This thesis investigates how cooperation evolves and how people can coordinate to achieve better outcomes for all the parties. The research involves theoretical and experimental analysis of people’s behavior. We examine whether subjects’ actual behavior deviates from the perfect rationality assumption, and whether subjects are able to coordinate on an equilibrium in case of multiplicity of equilibria.

In the thesis we consider situations where people can build trust and coordinate better if they intentionally weaken their positions, e.g. by making themselves vulnerable. We investigate how this endogenous decision affects outcomes in social dilemmas, market competition, and in team-production.

Anita Kopányi-Peuker (1985) received her MSc degree in economics from the Corvinus University of Budapest and an MPhil degree in behavioral economics from the Tinbergen Institute. After graduation she joined CREED (Center for Research in Experimental Economics and Political Decision Making) at the University of Amsterdam to carry out her doctoral research. Her research interests include behavioral and experimental economics, game theory, cooperation and coordination.
Endogeneity Matters:
Essays on Cooperation and Coordination
ISBN 978 90 361 0439 5

Cover design: Crasborn Graphic Designers bno, Valkenburg a.d. Geul

This book is no. 619 of the Tinbergen Institute Research Series, established through cooperation between Rozenberg Publishers and the Tinbergen Institute. A list of books which already appeared in the series can be found in the back.
Endogeneity Matters:
Essays on Cooperation and Coordination

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het College voor Promoties
ingestelde commissie,
in het openbaar te verdedigen in de Agnietenkapel
op woensdag 14 oktober 2015, te 14:00 uur

door

Anita Gabriella Kopányi-Peuker

geboren te Boedapest, Hongarije
Promotiecommissie:

Promotores:    Prof. dr. T.J.S. Offerman    Universiteit van Amsterdam
               Prof. dr. R. Sloof         Universiteit van Amsterdam

Overige leden:  Dr. A.M. Onderstal    Universiteit van Amsterdam
               Prof. dr. J.J.M. Potters    Universiteit van Tilburg
               Prof. dr. D. Sliwka        Universität zu Köln
               Prof. dr. J. Tuinstra      Universiteit van Amsterdam
               Dr. J.J. van der Weele     Universiteit van Amsterdam

Faculteit Economie en Bedrijfswetenschappen
Dávidnak, Nórinak és Robinak
Acknowledgements

6 years ago, somewhere in the spring I received an e-mail which stated that I was admitted to the MPhil program of the Tinbergen Institute. Now, 6 years later I am finishing my PhD dissertation, and I am very happy that I made the choice to move to Amsterdam in 2009. I had a great experience during my 5 years in Amsterdam and in my final year in Nottingham as a visiting student. I am also very happy that from September I will be back in Amsterdam as a postdoctoral researcher.

The whole journey started with the MPhil program at the Tinbergen Institute where after an interesting CREED-seminar and a very stimulating course on Behavioral and Informational Economics with Theo Offerman I turned towards behavioral and experimental economics. I am very delighted to have had two great supervisors to share the route to my PhD with: Theo Offerman and Randolph Sloof. I have learnt a lot from them about conducting research, and also about how to turn it into papers and presentations. They were always supporting me, even when I wanted to leave the country for my final year. I am very grateful for all the efforts they invested in guiding me and in the thorough feedback on my papers, and for the insights about economics and research. I enjoyed very much our meetings, discussions as well, especially when they were teasing each other. I also appreciate that their doors were always open whenever I needed help even when my questions were just minor issues. I am also thankful for their patience as due to my leaves I sometimes put aside our projects for months. Finally, I had the great opportunity to be Theo’s teaching assistant for 4 years. I really enjoyed teaching, and the experience further strengthened in me that I want to continue teaching besides research.
Besides Randolph and Theo I definitely have to mention my research group for the PhD. I have benefited a lot from the fruitful environment CREED offered. It is a great group and I am very happy to join them for the research. I enjoyed the seminars, discussions and social events with CREEDErs. So thank you Aaron, Ailko, Aljaž, Arthur, Audrey, Ben, Boris, David, Francisco, Frans, Gönül, Jeroen, Joël, Joep, Jona, Jos, Matthijs, Matze, Max, Pedro, Roel, Sonja and Thomas. A special thank goes to the girls, Jindi, Simin and Yang with whom I was sharing office for some time. It was a great pleasure to be with them, as besides work conversations, we could also have nice discussions to relax a bit (I leave the topics out for now...), and great times in conferences. I am also grateful to Sander Onderstal and Jan Tuinstra who provided useful comments for Chapter 3.

