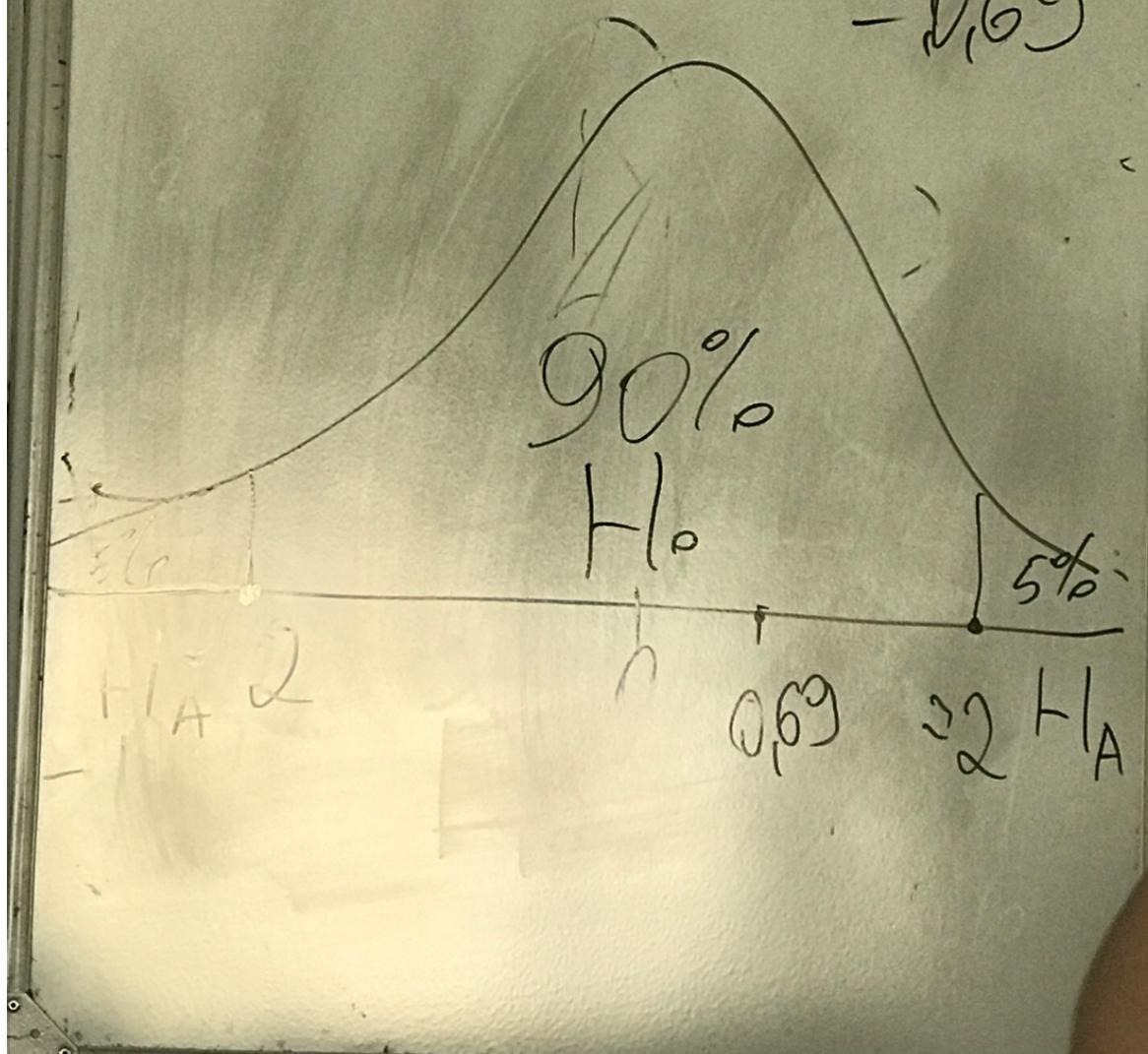


Эконометрика

#Эконометрика

- Тестируем гипотезы через t -распределение
- Для сравнения использовать стандартную ошибку
- Делать вывод относительно того, куда попала значение по t статистике

$$t = \frac{72,14 - 72}{0,21} = \frac{0,14}{0,21} = 0,69$$



- P-value это площадь кусочка с правой стороны. То есть от точки до конца
 - Как раз насчёт него делаем вот эти !=, <, >
- Если первый вариант находим p value между значение по t статистике -0,59 и 0,59.
- Если значение по статистике 0,59
- Уровень значимости - то значение с которым сравниваем p value if больше значит принимаем гипотезе

