

Handout seminar 1, ECON4150

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February 4, 2013

Introduction - list of commands

For *Question C* in the problem set, this handout will represent a solution proposal. The following list is meant to aid your individual solutions, as the .do-file the seminar-leaders have made is a mere guidance. We strongly encourage you to solve all Stata-problems on your own. If further explanation is needed, don't forget the *findit*- and the *help*-commands in Stata. They provide detailed descriptions on how to use commands.

- regress(reg) - used to actually do the regression between the two variables (regressand, regressor)
- mean - used to calculate the mean of a variable
- predict - used to predict some value after a regression, "xb" is optional and makes the predict-command use linear prediction
- egen - generates new variables
- twoway scatter - creates a scatter plot between two variables
- lfit - creates a linear line using OLS between two variables

These should suffice to solve all the problems for this seminar.

Note: *a useful tip is to always name your variables in such a way that you remember what they are. Take notice of how the variables in this solution proposal are named. Remember also that Stata is case-sensitive, so make sure you use as many small letters as possible. This will ease your typing.*

Solving the problems

```
reg C I
```

Problem 1

Source	SS	df	MS	Number of obs =	47
Model	1279028.78	1	1279028.78	F(1, 45) =	477.38
Residual	120567.778	45	2679.28395	Prob > F =	0.0000
				R-squared =	0.9139
				Adj R-squared =	0.9119
Total	1399596.55	46	30426.0121	Root MSE =	51.762

C	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
I	.805148	.0368506	21.85	0.000	.730927	.879369
_cons	50.90795	17.66509	2.88	0.006	15.32862	86.48727

```
. predict Chat, xb
. mean
```

```
Mean estimation          Number of obs   =      47
```

	Mean	Std. Err.	[95% Conf. Interval]	
I	433.3784	30.20902	372.5708	494.186

```
. mean C
```

```
Mean estimation          Number of obs   =      47
```

	Mean	Std. Err.	[95% Conf. Interval]	
C	399.8417	25.44331	348.627	451.0564

```
. mean Chat
```

```
Mean estimation          Number of obs   =      47
```

	Mean	Std. Err.	[95% Conf. Interval]	
Chat	399.8417	24.32273	350.8826	448.8008

```
. egen lmean = mean(I)
. egen Cmean = mean(C)
. gen Cmeanhat=50.90795+0.805148*433.3784
```

```
. mean Cmeanhat
```

```
Mean estimation              Number of obs   =       47
```

	Mean	Std. Err.	[95% Conf. Interval]
Cmeanhat	399.8417	0	.

