. clear

. do "C:\Users\acer\AppData\Local\Temp\STD5298\_000000.tmp"

.

. cd "E:\空间计量\数据"

E:\空间计量\数据

. use "data.dta", clear

.

. egen ES\_mean = mean(ES)

. egen GF\_mean = mean(GF)

.

. gen ES\_demeaned = ES - ES\_mean

. gen GF\_demeaned = GF - GF\_mean

.

. \*\*\*空间相关性检验

. \*\*莫兰值

. preserve

. spatwmat using w.dta,name(w)standardize

The following matrix has been created:

1. Imported binary weights matrix w (row-standardized)

Dimension: 11x11

. keep if year==2010

(110 observations deleted)

. spatgsa ES\_demeaned GF\_demeaned,weights(w) moran geary

Measures of global spatial autocorrelation

Weights matrix

--------------------------------------------------------------

Name: w

Type: Imported (binary)

Row-standardized: Yes

--------------------------------------------------------------

Moran's I

--------------------------------------------------------------

Variables | I E(I) sd(I) z p-value\*

--------------------+-----------------------------------------

ES\_demeaned | -0.193 -0.100 0.187 -0.496 0.310

GF\_demeaned | 0.140 -0.100 0.197 1.216 0.112

--------------------------------------------------------------

Geary's c

--------------------------------------------------------------

Variables | c E(c) sd(c) z p-value\*

--------------------+-----------------------------------------

ES\_demeaned | 1.040 1.000 0.178 0.226 0.411

GF\_demeaned | 0.699 1.000 0.184 -1.634 0.051

--------------------------------------------------------------

\*1-tail test

. restore

.

. \*\*莫兰散点图

.

. preserve

. keep if year==2010

(110 observations deleted)

. spatlsa ES\_demeaned,weights(w)moran graph(moran) symbol(id)id(province\_str)

Measures of local spatial autocorrelation

Weights matrix

--------------------------------------------------------------

Name: w

Type: Imported (binary)

Row-standardized: Yes

--------------------------------------------------------------

Moran's Ii (ES\_demeaned)

--------------------------------------------------------------

province\_str | Ii E(Ii) sd(Ii) z p-value\*

--------------------+-----------------------------------------

上海市 | -0.944 -0.100 0.609 -1.384 0.083

云南省 | -0.523 -0.100 0.473 -0.894 0.186

四川省 | 0.044 -0.100 0.388 0.372 0.355

安徽省 | 0.099 -0.100 0.388 0.513 0.304

江苏省 | -0.019 -0.100 0.388 0.208 0.418

江西省 | -0.105 -0.100 0.388 -0.013 0.495

浙江省 | -0.356 -0.100 0.388 -0.661 0.254

湖北省 | 0.074 -0.100 0.388 0.449 0.327

湖南省 | 0.194 -0.100 0.473 0.621 0.267

贵州省 | -0.281 -0.100 0.388 -0.467 0.320

重庆市 | -0.303 -0.100 0.609 -0.333 0.370

--------------------------------------------------------------

\*1-tail test

. restore

. \*\*\*四分位图（此处适合于stata14.0以下）

. // \*\*cd G:\空间计量实证\四分为图

. // \*\*version 9.0

. // \*\*use china\_label,clear

. // \*\*gen x = uniform()

. // \*\*format x %9.3g

. // \*\*spmap x using "china\_map.dta", id(id) label(label(ename) xcoord(x\_coord) yc

> oord(y\_coord) size(\*.66))

.

. \*\*\*导入空间权重数据

. use W.dta, clear

. \*建立截面空间权重矩阵

. spatwmat using W.dta,name(W)

The following matrix has been created:

1. Imported binary weights matrix W

Dimension: 11x11

. \*面板数据中截面排列顺序必须与空间权重矩阵保持一致

. \*构造空间面板矩阵

. list a1-a11

+--------------------------------------------------------+

| a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 |

|--------------------------------------------------------|

1. | 0 1 1 0 0 0 0 0 0 0 0 |

2. | 1 0 1 1 0 0 0 0 0 0 0 |

3. | 1 1 0 1 1 0 0 0 0 0 0 |

4. | 0 1 1 0 1 1 0 0 0 0 0 |

5. | 0 0 1 1 0 1 1 0 0 0 0 |

|--------------------------------------------------------|

6. | 0 0 0 1 1 0 1 1 0 0 0 |

7. | 0 0 0 0 1 1 0 1 0 1 0 |

8. | 0 0 0 0 0 1 1 0 1 1 0 |

9. | 0 0 0 0 0 0 0 1 0 1 1 |

10. | 0 0 0 0 0 0 1 1 1 0 1 |

|--------------------------------------------------------|

11. | 0 0 0 0 0 0 0 0 1 1 0 |

+--------------------------------------------------------+

. spcs2xt a\*, matrix(aaa) time(11) //将11\*11的权重矩阵扩充为121\*121的权重矩阵，并

> 命名为aaa

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\* Cross Section Weight Matrix (aaa)

\*\*\* Panel Weight Matrix (aaaxt)

\*\*\* Panel Weight Matrix File (aaaxt.dta)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E:\空间计量\数据

. // 将1-11列的变量标签改为1

. forval i = 1/11 {

2. label variable v`i' "1"

3. }

. forval i = 12/22 {

2. label variable v`i' "2"

3. }

. forval i = 23/33 {

2. label variable v`i' "3"

3. }

. forval i = 34/44 {

2. label variable v`i' "4"

3. }

. forval i = 45/55 {

2. label variable v`i' "5"

3. }

. forval i = 56/66 {

2. label variable v`i' "6"

3. }

. forval i = 67/77 {

2. label variable v`i' "7"

3. }

. forval i = 78/88 {

2. label variable v`i' "8"

