FRED Add-In for Microsoft Excel®

USER GUIDE

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INTRODUCTION

The FRED® (Federal Reserve Economic Data) database contains over 800,000 economic time series. On the FRED website users can view data, create charts, and download data. The FRED Add-in provides data users with an additional means of accessing the FRED database.[*] After downloading and adding the FRED Add-in to Microsoft® Excel®, users can download any FRED data series directly into an Excel worksheet in seconds. In addition to downloading the data, the FRED Add-in allows users to: choose a data manipulation (i.e., growth rate), specify a date range (i.e., 1960:Q1 to 2020:Q4), aggregate data to a lower frequency (i.e., weekly to monthly), and browse popular data series.

GETTING STARTED

FRED was designed to make accessing and using economic data as easy as possible. The FRED Add-in is the next step toward improving the usability of economic data for students, researchers, and businesspeople alike. The FRED Add-in has been designed with a simple interface that provides users with a fast way to get economic data from FRED into Excel for conducting analysis using all of the tools Excel has to offer.

QUICK-START GUIDE*

Downloading FRED data into Excel is very simple: The key is understanding where (which rows) in the Excel worksheet to input a series ID, manipulation, frequency, and start date. The only information necessary to Get FRED Data is the series ID; if the other cells are left blank, default settings will be used.
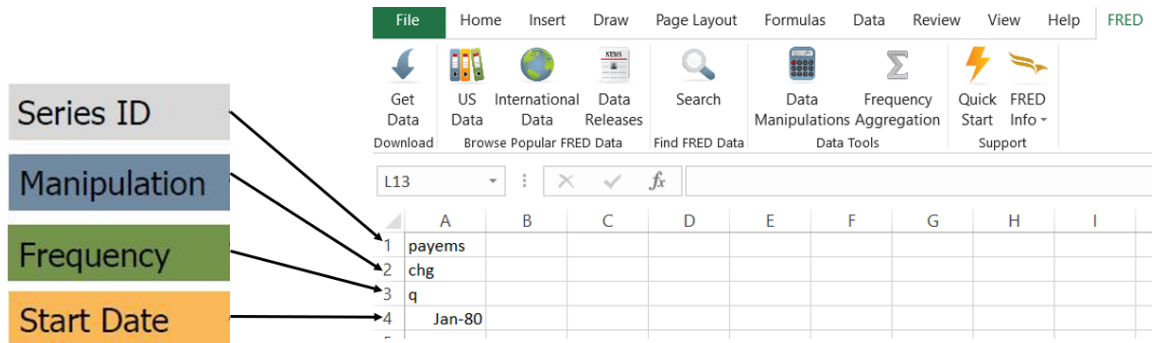
After you have input the desired information, click the Get Data button.

Series IDs

Regular FRED users may be familiar with the FRED series IDs. For example, payems is the series ID for Nonfarm Payroll Employment. If you know the series ID, type it into a cell in the first row of your worksheet. If not, it is possible to browse the popular FRED data series using the Find Data menu on the FRED-Excel toolbar or browse on FRED website for the desired series IDs.

Data Manipulations

If row 2 is empty, by default, the FRED Add-in will download your data "in levels" (without any manipulation). If you would prefer to download the growth rate of a series, simply type the desired manipulation into the second row. If you don't know the manipulation ID, click on the calculator icon on the FRED-Excel toolbar and choose the desired manipulation. Note that because FRED uses levels and rounded data as published by the source, calculations of percentage changes and/or growth rates in some series may not be identical to those in the original releases.

Frequency Aggregation

If row 3 is empty, by default the FRED Add-in will download your data "as reported" by the primary source. For example, Nonfarm Payroll Employment is reported at a monthly frequency. However, you can choose to aggregate your FRED data to a lower frequency by entering your desired frequency ID. If you don't know the frequency ID, just click on the Σ icon on the FRED-Excel toolbar and choose your desired frequency. Important Note: The FRED Add-in will not disaggregate data (i.e., you cannot download monthly data at a daily frequency).

Choose a Start Date

If row 4 is empty, by default the FRED Add-in will download the entire available history of the series. If you want only the last 10 years of data, enter your own starting date in the fourth row and a shorter history of data will be downloaded. Don't worry about the date format, the Excel auto-format takes care of this. The FRED Add-in will make the necessary adjustments if the starting date you entered doesn't exactly match the data series.

