
name: <unnamed>
log: /Users/victorporcelli/Desktop/PADM.2902 work/Project/LogFile/ProjectLog log_new.smcl
log type: smcl
opened on: 9 May 2021, 22:23:37

```
1 . use "$datadir/hrsdata_mr.dta", clear

2 .

3 . *drop observations of individuals younger than 50
4 . drop if agey <50
   (600 observations deleted)

5 .

6 . *drop observations without the dependent variable
7 . drop if cesd == .
   (1,816 observations deleted)

8 .

9 . *adjust cesd to be an indicator of depressed vs not depressed, using 6 as the
10 . *cutoff
11 . gen depressed = cesd

12 . replace depressed = 0 if depressed < 6
   (21,381 real changes made)

13 . replace depressed = 1 if depressed >= 6
   (2,809 real changes made)

14 .

15 . *convert gender into a 0-1 dummy
16 . replace gender =0 if gender ==1
   (18,175 real changes made)

17 . replace gender =1 if gender ==2
   (29,379 real changes made)

18 .

19 . *create a variable for living alone using hhres
20 . gen livalone = 0

21 . replace livalone = 1 if hhres ==1
   (11,901 real changes made)

22 .
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23 . *adjust race to be white vs non-white
24 . replace race =0 if race ==1
    (38,252 real changes made)

25 . replace race =1 if race ==2 | race ==3
    (9,302 real changes made)

26 .
27 . *replace the missing values in incomplete variables
28 . gen hispan_mis = missing(hispan)

29 . gen a = runiform()

30 . replace hispan = 1 if a >= 0.8993 & missing(hispan)
    (0 real changes made)

31 . replace hispan = 0 if a < 0.8993 & missing(hispan)
    (5 real changes made)

32 .
33 . gen vetrn_mis = (vetrn==.)

34 . gen b = runiform()

35 . replace vetrn = 1 if b >= 0.8146 & missing(vetrn)
    (7 real changes made)

36 . replace vetrn = 0 if b < 0.8146 & missing(vetrn)
    (37 real changes made)

37 .
38 . gen smokev_mis = (smokev==.)

39 . gen c = runiform()

40 . replace smokev = 1 if c >= 0.4558 & missing(smokev)
    (203 real changes made)

41 . replace smokev = 0 if c < 0.4558 & missing(smokev)
    (143 real changes made)

42 .
43 . gen work_mis = (work==.)

44 . gen e = runiform()

```

```

45 . replace work = 1 if e >= 0.6714 & missing(work)
    (18 real changes made)

46 . replace work = 0 if e < 0.6714 & missing(work)
    (36 real changes made)

47 .
48 . gen peninc_mis = (peninc==.)

49 . gen f = runiform()

50 . gen pension = peninc
    (675 missing values generated)

51 . replace pension = 1 if f >= 0.7097 & missing(pension)
    (214 real changes made)

52 . replace pension = 0 if f < 0.7097 & missing(pension)
    (461 real changes made)

53 .
54 . gen educ_mis = (educ==.)

55 . egen educMean = mean(educ)

56 . replace educ = educMean if missing(educ)
    variable educ was byte now float
    (15 real changes made)

57 .
58 . gen hchild_mis = (hchild==.)

59 . gen numchildren = hchild
    (1,021 missing values generated)

60 . egen hchildMean = mean(numchildren)

61 . replace numchildren=hchildMean if missing(numchildren)
    (1,021 real changes made)

62 .
63 . gen bmi_mis = (bmi==.)

64 . egen bmiMean = mean(bmi)

