KSE

Kyiv
School of
Economics

Regression Estimation

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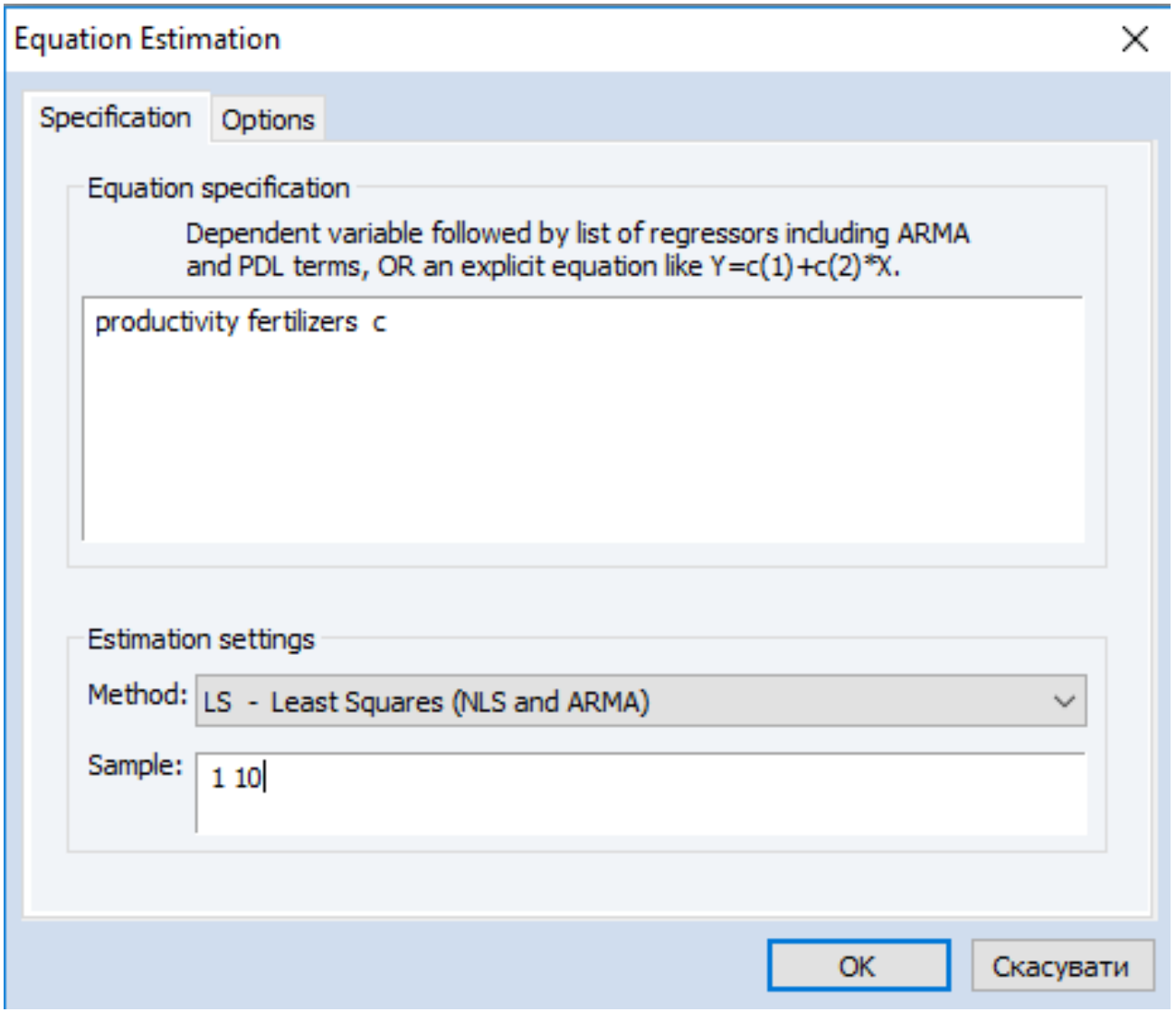
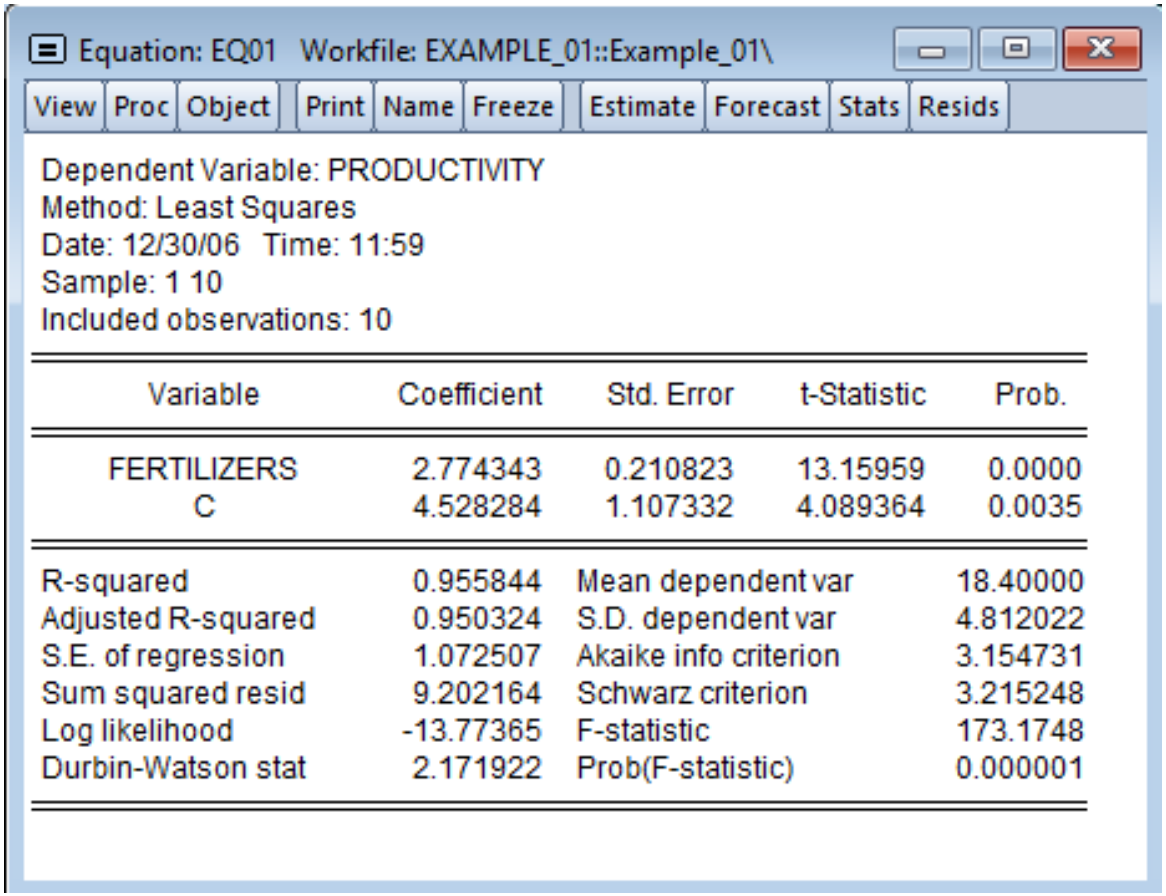
Example