*You can always access this quick start guide by clicking on this icon on the Excel toolbar.

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DOWNLOADING DATA

Before downloading any data, make sure your computer is connected to the Internet. If the FRED Add-in has been successfully installed, a tab labeled FRED should appear on the ribbon of your Excel window. On the FRED tab you will find a series of buttons.
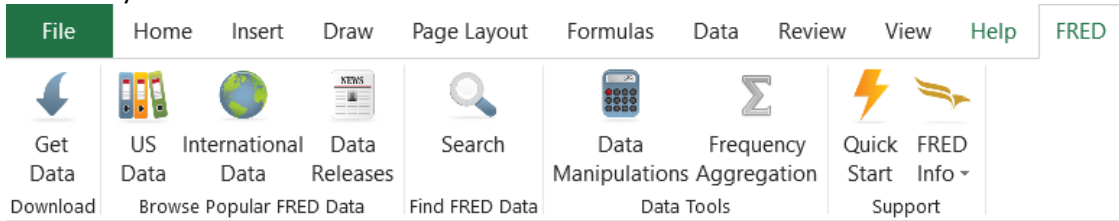
There are two ways to download data using the FRED add-in: (1) download by individual series (2) download series in a dataset with matching date ranges and frequencies. The first option is much simpler and is ideal for quick projects, while the second option is helpful for users conducting more sophisticated analysis.

DOWNLOADING INDIVIDUAL SERIES

Again, downloading FRED data is as simple as typing a FRED series ID (e.g., UNRATE) into the first row of the workbook and clicking the Get FRED Data icon.[1]

Once you click Get FRED Data, Excel will automatically download the requested data from the FRED website. If no other options (i.e., manipulation, start date, frequency) are specified, by default, all available observations will be downloaded and no data manipulations will occur. The series name, units, seasonality, and data source are also downloaded with the data.

An error message appears for an invalid: (1) series ID; (2) frequency; (3) data manipulation (e.g., growth rate of a %).

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[1] To maintain a reasonable processing speeds, up to 300 series IDs can be downloaded into a single worksheet.
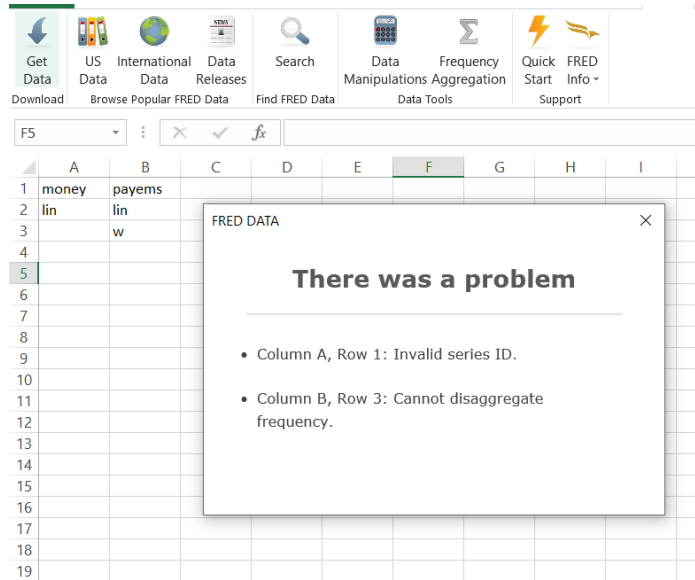
To include an additional FRED series, move to the next column (in the first row) and type in another series ID.

	A	B	C	D	E	F	G	H	I
1	unrate		payems		m2				
2	lin	Percent, Se	lin	Thousands	lin		Billions of Dollars, Seasonally Adjusted		
3	m	Monthly	m	Monthly	w		Weekly, Ending Monday		
4	1/1/1948	1948-01-0	1/1/1939	1939-01-0	11/3/1980	1980-11-03 to 2020-10-12			
5	Unemployment Rate		All Employees, Total I		M2 Money Stock				
6	U.S. Bureau of Labor		U.S. Bureau of Labor		Board of Governors of the Federal Reserve System (US)				
7	date	value	date	value	date	value			
8	1/1/1948	3.4	1/1/1939	29923	11/3/1980	1591.4			
9	2/1/1948	3.8	2/1/1939	30100	11/10/1980	1592.9			
10	3/1/1948	4	3/1/1939	30280	11/17/1980	1596.3			
11	4/1/1948	3.9	4/1/1939	30094	11/24/1980	1597.2			
12	5/1/1948	3.5	5/1/1939	30299	12/1/1980	1596.1			
13	6/1/1948	3.6	6/1/1939	30502	12/8/1980	1597			

