Chapter 24
Creating Time ID Variables

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The Forecasting System requires that the input data set contain a time ID variable. If the data you want to forecast are not in this form, you can use features of the Forecasting System to help you add time ID variables to your data set. This chapter shows examples of how to use these features.

Creating a Time ID Value from a Starting Date and Frequency

As a first example of adding a time ID variable, you will use the SAS data set created by the following statements. (Or use your own data set if you prefer.)

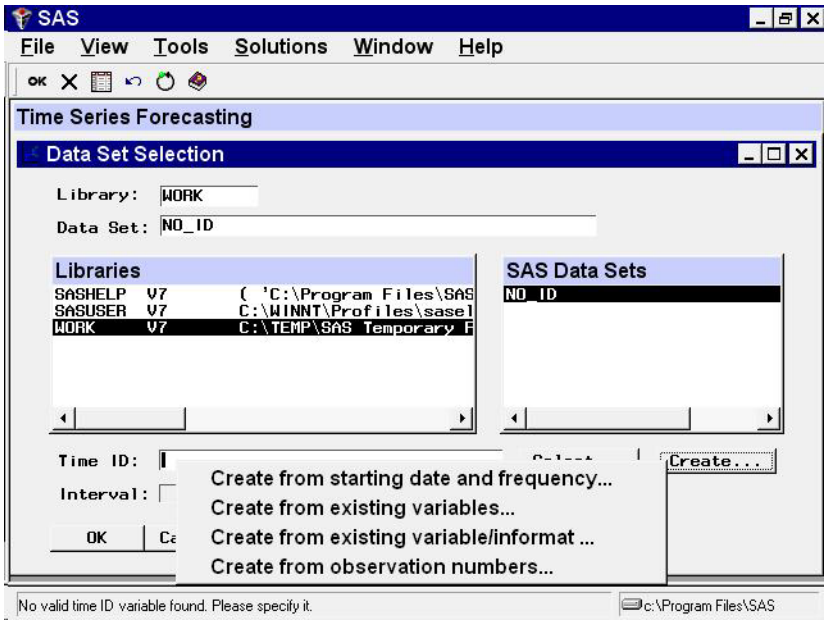
```
data no_id;
  input y @@;
datalines;
  10 15 20 25 30 35 40 45
  50 55 60 65 70 75 80 85
run;
```

Submit these SAS statements to create the data set NO_ID. This data set contains the single variable Y. Assume that Y is a quarterly series and starts in the first quarter of 1991.

In the `Time Series Forecasting` window, use the Browse button to the right of the `Data set` field to bring up the `Data Set Selection` window. Select the WORK library and then select the NO_ID data set.

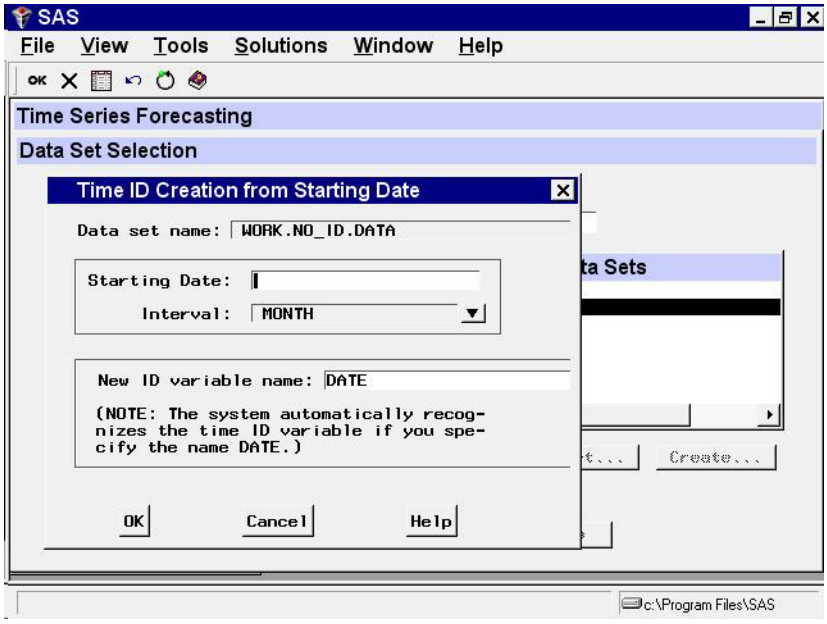
You must create a time ID variable for the data set. Click the Create button to the right of the Time ID field. This brings up a menu of choices for creating the Time ID variable, as shown in Display 24.1.

