.000	1.355732	1.702325
totord9_8	1.285645	.1029966	12.48	0.000	1.083775	1.487515
csex	.0183489	.0173992	1.05	0.292	-.015753	.0524507
isllb10_2	-.2147117	.1257449	-1.71	0.088	-.4611671	.0317436
isllb10_3	.1219626	.0899888	1.36	0.175	-.0544122	.2983374
isllb10_4	.0320458	.04878	0.66	0.511	-.0635612	.1276528
isllb10_5	-.1302497	.0464783	-2.80	0.005	-.2213455	-.0391539
isllb10_6	-.1620205	.0415417	-3.90	0.000	-.2434408	-.0806003
isllb10_7	-.0638412	.0434672	-1.47	0.142	-.1490353	.0213529
isllb10_8	-.00546	.0486131	-0.11	0.911	-.1007399	.0898199
isllb10_9	.1200092	.0546148	2.20	0.028	.0129662	.2270523
isllb10_10	.4235065	.0425008	9.96	0.000	.3402065	.5068065
dplural_1	.1530734	.0716776	2.14	0.033	.0125879	.2935589
_cons	-1.056853	1.037281	-1.02	0.308	-3.089886	.97618

(**est1** stored)

```
413 . predict phatx, pr

414 .
415 . tab tobacco, sum(phatx)
```

Tobacco use during pregnancy (yes=1)	Summary of Pr(tobacco) Mean	Std. Dev.	Freq.
Non-smoke	**.13756052**	**.11460075**	**96,344**
Smoker	**.27443717**	**.17393032**	**18,266**
Total	**.15937527**	**.13554119**	**114,610**

```
416 .
417 . // sort $covar_list // browse predictions with covariate cells
418 . // br $covar_list phatx
419 .
420 . esttab using "$do_loc/tables/table_4a.tex",                    ///
    >         style(tex)
    >                               ///
    >         nogaps
    >                               ///
    >         nobaselevels
    >                     ///
    >         noconstant
    >                               ///
    >         label
    >                     ///
    >         varwidth(50)
    >                     ///
    >         wrap
    >                               ///
    >         cells (b(fmt(2)) se(fmt(2) par))
    >     ///
    >         stats(N,
    >                               ///
    >                   fmt(%9.0f)
    >                     ///
    >                   labels("Observations"))       ///
    >         eqlabel(none) ///
    >         replace
    (output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
    > Fall2023/tables/table_4a.tex)
```

```
421 .
422 . * ------------------------------------------------------------------------
    > --- *
423 . * Question 4b: testing overlap
424 .
425 . // assert phat \in (0,1)
426 . assert inrange(phatx, 0, 1) & !inlist(phatx, 0, 1)

427 .
428 . // plot and export histogram of p(X)
429 . twoway (histogram phatx if tobacco==0, color(green%25)) ///
    >            (histogram phatx if tobacco==1, color(red%25)), ///
    >        legend(label(1 "Observed non-smokers") label(2 "Observed smokers")) /
    > //
    >            xtitle("Pr(tobacco{sub:i}=1|X{sub:i})") ///
    >            saving("phatx_overlap", replace)
    (file phatx_overlap.gph saved)

430 .
431 . graph export "$do_loc/graphs/phatx_overlap.png", ///
    >         width(1200) height(900) ///
    >         replace
    (file /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall2023/grap
    > hs/phatx_overlap.png written in PNG format)

432 .
433 .
434 . * ------------------------------------------------------------------------
    > --- *
435 . * Question 4c:
436 .
437 . // Assess balance
438 . ** old binning approach
439 . // xtile phatx_bins = phatx, nq(10)
440 .
441 . ** New binning approach. Equal sized bins, not on deciles
442 . gen phatx_bins = .
    (114,610 missing values generated)
```

```
443 . forval i = 1/10 {
      2.         replace phatx_bins = `i' if `i'/10-1/10 <= phatx & phatx < `i'/10
    >  // omit upper bound
      3. }
    (51,636 real changes made)
    (30,831 real changes made)
    (15,990 real changes made)
    (8,112 real changes made)
    (4,272 real changes made)
    (2,614 real changes made)
    (711 real changes made)
    (244 real changes made)
    (149 real changes made)
    (51 real changes made)

444 .
445 . // assert overlap within each bin
446 . forval i = 1/10 {
      2.         qui sum tobacco if phatx_bins == `i'
      3.         assert !inlist(`r(mean)', 0, 1)
      4. }

447 .
448 .
449 . // Within bins of p(X) compare X among treated and controls
450 . // run regs controlling for bins so that D is within bin
451 .
452 . local covar_list        dbrwt ///
    >                                       mrace3_3 ///
    >                                       hisp_moth ///
    >                                       dmeduc_1 dmeduc_2 dmeduc_3  ///
    >                                       dmage ///
    >                                       dmar ///
    >                                       csex ///
    >                                       alcohol ///
    >                                       phyper ///
    >                                       diabetes ///
    >                                       lung ///
    >                                       anemia ///
    >                                       pre4000 ///
    >                                       dgestat ///
    >                                       dlivord ///
    >                                       dplural_1
```

```
453 .
454 . iebaltab `covar_list', ///
    >         grpvar(tobacco) ///
    >         fixedeffect(phatx_bins) ///
    >         rowvarlabels ///
    >         starsno  ///
    >         savetex("$do_loc/tables/table4_balance_pbins.tex") ///
    >         tblnote("Notes: Insert footnote")                              ///
    >         tblnonote       stdev normdiff
    >             ///
    >         texnotewidth(1)                 ///
    >         replace
        Balance table saved to:
            /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall2023/
            > tables/table4_balance_pbins.tex

455 .
456 .
457 . * ----------------------------------------------------------------------
    > --- *
458 . * Question 4d: Blocking
459 .
