

Разбор задачи 3.33 (Катышев, Магнус - Сборник задач по начальному курсу эконометрики)

Подготовила презентацию Поповская Наталья,
НБ-401

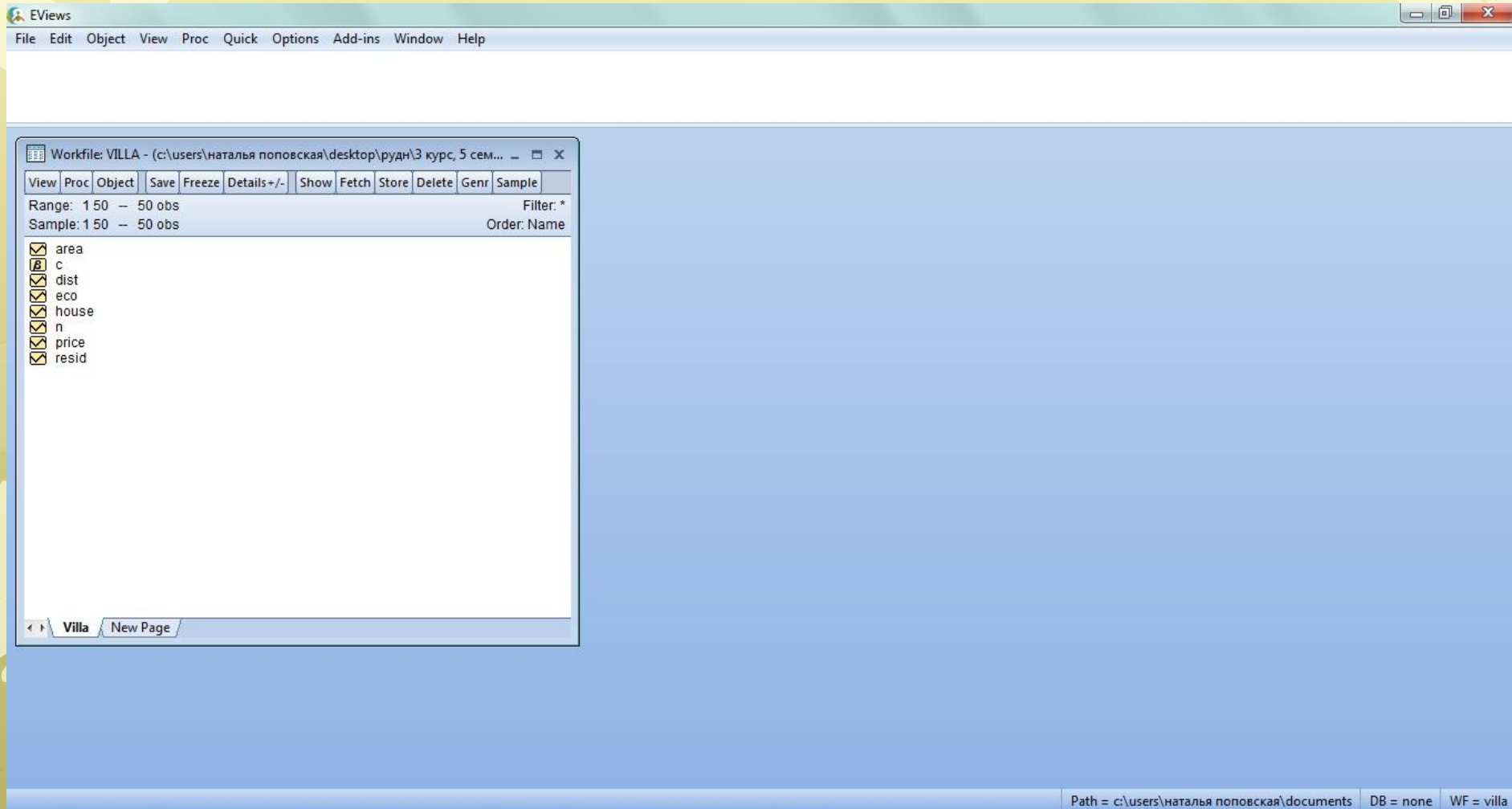
Формулировка задачи 3.33

- Рассматривается информация о стоимости коттеджей в Московской области по Киевскому направлению (по данным строительной компании «Стройсервис», осень 1997 г.)
- Данные находятся в файле villa.xls. Переменные описаны в таблице 3.28.
- Подберите функциональную форму зависимости цены коттеджа от его параметров, учитывая такие факторы, как t-статистика и коэффициент детерминации R^2

Таблица 3.28

Переменная	Описание
n	номер по порядку
price	цена в тыс. долл.
dist	расстояние от кольцевой автодороги в км
house	площадь дома в кв. м
area	площадь участка в сотках

Открытие файла villa.wf1 в Eviews



Построение описательной статистики [1]

The screenshot displays the EViews software interface. The main window title is "Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем...". The menu bar includes "File", "Edit", "Object", "View", "Proc", "Quick", "Options", "Add-ins", "Window", and "Help".

The left-hand pane shows a list of series: area, c, dist, eco, house, n, price, and resid. The "resid" series is selected, and a context menu is open over it. The menu options are:

- Open
- Copy (Ctrl+C)
- Copy Special...
- Paste (Ctrl+V)
- Paste Special...
- Manage Links & Formulae...
- Fetch from DB...
- Update from DB...
- Store to DB...
- Export to file...
- Rename...
- Delete

The right-hand pane is currently empty. The status bar at the bottom indicates "Path = c:\users\наталья поповская\documents", "DB = none", and "WF = villa".

Построение описательной статистики [2]

The screenshot displays the EViews software interface. The main window shows a data table for a group named 'UNTITLED' in the 'Villa' workspace. The table contains 23 observations with four variables: PRICE, HOUSE, DIST, and AREA. The status bar at the bottom indicates the file path, database name, and workspace name.

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем... -- X

View Proc Object Save Freeze Details+/- Show Fetch Store Delete Genr Sample

Range: 1 50 -- 50 obs Filter: *

Sample: 1 50 -- 50 obs Order: Name

area
c
dist
eco
house
n
price
resid

Group: UNTITLED Workfile: VILLA:Villa\

	PRICE	HOUSE	DIST	AREA
1	300.0	400	20.0	22.0
2	60.0	170	18.0	6.0
3	14.0	60	90.0	11.0
4	38.0	65	18.0	6.0
5	85.0	320	25.0	20.0
6	85.0	210	19.0	20.0
7	28.0	60	30.0	5.0
8	83.0	228	45.0	20.0
9	80.0	200	25.0	20.0
10	15.0	36	46.0	10.0
11	27.0	180	86.0	17.0
12	42.0	250	85.0	15.0
13	5.5	36	85.0	12.0
14	47.0	285	74.0	15.0
15	5.0	36	95.0	10.0
16	59.0	420	9.0	10.0
17	27.0	130	12.0	6.0
18	270.0	350	15.0	15.0
19	96.0	300	39.0	15.0
20	95.0	200	25.0	14.0
21	6.0	36	65.0	6.0
22	120.0	300	28.0	32.0
23	100.0	170	20.0	15.0

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение описательной статистики [3]

The screenshot displays the EViews software interface. The main window shows a workfile named 'VILLA' with a range of 1 to 50 observations. A list of variables is visible on the left, including 'area', 'c', 'dist', 'eco', 'house', 'n', 'price', and 'resid'. A context menu is open over the 'Group: UNTITLED' window, showing various statistical analysis options. The 'Descriptive Stats' option is selected, and a sub-menu is visible with 'Common Sample' and 'Individual Samples' options. The 'Common Sample' option is currently selected, and the data table below shows the results for this sample.

Group Members	USE	DIST	AREA
JSE	JSE	DIST	AREA
Spreadsheet	400	20.0	22.0
Dated Data Table	170	18.0	6.0
Graph...	60	90.0	11.0
	65	18.0	6.0
Descriptive Stats			20.0
			20.0
			5.0
N-Way Tabulation...	228	45.0	20.0
Tests of Equality...	200	25.0	20.0
	36	46.0	10.0
Principal Components...	180	86.0	17.0
	250	85.0	15.0
Correlogram (1) ...	36	85.0	12.0
Cross Correlation (2) ...	285	74.0	15.0
	36	95.0	10.0
Long-run Covariance...	420	9.0	10.0
Unit Root Test...	130	12.0	6.0
Cointegration Test	350	15.0	15.0
	300	39.0	15.0
Granger Causality...	200	25.0	14.0
	36	65.0	6.0
Label	300	28.0	32.0

Построение описательной статистики [4]

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем... - X

View Proc Object Save Freeze Details +/- Show Fetch Store Delete Genr Sample

Range: 1 50 -- 50 obs Filter: *
Sample: 1 50 -- 50 obs Order: Name

- area
- c
- dist
- eco
- house
- n
- price
- resid

Group: UNTITLED Workfile: VILLA::Villa

View	Proc	Object	Print	Name	Freeze	Sample	Sheet	Stats	Spec
			PRICE	HOUSE		DIST		AREA	
Mean			78.25000	192.2400		44.05000		13.75000	
Median			46.00000	160.0000		30.00000		14.00000	
Maximum			320.0000	600.0000		105.0000		40.00000	
Minimum			5.000000	22.00000		0.500000		5.000000	
Std. Dev.			84.34322	151.8475		28.80481		6.913644	
Skewness			1.605151	0.840332		0.704814		1.441808	
Kurtosis			4.790587	2.752538		2.220736		6.047740	
Jarque-Bera			28.15050	6.012229		5.404804		36.67492	
Probability			0.000001	0.049484		0.067044		0.000000	
Sum			3912.500	9612.000		2202.500		687.5000	
Sum Sq. Dev.			348575.1	1129825.		40656.12		2342.125	
Observations			50	50		50		50	

Path = c:\users\наталья поповская\documents DB = none WF = villa

Сохранение через Freeze->Name [1]

The screenshot shows the EViews software interface. The main window displays a data table with the following content:

	PRICE	HOUSE	DIST	AREA
Mean	78.25000	192.2400	44.05000	13.75000
Median	46.00000	160.0000	30.00000	14.00000
Maximum	320.0000	600.0000	105.0000	40.00000
Minimum	5.000000	22.00000	0.500000	5.000000
Std. Dev.	84.34322	151.8475	28.80481	6.913644
Skewness	1.605151	0.840332	0.704814	1.441808
Kurtosis	4.790587	2.752538	2.220736	6.047740
Jarque-Bera	28.15050	6.012229	5.404804	36.67492
Probability	0.000001	0.049484	0.067044	0.000000
Sum	3912.500	9612.000	2202.500	687.5000
Sum Sq. Dev.	348575.1	1129825.	40656.12	2342.125
Observations	50	50	50	50

The interface also shows a menu bar with options like File, Edit, Object, View, Proc, Quick, Options, Add-ins, Window, and Help. A toolbar includes buttons for View, Proc, Object, Save, Freeze, Details+/-, Show, Fetch, Store, Delete, Genr, and Sample. The status bar at the bottom indicates the path as c:\users\наталья поповская\documents, DB = none, and WF = villa.

Сохранение через Freeze->Name [2]

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем... - X

View Proc Object Save Freeze

Range: 1 50 - 50 obs
Sample: 1 50 - 50 obs

area
c
dist
eco
house
n
price
resid

Table: UNTITLED Workfile: VILLA::Villa

View Proc Object Print Name Edit+/- CellFmt Grid+/- Title Comments+/-

	A	B	C	D	E
1	Date: 11/01/15 Time: 01:05				
2	Sample: 1 50				
3					
4		PRICE	HOUSE	DIST	AREA
5					
6	Mean	78.25000	192.2400	44.05000	13.75000
7	Median	46.00000	160.0000	30.00000	14.00000
8	Maximum	320.0000	600.0000	105.0000	40.00000
9	Minimum	5.000000	22.00000	0.500000	5.000000
10	Std. Dev.	84.34322	151.8475	28.80481	6.913644
11	Skewness	1.605151	0.840332	0.704814	1.441808
12	Kurtosis	4.790587	2.752538	2.220736	6.047740
13					
14	Jarque-Bera	28.15050	6.012229	5.404804	36.67492
15	Probability	0.000001	0.049484	0.067044	0.000000
16					
17	Sum	3912.500	9612.000	2202.500	687.5000
18	Sum Sq. Dev.	348575.1	1129825.	40656.12	2342.125
19					
20	Observations	50	50	50	50
21					
22					
23					
24					

Path = c:\users\наталья поповская\documents DB = none WF = villa

Сохранение через Freeze->Name [3]

The screenshot shows the EViews software interface. A table window titled 'Table: UNTITLED Workfile: VILLA::Villa\' is open, displaying a list of statistical measures for the variable 'AREA'. The table has columns A, B, C, D, and E. The measures listed are Mean, Median, Maximum, Minimum, Standard Deviation, Skewness, Kurtosis, Jarque-Bera, and Probabilities. The 'Sum' row shows values for the last three columns: 3687.5000, 2342.125, and 50. The 'Object Name' dialog box is open, allowing the user to name the object. The 'Name to identify object' field contains 'descr_stat'. The dialog also has a checkbox for 'Display name for labeling tables and graphs (optional)' which is currently unchecked. The 'OK' and 'Cancel' buttons are visible at the bottom of the dialog.

	A	B	C	D	E
1	Date: 11/01/15	Time: 01:05			
2	Sample: 1 50				
3					
4					
5					
6	Mean				13.75000
7	Median				14.00000
8	Maximum				40.00000
9	Minimum				5.000000
10	Std. Dev				5.913644
11	Skewness				1.441808
12	Kurtosis				5.047740
13	Jarque-Bera				36.67492
14	Probabilities				0.000000
15					
16					
17	Sum				3687.5000
18	Sum Sq. Dev.	348575.1	1129825.	40656.12	2342.125
19					
20	Observations	50	50	50	50
21					
22					
23					
24					

Сохранение через Freeze->Name [4]

The screenshot displays the EViews software interface. The main window title is "EViews". The menu bar includes "File", "Edit", "Object", "View", "Proc", "Quick", "Options", "Add-ins", "Window", and "Help". A dialog box titled "Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем..." is open. The dialog box has a menu bar with "View", "Proc", "Object", "Save", "Freeze", "Details+/-", "Show", "Fetch", "Store", "Delete", "Genr", and "Sample". The "Freeze" button is highlighted. Below the menu bar, the dialog box shows "Range: 1 50 -- 50 obs" and "Sample: 1 50 -- 50 obs". On the right side, it says "Filter: *" and "Order: Name". A list of variables is shown with checkboxes: "area", "c", "descr_stat", "dist", "eco", "house", "n", "price", and "resid". All checkboxes are checked. At the bottom of the dialog box, there are tabs for "Villa" and "New Page". The status bar at the bottom of the EViews window shows "Path = c:\users\наталья поповская\documents", "DB = none", and "WF = villa".