Display 24.1. Time ID Creation Popup Menu



Select the first choice, `Create from starting date and frequency`. This brings up the `Time ID Creation from Starting Date` window shown in Display 24.2.

Display 24.2. Time ID Creation from Starting Date Window



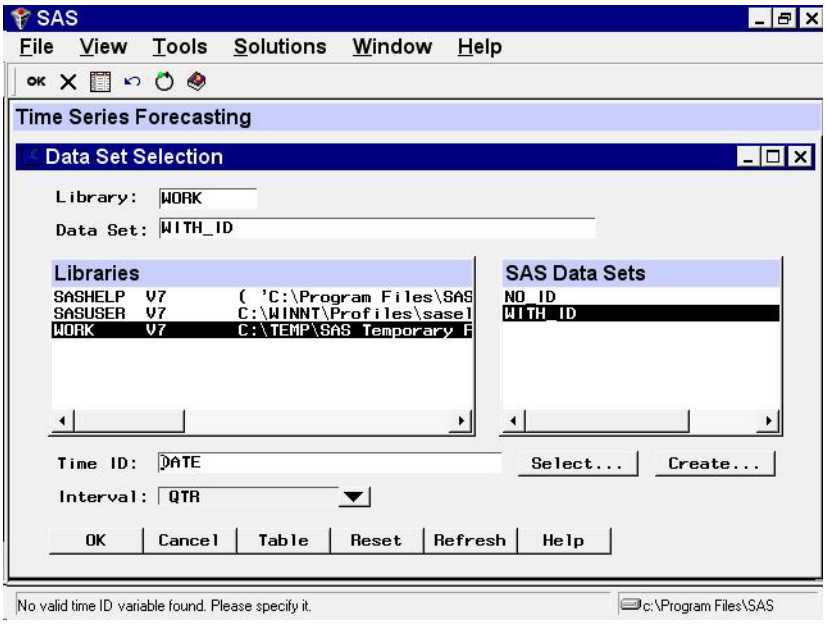
Enter the starting date, 1991:1, in the `Starting Date` field.

Select the `Interval` combo box arrow and select QTR from the pop-up menu. The Interval value QTR means that the time interval between successive observations is a quarter of a year; that is, the data frequency is quarterly.

Now select the OK button. The system prompts you for the name of the new data set. If you want to create a new copy of the input data set with the DATE variable added, you should enter a name for the new data set. If you want to replace the NO_ID data set with the new copy containing DATE, just select the OK button without changing the name.

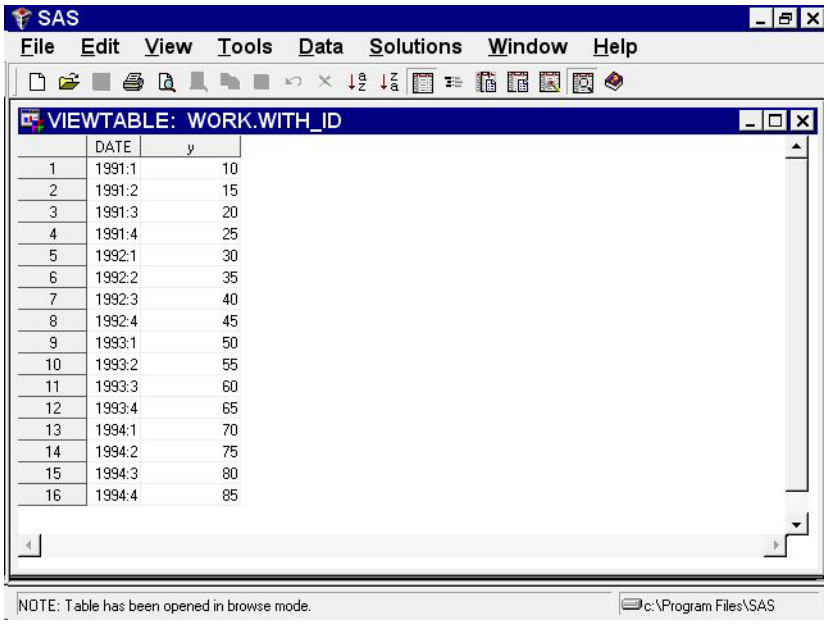
For this example, change the New name field to WITH_ID and select the OK button. The data set WITH_ID is created containing the series Y from NO_ID and the added ID variable DATE. The system returns to the Data Set Selection window, which now appears as shown in Display 24.3.