```

```

65 . replace bmi = bmiMean if missing(bmi)
    (551 real changes made)

66 .
67 . gen diab_mis = (diab_e==.)

68 . gen diabetes = diab_e
    (72 missing values generated)

69 . gen i = runiform()

70 . replace diabetes = 1 if i >= 0.7655 & missing(diabetes)
    (16 real changes made)

71 . replace diabetes = 0 if i < 0.7655 & missing(diabetes)
    (56 real changes made)

72 .
73 . gen cancr_mis = (cancr_e==.)

74 . gen cancer = cancr_e
    (147 missing values generated)

75 . gen j = runiform()

76 . replace cancer = 1 if j >= 0.8365 & missing(cancer)
    (28 real changes made)

77 . replace cancer = 0 if j < 0.8365 & missing(cancer)
    (119 real changes made)

78 .
79 . gen heart_mis = (heart_e==.)

80 . gen k = runiform()

81 . gen heartprob = heart_e
    (92 missing values generated)

82 . replace heartprob = 1 if k >= 0.741 & missing(heartprob)
    (26 real changes made)

83 . replace heartprob = 0 if k < 0.741 & missing(heartprob)
    (66 real changes made)

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```

84 .
85 . gen livsib_mis = (livsib==.)

86 . gen numsiblings = livsib
    (19 missing values generated)

87 . egen livsibMean = mean(numsiblings)

88 . replace numsiblings = livsibMean if missing(numsiblings)
    (19 real changes made)

89 .
90 . gen arthr_mis = (arthr_e==.)

91 . gen arthritis = arthr_e
    (52 missing values generated)

92 . gen p = runiform()

93 . replace arthritis = 1 if p >= 0.3496 & missing(arthritis)
    (27 real changes made)

94 . replace arthritis = 0 if p < 0.3496 & missing(arthritis)
    (25 real changes made)

95 .
96 . gen shlt_mis = (shlt==.)

97 . bysort hhidpn: egen avg_shlt=mean(shlt)

98 . replace shlt=avg_shlt if missing(shlt)
    variable shlt was byte now float
    (29 real changes made)

99 .
100 . *convert shlt so 1 is poor and 5 is excellent
101 . gen genhealth = 6-shlt

102 .
103 . *replace missing values in mstat, and make it a 0-1 dummy where 1 is a person
104 . *who is married or with a partner
105 . gen mstat_mis = (mstat==.)

106 . gen partnered = mstat
    (33 missing values generated)

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```

107 . replace partnered = 1 if partnered ==3
    (1,686 real changes made)

108 . replace partnered =0 if partnered !=1
    (17,537 real changes made)

109 .
110 . *make iearn variable name more understandable, and convert its unit to thousands
111 . *of dollars
112 . gen income = iearn/1000

113 .
114 . *make income .001 if 0 to be able to log it
115 . replace income = 0.001 if income == 0
    (33,696 real changes made)

116 .
117 . *export summary statistics
118 . outreg2 using sumstats.doc, replace sum(log) keep(depressed gender educ vetrn ///
> partnered hispan race income pension work genhealth smokev heartprob arthritis ///
> diabetes cancer bmi livalone numchildren numsiblings i.year) ///
> title("Descriptive statistics on health and demographic characteristics of individuals surveyed by the RAN
> D Health and Retirement Study from 2008-2016.") ///
> noobs addnote("N=47,554 \n Note: There were missing values for the following variables: hispan, vetrn, sm
> okev, work, pension, educ, genhealth, numchildren, bmi, diabetes, cancer, heartprob, numsiblings, arthriti
> s, partnered. A detailed explanation of the methods used to complete the dataset for this study is located
> in Appendix A.") ///
>

```

Variable	Obs	Mean	Std. Dev.	Min	Max
hhidpn	47,554	1.77e+08	1.78e+08	1.00e+07	5.03e+08
year	47,554	2011.99	2.820519	2008	2016
hispan	47,554	.09955	.2994022	0	1
race	47,554	.1956092	.3966731	0	1
byear	47,554	1941.313	8.743848	1909	1966
bmonth	47,554	6.549817	3.42921	1	12
gender	47,554	.6178029	.4859295	0	1
edyrs	47,477	12.83263	3.139436	0	17
edegrm	47,554	2.767401	1.917166	0	8
educ	47,554	3.34113	1.348469	1	5
agey	47,554	70.26685	9.107703	50	107
meduc	43,659	9.93952	3.675904	0	17
feduc	41,122	9.621918	3.986479	0	17
mstat	47,521	3.023505	2.640444	1	8
cenreg	47,527	2.660193	.9542861	1	5
relig	47,374	1.571896	.9245332	1	5
vetrn	47,554	.1872187	.3900911	0	1
bplace	47,515	5.25493	2.920755	1	11
cohbyr	47,554	3.697376	1.179012	0	7
shlt	47,554	2.792115	1.027685	1	5
depres	47,532	.1118825	.3152252	0	1
effort	47,501	.2051325	.4038027	0	1

sleepr	47,509	.2891873	.4533898	0	1
whappy	47,443	.8778534	.3274585	0	1
flone	47,513	.1475175	.3546248	0	1
enlife	47,482	.9224759	.2674241	0	1
fsad	47,505	.167014	.3729923	0	1
going	47,428	.1871679	.3900504	0	1
cesd	47,554	1.305821	1.88777	0	8
bmi	47,554	28.4339	5.833964	8.9	92.8
height	47,509	1.675065	.103193	.9144	2.3241
weight	47,037	80.04112	18.82582	22.6795	181.436
smokev	47,554	.5440762	.4980587	0	1
smoken	47,201	.1018834	.3024982	0	1
hibp	47,503	.6328232	.4820403	0	1
hibp_e	47,463	.61549	.4864844	0	1
diab	47,528	.2411421	.4277808	0	1
diab_e	47,482	.2344678	.4236702	0	1
cancr	47,522	.1645133	.3707446	0	1
cancr_e	47,407	.1634991	.3698243	0	1
lung	47,522	.1019528	.3025894	0	1
lung_e	47,484	.0931261	.2906121	0	1
heart	47,520	.2609007	.4391305	0	1
heart_e	47,462	.2509587	.4335693	0	1
strok	47,534	.0727479	.277428	0	2
strok_e	47,496	.0804278	.2719573	0	1
psych	47,521	.1837503	.3872845	0	1
psych_e	47,456	.1735292	.3787081	0	1
arthr	47,511	.6552588	.4752888	0	1
arthr_e	47,502	.6396994	.4800926	0	1
hosp	47,409	.2517033	.4339962	0	1
doctor	47,469	.9279108	.2586382	0	1
oopmd	47,554	3090.121	7478.968	0	634821
totn	47,554	364679.4	991104.5	-1510000	3.03e+07
totb	47,554	543477.2	1198566	-1512500	3.71e+07
iearn	47,554	12352.37	35858.77	0	1425000
issdi	47,554	454.7313	2429.576	0	74400
iunwc	47,554	115.7567	1159.405	0	36000
icap	47,554	15616.68	74051.69	0	4052000
ssrecv	47,554	.8764352	.3290878	0	1
ssdi	47,554	.0442865	.2057331	0	1
higov	47,340	.7394592	.4389343	0	1
prpcent	47,187	.5872168	.617045	0	21
lifein	47,049	.6003316	.4898354	0	1
sayret	47,378	1.000232	.7495416	0	3
work	47,554	.3240947	.4680405	0	1
lbrf	47,554	4.121777	1.678937	1	7
jjobs	47,554	2.142049	1.266462	0	9
jyears	47,554	35.57844	15.04143	0	74
inlbrf	47,168	.3422447	.4744661	0	1