DOWNLOADING SERIES IN A DATASET

It is possible to download multiple series with the same frequency and date range using the "1date" option in the FRED add-in. To enable the dataset option in a worksheet simply type "1date" into cell A1. The FRED add-in will recognize this term.

	A	B	C	D	E	F	G	H
1	1date	unrate	payems	m2				
2	m, avg	lin	lin	lin				
3		1/1/2000	Percent, Se	Thousands	Billions of Dollars, Seasonally Adjusted			
4		10/26/2020	Unemploy	All Employ	M2 Money Stock			
5			U.S. Burea	U.S. Burea	Board of Governors of the Federal Reserve System (US)			
6	date	value	value	value				
7		1/1/2000	4	131005	4661			
8		2/1/2000	4.1	131124	4668.7			
9		3/1/2000	4	131596	4695			
10		4/1/2000	3.8	131888	4751.9			
11		5/1/2000	4	132105	4744.1			

To download series into a dataset, enter the frequency in cell A2 (required), the Start Date in cell A3 (optional), and the End Date in cell A4 (optional). In the first row of the remaining columns enter the series ID's (required) and in the second row enter the data manipulation (optional).

The next section reviews the available features in the FRED Add-in.

FEATURES

The features of the FRED Add-in are designed with the general user in mind. The Add-in offers some basic conveniences without unnecessary complexity. Future versions of the Add-in may include more advanced settings. Until then, advanced users should rely on the tools in Excel.

FINDING DATA SERIES ON FRED

Each economic data series in FRED has a unique series ID. The FRED Add-in requires users to input a series ID into the first row of cells in their workbook.

There are two ways to find a data series using the FRED Add-in: (1) Browsing data using the drop-down lists on the Excel ribbon and (2) using search button to be directed to the FRED website. Browsing is the fastest and easiest way to locate the most popular data in FRED because this option is limited to approximately the 100 most popular economic data series and 15 major economic press releases. On the other hand, searching on the FRED website provides access to all data series in the FRED database.

BROWSE DATA

If you are not familiar with the FRED series IDs, browsing is the easiest way to locate data. Click on one of the Browse buttons in the Data Tools section of the ribbon (e.g., Browse Popular U.S. Data), and you'll find the data series have been organized into major groups. For example, popular U.S. data are organized into five sections, and popular international data are organized by country.

Once you've located a data series of interest, click on the name and the FRED series ID is automatically input into the active cell.[2] Click the Get Data button and your data will be retrieved. Once a data series has been selected and input into the active cell in the first row, the active cell will automatically move to the right so numerous series can easily be selected one after another.

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[2] A FRED series ID needs to be entered into the first row of the active worksheet.

SEARCH FOR DATA

To search for data in FRED, simply click on the magnifying glass icon on the ribbon to be directed to the FRED homepage.

When you find the desired data look for the series ID that is included at the end of the title.

Add the IDs into your spreadsheet by copying the series IDs of interest and pasting into the first row of Excel worksheet.

DATA MANIPULATIONS

One of the challenges for many users of economic data is manipulating data series into growth rates. The FRED Add-in makes this easy by allowing users to select their desired data manipulation. Just as row 1 is reserved for a series ID, row 2 is reserved for a data manipulation. Type the desired data manipulation (e.g., chg) directly below the series ID and click the Get FRED Data button (see below). If no manipulation is specified, the data will be downloaded with no transformation.

	A	B
1	PAYEMS	
2	chg	
3		
4		

If you're unfamiliar with the data manipulation IDs, the FRED Add-In will help you: The Data Manipulations button includes commands for all the data manipulations. Click on the desired manipulation, and the ID will appear in the active cell.

