
Subject: Re: Fitting a function with multiple independent variables

Posted by [maarten](#) on Wed, 20 Apr 2005 08:06:04 GMT

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Hello,

You can use the built in routine curvefit.

cheers maarten

Sean Davis wrote:

> Hello all,
>
> I am currently trying to fit a function with multiple independent variables.
> I have used IDL's REGRESS routine, which does a multiple linear regression,
> such as fits to something like:
>
> $Y = 5 + 3 \cdot X_1 - 4 \cdot X_2$
>
> But what if I want one of my independent variables to vary non-linearly,
> like
>
> $Y = 5 + 3 \cdot X_1^2 - 4 \cdot X_2$
>
> (I assume this is called non-linear regression?)
>
> I've heard of Craig M.'s fitting library, so I suppose I should look there.
> But for the record, are there any built-in programs in IDL to do this???
>
> Thanks,
> Sean
>

Subject: Re: Fitting a function with multiple independent variables

Posted by [Sean Davis](#) on Wed, 20 Apr 2005 16:30:24 GMT

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maarten wrote:

> Hello,
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> You can use the built in routine curvefit.
> cheers maarten
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> Sean Davis wrote:
>> Hello all,
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>> variables. I have used IDL's REGRESS routine, which does a multiple
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>> Thanks,
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>>

Actually, CURVEFIT does not work for that task. CURVEFIT fits a function with multiple parameters (a,b,c), like

$y = a \cdot x + b \cdot x^2 + c \cdot \exp(x),$

but not functions with multiple independent variables AND parameters, like

$y = a \cdot x_1 + b \cdot x_2^2 + c \cdot \exp(x_3)$

-Sean

Subject: Re: Fitting a function with multiple independent variables
Posted by [Craig Markwardt](#) on Wed, 20 Apr 2005 18:31:44 GMT
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Sean Davis <seand@colorado.edu> writes:

> Actually, CURVEFIT does not work for that task. CURVEFIT fits a function
> with multiple parameters (a,b,c), like
>
> $y = a \cdot x + b \cdot x^2 + c \cdot \exp(x),$
>
> but not functions with multiple independent variables AND parameters, like
>
> $y = a \cdot x_1 + b \cdot x_2^2 + c \cdot \exp(x_3)$

This is not true. CURVEFIT does nonlinear least squares, such as your second expression. The number of independent variables is irrelevant. You can have no independent variables if you want! The comments here:

<http://cow.physics.wisc.edu/~craigm/idl/fitqa.html#multivar>

apply to CURVEFIT as well as MPFIT. Not that I am defending CURVEFIT. :-)

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response

Subject: Re: Fitting a function with multiple independent variables
Posted by [Sean Davis](#) on Wed, 20 Apr 2005 20:02:47 GMT
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Problem Solved!!!

A Big thanks to Craig M. and his fitting routines!!!
<http://cow.physics.wisc.edu/~craigm/idl/idl.html>

Specifically, I downloaded MPFITFUN.pro and MPFIT.pro

-Sean

maarten wrote:

```
> Hello,
>
> You can use the built in routine curvefit.
> cheers maarten
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> Sean Davis wrote:
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>> But what if I want one of my independent variables to vary non-linearly,
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>>
```

```
>> Y = 5 + 3*X1^2 - 4*X2
>>
>> (I assume this is called non-linear regression?)
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