hhres	47,554	2.135719	1.129066	1	15
hchild	46,533	3.233877	2.116857	0	20
livsib	47,535	2.835111	2.450759	0	20
evbrn	47,521	2.709918	1.826734	0	11
peninc	46,879	.2938416	.4555251	0	1
depressed	47,554	.0590697	.2357576	0	1
livalone	47,554	.2502629	.4331689	0	1
hispan_mis	47,554	.0001051	.0102535	0	1
a	47,554	.4973592	.2889172	7.23e-08	.9999934
vetrn_mis	47,554	.0009253	.0304044	0	1
b	47,554	.5013716	.28871	.0000149	.9999356
smokev_mis	47,554	.0072759	.0849891	0	1
c	47,554	.4996832	.2880509	4.34e-06	.9999942
work_mis	47,554	.0011356	.0336792	0	1
e	47,554	.4978729	.289567	.0000448	.9999765
peninc_mis	47,554	.0141944	.1182929	0	1
f	47,554	.5020075	.2885713	4.93e-06	.9999719
pension	47,554	.2941708	.4556739	0	1
educ_mis	47,554	.0003154	.0177578	0	1
educMean	47,554	3.34113	0	3.34113	3.34113
hchild_mis	47,554	.0214703	.1449476	0	1
numchildren	47,554	3.233877	2.094008	0	20
hchildMean	47,554	3.233877	0	3.233877	3.233877
bmi_mis	47,554	.0115868	.1070178	0	1
bmiMean	47,554	28.4339	0	28.4339	28.4339
diab_mis	47,554	.0015141	.038882	0	1
diabetes	47,554	.2344493	.4236586	0	1
i	47,554	.5000129	.2893423	.0000152	.999995
cancr_mis	47,554	.0030912	.0555133	0	1
cancer	47,554	.1635825	.3699001	0	1
j	47,554	.5018962	.2896059	8.93e-06	.9999516
heart_mis	47,554	.0019346	.0439425	0	1
k	47,554	.5013337	.2890764	3.49e-06	.9999998
heartprob	47,554	.2510199	.4336045	0	1
livsib_mis	47,554	.0003995	.0199849	0	1
numsiblings	47,554	2.835111	2.450269	0	20
livsibMean	47,554	2.835111	0	2.835111	2.835111
arthr_mis	47,554	.0010935	.0330503	0	1
arthritis	47,554	.6395676	.4801309	0	1
p	47,554	.5006513	.288322	.0000271	.9999884
shlt_mis	47,554	.0006098	.0246875	0	1
avg_shlt	47,554	2.792115	.8701468	1	5
genhealth	47,554	3.207885	1.027685	1	5
mstat_mis	47,554	.0006939	.026334	0	1
partnered	47,554	.6312192	.4824794	0	1
income	47,554	12.35308	35.85853	.001	1425

sumstats.doc

dir : seeout

119 . *first regression (Bivariate)

120 . reg depressed gender i.year

Source	SS	df	MS	Number of obs	=	47,554
Model	10.805681	5	2.1611362	F(5, 47548)	=	39.04
Residual	2632.26756	47,548	.055360216	Prob > F	=	0.0000
				R-squared	=	0.0041
				Adj R-squared	=	0.0040
Total	2643.07324	47,553	.05558163	Root MSE	=	.23529

depressed	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0305155	.0022204	13.74	0.000	.0261634	.0348675
year						
2010	-.0030417	.0034107	-0.89	0.372	-.0097267	.0036433
2012	-.0029661	.0034066	-0.87	0.384	-.0096431	.0037109
2014	.0044057	.0034087	1.29	0.196	-.0022754	.0110869
2016	-.0000458	.0034258	-0.01	0.989	-.0067604	.0066689
_cons	.0405484	.0027764	14.60	0.000	.0351066	.0459901

121 .