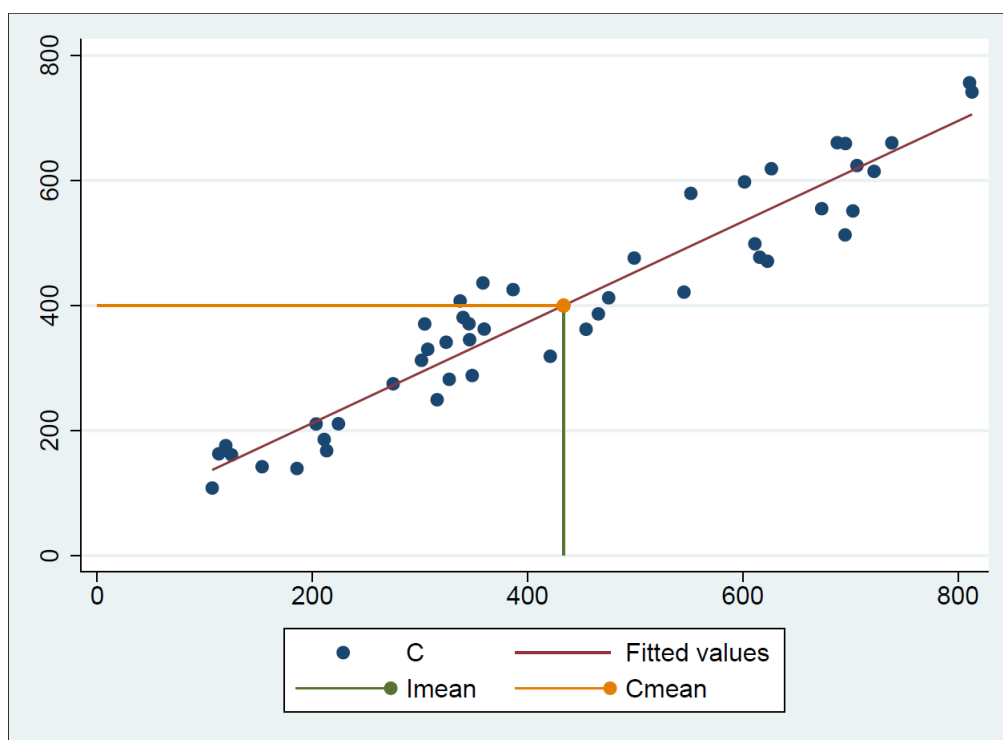


Figure 1: OLS graph

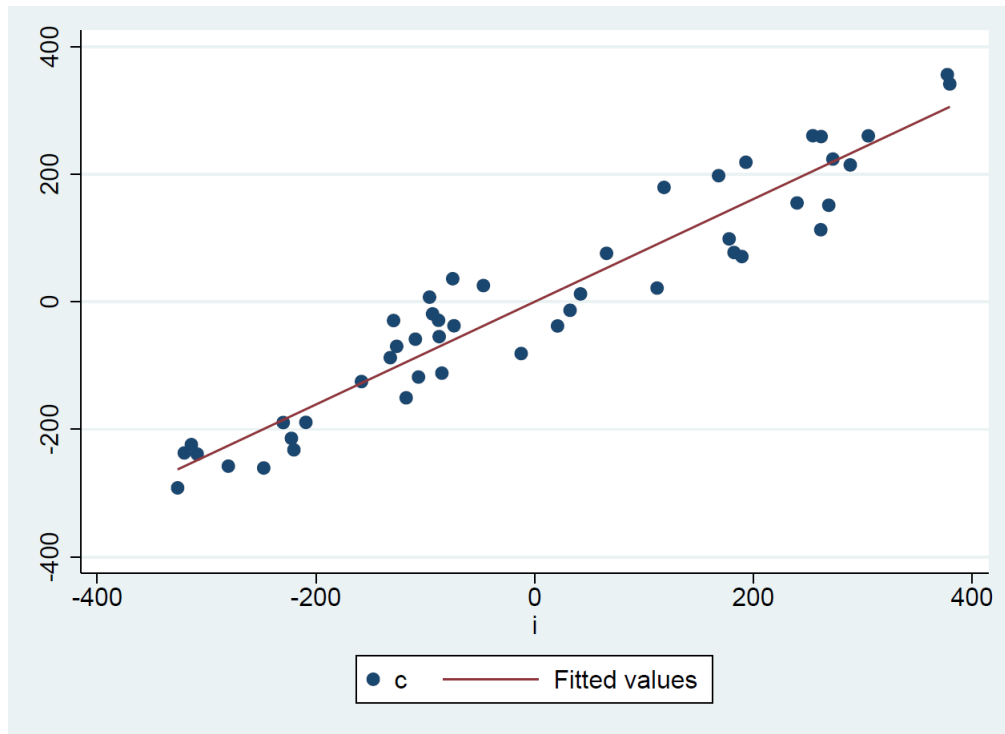


Figure 2: OLS graph, demeaned variables

Problem 2

```
. gen c = C-Cmean
. gen i = I-Imean

. reg c i
```

Source	SS	df	MS	Number of obs =	47
Model	1279028.77	1	1279028.77	F(1, 45) =	477.38
Residual	120567.784	45	2679.28408	Prob > F =	0.0000
Total	1399596.55	46	30426.012	R-squared =	0.9139
				Adj R-squared =	0.9119
				Root MSE =	51.762

	c	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
	i	.805148	.0368506	21.85	0.000	.730927 .879369
	_cons	2.48e-06	7.550235	0.00	1.000	-15.20695 15.20696

```
. reg c i, noconstant
```

Source	SS	df	MS			
Model	1279028.77	1	1279028.77	Number of obs =	47	
Residual	120567.784	46	2621.03878	F(1, 46) =	487.99	
Total	1399596.55	47	29778.65	Prob > F =	0.0000	
				R-squared =	0.9139	
				Adj R-squared =	0.9120	
				Root MSE =	51.196	

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
c						
i	.805148	.0364479	22.09	0.000	.7317822	.8785138

Problem 3

```
. gen Cbill=C/1000
. gen Ibill=I/1000
. reg Cbill Ibill
```

Source	SS	df	MS			
Model	1.27902879	1	1.27902879	Number of obs =	47	
Residual	.120567781	45	.002679284	F(1, 45) =	477.38	
Total	1.39959657	46	.030426012	Prob > F =	0.0000	
				R-squared =	0.9139	
				Adj R-squared =	0.9119	
				Root MSE =	.05176	

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Cbill						
Ibill	.805148	.0368506	21.85	0.000	.730927	.879369
_cons	.0509079	.0176651	2.88	0.006	.0153286	.0864873

Problem 4

```
. gen LC =ln(C)
. gen LI =ln(I)
. reg LC LI
```

Source	SS	df	MS			
Model	10.4532783	1	10.4532783	Number of obs =	47	
Residual	1.00390845	45	.022309077	F(1, 45) =	468.57	
Total	11.4571867	46	.249069276	Prob > F =	0.0000	
				R-squared =	0.9124	
				Adj R-squared =	0.9104	
				Root MSE =	.14936	

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LC						
LI	.84756	.0391548	21.65	0.000	.7686982	.9264218
_cons	.8507901	.2334256	3.64	0.001	.3806468	1.320933