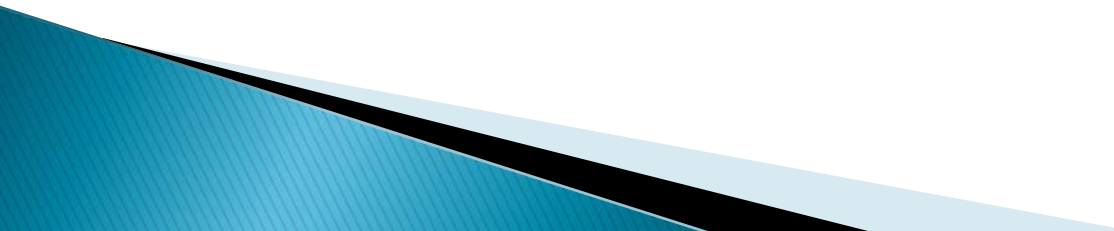


Нелінійні регресії у EViews

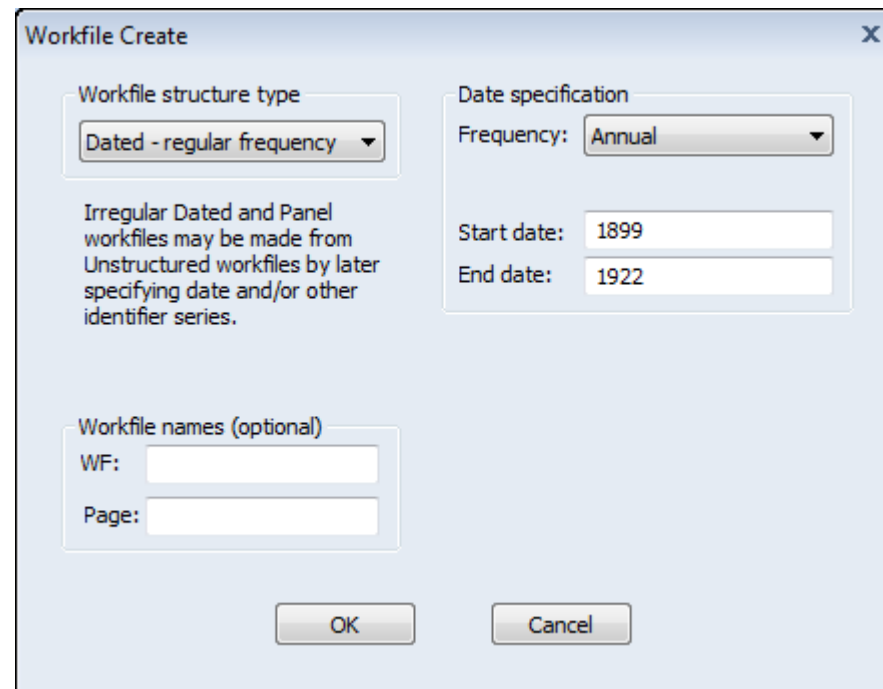
Доц. Андрій Ставицький

Файл: Cobb.txt

- ▶ Y – індекс промислового виробництва
 - ▶ K – індекс основних фондів
 - ▶ L – індекс кількості працюючих
- 

Імпорт даних – 1

- ▶ File – New – Workfile



The screenshot shows the 'Workfile Create' dialog box with the following settings:

- Workfile structure type:** Dated - regular frequency (selected from a dropdown menu).
- Date specification:**
 - Frequency: Annual (selected from a dropdown menu).
 - Start date: 1899
 - End date: 1922
- Workfile names (optional):**
 - WF: (empty text box)
 - Page: (empty text box)

At the bottom of the dialog are 'OK' and 'Cancel' buttons. A note in the center states: 'Irregular Dated and Panel workfiles may be made from Unstructured workfiles by later specifying date and/or other identifier series.'