122 . *perform the white test for heteroskedasticity

123 . estat imtest, white

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroskedasticity

chi2(9) = 202.15

Prob > chi2 = 0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	202.15	9	0.0000
Skewness	4397.08	5	0.0000
Kurtosis	4413.36	1	0.0000
Total	9012.59	15	0.0000

```

124 .
125 . *second regression (Controls) with missing values
126 . reg depressed gender educ vetrn partnered hispan race income pension work ///
> genhealth smokev heartprob arthritis diabetes cancer bmi livalone numchildren ///
> numsiblings i.year hispan_mis vetrn_mis educ_mis smokev_mis hchild_mis ///
> shlt_mis peninc_mis work_mis bmi_mis diab_mis cancr_mis heart_mis livsib_mis

```

Source	SS	df	MS	Number of obs	=	47,554
				F(36, 47517)	=	116.79
Model	214.847465	36	5.96798513	Prob > F	=	0.0000
Residual	2428.22578	47,517	.051102253	R-squared	=	0.0813
				Adj R-squared	=	0.0806
Total	2643.07324	47,553	.05558163	Root MSE	=	.22606

depressed	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0135967	.0027697	4.91	0.000	.0081681	.0190253
educ	-.0018797	.0008943	-2.10	0.036	-.0036326	-.0001268
vetrn	-.0056766	.0033279	-1.71	0.088	-.0121994	.0008461
partnered	-.0370394	.003259	-11.37	0.000	-.0434271	-.0306517
hispan	.0417776	.0037443	11.16	0.000	.0344387	.0491166
race	-.0026698	.0027954	-0.96	0.340	-.0081489	.0028092
income	.0000481	.0000324	1.48	0.138	-.0000154	.0001117
pension	-.0228722	.0023957	-9.55	0.000	-.0275678	-.0181766
work	-.0095803	.0025668	-3.73	0.000	-.0146113	-.0045492
genhealth	-.0492853	.0011572	-42.59	0.000	-.0515535	-.047017
smokev	.0094125	.0021357	4.41	0.000	.0052264	.0135985
heartprob	.0096153	.0025259	3.81	0.000	.0046645	.014566
arthritis	.01188	.002311	5.14	0.000	.0073504	.0164097
diabetes	-.0015558	.0025977	-0.60	0.549	-.0066473	.0035357
cancer	-.0077685	.0028476	-2.73	0.006	-.0133498	-.0021871
bmi	.0002482	.0001873	1.33	0.185	-.0001189	.0006154
livalone	-.0065949	.0035033	-1.88	0.060	-.0134615	.0002716
numchildren	.0002045	.0005198	0.39	0.694	-.0008143	.0012233
numsiblings	.0000232	.0004583	0.05	0.960	-.000875	.0009214
year						
2010	-.0042362	.003284	-1.29	0.197	-.0106729	.0022005
2012	-.0070654	.0032903	-2.15	0.032	-.0135144	-.0006163
2014	-.0056664	.0033106	-1.71	0.087	-.0121553	.0008225
2016	-.0152831	.0033585	-4.55	0.000	-.0218658	-.0087004
hispan_mis	.4603116	.1012404	4.55	0.000	.261879	.6587443
vetrn_mis	.0842207	.0371418	2.27	0.023	.0114224	.1570191
educ_mis	-.1060269	.0634644	-1.67	0.095	-.230418	.0183641
smokev_mis	.0108731	.0122593	0.89	0.375	-.0131553	.0349016
hchild_mis	.0497926	.0071762	6.94	0.000	.0357271	.0638582
shlt_mis	.0007914	.0420408	0.02	0.985	-.0816092	.083192
peninc_mis	.006624	.0089539	0.74	0.459	-.0109258	.0241737
work_mis	.0094393	.0314243	0.30	0.764	-.0521527	.0710314
bmi_mis	.0255403	.0097439	2.62	0.009	.0064422	.0446385
diab_mis	-.0773536	.0281027	-2.75	0.006	-.1324353	-.0222719
cancr_mis	.06888	.0196913	3.50	0.000	.0302848	.1074751
heart_mis	.0894075	.0249689	3.58	0.000	.040468	.1383469
livsib_mis	.3485249	.0519402	6.71	0.000	.2467213	.4503285
_cons	.229839	.0090294	25.45	0.000	.2121413	.2475367

```

127 .
128 . *second regression (Controls) without missing values
129 . reg depressed gender educ vetrn partnered hispan race income pension work ///
> genhealth smokev heartprob arthritis diabetes cancer bmi livalone numchildren ///
> numsiblings i.year

```

Source	SS	df	MS	Number of obs	=	47,554
				F(23, 47530)	=	175.17
Model	206.53995	23	8.97999782	Prob > F	=	0.0000
Residual	2436.53329	47,530	.051263061	R-squared	=	0.0781
				Adj R-squared	=	0.0777
Total	2643.07324	47,553	.05558163	Root MSE	=	.22641