460 . // Regress Y on D, p(X), and p(X)D
461 . reg dbrwt tobacco##phatx_bins

      Source |       SS           df       MS      Number of obs   =   114,610
-------------+----------------------------------   F(19, 114590)   =    166.08
       Model |  1.0518e+09         19  55355394.3   Prob > F        =    0.0000
    Residual |  3.8194e+10   114,590  333307.948   R-squared       =    0.0268
-------------+----------------------------------   Adj R-squared   =    0.0266
       Total |  3.9246e+10   114,609  342429.567   Root MSE        =    577.33

------------------------------------------------------------------------------
> ------
       dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Int
> erval]
-------------+----------------------------------------------------------------
> ------
    tobacco |
      Smoker |  -214.0389   11.30688   -18.93   0.000    -236.2002   -19
> 1.8776
             |
  phatx_bins |
          2  |  -23.12044   4.421485    -5.23   0.000    -31.78649    -1
> 4.4544
          3  |  -34.73107   5.881101    -5.91   0.000    -46.25794    -2
> 3.2042
          4  |   -125.774   8.314495   -15.13   0.000    -142.0703   -10
> 9.4778
```

```
                5 |  -96.84632    12.1309    -7.98   0.000    -120.6227   -73
> .06993
                6 |  -69.05761   16.68059    -4.14   0.000    -101.7513   -36
> .36391
                7 |  -66.68649   36.24788    -1.84   0.066    -137.7318    4.
> 358794
                8 |  -432.8688    81.6883    -5.30   0.000    -592.9767    -2
> 72.761
                9 |  -473.6911   136.1026    -3.48   0.001    -740.4501    -2
> 06.932
               10 |  -59.30218   333.3309    -0.18   0.859    -712.6256    59
> 4.0212
                  |
tobacco#phatx_bins |
        Smoker# 2 |   -3.47679   14.56899    -0.24   0.811    -32.03179    25
> .07821
        Smoker# 3 |   .1507856   15.46651     0.01   0.992    -30.16333     3
> 0.4649
        Smoker# 4 |   26.67763   17.62925     1.51   0.130    -7.875417    61
> .23069
        Smoker# 5 |   56.45514   21.06866     2.68   0.007      15.1609    97
> .74939
        Smoker# 6 |   16.44731    25.2933     0.65   0.516    -33.12716    66
> .02178
        Smoker# 7 |  -70.88378   46.53895    -1.52   0.128    -162.0994    20
> .33185
        Smoker# 8 |   89.25851   92.26097     0.97   0.333    -91.57158    27
> 0.0886
        Smoker# 9 |   106.1428   145.5654     0.73   0.466    -179.1632    39
> 1.4488
        Smoker#10 |  -159.7111   343.7651    -0.46   0.642    -833.4853    51
> 4.0632
                  |
             _cons |   3432.969   2.611249  1314.68   0.000     3427.851    34
> 38.087
------------------+------------------------------------------------------------

> ------
```

```
462 . mat A = r(table)

463 . mat list A

    A[9,33]
                      0b.           1.           1b.           2.           3.
    >            4.           5.           6.           7.           8.
    >      9.          10.   0b.tobacco#   0b.tobacco#   0b.tobacco#   0b.tobacco
    > #   0b.tobacco#
                tobacco       tobacco    phatx_bins    phatx_bins    phatx_bins
    >   phatx_bins    phatx_bins    phatx_bins    phatx_bins    phatx_bins    phat
    > x_bins    phatx_bins  1b.phatx_b~s  2o.phatx_b~s  3o.phatx_b~s  4o.phatx_b~s
    >   5o.phatx_b~s
         b             0    -214.03892             0    -23.120442    -34.731069
    >   -125.77404    -96.846317    -69.057606     -66.68649    -432.86884    -473
    > .69107    -59.302177             0             0             0             0
    >             0
        se             .     11.306877             .     4.4214854     5.8811005
    >    8.3144947     12.130903     16.680589     36.247877     81.688295     136
    > .10263     333.33087             .             .             .             .
    >             .
         t             .    -18.929977             .    -5.2291119    -5.9055391
    >   -15.127082    -7.9834383    -4.1399981     -1.839735    -5.2990314     -3.
    > 480396    -.17790785             .             .             .             .
    >             .
    pvalue             .     8.556e-80             .     1.706e-07     3.525e-09
    >    1.204e-51     1.436e-15     .00003476     .06580973     1.166e-07     .00
    > 050086     .85879566             .             .             .             .
    >             .
        ll             .    -236.20023             .    -31.786485    -46.257936
    >   -142.07032     -120.6227     -101.7513    -137.73178    -592.97665    -740
    > .45014    -712.62557             .             .             .             .
    >             .
        ul             .    -191.87762             .    -14.454398    -23.204202
    >   -109.47776    -73.069933    -36.363907     4.3587942    -272.76104    -206
    > .93199     594.02122             .             .             .             .
    >             .
        df        114590        114590        114590        114590        114590
    >       114590        114590        114590        114590        114590
    > 114590        114590        114590        114590        114590        114590
    >         114590
      crit     1.9599847     1.9599847     1.9599847     1.9599847     1.9599847
    >    1.9599847     1.9599847     1.9599847     1.9599847     1.9599847     1.9
    > 599847     1.9599847     1.9599847     1.9599847     1.9599847     1.9599847
    >      1.9599847
     eform             0             0             0             0             0
    >           0             0             0             0             0
    >      0             0             0             0             0             0
    >             0
```

```
          0b.tobacco#   0b.tobacco#   0b.tobacco#   0b.tobacco#   0b.tobacco#
>   1o.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.t
> obacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#
>
       6o.phatx_b~s  7o.phatx_b~s  8o.phatx_b~s  9o.phatx_b~s  10o.phatx_~s
> 1b.phatx_b~s  2.phatx_bins  3.phatx_bins  4.phatx_bins  5.phatx_bins  6.phat
> x_bins  7.phatx_bins  8.phatx_bins  9.phatx_bins  10.phatx_b~s         _cons
     b             0             0             0             0             0
>           0    -3.4767901     .15078565     26.677635     56.455142      16
> .44731    -70.883781     89.258511     106.14282    -159.71108     3432.9688
    se             .             .             .             .             .
>           .     14.568991     15.466508     17.629246     21.068657     25.
> 293296     46.538951      92.26097     145.56541     343.76505     2.6112494
     t             .             .             .             .             .
>           .    -.23864316     .00974917     1.5132601     2.6795795     .65
> 026363    -1.5231065     .96745688     .72917614     -.4645937     1314.6844
pvalue             .             .             .             .             .
>           .     .81138272     .99222143     .13021635     .00737252     .51
> 552325     .12773481     .33331773     .46589542     .64222333             0
    ll             .             .             .             .             .
>           .     -32.03179    -30.163334    -7.8754166     15.160896    -33.
> 127162    -162.09941    -91.571578    -179.16315    -833.48531     3427.8508
    ul             .             .             .             .             .
>           .      25.07821     30.464905     61.230686     97.749388     66.