Построение корреляционной матрицы [1]

The screenshot shows the EViews software interface. The main window displays a list of variables in the left pane, including 'area', 'c', 'descr_stat', 'dist', 'eco', 'house', 'n', 'price', and 'resid'. A context menu is open over the 'n' variable, showing options such as 'Open', 'Copy', 'Paste', 'Manage Links & Formulae...', 'Fetch from DB...', 'Update from DB...', 'Store to DB...', 'Export to file...', 'Rename...', and 'Delete'. The 'Open' option is selected, and a sub-menu is visible with options: 'as Group', 'as Equation...', 'as Factor...', 'as VAR...', 'as System...', and 'as Multiple series'. The status bar at the bottom indicates the path, database, and workfile name.

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\3 курс, 5 сем... - X

View Proc Object Save Freeze Details+/- Show Fetch Store Delete Genr Sample

Range: 1 50 - 50 obs Filter: *
Sample: 1 50 - 50 obs Order: Name

- area
- c
- descr_stat
- dist
- eco
- house
- n
- price
- resid

Open

- Copy Ctrl+C
- Copy Special...
- Paste Ctrl+V
- Paste Special...
- Manage Links & Formulae...
- Fetch from DB...
- Update from DB...
- Store to DB...
- Export to file...
- Rename...
- Delete

as Group

- as Equation...
- as Factor...
- as VAR...
- as System...
- as Multiple series

Villa New

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение корреляционной матрицы [2]

The screenshot displays the EViews software interface. The main window shows a data table with the following columns: PRICE, HOUSE, DIST, and AREA. The rows represent individual observations, numbered 1 through 23. The status bar at the bottom indicates the file path, database name, and workfile name.

	PRICE	HOUSE	DIST	AREA
1	300.0	400	20.0	22.0
2	60.0	170	18.0	6.0
3	14.0	60	90.0	11.0
4	38.0	65	18.0	6.0
5	85.0	320	25.0	20.0
6	85.0	210	19.0	20.0
7	28.0	60	30.0	5.0
8	83.0	228	45.0	20.0
9	80.0	200	25.0	20.0
10	15.0	36	46.0	10.0
11	27.0	180	86.0	17.0
12	42.0	250	85.0	15.0
13	5.5	36	85.0	12.0
14	47.0	285	74.0	15.0
15	5.0	36	95.0	10.0
16	59.0	420	9.0	10.0
17	27.0	130	12.0	6.0
18	270.0	350	15.0	15.0
19	96.0	300	39.0	15.0
20	95.0	200	25.0	14.0
21	6.0	36	65.0	6.0
22	120.0	300	28.0	32.0
23	125.0	170	22.0	15.0

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение корреляционной матрицы [3]

The screenshot shows the EViews software interface. The main window displays a data table with columns 'USE', 'DIST', and 'AREA'. A context menu is open over the table, with 'Covariance Analysis...' selected. The status bar at the bottom indicates the file path, database name, and workfile name.

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\4 курс, 7 сем...)

Range: 1 50 -- 50 obs
Sample: 1 50 -- 50 obs
Filter: *
Order: Name

Group: UNTITLED Workfile: VILLA::Villa\

View	Proc	Object	Name	Freeze	Default	Sort	Edit+/-	Smpl+/-	Compare+/-
Group Members			USE		DIST		AREA		
Spreadsheet			USE		DIST		AREA		
Dated Data Table			400		20.0		22.0		
Graph...			170		18.0		6.0		
			60		90.0		11.0		
Descriptive Stats			65		18.0		6.0		
			320		25.0		20.0		
			210		19.0		20.0		
Covariance Analysis...			60		30.0		5.0		
N-Way Tabulation...			228		45.0		20.0		
Tests of Equality...			200		25.0		20.0		
Principal Components...			36		46.0		10.0		
Correlogram (1) ...			180		86.0		17.0		
Cross Correlation (2) ...			250		85.0		15.0		
Long-run Covariance...			36		85.0		12.0		
Unit Root Test...			420		9.0		10.0		
Cointegration Test			130		12.0		6.0		
Granger Causality...			350		15.0		15.0		
			300		39.0		15.0		
			200		25.0		14.0		
Label			36		65.0		6.0		
			300		28.0		32.0		

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение корреляционной матрицы [4]

The screenshot displays the EViews software interface. A 'Covariance Analysis' dialog box is open, showing the following settings:

- Method:** Ordinary
- Statistics:**
 - Covariance
 - Correlation
 - SSCP
 - t-statistic
 - Probability $|t| = 0$
 - Number of cases
 - Number of obs.
 - Sum of weights
- Layout:** Single table
- Sample:** 1 50
- Balanced sample (listwise deletion)
- Options:**
 - Weighting: None
 - Weight series: (empty)
 - d.f. corrected covariances
 - Multiple comparison adjustments: None
 - Saved results basename: (empty)

The background shows a list of variables on the left: area, c, descr_st, dist, eco, house, n, price, resid. A data table is visible at the bottom with the following values:

20	95.0	200	25.0	14.0
21	6.0	36	65.0	6.0
22	120.0	300	28.0	32.0
23				

Построение корреляционной матрицы [5]

The screenshot displays the EViews software interface. A window titled "Group: UNTITLED Workfile: VILLA::Villa\" is open, showing the results of a "Covariance Analysis: Ordinary". The analysis was performed on 50 observations of four variables: PRICE, HOUSE, DIST, and AREA. The window includes a menu bar (View, Proc, Object, Print, Name, Freeze, Sample, Sheet, Stats, Spec) and a list of variables on the left side.

Correlation Analysis: Ordinary
Date: 11/01/15 Time: 20:22
Sample: 1 50
Included observations: 50

	PRICE	HOUSE	DIST	AREA
PRICE	1.000000 ---- ----			
HOUSE	0.673724 6.316383 0.0000	1.000000 ----		
DIST	-0.547239 -4.529862 0.0000	-0.541391 -4.461229 0.0000	1.000000 ----	
AREA	0.576627 4.889787 0.0000	0.603486 5.243553 0.0000	-0.159648 -1.120448 0.2681	1.000000 ---- ----

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение диаграммы рассеяния [1, house-price]

The screenshot displays the EViews software interface. The main window title is "EViews". The menu bar includes "File", "Edit", "Object", "View", "Proc", "Quick", "Options", "Add-ins", "Window", and "Help".

The "Object" window is active, showing a list of objects for the workfile "VILLA". The objects listed are:

- area
- c
- descr_stat
- dist
- eco
- house
- matrix
- n
- price
- resid

The "house" object is selected, and a context menu is open over it. The menu options are:

- Open
 - as Group
 - as Equation...
 - as Factor...
 - as VAR...
 - as System...
 - as Multiple series
- Copy (Ctrl+C)
- Copy Special...
- Paste (Ctrl+V)
- Paste Special...
- Manage Links & Formulae...
- Fetch from DB...
- Update from DB...
- Store to DB...
- Export to file...
- Rename...
- Delete

Построение диаграммы рассеяния [2, house-price]

The screenshot shows the EViews software interface. The main window displays a data table with the following columns: View, Proc, Object, Print, Name, Freeze, Default, Sort, Edit+/-, Smpl+/-, and Compare+/. The data is organized into two groups: 'HOUSE' and 'PRICE'. The 'HOUSE' group contains 23 rows of data, and the 'PRICE' group contains 23 rows of data. The data is as follows:

View	Proc	Object	Print	Name	Freeze	Default	Sort	Edit+/-	Smpl+/-	Compare+/-
				HOUSE						
				PRICE						
1			400	300.0						
2			170	60.0						
3			60	14.0						
4			65	38.0						
5			320	85.0						
6			210	85.0						
7			60	28.0						
8			228	83.0						
9			200	80.0						
10			36	15.0						
11			180	27.0						
12			250	42.0						
13			36	5.5						
14			285	47.0						
15			36	5.0						
16			420	59.0						
17			130	27.0						
18			350	270.0						
19			300	96.0						
20			200	95.0						
21			36	6.0						
22			300	120.0						
23			170	100.0						

The status bar at the bottom of the window shows: Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение диаграммы рассеяния [3, house-price]

The screenshot shows the EViews software interface. The main window displays a list of objects on the left, including 'area', 'c', 'descr_stat', 'dist', 'eco', 'house', 'matrix', 'n', 'price', and 'resid'. The 'price' object is selected. A context menu is open over the 'price' object, showing various analysis options. The 'Graph...' option is highlighted. The background of the main window is a light blue grid.

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\4 курс, 7 сем... - □ X

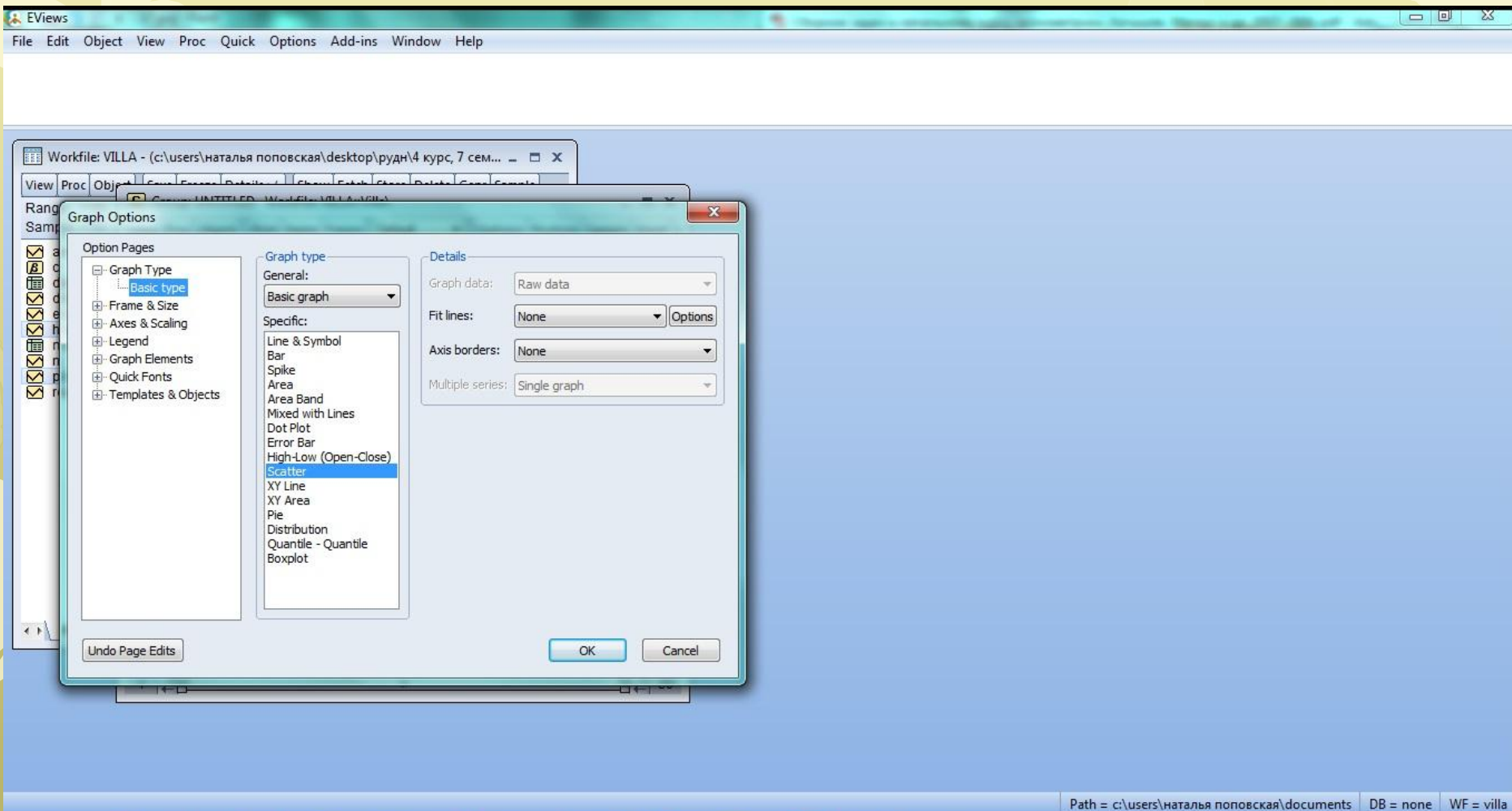
View Proc Object Print Name Freeze Default Sort Edit+/- Smpl+/- Compare+/-