depressed	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0139959	.0027688	5.05	0.000	.0085691	.0194227
educ	-.0021119	.0008948	-2.36	0.018	-.0038657	-.000358
vetrn	-.0054823	.0033318	-1.65	0.100	-.0120128	.0010481
partnered	-.0375929	.0032611	-11.53	0.000	-.0439847	-.031201
hispan	.0417249	.0037445	11.14	0.000	.0343855	.0490642
race	-.0026664	.0027971	-0.95	0.340	-.0081487	.002816
income	.0000473	.0000325	1.46	0.145	-.0000163	.000111
pension	-.023103	.0023988	-9.63	0.000	-.0278047	-.0184012
work	-.0102181	.0025695	-3.98	0.000	-.0152544	-.0051818
genhealth	-.0498395	.0011577	-43.05	0.000	-.0521085	-.0475704
smokev	.0097352	.0021377	4.55	0.000	.0055454	.013925
heartprob	.0091696	.0025287	3.63	0.000	.0042132	.0141259
arthritis	.0117528	.002314	5.08	0.000	.0072173	.0162882
diabetes	-.001879	.002601	-0.72	0.470	-.006977	.003219
cancer	-.0082272	.0028512	-2.89	0.004	-.0138156	-.0026387
bmi	.0002853	.0001875	1.52	0.128	-.0000821	.0006528
livalone	-.0065025	.0035064	-1.85	0.064	-.0133752	.0003702
numchildren	.0002178	.0005202	0.42	0.675	-.0008017	.0012374
numsiblings	-1.16e-06	.0004588	-0.00	0.998	-.0009005	.0008982
year						
2010	-.0042511	.0032891	-1.29	0.196	-.0106977	.0021955
2012	-.007206	.0032951	-2.19	0.029	-.0136644	-.0007476
2014	-.00568	.0033152	-1.71	0.087	-.0121779	.0008179
2016	-.0147044	.0033624	-4.37	0.000	-.0212948	-.008114
_cons	.2338344	.0090313	25.89	0.000	.216133	.2515359

```

130 .
131 . *perform the white test for heteroskedasticity
132 . estat imtest, white

```

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity

```

chi2(276)    =    5289.29
Prob > chi2   =    0.0000

```

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	5289.29	276	0.0000
Skewness	7105.95	23	0.0000
Kurtosis	3863.71	1	0.0000
Total	16258.95	300	0.0000

```

133 .
134 . *add in incsq to account for diminishing returns
135 . gen incsq = income*income

136 .
137 . *generate interactions
138 . gen geninc = gender*income

139 . gen genincsq = gender*incsq

140 . gen nwhispan = hispan*race

141 . gen support = partnered*numchildren

142 . gen workeduc = work*educ

143 .
144 . *third regression (Functional Form)
145 . reg depressed gender geninc genincsq educ vetrn partnered support hispan race ///
> nwhispan income incsq pension work workeduc genhealth smokev heartprob ///
> arthritis diabetes cancer bmi livalone numchildren numsiblings i.year

```

Source	SS	df	MS	Number of obs	=	47,554
Model	207.898451	29	7.16891209	F(29, 47524)	=	139.91
Residual	2435.17479	47,524	.051240948	Prob > F	=	0.0000
				R-squared	=	0.0787
				Adj R-squared	=	0.0781
Total	2643.07324	47,553	.05558163	Root MSE	=	.22636

depressed	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0152147	.0029704	5.12	0.000	.0093928	.0210367
geninc	-.0000845	.00009	-0.94	0.348	-.0002609	.0000919
genincsq	1.19e-07	2.66e-07	0.45	0.653	-4.01e-07	6.40e-07
educ	-.0039172	.0010234	-3.83	0.000	-.005923	-.0019114
vetrn	-.0050141	.0033405	-1.50	0.133	-.0115616	.0015333
partnered	-.0276823	.0048115	-5.75	0.000	-.0371129	-.0182517
support	-.0028414	.001027	-2.77	0.006	-.0048542	-.0008285
hispan	.0368808	.0044792	8.23	0.000	.0281016	.0456601
race	-.005059	.0030416	-1.66	0.096	-.0110205	.0009025
nwhispan	.01585	.0076902	2.06	0.039	.0007772	.0309229
income	.0000654	.0000588	1.11	0.266	-.0000499	.0001808
incsq	-5.49e-08	1.00e-07	-0.55	0.584	-2.51e-07	1.42e-07
pension	-.0226672	.0024032	-9.43	0.000	-.0273775	-.017957
work	-.0325418	.0066418	-4.90	0.000	-.0455598	-.0195239
workededuc	.0064874	.0017721	3.66	0.000	.0030141	.0099607
genhealth	-.0499172	.0011583	-43.10	0.000	-.0521875	-.047647
smokev	.0100079	.00214	4.68	0.000	.0058135	.0142024
heartprob	.0089335	.0025298	3.53	0.000	.0039751	.0138919
arthritis	.011484	.002315	4.96	0.000	.0069465	.0160214
diabetes	-.0018252	.0026022	-0.70	0.483	-.0069256	.0032751
cancer	-.0081848	.0028513	-2.87	0.004	-.0137734	-.0025962
bmi	.000291	.0001875	1.55	0.121	-.0000766	.0006586
livalone	-.0050499	.0035396	-1.43	0.154	-.0119876	.0018879
numchildren	.0019937	.0008137	2.45	0.014	.0003988	.0035886
numsiblings	.00011	.0004598	0.24	0.811	-.0007912	.0010112
year						
2010	-.0043084	.0032886	-1.31	0.190	-.0107541	.0021374
2012	-.0073414	.0032949	-2.23	0.026	-.0137994	-.0008834
2014	-.0058211	.003315	-1.76	0.079	-.0123186	.0006763
2016	-.0148569	.0033628	-4.42	0.000	-.021448	-.0082657
_cons	.2326849	.0094208	24.70	0.000	.21422	.2511498

```

146 .
147 . *perform the white test for heteroskedasticity
148 . estat imtest, white

```

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity

```

chi2(421)    =    5423.60
Prob > chi2  =    0.0000

```

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	5423.60	421	0.0000
Skewness	7061.63	29	0.0000
Kurtosis	3846.88	1	0.0000
Total	16332.11	451	0.0000

149 .
150 . *conduct F-tests to check for joint significance among interactions
151 . test gender geninc

(1) **gender = 0**
(2) **geninc = 0**

F(2, 47524) = **13.52**
Prob > F = **0.0000**

152 . test geninc income

(1) **geninc = 0**
(2) **income = 0**

F(2, 47524) = **0.71**
Prob > F = **0.4903**

153 . test gender genincsq

(1) **gender = 0**
(2) **genincsq = 0**

F(2, 47524) = **13.21**
Prob > F = **0.0000**

154 . test genincsq incsq

(1) **genincsq = 0**
(2) **incsq = 0**

F(2, 47524) = **0.19**
Prob > F = **0.8258**

155 .

