

How about modeling with flexible families?

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It is common to propose different parametric models/distributions to model and analyze data. One of the criticisms that is made against this parametric approach is that the results developed may seriously depend on the particular model assumed. It is also true that in many cases, it may be difficult to perform a goodness-of-fit test to validate the suitability of the assumed model. To avoid this problem, one possible approach one could take is to consider some general flexible families of distributions that include many known models as special cases. Then, if the inferential methods are developed based on this flexible family, it would be possible to choose the best parsimonious distribution for modeling the data at hand, and also simultaneously do some model selection and model discrimination, within this family of distributions. One could use either the likelihood-based methods or information-based criteria for this purpose. In this talk, I plan to consider a few problems from the areas of Survival Analysis and Reliability, and describe this approach and present some examples to illustrate the approach as well.