Group: UNTITLED Workfile: VILLA::Villa\

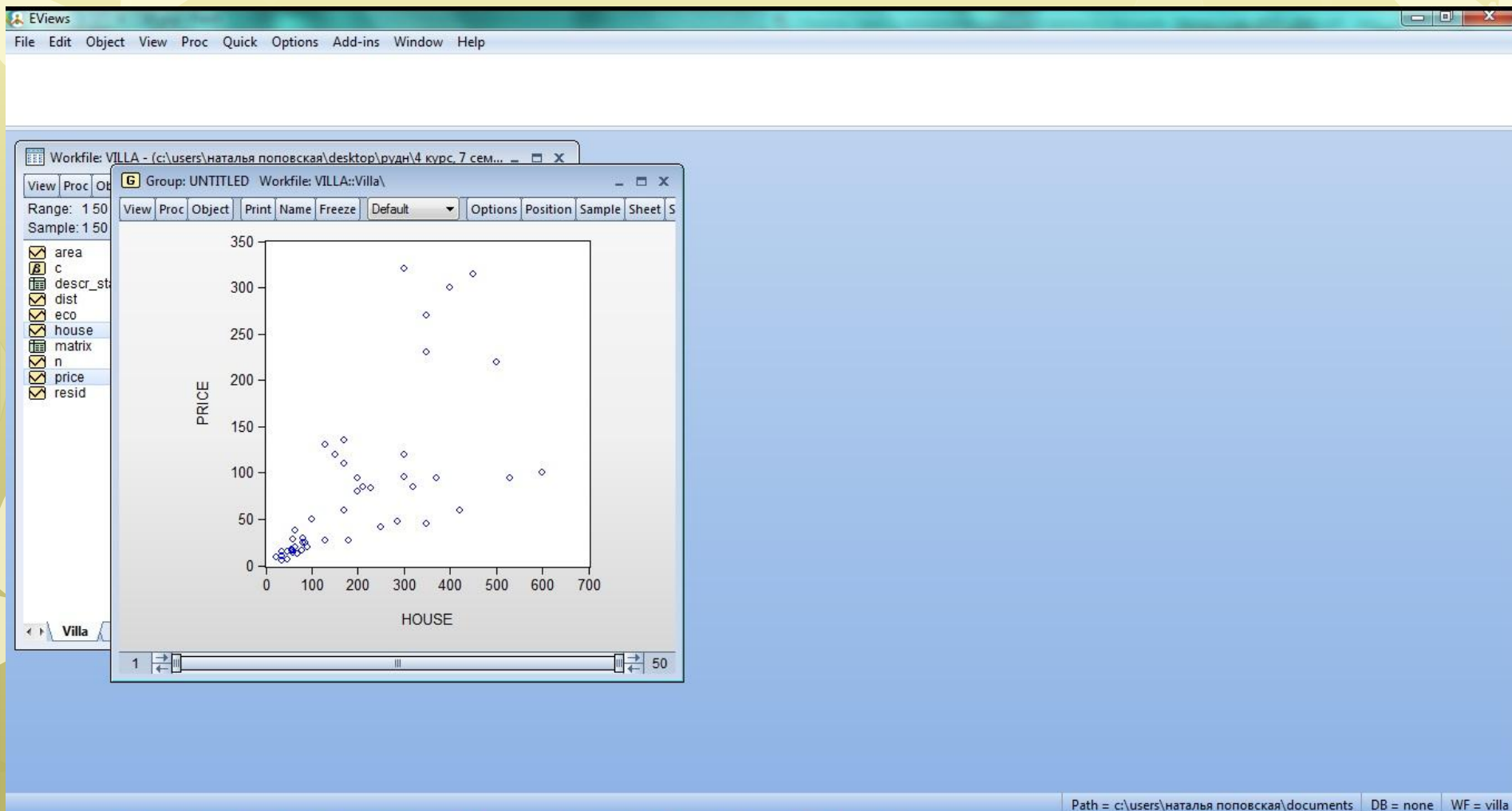
- Group Members
- Spreadsheet
- Dated Data Table
- Graph...
- Descriptive Stats
- Covariance Analysis...
- N-Way Tabulation...
- Tests of Equality...
- Principal Components...
- Correlogram (1) ...
- Cross Correlation (2) ...
- Long-run Covariance...
- Unit Root Test...
- Cointegration Test
- Granger Causality...
- Label

Path = c:\users\наталья поповская\documents DB = none WF = villa

Построение диаграммы рассеяния [4, house-price]



Построение диаграммы рассеяния [5, house-price]



Создание Inprice и Inhouse в командной строке командой `genr Inprice=log(price)` и `genr Inhouse=log(house)`

The screenshot displays the EViews software interface. At the top, the command window shows the following commands:

```
genr Inprice=log(price)  
genr Inhouse=log(house)
```

The main workspace shows a list of objects with the following settings:

- Range: 1 50 -- 50 obs
- Filter: *
- Sample: 1 50 -- 50 obs
- Order: Name

The object list includes:

- area
- c
- descr_stat
- dist
- eco
- graph01price_house
- house
- Inhouse
- Inprice
- matrix
- n
- price
- resid

The status bar at the bottom indicates: `LNHOUSE successfully computed.` The path is `c:\users\наталья поповская\documents`, the database is `DB = none`, and the workfile is `WF = villa`.

Диаграмма рассеяния Inhouse-price

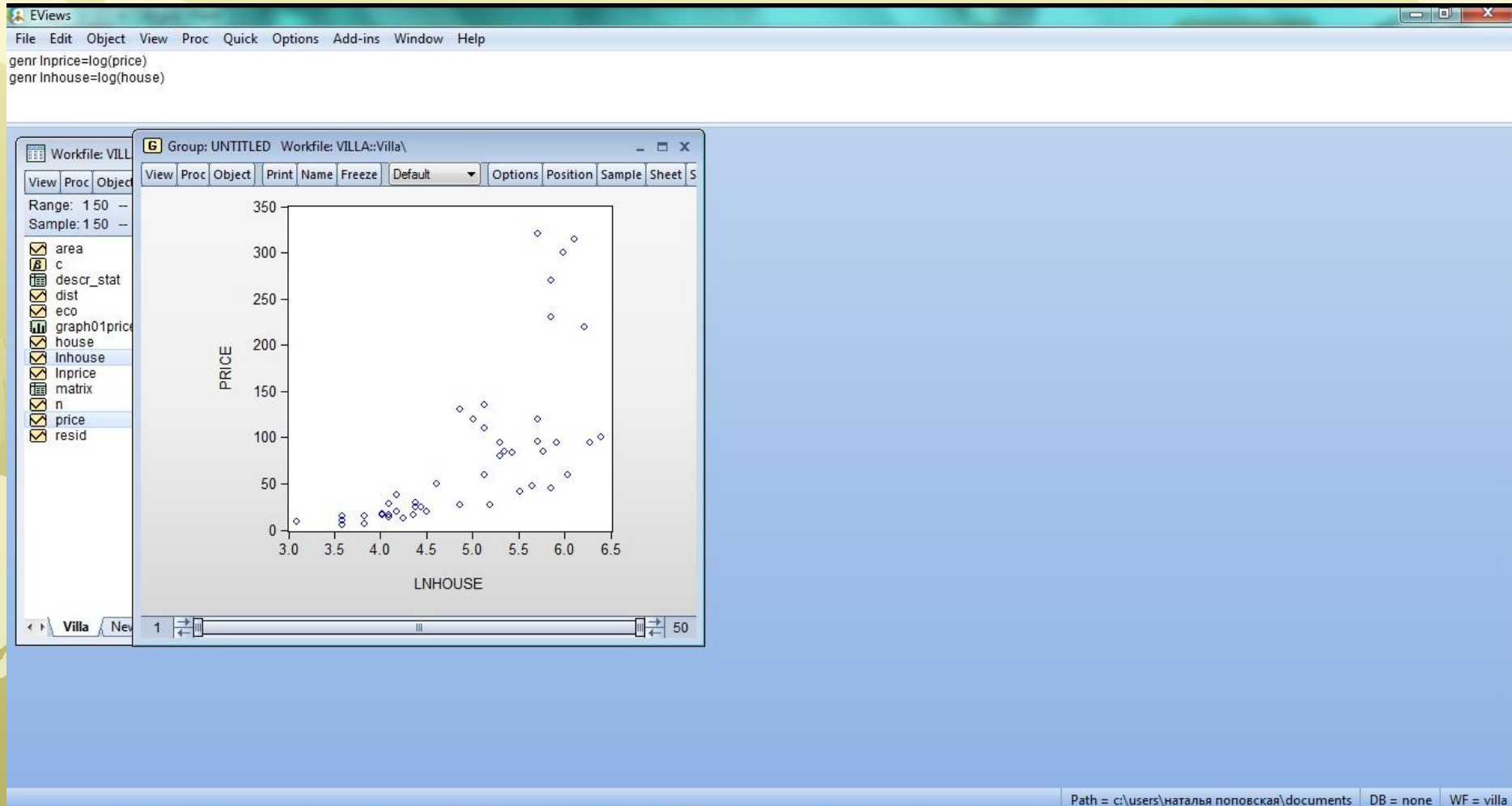


Диаграмма рассеяния house-Inprice

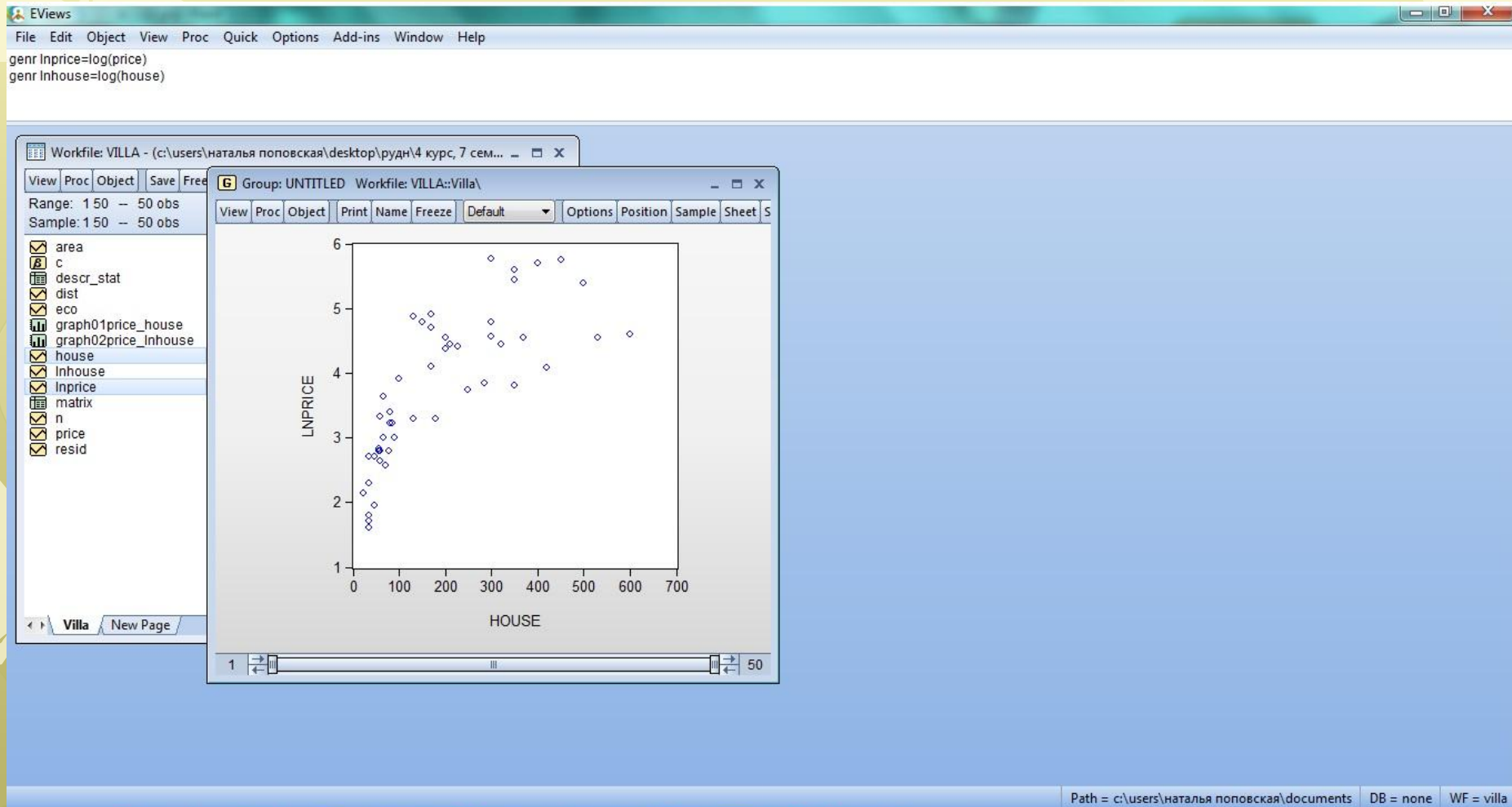
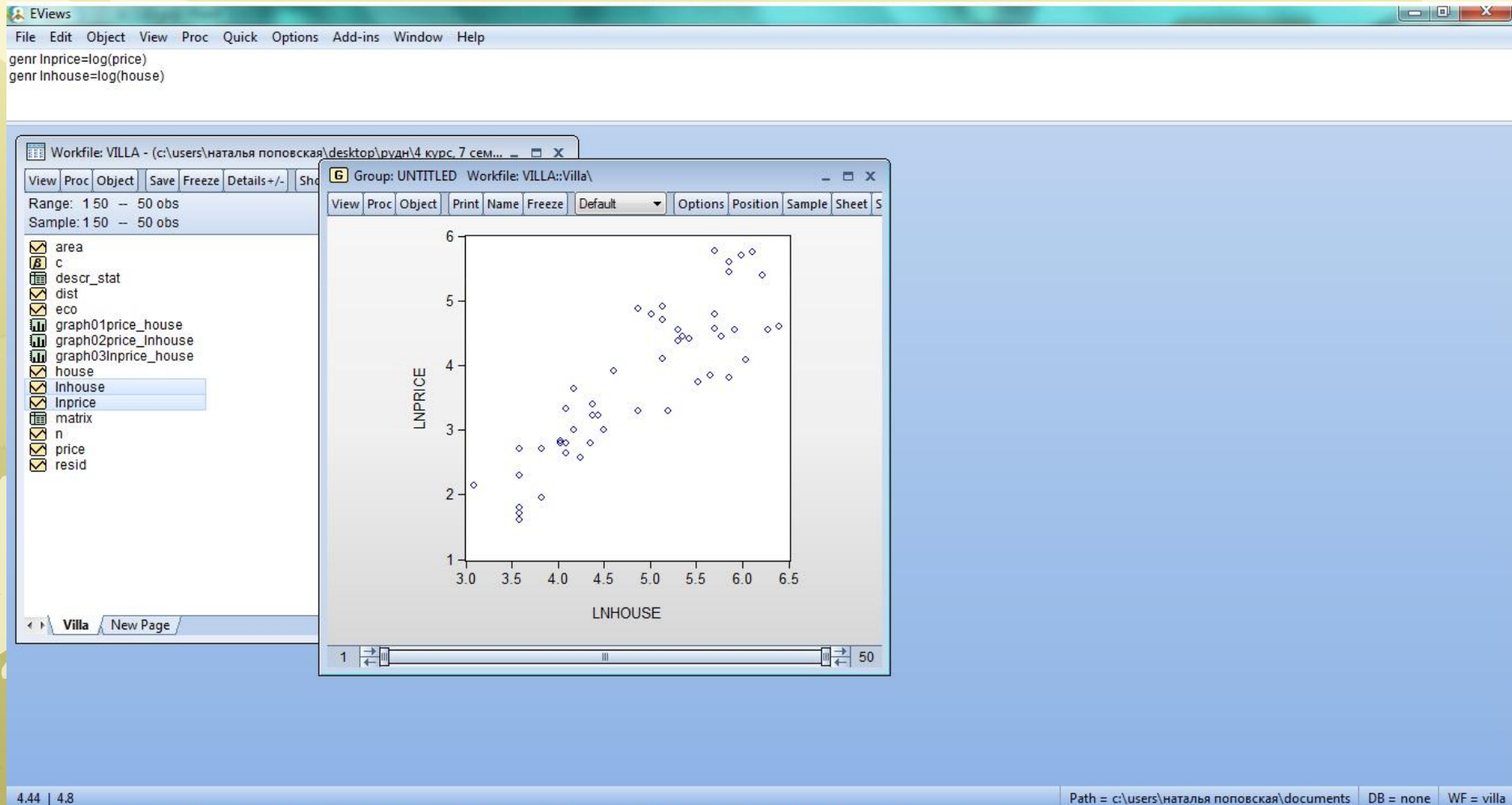
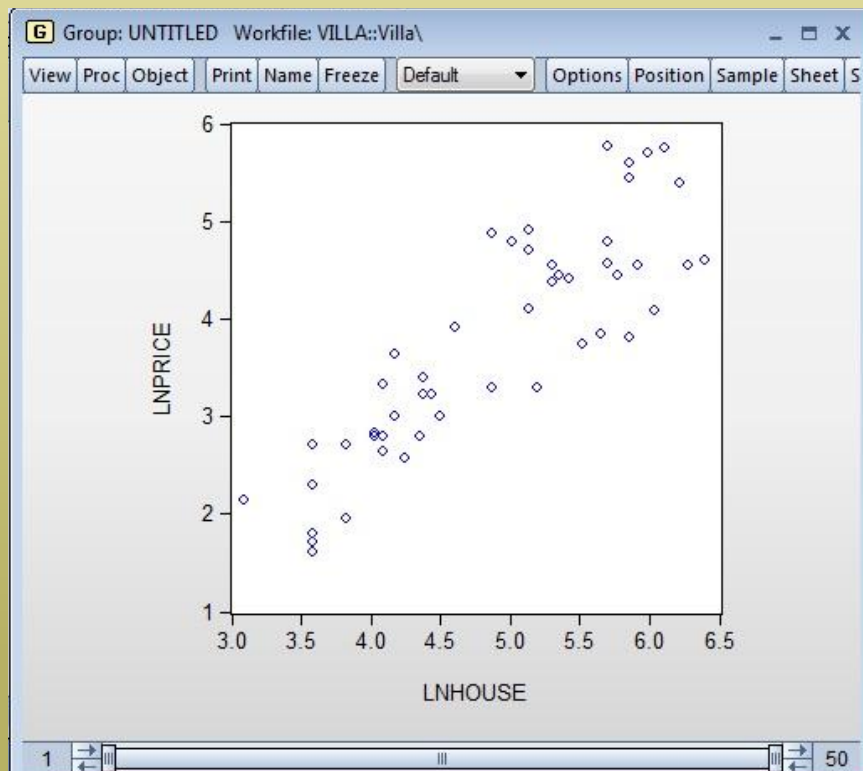