> 021783      20.33185      270.0886      391.4488     514.06316     3438.0869
    df        114590        114590        114590        114590        114590
>       114590        114590        114590        114590        114590
> 114590        114590        114590        114590        114590        114590
  crit     1.9599847     1.9599847     1.9599847     1.9599847     1.9599847
>    1.9599847     1.9599847     1.9599847     1.9599847     1.9599847     1.9
> 599847     1.9599847     1.9599847     1.9599847     1.9599847     1.9599847
 eform             0             0             0             0             0
>           0             0             0             0             0
>      0             0             0             0             0             0
```

464 .

```
465 . // collect base group mean
466 . mat c = A["b","1.tobacco"]

467 . mat list c

    symmetric c[1,1]
                1.
          tobacco
    b  -214.03892

468 . local baseeffect = c[1,1]

469 .
470 . // collect bin-specific means
471 . mat b = A["b", "1.tobacco#1.phatx_bins" .. "1.tobacco#10.phatx_bins"]

472 . mat list b

    b[1,10]
         1o.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.
    > tobacco#    1.tobacco#    1.tobacco#    1.tobacco#    1.tobacco#
       1b.phatx_b~s  2.phatx_bins  3.phatx_bins  4.phatx_bins  5.phatx_bins  6.pha
    > tx_bins  7.phatx_bins  8.phatx_bins  9.phatx_bins  10.phatx_b~s
    b             0    -3.4767901     .15078565     26.677635     56.455142      1
    > 6.44731    -70.883781     89.258511     106.14282    -159.71108

473 .
474 . // initialize ATE and ATT locals to be updated in loop
475 . local ate_numerator = 0

476 . local att_numerator = 0

477 .
478 . // Calculate ATE and ATT
479 . forval i = 1/`=colsof(b)' {
      2.
480 .         // get beta from reg
```

```
481 .         local b`i' = b[1,`i'] // loop over columns
      3.
482 .         // get weights w for ATE
483 .         qui count if phatx_bins == `i'
      4.            local w_`i' = `r(N)'/`=_N'
      5.            local w_sum = `w_sum' + `w_`i''
      6.
484 .         // get weights w_t for ATT
485 .         qui count if phatx_bins == `i' & tobacco == 1
      7.            local w_t_`i' = `r(N)'/`=_N'
      8.            local w_t_sum = `w_t_sum' + `w_t_`i''
      9.
486 .         // get ATE and ATT numerators
487 .         local ate_numerator = `ate_numerator' + `b`i'' * `w_`i''
     10.            local att_numerator = `att_numerator' + `b`i'' * `w_t_`i''
     11.
488 . }

489 .
490 . // get ATE and ATT
491 . local ate_block = round(`baseeffect' + `ate_numerator'/`w_sum', 0.01)

492 . local att_block = round(`baseeffect' + `att_numerator'/`w_t_sum', 0.01)

493 .
494 . // display
495 . dis "ATE: = `ate_block'"
    ATE: = -210.77

496 . dis "ATT: = `att_block'" // makes sense that ATT > ATE
    ATT: = -204.22

497 .
498 .
499 . * ----------------------------------------------------------------------
    > --- *
500 . * Question 4e:
```

```
501 . // teffects ipw (dbrwt) (tobacco, logit), ate // testing Stata command witho
    > ut luck
502 . // teffects ipw (dbrwt) (tobacco, logit), atet
503 .
504 . ** ATE ---------------------------------------------------------------------
    > ----
505 . // regress Y on D with IPW weights and no controls
506 . gen ipw1 = tobacco/phatx + (1-tobacco)/(1-phatx) // generate ATE weights

507 . eststo: regress dbrwt tobacco [pw=ipw1]
    (sum of wgt is 229,531.840347409)

    Linear regression                               Number of obs     =    114,610
                                                    F(1, 114608)      =    1127.54
                                                    Prob > F          =     0.0000
                                                    R-squared         =     0.0331
                                                    Root MSE          =     575.73

    ------------------------------------------------------------------------------
                 |               Robust
           dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
         tobacco |  -213.1682   6.348278   -33.58   0.000    -225.6107   -200.7257
           _cons |   3406.158   1.946306  1750.06   0.000     3402.343    3409.972
    ------------------------------------------------------------------------------
    (est2 stored)

508 .
509 .         // for ATT below
510 .         mat b = e(b)[1,1]

511 .         local ate = b[1,1]

512 .         dis `ate'
    -213.16821

513 .         qui sum tobacco // get Pr(D=1)
```

```
514 .         dis `ate'/`r(mean)' // nope! DNE ATT below
    -1337.5237

515 .
516 .
517 . // alternative approach: ATE_hat
518 . egen numerator1 = total(tobacco*dbrwt/phatx)

519 . egen denom1     = total(tobacco/phatx)

520 . egen numerator2 = total((1-tobacco)*dbrwt/(1-phatx))

521 . egen denom2     = total((1-tobacco)/(1-phatx))

522 . gen ate_hat     = (numerator1/denom1) - (numerator2/denom2)

523 . sum ate_hat

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
     ate_hat |    114,610   -213.1682           0  -213.1682  -213.1682

524 . local ate_ipw = round(`r(mean)', 0.01)

525 . // replicates well
526 .
527 .
528 . ** ATT ------------------------------------------------------------------
    > ----
529 . // regress Y on D with new IPW weights and no controls
530 . gen ipw2 = (tobacco-phatx)/(1-phatx) // generate ATT weights

531 . // problem: ipw2 includes negative weights
532 . regress dbrwt tobacco [pw=ipw2] // can't get this to run. Need right weights
    (sum of wgt is 18,266)
    note: tobacco omitted because of collinearity

    Linear regression                               Number of obs     =     18,266
                                                    F(0, 18265)       =       0.00
                                                    Prob > F          =          .
                                                    R-squared         =     0.0000
                                                    Root MSE          =     572.08
```

dbrwt	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
tobacco	**0**	(omitted)				
_cons	**3171.139**	**4.232904**	**749.16**	**0.000**	**3162.842**	**3179.436**

```
533 .