Імпорт даних – 2

- File-import-read – filename

ASCII Text Import

Name for series or Number if named in file: YKL

Data order:
☒ in Columns
☐ in Rows

Rectangular file layout:
☒ File laid out as rectangle
Columns to skip: 1
Rows to skip: 0
Comment character:

Series headers:
of headers (including names) before data: 1

Delimiters:
☐ Treat multiple delimiters as one
☒ Tab
☐ Comma
☐ Space
☐ Alpha (A-Z)
☐ Custom:

Import sample:
1899 1922
Reset sample to:
☐ Current sample
☐ Workfile range
☐ To end of range

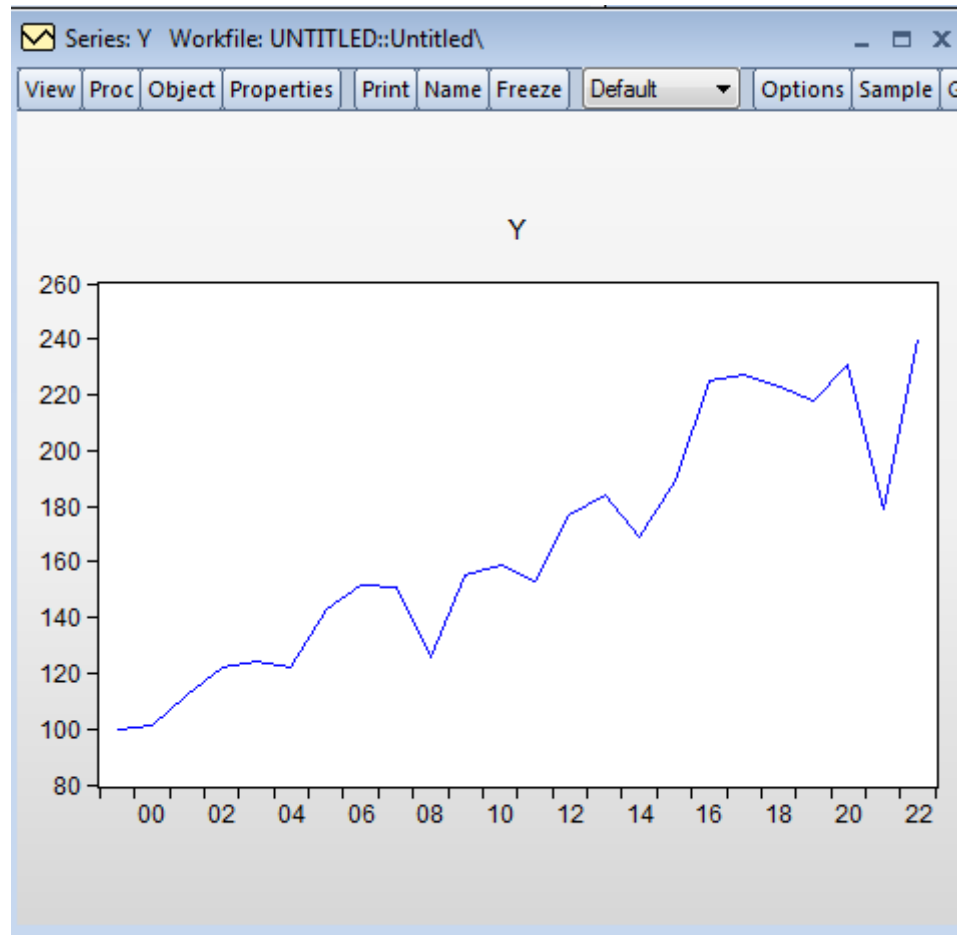
Miscellaneous:
☐ Quote with single ' not "
☐ Drop strings - don't make NA
☐ Numbers in (..) are negative
☐ Allow commas in numbers
Currency:
Text for NA: NA

Preview - First 16K of file:

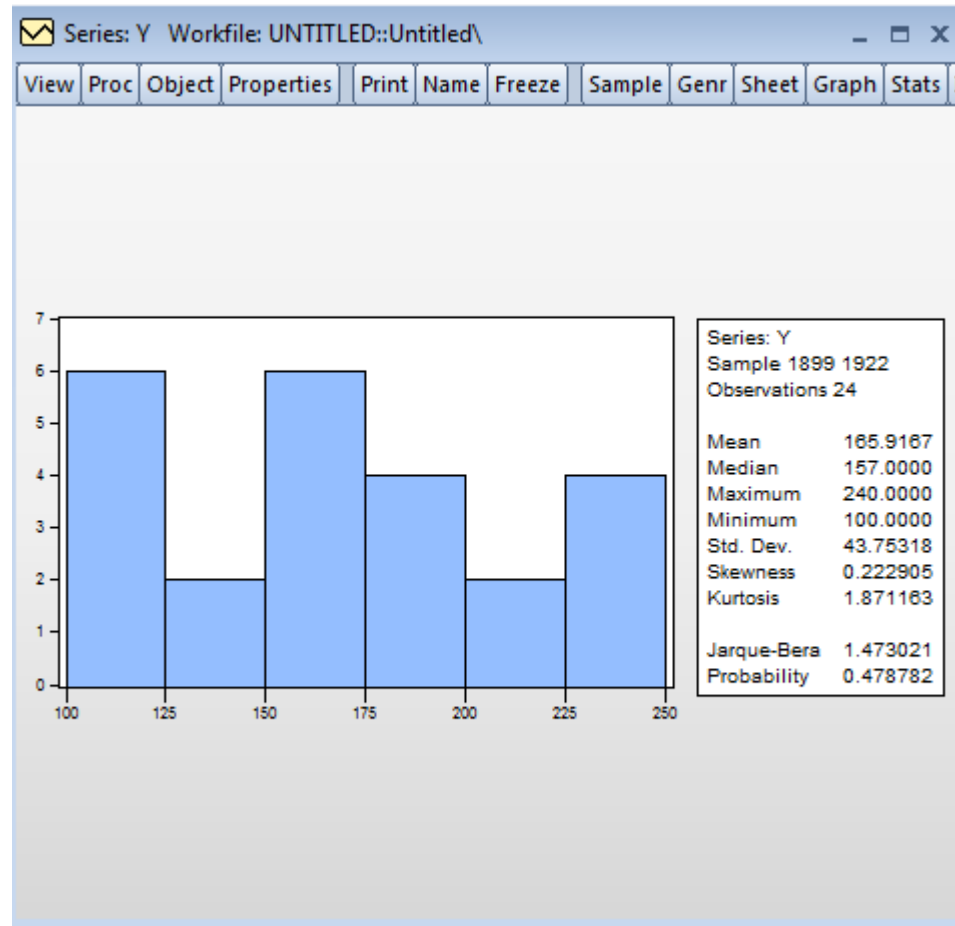
Year	Y	K	L
1899	100	100	100
1900	101	107	105
1901	112	114	110
1902	122	122	118
1903	124	131	123

