```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
___/   /   /___/   /   /___/   16.1   Copyright 1985-2019 StataCorp LLC
  Statistics/Data analysis            StataCorp
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Notes:
      1. Unicode is supported; see help unicode_advice.
      2. Maximum number of variables is set to 5,000; see help set_maxvar.

Running C:\Program Files\Stata16\profile.do ...

. do "\\mysbfiles.campus.stonybrook.edu\luclin\HW1.do"

. clear all

. set more off

.
. cd "X:\"
X:\

. use verboven_cars, clear

. ***Problem (a)***
.
. *summarize
. *xtset ye
. *xtreg eurpr ma brd, fe
. * markets = countries***
```

```
.
. generate marketSize = pop/4

. generate lnpop = ln(pop)

.
.
. * generate logGDP = log(gdp)
. * real gdp?
. generate logRealGDP = log(rgdp)
(550 missing values generated)

. generate lnprice = ln(eurpr)

. **********Note: price is ln(eurpr)**********
.
. * formulas from class
. * s_jmt = q_jmt/M_mt
. * s_0mt = (M_mt - summation[q_jmt])/M_mt  ?
.
. generate s_jmt = qu/marketSize

. generate s_0mt = (marketSize-sum(s_jmt))/marketSize

.
. * https://stats.oarc.ucla.edu/stata/faq/how-can-i-create-dummy-variables-in-stata/
. tabulate ma, generate(MarketDummyVar)

    market |
  (=second |
 dimension |
 of panel) |      Freq.     Percent        Cum.
------------+-----------------------------------
   Belgium |      2,673       23.14       23.14
    France |      2,265       19.61       42.76
   Germany |      2,283       19.77       62.52
     Italy |      2,027       17.55       80.08
        UK |      2,301       19.92      100.00
------------+-----------------------------------
     Total |     11,549      100.00
```

```
. *list ** do not list
.
. *"log price interacting (multiplying) each of the market (country) dummies"
. generate BelgiumLogPrice = MarketDummyVar1*lnprice

. generate FranceLogPrice = MarketDummyVar2*lnprice

. generate GermanyLogPrice = MarketDummyVar3*lnprice

. generate ItalyLogPrice = MarketDummyVar4*lnprice

. generate UKLogPrice = MarketDummyVar5*lnprice

. *Germany is the benchmark
.
. *xtlogit s_jmt
. *xtreg s_jmt ye ma  brd hp li wi le cy he MarketDummyVar1 MarketDummyVar2
MarketDummyVar4 MarketDummyVar5, fe
.
. *price, demand,
. *https://www.stata.com/manuals13/rregress.pdf
.
. * "(1) You can use xtset and then xtreg. Alternatively, you can use "reghdfe". You can google
this command and install it first and check how to use
> it." - Professor email
. * http://scorreia.com/help/reghdfe.html
. *xtset and xtreg do not work
. * absorb() --> "categorical variables representing the fixed effects to be absorbed"
.
. ssc install reghdfe
checking reghdfe consistency and verifying not already installed...
all files already exist and are up to date.

. net install ftools, from("https://raw.githubusercontent.com/sergiocorreia/ftools/master/src/")
checking ftools consistency and verifying not already installed...
all files already exist and are up to date.

.
```

```
. *reghdfe s_0mt lnprice BelgiumLogPrice FranceLogPrice ItalyLogPrice UKLogPrice hp li wi
le cy he, absorb(ma ye brd)
. *reghdfe s_jmt lnprice BelgiumLogPrice FranceLogPrice ItalyLogPrice UKLogPrice hp li wi le
cy he
. *final code?
.
. reghdfe s_jmt lnprice BelgiumLogPrice FranceLogPrice ItalyLogPrice UKLogPrice hp li wi le
cy he, absorb(ma)
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                    Number of obs   =     11,549
Absorbing 1 HDFE group                    F(  11,  11533) =     130.59
                                          Prob > F        =     0.0000
                                          R-squared       =     0.1137
                                          Adj R-squared   =     0.1125
                                          Within R-sq.    =     0.1108
                                          Root MSE        =     0.0024

------------------------------------------------------------------------------
       s_jmt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnprice |   .0003251   .0000974     3.34   0.001     .0001342    .0005159
BelgiumLogP~e |   -.000185   .0001079    -1.71   0.086    -.0003965    .0000265
FranceLogPr~e |  -.0007033   .0001127    -6.24   0.000    -.0009242   -.0004824
ItalyLogPri~e |  -.0007726    .000111    -6.96   0.000    -.0009901   -.0005551
UKLogPrice |  -.0002576   .0001093    -2.36   0.018    -.0004719   -.0000433
        hp |  -.0000449   2.73e-06   -16.45   0.000    -.0000502   -.0000395
        li |  -.0000643    .000023    -2.80   0.005    -.0001093   -.0000193
        wi |   .0001036   5.63e-06    18.41   0.000     .0000926    .0001146
        le |  -7.82e-06   1.29e-06    -6.08   0.000    -.0000103   -5.30e-06
        cy |   4.86e-08   1.31e-07     0.37   0.710    -2.08e-07    3.05e-07
        he |   2.43e-06   5.12e-06     0.48   0.635    -7.60e-06    .0000125
     _cons |  -.0090851    .000952    -9.54   0.000    -.0109511   -.0072191
------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
          ma |         5           0           5     |
```