- Если p-value больше уровня значимости значит принимаем гипотезу
- При корреляции прям так просто тестировать, что корреляция допустим равна 0
- При корреляции значение под числом со звездочкой - p value

```

199 . pwcorr ttldur stbaflcum, sig star(.05) obs
variable ttldur not found
r(111);

. pwcorr ttlDur stbaflcum, sig star(.05) obs

          ttlDur stbafl~m
-----  

111      ttlDur      1.0000
h)           12377
n, ... 111
m,...      stbaflcum  0.0303*  1.0000
si... 111   0.0147
si...       6471      6471
, si...

. pwcorr ttlDur stbaflcum, sig star(.05)

          ttlDur stbafl~m
-----  

      ttlDur      1.0000
stbaflcum  0.0303*  1.0000
          0.0147

```

Command

- Корреляция Пирсона - pwcorr
- Pvalue = 0 значит отвергаем

```

 0.0147
 6471      6471

199 . pwcorr ttlDur stbaflcum, sig star(.05)

          ttlDur stbafl~m
-----
```

ttlDur	1.0000
stbaflcum	0.0303* 1.0000 0.0147

(th) 111
Auth)
cum, ... 111
lcum, ...
m, si... 111
im, si...
im, si...
m
199

```

. scatter ttlDur stbaflcum
. knn
command knn is unrecognized
r(199);

. ktau stbafllyr stbusrlyr

Number of obs =      6471
Kendall's tau-a =      0.8985
Kendall's tau-b =      0.9018
Kendall's score = 18809151
SE of score = 173511.878 (corrected for ties)

Test of Ho: stbafllyr and stbusrlyr are independent
Prob > |z| =      0.0000 (continuity corrected)
```

Command

• stata4

- Корреляция Крамера

esktop\data.dta

tics User Window Help

. spearman n_affil ttlDur

Number of obs = 12377
 Spearman's rho = 0.1007

9 Test of Ho: n_affil and ttlDur are independent
 Prob > |t| = 0.0000

. tab2 n_author n_affil, v

-> tabulation of n_author by n_affil
 option v not allowed
 invalid syntax
 r(198);

11 . tab2 n_author n_affil, V

111 -> tabulation of n_author by n_affil

Author Count	Author affiliation count					
	1	2	3	4	5	6
199	5,815	0	0	0	0	0
198	2,177	1,941	0	0	0	0
	404	541	599	0	0	0
	149	219	259	246	0	0
	50	79	102	139	86	0
	14	40	81	76	93	267
Total	7,609	2,820	1,041	461	179	267

Cramér's V = 0.5655

.

Command

I

- Sum, d даёт перцентили
- Писать небольшое объяснение к каждой функции
- График баров:

POLYVISION

	90%	91.1111	99.4012	skewness
0	95%	94.30894	99.43503	Kurtosis
100	99%	97.41379		

```
do "C:\Users\student\AppData\Local\Temp\STD
graph bar n_affil
end of do-file
do "C:\Users\student\AppData\Local\T
graph bar stbaflcum, over(n_author)
end of do-file
```

Command

A bar chart titled "mean of stbaflcum". The y-axis ranges from 0 to 80 with increments of 20. There is one bar labeled "1" at the bottom, which reaches a height of approximately 75.

