



EViews Training

Data Objects Basics: Series and Groups

Note: Data and workfiles for this tutorial are provided in:

- Data: **Data.xls**
- Results: **Results.wf1**
- Practice Workfile: **Data.wf1**



Data Series Objects: Series and Groups

- **Series** and **Groups** are the most important Data Objects in EViews.
- The actual numeric values of your data are held in the **Series** Object. ✓
- A collection of Series (multiple data columns) comprises a Group Object. **G**
- This tutorial demonstrates basic work with **Series** and **Groups**:
 - ✓ Creating a Series
 - ✓ Bringing data into EViews
 - ✓ Creating New Series from Existing Series
 - ✓ Creating AutoSeries
 - ✓ Handling Missing Observations
 - ✓ Editing, documenting and displaying a Series
 - ✓ Creating Groups and working with Groups

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Data and Workfile Documentation

- **Data.wf1** and **Data.xlsx** have a number of pages (tabs) with the following data:
- Workfile Page: *Timeseries* (Data.xlsx tab *Timeseries*):
 - quarterly, Q1 1980 – Q1 2012
 - ✓ GDP – real GDP data (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ GDP_revised and GDP_revised1 – real GDP data; slightly changed from original series.
 - ✓ PCE – real consumption data (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Inv – real private sector investments (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ G – real government spending (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Trend – it's a trend series, starting with 1 and growing over time.
 - ✓ Edit_series – a simple series with a few initial values.
 - ✓ S- a series with only one initial value.
- Workfile Page: *Missing_Example1* (Data.xlsx tab *Missing_Example1*):
 - quarterly, Q1 1980 – Q1 2012
 - ✓ Inv – real private sector investments (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Missing data coded as "none"

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Data and Workfile Documentation (cont'd)

- Workfile Page: *Missing_Example2* (Data.xlsx tab *Missing_Example2*):
 - quarterly, Q1 1980 – Q1 2012
 - ✓ Inv – real private sector investments (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Missing data coded as "0"
- Workfile Page: *Missing_Example3* (Data.xlsx tab *Missing_Example3*):
 - quarterly, Q1 1980 – Q1 2012
 - ✓ Inv – real private sector investments (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Missing data coded as "-999", "-99", and "-9".
- Workfile Page: *Missing_Regression* (Data.xlsx tab *Missing_Regression*):
 - quarterly, Q1 1980 – Q1 2012
 - ✓ GDP – real GDP data (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Inv – real private sector investments (billions of dollars) from the Bureau of Economic Analysis.
 - ✓ Missing data coded as "NA"

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Creating a New Series

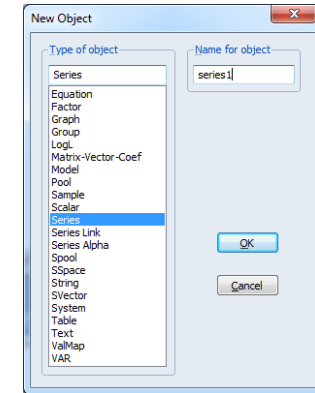
Creating a New Series: Example 1



- There are a number of ways to create a new (empty) series in EViews.

Creating a series: Example 1

1. Click on page named *Timeseries* in *tutorial4.wf1*.
2. Select **Object** → **New Object** from the main menu.
3. Click the **Series** option, name it (in this case *series1*).
4. Click **OK**.

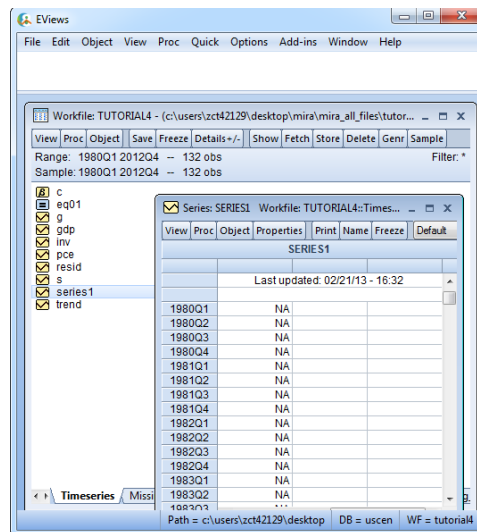


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Creating a New Series: Example 1 (cont'd)



- The new series has the structure of the workfile and **NA** in all entries.



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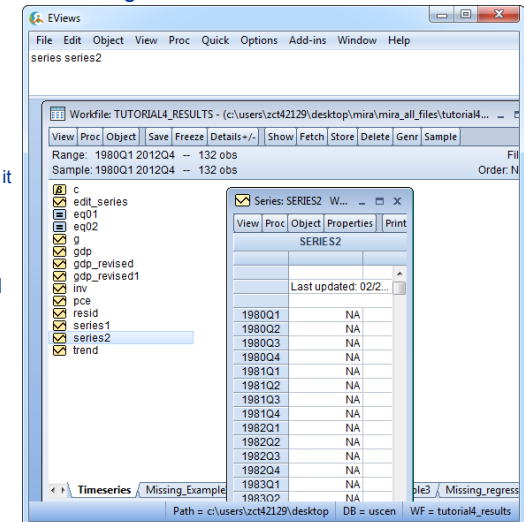
Creating a New Series: Example 2



- Another way to create a series is through the command window.

Creating a series : Example 2

1. On the command window type:
series series2
Note: This instructs EViews to create a new series and name it *newseries*.
 2. Press **Enter**.
 3. Locate the new series (*series2*) in the workfile and open it.
- The result is the new series (*series2*), which has the structure of the workfile and **NA** in all entries.

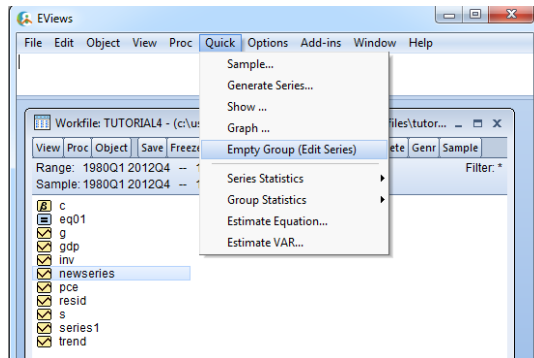


Creating a New Series: Example 3

- You can also use **Quick** menu items to create a series.

Creating a series: Example 3

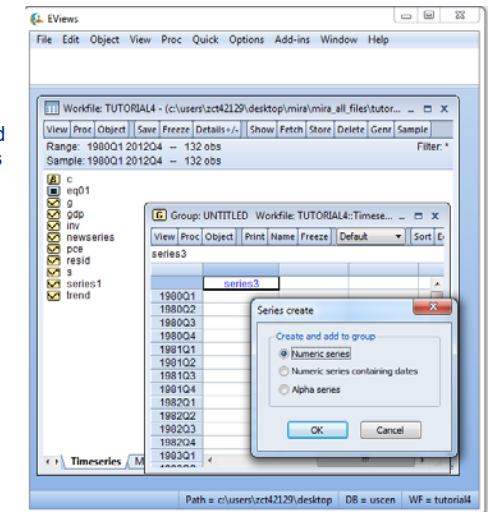
- Click **Quick** → **Empty Group (Edit Series)** from the menu toolbar.



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Creating a New Series: Example 3 (cont'd)

- A window opens up with a blank spreadsheet and dates on the side.
- Scroll up one line (to the top of the spreadsheet) and type the name of the series (*series2* here).
- Click **Enter**. The “**Series create**” dialog box opens up so you can specify the type of series.
- Pick “**numeric series**” if the series you are creating will be filled with numeric values.
- Click **OK**.



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Creating a New Series: Example 3 (cont'd)

- Close the untitled group (EViews asks if you would like to delete Untitled group; click Yes).
- Locate “*series3*” in the workfile and open it.
- The new series “*series3*” has the structure of the workfile and NA in all entries.

The screenshot shows the EViews application window displaying the 'Series3' workfile. The spreadsheet shows a column of dates from 1980Q1 to 1983Q4, with 'NA' entered in the corresponding data cells.

SERIES3	
Last updated: 10/01/12 - 16:57	
1980Q1	NA
1980Q2	NA
1980Q3	NA
1980Q4	NA
1981Q1	NA
1981Q2	NA
1981Q3	NA
1981Q4	NA
1982Q1	NA
1982Q2	NA
1982Q3	NA
1982Q4	NA
1983Q1	NA
1983Q2	NA
1983Q3	NA
1983Q4	NA

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Bringing Data into EViews

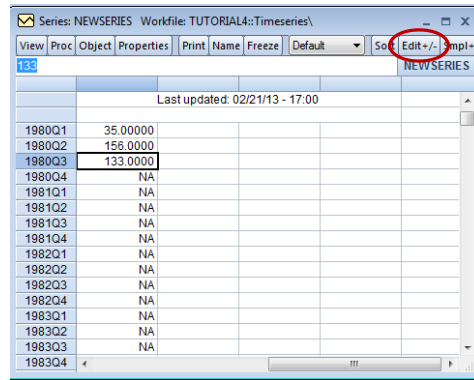
Getting Data into an Existing Workfile: Example 1



- For small data series, you may wish to type in the data (see also *Editing Series* below).

Typing data in a series:

- Click on page *Timeseries* and open one of the new series with empty (NA) values we created above. For this example, let's click on "series2".
- Click the **Edit +/-** button to turn on editing mode (note: using **Edit +/-** depends on your option settings; it is needed under default settings).
- Start entering in data.



Note: This method is not practical when dealing with large datasets.

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Getting Data into an Existing Workfile: Example 2



- An easy way to bring data into an existing EViews workfile is by copy/paste

Bringing data in EViews by Copy/Paste:

- Open the data in Excel® (Note: this also applies to other applications). Click on tab *TimeSeries* in the *Tutorial4_Data.xlsx* file.
- Highlight the series you wish to bring into EViews and select **Edit** → **Copy** (Note: you do not need to copy dates since the EViews workfile is already structured by date).

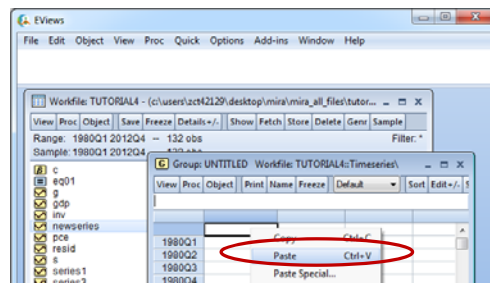
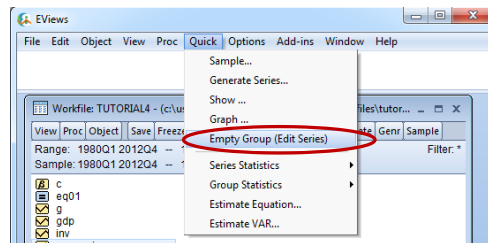
A	B	C	D	E	F	G
	GDP	PCE	Inv	G		
Jan-80	5903.4	3796.7	778.3	1365.4		
Apr-80	5782.4	3710.5	708.1	1369.7		
Jul-80	5771.7	3750.3	654.1	1350.8		
Oct-80	5878.4	3800.3	720.6	1349.4		
Jan-81	6000.6	3821.1	792.2	1367.3		
Apr-81	5952.7	3821.1	754.5	1370.4		
Jul-81	6025	3836.6	801.3	1367.3		
Oct-81	5950	3807.6	770.2			
Jan-82	5852.3	3832.2	690			
Apr-82	5884	3845.9	689.4			
Jul-82	5861.4	3875.4	681.3			
Oct-82	5866	3946.1	620.7			
Jan-83	5938.9	3984.8	642.8			
Apr-83	6072.4	4063.9	704.8			
Jul-83	6192.2	4135.7	752.2			
Oct-83	6370.7	4201.3	831.4			

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Getting Data into an Existing Workfile: Example 2 (cont'd)



- In EViews workfile click **Quick** → **Empty Group (Edit Series)**.
- A window opens up with a blank spreadsheet and dates on the side. Place the cursor on the upper-left cell, right-hand-click, and choose **Paste**.



