

# Foreword of the Editors

This volume on the characterisation and parameterisation of empirical agent-based models aims to contribute to better tested ways of how to inform assumptions on human behaviour in agent-based models. Facilitating such learning in the wider empirical agent-based modelling community requires overcoming a few challenges, of which we want to raise a few.

First, we wanted to connect and involve large parts of the empirical agent-based modelling community. While we believe that we involved a broader base than the previous framework developed by (Smajgl et al. 2011) there are still pockets we have not sufficiently engaged with. However, we hope that this book is seen only as one step in a longer process of improving the methodological robustness of empirical agent-based modelling. Second, there are many ways to cut a cake. When revising the necessary framework to step through the characterisation and parameterisation process we required a structure that is sufficiently generic. The difficulty was the consideration of iterative approaches. In some ways all examples that were discussed for this book had some iterative element. But different modellers used iterations differently, which needed to be ignored, to some extent, to allow for a generic framework. Third, we wanted to assemble examples from different pockets of the empirical agent-based modelling community as we believe that some groups have made more progress with some techniques than others. Therefore, the potential for learning seems largest when connecting these groups. Fourth, trying to step towards recommendations means to identify particular situations in which the guiding principles hold. Clearly, there is no set of rules that holds independent from the modelling situations, in particular the availability of data. We had hoped to present examples for all theoretically possible cases but for many cases we did not find an appropriate example, with authors ready to test the framework. However, we hope that the examples we collated reflect current reality in the empirical agent-based modelling community, with some cases (or situations) more often encountered than others.

This volume is made of 13 chapters. The initial chapter sets the scene with the detailed description of the framework and its various possible implementations, the methods at hand, and a tentatively exhaustive set of cases of possible modelling situations for empirical agent based modelling. Then chapters 2 through 11 provide

examples for empirical agent based modelling. The final chapter discusses the efficiency and the robustness of the proposed framework as well as a first attempt to draw recommendations on selecting methods for empirical agent based modelling. This last objective is clearly still in its infancy on the basis of the small number of examples gathered here. But we hope that this book will contribute to the emergence of a community nurturing a database of empirical agent based modelling cases and provide working and explicit examples to newcomers to this approach of modelling close to their own cases.

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Empirical Agent-Based Modelling - Challenges and  
Solutions

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