3. }

. forval i = 89/99 {

2. label variable v`i' "9"

3. }

. forval i = 100/110 {

2. label variable v`i' "10"

3. }

. forval i = 111/121 {

2. label variable v`i' "11"

3. }

. save aaaxt.dta, replace // 保存修改后的数据集

file aaaxt.dta saved

. spatwmat using aaaxt,name(Wp)

The following matrix has been created:

1. Imported binary weights matrix Wp

Dimension: 121x121

. matrix list Wp

symmetric Wp[121,121]

v1 v2 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12

SWMImpo 0

Yes 0 0

No 0 0 0

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v25 v26 v27 v28 v29 v30 v31 v32 v33 v34 v35 v36

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v37 v38 v39 v40 v41 v42 v43 v44 v45 v46 v47 v48

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v49 v50 v51 v52 v53 v54 v55 v56 v57 v58 v59 v60

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v61 v62 v63 v64 v65 v66 v67 v68 v69 v70 v71 v72

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v73 v74 v75 v76 v77 v78 v79 v80 v81 v82 v83 v84

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v85 v86 v87 v88 v89 v90 v91 v92 v93 v94 v95 v96

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v97 v98 v99 v100 v101 v102 v103 v104 v105 v106 v107 v108

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v109 v110 v111 v112 v113 v114 v115 v116 v117 v118 v119 v120

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v121

No 0

.

. // \* 导入面板数据

. // use "data.dta", clear

. //

. // \* 设置面板数据

. // xtset province\_id year

. //

. // \* 建立截面空间权重矩阵

. // spatwmat, varname(province\_id) using(W.dta) name(W)

. //

. // \* 构造空间面板矩阵

. // list a1-a11

. // spmatrix W\_matrix = W, name(W)

. //

. // \* 导出空间面板矩阵为独立的数据文件

. // matrix save W\_matrix.dta, replace

. //

. // \* 检查空间面板矩阵

. // matrix list W\_matrix

.

. \*\*\*LM及R-LM检验

. use E:\空间计量\数据\data1,clear

. xtset province\_id year

Panel variable: province\_id (strongly balanced)

Time variable: year, 2010 to 2020

Delta: 1 unit

. sort year province\_id

. reg ES GF ep es edp er

Source | SS df MS Number of obs = 121

-------------+---------------------------------- F(5, 115) = 68.00

Model | 2.85572563 5 .571145127 Prob > F = 0.0000

Residual | .965911447 115 .00839923 R-squared = 0.7473

-------------+---------------------------------- Adj R-squared = 0.7363

Total | 3.82163708 120 .031846976 Root MSE = .09165

------------------------------------------------------------------------------

ES | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

GF | .2290998 .120175 1.91 0.059 -.0089437 .4671434

ep | -.004712 .0015249 -3.09 0.003 -.0077326 -.0016914

es | 3.51e-06 4.74e-07 7.40 0.000 2.57e-06 4.45e-06

edp | 2.13529 .1778914 12.00 0.000 1.782922 2.487659

er | -22.96692 5.651288 -4.06 0.000 -34.16104 -11.77281

\_cons | .7831895 .1661678 4.71 0.000 .4540429 1.112336

------------------------------------------------------------------------------

. spatdiag, weights(Wp)

Diagnostic tests for spatial dependence in OLS regression

Fitted model

------------------------------------------------------------

ES = GF + ep + es + edp + er

------------------------------------------------------------

Weights matrix

------------------------------------------------------------

Name: Wp

Type: Imported (binary)

Row-standardized: No

------------------------------------------------------------

Diagnostics

------------------------------------------------------------

Test | Statistic df p-value

-------------------------------+----------------------------

Spatial error: |

Moran's I | 4.040 1 0.000

Lagrange multiplier | 131.957 1 0.000

Robust Lagrange multiplier | 93.642 1 0.000

|

Spatial lag: |

Lagrange multiplier | 38.544 1 0.000

Robust Lagrange multiplier | 0.228 1 0.633

------------------------------------------------------------

.

.

. // \*\*\*空间计量模型

. // cd E:\空间计量\数据

. // use "E:\空间计量\数据\data1.dta", clear

. // xtset province\_id year

.

. \*\*（1）SAR模型

. \*随机效应模型

. spatwmat using w.dta,name(Wp)standardize

The following matrix has been created:

1. Imported binary weights matrix Wp (row-standardized)

Dimension: 11x11

. xsmle ES GF e\*, re model(sar) wmat(Wp) type(both) nolog noeffects

Warning: Option type(both) will be ignored

SAR with random-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.8647

between = 0.5370

overall = 0.6267

Log-likelihood = 227.0248

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.0429206 .0442273 -0.97 0.332 -.1296045 .0437633

ep | -.0005849 .0004527 -1.29 0.196 -.0014721 .0003024

es | 2.40e-06 4.79e-07 5.00 0.000 1.46e-06 3.34e-06

edp | .9791167 .2517723 3.89 0.000 .485652 1.472581

er | -5.474897 2.249005 -2.43 0.015 -9.882866 -1.066928

\_cons | .120084 .0715024 1.68 0.093 -.0200581 .2602261

-------------+----------------------------------------------------------------

Spatial |

rho | .7373125 .046074 16.00 0.000 .6470091 .8276159

-------------+----------------------------------------------------------------

Variance |

lgt\_theta | -2.726474 .2573736 -10.59 0.000 -3.230917 -2.222031

sigma2\_e | .0006477 .0000946 6.85 0.000 .0004624 .0008331

------------------------------------------------------------------------------

. est store sar\_re

. \*时间固定

. xsmle ES GF e\*, fe model(sar) wmat(Wp) type(time) nolog noeffects

convergence not achieved

SAR with time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0655

between = 0.8690

overall = 0.6454

Mean of fixed-effects = 0.6299

Log-likelihood = 180.3005

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | .0035709 .0739795 0.05 0.962 -.1414263 .1485682

ep | -.0004442 .0033263 -0.13 0.894 -.0069637 .0060753

es | 1.90e-06 3.13e-07 6.08 0.000 1.29e-06 2.51e-06

edp | 2.245761 .1171942 19.16 0.000 2.016064 2.475457

er | -12.55481 3.688178 -3.40 0.001 -19.78351 -5.326115

-------------+----------------------------------------------------------------

Spatial |

rho | -.4068562 .0787159 -5.17 0.000 -.5611365 -.2525759

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0029203 .000389 7.51 0.000 .0021578 .0036828