OK Cancel

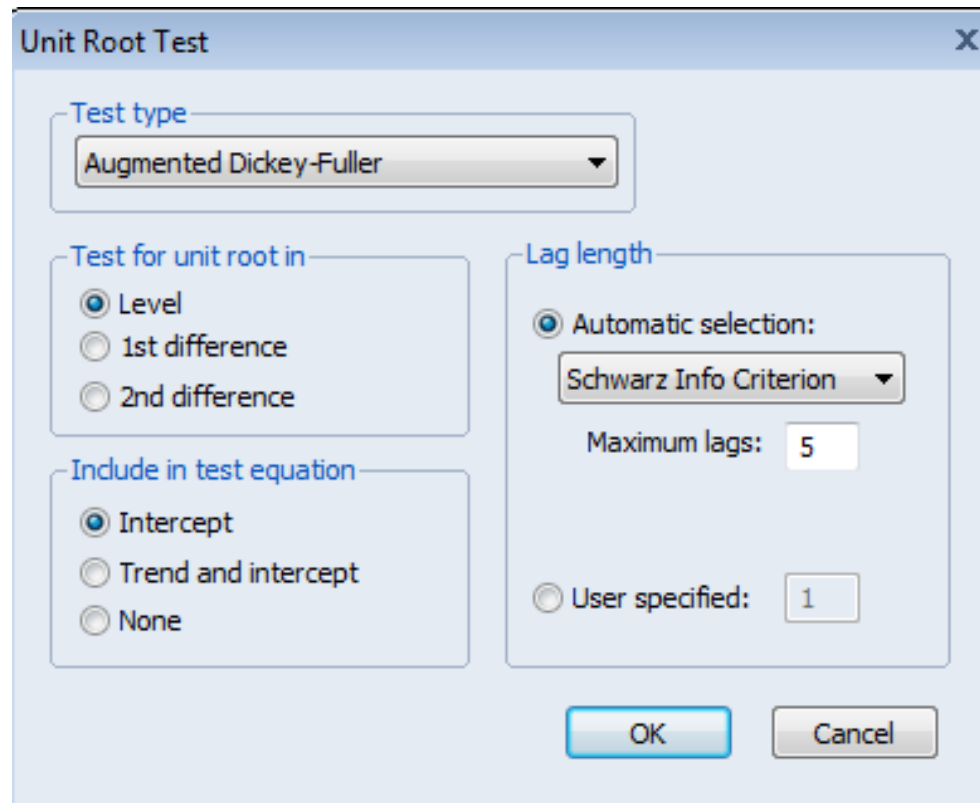
Variable-View-Graph-Line



Variable-View-Descriptive statistics-histogram



Variable-View-Unit Root Test – 1



The image shows a 'Unit Root Test' dialog box with the following settings:

- Test type:** Augmented Dickey-Fuller
- Test for unit root in:**
 - ☒ Level
 - ☐ 1st difference
 - ☐ 2nd difference
- Include in test equation:**
 - ☒ Intercept
 - ☐ Trend and intercept
 - ☐ None
- Lag length:**
 - ☒ Automatic selection:
 - Schwarz Info Criterion
 - Maximum lags: 5
 - ☐ User specified: 1

Buttons: OK, Cancel

Variable-View- Unit Root Test -2

Series: Y Workfile: UNTITLED::Untitled\

View Proc Object Properties Print Name Freeze Sample Genr Sheet Graph Stats I

Augmented Dickey-Fuller Unit Root Test on Y

Null Hypothesis: Y has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.
Augmented Dickey-Fuller test statistic	-1.085722	0.7024
Test critical values: 1% level	-3.769597	
5% level	-3.004861	
10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Y)
Method: Least Squares
Date: 05/04/13 Time: 12:07
Sample (adjusted): 1901 1922
Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y(-1)	-0.118179	0.108848	-1.085722	0.2912
D(Y(-1))	-0.551345	0.233171	-2.364548	0.0289
C	27.86194	18.44320	1.510689	0.1473

R-squared	0.281605	Mean dependent var	6.318182
Adjusted R-squared	0.205984	S.D. dependent var	22.44228
S.E. of regression	19.99777	Akaike info criterion	8.955242
Sum squared resid	7598.306	Schwarz criterion	9.104021
Log likelihood	-95.50767	Hannan-Quinn criter.	8.990290
F-statistic	3.723914	Durbin-Watson stat	2.154553
Prob(F-statistic)	0.043197		

Оцінка моделі Коба–Дугласа–1

$$Y_t = a_0 K_t^{a_1} L_t^{a_2} + \varepsilon_t$$

$$\ln Y_t = \ln a_0 + a_1 \ln K_t + a_2 \ln L_t + \varepsilon_t$$

$$y_t = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \varepsilon_t$$

**Quick – estimate
equation**

Equation Estimation

Specification Options

Equation specification

Dependent variable followed by list of regressors including ARMA and PDL terms, OR an explicit equation like $Y=c(1)+c(2)*X$.

log(y) c log(k) log(l)

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1899 1922

OK Скасувати

Зауваження

Generate Series by Equation

Enter equation

$a_0 = \exp(c(1))$

Sample

1899 1922

OK Cancel

Series: A0 Workfile: UNTITLED::Untitled\

View Proc Object Properties Print Name Freeze Default Sort Edit+/- Smpl+

A0

Last updated: 05/04/13 - 11:59
Modified: 1899 1922 // $a_0 = \exp(c(1))$

1899	3.453486			
1900	3.453486			
1901	3.453486			
1902	3.453486			
1903	3.453486			
1904	3.453486			
1905	3.453486			
1906	3.453486			
1907	3.453486			
1908				

Оцінка моделі Коба–Дугласа –2

$$Y_t = a_0 K_t^{a_1} L_t^{a_2} + \varepsilon_t$$

- Quick–estimate equation

Equation Estimation

Specification Options

Equation specification

Dependent variable followed by list of regressors including ARMA and PDL terms, OR an explicit equation like $Y=c(1)+c(2)*X$.

