17.871: PS4 Key

Part I

. insheet using "/Users/jeremy/Documents/*SchoolWork/17.871/PS2/NMC_v4_0.csv", clear

1.
. keep if year==2007
// Recode to missing
. replace milex = . if milex == -9
. replace irst = . if irst == -9
. gen cap_milex = milex / tpop
. gen cap_irst= irst / tpop

2.
// Divide by maximum
. gen scap_milex = cap_milex / 2246.435
. gen scap_irst = cap_irst / 5.954167

3.
. reg scap_milex scap_irst

```
------------------------------------------------------------------------------
  scap_milex |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   scap_irst |   .4295162   .1488484     2.89   0.004       .13561    .7234225
       _cons |   .0790782   .0134548     5.88   0.000     .0525113    .1056451
------------------------------------------------------------------------------
```

4.
Moving from the sample minimum to the sample maximum in iron and steel production is associated with a 42.95% increase in military expenditures per capita.

Part II

. use "/Users/jeremy/Documents/*SchoolWork/17.871/ps4/cces13_mit.dta", clear

// Recode variables as requested by question. Also acceptable to recode to a 0,1 scale.

. recode CC312a (4=1) (3=2) (2=3) (1=4) (5=.), gen(tr_CC312)
. recode pid3 (5=.) (4=.) (3=2) (1=3) (2=1), gen(tr_pid3)
. recode MIT418C (5=1) (4=2) (3=3) (2=4) (1=5), gen (tr_MIT418C)

. reg tr_CC312 tr_pid3 [aweight=weight]

```
------------------------------------------------------------------------------
    tr_CC312 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tr_pid3 |   .8370181   .0358132    23.37   0.000     .7667278    .9073084
```

```
       _cons |    .370818   .0817607     4.54   0.000      .210347     .531289
------------------------------------------------------------------------------
```

. reg tr_CC312 tr_MIT418C [aweight=weight]

```
------------------------------------------------------------------------------
    tr_CC312 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  tr_MIT418C |    .414563   .0188369    22.01   0.000     .3775959      .45153
       _cons |   .6577257   .0723689     9.09   0.000     .5157027    .7997487
------------------------------------------------------------------------------
```

. reg tr_CC312 tr_pid3 tr_MIT418C [aweight=weight]

```
------------------------------------------------------------------------------
    tr_CC312 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tr_pid3 |   .5823576   .0381778    15.25   0.000      .507426    .6572892
  tr_MIT418C |   .2644477   .0203492    13.00   0.000     .2245084    .3043871
       _cons |  -.0274838   .0809889    -0.34   0.734    -.1864408    .1314732
------------------------------------------------------------------------------
```

2. The bivariate and the multivariate regressions differ because tr_pid3 and tr_MIT418C are correlated with each other as well as the dependent variable. As a result, at least part of the effect of tr_pid3 on tr_CC312 operates through tr_MIT418C, and vice versa.

3. The 'direct effect' of each independent variable can be determined by analyzing the multivariate regression, while the 'indirect effect' can be derived by comparing the multivariate to the bivariate regression. Setting error terms aside, the effects are as follows:

	Direct	Indirect
tr_pid3	.5823576	.2546605
tr_MIT418C	.2644477	.1501153

4. Holding ideology constant, moving from the sample minimum to the sample maximum in support of government health care is associated with a 35.2% increase in approval for President Obama. Holding support for government health care constant, moving from republican to democrat in self-declared affiliation is associated with a 38.8% increase in approval for President Obama.

5.

// Assess correlation of independent variables using auxiliary regressions
. reg tr_pid3 tr_MIT418C

Although partisan identification and support for government healthcare are correlated, the correlation is actually fairly weak. As a result, collinearity is unlikely to be a major concern. Note however that this does not rule out the possibility of omitted variable bias.