- Срезы

Stata/MP 14.1 - C:\Program Files (x86)\Stata14\ado\base\n\nlsw88.dta

File Edit Data Graphics Statistics User Window Help

Review Filter commands here r(111);

```

11 describe
12 tostring year day, replace
13 list
14 describe
15 destring, replace
16 describe
17 list
18 back 199
19 back 34 199
20 sysuse nlsw88.dta, clear
21 list
22 describe 199
23 describe
24 hist 100
25 hist wage
26 mean year 111
27 mean wage
28 medium wage 199
29 medium medium 199
30 max wage 199
31 minimum wage 199
32 describe wage
33 sum wage
34 sum wage hours age race
35 std wage 199
36 deviation wage 199
37 standard deviation wage 199
38 std wage 199
39 sum wage, d
40 tabstat
41 tabstat wage 100
42 list race 1
43 distinct race 199
44 unique race 199
45 tabstat by(race) 101
46 tabstat race iqr 111
47 tabstat race s(iqr) 101
48 tabstat race
49 tabstat age (mean, iqr) 111
50 tabstat age [iqr] 198
51 tabstat age [mean] 198
52 tabstat age, by(race), s(n mean iqr p99) 198
53 tabstat age, by(race) s(n mean iqr p99)

```

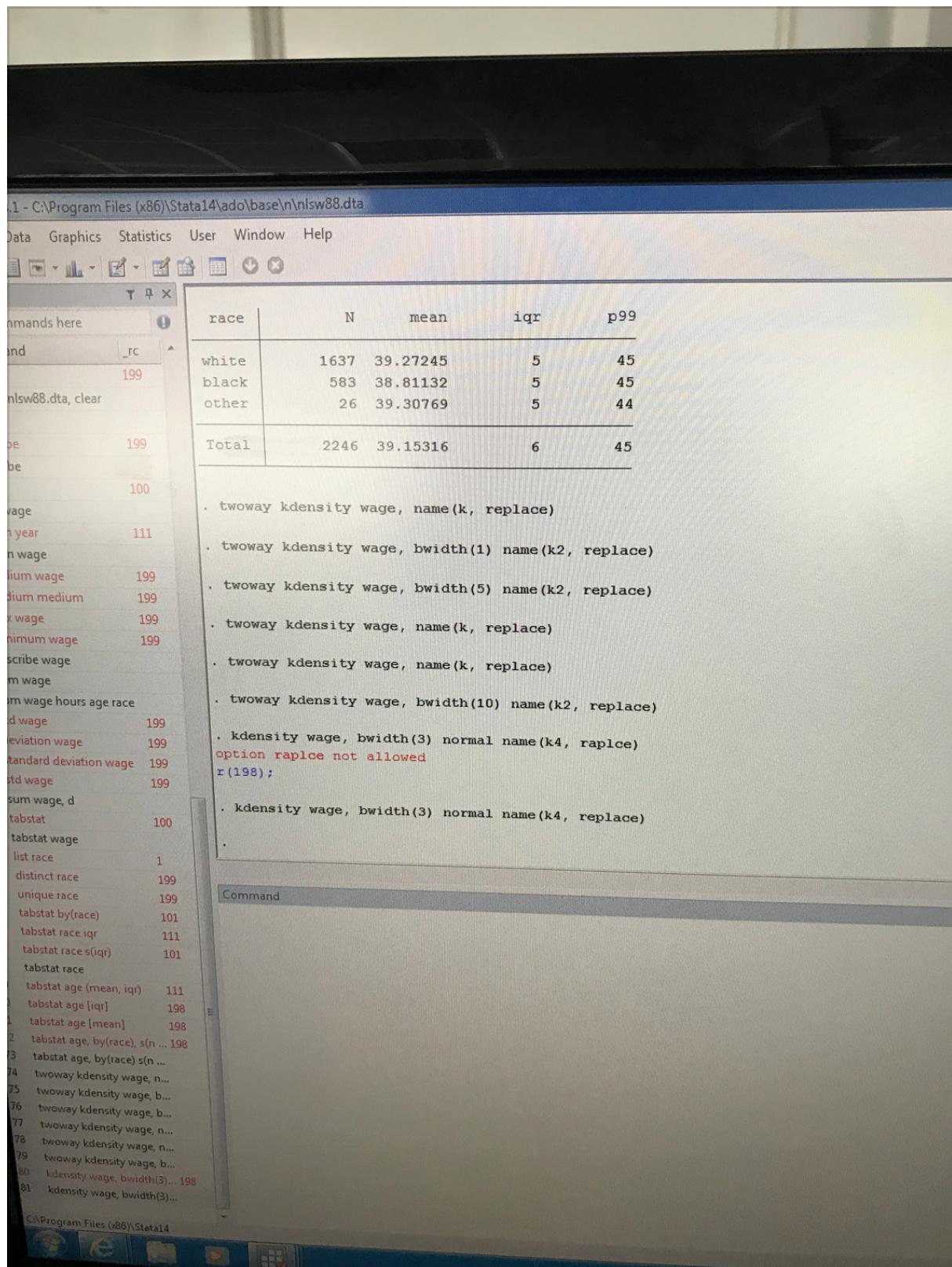
Summary for variables: age
by categories of: race (race)