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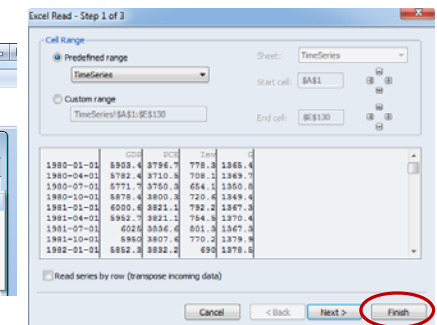
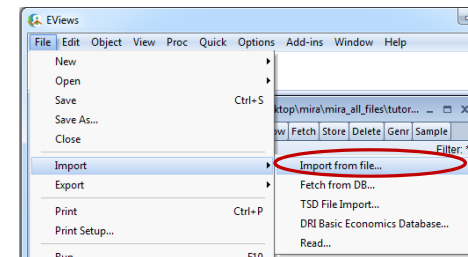
Getting Data into an Existing Workfile: Example 3



- Another way to bring data into an existing EViews workfile is by importing data from foreign files.

Importing data into a workfile:

- On the menu bar, select **File** (or **Proc**) → **Import** → **Import from file**. A standard **File Open** dialog box appears which allows you to locate the file.
- Click **Open** once you locate the file. The **Excel Read** dialog box opens up prompting for the import procedure.
- Click **Finish** to load the data.



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Getting Data into EViews: A few notes



- The easiest way to get data from a *single source* into EViews is by using **File** → **Open** → **Foreign Data as Workfile** (see Tutorial on *Creating Workfiles* for more details).
- One main difference between **Open Foreign Data as Workfile** and **Import** is that the first method brings in the data while at the same time creating a new workfile, while **Import** brings data into an existing workfile.
- If the data comes from various sources (files), it is perhaps best to follow these steps to bring data into EViews:
 1. Use **File** → **Open** → **Foreign Data as Workfile** for the more complex or the largest files. This also creates a new workfile with a similar structure as the source data file.
 2. Use **File** → **Import** or **Copy/Paste** (as shown in the previous two examples) to add data from other sources into the main workfile. Please note, that the data in all files should have the same structure (i.e., monthly, quarterly, etc.).

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Creating New Series from Existing Series



Creating a New Series by Transforming an Existing series: Example 1



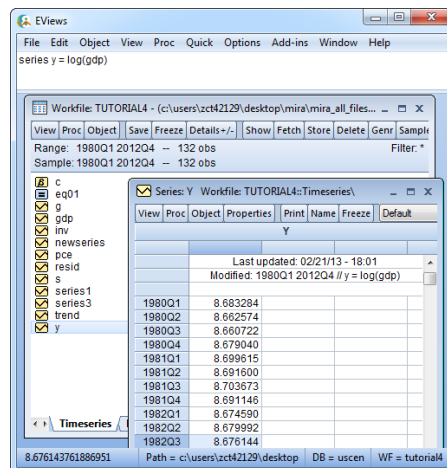
- You can also create a series by transforming an existing series.
- For example, suppose you would like to create a series $y = \log(\text{gdp})$.

Creating a series by transforming an existing series: Example 1

1. Click on the **Timeseries** page on *Tutorial4.wf1*.
2. In the command window, type: **series y = log(gdp)**

Note: in EViews, $\log(x)$ is the natural logarithm (not of base 10).

Note: an alternative way to create a series is to type **genr y = log(gdp)** in the command window.



Creating a New Series by Transforming an Existing series: Example 2

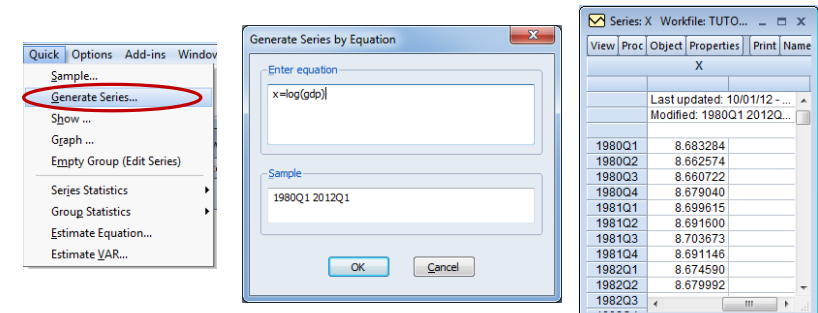


- Another way to create a series from an existing series is from the **Quick** menu:

Creating a series by transforming an existing series: Example 2

1. On the *Timeseries* page, click **Quick** → **Generate Series** from the menu toolbar.
2. The window **Generate Series by Equation** opens. Type your data transformation here (in this case, $x = \log(\text{gdp})$).
3. Click **OK**.

- Note that the new series x has the structure of the transformed series.



Creating a New Series by Transforming an Existing series: Example 3



- As another example, suppose you would like to create a new series where each value is the same as the Q3 2008 value of series "gdp".

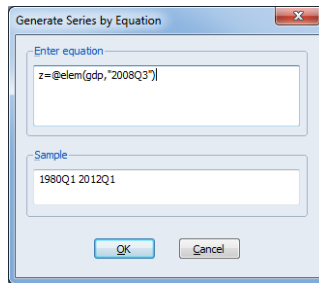
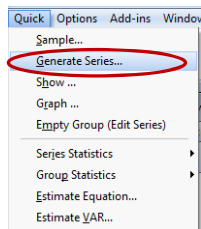
Creating a series by transforming an existing series: Example 3

- Click **Quick** → **Generate Series** from the menu toolbar.
- The window "**Generate Series by Equation**" opens. Type your data transformation as follows:

$z = @elem(gdp, "2008Q3")$

- The new series **z** is equal to the GDP value in Q3 2008.

- Note that series **z** is equal to the gdp value of Q3 2008.



Series: Z	
View	Proc
Last updated: 10/01/11... Modified: 1980Q1 2012Q...	
1980Q1	13186.90
1980Q2	13186.90
1980Q3	13186.90
1980Q4	13186.90
1981Q1	13186.90
1981Q2	13186.90
1981Q3	13186.90
1981Q4	13186.90
1982Q1	13186.90
1982Q2	13186.90
1982Q3	13186.90
1982Q4	13186.90
1983Q1	13186.90
1983Q2	13186.90
1983Q3	13186.90

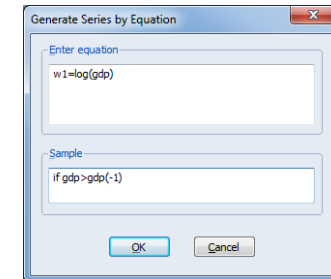
Creating Series Using Samples: Example 1



- You can use samples to create a new series from an existing series.
- Suppose you would like to create a series $w1 = \log(gdp)$ if gdp increases compared to the previous period.

Creating a series by using samples: Example 1

- Click on the **Timeseries** page, and then click **Quick** → **Generate Series** from the menu toolbar.
- The window "**Generate Series by Equation**" opens. On the top portion, under "**Enter Equation**", type the desired transformation:
 $w1 = \log(gdp)$
- In the lower portion of the box under "**Sample**", type the "if" sample condition:
 $if\ gdp > gdp(-1)$



Note: $gdp(-1)$ denotes the first lag of *gdp* series. For more details on lag specification, see tutorial on *Data Functions*.

Note: These commands instructs EViews to generate a series $w1 = \log(gdp)$ when gdp increased compared to the previous period.

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Creating Series Using Samples: Example 1 (cont'd)



- The new series is shown here.
- Note that the new series ($w1$) has the structure of the GDP series.
- Note also that **NAs** are propagated for those values that do not satisfy the "if" condition (i.e., gdp is either equal or declined compared to the previous period).

Series: W1	
View	Proc
Last updated: 10/01/12... Modified: 1980Q1 2012Q...	
1980Q1	NA
1980Q2	NA
1980Q3	NA
1980Q4	8.679040
1981Q1	8.699615
1981Q2	NA
1981Q3	8.703673
1981Q4	NA
1982Q1	NA
1982Q2	8.679992
1982Q3	NA
1982Q4	8.676928
1983Q1	

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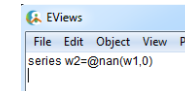
Creating Series Using Samples: Example 1 (cont'd)



- You can replace the missing values (**NAs**) with zeros (see below for more details on handling missing values).

To replace NA values with zeros:

- Create a new series by typing in the command window:
 $series\ w2 = @nan(w1, 0)$
- Press **Enter**.



- Note that $@nan(w1, 0)$ instructs EViews to create a new series $w2$ equal to $w1$ if $w1 \neq NA$, and 0 otherwise.
- Note that series $w2$ (shown here) no longer has **NA** values. They are all replaced by zeros.

Series: W2	
View	Proc
Last updated: 10/01/12... Modified: 1980Q1 2012Q...	
1980Q1	0.000000
1980Q2	0.000000
1980Q3	0.000000
1980Q4	8.679040
1981Q1	8.699615
1981Q2	0.000000
1981Q3	8.703673
1981Q4	0.000000
1982Q1	0.000000
1982Q2	8.679992
1982Q3	0.000000
1982Q4	8.676928
1983Q1	8.689279
1983Q2	8.711509
1983Q3	

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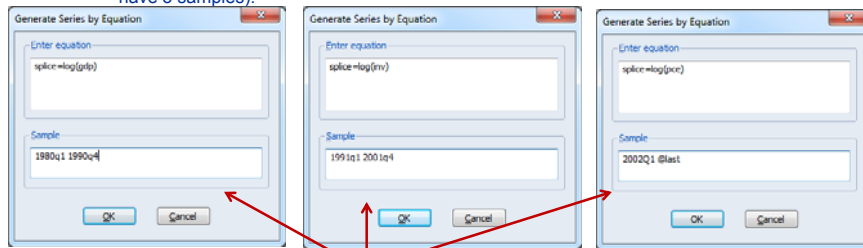
Creating Series Using Samples: Example 2



- By modifying the sample, you can also create a new series by splicing a number of existing series.

Creating a series by using samples: Example 2

- Click on the *Timeseries* page, and then click **Quick** → **Generate Series** from the toolbar.
- The window "**Generate Series by Equation**" opens.
- Type the expressions shown below (you need to repeat steps 1-2 three times since we have 3 samples).



The series *splice* is defined as follows:

splice = log(gdp) from Q1 1980 to Q4 1990

splice = log(inv) from Q1 1991 to Q4 2001

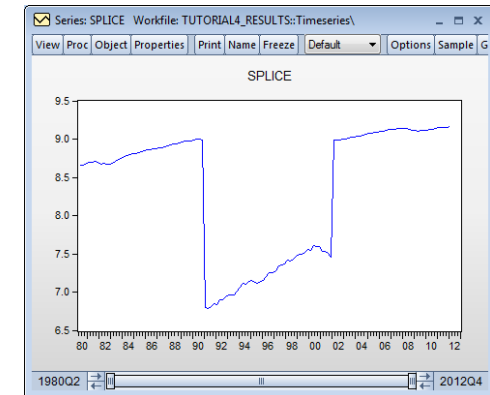
splice = log(pce) from Q1 2002 until the end of the workfile range

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Creating Series Using Samples: Example 2 (cont'd)



- A graph of the new series "splice" is shown here.
- As you can see, the series is constructed according to our specifications in all three **Generate Series by Equation** dialog boxes where we specified the samples.



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Creating Series Using Samples: Example 2 (cont'd)



- You can also create the above series by specifying the samples in the command window.

Creating a series using samples via the command window:

- Type in the command window:
 - smpl 1980q1 1990q4**
 - series splice_new=log(gdp)**
 - smpl 1991q1 2001q4**
 - series splice_new=log(inv)**
 - smpl 2002q1 @last**
 - series splice_new=log(pce)**
- Note: you need to press **Enter** after every command line above. The easiest way to accomplish this is to copy/paste each line in the command window and hitting **Enter** after every entry.

```
EViews
File Edit Object View Proc Quick Options Add-ins Win
smpl 1980q1 1990q4
series splice_new=log(gdp)
smpl 1991q1 2001q4
series splice_new=log(inv)
smpl 2002q1 @last
series splice_new=log(pce)
```

Note: Since the sample has changed using these commands, you may want to revert to the full range by typing **smpl @all** in the command window.