------------------------------------------------------------------------------

. est store sar\_time

. \*空间固定

. xsmle ES GF e\*, fe model(sar) wmat(Wp) type(ind) nolog noeffects

SAR with spatial fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.8680

between = 0.5174

overall = 0.6102

Mean of fixed-effects = 0.1293

Log-likelihood = 263.9391

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.0477456 .0415459 -1.15 0.250 -.129174 .0336828

ep | -.000597 .0004256 -1.40 0.161 -.0014312 .0002371

es | 2.07e-06 4.46e-07 4.64 0.000 1.20e-06 2.94e-06

edp | .8009951 .2397711 3.34 0.001 .3310524 1.270938

er | -5.759121 2.130055 -2.70 0.007 -9.933953 -1.58429

-------------+----------------------------------------------------------------

Spatial |

rho | .7610201 .0426251 17.85 0.000 .6774765 .8445637

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0005704 .0000778 7.33 0.000 .0004179 .000723

------------------------------------------------------------------------------

. est store sar\_ind

. \*双固定

. xsmle ES GF e\*, fe model(sar) wmat(Wp) type(both) nolog noeffects

convergence not achieved

SAR with spatial and time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0086

between = 0.7682

overall = 0.5147

Mean of fixed-effects = 0.8410

Log-likelihood = 331.9148

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.1045575 .0263392 -3.97 0.000 -.1561813 -.0529337

ep | -.0000414 .0009378 -0.04 0.965 -.0018794 .0017967

es | 1.91e-07 3.32e-07 0.57 0.566 -4.61e-07 8.42e-07

edp | .7897559 .1624198 4.86 0.000 .4714189 1.108093

er | -2.184398 1.461553 -1.49 0.135 -5.048989 .6801936

-------------+----------------------------------------------------------------

Spatial |

rho | -.6689275 .1266285 -5.28 0.000 -.9171148 -.4207402

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .000216 .0000296 7.29 0.000 .000158 .0002741

------------------------------------------------------------------------------

. est store sar\_fe

. \*Hausman检验判断固定效应还是随机效应

. hausman sar\_fe sar\_re

Note: the rank of the differenced variance matrix (4) does not equal the number of

coefficients being tested (5); be sure this is what you expect, or there

may be problems computing the test. Examine the output of your estimators

for anything unexpected and possibly consider scaling your variables so

that the coefficients are on a similar scale.

---- Coefficients ----

| (b) (B) (b-B) sqrt(diag(V\_b-V\_B))

| sar\_fe sar\_re Difference Std. err.

-------------+----------------------------------------------------------------

GF | -.1045575 -.0429206 -.0616368 .

ep | -.0000414 -.0005849 .0005435 .0008213

es | 1.91e-07 2.40e-06 -2.21e-06 .

edp | .7897559 .9791167 -.1893608 .

er | -2.184398 -5.474897 3.290499 .

------------------------------------------------------------------------------

b = Consistent under H0 and Ha; obtained from xsmle.

B = Inconsistent under Ha, efficient under H0; obtained from xsmle.

Test of H0: Difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)

= -11.97

Warning: chi2 < 0 ==> model fitted on these data

fails to meet the asymptotic assumptions

of the Hausman test; see suest for a

generalized test.

. \*\*SAR模型所有回归结果呈现

. local mm "sar\_ind sar\_time sar\_fe sar\_re"

. esttab `mm',b(%8.3f) t(%8.3f) scalar(`ss') star(\* 0.10 \*\* 0.05 \*\*\* 0.01) compre

> ss

--------------------------------------------------------------

(1) (2) (3) (4)

ES ES ES ES

--------------------------------------------------------------

Main

GF -0.048 0.004 -0.105\*\*\* -0.043

(-1.149) (0.048) (-3.970) (-0.970)

ep -0.001 -0.000 -0.000 -0.001

(-1.403) (-0.134) (-0.044) (-1.292)

es 0.000\*\*\* 0.000\*\*\* 0.000 0.000\*\*\*

(4.644) (6.075) (0.574) (5.003)

edp 0.801\*\*\* 2.246\*\*\* 0.790\*\*\* 0.979\*\*\*

(3.341) (19.163) (4.862) (3.889)

er -5.759\*\*\* -12.555\*\*\* -2.184 -5.475\*\*

(-2.704) (-3.404) (-1.495) (-2.434)

\_cons 0.120\*

(1.679)

--------------------------------------------------------------

Spatial

rho 0.761\*\*\* -0.407\*\*\* -0.669\*\*\* 0.737\*\*\*

(17.854) (-5.169) (-5.283) (16.003)

--------------------------------------------------------------

Variance

sigma2\_e 0.001\*\*\* 0.003\*\*\* 0.000\*\*\* 0.001\*\*\*

(7.330) (7.506) (7.293) (6.849)

lgt\_theta -2.726\*\*\*

(-10.593)

--------------------------------------------------------------

N 121 121 121 121

--------------------------------------------------------------

t statistics in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

.

.

