Apricot Insurance Portfolio Risk

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Abstract : We propose a model to measure hail risk of an Agricultural Insurance portfolio. Hail is one of the major catastrophic event that causes big amount of loss to an insurer. Moreover, it is very hard to predict due to its strange atmospheric characteristics. We make use of parcel based claims data on apricot damage collected by the Turkish Agricultural Insurance Pool (TARSIM). As our ultimate aim is to compute the loadings assigned to specific parcels, we build a portfolio risk model that makes use of PD and the severity of the exposures. PD is computed by Spherical-Linear and Circular –Linear regression models as the data carries coordinate information and seasonality. Severity is mapped into integer brackets so that Probability Generation Function could be employed. Individual regressions are run on each clusters estimated on different criteria. Loss distribution is constructed by Panjer Recursion technique. We also show that one risk-one crop model can easily be extended to the multi risk–multi crop model by assuming conditional independency.