156 . test hispan nwhispan

(1) **hispan = 0**
(2) **nwhispan = 0**

F(2, 47524) = **64.86**
Prob > F = **0.0000**

157 . test nwhispan race

(1) **nwhispan = 0**
(2) **race = 0**

F(2, 47524) = **2.56**
Prob > F = **0.0777**

158 .

159 . test numchildren support

(1) **numchildren = 0**
(2) **support = 0**

F(2, 47524) = **3.96**
Prob > F = **0.0191**

160 . test support partnered

(1) **support = 0**
(2) **partnered = 0**

F(2, 47524) = **69.48**
Prob > F = **0.0000**

161 .

162 . test work workeduc

(1) **work = 0**
(2) **workeduc = 0**

F(2, 47524) = **13.99**
Prob > F = **0.0000**

163 . test workeduc educ

(1) **workeduc = 0**
(2) **educ = 0**

F(2, 47524) = **9.48**
Prob > F = **0.0001**

```

164 .
165 . *add robust SEs to adjust for heteroskedasticity
166 . reg depressed gender i.year, r

```

```

Linear regression              Number of obs   =    47,554
                               F(5, 47548)       =    44.12
                               Prob > F         =    0.0000
                               R-squared        =    0.0041
                               Root MSE     =    .23529

```

depressed	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0305155	.0020883	14.61	0.000	.0264224	.0346085
year						
2010	-.0030417	.0033793	-0.90	0.368	-.0096652	.0035817
2012	-.0029661	.0033758	-0.88	0.380	-.0095827	.0036506
2014	.0044057	.0034775	1.27	0.205	-.0024102	.0112216
2016	-.0000458	.0034337	-0.01	0.989	-.0067758	.0066842
_cons	.0405484	.002625	15.45	0.000	.0354033	.0456934

```

167 .
168 . outreg2 using myreg.doc, replace title("Regression models predicting mild to severe depression by gender i
> n individuals 50 years of age and older.") ///
> ctitle(Bivariate) addtext(Year FE, YES, Individual FE, NO) nor2 drop(i.year)
myreg.doc
dir : seeout

```

```

169 .
170 . reg depressed gender educ vetrn partnered hispan race income pension work ///
> genhealth smokev heartprob arthritis diabetes cancer bmi livalone numchildren ///
> numsiblings i.year, r

```

```

Linear regression              Number of obs   =    47,554
                               F(23, 47530)      =    94.28
                               Prob > F         =    0.0000
                               R-squared        =    0.0781
                               Root MSE     =    .22641

```

depressed	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0139959	.0027074	5.17	0.000	.0086894	.0193023
educ	-.0021119	.0009466	-2.23	0.026	-.0039673	-.0002565
vetrn	-.0054823	.0029087	-1.88	0.059	-.0111835	.0002188
partnered	-.0375929	.0039475	-9.52	0.000	-.04533	-.0298557
hispan	.0417249	.0049901	8.36	0.000	.0319443	.0515054
race	-.0026664	.0031583	-0.84	0.399	-.0088566	.0035239
income	.0000473	.0000192	2.47	0.014	9.76e-06	.0000849
pension	-.023103	.002173	-10.63	0.000	-.0273621	-.0188439
work	-.0102181	.0022415	-4.56	0.000	-.0146114	-.0058248
genhealth	-.0498395	.0014266	-34.94	0.000	-.0526357	-.0470433

smokev	.0097352	.0021051	4.62	0.000	.0056093	.0138611
heartprob	.0091696	.0028038	3.27	0.001	.0036741	.014665
arthritis	.0117528	.0020491	5.74	0.000	.0077364	.0157691
diabetes	-.001879	.0028443	-0.66	0.509	-.0074538	.0036958
cancer	-.0082272	.0028554	-2.88	0.004	-.0138238	-.0026306
bmi	.0002853	.0002273	1.26	0.209	-.0001601	.0007308
livalone	-.0065025	.0043425	-1.50	0.134	-.0150139	.002009
numchildren	.0002178	.0005527	0.39	0.694	-.0008655	.0013011
numsiblings	-1.16e-06	.0004908	-0.00	0.998	-.0009632	.0009608
year						
2010	-.0042511	.0032612	-1.30	0.192	-.0106432	.0021409
2012	-.007206	.0032707	-2.20	0.028	-.0136165	-.0007954
2014	-.00568	.003377	-1.68	0.093	-.012299	.000939
2016	-.0147044	.0033755	-4.36	0.000	-.0213205	-.0080883
_cons	.2338344	.0106993	21.86	0.000	.2128636	.2548053

```

171 .
172 . outreg2 using myreg.doc, append ctitle(Controls) drop(i.year) ///
    > addtext(Year FE, YES, Individual FE, NO) nor2
    myreg.doc
    dir : seeout
173 .
174 . reg depressed gender geninc genincsq educ vetrn partnered support hispan race ///
    > nwhispan income incsq pension work workeduc genhealth smokev heartprob ///
    > arthritis diabetes cancer bmi livalone numchildren numsiblings i.year, r