534 . // alternative approach: ATT_hat
535 . egen element1_temp = total(tobacco)

536 . gen element1 = _N/element1_temp

537 . egen element2_temp = total(((tobacco-phatx)* dbrwt)/(1-phatx))

538 . gen element2 = element2_temp/_N

539 . gen att_hat = element1 * element2

540 . sum att_hat //
```

Variable	Obs	Mean	Std. Dev.	Min	Max
att_hat	**114,610**	**-199.8735**	**0**	**-199.8735**	**-199.8735**

```
541 . local att_ipw = round(`r(mean)', 0.01)

542 .
543 .
544 .
545 .
546 .         local table_loc table_4de

547 .         local table_title "ATE and ATT by estimation method"

548 .         local note_local "This table shows the vaATE and ATT estimated using
    >  the blocking and IPW methods."
```

```
549 .
550 .         // print table of selected vars
551 .         cap file close fh

552 .         file open fh using "$do_loc/tables/table_4de.tex", replace write

553 .
554 .                 file write fh "\begin{center}" _n

555 .                 file write fh "\begin{tabular}{lcc}" _n

556 .                 file write fh "\hline\hline" _n

557 .                 file write fh "Estimation method & ATE & ATT \\ [0.5ex]" _n

558 .                 file write fh "\hline" _n

559 .                 file write fh "Blocking & `ate_block' & `att_block' \\ " _n

560 .                 file write fh "IPW              & `ate_ipw'   & `att_ipw' \\
    >  " _n

561 .                 file write fh "\hline\hline" _n

562 .                 file write fh "\end{tabular}" _n

563 .                 file write fh "\end{center}" _n

564 .
565 .         file close fh

566 .
567 .
568 .
569 . * ============================================================================
    > === *
570 . * Question 5: DOUBLY-ROBUST METHODS
```

```
571 . * ============================================================================
    > === *
572 . * ----------------------------------------------------------------------------
    > --- *
573 . * Question 5a:
574 .
575 . foreach var of varlist $covar_list { // generate interactions
      2.         egen m_`var' = mean(`var')                      // bar
      3.         gen dm_`var' = `var' - m_`var'          // X-X_bar
      4.         gen tbco_`var' = tobacco*dm_`var'       // D(X-X_bar)
      5. }

576 . eststo clear

577 . eststo: regress dbrwt tobacco $covar_list tbco_* [pw=ipw1], noconstant
    (sum of wgt is 229,531.840347409)

    Linear regression                               Number of obs     =    114,610
                                                    F(74, 114535)     =          .
                                                    Prob > F          =          .
                                                    R-squared         =     0.9809
                                                    Root MSE          =     463.05

    ------------------------------------------------------------------------------
    > ----
                 |               Robust
          dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interv
    > al]
    -------------+----------------------------------------------------------------
    > ----
         tobacco |  -207.0881   5.070625   -40.84   0.000    -217.0265   -197.1
    > 498
         alcohol |  -41.76837   24.55344    -1.70   0.089    -89.89273    6.355
    > 988
        mrace3_2 |  -203.7768   10.02789   -20.32   0.000    -223.4314   -184.1
    > 223
        mrace3_3 |  -148.9939   5.871041   -25.38   0.000    -160.5011   -137.4
    > 868
       hisp_moth |  -106.2447   8.560314   -12.41   0.000    -123.0228   -89.46
    > 662
      adequacy_2 |  -40.55493    4.14898    -9.77   0.000    -48.68687   -32.42
    > 299
      adequacy_3 |  -82.89358   9.058448    -9.15   0.000     -100.648   -65.13
    > 916
         cardiac |  -25.07153   18.24961    -1.37   0.170    -60.84048    10.69
    > 742
         pre4000 |   396.2025   12.91757    30.67   0.000     370.8843    421.5
    > 207
          phyper |  -102.0099   10.02543   -10.18   0.000    -121.6595   -82.36
```

```
> 017
      diabetes |   140.5691   11.27225    12.47   0.000     118.4756    162.6
> 625
        anemia |   18.45212   16.19067     1.14   0.254    -13.28135    50.18
> 559
          lung |  -24.69211   19.90271    -1.24   0.215    -63.70112    14.31
> 691
       dlivord |   25.71612   3.346323     7.68   0.000     19.15737    32.27
> 486
     dmeduc_1 |  -1805.409   47.17167   -38.27   0.000    -1897.864   -1712.
> 953
     dmeduc_2 |  -1820.779   46.10742   -39.49   0.000    -1911.149   -1730.
> 409
     dmeduc_3 |  -1790.799   46.50829   -38.50   0.000    -1881.955   -1699.
> 644
      dgestat |   114.3145   1.093676   104.52   0.000     112.1709    116.4
> 581
        dmage |   .6479746   .3944859     1.64   0.100    -.1252118    1.421
> 161
         dmar |   47.10461   5.155737     9.14   0.000     36.99944    57.20
> 977
    totord9_2 |   9.403976   5.747844     1.64   0.102     -1.86171    20.66
> 966
    totord9_3 |   12.65114   6.745384     1.88   0.061    -.5697147    25.87
> 199
    totord9_4 |   6.453012   8.305659     0.78   0.437    -9.825952    22.73
> 198
    totord9_5 |  -1.191609   10.58143    -0.11   0.910    -21.93104    19.54
> 782
    totord9_6 |  -3.465454   14.97349    -0.23   0.817    -32.81326    25.88
> 235
    totord9_7 |   -19.6658   20.52467    -0.96   0.338    -59.89385    20.56
> 225
    totord9_8 |  -61.34937   23.60473    -2.60   0.009    -107.6143   -15.08
> 447
         csex |   136.3412   3.076131    44.32   0.000     130.3121    142.3
> 704
    isllb10_2 |  -43.87058   19.79162    -2.22   0.027    -82.66186   -5.079
> 305
    isllb10_3 |  -58.93581   23.06734    -2.55   0.011    -104.1474   -13.72
> 418
    isllb10_4 |   48.79027   9.767594     5.00   0.000     29.64594    67.93
> 461
    isllb10_5 |   97.44265   8.591607    11.34   0.000     80.60323    114.2
> 821
    isllb10_6 |   99.17427   7.583572    13.08   0.000     84.31058     114.
