How can I collapse a daily time series to a monthly time series in Stata?

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July 1, 2024

Collapsing a daily time series to a monthly time series in Stata refers to the process of converting a dataset that contains daily data points into a dataset with monthly data points. This can be achieved by using the "collapse" command in Stata, which allows the user to aggregate the daily data by a specific time period, such as month, and calculate summary statistics for each month. This is a useful tool for analyzing data over longer time periods and identifying trends or patterns at a monthly level. By collapsing a daily time series to a monthly time series, the dataset becomes more manageable and easier to interpret, making it a valuable feature for data analysis in Stata.

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Let's say that the time series of our analysis comes as a daily time series but we would want to analyze it as a monthly time series. We need to collapse the daily data to monthly data. Stata has a great collection of date conversion functions for this type of tasks. We will show an example on how to collapse our daily time series to a monthly time series by making use of a function of this kind. It is helpful to know these functions before we start our task. We will issue command "help dcfcns" to display these available date conversion functions.

help dcfcns

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help for dcfcns manual: 27.3.4 Translating between time units

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Date-conversion functions

Conversion to %d (%td) dates:
.. dofd(%td_daily_date_exp) ... returns %d (%td) date
.. dofw(%tw_weekly_date_exp) ... returns %d (%td) date
.. dofm(%tm_monthly_date_exp) ... returns %d (%td) date
.. dofq(%tq_quarterly_date_exp) ... returns %d (%td) date
.. dofh(%th_halfyearly_date_exp) ... returns %d (%td) date
.. dofy(%ty_yearly_date_exp) ... returns %d (%td) date

Conversion from %d (%td) dates:

.. dofd(%td_daily_date_exp) ... returns %d (%td) date
.. wofd(%td_daily_date_exp) ... returns %tw date
.. mofd(%td_daily_date_exp) ... returns %tm date
.. qofd(%td_daily_date_exp) ... returns %tq date
.. hofd(%td_daily_date_exp) ... returns %th date
.. yofd(%td_daily_date_exp) ... returns %ty date

....

The data set we use here is from Stata 8 manual and it can be accessed
over the internet. If you have an internet connection, you can get the data
set by the following command.

webuse dow1, clear

list in 1/10

+-----------------------------------+
dowclose date t ln_dow
1. | 292.1 02jan1953 1 5.677096 |
2. | 293.8 05jan1953 2 5.682899 |

3. | 292.2 06jan1953 3 5.677439 |
4. | 290.8 07jan1953 4 5.672636 |
5. | 290.4 08jan1953 5 5.671259 |
|----------------------------------|
6. | 287.5 09jan1953 6 5.661223 |
7. | 285.2 12jan1953 7 5.653191 |
8. | 286.9 13jan1953 8 5.659134 |
9. | 287.4 14jan1953 9 5.660875 |
10. | 288.2 15jan1953 10 5.663655 |
+----------------------------------+

Variable date apparently is in a daily format. Here is how to
generate a variable from it with only information on month and year.

```
gen dm = mofd(date)

format dm %tm

list in 1/10
```

+---+
| dowclose date t ln_dow dm |

```
|-----------------------------------------------|
1. | 292.1 02jan1953 1 5.677096 1953m1 |
2. | 293.8 05jan1953 2 5.682899 1953m1 |
3. | 292.2 06jan1953 3 5.677439 1953m1 |
4. | 290.8 07jan1953 4 5.672636 1953m1 |
5. | 290.4 08jan1953 5 5.671259 1953m1 |
|-----------------------------------------------|
6. | 287.5 09jan1953 6 5.661223 1953m1 |
7. | 285.2 12jan1953 7 5.653191 1953m1 |
8. | 286.9 13jan1953 8 5.659134 1953m1 |
9. | 287.4 14jan1953 9 5.660875 1953m1 |
10. | 288.2 15jan1953 10 5.663655 1953m1 |
|-----------------------------------------------|
```

We are now ready to collapse the data to monthly level. By default, the
collapse command collapses every variable to its mean.

```
collapse dowclose ln_dow, by(dm)

list in 1/10

+-----------------------------+
| dm dowclose ln_dow |
```

```
|-----------------------------|
1. | 1953m1 288.4524 5.664502 |
2. | 1953m2 283.9611 5.648786 |
3. | 1953m3 286.7909 5.658709 |
4. | 1953m4 275.2857 5.617776 |
5. | 1953m5 276.9381 5.623769 |
|-----------------------------|
6. | 1953m6 266.8864 5.586792 |
7. | 1953m7 270.3261 5.599611 |
8. | 1953m8 272.2048 5.606421 |
9. | 1953m9 261.9048 5.567924 |
10. | 1953m10 270.7191 5.600968 |
+-----------------------------+

tsset dm, monthly
time variable: dm, 1953m1 to 1990m2
```