. \*\*（2）SEM模型

. \*随机效应模型

. use "E:\空间计量\数据\data1.dta", clear

. xtset province\_id year

Panel variable: province\_id (strongly balanced)

Time variable: year, 2010 to 2020

Delta: 1 unit

. spatwmat using w.dta,name(Wp)standardize

The following matrix has been created:

1. Imported binary weights matrix Wp (row-standardized)

Dimension: 11x11

. xsmle ES GF e\*, re model(sem) emat(Wp) type(both) nolog noeffects

Warning: Option type(both) will be ignored

SEM with random-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0020

between = 0.8302

overall = 0.5798

Log-likelihood = 224.1484

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.080825 .0392532 -2.06 0.039 -.15776 -.0038901

ep | -.0007691 .0013097 -0.59 0.557 -.003336 .0017978

es | 5.28e-07 5.50e-07 0.96 0.337 -5.50e-07 1.61e-06

edp | 1.209355 .2357792 5.13 0.000 .7472366 1.671474

er | -2.482517 1.988625 -1.25 0.212 -6.380151 1.415116

\_cons | .5503993 .1357567 4.05 0.000 .2843212 .8164775

-------------+----------------------------------------------------------------

Spatial |

lambda | .9019815 .0202258 44.60 0.000 .8623397 .9416232

-------------+----------------------------------------------------------------

Variance |

ln\_phi | 2.792433 .521252 5.36 0.000 1.770798 3.814068

sigma2\_e | .0005712 .0000839 6.81 0.000 .0004067 .0007357

------------------------------------------------------------------------------

. est store sem\_re

. \*时间固定

. xsmle ES GF e\*, fe model(sem) emat(Wp) type(time) nolog noeffects

SEM with time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0498

between = 0.8508

overall = 0.6284

Mean of fixed-effects = 0.3932

Log-likelihood = 195.2440

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.0149594 .0599925 -0.25 0.803 -.1325425 .1026236

ep | -.0001744 .0023815 -0.07 0.942 -.004842 .0044932

es | 1.63e-06 2.12e-07 7.72 0.000 1.22e-06 2.05e-06

edp | 2.41303 .0893101 27.02 0.000 2.237985 2.588074

er | -6.342624 3.2889 -1.93 0.054 -12.78875 .1035014

-------------+----------------------------------------------------------------

Spatial |

lambda | -1.087814 .1084366 -10.03 0.000 -1.300346 -.8752821

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0016403 .0002492 6.58 0.000 .0011518 .0021288

------------------------------------------------------------------------------

. est store sem\_time

. \*空间固定

. xsmle ES GF e\*, fe model(sem) emat(Wp) type(ind) nolog noeffects

SEM with spatial fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0371

between = 0.8154

overall = 0.5129

Mean of fixed-effects = 0.5396

Log-likelihood = 256.5922

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.0779472 .0370925 -2.10 0.036 -.1506472 -.0052472

ep | -.0004132 .0012385 -0.33 0.739 -.0028406 .0020142

es | 5.89e-08 5.12e-07 0.12 0.908 -9.45e-07 1.06e-06

edp | .9606528 .2195666 4.38 0.000 .5303102 1.390996

er | -3.131192 1.88879 -1.66 0.097 -6.833153 .5707684

-------------+----------------------------------------------------------------

Spatial |

lambda | .9065548 .0184208 49.21 0.000 .8704508 .9426589

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0005089 .0000697 7.30 0.000 .0003722 .0006456

------------------------------------------------------------------------------

. est store sem\_ind

. \*双固定

. xsmle ES GF e\*, fe model(sem) emat(Wp) type(both) nolog noeffects

SEM with spatial and time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0363

between = 0.8070

overall = 0.5173

Mean of fixed-effects = 0.4890

Log-likelihood = 330.8838

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.0890352 .0259082 -3.44 0.001 -.1398143 -.0382562

ep | .0001023 .0009391 0.11 0.913 -.0017383 .001943

es | 2.62e-07 3.21e-07 0.82 0.414 -3.67e-07 8.92e-07

edp | .7593055 .1762811 4.31 0.000 .4138008 1.10481

er | -1.063727 1.611273 -0.66 0.509 -4.221764 2.094309

-------------+----------------------------------------------------------------

Spatial |

lambda | -.680635 .1394522 -4.88 0.000 -.9539562 -.4073138

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0002174 .0000302 7.19 0.000 .0001581 .0002766

------------------------------------------------------------------------------

. est store sem\_fe

. \*Hausman检验判断固定效应还是随机效应

. hausman sar\_fe sar\_re

Note: the rank of the differenced variance matrix (4) does not equal the number of

coefficients being tested (5); be sure this is what you expect, or there

may be problems computing the test. Examine the output of your estimators

for anything unexpected and possibly consider scaling your variables so

that the coefficients are on a similar scale.

---- Coefficients ----

| (b) (B) (b-B) sqrt(diag(V\_b-V\_B))

| sar\_fe sar\_re Difference Std. err.

-------------+----------------------------------------------------------------

GF | -.1045575 -.0429206 -.0616368 .

ep | -.0000414 -.0005849 .0005435 .0008213

es | 1.91e-07 2.40e-06 -2.21e-06 .

edp | .7897559 .9791167 -.1893608 .

er | -2.184398 -5.474897 3.290499 .

------------------------------------------------------------------------------

b = Consistent under H0 and Ha; obtained from xsmle.

B = Inconsistent under Ha, efficient under H0; obtained from xsmle.

Test of H0: Difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)

= -11.97

Warning: chi2 < 0 ==> model fitted on these data

fails to meet the asymptotic assumptions

of the Hausman test; see suest for a

generalized test.