> 038
    isllb10_7 |    91.2479    8.01435    11.39   0.000      75.5399    106.9
> 559
```

```
      isllb10_8 |   87.15651   9.120953     9.56   0.000     69.27958    105.0
> 334
      isllb10_9 |   67.26955   10.37634     6.48   0.000     46.93208    87.60
> 702
     isllb10_10 |   56.50412   8.707762     6.49   0.000     39.43704     73.5
> 712
      dplural_1 |   558.4049    11.5386    48.39   0.000     535.7895    581.0
> 204
   tbco_alcohol | -37.37495   33.57132    -1.11   0.266    -103.1742    28.42
> 433
  tbco_mrace3_2 |   167.9961   67.91162     2.47   0.013     34.89035    301.1
> 018
  tbco_mrace3_3 |   29.21383   19.69765     1.48   0.138    -9.393257    67.82
> 092
 tbco_hisp_moth |   63.26745   35.14411     1.80   0.072     -5.61447    132.1
> 494
tbco_adequacy_2 |    -10.592   12.86009    -0.82   0.410    -35.79759    14.61
> 358
tbco_adequacy_3 |   22.51043   20.78799     1.08   0.279    -18.23372    63.25
> 458
   tbco_cardiac |   40.29555   79.25806     0.51   0.611     -115.049    195.6
> 401
   tbco_pre4000 | -81.13398   55.11652    -1.47   0.141    -189.1615    26.89
> 356
    tbco_phyper |    75.4474   39.30578     1.92   0.055    -1.591333    152.4
> 861
  tbco_diabetes |   108.3128   36.30474     2.98   0.003     37.15611    179.4
> 696
    tbco_anemia | -23.92711   39.88231    -0.60   0.549    -102.0958    54.24
> 162
      tbco_lung |   -9.21952   49.35955    -0.19   0.852    -105.9635    87.52
> 445
   tbco_dlivord | -21.14628   8.156295    -2.59   0.010    -37.13249   -5.160
> 063
  tbco_dmeduc_1 |   2029.478   60.47442    33.56   0.000     1910.949    2148.
> 007
  tbco_dmeduc_2 |   2136.667   53.50557    39.93   0.000     2031.797    2241.
> 538
  tbco_dmeduc_3 |   2151.563   54.81422    39.25   0.000     2044.128    2258.
> 998
   tbco_dgestat | -8.147947   2.901804    -2.81   0.005    -13.83544   -2.460
> 456
     tbco_dmage | -2.787541   1.216802    -2.29   0.022    -5.172454   -.4026
> 279
      tbco_dmar | -9.076021   11.99848    -0.76   0.449    -32.59286    14.44
> 082
 tbco_totord9_2 |   11.73992   18.89709     0.62   0.534    -25.29808    48.77
> 792
 tbco_totord9_3 | -10.46339   21.26401    -0.49   0.623    -52.14051    31.21
```

> 374						
tbco_totord9_4	41.69163	24.62281	1.69	0.090	-6.568705	89.95
> 196						
tbco_totord9_5	2.370844	28.01031	0.08	0.933	-52.52893	57.27
> 061						
tbco_totord9_6	14.65667	36.65574	0.40	0.689	-57.18801	86.50
> 135						
tbco_totord9_7	51.25223	43.96303	1.17	0.244	-34.91465	137.4
> 191						
tbco_totord9_8	118.3741	53.99394	2.19	0.028	12.54684	224.2
> 014						
tbco_csex	2.87438	10.22967	0.28	0.779	-17.17562	22.92
> 438						
tbco_isllb10_2	16.31669	67.7355	0.24	0.810	-116.4439	149.0
> 772						
tbco_isllb10_3	2.609019	51.81387	0.05	0.960	-98.94536	104.1
> 634						
tbco_isllb10_4	9.529115	28.44476	0.34	0.738	-46.22218	65.28
> 041						
tbco_isllb10_5	-.522158	25.23861	-0.02	0.983	-49.98944	48.94
> 512						
tbco_isllb10_6	-23.12687	23.05339	-1.00	0.316	-68.31117	22.05
> 743						
tbco_isllb10_7	.2903397	24.40806	0.01	0.991	-47.54908	48.12
> 976						
tbco_isllb10_8	27.6915	26.07668	1.06	0.288	-23.41839	78.8
> 014						
tbco_isllb10_9	.1968545	32.22153	0.01	0.995	-62.95686	63.35
> 057						
tbco_isllb10_10	5.492525	23.73187	0.23	0.817	-41.02158	52.00
> 663						
tbco_dplural_1	.2934775	43.10395	0.01	0.995	-84.18961	84.77
> 657						

```
> ———
(est1 stored)
```

```
578 .
579 .
580 .
581 . * ------------------------------------------------------------------------
    > --- *
582 . * Question 5b:
583 .
584 . // interactions (we select a subset of the original covar_list)
585 . local covars_to_interact alcohol ///
    >                                                   adequacy_2 ///
    >                                                   cardiac ///
    >                                                   dlivord dmeduc_3 dmage ///
    >                                                   totord9_4 ///
    >                                                   csex  ///
    >                                                   isllb10_9

586 .
587 . loc n1 : list sizeof covars_to_interact // for interaction loop

588 . dis `n1'
    9

589 .
590 . local i_ct = 1

591 . foreach i in `covars_to_interact' {
      2.
592 .         dis "Covar `i'"
      3.         local j_start = `i_ct' + 1
      4.
593 .         forval j = `j_start'/`n1' {
      5.
594 .                 local word_j : word `j' of `covars_to_interact'
      6.                 dis "    `word_j'"
      7.
595 .                 // generate combo
596 .                 qui gen `i'_`word_j' = `i' * `word_j'
      8.                 label var `i'_`word_j' "`i' * `word_j'"
      9.
