Just a bit more stuff I have been working on with the AIC…. May be of interest. A bit of a jumble…

To determine the parameters for the AIC, consider the multiple regression model

,

would have the parameter value = 5 (not forgetting the error parameter),

therefore the AIC will be .

For common distributions, the parameters are:

* Normal, (mean and variance),
* Lognormal, (shape parameter, scale parameter and a location parameter),
* Gamma, (shape parameter, inverse scale parameter),
* Weibull, (shape parameter, scale parameter and a location parameter), and
* Uniform, (Minimum, maximum)

**Instances in comparison of the AIC where the values are similar, it will be the value, plus a constant, therefore the AIC will be “shifted” version of the loglikelihood value. It will not make any difference if the log likelihood value or the AIC value is used**

**Results for the Probability Integral Transformation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Loglikelihood | AIC | BIC |  |
| Ozone Weibull | -1.754031 | 7.508062 | 12.92712 | 2 |
| Ozone Gamma | -3.736771 | 11.47354 | 16.8926 | 2 |
| Temperature Weibull | -3.132208 | 10.26442 | 15.68348 | 2 |
| Temperature Normal | -3.889558 | 11.77912 | 17.19818 | 2 |

With , the calculations for AIC will be , as all the values , it makes the a constant, the expectations with the advantages of using the AIC and BIC over the likelihood will not be meet, for example, AIC =

The same results would happen with the BIC, therefore, the distribution parameters needs to be checked to determine if using the AIC or BIC is an advantage or expectations are being meet in way of using them over the loglikelihood.

Used of the AIC and BIC and other measures based on parameter size, should be undertaken after the parameters of the nested distributions and copulas are identified and only when the values are different, if not, using the loglikelihoods for model fitting may be sufficient.