Subject: Re: Constrained fit of a straight line: fixed intercept
Posted by David Grier on Fri, 27 Aug 2010 10:45:18 GMT
View Forum Message <> Reply to Message

On 8/27/10 4:39 AM, David Grier wrote:
> On 8/27/10 12:36 AM, Joe Daal wrote:
>> Hi,
>>
>> I am not sure how easy this problem is, but it sure gave me hell
>> today.
>> I have the following vector arrays: X, Y,& Y_errors. There are 5
>> elements in each and they do form a nice line describes by Y = A + BX.
>> I need to fit this line with B as a free parameter and constrain A to
>> pass by the the third point.
>> So the problem narrows down to one parameter as: Y = (Y0 - BX0) + BX,
>> whre Y0 and B0 and the third point values (i.e., X[2] and Y[2]).
>> I tried using MPFIT with the PARINFO keyword. It just didn't work.
>> Any ideas? Thanks....
>>
>> -Joe
>
> How about:
>
> pivot = 2
> dy = y - y[pivot]
> dx = x - x[pivot]
> w = where(dx ne 0, count)
> if count gt 0 then $
> B = mean(dy[w]/dx[w]) $
> else $
> B = 0.

... and if you want to weight the results by the experimental errors:

weights = abs(1./y_errors[w]) ; for instrumental errors
B = mean(weights * dy[w] / dx[w]) / mean(weights)

TTFN,

David