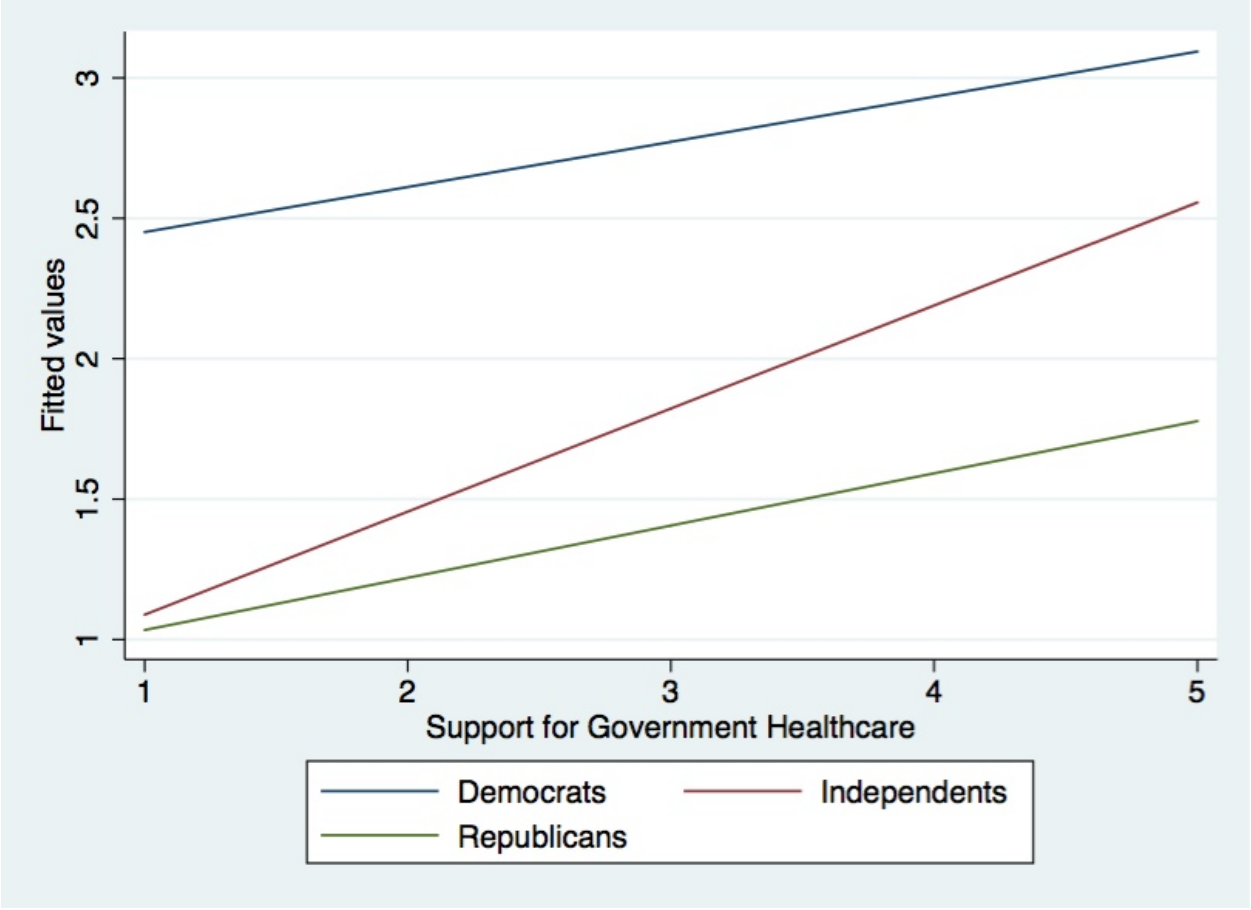
Part III

. reg tr_CC312 tr_MIT418C [aweight=weight] if tr_pid3==1
. reg tr_CC312 tr_MIT418C [aweight=weight] if tr_pid3==2
. reg tr_CC312 tr_MIT418C [aweight=weight] if tr_pid3==3

Coefficient Estimates

	Republicans	Independents	Democrats
tr_MIT418C	.168781	.3472829	.2042191
Constant	.8694651	.7341949	2.035266

. twoway lfit tr_CC312 tr_MIT418C if tr_pid3==3, legend(lab(1 "Democrats") lab(2 "Independents") lab(3 "Republicans")) xtitle("Support for Government Healthcare") || lfit tr_CC312 tr_MIT418C if tr_pid3==2 || lfit tr_CC312 tr_MIT418C if tr_pid3==1



3. The regression results suggest that partisanship conditions the relationship between attitudes towards government involvement in health care and approval for Obama. Opinions on government healthcare are more strongly predictive of Independent's approval of Obama than for either Democrats or Republicans. However, we should exercise some degree of caution when interpreting these results due to a) endogenous relationships between the three variables, and b) the limited number of Democratic respondents who are opposed to government healthcare.

4.
. keep if tr_pid3 != .

// Generate dummy variables (omitting independents)
. gen d_1 = 0
. replace d_1 = 1 if tr_pid3==1
. gen d_3 = 0
. replace d_3 = 1 if tr_pid3==3

// Generate interactions
. gen int1 = 0
. replace int1 = tr_MIT418C if tr_pid3 ==1
. gen int2 = 0
. replace int2 = tr_MIT418C if tr_pid3 ==2
. gen int3 = 0
. replace int3 = tr_MIT418C if tr_pid3 ==3

. reg tr_CC312 tr_MIT418C d_1 d_3 int1 int3 [aweight=weight]

```
------------------------------------------------------------------------------
    tr_CC312 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         d_1 |   .1352702   .1473233     0.92   0.359    -.1538829    .4244232
         d_3 |   1.301071   .2365104     5.50   0.000     .8368699    1.765273
        int1 |    .168781   .0350876     4.81   0.000     .0999142    .2376479
        int2 |   .3472829   .0286512    12.12   0.000      .291049    .4035169
        int3 |   .2042191   .0469454     4.35   0.000     .1120788    .2963593
       _cons |   .7341949   .1070798     6.86   0.000     .5240284    .9443615
------------------------------------------------------------------------------
```

The results are identical to those obtained from the separate regressions:

	Republicans	Independents	Democrats
tr_MIT418C (interaction)	.168781	.3472829	.2042191
Constant	.7341949 + .1352702 = .8694651	.7341949	.7341949 + 1.301071 = 2.035266

// Note: It is also possible to run the following regression, using independents as a reference category for the slope as well.

. reg tr_CC312 tr_MIT418C d_1 d_3 int1 int3 [aweight=weight]

The coefficients are the same because the inclusion of dummy variables and interactions effectively ‘subsets’ the data, allowing intercepts and slopes to vary for each subgroup.