. \*\*SEM模型所有回归结果呈现

. local mm "sem\_ind sem\_time sem\_fe sem\_re"

. esttab `mm',b(%8.3f) t(%8.3f) scalar(`ss') star(\* 0.10 \*\* 0.05 \*\*\* 0.01) compre

> ss

--------------------------------------------------------------

(1) (2) (3) (4)

ES ES ES ES

--------------------------------------------------------------

Main

GF -0.078\*\* -0.015 -0.089\*\*\* -0.081\*\*

(-2.101) (-0.249) (-3.437) (-2.059)

ep -0.000 -0.000 0.000 -0.001

(-0.334) (-0.073) (0.109) (-0.587)

es 0.000 0.000\*\*\* 0.000 0.000

(0.115) (7.717) (0.817) (0.960)

edp 0.961\*\*\* 2.413\*\*\* 0.759\*\*\* 1.209\*\*\*

(4.375) (27.019) (4.307) (5.129)

er -3.131\* -6.343\* -1.064 -2.483

(-1.658) (-1.928) (-0.660) (-1.248)

\_cons 0.550\*\*\*

(4.054)

--------------------------------------------------------------

Spatial

lambda 0.907\*\*\* -1.088\*\*\* -0.681\*\*\* 0.902\*\*\*

(49.214) (-10.032) (-4.881) (44.596)

--------------------------------------------------------------

Variance

sigma2\_e 0.001\*\*\* 0.002\*\*\* 0.000\*\*\* 0.001\*\*\*

(7.299) (6.581) (7.189) (6.805)

ln\_phi 2.792\*\*\*

(5.357)

--------------------------------------------------------------

N 121 121 121 121

--------------------------------------------------------------

t statistics in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

.

.

. \*\*（3）SDM模型

. use "E:\空间计量\数据\data1.dta", clear

. xtset province\_id year

Panel variable: province\_id (strongly balanced)

Time variable: year, 2010 to 2020

Delta: 1 unit

. spatwmat using w.dta,name(Wp)standardize

The following matrix has been created:

1. Imported binary weights matrix Wp (row-standardized)

Dimension: 11x11

. \*随机效应模型

. xsmle ES GF e\*, re model(sdm) wmat(Wp) type(both) nolog effects

Warning: Option type(both) will be ignored

Warning: All regressors will be spatially lagged

Computing marginal effects standard errors using MC simulation...

SDM with random-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.9451

between = 0.4937

overall = 0.5560

Log-likelihood = 257.2434

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.108701 .0404944 -2.68 0.007 -.1880685 -.0293334

ep | .0004551 .0012356 0.37 0.713 -.0019665 .0028767

es | 6.95e-07 4.94e-07 1.41 0.160 -2.73e-07 1.66e-06

edp | .6900035 .2415415 2.86 0.004 .2165909 1.163416

er | -4.81253 2.031516 -2.37 0.018 -8.794229 -.8308313

\_cons | .3107358 .0881868 3.52 0.000 .1378928 .4835788

-------------+----------------------------------------------------------------

Wx |

GF | -.054035 .0805733 -0.67 0.502 -.2119558 .1038858

ep | -.0012134 .0012236 -0.99 0.321 -.0036116 .0011848

es | 4.58e-06 8.99e-07 5.10 0.000 2.82e-06 6.35e-06

edp | -1.395858 .4565402 -3.06 0.002 -2.290661 -.5010559

er | -3.710829 3.669893 -1.01 0.312 -10.90369 3.482029

-------------+----------------------------------------------------------------

Spatial |

rho | .4310378 .07657 5.63 0.000 .2809632 .5811123

-------------+----------------------------------------------------------------

Variance |

lgt\_theta | -2.9572 .2631094 -11.24 0.000 -3.472885 -2.441515

sigma2\_e | .0004523 .0000631 7.17 0.000 .0003287 .0005759

-------------+----------------------------------------------------------------

LR\_Direct |

GF | -.1242997 .0491172 -2.53 0.011 -.2205676 -.0280318

ep | .0002376 .0011031 0.22 0.829 -.0019243 .0023996

es | 1.55e-06 4.24e-07 3.66 0.000 7.23e-07 2.39e-06

edp | .5205509 .2511556 2.07 0.038 .028295 1.012807

er | -5.759505 2.184932 -2.64 0.008 -10.04189 -1.477118

-------------+----------------------------------------------------------------

LR\_Indirect |

GF | -.1595904 .1426484 -1.12 0.263 -.4391762 .1199954

ep | -.0016087 .0011358 -1.42 0.157 -.0038348 .0006174

es | 7.75e-06 8.69e-07 8.92 0.000 6.05e-06 9.46e-06

edp | -1.724971 .7059698 -2.44 0.015 -3.108646 -.3412952

er | -9.452943 5.687421 -1.66 0.096 -20.60008 1.694197

-------------+----------------------------------------------------------------

LR\_Total |

GF | -.2838901 .1764998 -1.61 0.108 -.6298233 .0620432

ep | -.0013711 .0007994 -1.72 0.086 -.0029378 .0001957

es | 9.31e-06 8.17e-07 11.40 0.000 7.71e-06 .0000109

edp | -1.20442 .8208656 -1.47 0.142 -2.813287 .4044474

er | -15.21245 6.99011 -2.18 0.030 -28.91281 -1.512084

------------------------------------------------------------------------------

. est store sdm\_re

. \*时间固定

. xsmle ES GF e\*, fe model(sdm) wmat(Wp) type(time) nolog effects

Warning: All regressors will be spatially lagged

convergence not achieved

Computing marginal effects standard errors using MC simulation...

