

Contents

1	Introduction	1
1.1	Motivation	1
1.2	Objectives of the Study and Main Research Questions	4
1.3	Data and Methodology	5
1.4	Original Contribution	6
1.5	Outline	7
2	Multinational Companies, Knowledge and Technology Transfer:	
	Theoretical Framework	9
2.1	Definitions of Basic Concepts	9
2.1.1	Types of Technology	9
2.1.2	Externalities, Spillovers and Linkages	10
2.1.3	Horizontal and Vertical Technology Spillovers	10
2.1.4	Technology Transfer and Diffusion	11
2.1.5	Knowledge and Technology Transfer	12
2.1.6	Technological Capability and Learning	14
2.1.7	Global Production Networks and Global Supply Chain	14
2.2	Technology Diffusion Through FDI and Growth	15
2.2.1	A Picture of FDI Inflows in Turkey	18
2.3	Multinational Companies and Technology Spillovers	21
2.4	Channels of Technology Spillovers	26
2.5	Determinants of Technology Spillovers	31
2.5.1	Absorptive Capacity and Technological Gap	31
2.5.2	MNC Characteristics	33
2.5.3	Host Country Characteristics	36
2.5.4	Firm Characteristics	38
2.6	Empirical Studies on Technology Spillovers and Transfer	40
2.6.1	General Information	40
2.6.2	Evidence on Developed and Developing Countries	43

2.6.3	Evidence on Turkey	45
2.6.4	Reasons for Failure of Realizing the Technology Spillovers or for Their Negative Effect on Firm Performance	52
2.7	Theoretical Framework for Case-Study Research	53
2.7.1	General Information	53
2.7.2	Technology Transfers at Intra- and Inter-Firm Level	54
2.7.3	Forms of Technology Transfer at Intra- and Inter-Firm Level	55
2.7.4	Theoretical Framework	57
2.7.5	Studies Conducted for Foreign Countries	58
2.7.6	Studies on Turkish Automotive Industry	60
3	Research Methodology and Design	63
3.1	Introduction	63
3.2	Automotive Industry in Turkey	64
3.2.1	Basic Economic Indicators	65
3.3	Scope of the Case Study	73
3.4	The Purpose of the Study and Research Questions	74
3.5	Research Methodology	75
3.6	Data Collection Methods	77
3.6.1	Quantitative Data: Face-to-Face Questionnaire Survey with Suppliers	77
3.6.2	Qualitative Data: Face-to-Face Interviews with AMMs	99
3.7	Descriptions of Some Concepts and Differences for the Firms	106
3.7.1	Automotive Industry, Automotive Main and Supply Industry	107
3.7.2	The Relationships of Automotive Main and Supply Industry	108
3.7.3	Domestic and Overseas Automotive Main Manufacturers (DAMM and OAMM)	109
3.7.4	Domestic and Overseas Supply Industry	110
3.7.5	Domestic and Overseas Suppliers (DS and OS)	110
3.7.6	Local and Foreign Firms (LF and FF)	111
3.7.7	Parent Company (PC)	111
3.7.8	Direct Supplier Firms (DSF)	112
4	Survey Findings: Descriptive Analysis	113
4.1	General Characteristics of the Surveyed Firms	114
4.1.1	Capital Structure	114
4.1.2	Establishment Date (Age)	115
4.1.3	Number of Employees	117
4.1.4	Total Sales	117

4.1.5	Market Orientation	118
4.1.6	Technology Level of the Firms	118
4.2	KTTs at Inter-Firm Level	119
4.2.1	Transfers Related to Production Process	120
4.2.2	Transfers Related to Product	122
4.2.3	Financial Transfers	125
4.2.4	Transfers Through Training	127
4.2.5	The Reasons for Not Receiving Sufficient Amount of KTT	130
4.3	Market and Competition Structure	131
4.3.1	Major Markets	131
4.3.2	Main Competitors	133
4.3.3	Business Environment Related to Competition and Relationship	134
4.4	Technology Capabilities Related to Production and Design	135
4.4.1	Production Capabilities	135
4.4.2	International Quality Certificates	137
4.4.3	Technology Agreements	138
4.4.4	Sources of the Technologies Acquired by Firms	139
4.4.5	Design Capabilities	141
4.4.6	Co-design Activities Related to Products and Partners	142
4.5	Supply Chain	144
4.5.1	Management Structure and MNCs Among Clients	144
4.5.2	Main Customers of Surveyed Firms	145
4.5.3	Primary Sources of the Inputs	148
4.5.4	Purchasing Strategies of the Customers (Being the Sole Supplier of the Customer)	150
4.6	Cooperation	152
4.6.1	The Motivations for Cooperation Activities with Other Firms (Why Do Suppliers Cooperate with Other Firms?)	152
4.6.2	Improvements in the Production Capability as a Result of Assistance Received from the Customers	154
4.7	Direct Suppliers of the AMMs in Turkey	156
4.7.1	How the Firms Became a Direct Supplier	156
4.7.2	Cooperation Activities with AMMs	157
4.7.3	Benefits of Being a Direct Supplier	159
4.8	R&D, Innovation Activities, and Absorptive Capacity	162
4.8.1	R&D Activities (Technological Input)	162
4.8.2	Innovation Activities	164
4.8.3	Absorptive Capacity	170

