Incomplete cartels and antitrust policy: incidence and detection

Bos, A.M.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Contents

List of Figures vii
Acknowledgments ix

1 Motivation and Outline 1
1.1 Introduction ......................................................... 1
1.2 Motivation .......................................................... 3
1.3 Methodology ......................................................... 5
1.4 Outline ............................................................. 9

2 The Economics of Incomplete Cartels 11
2.1 Introduction ......................................................... 11
2.2 Incomplete Cartels in Practice .................................... 14
2.3 Foundations of Cartel Theory .................................... 19
  2.3.1 The Incentive Constraint .................................. 21
  2.3.2 The Participation Constraint .............................. 22
  2.3.3 Why are Cartels Bad? ................................. 23
2.4 On the Profitability of Incomplete Cartels .................... 25
  2.4.1 Collusive price leadership ................................ 27
  2.4.2 Differentiated goods ....................................... 29
  2.4.3 Quantity competition .................................... 30
  2.4.4 Comparison ................................................. 33
2.5 On the Sustainability of Incomplete Cartels ................ 33
  2.5.1 Collusive price leadership ................................ 34
  2.5.2 Differentiated goods ....................................... 34
2.5.3 Quantity competition ........................................... 35
2.5.4 Comparison .................................................. 36
2.6 The Participation Puzzle ........................................ 37
  2.6.1 Collusive price leadership ............................... 38
  2.6.2 Differentiated goods ..................................... 39
  2.6.3 Quantity competition ..................................... 40
  2.6.4 Comparison ................................................ 42
2.7 Coalition Formation with Positive Externalities .......... 42
  2.7.1 Simultaneous cartel formation ......................... 43
  2.7.2 Sequential cartel formation ............................ 45
2.8 Incomplete Cartels and Firm Heterogeneity .......... 47
2.9 Incomplete Bidding Rings ................................. 49
2.10 Discussion .................................................... 53

3 A Theory of Incomplete Cartels with Heterogeneous Firms 55
  3.1 Introduction ................................................ 55
  3.2 A Model of Collusion with Asymmetric Capacity Constraints .. 58
    3.2.1 Static Nash Equilibrium ............................... 59
    3.2.2 Infinitely Repeated Game ............................. 61
  3.3 Optimal Cartel Size ....................................... 64
    3.3.1 Costless Collusion ................................... 65
    3.3.2 Costly Collusion ..................................... 67
  3.4 Incentives to Collude ..................................... 70
  3.5 The Most Profitable Cartel ................................ 75
  3.6 Incomplete Cartels and Mergers ........................... 77
    3.6.1 Merger Incentives ................................... 78
    3.6.2 Coordinated Effects of Mergers ..................... 80
  3.7 Concluding Remarks ....................................... 89

4 Cartel Detection and Antitrust Law Enforcement 93
  4.1 Introduction ................................................ 93
  4.2 Goal and Scope of Cartel Detection ....................... 95
    4.2.1 Why do we need Cartel Detection? ................ 96
    4.2.2 Why do we need Economics to Detect Cartels? ........ 97
  4.3 Economic Methods of Cartel Detection .................... 99
    4.3.1 Market Structure .................................... 100
    4.3.2 Cartel Conduct ..................................... 105
    4.3.3 Market Performance ................................ 110
  4.4 Potential Pitfalls in Cartel Detection ................... 111
    4.4.1 No Result, is a Result ................................ 112
    4.4.2 Descriptive Flaws, Empirical Limitations and Theoretical Complications ..................................... 112
    4.4.3 On the Problem of Defining a Workable Benchmark .... 114
  4.5 Detecting Incomplete Cartels ............................. 114
    4.5.1 A Variance Screen for Collusion: an Example (1) .... 115
  4.6 The Need for Industry Specific Detection Tests .......... 118
4.6.1 A Variance Screen for Collusion: an Example (2) .................. 120
4.7 Discussion ............................................. 121

5 Tracing the Base: A Topographic Test for Collusive Basing-Point Pricing .......................................................... 123
  5.1 Introduction ............................................. 123
  5.2 Basing-Point Pricing ................................... 126
  5.3 A Model of Basing-Point Pricing ..................... 131
    5.3.1 Competitive Basing-Point Pricing ............... 134
    5.3.2 Collusive Basing-Point Pricing ................. 135
  5.4 Detecting Collusive Basing-Point Pricing ............. 137
    5.4.1 Variance Screens .................................. 138
    5.4.2 Bid-distance Correlation ......................... 139
  5.5 Tracing the Base ....................................... 141
    5.5.1 Base Recovery .................................... 142
  5.6 A Likelihood Measure of Collusion .................. 144
  5.7 Concluding Remarks ................................... 149

6 Summary and Conclusions ........................................... 153
  6.1 Introduction ........................................... 153
  6.2 Main Findings ......................................... 153
  6.3 Implications for Antitrust Policy .................... 156
  6.4 Future Research ....................................... 158
    6.4.1 Cartel Formation with Heterogeneous Firms ...... 158
    6.4.2 Disentangling Overt Collusion and Tacit Collusion . 159

A BaseLocator® ................................................. 163
  A.1 Steps to Trace the Base ............................... 163
  A.2 Kernel of the Software ............................... 165

References ....................................................... 171

Samenvatting (Summary in Dutch) .................................. 185