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Creating Series Using Samples: Example 3



- As a last example, consider the following scenario: suppose you have a **trend** series and only the initial value for series **s** (as shown below).
- You would like to create a new series by summing up **s(-1)** with the **trend** series.

Creating a series by using sample commands: Example 3

- In the command window, type the following:
 - smpl @first+1 @last**
 - s=s(-1)+trend**
- Press the **Enter** key.

```
EViews
File Edit Object View Proc
smpl @first+1 @last
s=s(-1)+trend
```

Note: Using **@first+1** starts the sample from the 2nd observation onwards. This is because we have the initial value for the series, but want to compute the rest.

obs	TREND	S
1980Q1	1.000000	4.500000
1980Q2	2.000000	NA
1980Q3	3.000000	NA
1980Q4	4.000000	NA
1981Q1	5.000000	NA
1981Q2	6.000000	NA
1981Q3	7.000000	NA
1981Q4	8.000000	NA
1982Q1	9.000000	NA
1982Q2	10.000000	NA
1982Q3	11.000000	NA
1982Q4	12.000000	NA
1983Q1	13.000000	NA
1983Q2	14.000000	NA
1983Q3	15.000000	NA
1983Q4	16.000000	NA
1984Q1	17.000000	NA

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Creating Series Using Samples: Example 3 (cont'd)

- The spreadsheet for the complete series s is shown here.
- As seen, the series starts at 4.5 (in Q1980) and grows over time at the same rate as the *trend* series.

Year	Value
1980Q1	4.500000
1980Q2	6.500000
1980Q3	9.500000
1980Q4	13.500000
1981Q1	18.500000
1981Q2	24.500000
1981Q3	31.500000
1981Q4	39.500000
1982Q1	48.500000
1982Q2	58.500000
1982Q3	69.500000
1982Q4	80.500000

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Auto Series

Auto-Series

- EViews allows you to work with expressions directly, without having to create and save a new series.
- Expressions that are used in place of a series, are called **auto-series**.
- To create auto-series simply enter expressions anywhere you might use a series name.
- The great advantage of auto-series is that when the underlying data changes, the auto-series will automatically reflect these changes.
- The auto-series is deleted from the memory when you close the auto-series window. If you wish to save the series, simply click on the **Name** button and enter a name.

Command "show log(gdp)" creates an auto-series "log(gdp)"

Year	Value
1980Q1	8.683284
1980Q2	8.662574
1980Q3	8.660722
1980Q4	8.679040
1981Q1	8.699615
1981Q2	8.691600
1981Q3	8.703673
1981Q4	8.691146
1982Q1	8.715500
1982Q2	8.715500

This shows that in place of the series name, EViews substitutes the expression used to create the series.

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Auto-Series in Regressions (cont'd)

- You can use expressions (**auto-series**) when estimating a regression (for more details see tutorial on *Estimation*).
- Auto-series can be dependent and/or independent variables.

Specifying an equation with Auto Series

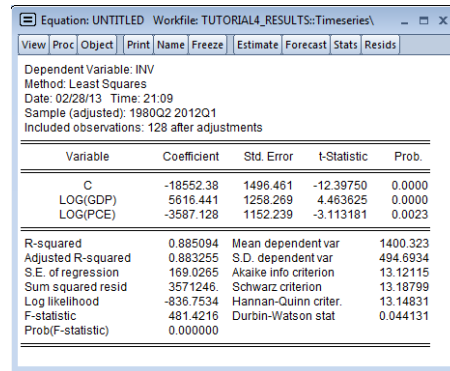
- Click on Timeseries page. Click on **Quick** → **Estimate Equation**.
- The **Equation Estimation** dialog box (shown here) opens up. Type here your series and auto-series, using spaces as shown. Note that **c** stands for constant.
- Click **OK**.

Equation Estimation dialog box showing the equation specification: $inv\ c\ log(gdp)\ log(occe)$. The Method is set to LS - Least Squares (NLS and ARMA) and the Sample is 1980Q2 2012Q4.

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Auto-Series in Regressions (cont'd)

- The estimation output is shown here.
- Note that if an auto-series is the dependent variable, EViews will forecast the untransformed (original) variable and adjust the estimated confidence interval.



Equation: UNTITLED Workfile: TUTORIAL4_RESULTS:Timeseries\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Dependent Variable: INV
Method: Least Squares
Date: 02/28/13 Time: 21:09
Sample (adjusted): 1980Q2 2012Q1
Included observations: 128 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18562.38	1496.461	-12.39750	0.0000
LOG(GDP)	5616.441	1258.269	4.463625	0.0000
LOG(PCE)	-3587.128	1152.239	-3.113181	0.0023

R-squared	0.885094	Mean dependent var	1400.323
Adjusted R-squared	0.883255	S.D. dependent var	494.6934
S.E. of regression	169.0265	Akaike info criterion	13.12115
Sum squared resid	3571246.	Schwarz criterion	13.18799
Log likelihood	-836.7534	Hannan-Quinn crit.	13.14831
F-statistic	481.4216	Durbin-Watson stat	0.044131
Prob(F-statistic)	0.000000		

Auto-series as Independent variables

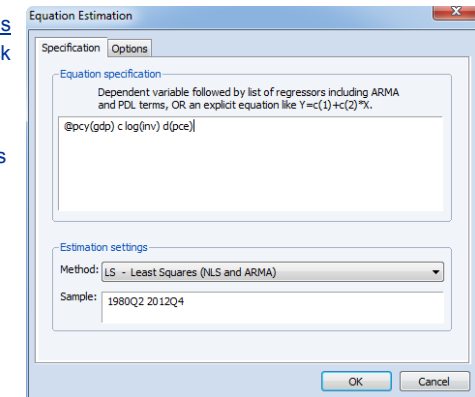
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Auto-Series in Regressions (cont'd)

- This next example shows the use of auto-series both as dependent and independent variables.

Specifying an equation with Auto Series

- Click on Timeseries page. Click on **Quick** → **Estimate Equation**.
- The **Equation Estimation** dialog box (shown here) opens up. Type here your series and auto-series, using spaces as shown.
- Click **OK**.



Equation Estimation

Specification Options

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

@pcy(gdp) c log(inv) d(pce)

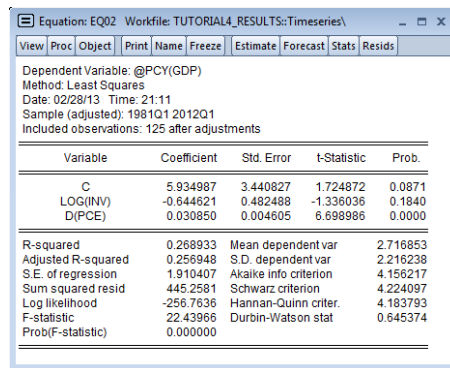
Estimation settings
Method: LS - Least Squares (NLS and ARMA)
Sample: 1980Q2 2012Q4

OK Cancel

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Auto-Series in Regressions (cont'd)

- The estimation output is shown here.
- Note that both dependent and independent variables are auto-series.
- The auto-series are defined as follows:
 - @pcy(gdp) denotes the year-over-year change in *gdp*.
 - log(inv) denotes the log of *inv* series.
 - d(pce) denotes the difference (from one period to another) in *pce*.



Equation: EQ02 Workfile: TUTORIAL4_RESULTS:Timeseries\

View Proc Object Print Name Freeze Estimate Forecast Stats Resids

Dependent Variable: @PCY(GDP)
Method: Least Squares
Date: 02/28/13 Time: 21:11
Sample (adjusted): 1981Q1 2012Q1
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.934987	3.440827	1.724872	0.0871
LOG(INV)	-0.644621	0.482488	-1.336036	0.1840
D(PCE)	0.030850	0.004605	6.698986	0.0000

R-squared	0.268933	Mean dependent var	2.716853
Adjusted R-squared	0.256948	S.D. dependent var	2.216238
S.E. of regression	1.910407	Akaike info criterion	4.156217
Sum squared resid	445.2581	Schwarz criterion	4.224097
Log likelihood	-256.7636	Hannan-Quinn crit.	4.183793
F-statistic	22.43966	Durbin-Watson stat	0.645374
Prob(F-statistic)	0.000000		

Auto-series as Dependent and Independent variables

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Missing Values



A Few Notes on Missing Values

- EViews uses the code **NA** to represent missing data values.
- EViews always excludes observations with **NAs** from statistical calculations (data analysis, regressions, etc.).

Identifying NA Values to EViews

- EViews will identify correctly any missing data codes from binary files created by other statistical programs.
- When reading data from a foreign source (such as Excel®), EViews will automatically convert all non-numeric text into **NA** when it expects a numerical value.
- If missing data is identified by “-999” or “0” (or some other value) in the external file, you can instruct EViews to translate these into **NA** values.

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Missing Values: Example 1

As a first example, suppose that the missing data in an external file (Excel® in this case) is coded in a *text format* as “none” as shown below.

Missing Values: Example 1

1. Click on the *Missing_Example1* EViews page on the *Tutorial4.wf1* file.
2. Load the data in EViews by clicking on **File** → **Open** → **Foreign Data as Workfile** in the EViews toolbar (make sure the *Missing_Example1* tab is also clicked in the Excel file *Tutorial4_Data.xls*).

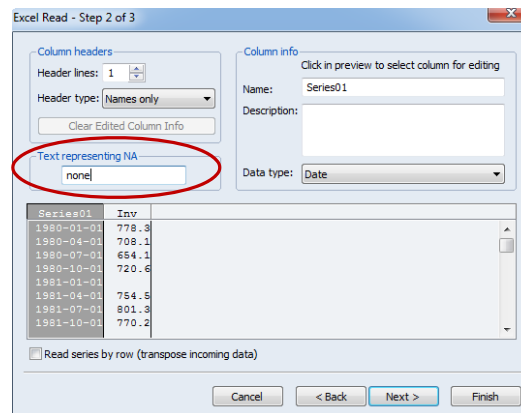
	A	B
1		Inv
2	Jan-80	778.3
3	Apr-80	708.1
4	Jul-80	654.1
5	Oct-80	720.6
6	Jan-81	none
7	Apr-81	754.5
8	Jul-81	801.3
9	Oct-81	770.2
10	Jan-82	none
11	Apr-82	689.4
12	Jul-82	681.3
13	Oct-82	620.7
14	Jan-83	none
15	Apr-83	704.8

Note: In general, if the foreign data source (e.g., excel file) has many tabs, you need to click on the specific tab from which you wish to load the data in EViews. Then you may proceed to load the data. This ensures that the data loaded in EViews come from this Excel tab, not others.

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A Few Notes on Missing Values: Example 1 (cont'd)

3. The **Excel Read** dialog box opens up; click on **Next**.
4. Under “**Text Representing NA**” specify the missing code; in this case “*none*”.
5. Press **Finish**.



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Missing Values: Example 1 (cont'd)

- Open the “*inv*” series and notice that EViews has converted the missing Excel values with code “*none*”, to **NAs**.
- Note: EViews allows only one code to be translated this way. For multiple codes, see Example 3 below.

Converted to NA values

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Missing Values: Example 2

- Suppose that the missing data in an external file is coded as "0".

Missing Values: Example 2

- Click on the *Missing_Example2* EViews page on the *Tutorial4.wf1* file.
- Load the data in EViews by clicking on **File** → **Open** → **Foreign Data as Workfile** in the EViews toolbar (make sure the *Missing_Example2* tab is also clicked in the excel file *Tutorial4_Data.xls*).
- The **Excel Read** dialog box opens up; click on **Next**. Under "**Text Representing NA**" specify the missing code; in this case "0".
- Press **Finish**.

	A	B
1		Inv
2	Jan-80	778.3
3	Apr-80	708.1
4	Jul-80	654.1
5	Oct-80	720.6
6	Jan-81	"0"
7	Apr-81	754.5
8	Jul-81	801.3
9	Oct-81	770.2
10	Jan-82	"0"
11	Apr-82	689.4
12	Jul-82	681.3
13	Oct-82	620.7
14	Jan-83	"0"
15	Apr-83	704.8

Excel Read - Step 2 of 3

Column headers: Header lines: 1, Header type: Names only, Clear Edited Column Info

Column info: Name: Series01, Description: , Data type: Date

Text representing NA: 0

Excel01 Inv
1980-01-01 778.3
1980-04-01 708.1
1980-07-01 654.1
1980-10-01 720.6
1981-01-01 0
1981-04-01 754.5
1981-07-01 801.3
1981-10-01 770.2

Read series by row (transpose incoming data)

Missing Values: Example 2 (cont'd)

- Open the "inv" series and notice that EViews has converted the missing Excel values with code "0", to **NA**s.
- Note: EViews allows only one code to be translated this way. For multiple codes, see Example 3 below.