$y=c(1)*(k^{(2)})*(l^{(3)})$

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1899 1922

OK Скасувати

Порівняння

Equation: EQ01 Workfile: UNTITLED::Untitled\				
View	Proc	Object	Print	Name Freeze Estimate Forecast Stats Resids
Dependent Variable: LOG(Y) Method: Least Squares Date: 05/04/13 Time: 11:54 Sample: 1899 1922 Included observations: 24				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.177310	0.434293	-0.408272	0.6872
LOG(K)	0.233053	0.063530	3.668415	0.0014
LOG(L)	0.807278	0.145076	5.564513	0.0000
R-squared	0.957425	Mean dependent var	5.077336	
Adjusted R-squared	0.953370	S.D. dependent var	0.269234	
S.E. of regression	0.058138	Akaike info criterion	-2.735511	
Sum squared resid	0.070982	Schwarz criterion	-2.588254	
Log likelihood	35.82613	Hannan-Quinn criter.	-2.696444	
F-statistic	236.1219	Durbin-Watson stat	1.523452	
Prob(F-statistic)	0.000000			

Equation: EQ02 Workfile: UNTITLED::Untitled\				
View	Proc	Object	Print	Name Freeze Estimate Forecast Stats Resids
Dependent Variable: Y Method: Least Squares Date: 05/04/13 Time: 12:00 Sample: 1899 1922 Included observations: 24 Convergence achieved after 1 iteration $Y=C(1)*(K^A C(2))*(L^A C(3))$				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	1.239384	0.539703	2.296417	0.0320
C(2)	0.267819	0.062640	4.275508	0.0003
C(3)	0.691480	0.138238	5.002098	0.0001
R-squared	0.942326	Mean dependent var	165.9167	
Adjusted R-squared	0.936833	S.D. dependent var	43.75318	
S.E. of regression	10.99653	Akaike info criterion	7.749505	
Sum squared resid	2539.396	Schwarz criterion	7.896762	
Log likelihood	-89.99406	Hannan-Quinn criter.	7.788572	
Durbin-Watson stat	1.632557			

Тест на нормальність залишків – 1

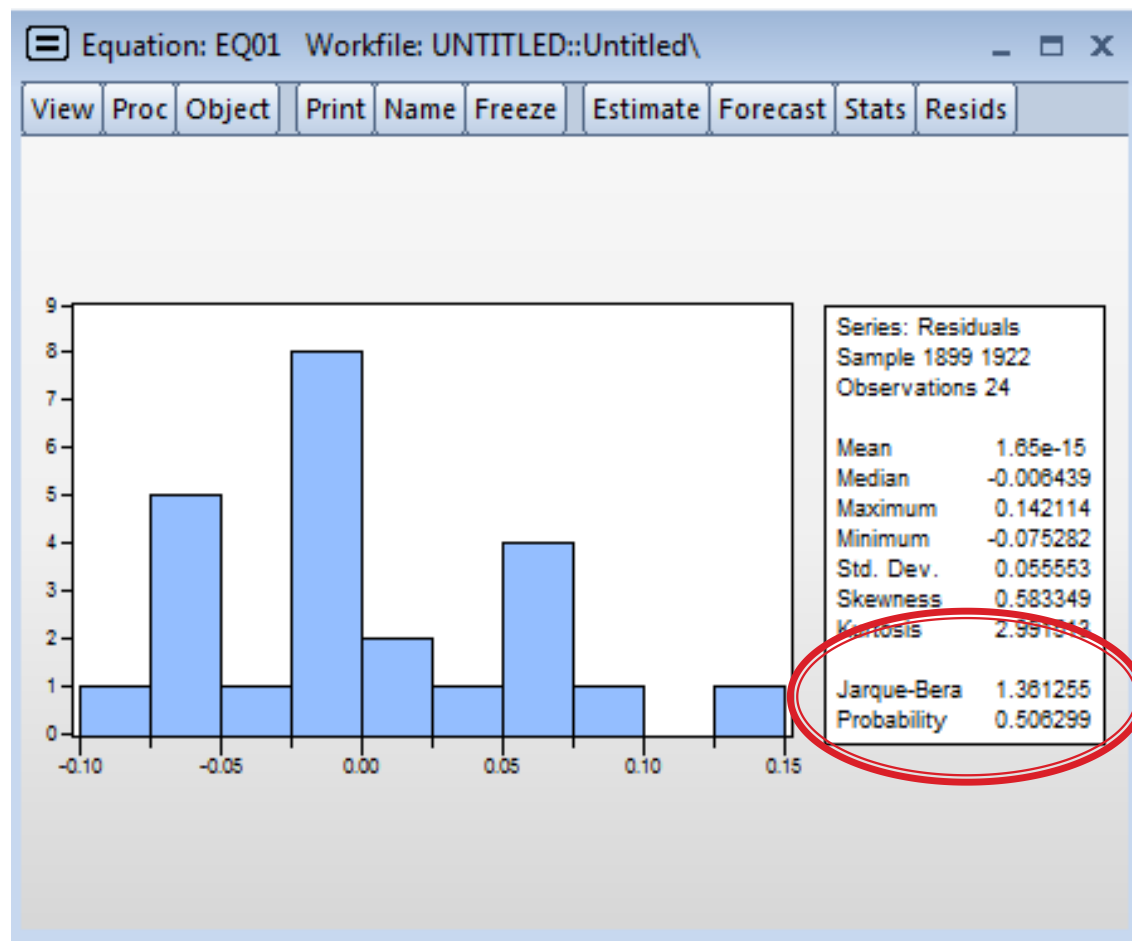
Equation: EQ01 Workfile: UNTITLED::Untitled\