Диаграмма рассеяния Inhouse-Inprice



- Проанализировав диаграммы рассеяния, мы приходим к выводу, что самой хорошей функциональной формой будет логарифмическая функция(4-я диаграмма рассеяния Lnhouse-Inprice)
- Перейдем к построению моделей



1. Линейная модель. Построение [1]

The screenshot displays the EViews software interface. The main window title is "EViews". The menu bar includes "File", "Edit", "Object", "View", "Proc", "Quick", "Options", "Add-ins", "Window", and "Help". The workfile is named "Villa" and is located at "c:\users\наталья поповская\desktop\рудн\4 курс, 7 сем...". The range and sample are both set to "1 50 -- 50 obs". The filter is "*" and the order is "Name".

The "Object" menu is open, showing a list of objects: are, c, des, dist, eco, graj, hou, inh, Inpr, mat, n, pric, and resi. The "are" object is selected, and a context menu is displayed with the following options:

- Open
- Copy (Ctrl+C)
- Copy Special...
- Paste (Ctrl+V)
- Paste Special...
- Manage Links & Formulae...
- Fetch from DB...
- Update from DB...
- Store to DB...
- Export to file...
- Rename...
- Delete

The context menu also includes options for saving the object as different types:

- as Group
- as Equation...
- as Factor...
- as VAR...
- as System...
- as Multiple series

The status bar at the bottom shows "Path = c:\users\наталья поповская\documents", "DB = none", and "WF = villa".

1. Линейная модель. Построение [2]

Equation Estimation

Specification Options

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

price house eco dist area c

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1 50

OK Отмена

Workfile: VILLA - (c:\users\наталья поповская\desktop\рудн\4 курс, 7 сем... -

View Proc Object Save Freeze Details+/- Show Fetch Store Delete Genr

Range: 1 50 -- 50 obs
Sample: 1 50 -- 50 obs

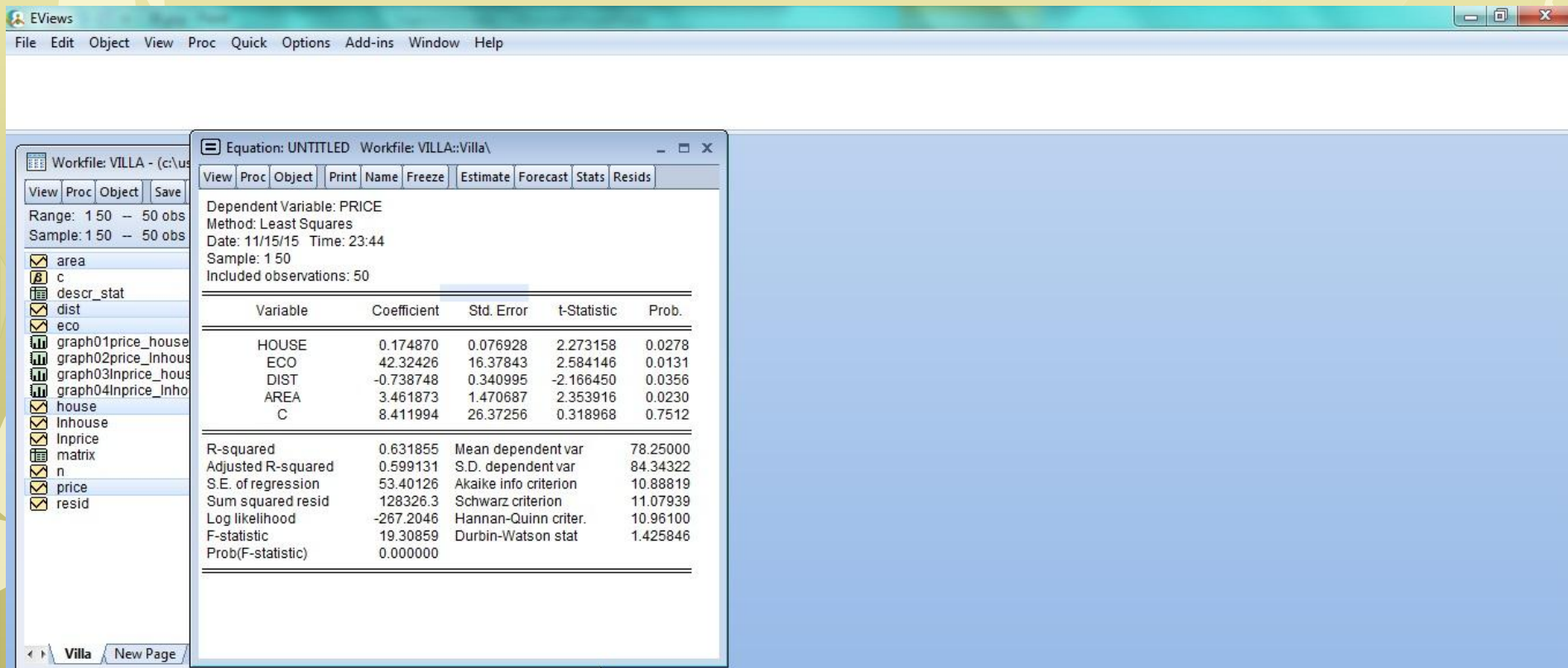
- area
- c
- descr_stat
- dist
- eco
- graph01price_house
- graph02price_inhouse
- graph03Inprice_house
- graph04Inprice_inhouse
- house
- Inhouse
- Inprice
- matrix
- n
- price
- resid

Villa New Page

Path = c:\users\наталья поповская\documents DB = none WF = villa

1. Линейная модель. Построение [3]

В линейную модель включаем переменные без логарифмов. Все коэффициенты значимы (Prob<0.05, у Const не учитываем). $R^2=0,631855$, $adj^2=0.599131$, модель значима



Equation: UNTITLED Workfile: VILLA::Villa\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Dependent Variable: PRICE
Method: Least Squares
Date: 11/15/15 Time: 23:44
Sample: 1 50
Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HOUSE	0.174870	0.076928	2.273158	0.0278
ECO	42.32426	16.37843	2.584146	0.0131
DIST	-0.738748	0.340995	-2.166450	0.0356
AREA	3.461873	1.470687	2.353916	0.0230
C	8.411994	26.37256	0.318968	0.7512

R-squared 0.631855 Mean dependent var 78.25000
Adjusted R-squared 0.599131 S.D. dependent var 84.34322
S.E. of regression 53.40126 Akaike info criterion 10.88819
Sum squared resid 128326.3 Schwarz criterion 11.07939
Log likelihood -267.2046 Hannan-Quinn criter. 10.96100
F-statistic 19.30859 Durbin-Watson stat 1.425846
Prob(F-statistic) 0.000000

Villa New Page

Path = c:\users\наталья поповская\documents DB = none WF = villa

1. Линейная модель

Вывод уравнения [1]

Equation: UNTITLED Workfile: VILLA::Villa\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Representations

Estimation Output

Actual, Fitted, Residual

ARMA Structure...

Gradients and Derivatives

	Std. Error	t-Statistic	Prob.
Covariance Matrix			
Label	Mean dependent var	78.25000	
Adjusted R-squared	S.D. dependent var	84.34322	
S.E. of regression	Akaike info criterion	10.88819	
Sum squared resid	Schwarz criterion	11.07939	
Log likelihood	Hannan-Quinn criter.	10.96100	
F-statistic	Durbin-Watson stat	1.425846	
Prob(F-statistic)			0.000000

Workfile: VILLA - (c:\us

View Proc Object Save

Range: 1 50 -- 50 obs
Sample: 1 50 -- 50 obs

area
 c
 descr_stat
 dist
 eco
 graph01price_house
 graph02price_inhouse
 graph03lnprice_house
 graph04lnprice_inhouse
 house
 Inhouse
 lnprice
 matrix
 n
 price
 resid

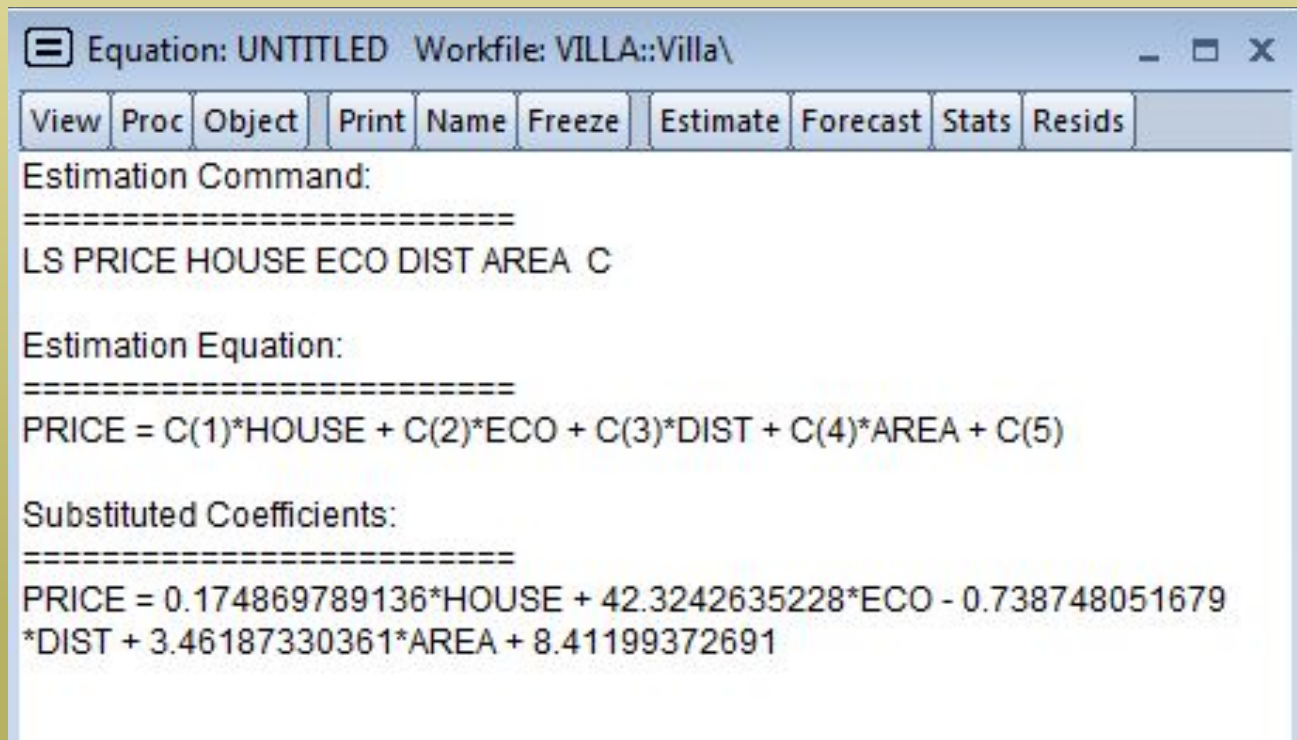
Villa New Page

Path = c:\users\наталья поповская\documents DB = none WF = villa

1. Линейная модель

Вывод уравнения [2]. Интерпретация [1]

- $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n$
- При возрастании x_j на 1 единицу (своего измерения), y возрастает на β_j единиц (своего измерения)