race	N	mean	iqr	p99
white	1637	39.27245	5	45
black	583	38.81132	5	45
other	26	39.30769	5	44
Total	2246	39.15316	6	45

.

Command

- Ниже располагается список полезных функций для проекта
- TwoWay для рисования двух элементов, описывающих данные, на одном графике



tabstat age, by(race)

race	N	mean	iqr	p99
white	1637	39.27245	5	45
black	583	38.81132	5	45
other	26	39.30769	5	44
Total	2246	39.15316	6	45

. twoway kdensity wage, name(k1, replace)

Command

by(race) > (mean...)

	white	black	other	Total
white	1637	39.27245	5	45
black	583	38.81132	5	45
other	26	39.30769	5	44
Total	2246	39.15316	6	45

```

Stata/MP 14.1 - C:\Program Files (x86)\Stata14\ado\base\nlsw88.dta
File Edit Data Graphics Statistics User Window Help
Review T X
# Command _rc
40 sysuse nlsw88.dta, clear
41 list
42 describe 199
43 describe
44 hist 100
45 hist wage
46 mean year 111
47 mean wage
48 medium wage 199
49 medium medium 199
50 max wage 199
51 minimum wage 199
52 describe wage
53 sum wage
54 sum wage hours age race
55 std wage 199
56 deviation wage 199
57 standard deviation wage 199
58 std wage 199
59 sum wage, d
60 tabstat 100
61 tabstat wage
62 list race 1
63 distinct race 199
64 unique race 199
65 tabstat by(race) 101
66 tabstat race iqr 111
67 tabstat race s(iqr) 101
tabstat race
68 tabstat age (mean, iqr) 111
69 tabstat age [iqr] 198
70 tabstat age [mean] 198
71 tabstat age, by(race), s(n ... 198
tabstat age, by(race) s(n ...
72 twoway kdensity wage, n...
73 twoway kdensity wage, b...
74 twoway kdensity wage, b...
75 twoway kdensity wage, n...
76 twoway kdensity wage, b...
77 twoway kdensity wage, b...
78 density wage, bwidth(3)... 198
79 density wage, bwidth(3)...
80 oway kdensity wage, b...

```

Command

System Files (x86)\Stata14

Internet Explorer Microsoft Word Microsoft Excel Microsoft PowerPoint Microsoft Word 14

