```stata
1    ************************************************
2    ***  Advanced Econometrics TA session 1  ***
3    ***                                       ***
4    ***              Zeyang Chen              ***
5    ***           Date: 2019.10.9             ***
6    ************************************************
7
8
9
10   ***************************************
11   ***Example 1: environment settings***
12   ***************************************
13   *(1)是否折叠显示：set more on/off
14   set more on
15   set more off,permanently
16
17   *(2)清除内容：clear
18   cls
19   clear
20   clear all
21
22   *(3)记录历史命令：log
23   log using "E:\stata14\history.log", append
24   log on
25
26   *(4)存储路径：cd
27   *建议避免中文，全部采用中文
28   cd
29   cd "C:\Users\chenz\Desktop\EconometricsTA\TA1"
30   cd "..\TA1"
31
32
33   **********************
34   ***Example 2: start***
35   **********************
36   *(1)帮助：help
37   help help
38
39   *(2)安装新指令：ssc，findit
40   ssc hot
41   ssc install findname
42   findit outreg2
43
44   *(3)导入数据：use，import(export)，insheet(outsheet)
45   use "WAGE2.dta",clear
46   use WAGE2,clear
47   save WAGE2,replace
48
49   import excel WAGE2.xls, firstrow clear
50   export excel using WAGE2.xls,firstrow(variables) replace
51
52   import delimited using WAGE2.csv,clear
53   export delimited using WAGE2.csv, replace
54   insheet using WAGE2.csv,clear
55   outsheet using WAGE2.csv,replace
56
57   *(4)查看数据：browse,list
58   br
59   *ed（慎用）
60   list in 1/10
61
62
63   *****************************
64   ***Example 3: miscellaneous***
65   *****************************
66   *(1)省略中间过程：quietly
67   qui ssc install findname
68   qui: ssc install findname
69   qui{
70       ssc install findname
```

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 71    }
 72
 73    *(2)打印：display
 74    di "stata"
 75    di 1+1
 76    di (157+347)^2
 77
 78    *(3)注释
 79    *方法一
 80    /*
 81    方法二
 82    */
 83
 84    *(4)换行
 85    ///
 86
 87    *(5)暂元：local，global
 88    local i=1
 89    local j=`i'+1
 90    di "`i',`j'"
 91    global humancapital "IQ educ exper"
 92    list $humancapital in 1/10
 93
 94
 95
 96    *************************
 97    ***Example 4: edit data***
 98    *************************
 99    clear
100    *(1)设定观测值：set obs #
101    set obs 100
102
103    *(2)产生新变量：generate，egen
104    *uniform(),rnormal(),_n,_N
105    gen x=uniform()*10
106    gen u=rnormal()
107    gen y=10*x+u
108    gen w=x
109    gen n=_n
110    gen N=_N
111    gen null=.
112    gen date="20191009"
113    gen empty=""
114    egen mean_x=mean(x)
115
116    *(3)替换变量的取值：replace
117    replace w=1 if x<0.5
118
119    *(4)变量重命名：rename
120    rename date yymmdd
121
122    *(5)保留、删除变量或观测值：drop，keep
123    drop w
124    keep x y u
125    drop if x>10.1
126
127    *(6)排序：sort，gsort
128    sort x
129    gsort x -y
130
131    *(7)删除重复值：duplicates drop
132    duplicates drop x,force
133
134    *(8)变量排序：order
135    order y u
136    order *, alpha
137
138    *(9)纵向合并：append
139    use WAGE2,clear
140    append using WAGE2
```

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141
142   *(10)横向合并：merge
143   use WAGE2,clear
144   merge 1:1 _n using WAGE2,keep(3) nogen
145
146
147   ********************
148   ***Example 5: if***
149   ********************
150   *(1)if与其他命令组合
151   *== 等于 !=不等于 >大于 <小于 >=大于等于 <=小于等于
152   replace y=999 if x>=0
153   keep if x<10
154   drop if x<=-10
155
156   *(2)if
157   local i=3
158
159   if `i'==1 {
160       di "i=1"
161   }
162   else if `i'==2 {
163       di "i=2"
164   }
165   else {
166       di "i=3"
167   }
168
169
170   *********************
171   ***Example 6: loop***
172   *********************
173   *(1)循环取值：forvalues
174   forvalues i=1(2)9{
175       di "`i'"
176   }
177
178   *(2)循环字符串：foreach
179   foreach x in A B C D E {
180       di "`x'"
181   }
182
183
184   **********************************
185   ***Example 7: summary statistics***
186   **********************************
187   *(1)描述连续变量：describe, codebook, summary
188   *所有变量：*，_all，默认
189   use WAGE2,clear
190   d
191   d wage
192   codebook wage
193   codebook wage, c
194   sum wage
195   sum wage,d
196   sum *
197   bysort black: sum wage
198
199   *(2)描述离散变量：tabulate
200   tab meduc
201   tab meduc,m
202   tab black south