SDM with time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0080

between = 0.8987

overall = 0.5827

Mean of fixed-effects = 0.6610

Log-likelihood = 194.9503

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.092079 .0627611 -1.47 0.142 -.2150885 .0309304

ep | .0007518 .0025427 0.30 0.767 -.0042319 .0057354

es | 1.99e-06 2.32e-07 8.59 0.000 1.54e-06 2.45e-06

edp | 2.286922 .0913114 25.05 0.000 2.107955 2.465889

er | -6.568433 3.122392 -2.10 0.035 -12.68821 -.4486574

-------------+----------------------------------------------------------------

Wx |

GF | -.0785907 .1360289 -0.58 0.563 -.3452025 .188021

ep | -.0004323 .0050879 -0.08 0.932 -.0104045 .0095399

es | 1.56e-07 6.66e-07 0.23 0.815 -1.15e-06 1.46e-06

edp | 1.809823 .3632793 4.98 0.000 1.097809 2.521838

er | 21.35166 6.848557 3.12 0.002 7.928737 34.77459

-------------+----------------------------------------------------------------

Spatial |

rho | -.8163061 .1154826 -7.07 0.000 -1.042648 -.5899644

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0015565 .0001904 8.18 0.000 .0011834 .0019296

-------------+----------------------------------------------------------------

LR\_Direct |

GF | -.0930545 .0722494 -1.29 0.198 -.2346607 .0485518

ep | .0008897 .0029656 0.30 0.764 -.0049227 .0067021

es | 2.40e-06 3.27e-07 7.34 0.000 1.76e-06 3.04e-06

edp | 2.292849 .1014235 22.61 0.000 2.094063 2.491636

er | -13.09765 3.502924 -3.74 0.000 -19.96326 -6.232047

-------------+----------------------------------------------------------------

LR\_Indirect |

GF | .004057 .1034563 0.04 0.969 -.1987136 .2068275

ep | -.0008068 .0041566 -0.19 0.846 -.0089536 .00734

es | -1.23e-06 5.28e-07 -2.33 0.020 -2.26e-06 -1.94e-07

edp | -.0323379 .1672254 -0.19 0.847 -.3600937 .295418

er | 21.37261 5.181511 4.12 0.000 11.21704 31.52819

-------------+----------------------------------------------------------------

LR\_Total |

GF | -.0889975 .0970952 -0.92 0.359 -.2793006 .1013057

ep | .0000829 .0035125 0.02 0.981 -.0068014 .0069672

es | 1.17e-06 3.63e-07 3.23 0.001 4.62e-07 1.88e-06

edp | 2.260511 .1441482 15.68 0.000 1.977986 2.543037

er | 8.274958 4.704508 1.76 0.079 -.9457087 17.49563

------------------------------------------------------------------------------

. est store sdm\_time

. \*空间固定

. xsmle ES GF e\*, fe model(sdm) wmat(Wp) type(ind) nolog effects

Warning: All regressors will be spatially lagged

Computing marginal effects standard errors using MC simulation...

SDM with spatial fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.9461

between = 0.3199

overall = 0.4505

Mean of fixed-effects = 0.2972

Log-likelihood = 296.7492

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.1138069 .0383361 -2.97 0.003 -.1889443 -.0386694

ep | .0008448 .0011673 0.72 0.469 -.0014432 .0031327

es | 3.20e-07 4.62e-07 0.69 0.488 -5.85e-07 1.23e-06

edp | .4860513 .2258696 2.15 0.031 .0433551 .9287475

er | -5.084684 1.931986 -2.63 0.008 -8.871307 -1.298061

-------------+----------------------------------------------------------------

Wx |

GF | -.0820665 .0761037 -1.08 0.281 -.231227 .0670939

ep | -.0014842 .0011583 -1.28 0.200 -.0037544 .0007861

es | 4.98e-06 8.64e-07 5.77 0.000 3.29e-06 6.68e-06

edp | -1.138916 .4378732 -2.60 0.009 -1.997132 -.2807006

er | -2.256434 3.470334 -0.65 0.516 -9.058163 4.545295

-------------+----------------------------------------------------------------

Spatial |

rho | .4440793 .0738054 6.02 0.000 .2994234 .5887351

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .000405 .0000531 7.62 0.000 .0003009 .0005091

-------------+----------------------------------------------------------------

LR\_Direct |

GF | -.1357806 .0464915 -2.92 0.003 -.2269023 -.0446589

ep | .000605 .0010466 0.58 0.563 -.0014462 .0026562

es | 1.26e-06 4.07e-07 3.10 0.002 4.65e-07 2.06e-06

edp | .3355385 .2364863 1.42 0.156 -.1279661 .7990432

er | -5.828151 2.084635 -2.80 0.005 -9.913961 -1.742342

-------------+----------------------------------------------------------------

LR\_Indirect |

GF | -.2119206 .1374614 -1.54 0.123 -.48134 .0574989

ep | -.0017772 .0011026 -1.61 0.107 -.0039383 .0003839

es | 8.27e-06 8.40e-07 9.85 0.000 6.63e-06 9.92e-06

edp | -1.467486 .7245607 -2.03 0.043 -2.887599 -.0473732

er | -7.160347 5.776427 -1.24 0.215 -18.48194 4.161241

-------------+----------------------------------------------------------------

LR\_Total |

GF | -.3477012 .1694378 -2.05 0.040 -.6797932 -.0156091

ep | -.0011722 .0008927 -1.31 0.189 -.0029218 .0005775

es | 9.53e-06 8.31e-07 11.48 0.000 7.91e-06 .0000112

edp | -1.131948 .8410681 -1.35 0.178 -2.780411 .5165156

er | -12.9885 7.003706 -1.85 0.064 -26.71551 .7385138

------------------------------------------------------------------------------

. est store sdm\_ind

. \*双固定

. xsmle ES GF e\*, fe model(sdm) wmat(Wp) type(both) nolog effects

Warning: All regressors will be spatially lagged

convergence not achieved

Computing marginal effects standard errors using MC simulation...

