

Contents

1. Introduction	1
2. Theoretical background and literature review	5
2.1. Theory of path dependence.....	5
2.1.1. First developments	5
2.1.2. The nature of increasing returns.....	6
2.1.3. Characteristics of and conditions for a path-dependent process.....	9
2.1.4. The struggle with empirical examples.....	12
2.1.5. Railways and path dependence.....	14
2.2. Searching for the value: the theoretical emergence of price	15
2.2.1. Pre-classical and classical economics.....	15
2.2.2. Neoclassical economics	17
2.2.3. New Austrian Economics	19
2.2.4. New Institutional Economics	21
2.2.5. Behavioural pricing and reference price research	23
2.2.6. Comparison	27
2.3. Theoretical status of revenue management approaches	29
2.4. Pricing in business literature and practice	32
3. Establishing the research framework	37
4. The path of railway tariffing	43
4.1. Path reconstruction	43
4.1.1. Historic timeframe	47
4.1.2. Data overview.....	47
4.1.3. Data analysis	49
4.2. Phases of path formation	49
4.2.1. From openness to persistence: fares in railway history	49
4.2.2. Narrowing the scope of action: self-reinforcement to distance fares...65	
4.2.3. Lock-in: the point of no return	76

4.3. Environmental change and inefficiency	80
4.3.1. A first unexpected rival: the automobile.....	80
4.3.2. Another competitor: air transport.....	82
4.3.3. Neighbours becoming competitors: the opening of railway markets..	83
4.3.4. Inter- and intramodal perspective on inefficiency.....	84
4.4. Distance fares today.....	86
5. Searching for more efficient railway prices.....	89
5.1. Agent-based revenue simulation.....	89
5.1.1. A generic mobility market model.....	96
5.1.2. Role-model RM applications	97
5.1.3. Choice of platform and premises	99
5.2. The modelling process	102
5.2.1. Conceptual design and documentation of the model	102
5.2.2. Verification	121
5.2.3. Calibration/parameterisation	128
5.2.4. Validation	132
5.3. Experiments.....	136
5.3.1. Procedure of experimental data analysis.....	136
5.3.2. Scenario 1: General price variations.....	138
5.3.3. Scenario 2: Finding the optimal allocation of seat quotas.....	143
5.3.4. Scenario 3: Fuel price shocks and rail operators' reaction.....	145
5.3.5. Scenario 4: Market maturation.....	148
5.3.6. Scenario 5: Introduction of a new fare product	152
5.3.7. Scenario 6: Searching for the optimal railcard price	155
5.3.8. Scenario 7: Personal discount	156
5.4. Summary and interpretation of simulation results.....	161
6. Discussion.....	163
6.1. Theoretical and practical implications of the findings	163
6.2. Limitations and outlook on further research.....	165
6.3. Conclusions.....	167

References.....	169
Appendix A Source code	191
Appendix B Market research	251
Appendix C Abstract	261