203   tab black south,row
204   tab black south,row column
205
206
207   *************************
208   ***Example 8: regression***
209   *************************
210   *(1)OLS regression
```

```stata
211    reg wage IQ educ exper
212    *interpret the table (see appendix)
213
214    *(2)储存回归: est sto xxx
215    est sto reg1
216
217    *(3)post-estimation: predict
218    predict yhat, xb
219    predict uhat, residual
220
221    *(4)统计检验: test
222    test IQ edu
223    test (IQ=0)(edu=0)
224    test educ+exper=1
225
226    local bIQ=_b[IQ]
227    di "`bIQ'"
228    di _b[IQ]-invttail(e(df_r),0.025)*_se[IQ]
229    di _b[IQ]+invttail(e(df_r),0.025)*_se[IQ]
230
231
232    *********************************
233    ***Example 9: table and figure***
234    *********************************
235    global myvar "wage IQ educ exper"
236    *(1)描述性统计
237    use WAGE2,clear
238    qui estpost sum $myvar
239    ests to all
240    esttab all using table1.rtf, ///
241    cell((count mean(fmt(2)) sd(fmt(2)) min max)) ///
242    nonumber nomtitle noobs replace
243
244    *(2)分组统计及检验
245    use WAGE2,clear
246    qui estpost sum $myvar if black==0
247    ests to white
248    qui estpost sum $myvar if black==1
249    ests to black
250    qui estpost ttest $myvar,by(black)
251    ests to byblack
252    esttab white black byblack ///
253    using table2.rtf, ///
254    cell("mean(fmt(3) pattern(1 1 0)) b(star fmt(3) pattern(0 0 1))" "sd(fmt(3) par pattern(1 1
       0)) se(fmt(3) par pattern(0 0 1))" ) ///
255    mti("white" "black" "difference") replace nogap nonumber
256
257    *(3)回归表格
258    use WAGE2,clear
259    reg wage IQ educ exper married if black==0
260    est sto r1
261    reg wage IQ educ exper married if black==1
262    est sto r2
263    esttab r1 r2 using table3.rtf, ///
264    replace r2 ar2 se b(3) star(* 0.1 ** 0.05 *** 0.01) ///
265    eqlabels(none) mti("white" "black") ///
266    order(educ exper) nogap ///
267    indicate("MARRIAGE=married")
268
269    *(3)直方图及密度曲线
270    use WAGE2,clear
271    hist wage,width(100) freq title("Distribution of monthly wage")
272    graph export figure1.png,wid(1600)hei(1600) replace
273
274    *(4)散点图及拟合线
275    use WAGE2,clear
276    graph twoway ///
277        (scatter wage educ,msize(tiny)) ///
278        (lfit wage educ), ///
279        ytitle(wage) ///
```

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280          title("Relationship between wage & education") ///
281          graphregion(color(white)) ///
282          legend(off)
283   graph export figure2.png,wid(1600)hei(1600) replace
284
285   *(5)柱形图及置信区间
286   use WAGE2,clear
287   collapse (mean) mean_wage=wage (sd) sd_wage=wage (count) n=wage, by(educ)
288   gen hi_wage = mean_wage + invttail(n-1,0.025)*(sd_wage / sqrt(n))
289   gen lo_wage = mean_wage - invttail(n-1,0.025)*(sd_wage / sqrt(n))
290   graph twoway (bar mean_wage educ ,barwidth(0.5) color(gs11) lcolor(white) lwidth(0.2)) ///
291          (rcap hi_wage lo_wage educ,msize(4) color(gs3)), ///
292           ylabel(0(500)1500) ytitle("average monthly wage") ///
293          graphregion(color(white)) legend(off)
294   graph export figure3.png,wid(1600)hei(900) replace
295
296   *(5)折线图
297   use WAGE2,clear
298   collapse (mean) mean_wage=wage,by(educ black)
299   twoway (line mean_wage educ if black==0) ///
300       (line mean_wage educ if black==1, xline(8,lpattern(shortdash) lcolor(black)) ///
301       yline(0.8,lpattern(shortdash) lcolor(black))), ///
302       title("learnig effect of acceptance rate") ///
303       ylabel(0(500)1500) ///
304       ytitle("average monthly wage", height(5)) ///
305       xtitle("years of education") ///
306       graphregion(color(white)) ///
307       legend(order(1 "white" 2 "black") row(1))
308   graph export figure4.png,wid(1600)hei(900) replace
309
310   *(7)多张图合并
311   use WAGE2,clear
312   hist wage if black==0,width(100) freq title("white") saving(white.gph,replace) graphregion(
         color(white))
313   hist wage if black==1,width(100) freq title("black") saving(black.gph,replace) graphregion(
         color(white))
314   graph combine white.gph black.gph,rows(1) graphregion(color(white))
315   graph export figure5.png,wid(1600)hei(800) replace
316
317
318
319
```