The screenshot shows a software window titled "Equation: UNTITLED Workfile: VILLA::Villa\" with standard window controls. Below the title bar is a menu bar with options: View, Proc, Object, Print, Name, Freeze, Estimate, Forecast, Stats, Resids. The main content area displays the following text:

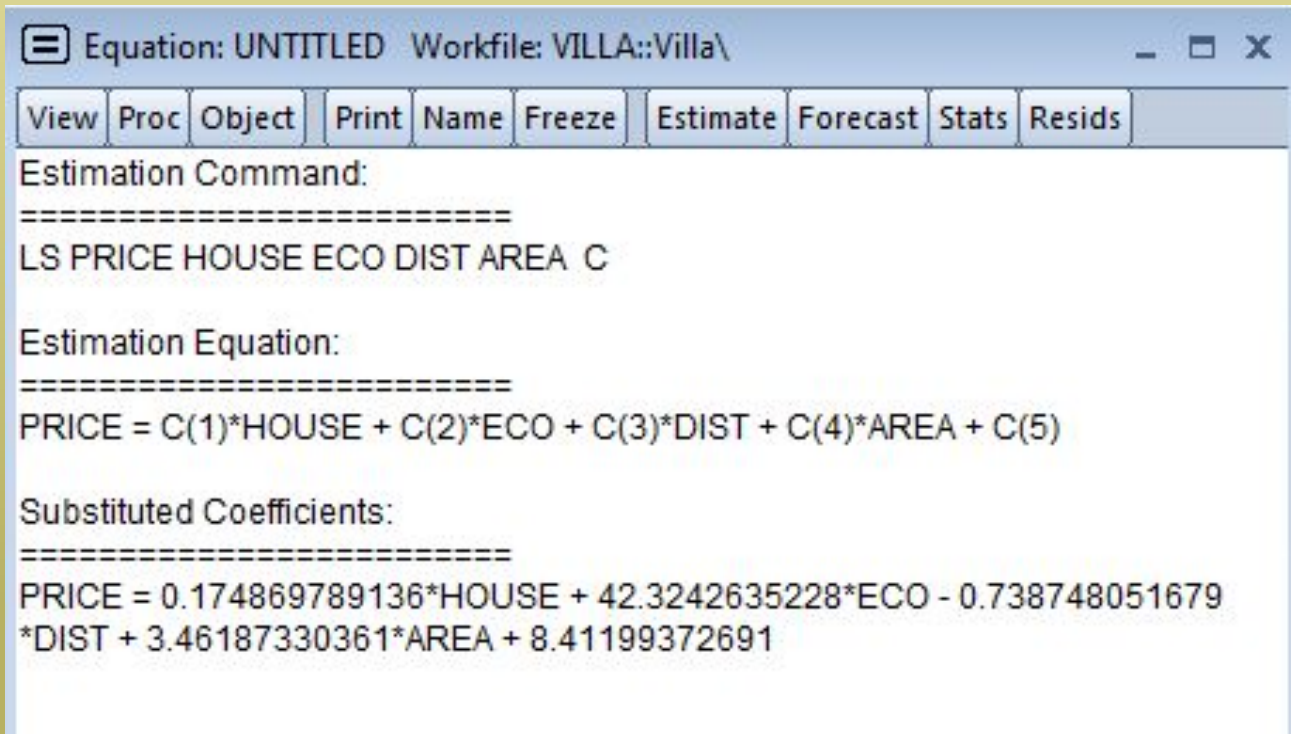
```
Estimation Command:
=====
LS PRICE HOUSE ECO DIST AREA C

Estimation Equation:
=====
PRICE = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
PRICE = 0.174869789136*HOUSE + 42.3242635228*ECO - 0.738748051679
*DIST + 3.46187330361*AREA + 8.41199372691
```

1. Линейная модель. Интерпретация [2]

- dist – при увеличении расстояния на 1 км цена коттеджа падает на 739\$
- house – при увеличении площади дома на 1 кв.м цена коттеджа увеличивается на 175\$



The screenshot shows a software window titled "Equation: UNTITLED Workfile: VILLA::Villa\" with a menu bar containing "View", "Proc", "Object", "Print", "Name", "Freeze", "Estimate", "Forecast", "Stats", and "Resids". The main content area displays the following text:

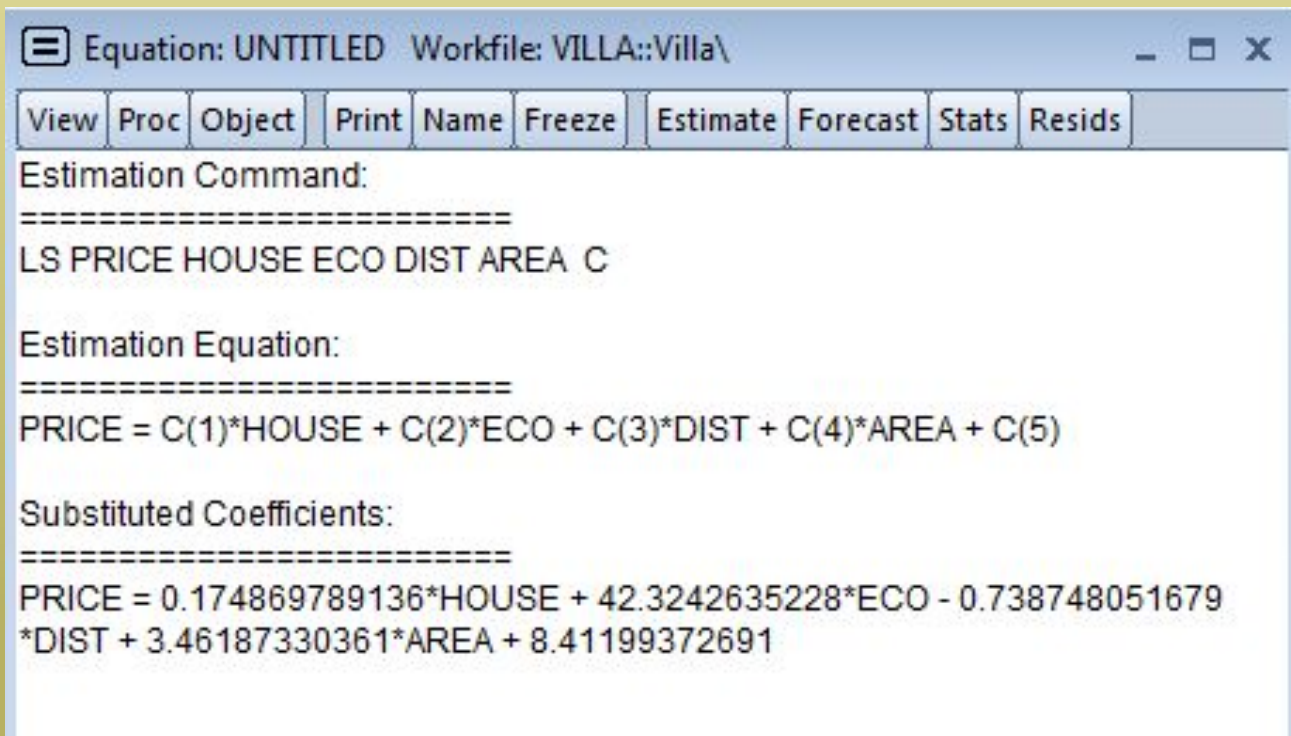
```
Estimation Command:
=====
LS PRICE HOUSE ECO DIST AREA C

Estimation Equation:
=====
PRICE = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
PRICE = 0.174869789136*HOUSE + 42.3242635228*ECO - 0.738748051679
*DIST + 3.46187330361*AREA + 8.41199372691
```


1. Линейная модель. Интерпретация [3]

- eco – если рядом есть реки и озера, то цена возрастает на 42 тыс \$
- area – при увеличении площади участка на 1 сотку цена увеличивается на 3462 \$



The screenshot shows a software window titled "Equation: UNTITLED Workfile: VILLA::Villa\" with a menu bar containing "View", "Proc", "Object", "Print", "Name", "Freeze", "Estimate", "Forecast", "Stats", and "Resids". The main content area displays the following text:

```
Estimation Command:
=====
LS PRICE HOUSE ECO DIST AREA C

Estimation Equation:
=====
PRICE = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
PRICE = 0.174869789136*HOUSE + 42.3242635228*ECO - 0.738748051679
*DIST + 3.46187330361*AREA + 8.41199372691
```

2. Полулогарифмическая модель (log(y)). Построение [1]

The screenshot shows the EViews software interface. The main window displays the 'Equation: UNTITLED' dialog box, which is used for specifying and estimating econometric models. The 'Equation' field contains the following model specification:

$$\text{PRIC} = 2635228 * \text{ECO} - 0.738748051679 * \text{DIST}$$

The 'Estimate' button is highlighted, and a context menu is open over it, showing options such as 'Specify/Estimate...', 'Forecast...', 'Make Residual Series...', 'Make Regressor Group', 'Make Gradient Group', 'Make Derivative Group', 'Make Model', 'Update Coefs from Equation', and 'Add-ins'. The 'Make Model' option is selected.

The left-hand pane shows the 'Workfile: VILLA - (c:\us...' with a list of objects including 'area', 'c', 'descr_stat', 'dist', 'eco', 'graph01price_house', 'graph02price_inhouse', 'graph03Inprice_hous', 'graph04Inprice_Inho', 'house', 'Inhouse', 'Inprice', 'matrix', 'n', 'price', and 'resid'. The 'price' object is selected.

The bottom status bar indicates 'Line: 11', 'Path = c:\users\наталья поповская\documents', 'DB = none', and 'WF = villa'.

2. Полулогарифмическая модель (log(y)). Построение [2]

Equation: UNTITLED Workfile: VILLA::Villa\

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(price) house eco dist area c

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1 50

OK Отмена

Workfile: VILLA - (c:\v\ Villa) View Proc Object Save

Range: 1 50 -- 50 obs Sample: 1 50 -- 50 obs

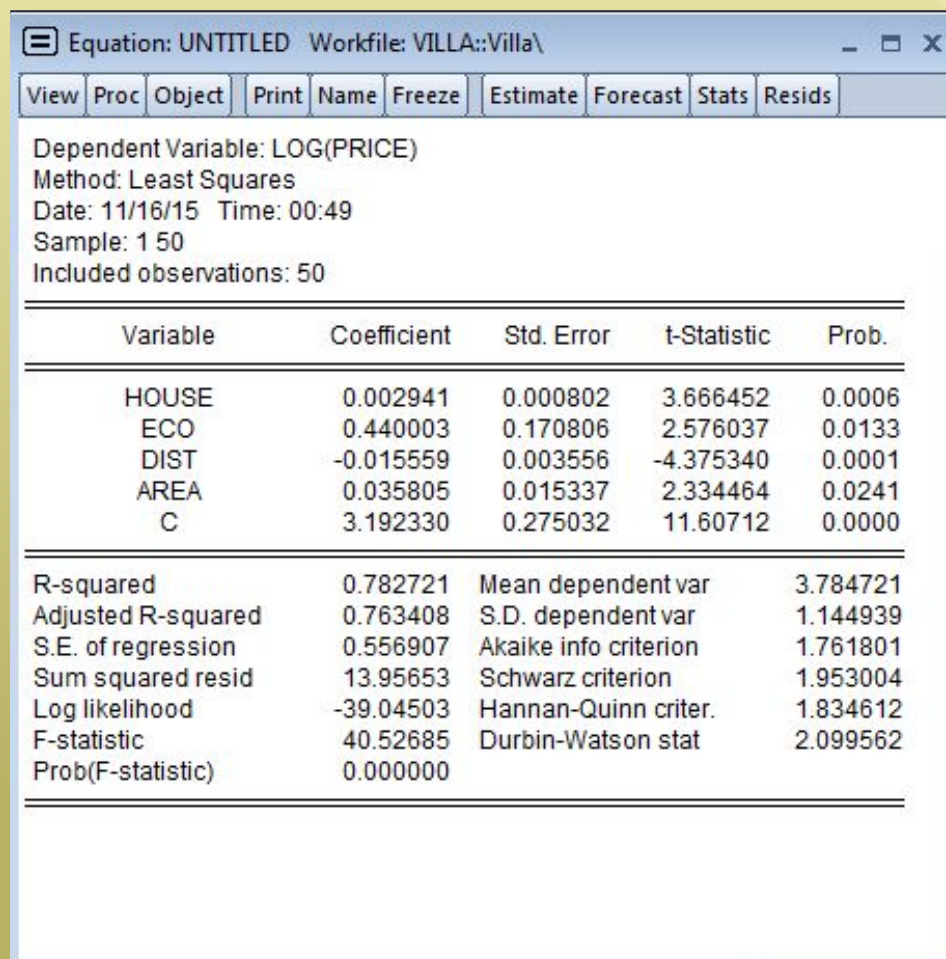
- area
- c
- descr_stat
- dist
- eco
- graph01price_hous
- graph02price_Inhou
- graph03lnprice_hou
- graph04lnprice_Inh
- house
- Inhouse
- lnprice
- matrix
- n
- price
- resid

Villa New Page

Path = c:\users\наталья поповская\documents DB = none WF = villa

2. Полулогарифмическая модель ($\log(y)$). Построение [3]

- Коэффициенты значимы ($\text{Prob} < 0.05$), $R^2 = 0.782721$, $\text{adj}R^2 = 0.763408$, заметим, что они выше, чем у линейной модели. Модель значима.