View	Proc	Object	Print	Name	Freeze	Estimate	Forecast	Stats	Resids
Representations									
Estimation Output									
Actual, Fitted, Residual									
ARMA Structure...									
Gradients and Derivatives									
Covariance Matrix									
Coefficient Diagnostics									
Residual Diagnostics									
Stability Diagnostics									
Label									
Sum of squared resid 0.070962									
Log likelihood 35.82613									
F-statistic 236.1219									
Prob(F-statistic) 0.000000									

Std. Error	t-Statistic	Prob.
0.434293	-0.408272	0.6872
0.063530	3.668415	0.0014

Correlogram - Q-statistics...
Correlogram Squared Residuals...
Histogram - Normality Test
Serial Correlation LM Test...
Heteroskedasticity Tests...

Тест на нормальність залишків – 2




Тест на коефіцієнти моделі

The screenshot shows the EViews software interface. The main window title is "Equation: EQ01 Workfile: UNTITLED::Untitled\". The menu bar includes View, Proc, Object, Print, Name, Freeze, Estimate, Forecast, Stats, and Resids. The "View" menu is open, showing options like Representations, Estimation Output, Actual, Fitted, Residual, ARMA Structure..., Gradients and Derivatives, Covariance Matrix, Coefficient Diagnostics (highlighted), Residual Diagnostics, Stability Diagnostics, and Label. A sub-menu for "Coefficient Diagnostics" is also open, listing options such as Scaled Coefficients, Confidence Intervals..., Confidence Ellipse..., Variance Inflation Factors, Coefficient Variance Decomposition, Wald Test- Coefficient Restrictions... (highlighted), Omitted Variables Test - Likelihood Ratio..., Redundant Variables Test - Likelihood Ratio..., and Factor Breakpoint Test....

	Std. Error	t-Statistic	Prob.
	0.434293	-0.408272	0.6872

Label	
Sum squared resid	0.070902
Log likelihood	35.82613
F-statistic	236.1219
Prob(F-statistic)	0.000000

Інші тести

- ▶ Тест на пропущені змінні (Omitted variable test)
 - ▶ Тест на зайві змінні (Redundant variable test)
 - ▶ Тест на мультиколієарність (Multicollinearity test)
 - ▶ Тест на гетероскедастичність (Heteroscedasticity test)
 - ▶ Тест на автокореляцію залишків (Autocorrelation test)
 - ▶ Тест на стабільність моделі (Stability test)
- 

Спеціальні функції

- ▶ @trend
- ▶ @seas(i)

Питання?



Самостійна робота