Choose a data manipulation:

lin = Levels (No transformation)

chg = Change

ch1 = Change from Year Ago

pch = Percent Change

pc1 = Percent Change from Year Ago

pca = Compounded Annual Rate of Change

cch = Continuously Compounded Rate of Change

cca = Continuously Compounded Annual Rate of Change

log = Natural Log

The manipulations, abbreviations, and formulas are

- Levels (lin): x_t

- Change (chg): $x_t - x_{t-1}$

- Change from Year Ago (ch1): $x_t - x_{t-n}$

- Percent Change (pch): $((x_t / x_{t-1}) - 1) * 100$

- Percent Change from Year Ago (pc1): $((x_t / x_{t-n}) - 1) * 100$

- Compound Annual Rate of Change (pca): $(((x_t / x_{t-1}))^n - 1) * 100$

- Continuously Compounded Rate of Change (cch): $(\ln(x_t) - \ln(x_{t-1})) * 100$

- Continuously Compounded Annual Rate of Change (cca): $((\ln(x_t) - \ln(x_{t-1})) * 100) * n$

- Natural Log (log): $\ln(x_t)$

where x_t is the value of the FRED series x at time t and n is the number of observations per calendar year. For example n = 12 for monthly data and n = 4 for quarterly data.

FREQUENCY AGGREGATION

It can be useful to create a data worksheet of series with matching frequencies. With the FRED Add-in, it is easy to aggregate data to lower frequencies (i.e., daily to monthly) using the frequency aggregation option. The data frequencies are input in the third row of the worksheet. Available frequencies include **D**aily, **W**eekly (ending Friday),[3] Biweekly **BW**, **M**onthly, **Q**uarterly, Semiannual **SA**, and **A**nnual (aggregation IDs or the frequency name are a valid input). The aggregation button on the toolbar can be used for easy browsing and cell input.
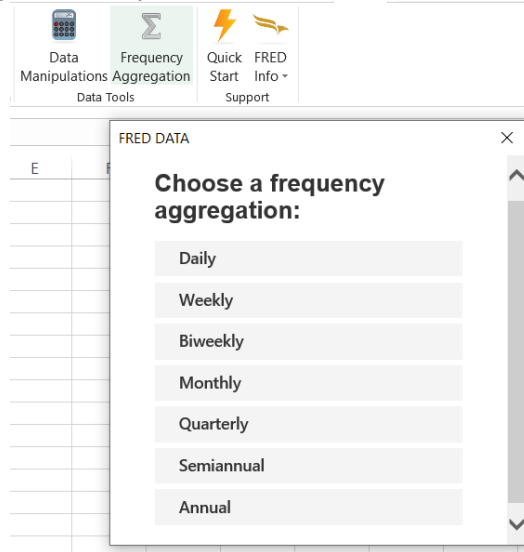
Selected frequencies can be also supplied with period description such as:

wef = Weekly, Ending Friday
weth = Weekly, Ending Thursday
wew = Weekly, Ending Wednesday
wetu = Weekly, Ending Tuesday
wem = Weekly, Ending Monday
wesu = Weekly, Ending Sunday
wesa = Weekly, Ending Saturday
bwew = Biweekly, Ending Wednesday
bwem = Biweekly, Ending Monday

After selecting a frequency and clicking the Get FRED Data, the following results will appear:

	A	B	C	D	E
1	payems				
2	lin	Thousands of Persons, Seasonally Adjusted			
3	a, avg	Annual			
4	1/1/1939	1939-01-01 to 2020-01-01			
5	All Employees, Total Nonfarm				
6	U.S. Bureau of Labor Statistics				
7	date	value			
8	1/1/1939	30645			
9	1/1/1940	32410			
10	1/1/1941	36609			
11	1/1/1942	40231			

Data can be also downloaded using "1date" option. If the series do not have the same frequency, data will be aggregated to the frequency specified in A2.