Series: INV Workfile...
View Proc Object Properties Print Nu

INV
Last updated: 09/17/11
Imported from 'C:\Use...

1980Q1	778.3
1980Q2	708.1
1980Q3	654.1
1980Q4	720.6
1981Q1	NA
1981Q2	754.5
1981Q3	801.3
1981Q4	770.2
1982Q1	NA
1982Q2	689.4
1982Q3	681.3
1982Q4	620.7
1983Q1	NA
1983Q2	704.8
1983Q3	

Converted to NA values

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Missing Values: Example 3

- As a final example, suppose that the missing data in an external file is coded as "-9", "-99" and "-999".

Missing Values: Example 3

- Click on the *Missing_Example3* EViews page on the *Tutorial4.wf1* file.
- Load the data in EViews by clicking on **File** → **Open** → **Foreign Data as Workfile** in the EViews toolbar (make sure the *Missing_Example3* tab is also clicked in the excel file *Tutorial4_Data.xls*).
- The **Excel Read** box opens; click **Finish** to load the data, ignoring missing values for now.
- Click on **Quick** → **Generate Series by Equation**.
- The **Generate Series by Equation** box opens up. Recode the values as shown below.
- Click **OK**.

	A	B
1		Inv
2	Jan-80	778.3
3	Apr-80	708.1
4	Jul-80	654.1
5	Oct-80	720.6
6	Jan-81	-999
7	Apr-81	754.5
8	Jul-81	801.3
9	Oct-81	770.2
10	Jan-82	-99
11	Apr-82	689.4
12	Jul-82	681.3
13	Oct-82	620.7
14	Jan-83	-9

Note: The command specified in the box tells EViews to set to "NA" all "inv" values if these values are -999, or -99, or -9.

Generate Series by Equation

Enter equation:
inv=na

Sample:
if inv=-999 or inv=-99 or inv=-9

OK Cancel

Missing Values: Example 3 (cont'd)

- Open the "inv" series and notice that EViews has converted the missing Excel values with code "-999", "-99" or "-9" to **NA**s.
- Note: an alternative way to recode the data would be to type the following in the command window:
series y =@recode(inv = -9 or inv = -99 or inv = -999, NA,inv)
- This creates a new series y where all the missing values are coded as NA.

Series: Y Workfile...
View Proc Object Properties Pr

Y

1980Q1	778.3000
1980Q2	708.1000
1980Q3	654.1000
1980Q4	720.6000
1981Q1	NA
1981Q2	754.5000
1981Q3	801.3000
1981Q4	770.2000
1982Q1	NA
1982Q2	689.4000
1982Q3	681.3000
1982Q4	620.7000
1983Q1	NA
1983Q2	704.8000
1983Q3	

Converted to NA values

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A Few Notes on Missing Values: Handling NAs

- Ordinarily, any operations involving an **NA** value will result in **NA**.
- For example, comparisons involving **NA** values, propagate **NA** values.
- EViews includes a set of special functions that help out in handling **NAs**.

Main Functions for Missing Values

Function	Description
@isna(x)	takes the value of 1 if X = NA, 0 otherwise.
@nan(x,y)	takes the value of X if X≠NA and Y if X=NA.
@nan(x,0)	takes the value of X if X≠NA and 0 if X=NA.
series z = (x=y)	series is equal to 1 if x = y and 0 otherwise. NAs are propagated (if any of the series has missing values).
series z=@eqna(x,y)	series is equal to 1 if x = y and 0 otherwise. NAs are not propagated (missing values are replaced with 0).
series z=neqna(x,y)	series is equal to 1 if x and y are not equal and 0 if they are equal. NAs are not propagated (missing values are replaced with 0).

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Missing Values and Regression Analysis

- EViews always excludes missing values from regressions (and other statistical analysis).
- Suppose that you would like to run a regression of “inv” on “gdp”, but “inv” has missing values.
 - ✓ In the *Missing_Regression* tab of the *Tutorial4_Data.xlsx*, there are a total of 129 observations for “gdp” but only 125 for “inv”, since the latter is missing 4 values as shown below.

Missing Values and Regressions

1. Click on the *Missing_regression* EViews page on the *Tutorial4.wf1* file.
2. Load the data in EViews by clicking on **File** → **Open** → **Foreign Data as Workfile** in the EViews toolbar (make sure the *Missing_regression* tab is also clicked in the excel file *Tutorial4_Data.xls*). The *Excel Read* box opens; click **Finish** to load the data.
3. Select **Quick** → **Estimate Equation** from the main menu.

	A	B	C
1		GDP	Inv
2	Jan-80	5903.4	778.3
3	Apr-80	5782.4	708.1
4	Jul-80	5771.7	NA
5	Oct-80	5878.4	720.6
6	Jan-81	6000.6	792.2
7	Apr-81	5952.7	NA
8	Jul-81	6025	NA
9	Oct-81	5950	770.2
10	Jan-82	5852.3	NA
11	Apr-82	5884	689.4
12	Jul-82	5861.4	681.3
13	Oct-82	5866	620.7
14	Jan-83	5938.9	642.8

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Missing Values and Regression Analysis (cont'd)

4. Define the regression in the Equation Estimation box that opens up. Here we are regressing *inv* on a constant (*c*) and *gdp*.
5. Click **OK**.

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Missing Values and Regression Analysis (cont'd)

- The estimation output is shown here.
- As you can see, EViews has excluded the missing values and estimated the regression over 125 observations.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-372.1820	63.66333	-5.846096	0.0000
GDP	0.183367	0.006324	28.99562	0.0000

R-squared	0.872373	Mean dependent var	1416.958
Adjusted R-squared	0.871335	S.D. dependent var	488.5350
S.E. of regression	175.2368	Akaike info criterion	13.18602
Sum squared resid	3777074.	Schwarz criterion	13.23128
Log likelihood	-822.1265	Hannan-Quinn criter.	13.20441
F-statistic	840.7462	Durbin-Watson stat	0.068038
Prob(F-statistic)	0.000000		

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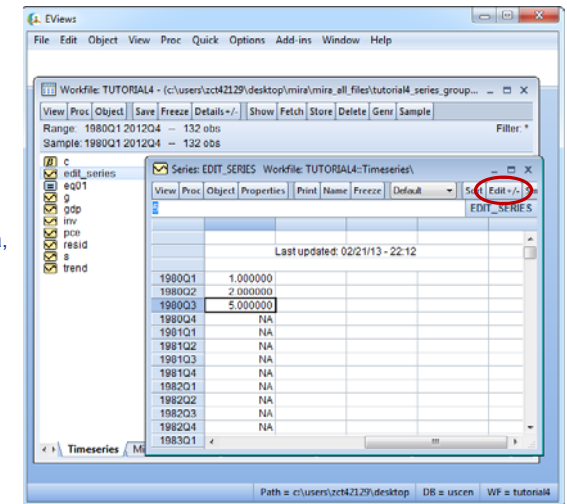
Editing, Documenting, Displaying Series

Editing a Series: Example 1

- It is very easy to edit a series in EViews.

Editing a series: Example 1

- Click on **Timeseries** page in *Tutorial4.wfi*.
- Double-click to open the `edit_series` data.
- Click the **Edit** button on the series toolbar to turn on editing mode. This allows you to type in data, change data, etc..



Editing a Series: Example 2

- You can also change a number of cells and set them equal to a certain value.
- For example, suppose you would like to set all the cells highlighted in the series below (`edit_series`) equal to 4.

Editing a series: Example 2

- Click on **Timeseries** page in *Tutorial4.wfi*.
 - Double-click to open the `edit_series` data.
 - Highlight the cells you would like to edit (as shown here).
 - Type **"=4"** in the edit window at the top of the series.
 - Press **Enter**.
- As you can see, the series cells are replaced with the value we specified.

Original Series		Edited Series	
Year	Value	Year	Value
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	NA	1981Q3	4.000000
1981Q4	NA	1981Q4	4.000000
1982Q1	NA	1982Q1	4.000000
1982Q2	NA	1982Q2	4.000000
1982Q3	NA	1982Q3	4.000000
1982Q4	NA	1982Q4	4.000000
1983Q1	NA	1983Q1	4.000000
1983Q2	NA	1983Q2	4.000000
1983Q3	NA	1983Q3	4.000000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2	NA	1984Q2	NA



Editing a Series: Example 3

- Suppose you now would like add "+1" to all the your existing observations.

Editing a series: Example 3

- Follow steps 1-2 shown in Example 2.
 - Highlight the cells you would like to edit (as shown here).
 - Type **"+=1"** in the edit window at the top of the series.
 - Press **Enter**.
- As you can see, each value in the new region is equal to the original value plus 1, as we specified.

Original Series		Edited Series	
Year	Value	Year	Value
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	4.000000	1981Q3	5.000000
1981Q4	4.000000	1981Q4	5.000000
1982Q1	4.000000	1982Q1	5.000000
1982Q2	4.000000	1982Q2	5.000000
1982Q3	4.000000	1982Q3	5.000000
1982Q4	4.000000	1982Q4	5.000000
1983Q1	4.000000	1983Q1	5.000000
1983Q2	4.000000	1983Q2	5.000000
1983Q3	4.000000	1983Q3	5.000000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2	NA	1984Q2	NA



Editing a Series: Example 4



- Suppose you now would like add "+1" to all the previous observation, recursively.

Editing a series: Example 4

- Follow steps 1-2 in Example 2.
- Highlight the cells you would like to edit (as shown here). Make sure you highlight the data starting in 1981Q4 (not 1981 Q3) since the previous cell (1981Q2) does not have data.
- Type "+_1" in the edit window at the top of the series.
- Press **Enter**.
 - As you can see, each value in the new region is equal to the previous value plus 1. This is done recursively; only the first cell uses original data.

Original Series		Edited Series	
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	5.000000	1981Q3	5.000000
1981Q4	5.000000	1981Q4	6.000000
1982Q1	5.000000	1982Q1	7.000000
1982Q2	5.000000	1982Q2	8.000000
1982Q3	5.000000	1982Q3	9.000000
1982Q4	5.000000	1982Q4	10.000000
1983Q1	5.000000	1983Q1	11.000000
1983Q2	5.000000	1983Q2	12.000000
1983Q3	5.000000	1983Q3	13.000000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2		1984Q2	

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Editing a Series in EViews: A Few Notes



- Note that Examples 2, 3 and 4 above were not done recursively.
- For example, we performed Example 2 on the original data, and Example 3 on the data that were changed by Example 2.
- EViews does not remember the "original" state of the data in the spreadsheet - once you used an array expression to change the data, that change is permanent and all subsequent modifications are made using the new data.

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Editing a Series in EViews: A Few Notes (cont'd)



- Operators (i.e., "=+1", "+_1") define how the new values are computed.
- Below, we list the available operators to editing a series

Operators to Edit/Change Series Values

Operator	Description
=	Overwrites the existing value with a new value.
+=	Adds the new value to the existing value.
-=	Subtracts the new value from the existing value.
*=	Multiplies the existing value by the new value.
/=	Divides the existing value by the new value.
=_	Overwrites the existing value with the previous cell's value.
+_	Adds the new value to the previous cell's value.
-_	Subtracts the new value from the previous cell's value.
*_	Multiplies the previous cell's value by the new value.
/_	Divides the previous cell's value by the new value.
\	Reverses the order of the selected cells.

Editing a Series: Example 5



- If you wish, you also could specify only the start and the end points of the observations you wish to edit and allow EViews to fill in the rest.

Editing a series: Example 5

- Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*.
- Highlight the cells you would like to edit (as shown here).
- Type "=10..20" in the edit window at the top of the series. This instructs EViews that the starting value of the series is 10 and the end is 20.
- Press **Enter**.