senseye LED BenQ

MP 14.1 - C:\Program Files (x86)\Stata14\ado\base\n\nlsw88.dta

File Data Graphics Statistics User Window Help

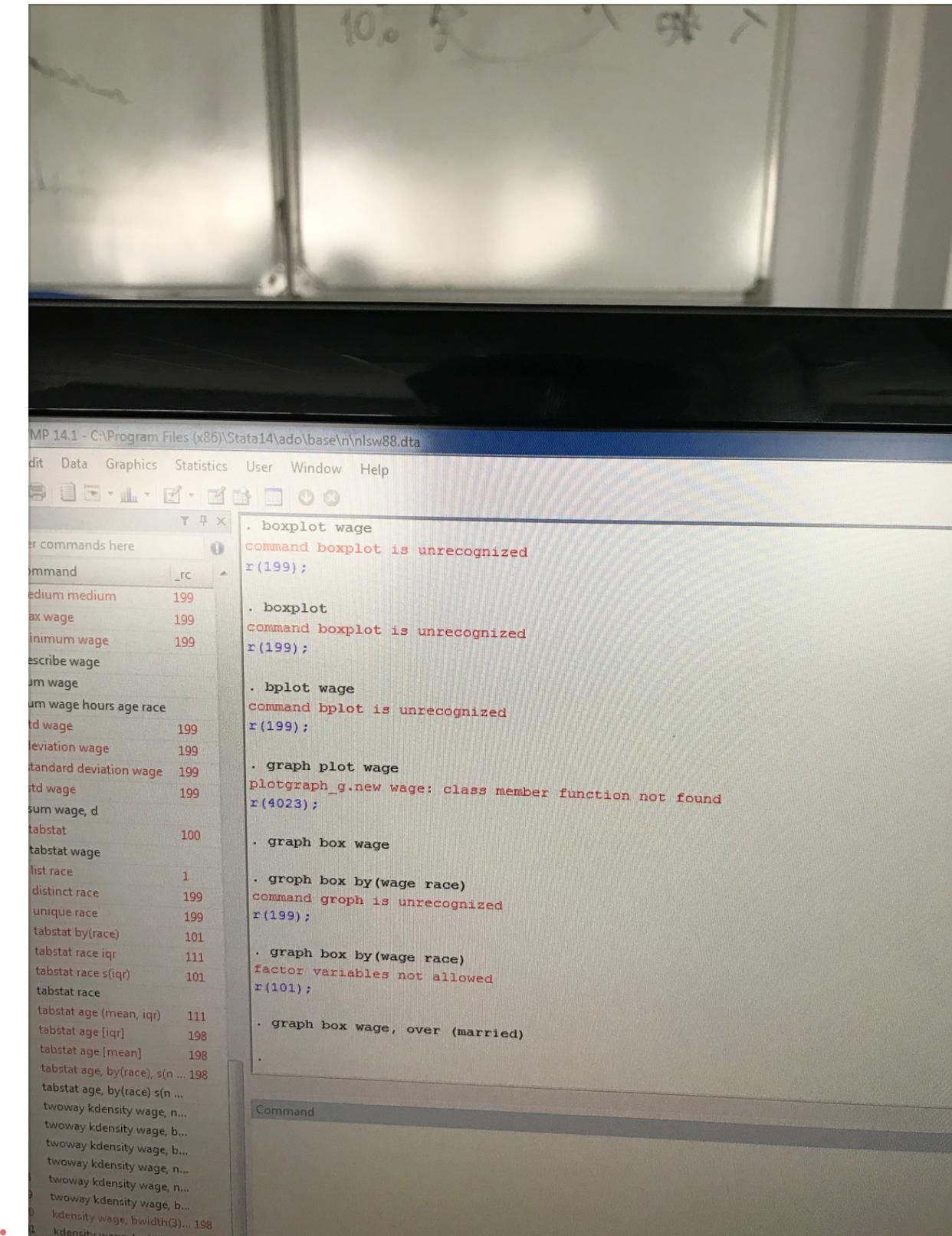
commands here

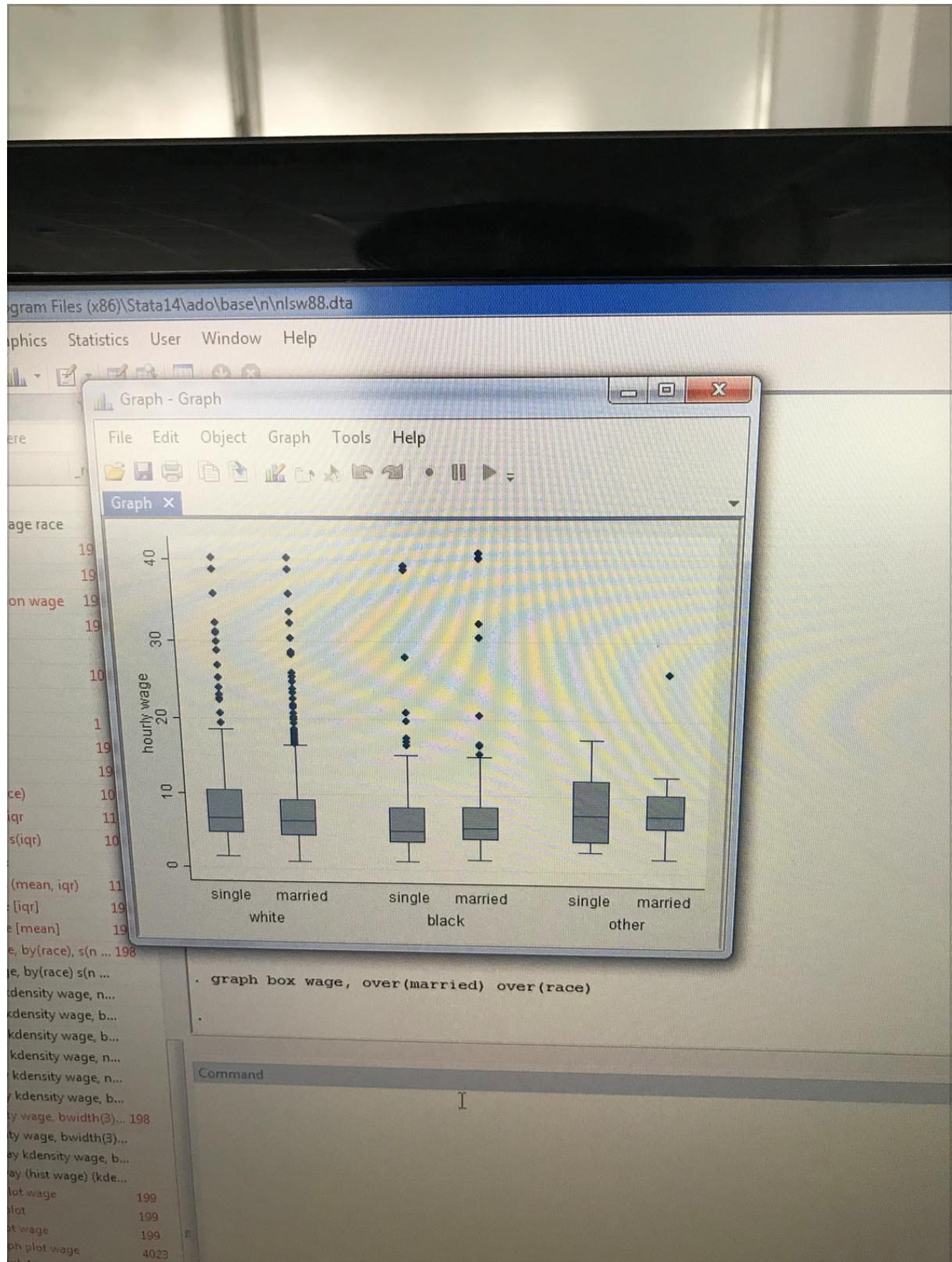
	black	583	38.81132	5	45
	other	26	39.30769	5	44
Total		2246	39.15316	6	45

```
. twoway kdensity wage, name(k, replace)
. twoway kdensity wage, bwidth(1) name(k2, replace)
. twoway kdensity wage, bwidth(5) name(k2, replace)
. twoway kdensity wage, name(k, replace)
. twoway kdensity wage, name(k, replace)
. twoway kdensity wage, bwidth(10) name(k2, replace)
. kdensity wage, bwidth(3) normal name(k4, replace)
option replace not allowed
r(198);
. kdensity wage, bwidth(3) normal name(k4, replace)
. twoway kdensity wage, bwidth(2) by(race)
. twoway (hist wage) (kdensity wage)
```

Command

hours age race
wage
aviation wage
d
e)
r
qr)
ean, iqr)] an] ace), s(n ... 198
ace) s(n ... wage, n... wage, b... wage, b... wage, n... wage, b... width(3)... 198
width(2)





rs\student\Desktop\data.dta

graphics Statistics User Window Help

File Edit View Data Transform Analyse Graphics Statistics User Window Help

. hist stbaflcum
(bin=38, start=7.4074073, width=2.4213472)