Equation: UNTITLED Workfile: VILLA.:Villa\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Dependent Variable: LOG(PRICE)
Method: Least Squares
Date: 11/16/15 Time: 00:49
Sample: 1 50
Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HOUSE	0.002941	0.000802	3.666452	0.0006
ECO	0.440003	0.170806	2.576037	0.0133
DIST	-0.015559	0.003556	-4.375340	0.0001
AREA	0.035805	0.015337	2.334464	0.0241
C	3.192330	0.275032	11.60712	0.0000

R-squared	0.782721	Mean dependent var	3.784721
Adjusted R-squared	0.763408	S.D. dependent var	1.144939
S.E. of regression	0.556907	Akaike info criterion	1.761801
Sum squared resid	13.95653	Schwarz criterion	1.953004
Log likelihood	-39.04503	Hannan-Quinn criter.	1.834612
F-statistic	40.52685	Durbin-Watson stat	2.099562
Prob(F-statistic)	0.000000		

2. Полулогарифмическая модель (log(y)). Вывод уравнения. Интерпретация [1]

- $\ln(y) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n$
- При изменении x_j на 1 единицу, y меняется на $(e^{\beta_j} - 1) * 100\%$ (при малых $-0.2 < \beta_j < 0.2$ это примерно равно $\beta_j * 100\%$)

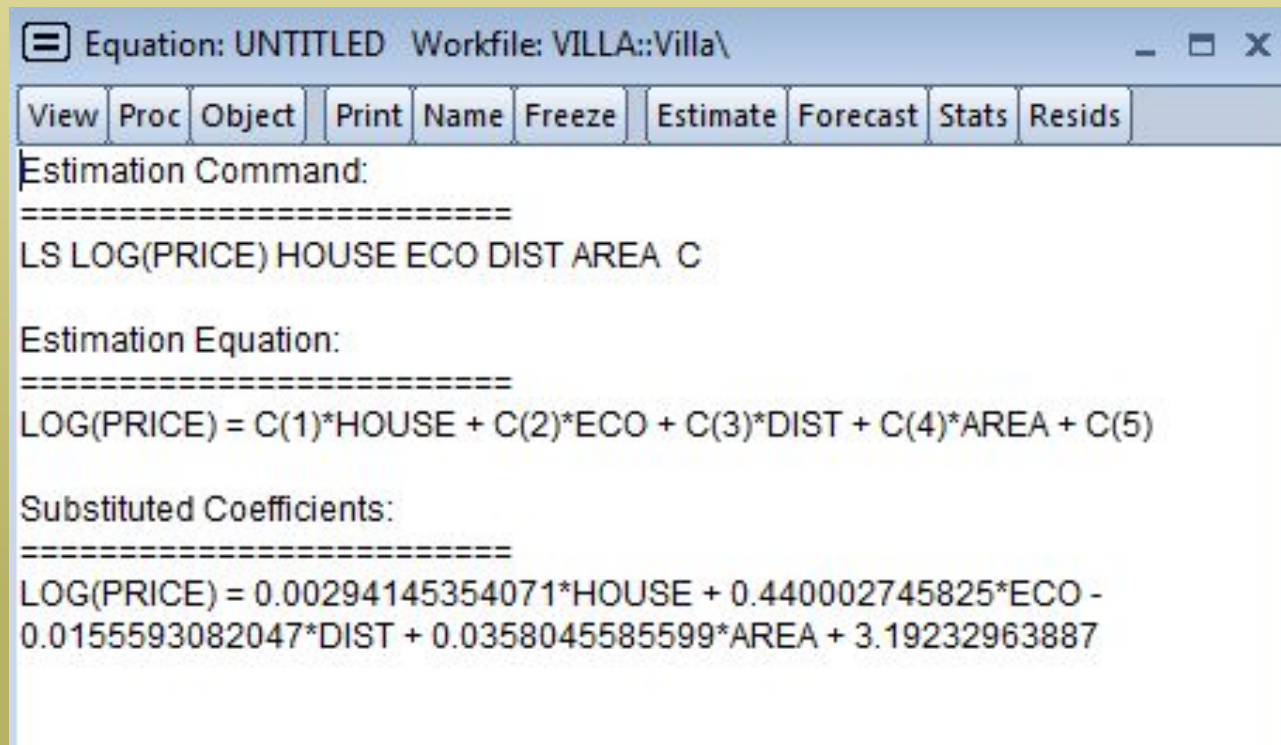
```
Equation: UNTITLED Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS LOG(PRICE) HOUSE ECO DIST AREA C

Estimation Equation:
=====
LOG(PRICE) = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
LOG(PRICE) = 0.00294145354071*HOUSE + 0.440002745825*ECO -
0.0155593082047*DIST + 0.0358045585599*AREA + 3.19232963887
```

2. Полулогарифмическая модель ($\log(y)$). Интерпретация [2]

- house - при изменении площади дома на 1 кв.м цена меняется на 0.29% (т.к. $-0.2 < \beta_j < 0.2$)
- eco – если рядом есть реки и озера, то цена увеличивается на 55%



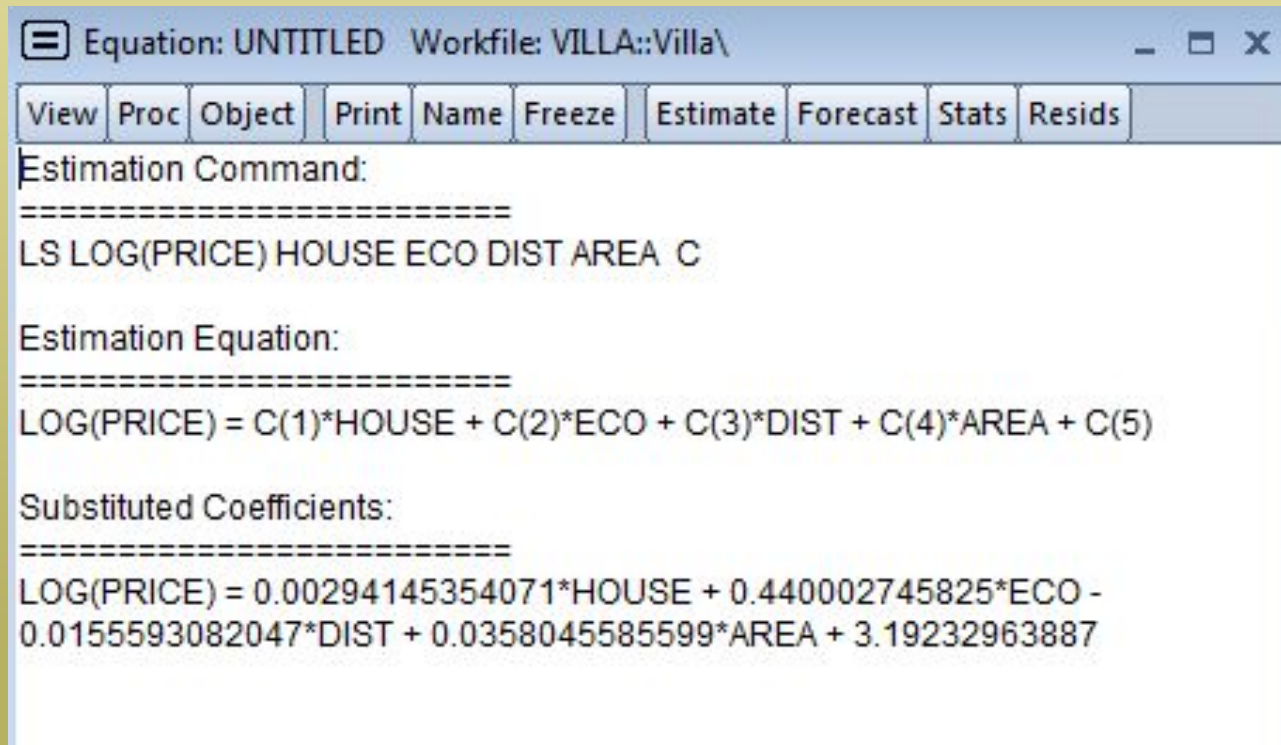
```
Equation: UNTITLED Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS LOG(PRICE) HOUSE ECO DIST AREA C

Estimation Equation:
=====
LOG(PRICE) = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
LOG(PRICE) = 0.00294145354071*HOUSE + 0.440002745825*ECO -
0.0155593082047*DIST + 0.0358045585599*AREA + 3.19232963887
```

2. Полулогарифмическая модель (log(y)). Интерпретация [3]

- dist – при увеличении расстояния на 1 км цена снижается на 1.6% (т.к. $-0.2 < \beta_j < 0.2$)
- area – при увеличении площади участка на 1 сотку цена меняется на 3.6%



The screenshot shows a software window titled "Equation: UNTITLED Workfile: VILLA::Villa\" with standard window controls. Below the title bar is a menu bar with options: View, Proc, Object, Print, Name, Freeze, Estimate, Forecast, Stats, Resids. The main content area displays the following text:

```
Estimation Command:
=====
LS LOG(PRICE) HOUSE ECO DIST AREA C

Estimation Equation:
=====
LOG(PRICE) = C(1)*HOUSE + C(2)*ECO + C(3)*DIST + C(4)*AREA + C(5)

Substituted Coefficients:
=====
LOG(PRICE) = 0.00294145354071*HOUSE + 0.440002745825*ECO -
0.0155593082047*DIST + 0.0358045585599*AREA + 3.19232963887
```

3. Полулогарифмическая модель ($\log(x)$). Построение [1]

The screenshot displays the EViews software interface. The main window is titled "Equation: UNTITLED" and is open over a workfile named "VILLA". The "Equation Estimation" dialog box is open, showing the "Specification" tab. The dependent variable is "price" and the list of regressors includes "log(house)", "eco", "log(dist)", "log(area)", and "c". The "Estimation settings" section shows the method set to "LS - Least Squares (NLS and ARMA)" and the sample range from 1 to 50. The background shows the EViews interface with a list of objects on the left and a menu bar at the top.

Equation Estimation

Specification Options

Equation specification

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

price log(house) eco log(dist) log(area) c

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1 50

OK Отмена

Path = c:\users\наталья поповская\documents DB = none WF = villa

3. Полулогарифмическая модель ($\log(x)$). Построение [2]

- Коэффициенты значимы ($\text{Prob} < 0.05$, у Const не учитываем). $R^2 = 0.641281$, $\text{adj } R^2 = 0.609395$, заметим, что R^2 ниже, чем у полулогарифмической ($\log(y)$), но выше, чем у линейной. Модель значима.

Equation: UNTITLED Workfile: VILLA::Villa\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

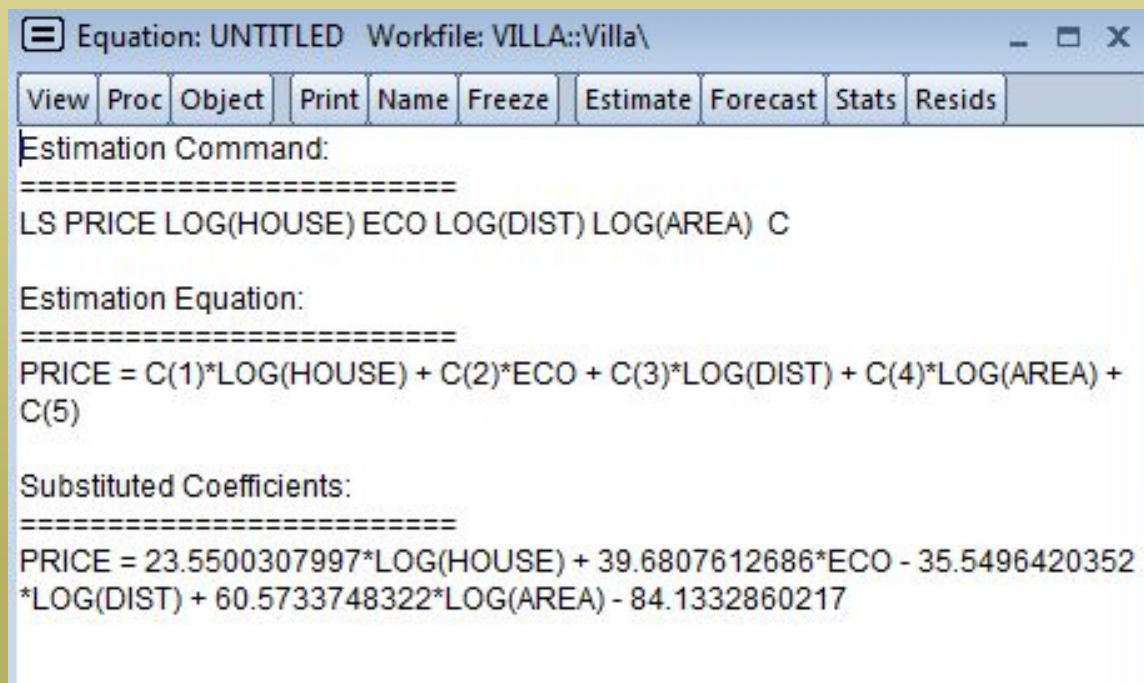
Dependent Variable: PRICE
Method: Least Squares
Date: 11/16/15 Time: 01:16
Sample: 1 50
Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(HOUSE)	23.55003	11.19622	2.103391	0.0411
ECO	39.68076	14.31986	2.771029	0.0081
LOG(DIST)	-35.54964	9.666786	-3.677504	0.0006
LOG(AREA)	60.57337	18.14896	3.337568	0.0017
C	-84.13329	67.45095	-1.247325	0.2187

R-squared	0.707498	Mean dependent var	78.25000
Adjusted R-squared	0.681498	S.D. dependent var	84.34322
S.E. of regression	47.59995	Akaike info criterion	10.65818
Sum squared resid	101959.0	Schwarz criterion	10.84938
Log likelihood	-261.4545	Hannan-Quinn criter.	10.73099
F-statistic	27.21125	Durbin-Watson stat	1.708642
Prob(F-statistic)	0.000000		

3. Полулогарифмическая модель (log(x)). Вывод уравнения. Интерпретация [1]