Original Series	
1980Q1	1.000000
1980Q2	3.000000
1980Q3	5.000000
1980Q4	NA
1981Q1	NA
1981Q2	NA
1981Q3	5.000000
1981Q4	6.000000
1982Q1	7.000000
1982Q2	8.000000
1982Q3	9.000000
1982Q4	10.000000
1983Q1	11.000000
1983Q2	12.000000
1983Q3	13.000000
1983Q4	NA
1984Q1	NA
1984Q2	

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Editing a Series: Example 5 (cont'd)

- The edited series (together with the original series) are shown here.
- As you can see, the range for the values of the edited series start with 10 and end with 20. The cells in between were interpolated using simple linear interpolation.

Original Series		Edited Series	
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	5.000000	1981Q3	10.000000
1981Q4	6.000000	1981Q4	11.250000
1982Q1	7.000000	1982Q1	12.500000
1982Q2	8.000000	1982Q2	13.750000
1982Q3	9.000000	1982Q3	15.000000
1982Q4	10.000000	1982Q4	16.250000
1983Q1	11.000000	1983Q1	17.500000
1983Q2	12.000000	1983Q2	18.750000
1983Q3	13.000000	1983Q3	20.000000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2	NA	1984Q2	NA

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Editing a Series: Example 6

- You can also use any of the operators (shown in the earlier table) to set the start and end range of the interpolation.
- Suppose for example, that you would like to add the interpolated values between 10 and 20 to the previous cell's values.

Editing a series: Example 6

- Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*.
- Highlight the cells you would like to edit (as shown here). Make sure you highlight the data starting in 1981Q4 (not 1981 Q3) since the previous cell (1981Q2) does not have data.
- Type "+ 5..14" in the edit window at the top of the series. This instructs EViews to add the numbers between the range of 5 and 14 (interpolated) to the previous cell's values.
- Press **Enter**.

Original Series	
1980Q1	1.000000
1980Q2	3.000000
1980Q3	5.000000
1980Q4	NA
1981Q1	NA
1981Q2	NA
1981Q3	10.000000
1981Q4	11.250000
1982Q1	12.500000
1982Q2	13.750000
1982Q3	15.000000
1982Q4	16.250000
1983Q1	17.500000
1983Q2	18.750000
1983Q3	20.000000
1983Q4	NA
1984Q1	NA
1984Q2	NA

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Editing a Series: Example 6 (cont'd)

- The edited series (together with the original series) are shown here.
- As seen, the first value (associated with 1981 Q3) is the same as before (10) since this is where our range starts.
- The next value (1981Q4) is equal to the previous value (10) plus 5 (the start of our interpolation range; recall the interpolation range is 5-14).
- The next value (1982Q1) is equal to the previous value (15) plus the interpolated value of 6.28571.

Original Series		Edited Series	
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	10.000000	1981Q3	10.000000
1981Q4	11.250000	1981Q4	15.000000
1982Q1	12.500000	1982Q1	21.28571
1982Q2	13.750000	1982Q2	28.85714
1982Q3	15.000000	1982Q3	37.71429
1982Q4	16.250000	1982Q4	47.85714
1983Q1	17.500000	1983Q1	59.28571
1983Q2	18.750000	1983Q2	72.00000
1983Q3	20.000000	1983Q3	86.00000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2	NA	1984Q2	NA

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Editing a Series: Example 7

- You do not need to specify start and end values for the range of interpolation.
- If you simply type "=", EViews will consider the value of the previous/next cell (outside the highlighted range) as a start/end points.

Editing a series: Example 7

- Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*.
 - Highlight the cells you would like to edit (as shown here from 1982Q2-1983Q1).
 - Type "=" in the edit window at the top of the series.
 - Press **Enter**.
- As you can see, the values have changed, replaced with interpolated values between 21.28571 and 72.00.

Original Series		Edited Series	
1980Q1	1.000000	1980Q1	1.000000
1980Q2	3.000000	1980Q2	3.000000
1980Q3	5.000000	1980Q3	5.000000
1980Q4	NA	1980Q4	NA
1981Q1	NA	1981Q1	NA
1981Q2	NA	1981Q2	NA
1981Q3	10.000000	1981Q3	10.000000
1981Q4	15.000000	1981Q4	15.000000
1982Q1	21.28571	1982Q1	21.28571
1982Q2	28.85714	1982Q2	31.42857
1982Q3	37.71429	1982Q3	41.57143
1982Q4	47.85714	1982Q4	51.71429
1983Q1	59.28571	1983Q1	61.85714
1983Q2	72.000000	1983Q2	72.000000
1983Q3	86.000000	1983Q3	86.000000
1983Q4	NA	1983Q4	NA
1984Q1	NA	1984Q1	NA
1984Q2	NA	1984Q2	NA



Editing a Series: Example 8

- So far, we have used a linear interpolation.
- We can use other types of interpolation (log linear, cubic spline, etc).

Editing a series: Example 8

1. Let's show an example that compares a linear vs. a log-linear (multiplicative) interpolation. Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*.
2. Highlight the cells you would like to edit (as shown here from 1981Q2-1983Q3).
3. Type "**=5..20**" in the edit window at the top of the series.
4. Press **Enter**.
5. To create the log-linear interpolated values repeat the same steps as above but type instead "**=5..20***". The added "*" instructs EViews to use log-linear (multiplicative) interpolation.

Year	Quarter	Value
1980	Q1	1.000000
1980	Q2	3.000000
1980	Q3	5.000000
1980	Q4	NA
1981	Q1	NA
1981	Q2	10.000000
1981	Q3	15.000000
1981	Q4	21.28571
1982	Q1	31.42857
1982	Q2	41.57143
1982	Q3	51.71429
1982	Q4	61.85714
1983	Q1	72.00000
1983	Q2	86.00000
1983	Q3	NA
1983	Q4	NA
1984	Q1	NA
1984	Q2	NA

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Editing a Series: Example 8 (cont'd)

- Both series are shown here.
- Notice that the start and end values are equal to 5 and 20 (as we specified).
- The interpolated values differ: in the linear case, the interpolated values are equal to **end-start/(N-1)**, where N is the number of cells (in our case 9). So, the change from one cell to another is:

$$20-5/9-1=1.875.$$
- In the log-linear case, the increase in the log value is constant, equal to:

$$(\log(20)-\log(5))/(9-1)=0.25257$$

Linear Interpolation Log-Linear Interpolation

Year	Quarter	Linear Value	Log-Linear Value
1980	Q1	1.000000	1.000000
1980	Q2	3.000000	3.000000
1980	Q3	5.000000	5.000000
1980	Q4	NA	NA
1981	Q1	NA	NA
1981	Q2	5.000000	5.000000
1981	Q3	6.875000	5.946036
1981	Q4	8.750000	7.071068
1982	Q1	10.625000	8.408964
1982	Q2	12.500000	10.000000
1982	Q3	14.375000	11.89207
1982	Q4	16.250000	14.14214
1983	Q1	18.125000	16.81793
1983	Q2	20.000000	20.000000
1983	Q3	NA	NA
1983	Q4	NA	NA
1984	Q1	NA	NA
1984	Q2	NA	NA

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Editing a Series: Example 9

- You can also interpolate missing (NA) values.
- There are a number of interpolation techniques in EViews; let's demonstrate a couple.

Editing a series: Example 9

1. Continue to work with the *edit_series* in the *Timeseries* page. As you can see there are a number of missing values.
2. Highlight the range of series – including the NA values which you would like to interpolate (in this case the range is from 1980Q1-1984-Q3).
3. Type “**_**” in the edit window at the top of the series.
4. Press **Enter**.

Original Series

Year	Quarter	Value
1980	Q1	1.000000
1980	Q2	3.000000
1980	Q3	5.000000
1980	Q4	NA
1981	Q1	NA
1981	Q2	5.000000
1981	Q3	10.000000
1981	Q4	11.89207
1982	Q1	14.14214
1982	Q2	16.81793
1982	Q3	20.000000
1982	Q4	NA
1983	Q1	NA
1983	Q2	NA
1983	Q3	NA
1983	Q4	NA
1984	Q1	NA
1984	Q2	NA
1984	Q3	NA
1984	Q4	NA
1985	Q1	NA

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Editing a Series: Example 9 (cont'd)

- The new (edited) series (together with the original series) are shown here.
- Notice that by typing “**_**” we simply instructed EViews to interpolate all subsequent “NA” values with the previous available value.

Original Series Edited Series

Year	Quarter	Original Value	Edited Value
1980	Q1	1.000000	1.000000
1980	Q2	3.000000	3.000000
1980	Q3	5.000000	5.000000
1980	Q4	NA	5.000000
1981	Q1	NA	5.000000
1981	Q2	5.000000	10.000000
1981	Q3	10.000000	10.000000
1981	Q4	11.89207	11.89207
1982	Q1	14.14214	14.14214
1982	Q2	16.81793	16.81793
1982	Q3	20.000000	20.000000
1982	Q4	NA	20.000000
1983	Q1	NA	20.000000
1983	Q2	NA	20.000000
1983	Q3	NA	20.000000
1983	Q4	NA	20.000000
1984	Q1	NA	20.000000
1984	Q2	NA	20.000000
1984	Q3	NA	20.000000
1984	Q4	NA	NA
1985	Q1	NA	NA

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Editing a Series: Example 10



- Suppose that instead of interpolating **NA** values with the previous available value, you would like to use a cubic spline.

Editing a series: Example 10

- Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*. Since in Example 9 we filled in the missing values with the previous data, first let's try to get the data back to the original state by deleting all the previous entries. For this, click each cell in the range 1980Q4-1981Q2 and 1983Q4-1984Q3 and hit **Delete**.
- Highlight the range of series—in this case the range is from 1980Q1-1984-Q3).
- Type “~” in the edit window at the top of the series.
- Press **Enter**.

Original Series

Year	Value
1980Q1	1.000000
1980Q2	3.000000
1980Q3	5.000000
1980Q4	NA
1981Q1	NA
1981Q2	NA
1981Q3	5.000000
1981Q4	5.945036
1982Q1	7.071068
1982Q2	8.408954
1982Q3	10.000000
1982Q4	11.89207
1983Q1	14.14214
1983Q2	16.81793
1983Q3	20.000000
1983Q4	NA
1984Q1	NA
1984Q2	NA
1984Q3	NA
1984Q4	NA
1985Q1	NA

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Editing a Series: Example 10 (cont'd)



- The new (edited) series (together with the original series) are shown here.
- Notice that by typing “~” we simply instructed EViews to interpolate all “NA” values using a cubic spline method.

Original Series

Edited Series

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Editing a Series in EViews: Interpolating NA values



- Each interpolation technique has its own symbol.
- Below, we show the interpolation methods supported by EViews.

Interpolation of missing (NA) values

Operator	Description
—	Repeats previous non-missing values.
^	Linear Interpolation.
~	Cubic spline interpolation.
&	Catmull-Rom spline interpolation.
^*	Log-linear (multiplicative) interpolation (linear in log of data).
~*	Multiplicative cubic spline interpolation (cubic spline on the log data).
&*	Multiplicative Catmull-Rom spline interpolation (Catmull-Rom spline on the log data).

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Adjust Mode: Example



- An new feature in EViews 8 is the “**Adjust**” mode which allows you to compare the data in the original series to any changes you may make.

Adjust Mode: Example

- Double-click to open the *edit_series* data on *Timeseries* page in *Tutorial4.wfi*.
- Click on the **Adjust+/-** button in the series toolbar. EViews will add additional columns to the spreadsheet view. The first new column titled “**Unadjusted**” contains a copy of the series values at the moment you entered adjust mode. This “**Unadjusted**” column is fixed and does not change if you change the data.
- Let's change a few values in the series: replace 1981Q3 with 10; 1983Q1 with 20 and 1984Q1 with 30.