SDM with spatial and time fixed-effects Number of obs = 121

Group variable: province\_id Number of groups = 11

Time variable: year Panel length = 11

R-sq: within = 0.0026

between = 0.7605

overall = 0.4888

Mean of fixed-effects = 0.7319

Log-likelihood = 334.9145

------------------------------------------------------------------------------

ES | Coefficient Std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

Main |

GF | -.1233345 .0290794 -4.24 0.000 -.1803292 -.0663399

ep | .0007859 .0009967 0.79 0.430 -.0011675 .0027393

es | -2.70e-08 3.52e-07 -0.08 0.939 -7.17e-07 6.63e-07

edp | .6218972 .1843039 3.37 0.001 .2606682 .9831262

er | -1.4519 1.694611 -0.86 0.392 -4.773276 1.869477

-------------+----------------------------------------------------------------

Wx |

GF | -.1281932 .0590523 -2.17 0.030 -.2439337 -.0124528

ep | .0003857 .0019601 0.20 0.844 -.003456 .0042275

es | 9.28e-07 9.02e-07 1.03 0.303 -8.39e-07 2.70e-06

edp | .0077119 .5227356 0.01 0.988 -1.016831 1.032255

er | 2.823137 3.908835 0.72 0.470 -4.838038 10.48431

-------------+----------------------------------------------------------------

Spatial |

rho | -.6608208 .1374612 -4.81 0.000 -.9302398 -.3914017

-------------+----------------------------------------------------------------

Variance |

sigma2\_e | .0002081 .0000292 7.14 0.000 .0001509 .0002652

-------------+----------------------------------------------------------------

LR\_Direct |

GF | -.1148996 .0333866 -3.44 0.001 -.1803361 -.0494632

ep | .0007681 .0010976 0.70 0.484 -.0013831 .0029194

es | -1.49e-07 4.31e-07 -0.35 0.730 -9.94e-07 6.96e-07

edp | .6976144 .2005445 3.48 0.001 .3045544 1.090674

er | -2.217338 1.691544 -1.31 0.190 -5.532703 1.098028

-------------+----------------------------------------------------------------

LR\_Indirect |

GF | -.0335917 .0475539 -0.71 0.480 -.1267957 .0596123

ep | -.0000728 .0016321 -0.04 0.964 -.0032717 .003126

es | 6.98e-07 7.45e-07 0.94 0.349 -7.62e-07 2.16e-06

edp | -.3039779 .3637006 -0.84 0.403 -1.016818 .4088622

er | 3.069698 2.851114 1.08 0.282 -2.518382 8.657778

-------------+----------------------------------------------------------------

LR\_Total |

GF | -.1484914 .0442851 -3.35 0.001 -.2352886 -.0616941

ep | .0006953 .0014804 0.47 0.639 -.0022062 .0035968

es | 5.49e-07 5.70e-07 0.96 0.335 -5.68e-07 1.67e-06

edp | .3936365 .3341579 1.18 0.239 -.2613009 1.048574

er | .8523608 2.837657 0.30 0.764 -4.709344 6.414066

------------------------------------------------------------------------------

. est store sdm\_fe

. \*Hausman检验判断固定效应还是随机效应

. hausman sdm\_fe sdm\_re

Note: the rank of the differenced variance matrix (4) does not equal the number of

coefficients being tested (5); be sure this is what you expect, or there

may be problems computing the test. Examine the output of your estimators

for anything unexpected and possibly consider scaling your variables so

that the coefficients are on a similar scale.

---- Coefficients ----

| (b) (B) (b-B) sqrt(diag(V\_b-V\_B))

| sdm\_fe sdm\_re Difference Std. err.

-------------+----------------------------------------------------------------

GF | -.1233345 -.108701 -.0146336 .

ep | .0007859 .0004551 .0003308 .

es | -2.70e-08 6.95e-07 -7.22e-07 .

edp | .6218972 .6900035 -.0681063 .

er | -1.4519 -4.81253 3.360631 .

------------------------------------------------------------------------------

b = Consistent under H0 and Ha; obtained from xsmle.

B = Inconsistent under Ha, efficient under H0; obtained from xsmle.

Test of H0: Difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)

= -13.54

Warning: chi2 < 0 ==> model fitted on these data

fails to meet the asymptotic assumptions

of the Hausman test; see suest for a

generalized test.

. \*\*SAR模型所有回归结果呈现

. local mm "sdm\_ind sdm\_time sdm\_fe sdm\_re"

. esttab `mm',b(%8.3f) t(%8.3f) scalar(`ss') star(\* 0.10 \*\* 0.05 \*\*\* 0.01) compre

> ss

--------------------------------------------------------------

(1) (2) (3) (4)

ES ES ES ES

--------------------------------------------------------------

Main

GF -0.114\*\*\* -0.092 -0.123\*\*\* -0.109\*\*\*

(-2.969) (-1.467) (-4.241) (-2.684)

ep 0.001 0.001 0.001 0.000

(0.724) (0.296) (0.789) (0.368)

es 0.000 0.000\*\*\* -0.000 0.000

(0.693) (8.586) (-0.077) (1.407)

edp 0.486\*\* 2.287\*\*\* 0.622\*\*\* 0.690\*\*\*

(2.152) (25.045) (3.374) (2.857)

er -5.085\*\*\* -6.568\*\* -1.452 -4.813\*\*

(-2.632) (-2.104) (-0.857) (-2.369)

\_cons 0.311\*\*\*

(3.524)

--------------------------------------------------------------

Wx

GF -0.082 -0.079 -0.128\*\* -0.054

(-1.078) (-0.578) (-2.171) (-0.671)

ep -0.001 -0.000 0.000 -0.001

(-1.281) (-0.085) (0.197) (-0.992)

es 0.000\*\*\* 0.000 0.000 0.000\*\*\*

(5.768) (0.234) (1.029) (5.097)

edp -1.139\*\*\* 1.810\*\*\* 0.008 -1.396\*\*\*

(-2.601) (4.982) (0.015) (-3.057)

er -2.256 21.352\*\*\* 2.823 -3.711

(-0.650) (3.118) (0.722) (-1.011)

