

The New Proposal of Basel Committee on banking regulation issued in January 2001 allows banks to use Internal Rating Systems to classify firms. Within this context, the main problem is to find a model that fits data as better as possible, providing at the same time good prediction and explicative capabilities. In this paper, our aim is to compare two kind of classification models applied to credit worthiness using weighted classification error as performance function: the standard logistic model and a mixed logistic model, adopting respectively a parametric and a semiparametric approach. As it is well known, the main problem of the former is related to the assumption of i.i.d. hypothesis, while it often turns out necessary to consider the possible presence of unobservable heterogeneity, that characterizes microeconomic data. To better consider this phenomenon we defined and applied a random effect logistic model, without assuming any particular parametric form for the random effect distribution. This leads to a likelihood which is known to be defined as the integral of the kernel density with respect to the mixing density which has no analytical solution. This problem can be obviated by approximating the integral with a finite sum of kernel densities, each one characterized by a different set of model parameters. This discrete nature helps us in detecting non-overlapping clusters characterized by a homogeneous relative risk of insolvency, and in classifying firms to one of the corresponding clusters by means of posterior probabilities of component membership.