```

```
597 .                 // collect interactions as list
598 .                 local covars_interact `covars_interact' `i'_`word_j'
     10. //              dis "Interaction = `i'_`word_j'"
599 . //              pause
600 .         }
     11.         local i_ct = `i_ct' + 1
     12. }
    Covar alcohol
        adequacy_2
        cardiac
        dlivord
        dmeduc_3
        dmage
        totord9_4
        csex
        isllb10_9
    Covar adequacy_2
        cardiac
        dlivord
        dmeduc_3
        dmage
        totord9_4
        csex
        isllb10_9
    Covar cardiac
        dlivord
        dmeduc_3
        dmage
        totord9_4
        csex
        isllb10_9
    Covar dlivord
        dmeduc_3
        dmage
        totord9_4
        csex
        isllb10_9
    Covar dmeduc_3
        dmage
        totord9_4
        csex
        isllb10_9
    Covar dmage
        totord9_4
        csex
        isllb10_9
    Covar totord9_4
        csex
        isllb10_9
```

```
    Covar csex
        isllb10_9
    Covar isllb10_9

601 . dis "`covars_interact'"
    alcohol_adequacy_2 alcohol_cardiac alcohol_dlivord alcohol_dmeduc_3 alcohol_dm
    > age alcohol_totord9_4 alcohol_csex alcohol_isllb10_9 adequacy_2_cardiac adeq
    > uacy_2_dlivord adequacy_2_dmeduc_3 adequacy_2_dmage adequacy_2_totord9_4 ade
    > quacy_2_csex adequacy_2_isllb10_9 cardiac_dlivord cardiac_dmeduc_3 cardiac_d
    > mage cardiac_totord9_4 cardiac_csex cardiac_isllb10_9 dlivord_dmeduc_3 dlivo
    > rd_dmage dlivord_totord9_4 dlivord_csex dlivord_isllb10_9 dmeduc_3_dmage dme
    > duc_3_totord9_4 dmeduc_3_csex dmeduc_3_isllb10_9 dmage_totord9_4 dmage_csex
    > dmage_isllb10_9 totord9_4_csex totord9_4_isllb10_9 csex_isllb10_9

602 .
603 . global covars_lasso $covar_list `covars_interact'

604 .
605 .
606 . ** Lasso steps
607 . set seed $seed_q5b // defined in 00_master.do

608 .
609 . preserve

610 .         // Keep a random 5% of the dataset to reduce run time.
611 .         // This is not ideal but I don't have processing power.
612 .
613 .         gen rand = runiform()

614 .         keep if rand <0.05
    (108,895 observations deleted)

615 .
616 .         // regress Y on X and collect selected covariates
617 .         lasso linear dbrwt $covars_lasso, rseed("$seed_q5b") grid(10) // lin
    > ear model
    note: cardiac_isllb10_9 dropped because it is constant
    note: alcohol_cardiac dropped because it is constant in C.V. subsamples
    10-fold cross-validation with 10 lambdas ...
    Grid value 1:     lambda =  325.154   no. of nonzero coef. =       0
    Folds: 1...5....10   CVF = 355154.2
    Grid value 2:     lambda = 116.8543   no. of nonzero coef. =       1
    Folds: 1...5....10   CVF = 264085.5
    Grid value 3:     lambda = 41.99525   no. of nonzero coef. =       7
    Folds: 1...5....10   CVF = 236009.7
    Grid value 4:     lambda = 15.09231   no. of nonzero coef. =      21
    Folds: 1...5....10   CVF = 226504.7
    Grid value 5:     lambda = 5.423895   no. of nonzero coef. =      36
```

```
Folds: 1...5....10   CVF = 224082.3
Grid value 6:     lambda = 1.949247   no. of nonzero coef. =      50
Folds: 1...5....10   CVF = 224343.6
Grid value 7:     lambda =  .700523   no. of nonzero coef. =      65
Folds: 1...5....10   CVF = 225004
Grid value 8:     lambda = .2517549   no. of nonzero coef. =      67
Folds: 1...5....10   CVF = 225368.9
... cross-validation complete ... minimum found

Lasso linear model                          No. of obs        =      5,715
                                            No. of covariates =         71
Selection: Cross-validation                 No. of CV folds   =         10
```

ID	Description	lambda	No. of nonzero coef.	Out-of-sample R-squared	CV mean prediction error
1	first lambda	325.154	0	0.0018	355154.2
4	lambda before	15.09231	21	0.3634	226504.7
* 5	selected lambda	5.423895	36	0.3702	224082.3
6	lambda after	1.949247	50	0.3695	224343.6
8	last lambda	.2517549	67	0.3666	225368.9

```
* lambda selected by cross-validation.

618 .         eststo lasso_logit_y

619 .         global selectedvars_y `e(allvars_sel)'

620 .         dis "Selected vars: `e(allvars_sel)'"
Selected vars: alcohol mrace3_2 mrace3_3 hisp_moth adequacy_2 adequacy_3 pre40
> 00 phyper diabetes anemia lung dlivord dmeduc_1 dgestat dmage dmar totord9_2
>  totord9_7 csex isllb10_3 isllb10_4 isllb10_5 isllb10_6 isllb10_7 isllb10_8
> isllb10_10 dplural_1 alcohol_adequacy_2 alcohol_dlivord alcohol_totord9_4 ca
> rdiac_totord9_4 dlivord_dmeduc_3 dlivord_dmage dlivord_csex dmeduc_3_totord9
> _4 dmeduc_3_csex
```

```
621 .
622 .         // regress D on X and collect selected covariates
623 .         lasso logit tobacco $covars_lasso, rseed("$seed_q5b") grid(10) // lo
    > git model (40 mins)
    note: cardiac_isllb10_9 dropped because it is constant
    note: alcohol_cardiac dropped because it is constant in C.V. subsamples
    10-fold cross-validation with 10 lambdas ...
    Grid value 1:     lambda = .0894869   no. of nonzero coef. =       0
    Folds: 1...5....10   CVF = .9026237
    Grid value 2:     lambda = .0321599   no. of nonzero coef. =       5
    Folds: 1...5....10   CVF = .8260562
    Grid value 3:     lambda = .0115577   no. of nonzero coef. =      14
    Folds: 1...5....10   CVF = .796034
    Grid value 4:     lambda = .0041536   no. of nonzero coef. =      39
    Folds: 1...5....10   CVF = .7797507
    Grid value 5:     lambda = .0014927   no. of nonzero coef. =      57
    Folds: 1...5....10   CVF = .7761761
    Grid value 6:     lambda = .0005365   no. of nonzero coef. =      63
    Folds: 1...5....10   CVF = .7750313
    Grid value 7:     lambda = .0001928   no. of nonzero coef. =      68
    Folds: 1...5....10   CVF = .7755897
    Grid value 8:     lambda = .0000693   no. of nonzero coef. =      69
    Folds: 1...5....10   CVF = .7767363
    Grid value 9:     lambda = .0000249   no. of nonzero coef. =      69
    Folds: 1...5....10   CVF = .7775312
    Grid value 10:    lambda = 8.95e-06   no. of nonzero coef. =      69
    Folds: 1...5....10   CVF = .7780647
    ... cross-validation complete ... minimum found

    Lasso logit model                          No. of obs        =      5,715
                                               No. of covariates =         71
    Selection: Cross-validation                No. of CV folds   =         10
```

ID	Description	lambda	No. of nonzero coef.	Out-of-sample dev. ratio	CV mean deviance
1	first lambda	.0894869	0	0.0011	.9026237
5	lambda before	.0014927	57	0.1411	.7761761
* 6	selected lambda	.0005365	63	0.1423	.7750313
7	lambda after	.0001928	68	0.1417	.7755897
10	last lambda	8.95e-06	69	0.1390	.7780647

```
    * lambda selected by cross-validation.