Display 24.3. Data Set Selection Window after Creating Time ID



Select the Table button to see the new data set WITH_ID. This brings up a VIEWTABLE window on the data set WITH_ID, as shown in Display 24.4. Select File and Close to close the VIEWTABLE window.

Display 24.4. Viewtable Display of Data Set with Time ID Added



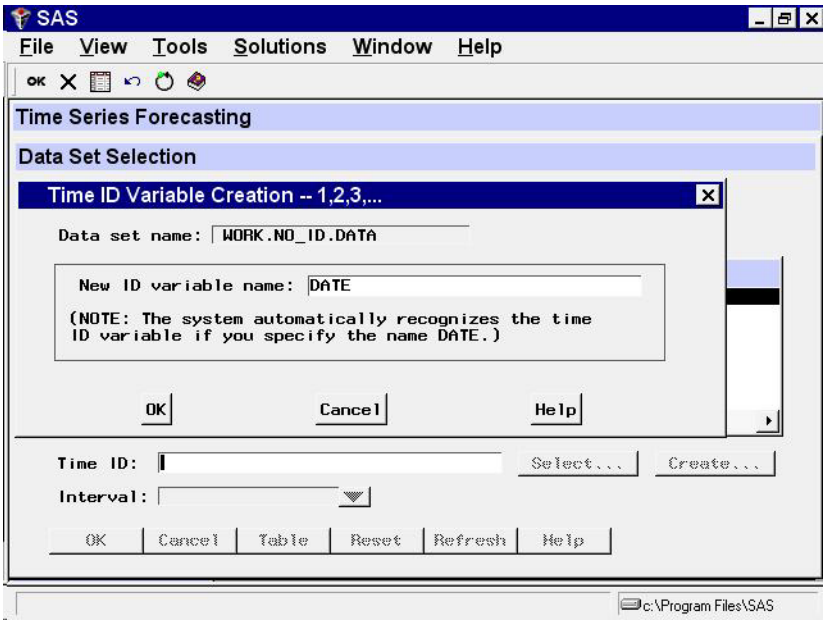
	DATE	y
1	1991:1	10
2	1991:2	15
3	1991:3	20
4	1991:4	25
5	1992:1	30
6	1992:2	35
7	1992:3	40
8	1992:4	45
9	1993:1	50
10	1993:2	55
11	1993:3	60
12	1993:4	65
13	1994:1	70
14	1994:2	75
15	1994:3	80
16	1994:4	85

Using Observation Numbers as the Time ID

Normally, the time ID variable will contain date values. If you do not want to have dates associated with your forecasts, you can also use observation numbers as time ID variables. However, you still must have an ID variable. This can be illustrated by adding an observation index time ID variable to the data set NO_ID.

In the Data Set Selection window, select the data set NO_ID again. Select the Create button to the right of the `Time ID` field. Select the fourth choice, `Create from observation numbers`, from the pop-up menu. This brings up the `Time ID Variable Creation` window shown in Display 24.5.

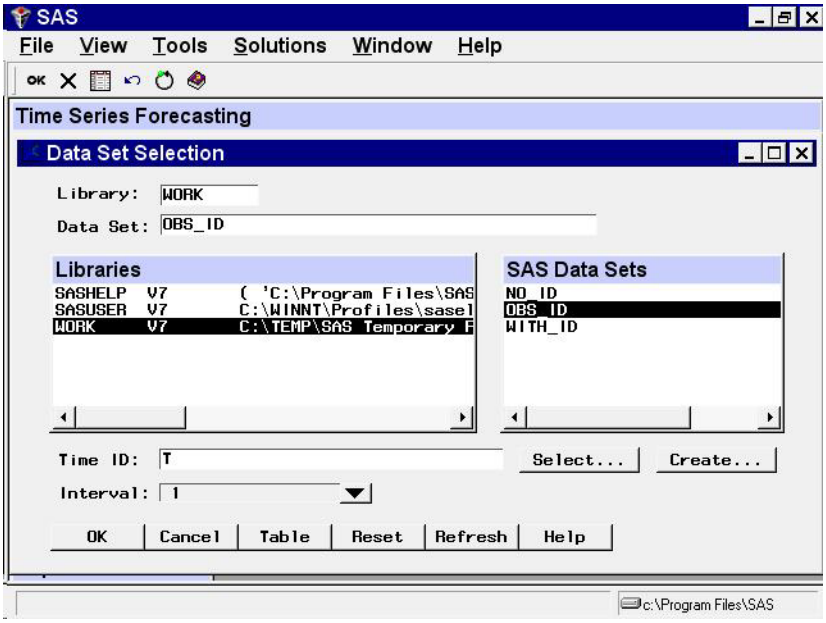
Display 24.5. Create Time ID Variable Window



