```
2 . use "yamaguchi.dta", clear
 4 . encode pref, gen(pref1)
 5 . keep if hhtype == "all"
   (470 observations deleted)
 6 . keep if year > 1999
   (94 observations deleted)
 7 . xtset pref1 year
          panel variable: pref1 (strongly balanced)
           time variable: year, 2000 to 2010, but with gaps delta: 1 unit
9 . * The following two agree in the coefficients AND standard errors.
10 .
11 . reg emprate caprate i.pref1 // least square dummy variable estimation
         Source
                        SS
                                     df
                                              MS
                                                      Number of obs
                                                                              141
                                                      F(47, 93)
                                                                            118.97
                   1.30104848
                                         .027681882
                                                      Prob > F
         Model
                                     47
                                                                            0.0000
       Residual
                   .021639613
                                     93
                                         .000232684
                                                      R-squared
                                                                       =
                                                                            0.9836
                                                      Adj R-squared
                                                                            0.9754
                   1.32268809
         Total
                                    140
                                         .009447772
                                                      Root MSE
                                                                            .01525
                       Coef.
                               Std. Err.
                                                   P>|t|
                                                              [95% Conf. Interval]
        emprate
                                              t
        caprate
                    .8051027
                                .033819
                                           23.81
                                                   0.000
                                                              .7379448
                                                                          .8722605
          pref1
        京都府
                   -.0157907
                               .0124867
                                           -1.26
                                                   0.209
                                                             -.0405868
                                                                          .0090054
        佐賀県
                    .1017107
                               .0124549
                                            8.17
                                                   0.000
                                                             .0769777
                                                                         .1264437
        兵庫県
                    .0139376
                               .0133437
                                            1.04
                                                   0.299
                                                             -.0125603
                                                                          .0404355
        北海道
                    .0472086
                               .0134158
                                            3.52
                                                   0.001
                                                             .0205674
                                                                          .0738498
        千葉県
                    .0368712
                               .0137407
                                                   0.009
                                                              .009585
                                            2.68
                                                                          .0641574
      和歌山県
                    -.100145
                               .0126271
                                           -7.93
                                                   0.000
                                                              -.12522
                                                                         -.0750701
        埼玉県
                                                              .0367514
                    .0649718
                               .0142111
                                           4.57
                                                   0.000
                                                                          .0931922
        大分県
                    .0786482
                               .0126728
                                                   0.000
                                                             .0534825
                                                                          .1038139
                                            6.21
        大阪府
                   -.0118248
                               .0132013
                                           -0.90
                                                   0.373
                                                             -.0380399
                                                                          .0143903
        奈良県
                   -.0521911
                                           -4.10
                                                   0.000
                                                             -.0774776
                               .0127336
                                                                         -.0269046
        宮城県
                    .1460906
                               .0139421
                                           10.48
                                                   0.000
                                                              .1184043
                                                                          .1737768
        宮崎県
                    .0735578
                               .0125386
                                            5.87
                                                   0.000
                                                              .0486586
                                                                          .0984571
        富山県
                    .0474861
                               .0133388
                                            3.56
                                                   0.001
                                                              .0209979
                                                                          .0739743
        山口県
                    .0277748
                                .012543
                                           2.21
                                                   0.029
                                                              .0028668
                                                                          .0526827
        山形県
                    .2719284
                               .0126632
                                           21.47
                                                   0.000
                                                             .2467818
                                                                           .297075
        山梨県
                   -.0212312
                               .0126121
                                           -1.68
                                                   0.096
                                                             -.0462763
                                                                           .003814
        岐阜県
                    -.010662
                               .0124551
                                           -0.86
                                                   0.394
                                                             -.0353953
                                                                          .0140713
        岡山県
                    .0438233
                               .0125127
                                            3.50
                                                   0.001
                                                              .0189755
                                                                          .0686711
        岩手県
                    .1405341
                               .0124898
                                           11.25
                                                   0.000
                                                             .1157319
                                                                          .1653362
        島根県
                    .1024291
                               .0128977
                                            7.94
                                                   0.000
                                                              .0768169
                                                                          .1280413
                                                                          .0363064
        広島県
                    .0114802
                               .0125019
                                            0.92
                                                   0.361
                                                             -.0133461
        徳島県
                    .0514452
                               .0124723
                                            4.12
                                                   0.000
                                                             .0266778
                                                                          .0762127
        愛媛県
                    .0066101
                               .0125009
                                           0.53
                                                   0.598
                                                             -.0182142
                                                                          .0314343
        愛知県
                   -.0179738
                               .0125683
                                           -1.43
                                                   0.156
                                                              -.042932
                                                                          .0069843
        新潟県
                    .0524787
                               .0130406
                                            4.02
                                                   0.000
                                                             .0265826
                                                                          .0783748
        東京都
                    .0125847
                               .0129841
                                            0.97
                                                   0.335
                                                             -.0131991
                                                                          .0383685
        栃木県
                    .1180016
                               .0132636
                                            8.90
                                                   0.000
                                                             .0916627
                                                                          .1443405
        沖縄県
                    .1535242
                               .0130467
                                           11.77
                                                   0.000
                                                              .127616
                                                                          .1794324
        滋賀県
                     .039056
                               .0128979
                                                   0.003
                                                              .0134433
                                            3.03
                                                                          .0646687
        能本県
                    .0569382
                               .0125922
                                            4.52
                                                   0.000
                                                             .0319326
                                                                          .0819439
        石川県
                   -.0158949
                               .0142681
                                           -1.11
                                                   0.268
                                                             -.0442286
                                                                          .0124388
      神奈川県
                    .0455206
                                .014498
                                            3.14
                                                   0.002
                                                              .0167305
                                                                          .0743107
        福井県
                    .0478417
                               .0135053
                                                   0.001
                                           3.54
                                                              .0210228
                                                                          .0746606
        福岡県
                    .0234296
                               .0126027
                                            1.86
                                                   0.066
                                                             -.0015968
                                                                           .048456
        福島県
                    .2133901
                               .0136173
                                           15.67
                                                   0.000
                                                              .1863489
                                                                          .2404313
        秋田県
                    .1310402
                               .0124963
                                           10.49
                                                   0.000
                                                              .106225
                                                                          .1558554
                    .0412263
        群馬県
                               .0125224
                                            3.29
                                                   0.001
                                                              .0163592
                                                                          .0660933
        茨城県
                    .0929807
                               .0133669
                                                   0.000
                                                              .0664368
                                                                          .1195247
                                            6.96
```