```

```
624 .         eststo lasso_logit_d

625 .         global selectedvars_d `e(allvars_sel)'

626 .         dis "Selected vars: `e(allvars_sel)'"
Selected vars: alcohol mrace3_2 mrace3_3 hisp_moth adequacy_2 adequacy_3 cardi
> ac pre4000 phyper diabetes anemia lung dlivord dmeduc_1 dmeduc_2 dgestat dma
> ge dmar totord9_2 totord9_3 totord9_4 totord9_5 totord9_6 totord9_7 totord9_
> 8 csex isllb10_2 isllb10_3 isllb10_4 isllb10_5 isllb10_6 isllb10_7 isllb10_9
>  isllb10_10 dplural_1 alcohol_adequacy_2 alcohol_dlivord alcohol_dmeduc_3 al
> cohol_dmage alcohol_totord9_4 alcohol_csex alcohol_isllb10_9 adequacy_2_card
> iac adequacy_2_dmeduc_3 adequacy_2_dmage adequacy_2_totord9_4 adequacy_2_cse
> x adequacy_2_isllb10_9 cardiac_dlivord cardiac_dmeduc_3 cardiac_totord9_4 ca
> rdiac_csex dlivord_dmage dlivord_totord9_4 dlivord_isllb10_9 dmeduc_3_dmage
> dmeduc_3_totord9_4 dmeduc_3_csex dmeduc_3_isllb10_9 dmage_isllb10_9 totord9_
> 4_csex totord9_4_isllb10_9 csex_isllb10_9

627 . restore

628 .
629 . foreach var of varlist $selectedvars_d {
  2.         dis "`var'"
  3. }
alcohol
mrace3_2
mrace3_3
hisp_moth
adequacy_2
adequacy_3
cardiac
pre4000
phyper
diabetes
anemia
lung
dlivord
dmeduc_1
dmeduc_2
dgestat
dmage
dmar
totord9_2
totord9_3
totord9_4
totord9_5
totord9_6
totord9_7
totord9_8
csex
```

```
isllb10_2
isllb10_3
isllb10_4
isllb10_5
isllb10_6
isllb10_7
isllb10_9
isllb10_10
dplural_1
alcohol_adequacy_2
alcohol_dlivord
alcohol_dmeduc_3
alcohol_dmage
alcohol_totord9_4
alcohol_csex
alcohol_isllb10_9
adequacy_2_cardiac
adequacy_2_dmeduc_3
adequacy_2_dmage
adequacy_2_totord9_4
adequacy_2_csex
adequacy_2_isllb10_9
cardiac_dlivord
cardiac_dmeduc_3
cardiac_totord9_4
cardiac_csex
dlivord_dmage
dlivord_totord9_4
dlivord_isllb10_9
dmeduc_3_dmage
dmeduc_3_totord9_4
dmeduc_3_csex
dmeduc_3_isllb10_9
dmage_isllb10_9
totord9_4_csex
totord9_4_isllb10_9
csex_isllb10_9
```

```
630 .
631 . /* Notes on lasso options:
    > - lasso standardizes variables by default. See manual p. 152. (seed in 00_ma
    > ster_ps2.do)
    > */
632 .
633 . // Regress Y on D and union of selected covariates from two lasso regs above
634 . global lasso_covars_union: list global(selectedvars_y) | global(selectedvars
    > _d)

635 . eststo: reg dbrwt tobacco $lasso_covars_union

      Source |       SS           df       MS      Number of obs   =   114,610
-------------+----------------------------------   F(67, 114542)   =   1037.39
       Model |  1.4821e+10        67   221208724   Prob > F        =    0.0000
    Residual |  2.4425e+10   114,542   213236.417   R-squared       =    0.3776
-------------+----------------------------------   Adj R-squared   =    0.3773
       Total |  3.9246e+10   114,609   342429.567   Root MSE        =    461.78

------------------------------------------------------------------------------
> --------
       dbrwt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. I
> nterval]
-------------+----------------------------------------------------------------
> --------
     tobacco |  -207.0607   4.000692   -51.76   0.000     -214.902   -
> 199.2194
     alcohol |   1.406424   78.51941     0.02   0.986    -152.4904
> 155.3033
    mrace3_2 |   -185.254   9.852865   -18.80   0.000    -204.5655   -
> 165.9425
    mrace3_3 |  -137.0348   4.795149   -28.58   0.000    -146.4332   -
> 127.6363
   hisp_moth |  -94.34981    7.59914   -12.42   0.000     -109.244   -
> 79.45561
  adequacy_2 |  -52.18196   16.51598    -3.16   0.002    -84.55303   -
> 19.81088
  adequacy_3 |  -73.21154   7.107921   -10.30   0.000    -87.14296   -
> 59.28012
     pre4000 |   390.9045   11.53794    33.88   0.000     368.2903
> 413.5187
      phyper |  -91.04441   7.963231   -11.43   0.000    -106.6522
> -75.4366
    diabetes |   146.5489    8.48716    17.27   0.000     129.9142
> 163.1836
     anemia |   13.49556   13.77567     0.98   0.327    -13.50454
> 40.49566
        lung |  -20.88421   16.13794    -1.29   0.196    -52.51432
> 10.74591
```

```
             dlivord |  -29.78584   8.472675    -3.52   0.000    -46.39215   -
> 13.17953
            dmeduc_1 |  -59.38587   18.09524    -3.28   0.001    -94.85227   -
> 23.91948
             dgestat |    114.804    .578359   198.50   0.000     113.6704
> 115.9376
               dmage |  -1.023965   .6345122    -1.61   0.107      -2.2676
> .2196688
                dmar |   42.57591   4.126483    10.32   0.000     34.48806
> 50.66375
           totord9_2 |   13.04372    5.11858     2.55   0.011     3.011379
> 23.07605
           totord9_7 |  -19.09208   16.83828    -1.13   0.257    -52.09486
> 13.91069
                csex |   126.1442    6.34236    19.89   0.000     113.7132
> 138.5751
           isllb10_3 |  -28.75552   16.99852    -1.69   0.091    -62.07237
> 4.561325
           isllb10_4 |   66.99888   8.706511     7.70   0.000     49.93425
> 84.06351
           isllb10_5 |   103.7555   7.884649    13.16   0.000     88.30166
> 119.2092
           isllb10_6 |    106.139   7.029565    15.10   0.000     92.36115
> 119.9168
           isllb10_7 |   97.28306   7.332848    13.27   0.000     82.91079