```

Linear regression	Number of obs	=	47,554
	F(29, 47524)	=	75.67
	Prob > F	=	0.0000
	R-squared	=	0.0787
	Root MSE	=	.22636

depressed	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
gender	.0152147	.0029978	5.08	0.000	.009339	.0210904
geninc	-.0000845	.000065	-1.30	0.193	-.0002119	.0000428
genincsq	1.19e-07	1.12e-07	1.07	0.286	-9.98e-08	3.39e-07
educ	-.0039172	.0011404	-3.43	0.001	-.0061525	-.001682
vetrn	-.0050141	.0029293	-1.71	0.087	-.0107556	.0007273
partnered	-.0276823	.0054705	-5.06	0.000	-.0384045	-.0169601
support	-.0028414	.0011766	-2.41	0.016	-.0051475	-.0005353
hispan	.0368808	.0059506	6.20	0.000	.0252177	.048544
race	-.005059	.0032547	-1.55	0.120	-.0114382	.0013202
nwhispan	.01585	.0104452	1.52	0.129	-.0046227	.0363228
income	.0000654	.0000355	1.84	0.065	-4.10e-06	.0001349
incsq	-5.49e-08	4.05e-08	-1.36	0.175	-1.34e-07	2.45e-08
pension	-.0226672	.0021797	-10.40	0.000	-.0269395	-.018395
work	-.0325418	.0070796	-4.60	0.000	-.0464179	-.0186658
workeduc	.0064874	.0017684	3.67	0.000	.0030213	.0099535
genhealth	-.0499172	.0014282	-34.95	0.000	-.0527165	-.047118
smokev	.0100079	.0021065	4.75	0.000	.0058792	.0141366

heartprob	.0089335	.0028026	3.19	0.001	.0034403	.0144267
arthritis	.011484	.002054	5.59	0.000	.0074582	.0155098
diabetes	-.0018252	.0028461	-0.64	0.521	-.0074035	.0037531
cancer	-.0081848	.0028563	-2.87	0.004	-.0137832	-.0025864
bmi	.000291	.0002272	1.28	0.200	-.0001544	.0007364
livalone	-.0050499	.0043864	-1.15	0.250	-.0136472	.0035475
numchildren	.0019937	.0010259	1.94	0.052	-.000017	.0040044
numsiblings	.00011	.0004908	0.22	0.823	-.000852	.001072
year						
2010	-.0043084	.0032596	-1.32	0.186	-.0106973	.0020806
2012	-.0073414	.0032712	-2.24	0.025	-.0137529	-.0009299
2014	-.0058211	.0033783	-1.72	0.085	-.0124427	.0008005
2016	-.0148569	.0033763	-4.40	0.000	-.0214744	-.0082393
_cons	.2326849	.0112858	20.62	0.000	.2105645	.2548053

```

175 .
176 . *look at vif scores to look for multicollinearity
177 . vif

```

Variable	VIF	1/VIF
gender	1.93	0.517221
geninc	3.56	0.280676
genincsq	2.42	0.412531
educ	1.77	0.565847
vetrn	1.58	0.634570
partnered	5.00	0.199950
support	5.13	0.194948
hispan	1.67	0.599147
race	1.35	0.740254
nwhispan	1.69	0.591492
income	4.13	0.242019
incsq	2.74	0.364779
pension	1.11	0.898584
work	8.97	0.111507
workeduc	10.23	0.097755
genhealth	1.31	0.760476
smokev	1.05	0.948517
heartprob	1.12	0.895541
arthritis	1.15	0.872195
diabetes	1.13	0.886602
cancer	1.03	0.968692
bmi	1.11	0.900218
livalone	2.18	0.458358
numchildren	2.69	0.371152
numsiblings	1.18	0.849011
year		
2010	1.61	0.621327
2012	1.62	0.616752
2014	1.64	0.610417
2016	1.66	0.602151
Mean VIF	2.54	

```
178 .
179 . *conduct F-tests to check for joint significance among interactions
180 . test gender geninc
```

```
( 1) gender = 0
( 2) geninc = 0

      F( 2, 47524) = 13.61
      Prob > F = 0.0000
```

```
181 . test geninc income
```

```
( 1) geninc = 0
( 2) income = 0

      F( 2, 47524) = 1.87
      Prob > F = 0.1534
```

```
182 . test gender genincsq
```

```
( 1) gender = 0
( 2) genincsq = 0

      F( 2, 47524) = 13.20
      Prob > F = 0.0000
```

```
183 . test genincsq incsq
```

```
( 1) genincsq = 0
( 2) incsq = 0

      F( 2, 47524) = 1.17
      Prob > F = 0.3116
```

```
184 .
```

```
185 . test hispan nwhispan
```

```
( 1) hispan = 0
( 2) nwhispan = 0

      F( 2, 47524) = 36.24
      Prob > F = 0.0000
```

```
186 . test nwhispan race
```

```
( 1) nwhispan = 0
( 2) race = 0

      F( 2, 47524) = 1.80
      Prob > F = 0.1646
```

```

187 .
188 . test numchildren support

      ( 1)  numchildren = 0
      ( 2)  support = 0

      F( 2, 47524) = 2.95
      Prob > F = 0.0525

189 . test support partnered

      ( 1)  support = 0
      ( 2)  partnered = 0

      F( 2, 47524) = 46.58
      Prob > F = 0.0000

190 .
191 . test work workeduc

      ( 1)  work = 0
      ( 2)  workeduc = 0

      F( 2, 47524) = 12.81
      Prob > F = 0.0000

192 . test workeduc educ

      ( 1)  workeduc = 0
      ( 2)  educ = 0

      F( 2, 47524) = 8.07
      Prob > F = 0.0003

193 .
194 . outreg2 using myreg.doc, append ctitle(Functional Form) nor2 drop(i.year) ///
> addtext(Year FE, YES, Individual FE, NO)
myreg.doc
dir : seeout

195 .
196 . *fourth regression (Fixed effects) without time invariant variables
197 . xtset hhidpn year
      panel variable: hhidpn (unbalanced)
      time variable: year, 2008 to 2016, but with gaps
      delta: 1 unit