After 5 years in Amsterdam my husband, Dávid and I decided to move to Nottingham, and I had the opportunity to join CeDEx as a visiting research student. I am very grateful for Chris Starmer for all his support both for my visit and for my job market applications. I also benefited a lot from seminars and discussions with CeDEx-members which I really appreciate.

My whole PhD-journey would not have been possible without my great professor András Gömöri in Budapest. He was teaching me for 5 years during my studies, supervised my master thesis, and had a great impact on my thinking and attitude towards economics and academia. I am very grateful for the “Coffee club” he created with fellow students, and the fruitful discussions with him.

Of course my last 6 years did not only consist of work, but also of some nice dinners and programs with friends. I am happy to share great moments with our Hungarian friends in Amsterdam: Bőbi, Eszter, Gergő, Klausz, Noémi, Pisti, Sanyi and Viki. I am very grateful also for their help with babysitting and moving. TI also introduced me to great people, I am happy to got to know Boris, Diana, Łukasz, Matze and Tomasz. In the last year, I was very lucky to be close again to my best friend from Hungary. It was great to be in the same country with Anita again for a while. I will miss her when we move back to Amsterdam. It was also a great pleasure to go back to Hungary for holidays, as besides family, we could meet our old friends
as well. I really needed these events (and friends’ visits to Amsterdam) to recharge a bit. So thank you Norbi, Peti, Rita, Robi and Zsuzsi.

Last, but not least I am very grateful for our family in Hungary for their support in the last years. A special thank goes to the grandma’s who always came to help us out whenever we needed. Without their help, it would have been much more difficult to finish the PhD research on time. I also want to thank my dad and his mom for their support and unconditional love. My greatest gratitude goes to Dávid and our kids Nóri and Robi. Not only because Chapter 3 is a joint work with Dávid, but also because they provided me a great atmosphere at home both for working and for relaxing whichever was needed. I am very happy to have the three of them around me.

Nottingham, May 2015
# Contents

1 Introduction

2 Fostering cooperation through the enhancement of own vulnerability
   2.1 Introduction .................................................. 7
   2.2 Related literature ........................................... 12
   2.3 The model and its predictions ............................... 16
      2.3.1 Structure of the game ................................. 16
      2.3.2 Equilibrium predictions .............................. 17
   2.4 Experimental design and procedures ....................... 23
   2.5 Results ........................................................ 27
      2.5.1 Cooperation and punishment ......................... 27
      2.5.2 Dynamics in the data and explanation of main result ................................. 37
      2.5.3 The importance of signaling the intention to cooperate ......................... 41
   2.6 Conclusion .................................................... 44

Appendix 2.A Proofs and extensions .............................. 46
   2.A.1 Proofs ....................................................... 46
   2.A.2 The case with alternative incentives to defect ................. 49
   2.A.3 Inequity aversion ....................................... 54

Appendix 2.B Instructions ....................................... 67
3 Endogenous information disclosure in experimental oligopolies

3.1 Introduction ................................................................. 73
3.2 The market environment ................................................ 79
  3.2.1 Market structure ...................................................... 79
  3.2.2 The importance of voluntary choice ............................... 80
3.3 Experimental design and procedures .................................. 82
3.4 Hypotheses ................................................................. 85
3.5 Results ....................................................................... 87
  3.5.1 Effect of data aggregation .......................................... 88
  3.5.2 Consequences of information sharing on output decisions ................................. 90
  3.5.3 Coordination .......................................................... 95
3.6 Conclusion ................................................................. 99
Appendix 3.A Instructions ..................................................... 101

4 Team production benefits from a permanent fear of exclusion

4.1 Introduction ................................................................. 107
4.2 The game ................................................................. 111
4.3 Experimental design and procedures .................................. 116
4.4 Results ................................................................. 118
  4.4.1 Effort decisions ...................................................... 119
  4.4.2 Firing: causes and consequences .................................. 121
  4.4.3 Efficiency .......................................................... 128
4.5 Conclusion ................................................................. 131
Appendix 4.A Equilibria ......................................................... 132
  4.A.1 Stage game with noise ............................................ 132
  4.A.2 Repeated game ...................................................... 134
  4.A.3 Firing using threshold strategy .................................. 136
Appendix 4.B Results for the Medium contract ............................. 138
Appendix 4.C Instructions ................................. 141

5 Summary .................................................. 149

Bibliography ................................................ 153

Samenvatting (Summary in Dutch) ...................... 165

Összefoglalás (Summary in Hungarian) ................ 169