1 . do "/var/folders/xt/knmm4spn729b1ppxvlvvklc00000gn/T//SD10291.000000"



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長崎県	.0690056	.0124548	5.54	0.000	.0442727	.0937384
長野県	073244	.0129865	-5.64	0.000	0990327	0474554
青森県	.041126	.0127704	3.22	0.002	.0157665	.0664854
静岡県	I .	.0135199	8.01	0.000	.0813987	.1350942
香川県	.0508828	.012461	4.08	0.000	.0261377	.0756278
高知県	0384989	.0146438	-2.63	0.010	0675786	0094191
鳥取県	.0477726	.0133979	3.57	0.001	.021167	.0743782
鹿児島県	.0751702	.012648	5.94	0.000	.0500538	.1002866
_cons	.0898478	.015805	5.68	0.000	.0584622	.1212335
. xtreg empra	te caprate, fe	e // fixed e	effects es	stimation		
Fixed-effects	(within) regi	ression		Number o	of obs =	141
Group variable					of groups =	47
CICUP VUITUDI	o. p.u.			- Tumber	or aroups -	
R-sq:				Obs per	group:	
within	= 0.8590			-	min =	3
between	= 0.4978				avg =	3.0
overall	= 0.5336				max =	3
				F(1,93)	=	566.74
corr(u_i, Xb)	= -0.3180			Prob > I		0.0000
emprate	Coef.	Std. Err.	t	P> t	[95% Conf	. Interval]
caprate _cons	.8051027 .1394067	.033819	23.81 11.31	0.000	.7379448	.8722605 .1638878
sigma_u sigma_e rho	.0692764 .01525398 .95375825	(fraction	of varia	nce due to	o u_i)	
'test that a	ll u_i=0: F(46	5, 93) = 55.	62		Prob >	F = 0.0000
. * The follow reg emprate						
Linear regres	sion			Number o	of obs =	141
				F(0, 46))_ =	
				Prob > I		•
				R-square	ed =	0.9836
				Root MSI		.01525
		(CT 3	Dry ol-	ing+04 f	. 47 aluatan	a in macfi
	 	(Std.	Err. ad	justed 101	r 47 clusters	s in preil)
	Ī	Robust.				