```

```

198 . xtreg depressed geninc genincsq partnered support income incsq pension work ///
    > workeduc genhealth bmi livalone numsiblings i.year, fe i (hhidpn) r

```

```

Fixed-effects (within) regression      Number of obs   =    47,554
Group variable: hhidpn                 Number of groups =    9,865

```

```

R-sq:                                Obs per group:
    within = 0.0110                      min =          1
    between = 0.1029                     avg  =         4.8
    overall = 0.0580                      max  =          5

```

```

                                F(17,9864)    =    15.80
corr(u_i, Xb) = 0.0929          Prob > F      =    0.0000

```

(Std. Err. adjusted for 9,865 clusters in hhidpn)

depressed	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
geninc	-.0001698	.0001072	-1.58	0.113	-.00038	.0000403
genincsq	2.35e-07	1.67e-07	1.41	0.158	-9.13e-08	5.62e-07
partnered	-.0417034	.011584	-3.60	0.000	-.0644105	-.0189964
support	-.0005412	.0021943	-0.25	0.805	-.0048424	.0037601
income	.0000167	.0000454	0.37	0.713	-.0000723	.0001057
incsq	-1.02e-08	4.18e-08	-0.25	0.806	-9.21e-08	7.16e-08
pension	-.0069099	.0030698	-2.25	0.024	-.0129274	-.0008924
work	-.0172587	.0107053	-1.61	0.107	-.0382434	.0037259
workeduc	.0007294	.0027376	0.27	0.790	-.0046368	.0060957
genhealth	-.0262927	.0018739	-14.03	0.000	-.029966	-.0226194
bmi	-.0005433	.00063	-0.86	0.389	-.0017783	.0006917
livalone	.0094902	.0066757	1.42	0.155	-.0035956	.022576
numsiblings	.0044888	.0032113	1.40	0.162	-.0018061	.0107836
year						
2010	-.0057091	.0026764	-2.13	0.033	-.0109555	-.0004628
2012	-.0089125	.0027508	-3.24	0.001	-.0143046	-.0035203
2014	-.0064271	.0029265	-2.20	0.028	-.0121636	-.0006907
2016	-.015026	.003053	-4.92	0.000	-.0210105	-.0090415
_cons	.1858981	.0222307	8.36	0.000	.1423215	.2294747
sigma_u	.16111954					
sigma_e	.18658075					
rho	.4271631	(fraction of variance due to u_i)				

```
199 .
200 . *conduct F-tests to check for joint significance among interactions
201 . test geninc income
```

```
( 1) geninc = 0
( 2) income = 0

      F( 2, 9864) =    1.28
      Prob > F =    0.2768
```

```
202 . test genincsq incsq
```

```
( 1) genincsq = 0
( 2) incsq = 0

      F( 2, 9864) =    1.00
      Prob > F =    0.3682
```

```
203 . test geninc genincsq
```

```
( 1) geninc = 0
( 2) genincsq = 0

      F( 2, 9864) =    1.27
      Prob > F =    0.2796
```

```
204 .
205 . test support partnered
```

```
( 1) support = 0
( 2) partnered = 0

      F( 2, 9864) =   15.10
      Prob > F =    0.0000
```

```
206 .
207 . test work workeduc
```

```
( 1) work = 0
( 2) workeduc = 0

      F( 2, 9864) =    8.89
      Prob > F =    0.0001
```

```
208 .
```

```
209 . outreg2 using myreg.doc, append ctitle(Fixed Effects) nor2 drop(i.year) ///
    > addtext(Year FE, YES, Individual FE, YES)
    myreg.doc
    dir : seeout

210 .
211 . log close
      name: <unnamed>
      log: /Users/victorporcelli/Desktop/PADM.2902 work/Project/LogFile/ProjectLog log_new.smcl
      log type: smcl
      closed on: 9 May 2021, 22:24:10
```