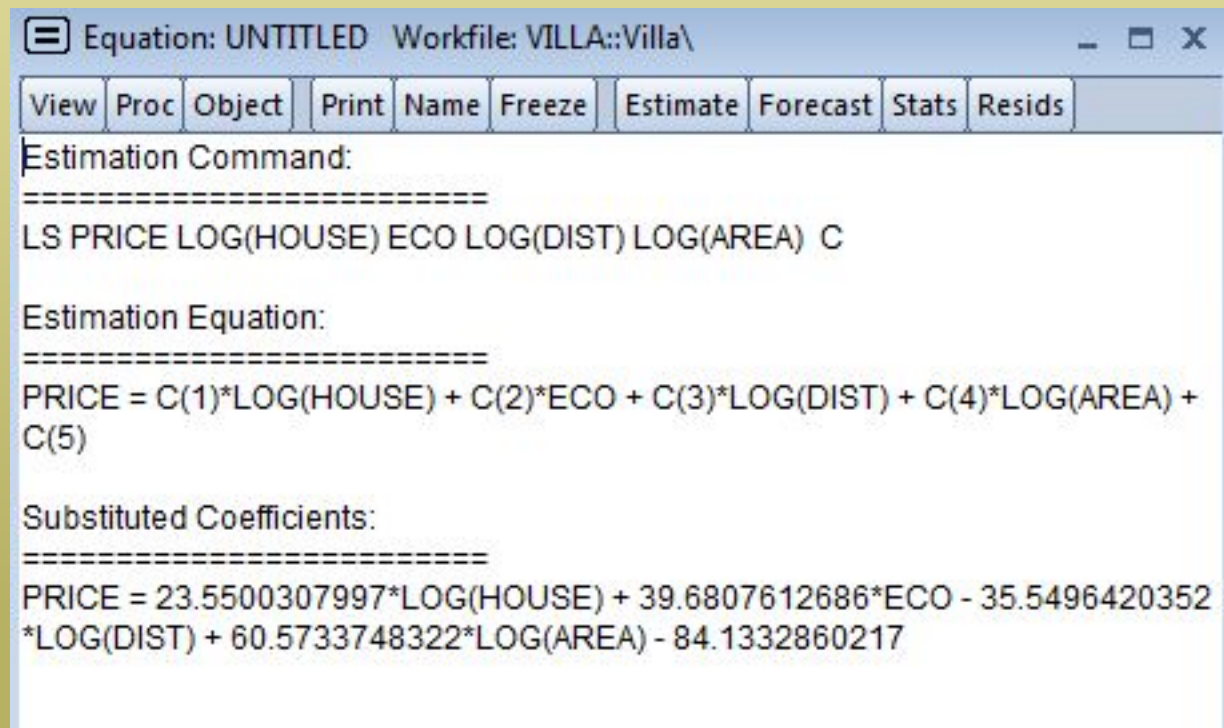
- $y = \beta_0 + \beta_1 \ln(x_1) + \beta_2 \ln(x_2) + \dots + \beta_n \ln(x_n)$
- При изменении x_j на 1 %, y меняется в среднем на $\beta_j/100$ единиц измерения



```
Equation: UNTITLED  Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS PRICE LOG(HOUSE) ECO LOG(DIST) LOG(AREA) C
Estimation Equation:
=====
PRICE = C(1)*LOG(HOUSE) + C(2)*ECO + C(3)*LOG(DIST) + C(4)*LOG(AREA) +
C(5)
Substituted Coefficients:
=====
PRICE = 23.5500307997*LOG(HOUSE) + 39.6807612686*ECO - 35.5496420352
*LOG(DIST) + 60.5733748322*LOG(AREA) - 84.1332860217
```

3. Полулогарифмическая модель ($\log(x)$). Вывод уравнения. Интерпретация [2]

- house – при увеличении площади дома на 1 кв.м цена увеличивается на 0.24 тыс \$
- dist – при увеличении расстояния на 1 км цена уменьшится на 0.36 тыс \$



The screenshot shows a software window titled "Equation: UNTITLED Workfile: VILLA::Villa\" with a menu bar containing "View", "Proc", "Object", "Print", "Name", "Freeze", "Estimate", "Forecast", "Stats", and "Resids". The main content area displays the following text:

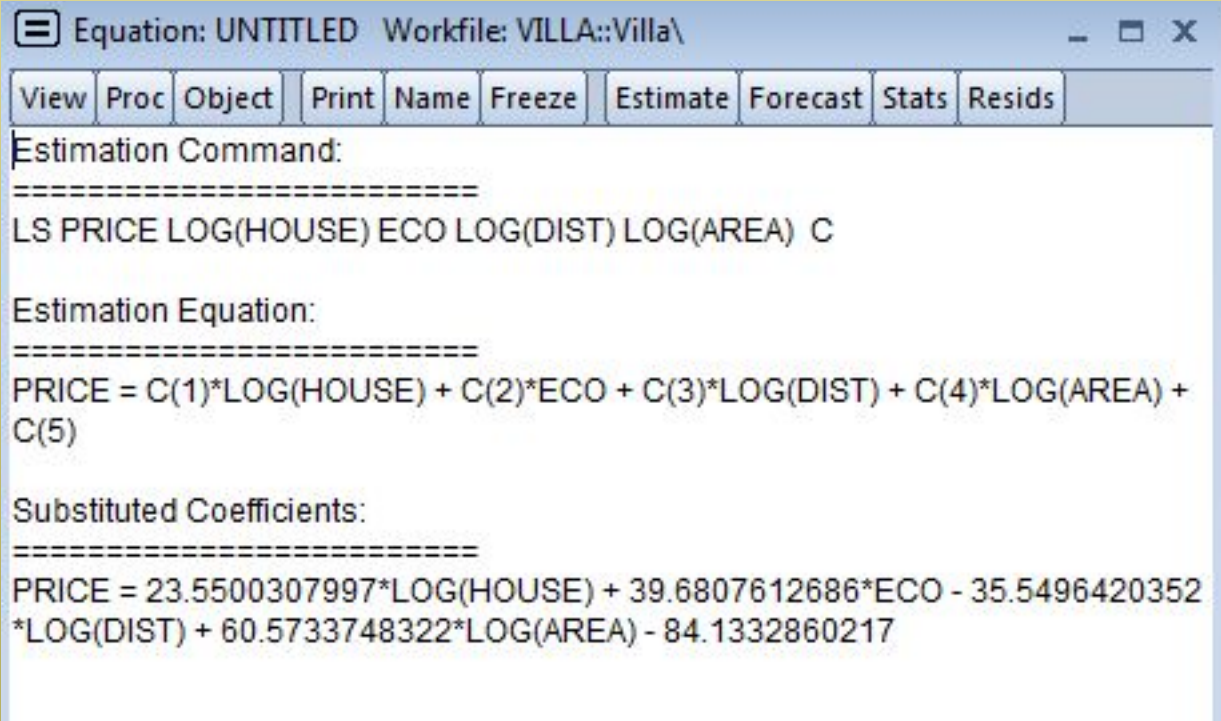
```
Estimation Command:
=====
LS PRICE LOG(HOUSE) ECO LOG(DIST) LOG(AREA) C

Estimation Equation:
=====
PRICE = C(1)*LOG(HOUSE) + C(2)*ECO + C(3)*LOG(DIST) + C(4)*LOG(AREA) +
C(5)

Substituted Coefficients:
=====
PRICE = 23.5500307997*LOG(HOUSE) + 39.6807612686*ECO - 35.5496420352
*LOG(DIST) + 60.5733748322*LOG(AREA) - 84.1332860217
```

3. Полулогарифмическая модель (log(x)). Вывод уравнения. Интерпретация [3]

- area – при увеличении площади участка на 1 сотку цена увеличится на 0.6 тыс \$
- eco – если рядом есть реки и озера, то цена увеличивается на 40 тыс \$ (у eco не стоит log, т.к. принимает значения только 0 и 1)



```
Equation: UNTITLED  Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS PRICE LOG(HOUSE) ECO LOG(DIST) LOG(AREA) C

Estimation Equation:
=====
PRICE = C(1)*LOG(HOUSE) + C(2)*ECO + C(3)*LOG(DIST) + C(4)*LOG(AREA) +
C(5)

Substituted Coefficients:
=====
PRICE = 23.5500307997*LOG(HOUSE) + 39.6807612686*ECO - 35.5496420352
*LOG(DIST) + 60.5733748322*LOG(AREA) - 84.1332860217
```

4. Логарифмическая модель. Построение [1]

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(price) log(house) log(dist) log(area) c

Estimation settings

Method: LS - Least Squares (NLS and ARMA)

Sample: 1 50

OK Отмена

Path = c:\users\наталья поповская\documents DB = none WF = villa

4. Логарифмическая модель. Построение [2]

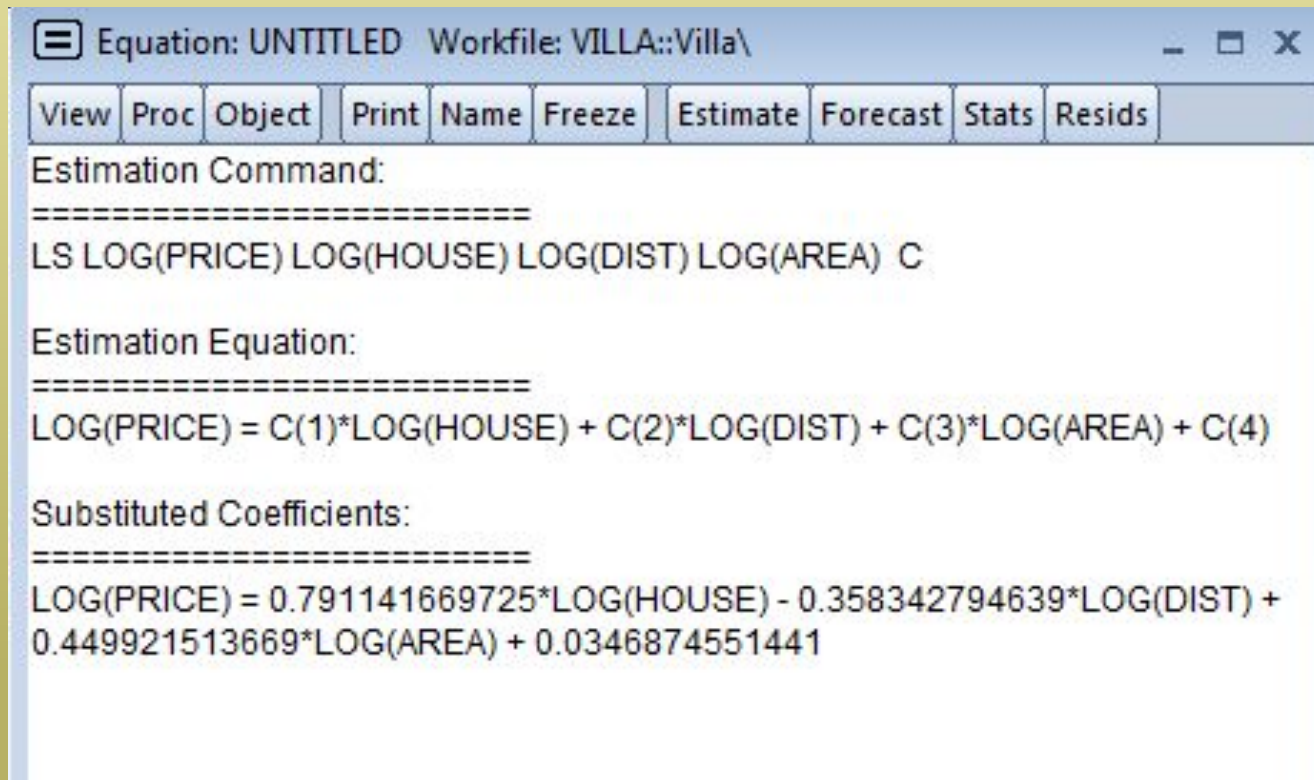
- Мы не взяли в модель есо, т.к. это фиктивная переменная (принимает значения только 0 и 1) Коэффициенты значимы (Prob<0.05, у Const не учитываем). $R^2=0.821542$, $adjR^2=0.809904$, коэффициенты выше, чем у других моделей. Модель значима.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(HOUSE)	0.791142	0.117151	6.753190	0.0000
LOG(DIST)	-0.358343	0.098157	-3.650692	0.0007
LOG(AREA)	0.449922	0.186367	2.414167	0.0198
C	0.034687	0.699384	0.049597	0.9607

R-squared	0.821542	Mean dependent var	3.784721
Adjusted R-squared	0.809904	S.D. dependent var	1.144939
S.E. of regression	0.499194	Akaike info criterion	1.524973
Sum squared resid	11.46294	Schwarz criterion	1.677935
Log likelihood	-34.12433	Hannan-Quinn criter.	1.583222
F-statistic	70.58799	Durbin-Watson stat	1.776973
Prob(F-statistic)	0.000000		

4. Логарифмическая модель. Интерпретация [1]

- $\ln(y) = \beta_0 + \beta_1 \ln(x_1) + \beta_2 \ln(x_2) + \dots + \beta_n \ln(x_n)$
- При изменении x_j на 1 %, y меняется на β_j %

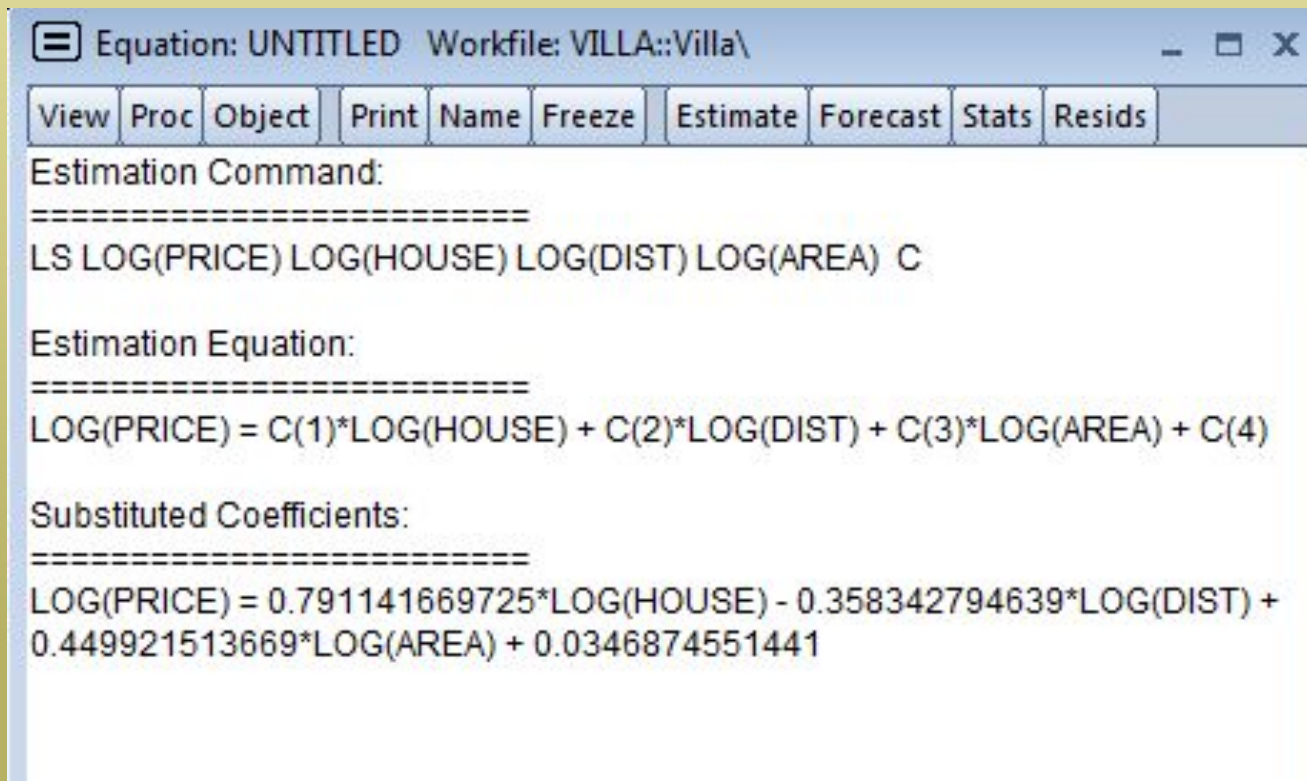


```
Equation: UNTITLED Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS LOG(PRICE) LOG(HOUSE) LOG(DIST) LOG(AREA) C
Estimation Equation:
=====
LOG(PRICE) = C(1)*LOG(HOUSE) + C(2)*LOG(DIST) + C(3)*LOG(AREA) + C(4)
Substituted Coefficients:
=====
LOG(PRICE) = 0.791141669725*LOG(HOUSE) - 0.358342794639*LOG(DIST) +
0.449921513669*LOG(AREA) + 0.0346874551441
```

4. Логарифмическая модель.

