

Preface

This book results from my work as a research assistant at the Universities of Freiberg and Duisburg-Essen. Starting this research was very challenging due to the highly mathematically coined literature regarding game theoretical topics. The literature shows that cooperative game theory is well studied from a theoretical point of view, but that fields of application are fairly limited up to now. Hence, the following research question arose: What can be done to make concepts from cooperative game theory more applicable to practical problems?

The field of supply chain management is predestined for many kinds of cooperation because companies will be more successful if they consider relationships to suppliers, customers, and/or competitors. Therefore, this work focuses on cooperations in supply networks (horizontal and vertical cooperation) concerning joint ordering and/or joint production.

Problems of ordering and production for single decision makers are well studied in operations research and are used as a basis to develop cooperative models that display situations of cooperative decision making. Being one of the most essential problems in cooperations, the allocation of joint profits or costs is the fundamental question in cooperative game theory and will be the basic question answered by this work as well.

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Julia Drechsel

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