----------+

.
. * Explanation: My code looks wrong but runs. The coefficients look to be very small but mostly negative so it implies that log price has a negative c
> orrelation with the market shares.
.
. ***Problem (b)***
.
. test BelgiumLogPrice = FranceLogPrice = ItalyLogPrice = UKLogPrice

(1) BelgiumLogPrice - FranceLogPrice = 0
(2) BelgiumLogPrice - ItalyLogPrice = 0
(3) BelgiumLogPrice - UKLogPrice = 0

F(3, 11533) =   15.15
Prob > F =   0.0000

. *Prob > F =   0.0000
. * This suggests we should reject the hypothesis that all the log price times the dummy variables are equal for all countries.
. *It does not let me test with GermanyLogPrice
.
. ***Problem (c)***
. *formula from class
. generate BelgiumElasticity = -BelgiumLogPrice*(1-s_jmt)

. generate ItalyElasticity = -ItalyLogPrice*(1-s_jmt)

. generate GermanyElasticity = -GermanyLogPrice*(1-s_jmt)

. generate FranceElasticity = -FranceLogPrice*(1-s_jmt)

. generate UKElasticity = -UKLogPrice*(1-s_jmt)

.
. summarize(BelgiumElasticity)

Variable	Obs	Mean	Std. Dev.	Min	Max

```
BelgiumEla~y |     11,549   -2.020719    3.695127  -10.68672          0

. summarize(ItalyElasticity)

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
ItalyElast~y |     11,549   -1.544067    3.359376  -10.81061          0

. summarize(GermanyElasticity)

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
GermanyEla~y |     11,549   -1.735947    3.509485  -10.63301          0

. summarize(FranceElasticity)

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
FranceElas~y |     11,549   -1.729719    3.513409   -10.7142          0

. summarize(UKElasticity)

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
UKElasticity |     11,549   -1.779227    3.579569  -10.71432          0

.
. *BelgiumElasticity = 2.020719
. *ItalyElasticity = -1.544067
. *GermanyElasticity = -1.735947
. *FranceElasticity = -1.729719
. *UKElasticity = -1.779227
.
.
.
.
end of do-file

. save "\\mysbfiles.campus.stonybrook.edu\luclin\hw1eco356.txt"
file \\mysbfiles.campus.stonybrook.edu\luclin\hw1eco356.txt saved
```

```
. save "\\mysbfiles.campus.stonybrook.edu\luclin\hgw1eco356.dta"
file \\mysbfiles.campus.stonybrook.edu\luclin\hw1eco356.dta saved

.
```