Original Series in Adjust Mode

Year	Unadjusted	Delta	Delta%
1980Q1	1.000000	1.000000	
1980Q2	3.000000	3.000000	
1980Q3	5.000000	5.000000	
1980Q4	5.735605	5.735605	
1981Q1	5.474112	5.474112	
1981Q2	4.975564	4.975564	
1981Q3	5.000000	5.000000	
1981Q4	5.945036	5.945036	
1982Q1	7.071068	7.071068	
1982Q2	8.408954	8.408954	
1982Q3	10.000000	10.000000	
1982Q4	11.89207	11.89207	
1983Q1	14.14214	14.14214	
1983Q2	16.81793	16.81793	
1983Q3	20.000000	20.000000	
1983Q4	23.29277	23.29277	
1984Q1	25.58553	25.58553	
1984Q2	29.87830	29.87830	
1984Q3	33.17106	33.17106	
1984Q4	NA	NA	
1985Q1	NA	NA	
1985Q2	NA	NA	

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Adjust Mode: Example (cont'd)

- The result is shown here.
- You can notice that EViews has filled in two new columns "**Delta**" and "**Delta%**".
- "**Delta**" shows the raw difference between the original "**Unadjusted**" series, and the current values in the series.
- "**Delta%**" shows the percentage difference between the original "**Unadjusted**" series and the current values in the series.

	EDIT_SERIES	Unadjusted	Delta	Delta%
1980Q1	1.000000	1.000000		
1980Q2	3.000000	3.000000		
1980Q3	5.000000	5.000000		
1980Q4	5.735605	5.735605		
1981Q1	5.474112	5.474112		
1981Q2	4.975564	4.975564		
1981Q3	10.00000	5.000000	+5.000000	+100.0%
1981Q4	5.946036	5.946036		
1982Q1	7.071068	7.071068		
1982Q2	8.408964	8.408964		
1982Q3	10.00000	10.00000		
1982Q4	11.89207	11.89207		
1983Q1	20.00000	14.14214	+5.857864	+41.4%
1983Q2	16.81793	16.81793		
1983Q3	20.00000	20.00000		
1983Q4	23.29277	23.29277		
1984Q1	30.00000	26.58553	+3.414468	+12.8%
1984Q2	29.87830	29.87830		
1984Q3	33.17106	33.17106		
1984Q4	NA	NA		
1985Q1	NA	NA		
1985Q2				

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Adjust Mode: Example (cont'd)

- When in **Adjust** mode, you can edit any of the cells in the raw series column (the left-most column), or in the "**Delta**" or "**Delta%**" columns.
- Suppose you want the value of the raw data for 1982Q1 for to be 6 units greater than the original value and the data for 1984Q3 to be 10% larger.

Adjust Mode: Example (cont'd)

- Type "**6**" in the "**Delta**" column in cell 1982Q1.
 - Type "**10**" in the "**Delta%**" column in cell 1984Q3.
- The changes are shown here. Note that the raw data in the "**edit_series**" has changed accordingly.

	EDIT_SERIES	Unadjusted	Delta	Delta%
1980Q1	1.000000	1.000000		
1980Q2	3.000000	3.000000		
1980Q3	5.000000	5.000000		
1980Q4	5.735605	5.735605		
1981Q1	5.474112	5.474112		
1981Q2	4.975564	4.975564		
1981Q3	10.00000	5.000000	+5.000000	+100.0%
1981Q4	5.946036	5.946036		
1982Q1	13.07107	7.071068	+6.000000	+84.9%
1982Q2	8.408964	8.408964		
1982Q3	10.00000	10.00000		
1982Q4	11.89207	11.89207		
1983Q1	20.00000	14.14214	+5.857864	+41.4%
1983Q2	16.81793	16.81793		
1983Q3	20.00000	20.00000		
1983Q4	23.29277	23.29277		
1984Q1	30.00000	26.58553	+3.414468	+12.8%
1984Q2	29.87830	29.87830		
1984Q3	36.48817	33.17106	+3.317106	+10.0%
1984Q4	NA	NA		
1985Q1	NA	NA		
1985Q2				

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Adjust Mode: A Few Notes

- Unlike simple editing of a series in which changes are permanent, changes in "**Adjust**" mode can be reversed.
- When you exit the "**Adjust**" mode, either by toggling the **Adjust +/-** button, or by closing the series, EViews asks you if you would like to keep the changes you made.
- Note also that any changes made while in **Adjust** mode are "live", meaning that any operations (statistical analysis, regressions, etc.) performed using the series will use the current edited values.
- However, exiting the "**Adjust**" mode offers you the chance to revert back to the pre-adjusted values.
- This property of the "**Adjust**" mode can be very useful since it allows you to perform quick "what if" analysis without permanently changing the series.

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Documenting a Series

EViews allows you to add more information on your data (source, units, remarks) using the **Label View**.

To add documentation to your data:

- On the menu toolbar of a series you wish to document select **View** → **Label**.
- The **Series View** changes to allow you to add remarks and other data documentation.

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Displaying a Series

- You can resize the width of a column, change the way the data is displayed, etc., by opening the series spreadsheet display.
- Clicking on the **Default** button displays a drop-down menu, which tells EViews the format of the data.
- The **Default** shows data in raw form; you can change the way the data is displayed by choosing other options from the drop-down menu (differenced, % change, log, etc.).

Year	GDP
3/0/1980	5903.4
6/0/1980	5782.4
9/0/1980	5771.7
12/0/1980	5878.4
3/0/1981	6000.6
6/0/1981	5952.7
9/0/1981	6025.0
12/0/1981	5950.0
3/0/1982	5852.3
6/0/1982	5884.0
9/0/1982	5861.4
12/0/1982	5866.0
3/0/1983	5938.9
6/0/1983	6072.4
9/0/1983	6192.2
12/0/1983	6320.2
3/0/1984	6442.8
6/0/1984	6554.0
9/0/1984	6617.7
12/0/1984	

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Displaying a Series (cont'd)

- You can customize the formatting of a series by clicking the **Properties** toolbar of a series spreadsheet.
- This opens up the **Properties** dialog box; select the **Display** tab.
- This menu allows you to change the number of decimals, separate thousands with a comma, or display numbers as fractions.

Year	GDP
3/0/1980	5903.4
6/0/1980	5782.4
9/0/1980	5771.7
12/0/1980	5878.4
3/0/1981	6000.6
6/0/1981	5952.7
9/0/1981	6025.0
12/0/1981	5950.0
3/0/1982	5852.3
6/0/1982	5884.0
9/0/1982	5861.4
12/0/1982	5866.0
3/0/1983	5938.9
6/0/1983	6072.4
9/0/1983	6192.2
12/0/1983	6320.2
3/0/1984	6442.8
6/0/1984	6554.0
9/0/1984	6617.7
12/0/1984	

Properties dialog box, Display tab. Options include: Numeric display (Fixed decimal), Column width (12.0), Decimal places (1), Thousands separator, Parens for negative, Trailing %, Comma as decimal, Justification (Auto), Indent (2).

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Displaying a Series: Narrow vs. Wide

- You can customize the formatting of a series by pressing the **Wide+/-** button from the series spreadsheet toolbar.
- This command arranges the data by the frequency of the series. In this example, the *gdp* series in the *Timeseries* page is quarterly.
- A quarterly series will display 4 observations per row, a monthly series 12, and so on.

Year	Q1	Q2	Q3	Q4
3/0/1980	5903.4	5782.4	5771.7	5878.4
3/0/1981	6000.6	5952.7	6025.0	5950.0
3/0/1982	5852.3	5884.0	5861.4	5866.0
3/0/1983	5938.9	6072.4	6192.2	6320.2
3/0/1984	6442.8	6554.0	6617.7	6716.1
3/0/1985	6734.5	6791.5	6897.6	6950.0
3/0/1986	7016.8	7045.0	7112.9	7147.3
3/0/1987	7186.9	7263.3	7326.3	7451.7
3/0/1988	7490.2	7586.4	7626.6	7727.4
3/0/1989	7799.0	7863.3	7920.6	7937.9
3/0/1990	8020.8	8052.7	8052.6	7982.0
3/0/1991	7943.4	7997.0	8030.7	8062.2
3/0/1992	8150.7	8237.3	8322.3	8409.8
3/0/1993	8425.3	8479.2	8523.8	8636.4
3/0/1994	8720.5	8839.8	8896.7	8995.5
3/0/1995	9017.6	9037.0	9112.9	9176.4
3/0/1996	9239.3	9399.0	9480.8	9584.3
3/0/1997	9658.0	9801.2	9924.2	10000.3
3/0/1998	10094.8	10185.6	10320.0	10498.6
3/0/1999				

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Displaying a Series: Sample Adjustments

- You can toggle between the full range of observations and the current sample by pressing the **Smpl+/-** button from the series spreadsheet toolbar.
- Suppose you define the sample by typing in command window: `smpl 1990q1 @last`
- You can now toggle between the full range and the newly create sample by pressing the **Smpl+/-** button.
- The range (full sample) is 1980Q1 - 2012Q1; the sample is from 1990Q1 -2012Q1.

Full Sample

Year	GDP
3/0/1980	5903.4
6/0/1980	5782.4
9/0/1980	5771.7
12/0/1980	5878.4
3/0/1981	6000.6
6/0/1981	5952.7
9/0/1981	6025.0
12/0/1981	5950.0
3/0/1982	5852.3
6/0/1982	5884.0
9/0/1982	5861.4
12/0/1982	5866.0
3/0/1983	5938.9
6/0/1983	6072.4
9/0/1983	6192.2
12/0/1983	6320.2
3/0/1984	6442.8
6/0/1984	6554.0
9/0/1984	6617.7
12/0/1984	

New Sample

Year	GDP
3/0/1990	8020.8
6/0/1990	8052.7
9/0/1990	8052.6
12/0/1990	7982.0
3/0/1991	7943.4
6/0/1991	7997.0
9/0/1991	8030.7
12/0/1991	8062.2
3/0/1992	8150.7
6/0/1992	8237.3
9/0/1992	8322.3
12/0/1992	8409.8
3/0/1993	8425.3
6/0/1993	8479.2
9/0/1993	8523.8
12/0/1993	8636.4
3/0/1994	8720.5
6/0/1994	8839.8
9/0/1994	8896.7
12/0/1994	8995.5

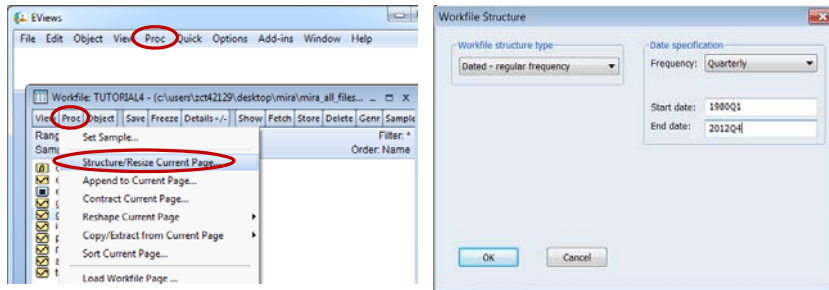
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Adding Observations to Existing Workfiles*



If new updates are available for your data you may add them to your existing workfile.

1. Click on **Timeseries** page and select **Proc** → **Structure/Resize Current Page** (either from the main menu toolbar or the workfile toolbar). Alternatively you can double-click **Range** in the upper pane of the workfile window.
2. The **Workfile Structure** dialog box opens up which allows you change the range of the workfile. Extend the range of the workfile here (in this case to 2012Q4).
3. Click **OK**.



* For a more detailed discussion on this topic see *Advanced Workfiles*.

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Adding Observations to Existing Workfiles (cont'd)



3. EViews adds three missing values (**NA**) at the end of each series in the workfile.
4. Copy your data from the source file (Excel or others).
5. In EViews open the series you want to update, click **Edit +/-** button, select the range of **NA** values you wish to update, and right-click **Paste**.