. mean stbaflcum

199 Mean estimation Number of obs = 72

	Mean	Std. Err.	[95% Conf. Int]
stbaflcum	72.14524	.2100602	71.73346 72

. sum stbaflcum

Variable	Obs	Mean	Std. Dev.
stbaflcum	6,471	72.14524	16.89778 7.40

. ttest stbaflcum == 72

One-sample t test

Variable	Obs	Mean	Std. Err.	Std. Dev.
stbafl~m	6,471	72.14524	.2100602	16.89778

mean = mean(stbaflcum)
Ho: mean = 72 degrees

Ha: mean < 72 Ha: mean != 72
Pr(T < t) = 0.7553 Pr(|T| > |t|) = 0.4893

.

```

users\student\Desktop\data.dta
graphics Statistics User Window Help
[!]
tab usAuth
1/0: has a
US based
author
Freq. Percent Cum.
199
0 2,985 24.12 24.12
1 9,392 75.88 100.00
Total 12,377 100.00
ttest stflcum, by(usAuth)
variable stflcum not found
r(111);

ttest stbaflcum, by(usAuth)

Two-sample t test with equal variances

Group Obs Mean Std. Err. Std. Dev. [9
0 1,436 70.37625 .4456412 16.88739 69
1 5,035 72.64977 .2377252 16.86844 72
combined 6,471 72.14524 .2100602 16.89778 71
diff -2.273519 .5047682 -3.

diff = mean(0) - mean(1)
Ho: diff = 0 degrees of freedom
Ha: diff < 0 Pr(T < t) = 0.0000
Ha: diff != 0 Pr(|T| > |t|) = 0.0000

```

Ha: diff < 0
Ha: diff > 0
Pr(T < t) = 0.0000
Pr(T > t) = 1.0000

Ha: diff != 0
Pr(|T| > |t|) = 0.0000

do "C:\Users\student\AppData\Local\Temp\STD00000000
. pwcorr stbafllyr stbaflcum, sig star(.05) obs
stbafl~r stbafl~m

	stbafl~r	stbafl~m
stbafllyr	1.0000	6471
stbaflcum	0.9174* 1.0000	0.0000
	6471	6471

end of do-file

0	1,456	70.37623	.4456912	16.007
1	5,035	72.64977	.2377252	16.868
combined	6,471	72.14524	.2100602	16.897
diff		-2.273519	.5047682	

diff = mean(0) - mean(1)
Ho: diff = 0 degr

Ha: diff < 0 Ha: diff != 0
Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000

. pwcorr stbafllyr stbaflcum, sig star(.05) obs
variable stbafllyr not found
r(111);

. pwcorr stbafllyr stbaflcum, sig star(.05) obs

stbafl~r stbafl~m	
stbafllyr	1.0000
	6471
stbaflcum	0.9174* 1.0000
	0.0000
	6471 6471

Command

- Корреляция Кендала

```
stbaflcum 0.0303* 1.0000
          0.0147

scatter ttlDur stbaflcum
ktau stbafllyr stbusrlyr

Number of obs = 6471
Kendall's tau-a = 0.8985
Kendall's tau-b = 0.9018
Kendall's score = 18809151
SE of score = 173511.878 (corrected)

Test of Ho: stbafllyr and stbusrlyr are in
Prob > |z| = 0.0000 (continuit
Command
```

- Корреляция Спирмана

Kendall's tau-b =
Kendall's score = 18809151
SE of score = 173511.878 (co

Test of Ho: stbafllyr and stbusrlyr
Prob > |z| = 0.0000 (co

. spearman n_affil ttlDur

Number of obs = 12377
Spearman's rho = 0.1007

Test of Ho: n_affil and ttlDur are :
Prob > |t| = 0.0000

Correlation

- Корреляция Крамера

3	873	3.00	1
4	456	4.61	
5	571		
6			
Total	12,377	100.00	

. tab2 n_author n_affil, v

-> tabulation of n_author by n_affil

Author Count	Author affiliation cou		
	1	2	3
1	5,815	0	0
2	1,177	1,941	0
3	404	541	599
4	149	219	259
5	50	79	102
6	14	40	81

Command