- File: example_01.wf1

Regression


Equation Estimation
Specification
Options
Equation specification
Dependent variable followed by list of regressors including ARMA and PDL terms, OR an explicit equation like Y=c(1)+c(2)*X.
productivity fertilizers c
Estimation settings
Method:
LS - Least Squares (NLS and ARMA)
Sample:
1 10
OK
Скасувати

Regression analysis



Equation: EQ01 Workfile: EXAMPLE_01::Example_01\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: PRODUCTIVITY
Method: Least Squares
Date: 12/30/06 Time: 11:59
Sample: 1 10
Included observations: 10

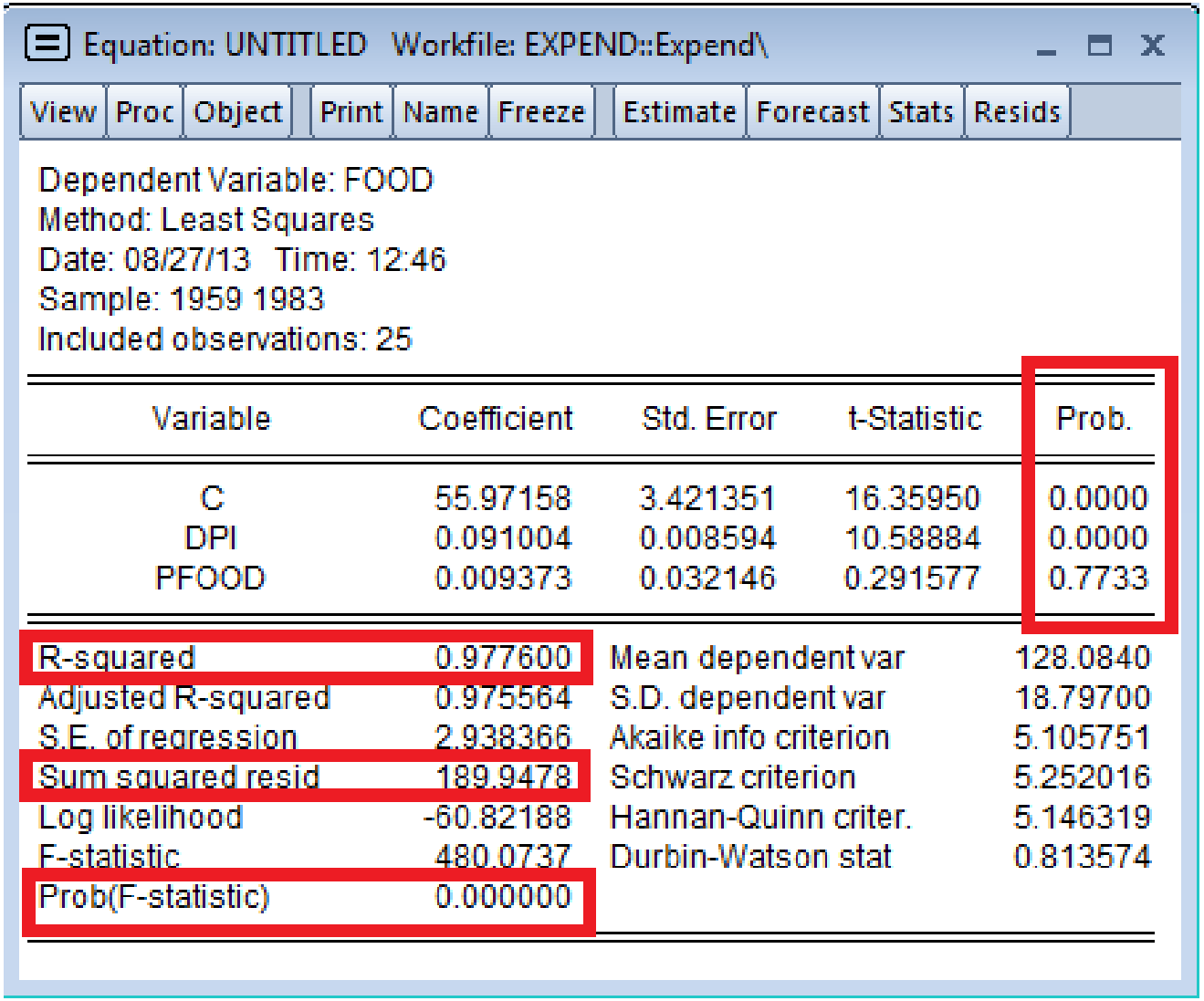
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FERTILIZERS	2.774343	0.210823	13.15959	0.0000
C	4.528284	1.107332	4.089364	0.0035

R-squared	0.955844	Mean dependent var	18.40000
Adjusted R-squared	0.950324	S.D. dependent var	4.812022
S.E. of regression	1.072507	Akaike info criterion	3.154731
Sum squared resid	9.202164	Schwarz criterion	3.215248
Log likelihood	-13.77365	F-statistic	173.1748
Durbin-Watson stat	2.171922	Prob(F-statistic)	0.000001

File: Expend.wf1

- Food – index of food consumption
- Pfood – price index of food
- Dpi – disposal income

Regression estimation



Equation: UNTITLED Workfile: EXPEND::Expend\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