Интерпретация [2]

- house – при увеличении площади дома на 1 % цена увеличивается на 0.79 %
- dist – при увеличении расстояния на 1 % цена уменьшается на 0.36 %
- area – при увеличении площади участка на 1 % цена увеличится на 0.45 %



```
Equation: UNTITLED  Workfile: VILLA::Villa\
View Proc Object Print Name Freeze Estimate Forecast Stats Resids
Estimation Command:
=====
LS LOG(PRICE) LOG(HOUSE) LOG(DIST) LOG(AREA) C
Estimation Equation:
=====
LOG(PRICE) = C(1)*LOG(HOUSE) + C(2)*LOG(DIST) + C(3)*LOG(AREA) + C(4)
Substituted Coefficients:
=====
LOG(PRICE) = 0.791141669725*LOG(HOUSE) - 0.358342794639*LOG(DIST) +
0.449921513669*LOG(AREA) + 0.0346874551441
```


Проверка логарифмической модели на гетероскедастичность [1]

The screenshot shows the EViews software interface. The main window displays a regression equation titled "Equation: UNTITLED" with the following statistics:

	Std. Error	t-Statistic	Prob.
0.117151	6.753190	0.0000	
0.098157	-3.650692	0.0007	

The "Residual Diagnostics" menu is open, showing the following options:

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

The "Heteroskedasticity Tests..." option is selected. The bottom status bar shows the path: Path = c:\users\наталья поповская\documents DB = none WF = villa

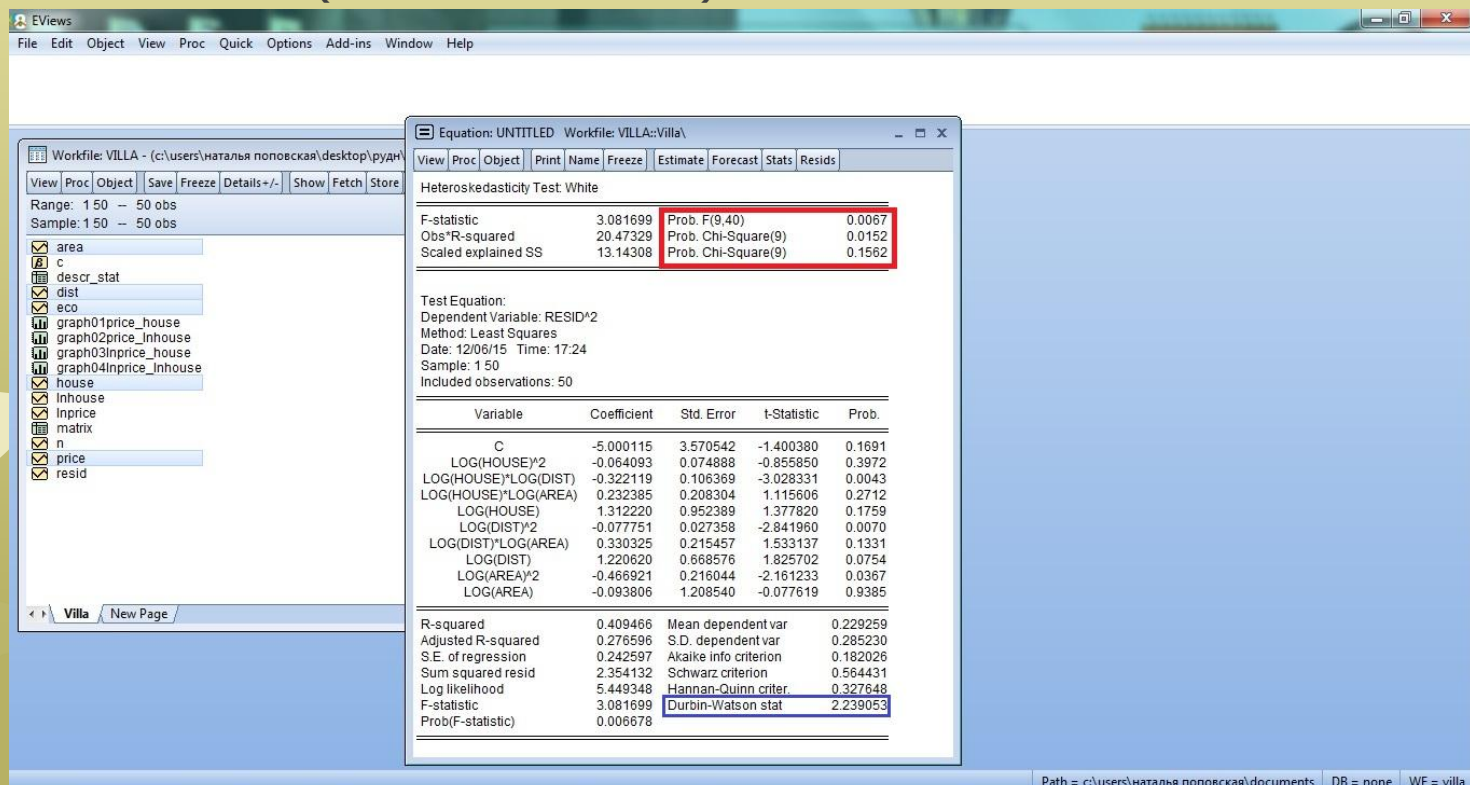
Проверка логарифмической модели на гетероскедастичность [2]

- Выбираем проверку по White.

The screenshot displays the EViews software interface. The main window shows a list of objects on the left, including 'area', 'c', 'descr_stat', 'dist', 'eco', 'graph01price_house', 'graph02price_inhouse', 'graph03lnprice_house', 'graph04lnprice_inhouse', 'house', 'lnhouse', 'lnprice', 'matrix', 'n', 'price', and 'resid'. The 'Equation: UNTITLED' dialog box is open, and the 'Heteroskedasticity Tests' sub-dialog is active. The 'Test type' list includes Breusch-Pagan-Godfrey, Harvey, Glejser, ARCH, White, and Custom Test Wizard... The 'White' test is selected. The 'Dependent variable' is set to 'RESID^2'. The 'Include White cross terms' checkbox is checked. The status bar at the bottom indicates 'Path = c:\users\наталья поповская\documents DB = none WF = villa'.

Проверка логарифмической модели на гетероскедастичность [3]

- Гетероскедастичность – непостоянство дисперсии остатков
- H_0 : Остатки гомоскедастичны, $\sigma^2 = \text{Const}$
- H_1 : Остатки гетероскедастичны $\sigma^2 \neq \text{Const}$.
- Присутствуют $\text{Prob.} < 0.05$, значит принимает гипотезу H_1 (гетероскедастичность есть), смотрим коэффициент Durbin-Watson, сравниваем с 1.5 ($2.239053 > 1.5$)



Подправка [1]

EViews Workfile: VILLA - (c:\users\наталья поповская\desktop\рунд\villa) Range: 1 50 -- 50 obs Sample: 1 50 -- 50 obs

Equation: UNTITLED Workfile: VILLA::Villa

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Hete Specify/Estimate...
Forecast...
F-st Make Residual Series... Prob. F(9,40) 0.0067
Obs Prob. Chi-Square(9) 0.0152
Scal Make Regressor Group Prob. Chi-Square(9) 0.1562
Make Gradient Group
Test Make Derivative Group
Depi Make Model
Meth Update Coefs from Equation
Date
Sam
Inclu Add-ins

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.000115	3.570542	-1.400380	0.1691
LOG(HOUSE)*2	-0.064093	0.074888	-0.855850	0.3972
LOG(HOUSE)*LOG(DIST)	-0.322119	0.106369	-3.028331	0.0043
LOG(HOUSE)*LOG(AREA)	0.232385	0.208304	1.115606	0.2712
LOG(HOUSE)	1.312220	0.952389	1.377820	0.1759
LOG(DIST)*2	-0.077751	0.027358	-2.841960	0.0070
LOG(DIST)*LOG(AREA)	0.330325	0.215457	1.533137	0.1331
LOG(DIST)	1.220620	0.668576	1.825702	0.0754
LOG(AREA)*2	-0.466921	0.216044	-2.161233	0.0367
LOG(AREA)	-0.093806	1.208540	-0.077619	0.9385

R-squared 0.409466 Mean dependent var 0.229259
Adjusted R-squared 0.276596 S.D. dependent var 0.285230
S.E. of regression 0.242597 Akaike info criterion 0.182026
Sum squared resid 2.354132 Schwarz criterion 0.564431
Log likelihood 5.449348 Hannan-Quinn criter. 0.327648
F-statistic 3.081699 Durbin-Watson stat 2.239053
Prob(F-statistic) 0.006678

Path = c:\users\наталья поповская\documents DB = none WF = villa

Подправка [2]

Equation: UNTITLED Workfile: VILLA::Villa\

Heteroskedasticity Test: White

Equation Estimation

Specification Options

Coefficient covariance matrix: Estimation default

ARMA options: Starting coefficient values: OLS/TOLS, Backcast MA terms:

Iteration control: Max Iterations: 500, Convergence: 0.0001, Display settings:

Derivatives: Select method to favor: Accuracy (selected), Speed, Use numeric only:

Weights: Type: None, Weight series: , Scaling: EViews default

Coefficient name: C

Sum squared resid	2.354132	Schwarz criterion	0.564431
Log likelihood	5.449348	Hannan-Quinn criter.	0.327648
F-statistic	3.081699	Durbin-Watson stat	2.239053
Prob(F-statistic)	0.006678		

Path = c:\users\наталья поповская\documents DB = none WF = villa

Подправка [3]

- Т.к. коэффициент Durbin-Watson > 1.5 , то берем подправку по White, в ином случае ($D-W < 1.5$) – Newey-West.

Equation: UNTITLED Workfile: VILLA::Villa\

Heteroskedasticity Test: White

Equation Estimation

Specification Options

Coefficient covariance matrix

Estimation default
Estimation default
White
HAC (Newey-West)

Weights

Type: None
Weight series:
Scaling: EViews default

Coefficient name
C

ARMA options

Starting coefficient values:
OLS/TSLS
 Backcast MA terms

Iteration control

Max Iterations: 500
Convergence: 0.0001
 Display settings

Derivatives

Select method to favor:
 Accuracy
 Speed
 Use numeric only

Sum squared resid 2.354132 Schwarz criterion 0.564431
Log likelihood 5.449348 Hannan-Quinn criter. 0.327648
F-statistic 3.081699 Durbin-Watson stat 2.239053
Prob(F-statistic) 0.006678

Path = c:\users\наталья поповская\documents DB = none WF = villa

Подправка [4]

- Probability $\log(\text{area})$ и $\log(\text{dist})$ стали ближе к нулю, то есть стали лучше значимости коэффициентов.

Equation: UNTITLED Workfile: VILLA::Villa\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Dependent Variable: LOG(PRICE)
Method: Least Squares
Date: 12/06/15 Time: 17:26
Sample: 1 50
Included observations: 50
White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(HOUSE)	0.791142	0.106319	7.441175	0.0000
LOG(DIST)	-0.358343	0.072538	-4.940050	0.0000
LOG(AREA)	0.449922	0.156931	2.866997	0.0062
C	0.034687	0.522830	0.066346	0.9474

R-squared 0.821542 Mean dependent var 3.784721
Adjusted R-squared 0.809904 S.D. dependent var 1.144939
S.E. of regression 0.499194 Akaike info criterion 1.524973
Sum squared resid 11.46294 Schwarz criterion 1.677935
Log likelihood -34.12433 Hannan-Quinn criter. 1.583222
F-statistic 70.58799 Durbin-Watson stat 1.776973
Prob(F-statistic) 0.000000 Wald F-statistic 75.76347
Prob(Wald F-statistic) 0.000000

Path = c:\users\наталья поповская\documents DB = none WF = villa

Проверка на нормальность[1]

The screenshot displays the EViews software interface. The main window shows a regression equation titled 'Equation: UNTITLED' in the 'Workfile: VILLA::Villa\'. The 'View' menu is open, and the 'Residual Diagnostics' option is selected, which has opened a sub-menu where 'Histogram - Normality Test' is highlighted. The background window shows a list of objects including 'area', 'c', 'descr_stat', 'dist', 'eco', and 'price'. The status bar at the bottom indicates the path 'c:\users\наталья поповская\documents', 'DB = none', and 'WF = villa'.

Label	Std. Error	t-Statistic	Prob.
Adjusted R-squared	0.009904		
S.E. of regression	0.499194		
Sum squared resid	11.46294		
Log likelihood	-34.12433	Hannan-Quinn criter.	1.583222
F-statistic	70.58799	Durbin-Watson stat	1.776973
Prob(F-statistic)	0.000000	Wald F-statistic	75.76347
Prob(Wald F-statistic)	0.000000		

Проверка на нормальность[2]

- H_0 : нормальное распределение
- H_1 : ненормальное распределение ($\text{Prob} < 0.05$)
- $\text{Probability} > 0.05 \rightarrow$ распределение нормальное, Skewness близок к нулю, что хорошо.