Select the `OK` button. This brings up the `New Data Set Name` window. Enter "OBS_ID" in the `New data set name` field. Enter "T" in the `New ID variable name` field.

Now select the `OK` button. The new data set OBS_ID is created, and the system returns to the `Data Set Selection` window, which now appears as shown in Display 24.6.

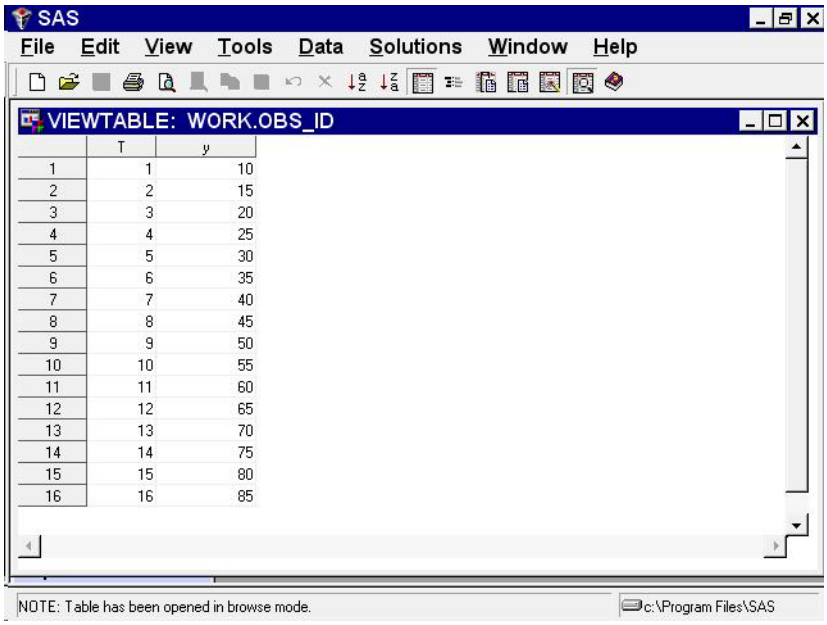
Display 24.6. Data Set Selection Window after Creating Time ID



The `Interval` field for OBS_ID has the value ‘1’. This means that the values of the time ID variable T increment by one between successive observations.

Select the `Table` button to look at the OBS_ID data set, as shown in Display 24.7.

Display 24.7. VIEWTABLE of Data Set with Observation Index ID



	T	y
1	1	10
2	2	15
3	3	20
4	4	25
5	5	30
6	6	35
7	7	40
8	8	45
9	9	50
10	10	55
11	11	60
12	12	65
13	13	70
14	14	75
15	15	80
16	16	85

Select `File` and `Close` to close the VIEWTABLE window. Select the `OK` button from the `Data Set Selection` window to return to the `Time Series Forecasting` window.

Creating a Time ID from Other Dating Variables

Your data set may contain ID variables that date the observations in a different way than the SAS date valued ID variable expected by the forecasting system. For example, for monthly data, the data set may contain the ID variables YEAR and MONTH, which together date the observations.

