Do not take the betting model literally

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Houtkoper (1981) points to problems which arise when the betting model (Hofstee, 1980; Hofstee and Nevels, 1980) is applied in a literal manner. Generally speaking, we have been aware of such limitations (e.g., Hofstee, ibid., p. 90) and we have taken the position that literal application is not advisable (ibid., p. 112). Therefore, part of the problems reported by Houtkoper are not unexpected.

In the first place, betting with real money is an - implicit - violation of the Model. The decision rules are reproducing only if linear utility is assumed (ibid., p. 90) ; the observation that the utility of money tends not to be linear is well-established. Admittedly (ibid.), the linear assumption is unrealistic, but that is only to repeat that literal application of the betting model is hazardous.

In the second place, varying the height of the stakes after the predictions have been articulated by the participants was also not re-commended (ibid., p. 113), albeit for other reasons than are pointed out in the first part of Houtkopers paper. The prime reason is that by blowing up the stakes, any difference of opinion could be made worthwile, however trivial that difference is. To this we can now add Houtkopers argument that such post hoc bargaining violates the reproducing quality of the decision rules in the case of three ore more opponents. The conclusion should be that stakes should be set in advance.

Houtkopers proof (his Appendix 1) that the optimum position for a third better is equal to his or her subjective probability is an extension of our results, which of course is welcomed here.

The most elegant (and most problematic) result presented by Houtkoper is his proof (his Appendix 2) that the entering of bookmakers into the empirical discussion corrupts the reproducing quality of the decision rules for the other participants. A bookmaker may be defined as someone who does not maximize his/her profits but who wishes to minimize his/her maimum loss.

Houtkoper implies that his result does not bear upon the two-party betting situation, but that is unfortunately not true. Suppose that two players A and B freely discuss their 'true' personal predictive probabilities P_A and P_B of a certain event. Suppose, however, that B

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announces that he/she is not going to maximize his/her subjectively expected gain, but is going to take a bookmaker's position, i.e., for the record B is going to submit $p_B = \frac{1}{2} (P_B + p_A)$, p_A being the position that is going to be submitted for the record by A. Suppose that A still wishes to maximize his/her subjectively expected gain. It can now be easily shown that p_A should be equal to $\frac{1}{3}$ $(2 P_A + P_B)$ instead of P_A. This means that also in the two-party case, the quadratic rule is no longer reproducing if A knows about P_B and about B's plans to take the bookmakers' position.

Houtkoper (personal communication) has pointed to the fact that the bookmaker attitude does occur in scientific discourse: certain participants succeed in acquiring a reputation by carefully steering a middle course between more outspoken positions. Our emphatic opinion – and probably Houtkoper's too – is that a rational methodology should in no way contribute to the reputation of such bookmakers. Clearly, the betting model is deficient in this respect, not only in the case of three or more participants but also in the elementary situation of two opponents.

At present we see no other solution than to stipulate that all participants behave rationally in the sense of the model, that is, try to maximize their expected gains. So the moment a participant gives off evidence of a different mentality, that person should be disqualified.

In practice, of course, a participant would not give off such evidence. More generally speaking, as soon as real-life values are introduced, probably no methodological model – or any other set of rules – can be made completely fool-proof.

In conclusion, the claim of internal coherence of the betting model can be maintained, albeit at the cost of stipulating that stakes should be set in advance, and that participants should behave rationally in the above sense. These stipulations, however, are not merely post hoc but serve a wider purpose than meeting the problems put forward by Houtkoper. Realistic and literal application, however, remains problematic. The contribution of the betting model should be sought not in its literal application but in its general perspective upon the scientific enterprise.

References

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