emprate	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
caprate	.8051027	.0553063	14.56	0.000	.6937769	.9164285
pref1						
京都府	0157907	.0014583	-10.83	0.000	0187261	0128553
佐賀県	.1017107	.0000787	1291.88	0.000	.1015522	.1018691
兵庫県	.0139376	.0078312	1.78	0.082	0018257	.0297009
北海道	.0472086	.0081542	5.79	0.000	.030795	.0636222
千葉県	.0368712	.0094911	3.88	0.000	.0177666	.0559759
和歌山県	100145	.0033997	-29.46	0.000	1069882	0933018
埼玉県	.0649718	.0111915	5.81	0.000	.0424446	.087499
大分県	.0786482	.0038276	20.55	0.000	.0709437	.0863527
大阪府	0118248	.0071566	-1.65	0.105	0262302	.0025806
奈良県	0521911	.0043338	-12.04	0.000	0609146	0434676
宮城県	.1460906	.0102467	14.26	0.000	.125465	.1667161
宮崎県	.0735578	.0023669	31.08	0.000	.0687935	.0783221
富山県	.0474861	.0078089	6.08	0.000	.0317677	.0632046
山口県	.0277748	.0024283	11.44	0.000	.022887	.0326626
山形県	.2719284	.0037413	72.68	0.000	.2643975	.2794593
山梨県	0212312	.0032472	-6.54	0.000	0277674	014695
岐阜県	010662	.0001272	-83.83	0.000	010918	010406
岡山県	.0438233	.0019663	22.29	0.000	.0398654	.0477812