In these cases, you can use the Forecasting System's Create Time ID features to compute a time ID variable with SAS date values from the existing dating variables. As an example of this, you will use the SAS data set read in by the following SAS statements:

```
data id_parts;
  input yr qtr y;
datalines;
 91 1 10
 91 2 15
 91 3 20
 91 4 25
 92 1 30
 92 2 35
 92 3 40
 92 4 45
 93 1 50
```

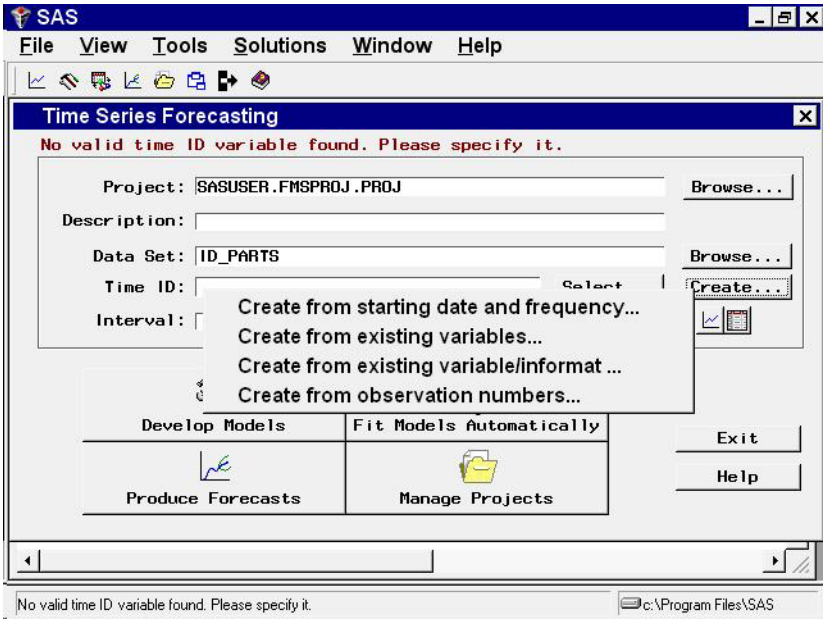
```
 93 2 55
 93 3 60
 93 4 65
 94 1 70
 94 2 75
 94 3 80
 94 4 85
run;
```

Submit these SAS statements to create the data set ID_PARTS. This data set contains the three variables YR, QTR, and Y. YR and QTR are ID variables that together date the observations, but each variable provides only part of the date information. Because the forecasting system requires a single dating variable containing SAS date values, you need to combine YR and QTR to create a single variable DATE.

Type ID_PARTS in the `Data Set` field and press the ENTER key. (You could also use the Browse button to bring up the Data Set Selection window, as in the previous example, and complete this example from there.)

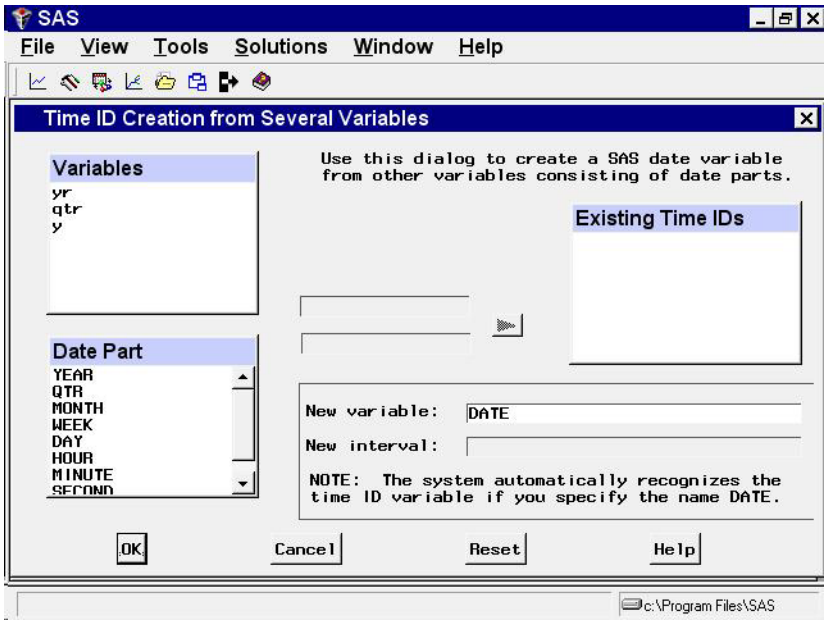
Select the Create button at the right of the `Time ID` field. This brings up the menu of Create Time ID choices, as shown in Display 24.8.

