Title

> **spmatrix fromdata —** Create custom weighting matrix from data

Description	Quick start	Menu	Syntax
Options	Remarks and examples	Also see	

Description

spmatrix fromdata creates custom spatial weighting matrices from Sp data.

There are two other ways to create custom weighting matrices: spmatrix userdefined and spmatrix spfrommata. Those ways may require less work, but they require knowledge of Mata.

Quick start

Create spectral-normalized spatial weighting matrix Wnew from the $N \times N$ "matrix" stored in variables x1, x2, ..., xn

    spmatrix fromdata Wnew = x1 - xn

Menu

Statistics > Spatial autoregressive models

Syntax

    spmatrix fromdata *spmatname* = *varlist* [, *options*]

spmatname is the name of the spatial weighting matrix to be created.

options	Description
idistance	store reciprocal of elements
normalize(*normalize*)	type of normalization; default is normalized(spectral)
replace	replace existing weighting matrix

Options

idistance converts distance to inverse distance by storing the reciprocal of the elements.

normalize(*normalize*) specifies how the resulting matrix is to be scaled. normalize(spectral) is the default. normalize(minmax), normalize(row), and normalize(none) are also allowed. See [SP] **spmatrix create** for full details of the option and *Choosing weighting matrices and their normalization* in [SP] **spregress** for details about normalization.

replace specifies that matrix *spmatname* be overwritten if it already exists.

1

Remarks and examples

The fromdata in spmatrix fromdata means that the matrix itself is stored as variables in the data. Some researchers are used to working this way, and if you are among them, spmatrix fromdata is for you.

If the matrix is stored with the variables because you created it using the data, you may want to consider using spmatrix userdefined and spmatrix spfrommata instead. Both require knowledge of Mata, so that is a disadvantage if you do not already know Mata. On the other hand, spmatrix userdefined does not require much knowledge and handles the creation of most custom weighting matrices simply and elegantly. spmatrix spfrommata requires more extensive knowledge of Mata, but it will handle problems that no other method can.

The problem with spmatrix fromdata is not that the matrix is stored in the data but that filling in the matrix is more work than it needs to be. Stata draws a distinction between rows and columns. Rows are observations and columns are variables. Stata is perfectly willing to sweep down observations, but few Stata commands will sweep across variables. Mata, being a matrix language, draws no such distinction.

Also see

[SP] **spmatrix** — Categorical guide to the spmatrix command

[SP] **spmatrix spfrommata** — Copy Mata matrix to Sp

[SP] **spmatrix userdefined** — Create custom weighting matrix

[SP] **Intro** — Introduction to spatial data and SAR models

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