```
1   clear
2   capture log close
3   set more off
4   capture close
5
6   ****************************************************************
7   // ECO380 HW3 Empirical Part
8   // Sample code
9   // Section: 0201
10
11
12
13  ****************************************************************
14
15  *** 1. Load data ***
16  use C:\Users\Zoeyyyy\Desktop\ECO380\2022_ECO380H1S_HW3\HW3, clear
17
18  *** 2. Create variables ***
19
20  * (a) Log of total passengers
21  bysort year origin destination: egen totalpass = total(passengers)
22  label var totalpass "Total passengers"
23  //
24  gen logpass = log(totalpass)
25  //
26  label var logpass "Log of total passengers"
27
28  * (b) Generate the passenger-weighted average ticket price
29  gen temp = passengers*price
30  bysort year origin destination: egen tempprice = total(temp)
31  gen totalprice = tempprice/totalpass
32  drop temp*
33  //label variable totalprice as "Passenger-weighted average
    ticket price"
34  label var totalprice "Passenger-weighted average ticket price"
35  //
36
37  * (c) Generate the proportion of passengers flying direct
38  gen temp = passengers*(type==1) + 0.5*passengers*(type==3)
39  //
40  bysort year origin destination: egen tempdirect = total(temp)
41  //
42  gen directpct = tempdirect/totalpass
43  drop temp*
44  label var directpct "Proportion of passengers flying direct"
45
46
47
48  * (d) Define Southwest's competitor status
49  gen temp = passengers*(carrier=="WN" & type==1) + 0.5*passengers
    *(carrier=="WN" & type==3)
50  //
```

Page 1 of 3

HW3_sample_code.do   2022/3/28, 3:24 PM

```
50  //
51  bysort year origin destination: egen tempcompete = total(temp)
52  gen SWcompete = 1 if tempcompete >=2500
53  replace SWcompete = 0 if SWcompete == .
54
55  //
56  drop temp*
57  label var SWcompete "Southwest is a competitor"
58
59
60  * (e) Generate each carrier's share of total passengers (HHI)
61  bysort year origin destination carrier: egen carrierpass = total(
    passengers)
62  gen carriershare = carrierpass/totalpass
63  bysort year origin destination carrier: keep if _n==1
64  gen temp = carriershare^2
65  //
66  bysort year origin destination carrier: egen HHI = total(temp)
67  //
68  drop temp*
69  label var HHI "Concentration (Herfindahl-Hirschman Index)"
70
71  *** 3. Declare as panel data ***
72
73  * Keep relevant variables and only one observation per O&D-year
74  bysort year origin destination: keep if _n==1
75  keep year origin destination totalprice logpass orgtraffic
    desttraffic NSdistance SWcompete directpct HHI
76
77  * Generate a panel variable and xtset the data
78  sort year origin destination
79  isid year origin destination
80  egen mktID = group(origin destination)
81  //Hint: use xtset
82  xtset mktID year
83  //
84
85  *** 4. Examine and describe ***
86
87  * (a) Descriptives
88  //
89  xtdescribe
90  //
91  *98.65% market are present in all years
92
93  * (b)
94  xttab SWcompete
95  xttrans SWcompete
96  *96.03% southwest Airline is not a competitor last year is still
    not this year. 96.31% southwest market is a competitor last year
    is still a competitor this year. Therefore, this variable is
    relatively stable
```

```
 97
 98   * (c)
 99   //
100   xtsum HHI
101   //
102   *this variable varies more across time
103
104   *** 5. Panel data regressions ***
105
106   * (a) perform a random effects regression
107   //
108   gen NSdistance2 = NSdistance^2
109   xtreg totalprice logpass NSdistance NSdistance2 directpct
        SWcompete HHI, re
110   //
111
112   * (b)
113   sort origin
114   encode origin, gen(org)
115   sort destination
116   encode destination, gen(dest) label(org)
117   //
118   xtreg totalprice logpass NSdistance NSdistance2 directpct
        SWcompete HHI i.org, re
119
120   xtreg totalprice logpass NSdistance NSdistance2 directpct
        SWcompete HHI i.dest, re
121   //
122
123   * (c) perform a fixed-effects regression
124   //
125   xtreg totalprice logpass NSdistance NSdistance2 directpct
        SWcompete HHI i.org, fe
126
127   xtreg totalprice logpass NSdistance NSdistance2 directpct
        SWcompete HHI i.dest, fe
128   //
129
130
```