Display 24.8. Adding a Time ID Variable



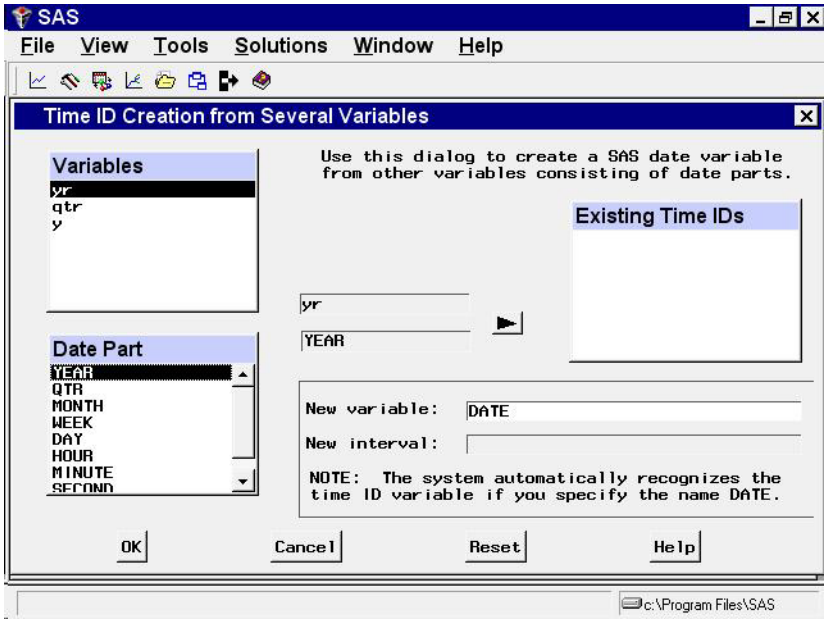
Select the second choice, `Create from existing variables`. This brings up the window shown in Display 24.9.

Display 24.9. Creating a Time ID Variable from Date Parts



In the `Variables` list, select YR. In the `Date Part` list, select YEAR as shown in Display 24.10.

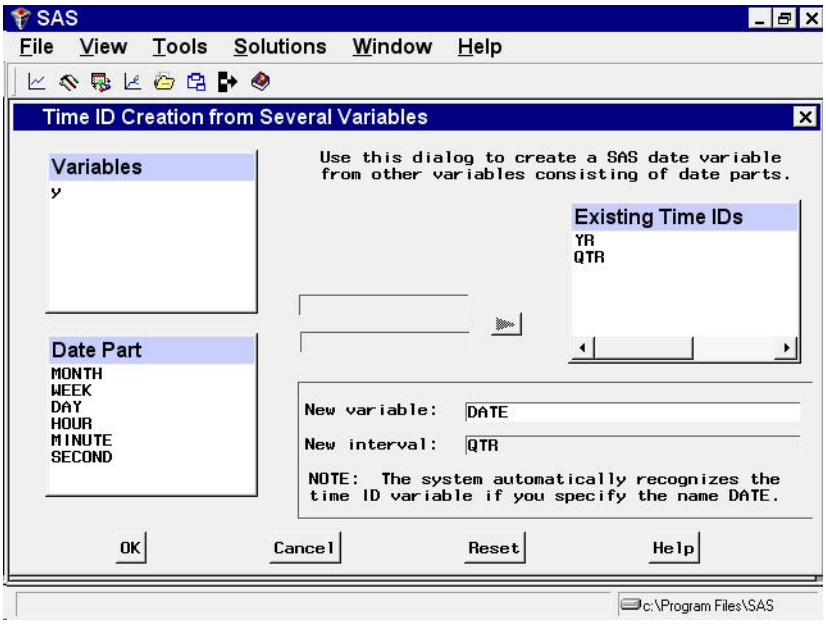
Display 24.10. Specifying the ID Variable for Years



Now click the right-pointing arrow button. The variable YR and the part code YEAR are added to the `Existing Time IDs` list.

Next select QTR from the `Variables` list and select QTR from the `Date Part` list, and click the arrow button. This adds the variable QTR and the part code QTR to the `Existing Time IDs` list, as shown in Display 24.11.

Display 24.11. Creating a Time ID Variable from Date Parts



Now select the `OK` button. This brings up the `New Data Set Name` window. Change the `New data set name` field to NEWDATE, and then select the `OK` button.

The data set NEWDATE is created, and the system returns to the `Time Series Forecasting` window with NEWDATE as the selected Data Set. The Time ID field is set to DATE, and the Interval field is set to QTR.

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