--------------------------------------------------------------

Spatial

rho 0.444\*\*\* -0.816\*\*\* -0.661\*\*\* 0.431\*\*\*

(6.017) (-7.069) (-4.807) (5.629)

--------------------------------------------------------------

Variance

sigma2\_e 0.000\*\*\* 0.002\*\*\* 0.000\*\*\* 0.000\*\*\*

(7.624) (8.177) (7.136) (7.173)

lgt\_theta -2.957\*\*\*

(-11.239)

--------------------------------------------------------------

LR\_Direct

GF -0.136\*\*\* -0.093 -0.115\*\*\* -0.124\*\*

(-2.921) (-1.288) (-3.441) (-2.531)

ep 0.001 0.001 0.001 0.000

(0.578) (0.300) (0.700) (0.215)

es 0.000\*\*\* 0.000\*\*\* -0.000 0.000\*\*\*

(3.101) (7.339) (-0.346) (3.664)

edp 0.336 2.293\*\*\* 0.698\*\*\* 0.521\*\*

(1.419) (22.607) (3.479) (2.073)

er -5.828\*\*\* -13.098\*\*\* -2.217 -5.760\*\*\*

(-2.796) (-3.739) (-1.311) (-2.636)

--------------------------------------------------------------

LR\_Indir~t

GF -0.212 0.004 -0.034 -0.160

(-1.542) (0.039) (-0.706) (-1.119)

ep -0.002 -0.001 -0.000 -0.002

(-1.612) (-0.194) (-0.045) (-1.416)

es 0.000\*\*\* -0.000\*\* 0.000 0.000\*\*\*

(9.852) (-2.328) (0.937) (8.924)

edp -1.467\*\* -0.032 -0.304 -1.725\*\*

(-2.025) (-0.193) (-0.836) (-2.443)

er -7.160 21.373\*\*\* 3.070 -9.453\*

(-1.240) (4.125) (1.077) (-1.662)

--------------------------------------------------------------

LR\_Total

GF -0.348\*\* -0.089 -0.148\*\*\* -0.284

(-2.052) (-0.917) (-3.353) (-1.608)

ep -0.001 0.000 0.001 -0.001\*

(-1.313) (0.024) (0.470) (-1.715)

es 0.000\*\*\* 0.000\*\*\* 0.000 0.000\*\*\*

(11.480) (3.232) (0.963) (11.399)

edp -1.132 2.261\*\*\* 0.394 -1.204

(-1.346) (15.682) (1.178) (-1.467)

er -12.988\* 8.275\* 0.852 -15.212\*\*

(-1.855) (1.759) (0.300) (-2.176)

--------------------------------------------------------------

N 121 121 121 121

--------------------------------------------------------------

t statistics in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

.

. \*\*\*各类检验说明(基于空间杜宾模型下的检验结果)

. \*\*\*LM检验用于选择随机效应模型还是混合效应模型

. test [Wx]GF=[Wx]ep=[Wx]es=[Wx]edp=[Wx]er=0

( 1) [Wx]GF - [Wx]ep = 0

( 2) [Wx]GF - [Wx]es = 0

( 3) [Wx]GF - [Wx]edp = 0

( 4) [Wx]GF - [Wx]er = 0

( 5) [Wx]GF = 0

Constraint 5 dropped

chi2( 4) = 5.01

Prob > chi2 = 0.2859

. \*\*\*Wald检验和似然比检验LR用于选择固定效应模型还是混合效应模型

. testnl ([Wx]GF=-[Spatial]rho\*[Main]GF)([Wx]ep=-[Spatial]rho\*[Main]ep)([Wx]es/\*

> \*/=-[Spatial]rho\*[Main]es)([Wx]edp=-[Spatial]rho\*[Main]edp)([Wx]

> er/\*

> \*/=-[Spatial]rho\*[Main]er)

(1) [Wx]GF = -[Spatial]rho\*[Main]GF

(2) [Wx]ep = -[Spatial]rho\*[Main]ep

(3) [Wx]es = -[Spatial]rho\*[Main]es

(4) [Wx]edp = -[Spatial]rho\*[Main]edp

(5) [Wx]er = -[Spatial]rho\*[Main]er

chi2(5) = 8.61

Prob > chi2 = 0.1257

. \*\*\*Hausman检验用于选择固定效应模型还是随机效应模型

. hausman sdm\_fe sdm\_re

Note: the rank of the differenced variance matrix (4) does not equal the number of

coefficients being tested (5); be sure this is what you expect, or there

may be problems computing the test. Examine the output of your estimators

for anything unexpected and possibly consider scaling your variables so

that the coefficients are on a similar scale.

---- Coefficients ----

| (b) (B) (b-B) sqrt(diag(V\_b-V\_B))

| sdm\_fe sdm\_re Difference Std. err.

-------------+----------------------------------------------------------------

GF | -.1233345 -.108701 -.0146336 .

ep | .0007859 .0004551 .0003308 .

es | -2.70e-08 6.95e-07 -7.22e-07 .

edp | .6218972 .6900035 -.0681063 .

er | -1.4519 -4.81253 3.360631 .

------------------------------------------------------------------------------

b = Consistent under H0 and Ha; obtained from xsmle.

B = Inconsistent under Ha, efficient under H0; obtained from xsmle.

Test of H0: Difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)

= -13.54

Warning: chi2 < 0 ==> model fitted on these data

fails to meet the asymptotic assumptions

of the Hausman test; see suest for a

generalized test.

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end of do-file

. use "E:\空间计量\数据\data1.dta"

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