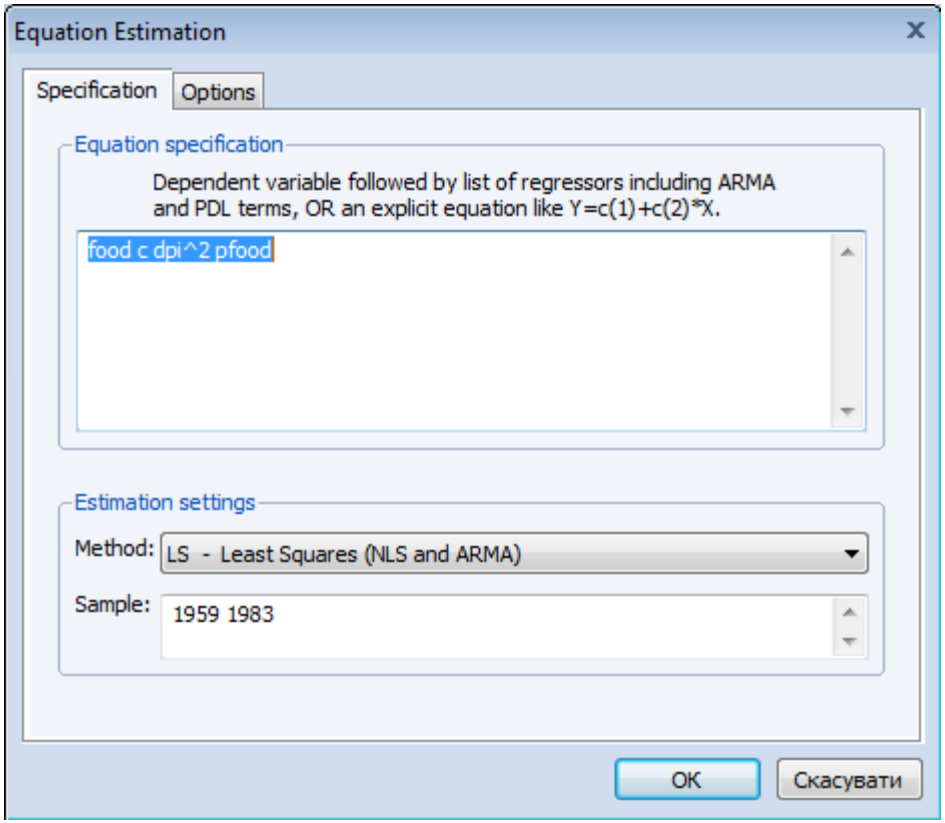
Dependent Variable: FOOD
Method: Least Squares
Date: 08/27/13 Time: 12:46
Sample: 1959 1983
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	55.97158	3.421351	16.35950	0.0000
DPI	0.091004	0.008594	10.58884	0.0000
PFOOD	0.009373	0.032146	0.291577	0.7733

R-squared	0.977600	Mean dependent var	128.0840
Adjusted R-squared	0.975564	S.D. dependent var	18.79700
S.E. of regression	2.938366	Akaike info criterion	5.105751
Sum squared resid	189.9478	Schwarz criterion	5.252016
Log likelihood	-60.82188	Hannan-Quinn criter.	5.146319
F-statistic	480.0737	Durbin-Watson stat	0.813574
Prob(F-statistic)	0.000000		

Polynomial regression

- $FOOD=\beta_0+\beta_1*DPI^2+\beta_2*PFOOD+e$
- $FOOD=\beta_0+\beta_1*DPI+\beta_2*PFOOD+\beta_3*PFOOD^2+e$
- …



Comparison

Equation: UNTITLED Workfile: EXPEND::Expend\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: FOOD
Method: Least Squares
Date: 08/27/13 Time: 12:55
Sample: 1959 1983
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	91.32095	1.488093	61.36775	0.0000
DPI^2	7.91E-05	7.42E-06	10.66702	0.0000
PFOOD	-0.119817	0.043464	-2.756683	0.0115

R-squared	0.977874	Mean dependent var	128.0840
Adjusted R-squared	0.975863	S.D. dependent var	18.79700
S.E. of regression	2.920331	Akaike info criterion	5.093437
Sum squared resid	187.6233	Schwarz criterion	5.239703
Log likelihood	-60.66797	Hannan-Quinn criter.	5.134005
F-statistic	486.1578	Durbin-Watson stat	0.883084
Prob(F-statistic)	0.000000		

Equation: UNTITLED Workfile: EXPEND::Expend\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: FOOD
Method: Least Squares
Date: 08/27/13 Time: 12:54
Sample: 1959 1983
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57.74610	3.858171	14.96722	0.0000
DPI	0.088642	0.006475	13.68999	0.0000
PFOOD^2	6.96E-05	8.50E-05	0.818693	0.4217

R-squared	0.978178	Mean dependent var	128.0840
Adjusted R-squared	0.976195	S.D. dependent var	18.79700
S.E. of regression	2.900190	Akaike info criterion	5.079596
Sum squared resid	185.0443	Schwarz criterion	5.225861
Log likelihood	-60.49495	Hannan-Quinn criter.	5.120164
F-statistic	493.0869	Durbin-Watson stat	0.836724
Prob(F-statistic)	0.000000		

Forecasts

- *Make forecasts by the linear model for the next period if DPI*=1125, *PFOOD* =231.
- Define change of FOOD by factor increasing by 1.

File macromod.wf1

- Using file macromod.wf1 define the best model for GDP (y). Provide correct functional form for your model. Compare results with Step-wise procedure.

Thank you for attention!

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