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```
岩手県
            .1405341 .0015265
                                92.06 0.000
                                                  .1374614
                                                            .1436067
 島根県
            .1024291
                     .0054795 18.69 0.000
                                                  .0913993
                                                            .1134588
                                  6.48 0.000
47.72 0.000
 広島県
            .0114802
                       .0017725
                                                  .0079123
                                                              .015048
 徳島県
            .0514452
                      .0010781
                                                  .0492752
                                                              .0536152
                     .0017529
 愛媛県
                                  3.77 0.000
-6.52 0.000
                                                             .0101386
            .0066101
                                                  .0030816
 愛知県
            -.0179738
                       .0027556
                                                  -.0235205
                                                             -.0124272
 新潟県
            .0524787
                                  8.30 0.000
                                                  .0397571
                      .0063201
                                                             .0652004
                                 2.10 0.041
15.82 0.000
 東京都
            .0125847
                                                  .0005061
                       .0060006
                                                              .0246633
 栃木県
            .1180016
                       .0074585
                                                  .1029884
                                                              .1330147
 沖縄県
            .1535242 .0063537
                                24.16 0.000
                                                  .1407349
                                                             .1663135
                     .0054812
 滋賀県
                                 7.13 0.000
18.77 0.000
             .039056
                                                  .0280229
                                                              .0500891
 熊本県
             .0569382
                       .0030337
                                                  .0508317
                                                              .0630448
 石川県
            -.0158949
                      .0113839
                                 -1.40 0.169
                                                  -.0388095
                                                             .0070197
                                  3.75 0.000
5.60 0.000
神奈川県
                       .0121357
            .0455206
                                                  .0210926
                                                              .0699486
 福井県
            .0478417
                       .0085401
                                                  .0306513
                                                             .0650321
 福岡県
            .0234296
                     .0031476
                                 7.44 0.000
                                                  .0170938
                                                             .0297655
 福島県
             .2133901
                       .009003
                                        0.000
                                 23.70
                                                   .195268
                                                              .2315122
                     .0016638
                                 78.76 0.000
 秋田県
            .1310402
                                                  .1276912
                                                             .1343892
 群馬県
            .0412263
                     .0021251
                                19.40 0.000
                                                  .0369486
                                                              .045504
 茨城県
            .0929807
                       .0079362
                                 11.72
                                        0.000
                                                   .077006
                                                              .1089555
                      .0000387 1781.07 0.000
 長崎県
            .0690056
                                                  .0689276
                                                             .0690835
 長野県
            -.073244
                      .0060147 -12.18 0.000
                                                   -.085351
                                                             -.061137
  青森県
             .041126
                       .0046138
                                  8.91
                                        0.000
                                                  .0318389
                                                              .050413
                                 12.58 0.000
 静岡県
                                                  .0909328
                                                            .1255602
            .1082465
                      .0086014
 香川県
             .0508828
                       .0006408
                                 79.41 0.000
                                                   .049593
                                                             .0521726
  高知県
            -.0384989
                       .0125954
                                  -3.06
                                        0.004
                                                   -.063852
                                                             -.0131457
                                  5.92 0.000
  鳥取県
            .0477726
                       .0080749
                                                  .0315186
                                                             .0640266
鹿児島県
             .0751702
                       .003601
                                 20.87 0.000
                                                   .0679218
                                                              .0824187
                       .0214623
                                   4.19 0.000
             .0898478
                                                   .0466464
                                                              .1330493
    cons
```

18 . xtreg emprate caprate, fe robust // fixed effects estimation with cluster-robust SE (automatically set)

```
Fixed-effects (within) regression
                                               Number of obs
                                                                          141
Group variable: pref1
                                               Number of groups =
R-sq:
                                               Obs per group:
    within = 0.8590
                                                             min =
    between = 0.4978
                                                                          3.0
                                                             avg =
    overall = 0.5336
                                                             max =
                                                                            3
                                               F(1,46)
                                                                       316.73
corr(u_i, Xb) = -0.3180
                                               Prob > F
                                                                       0.0000
```

(Std. Err. adjusted for ${f 47}$ clusters in pref1)

emprate	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
caprate _cons	.8051027 .1394067	.0452385	17.80 8.50	0.000	.7140422 .1063932	.8961631 .1724203
sigma_u sigma_e rho	.0692764 .01525398 .95375825	(fraction	of varia	nce due t	o u_i)	

```
19 .
```

20 . * The following does not agree with -reg emprate caprate i.pref1, vce(cluster pref1)- either

21 .

22 . xtreg emprate caprate, fe vce(cluster pref1) // fixed effects estimation with cluster-robust SE (manually set)

```
Fixed-effects (within) regression
                                                Number of obs
                                                                           141
Group variable: pref1
                                                Number of groups =
                                                Obs per group:
    within = 0.8590
                                                             min =
                                                                             3
     between = 0.4978
                                                              avg =
                                                                           3.0
    overall = 0.5336
                                                              max =
                                                                             3
                                                F(1,46)
                                                                        316.73
corr(u_i, Xb) = -0.3180
                                                Prob > F
                                                                        0.0000
```

(Std. Err. adjusted for 47 clusters in pref1)



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User: 北川梨津

emprate	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
caprate _cons	.8051027 .1394067	.0452385	17.80 8.50	0.000	.7140422 .1063932	.8961631 .1724203
sigma_u sigma_e rho	.0692764 .01525398 .95375825	(fraction	of varia	nce due t	o u_i)	

end of do-file

24 .