View	Proc	Object	Properties	Print
2007Q4		13326.0		
2008Q1		13266.8		
2008Q2		13310.5		
2008Q3		13186.9		
2008Q4		12883.5		
2009Q1		12663.2		
2009Q2		12641.3		
2009Q3		12694.5		
2009Q4		12613.5		
2010Q1		12937.7		
2010Q2		13058.5		
2010Q3		13139.6		
2010Q4		13216.1		
2011Q1		13227.9		
2011Q2		13271.8		
2011Q3		13331.6		
2011Q4		13429.0		
2012Q1		13502.4		
2012Q2		NA		
2012Q3		NA		
2012Q4		NA		

View	Proc	Object	Properties	Print
2007Q3		13269.8		
2007Q4		13326.0		
2008Q1		13266.8		
2008Q2		13310.5		
2008Q3		13186.9		
2008Q4		12883.5		
2009Q1		12663.2		
2009Q2		12641.3		
2009Q3		12694.5		
2009Q4		12613.5		
2010Q1		12937.7		
2010Q2		13058.5		
2010Q3		13139.6		
2010Q4		13216.1		
2011Q1		13227.9		
2011Q2		13271.8		
2011Q3		13331.6		
2011Q4		13429.0		
2012Q1		13502.4		
2012Q2		4.0		
2012Q3		5.0		
2012Q4		6.0		

- The NA values that were added originally to the spreadsheet are now updated with the latest values.

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Groups



Groups



- Groups help you work with multiple series.
- A Group is a list of series names (and potentially mathematical expressions) that provides access to all the data in that list.
- Once you create a **Group Object**, you can use the group name in many places to refer to all the series contained in that group.
- A few features of groups:
 - ✓ A group is a "live" feed and is NOT a copy of each individual series. This means that if the data in one of the series changes, these changes will also be reflected in the group containing the series.
 - ✓ If a series is deleted from a workfile, the series identifier will be maintained. In the group spreadsheet the deleted series will contain NA values.
 - ✓ Renaming a series changes the reference in every group containing the series.

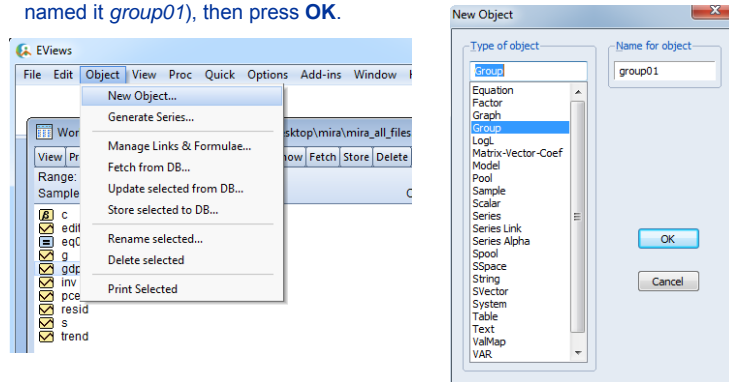
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Creating Groups: Example 1

- There are a number of ways to create groups in EViews.

Creating groups: Example 1

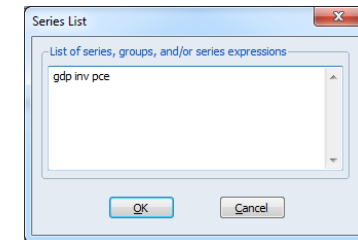
1. Click on **Timeseries** page. Select **Object** → **New Object** from the main menu.
2. The **New Object** box opens up. Select the **Group** option.
3. You can name your group under the section **Name for object** (in this case, we named it *group01*), then press **OK**.



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Creating Groups: Example 1 (cont'd)

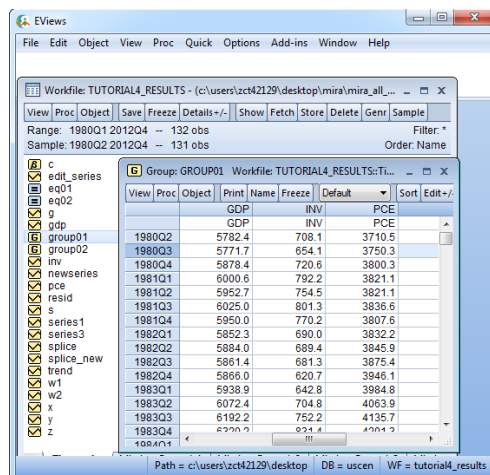
4. The **Series List** window appears. Enter the series names you wish to include in the group (separated by spaces).



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Creating Groups: Example 1 (cont'd)

- As seen, EViews has added a new object (*group01*) which contains the data from the series we specified.



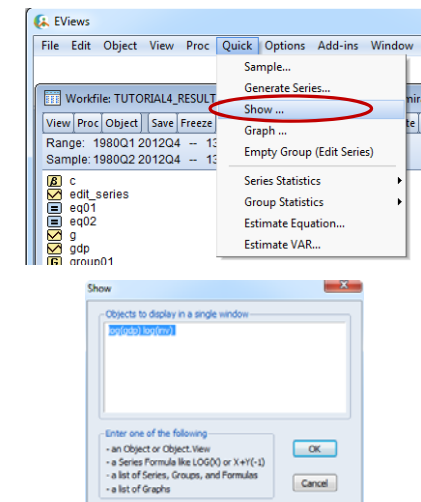
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Creating Groups: Example 2

- You can also create a group in EViews is by using the **Quick** menu option.

Creating groups: Example 2

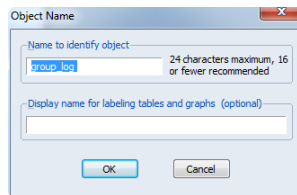
1. Click on **Timeseries** page. Select **Quick** → **Show** from the main menu (or **Show** from the workfile menu).
2. The **Show** window appears. Type here the names of the series you wish to include in the group (in this example, we type **log(gdp) log(inv)**)
3. Press **OK**.



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Creating Groups: Example 2 (cont'd)

- The result is shown here. EViews has created a new (untitled) group containing the data from log(gdp) and log(inv).
- If you would like to save the group, click the **Name** button.
- The **Object Name** box opens up (as shown below). Name the group here (in our case *group_log*).

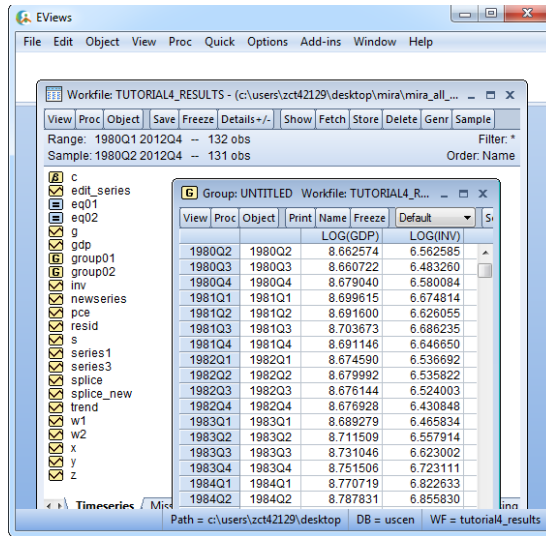


Object Name

Name to identify object: 24 characters maximum, 16 or fewer recommended

Display name for labeling tables and graphs (optional):

OK Cancel



Workfile: TUTORIAL4_RESULTS - (c:\users\zct42129\desktop\mira\mira_all_...)

Range: 1980Q1 2012Q4 -- 132 obs
Sample: 1980Q2 2012Q4 -- 131 obs

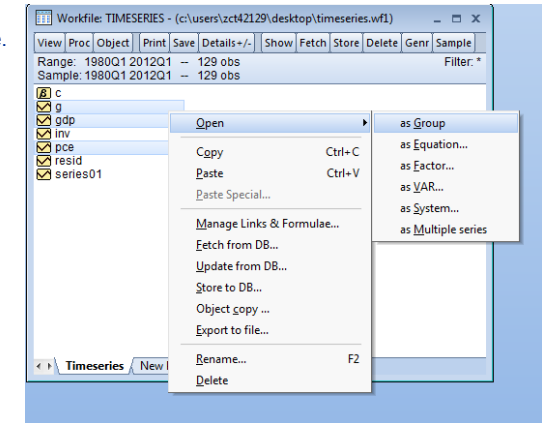
View	Proc	Object	Print	Name	Freeze	Default
		1980Q2	1980Q2	8.662574	6.562585	
		1980Q3	1980Q3	8.660722	6.483260	
		1980Q4	1980Q4	8.679040	6.580084	
		1981Q1	1981Q1	8.699615	6.674814	
		1981Q2	1981Q2	8.691600	6.626055	
		1981Q3	1981Q3	8.703673	6.686235	
		1981Q4	1981Q4	8.691146	6.646650	
		1982Q1	1982Q1	8.674590	6.536692	
		1982Q2	1982Q2	8.679992	6.535822	
		1982Q3	1982Q3	8.676144	6.524003	
		1982Q4	1982Q4	8.676928	6.430848	
		1983Q1	1983Q1	8.689279	6.465834	
		1983Q2	1983Q2	8.711509	6.557914	
		1983Q3	1983Q3	8.731046	6.623002	
		1983Q4	1983Q4	8.751506	6.723111	
		1984Q1	1984Q1	8.770719	6.822633	
		1984Q2	1984Q2	8.787831	6.855830	

Creating Groups: Example 3

- Perhaps the easiest way to create groups is to select series directly from the workfile.

Creating groups: Example 3

- Click on **Timeseries** page. Highlight the series you wish to group together (in this case *g* and *pce*).
- Right-click and select: **Open** → **as Group**.



Workfile: TIMESERIES - (c:\users\zct42129\desktop\timeseries.wf1)

Range: 1980Q1 2012Q1 -- 129 obs
Sample: 1980Q1 2012Q1 -- 129 obs

Open → as Group

Copy Ctrl+C

Paste Ctrl+V

Paste Special...

Manage Links & Formulae...

Fetch from DB...

Update from DB...

Store to DB...

Object copy ...

Export to file...

as Equation...

as Factor...

as VAR...

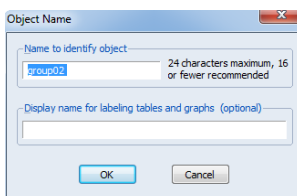
as System...

as Multiple series

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Creating Groups: Example 3 (cont'd)

- The result is shown here. EViews has created a new (untitled) group containing the data from *g* and *pce*.
- As before, if you would like to save the group, click the **Name** button.
- The **Object Name** box opens up. Name the group here (in our case *group02*).

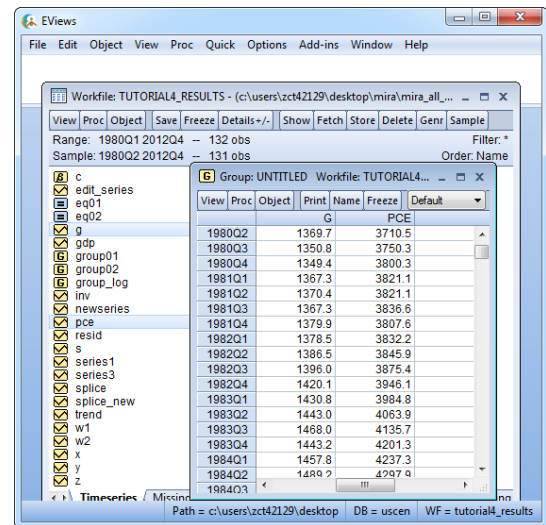


Object Name

Name to identify object: 24 characters maximum, 16 or fewer recommended

Display name for labeling tables and graphs (optional):

OK Cancel



Workfile: TUTORIAL4_RESULTS - (c:\users\zct42129\desktop\mira\mira_all_...)

Range: 1980Q1 2012Q4 -- 132 obs
Sample: 1980Q2 2012Q4 -- 131 obs

View	Proc	Object	Print	Name	Freeze	Default
		1980Q2	1389.7	3710.5		
		1980Q3	1350.8	3750.3		
		1980Q4	1349.4	3800.3		
		1981Q1	1367.3	3821.1		
		1981Q2	1370.4	3821.1		
		1981Q3	1367.3	3836.6		
		1981Q4	1379.9	3807.6		
		1982Q1	1378.5	3832.2		
		1982Q2	1386.5	3845.9		
		1982Q3	1396.0	3875.4		
		1982Q4	1420.1	3946.1		
		1983Q1	1430.8	3984.8		
		1983Q2	1443.0	4063.9		
		1983Q3	1468.0	4135.7		
		1983Q4	1443.2	4201.3		
		1984Q1	1457.8	4237.3		
		1984Q2	1489.7	4297.9		

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Creating Groups: Example 4

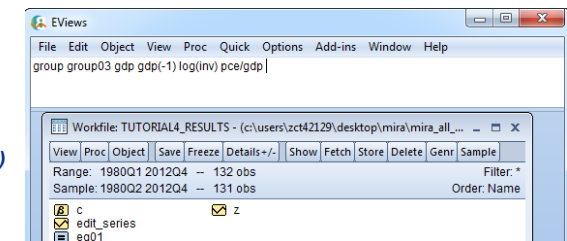
- As a last example, consider creating groups in EViews using the command window.