	A	B	C	D	E
1	1date	gdpc1	payems		
2	q, avg	lin	lin		
3	1/1/1947	Billions of	Thousands of Persons, Seasonally		
4	10/27/2020	Real Gross	All Employees, Total Nonfarm		
5		U.S. Burea	U.S. Bureau of Labor Statistics		
6	date	value	value		
7	1/1/1947	2033.061	43566		
8	4/1/1947	2027.639	43649		
9	7/1/1947	2023.452	43969		
10	10/1/1947	2055.103	44492		
11	1/1/1948	2086.017	44632		
12	4/1/1948	2120.45	44736		
13	7/1/1948	2132.598	45211		

By default, averages are used as the aggregation method. Alternative aggregation methods include the sum (sum) and end of period (eop). To use a different aggregation method, type a comma and the method into the cell (e.g., a,sum) and then update your data. Users who use other aggregation methods can become familiar with this notation and can type a,sum or a,eop directly into the cell. The menu options have been limited for ease of use.

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[3]Weekly and biweekly data series are not necessarily released over the same time intervals (e.g., weekly, ending Monday; weekly, ending Wednesday; biweekly, ending Monday). See the series frequency on FRED or check the observation dates. At this time, daily data are always aggregated to weekly, ending Friday if W is used as frequency aggregation method.

SET CUSTOM DATE RANGES

If you don't want the entire history of a series, the FRED Add-in lets you specify the start date. Just as row 1, row 2, and row 3 are reserved for the FRED series ID, data manipulation, and frequency, row 4 is reserved for a start date.

	A	B	C	D	E
1	payems				
2	lin	Thousands of Persons, Seasonally Adjusted			
3	a, avg	Annual			
4	1/1/1939	1939-01-01 to 2020-01-01			
5	All Employees, Total Nonfarm				
6	U.S. Bureau of Labor Statistics				
7	date	value			
8	1/1/1939	30645			
9	1/1/1940	32410			
10	1/1/1941	36609			
11	1/1/1942	40231			

To add a starting date, type the date below the series ID in row 4 and click Get FRED Data. If a start date is older than the first observation, the Add-in returns entire history of the series. The standard Excel auto-formats will occur on the input date (e.g., if no year is entered, Excel will use the current year as default). The FRED Add-in will automatically make adjustments if the date entered does not correspond to a specific observation date. For reference, the date range of the data series is also returned in the cell above the series values.

You can also download a fixed number of observations by typing "N=Number." For example if you enter N=20 into the date cell the FRED add-in will only download the most recent 20 observations. This feature can be very useful when generating custom tables and charts that can update automatically. The "N=Number" feature is also available in the "1date" download mode, simply enter N=20 as the start date and FRED will return the last 20 observations of the series in column B.

	A	B	C	D	E
1	payems				
2	lin	Thousands of Persons, Seasonally Adjusted			
3	a, avg	Annual			
4	n=20	2001-01-01 to 2020-01-01			
5	All Employees, Total Nonfarm				
6	U.S. Bureau of Labor Statistics				
7	date	value			
8	1/1/2001	132080			
9	1/1/2002	130637			
10	1/1/2003	130328			

SUPPORT

If you are having trouble using the FRED Add-in, please refer to the frequently asked questions before contacting us. Data descriptions and hyperlinks to the primary data providers' websites are available on FRED.

We continually strive to improve the experience of FRED users, and your suggestions for additional features or data series are always welcome.

FREQUENTLY ASKED QUESTIONS

Q. What do I do if I get the error "Invalid Series ID"?

A. First, make sure you are connected to the internet. If you are, this error could occur if the series entered into the first row is mistyped or doesn't exist or the series is copyrighted and distributions via add-in is not possible. On the FRED website check that the data exist by searching for the invalid series ID or by searching for the series by its name. The series ID is included at the end of the title.

Q. What do I do if I get the error "Invalid Data Manipulation"?

A. This issue occurs because you've entered an invalid data manipulation (lin, chg, ch1, etc..) in row 2. Make sure you check row 2 in the column the error appears to make sure you have a correct manipulation that can be used with that series id.

Q. What do I do if I get the error "Cannot disaggregate data"?

A. This issue occurs because you've entered an invalid aggregation (m, w, d, etc..) in row 3. Check row 3 in the column the error appears to make sure they have a correct aggregation that can be used with that series id

FRED FAQs are available at: https://fred.stlouisfed.org/contactus/

CONTACT US

If you have questions about the data in the FRED® database, the Research staff prefers that you send an email using our contact form at https://fred.stlouisfed.org/contactus/. Staff will respond to all inquiries within two business day.

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