

Practical considerations for paired data analysis in customer response programmes

To accurately evaluate the offers we make to our customers, we match responding 'test' accounts un-mailed 'control' accounts, based on their account characteristics, previous spend behaviour and likelihood (propensity) to take up an offer. Compared with traditional test vs. control methods, paired data analysis allows us to eliminate sources of bias and reduce unwanted variation, resulting in more accurate valuation of our programmes. By optimising the sample sizes involved, considerable savings can also be made in terms of the opportunity cost of holding out 'control' accounts.

In this paper/talk we discuss some of the key practical issues we have encountered with using paired data analysis in account management, and the approaches used to address them. This will include sample size determination incorporating various sources of uncertainty, criteria for trading off match rate, calliper-widths and the number of variables involved, difficulties involved in building propensity models for reactivating accounts (and adjusting for natural reactivation rates), and methods for checking residual bias in both matched and unmatched (omitted) covariates. We close by discussing the development of segmentation schemes based on paired data, for future targeting of offers.