> 111.6553
           isllb10_8 |   93.46047   8.182433    11.42   0.000     77.42302
> 109.4979
          isllb10_10 |   55.60752   7.460375     7.45   0.000      40.9853
> 70.22975
           dplural_1 |   568.3316   10.48426    54.21   0.000     547.7826
> 588.8806
  alcohol_adequacy_2 |  -34.74892   30.45658    -1.14   0.254    -94.44334
> 24.94551
     alcohol_dlivord |  -10.17691   10.39025    -0.98   0.327    -30.54165
> 10.18783
   alcohol_totord9_4 |  -59.54297   39.38652    -1.51   0.131    -136.7399
>   17.654
   cardiac_totord9_4 |   20.21064   55.24194     0.37   0.714    -88.06272
>  128.484
    dlivord_dmeduc_3 |   7.096743   2.978225     2.38   0.017     1.259468
> 12.93402
       dlivord_dmage |   1.456228   .2413239     6.03   0.000     .9832371
>  1.92922
        dlivord_csex |   7.290323   2.457409     2.97   0.003     2.473838
> 12.10681
  dmeduc_3_totord9_4 |  -3.686889   9.905804    -0.37   0.710    -23.10211
> 15.72834
       dmeduc_3_csex |  -6.110368   5.521437    -1.11   0.268     -16.9323
```

```
> 4.711563
             cardiac |   33.93236   43.61666     0.78   0.437    -51.55563
> 119.4203
           dmeduc_2 |  -66.94267   15.82705    -4.23   0.000    -97.96345   -
> 35.92189
          totord9_3 |    12.9671   6.117068     2.12   0.034     .9777411
> 24.95646
          totord9_4 |  -2.577572   18.37166    -0.14   0.888    -38.58574
>  33.4306
          totord9_5 |  -1.238453   9.498479    -0.13   0.896    -19.85533
> 17.37842
          totord9_6 |  -.8002336   12.34302    -0.06   0.948    -24.99236
>  23.3919
          totord9_8 |   -55.6701   19.49814    -2.86   0.004    -93.88616   -
> 17.45405
          isllb10_2 |  -10.00016   18.86711    -0.53   0.596    -46.97941
>  26.9791
          isllb10_9 |   107.6863   50.38506     2.14   0.033     8.932364
> 206.4403
    alcohol_dmeduc_3 |   74.96263   31.97856     2.34   0.019     12.28515
> 137.6401
       alcohol_dmage |  -1.897944   2.827723    -0.67   0.502    -7.440238
>  3.64435
        alcohol_csex |   15.97131   27.93813     0.57   0.568    -38.78699
> 70.72961
   alcohol_isllb10_9 |   47.31925    70.4615     0.67   0.502    -90.78422
> 185.4227
  adequacy_2_cardiac |  -6.834352   42.12467    -0.16   0.871    -89.39805
> 75.72935
 adequacy_2_dmeduc_3 |   6.449297   7.502048     0.86   0.390    -8.254602
>  21.1532
    adequacy_2_dmage |   .2504308    .623078     0.40   0.688    -.9707925
> 1.471654
adequacy_2_totord9_4 |   24.17583   11.23008     2.15   0.031     2.165053
> 46.18661
     adequacy_2_csex |   .2954472   6.782244     0.04   0.965    -12.99765
> 13.58854
adequacy_2_isllb10_9 |  -6.40336   19.03762    -0.34   0.737    -43.71681
> 30.91009
     cardiac_dlivord |  -41.09134    14.5047    -2.83   0.005    -69.52032   -
> 12.66236
    cardiac_dmeduc_3 |   22.97807   33.63561     0.68   0.495    -42.94722
> 88.90336
        cardiac_csex |   16.91561   33.13053     0.51   0.610    -48.01971
> 81.85094
   dlivord_totord9_4 |   3.403692   5.582619     0.61   0.542    -7.538157
> 14.34554
   dlivord_isllb10_9 |  -5.037656   8.729974    -0.58   0.564    -22.14827
> 12.07296
```

```
      dmeduc_3_dmage |  -1.693452    .574063    -2.95   0.003    -2.818606
> -.568297
  dmeduc_3_isllb10_9 |  -23.53049   16.10281    -1.46   0.144    -55.09175
> 8.030762
     dmage_isllb10_9 |  -.1619271   1.758356    -0.09   0.927    -3.608278
> 3.284424
      totord9_4_csex |   12.92392   9.640601     1.34   0.180    -5.971513
> 31.81935
 totord9_4_isllb10_9 |  -28.68358   20.21037    -1.42   0.156     -68.2956
> 10.92844
      csex_isllb10_9 |   -4.64127   14.82798    -0.31   0.754    -33.70388
> 24.42134
               _cons |  -1715.371   30.72884   -55.82   0.000    -1775.599   -
> 1655.143
---------------------+------------------------------------------------------
> --------
(est4 stored)

636 .
637 . // plot q5ab
638 . esttab using "$do_loc/tables/table_5ab.tex",                    ///
>         style(tex)
>                             ///
>         nogaps
>                             ///
>         nobaselevels
>                     ///
>         noconstant
>                             ///
>         label
>                     ///
>         varwidth(50)
>                     ///
>         wrap
>                             ///
>         cells (b(fmt(2)) se(fmt(2) par))
>     ///
>         stats(N,
>                             ///
>                   fmt(%9.0f)
>                     ///
>                   labels("Observations"))       ///
>         eqlabel(none) ///
>         keep(tobacco) ///
>         replace
(output written to /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_
> Fall2023/tables/table_5ab.tex)
```

```
639 .
640 .
641 .
642 .
643 .
644 .
645 .
    end of do-file

646 .
647 . log close
          name:  <unnamed>
           log:  /Users/rajdevb/Desktop/GIT_RajdevBrar/GitHub_are213/ARE213_Fall20
    > 23/pset1_logfile.smcl
      log type:  smcl
     closed on:   2 Oct 2023, 11:10:56
    ------------------------------------------------------------------------------
```