Creating groups: Example 4

- Click on **Timeseries** page. Type on the command window:

group group03 gdp gdp(-1) log(inv) pce/gdp

- Press Enter.



Workfile: TUTORIAL4_RESULTS - (c:\users\zct42129\desktop\mira\mira_all_...)

Range: 1980Q1 2012Q4 -- 132 obs
Sample: 1980Q2 2012Q4 -- 131 obs

group group03 gdp gdp(-1) log(inv) pce/gdp

z

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Creating Groups: Example 4 (cont'd)

- The result is shown here. As you can notice, EViews has created a new group (*group03*) which contains the series we specified in the command window (*gdp*, *lag GDP*, *log(inv)* and *PCE/GDP*).
- As it must be evident by now, groups may contain Series and Auto-series (series expressions such as *log(inv)*, *gdp(-1)* and *pce/gdp*).

Year	GDP	GDP(-1)	LOG(INV)	PCE/GDP
1980Q2	5782.4	5903.4	6.562585	0.641989
1980Q3	5771.7	5782.4	6.483280	0.640774
1980Q4	5878.4	5771.7	6.590084	0.646485
1981Q1	6000.6	5878.4	6.674814	0.636786
1981Q2	5952.7	6000.6	6.628655	0.641910
1981Q3	6025.0	5952.7	6.606235	0.636700
1981Q4	5950.0	6025.0	6.646650	0.639933
1982Q1	5852.3	5950.0	6.536692	0.654819
1982Q2	5884.0	5852.3	6.539822	0.653020
1982Q3	5884.0	5884.0	6.524003	0.661173
1982Q4	5866.0	5866.0	6.430848	0.672707
1983Q1	5938.9	5866.0	6.465824	0.670966
1983Q2	6072.4	5938.9	6.557914	0.669241
1983Q3	6192.2	6072.4	6.623002	0.667889
1983Q4				
1984Q1				
1984Q2				
1984Q3				
1984Q4				
1985Q1				

Data Comparison Tools in Groups

- A new feature in EViews 8 allows you to easily compare the data between the series in your group.
- Suppose you have two *gdp* series: *gdp* and *gdp_revised*, where the second series has more updated data. You would like to compare the two.

Comparing data between series in a group:

- Click on **Timeseries** page. Click on *gdp* and *gdp_revised* and open these series as a group. Name the group *group04*.
- Click the **Compare+/-** button located in the group menu toolbar.

Year	GDP	GDP_REVIS
1980Q1	5903.4	5903.400
1980Q2	5782.4	5782.400
1980Q3	5771.7	5771.700
1980Q4	5878.4	5878.400
1981Q1	6000.6	6026.000
1981Q2	5952.7	5952.700
1981Q3	6025.0	6025.000
1981Q4	5950.0	5950.000
1982Q1	5852.3	5852.300
1982Q2	5884.0	5884.000
1982Q3	5861.4	6100.000
1982Q4	5866.0	5866.000
1983Q1	5938.9	5938.900
1983Q2	6072.4	6072.400
1983Q3	6192.2	6192.200
1983Q4	6320.2	6320.200
1984Q1	6442.8	6442.800
1984Q2	6554.0	6554.000
1984Q3	6617.7	6617.700
1984Q4	6671.6	6671.600
1985Q1		

Data Comparison Tools in Groups (cont'd)

- The result is shown here.
- Notice that, similar to the **Adjust+/-** mode explained earlier, the **Compare+/-** command adds two new columns "**Delta**" and "**Delta%**".
- "**Delta**" shows the raw difference between the "*gdp*" and "*gdp_revised*" series.
- "**Delta%**" shows the percentage difference between the two series.

Year	GDP	GDP_REVIS	Delta	Delta%
1980Q1	5903.4	5903.400		
1980Q2	5782.4	5782.400		
1980Q3	5771.7	5771.700		
1980Q4	5878.4	5878.400		
1981Q1	6000.6	6026.000	-25.4	-0.4%
1981Q2	5952.7	5952.700		
1981Q3	6025.0	6025.000		
1981Q4	5950.0	5950.000		
1982Q1	5852.3	5852.300		
1982Q2	5884.0	5884.000		
1982Q3	5861.4	6100.000	-238.6	-3.9%
1982Q4	5866.0	5866.000		
1983Q1	5938.9	5938.900		
1983Q2	6072.4	6072.400		
1983Q3	6192.2	6192.200		
1983Q4	6320.2	6320.200		
1984Q1	6442.8	6442.800		
1984Q2	6554.0	6554.000		
1984Q3	6617.7	6617.700		
1984Q4	6671.6	6671.600		
1985Q1				

Data Comparison Tools in Groups (cont'd)

- Note that all four columns are fully editable.
- For example, if you would like to remove any differences between the two series, you can accomplish this by typing "0" in the "**Delta**" column.
- Note that this change will be reflected in the first series ("*gdp*") and not the second "*gdp_revised*".
- In other words, by typing "0" in the "**Delta**" column, you are effectively setting the first series to equal the second series.

Data Comparison Tools in Groups (cont'd)

- If you change the series display from **Default** to some other setting, EViews removes the **"Delta%"** column and introduces new columns showing the new transformation and a new **"Delta"** column showing the difference for that transformation.
- Here we chose the **Log Diff** view. As you can notice, EViews has added two new columns showing the log difference for each series (*dlog(gdp)* and *dlog(gdp_revised)*) and the difference between these two (the new **"Delta"** column).
- Note that, as before, each column is also editable here.

	GDP	GDP_REVIS	Delta	DLOG(GDP)	DLOG(GDP_REVIS)	Delta
1980Q1	5903.4	5903.400		N/A	N/A	
1980Q2	5782.4	5782.400		-0.020710	-0.020710	
1980Q3	5771.7	5771.700		-0.001852	-0.001852	
1980Q4	5878.4	5878.400		0.018318	0.018318	
1981Q1	6000.6	6026.000	-25.4	0.020575	0.024799	-0.004224
1981Q2	5952.7	5952.700		-0.008915	-0.012239	+0.004224
1981Q3	6025.0	6025.000		0.012073	0.012073	
1981Q4	5950.0	5950.000		-0.012526	-0.012526	
1982Q1	5852.3	5852.300		-0.016556	-0.016556	
1982Q2	5884.0	5884.000		0.005402	0.005402	
1982Q3	5881.4	6100.000	-238.6	0.003848	0.036052	-0.039900
1982Q4	5866.0	5866.000		0.000784	-0.039116	+0.039900
1983Q1	5938.9	5938.900		0.012351	0.012351	
1983Q2	6072.4	6072.400		0.022230	0.022230	
1983Q3	6192.2	6192.200		0.019537	0.019537	
1983Q4	6320.2	6320.200		0.020460	0.020460	
1984Q1	6442.8	6442.800		0.019212	0.019212	
1984Q2	6554.0	6554.000		0.017112	0.017112	
1984Q3	6617.7	6617.700		0.009672	0.009672	
1984Q4	6671.6	6671.600		0.008112	0.008112	
1985Q1	6734.5	6734.500		0.009384	0.009384	
1985Q2	6791.5	6791.500		0.008428	0.008428	
1985Q3						

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Data Comparison Tools in Groups (cont'd)

- Note that the default comparison in EViews is done with zero tolerance.
- This means EViews will pick up even the slightest differences between the series and highlight these.
- If you would like to change the default settings for the tolerance level, follow these simple steps:
 - Right-hand click anywhere on the spreadsheet when in **Compare** Mode.
 - Select **Highlighting**.

	GDP	GDP_REVIS...	Delta	Delta%
1980Q1	5903.4	5903.400		
1980Q2	5782.4	5782.400		
1980Q3	5771.7	5771.700		
1980Q4	5878.4	5878.400		
1981Q1	6000.6	6026.000		
1981Q2	5952.7	5952.700		
1981Q3	6025.0	6025.000		
1981Q4	5950.0	5950.000		
1982Q1	5852.3	5852.300		
1982Q2	5884.0	5884.000		
1982Q3	5861.4	6100.000		
1982Q4	5866.0	5866.000		
1983Q1	5938.9	5938.900		
1983Q2	6072.4	6072.400		
1983Q3	6192.2	6192.200		
1983Q4	6320.2	6320.200		
1984Q1	6442.8	6442.800		
1984Q2	6554.0	6554.000		
1984Q3	6617.7	6617.700		
1984Q4	6671.6	6671.600		
1985Q1	6734.5	6734.500		
1985Q2	6791.5	6791.500		
1985Q3				

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Data Comparison Tools in Groups (cont'd)

- The **Comparison Highlighting** box opens up. Under **Highlight if difference exceeds** field, specify your own tolerance level.
- Click **OK**.

Comparison Highlighting

Compare against: Adjacent Columns

Highlight if difference exceeds: 10%

OK Cancel

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Data Comparison Tools in Groups (cont'd)

- Finally, note that you can compare more than two series.
- Suppose you have three gdp series: *gdp*, *gdp_revised* and *gdp_revised1*. You would like to see the differences between them.

Comparing data between three series in a group:

- Click on **Timeseries** page. Click on *gdp*, *gdp_revised*, and *gdp_revised1* and open these series as a group. Name the group: *group05*.
- Click the **Compare+/-** button located in the group menu toolbar.

	GDP	GDP_REVIS...	GDP_REVIS...
1980Q1	5903.4	5903.400	5903.400
1980Q2	5782.4	5782.400	5782.400
1980Q3	5771.7	5771.700	5771.700
1980Q4	5878.4	5878.400	5878.400
1981Q1	6000.6	6026.000	6026.000
1981Q2	5952.7	5952.700	5952.700
1981Q3	6025.0	6025.000	6025.000
1981Q4	5950.0	5950.000	5950.000
1982Q1	5852.3	5852.300	5852.300
1982Q2	5884.0	5884.000	5884.000
1982Q3	5861.4	6100.000	6100.000
1982Q4	5866.0	5866.000	5866.000
1983Q1	5938.9	5938.900	5938.900
1983Q2	6072.4	6072.400	6072.400
1983Q3	6192.2	6192.200	7000.000
1983Q4	6320.2	6320.200	6320.200
1984Q1	6442.8	6442.800	6442.800
1984Q2			

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Data Comparison Tools in Groups (cont'd)



- The result is shown here.
- Notice that, unlike the previous examples, EViews no longer adds the extra columns.
- It simply highlights the differences between each column.
- Note also that comparisons are carried out in pairs. For example, EViews first compares column 1 with column 2 and highlights those differences. Then it compares column 2 with column 3 and highlights those differences.

Object	Print	Name	Freeze	Default	Sort	Edit +/-	Smp1 +/-
	GDP	GDP_REVIS...		GDP_REVIS...			
1980Q1	5903.4	5903.400	5903.400				
1980Q2	5782.4	5782.400	5782.400				
1980Q3	5771.7	5771.700	5771.700				
1980Q4	5878.4	5878.400	5878.400				
1981Q1	6000.6	6026.000	6026.000				
1981Q2	5952.7	5952.700	5952.700				
1981Q3	6025.0	6025.000	6025.000				
1981Q4	5950.0	5950.000	5950.000				
1982Q1	5852.3	5852.300	5852.300				
1982Q2	5884.0	5884.000	5884.000				
1982Q3	5861.4	6100.000	6100.000				
1982Q4	5866.0	5866.000	5866.000				
1983Q1	5938.9	5938.900	5938.900				
1983Q2	6072.4	6072.400	6072.400				
1983Q3	6192.2	6192.200	7000.000				
1983Q4	6320.2	6320.200	6320.200				
1984Q1	6442.8	6442.800	6442.800				
1984Q2	6554.0	6554.000	6554.000				
1984Q3	6617.7	6617.700	6617.700				
1984Q4	6671.6	6671.600	6671.600				
1985Q1	6724.5	6724.500	6724.500				
1985Q2							