4.9	Performance and Future Projections	172
4.9.1	Performance Increases: Improvements Related to Production Capability	172
4.9.2	Reasons for Performance Increases (Improvements) in Production Capability	173
4.9.3	Future Projections Related to Acquisition of New Technologies	175
4.10	Summary	177
5	Survey Findings: Econometric Analysis	183
5.1	Model	183
5.2	Explanatory Variables	185
5.3	Factor Analysis (FA)	190
5.4	Logistic Regression Analysis	191
5.4.1	Determinants of Being a Direct Supplier of AMMs in Turkey	193
5.4.2	Determinants of the Decision to Have an R&D Department	194
5.4.3	Determinants of the Innovation Activities	196
5.4.4	Determinants of the Technology Agreements (TA)	199
5.4.5	Determinants of the Sources of Technologies Acquired and/or Used	201
5.4.6	Determinants of the Co-design Activities Related to Products	204
5.5	Ordinal Logistic Regression Analysis	208
5.5.1	Determinants of the KTTs at Inter-firm Level	209
5.5.2	Determinants of the Technology Capabilities of the Suppliers	220
5.5.3	Determinants of the Inter-firm Cooperation (Why Suppliers Cooperate with Other Firms)	222
5.5.4	Determinants of the Improvements in Production Capability as a Result of Assistance Received from Customers	224
5.5.5	Determinants of the Benefits of Being a Direct Supplier	226
5.5.6	Determinants of the Cooperation Level with Partners in Innovation Activities	229
5.5.7	Determinants of the Performance Increases in Production Capability	232
5.6	Summary	235
6	Findings and Analysis of the Interviews	243
6.1	Introduction	244
6.2	General Characteristics of the AMMs Interviewed	247
6.2.1	General Information	247
6.2.2	Production Structure	248

6.2.3	R&D, Innovation, and Technology Activities	251
6.2.4	Domestic Input Rate and Major Sources of Inputs	253
6.2.5	Patent Policy	254
6.3	KTs Through Partners in Strategic Collaborations	255
6.4	Channels of the KTs from MNCs to AMMs Operating in Turkey at Intra-firm Level	257
6.4.1	Via Collaboration Activities with MNCs	257
6.4.2	Via Production, Management, and Quality Systems of MNCs	259
6.4.3	Via Auditing, Assessment, and Awarding Activities of MNCs	260
6.4.4	Via Training and Education Activities of MNCs	261
6.5	General Characteristics of the Direct Suppliers of the AMMs Interviewed	263
6.5.1	General Information About the Direct Suppliers	263
6.5.2	Number and Origin of the Direct Suppliers of AMMs	264
6.5.3	Capabilities of the Direct Suppliers	266
6.5.4	Expectations from the Direct Suppliers	267
6.5.5	Supplier Selection Criteria of the AMMs	267
6.5.6	Location of the Direct Suppliers	270
6.6	Channels of the KTs from AMMs to Direct Suppliers in Turkey at Inter-firm Level	271
6.6.1	Role of Being the Sole Supplier of the AMMs	272
6.6.2	Via Joint Projects	272
6.6.3	Via Co-design Activities	273
6.6.4	Via Auditing, Assessment, and Awarding Activities	274
6.6.5	Via Global Certificates of MNCs	278
6.6.6	Via Training and Education Activities	278
6.6.7	Via Other Assistances by AMMs	280
6.7	SWOT Analysis	281
6.7.1	Strengths (Internal-Positive)	282
6.7.2	Weaknesses (Internal-Negative)	284
6.7.3	Opportunities (External-Positive)	286
6.7.4	Threats (External-Negative)	287
6.8	Summary	288
7	Conclusion	293
7.1	Introduction	293
7.2	Main Findings	295
7.3	Policy Implications and Recommendations	300
7.4	Implications for Further Research	307

Appendix A: Cover Letter for Face-to-Face Questionnaire Survey with Suppliers in Turkey Automotive Industry	309
Appendix B: Cover Letter for Interview Request from the AMMs in Turkey	313
Appendix C: Letter of Support from OSD (in Turkish)	317
Appendix D: Letter of Support from TAYSAD (in Turkish)	319
Appendix E: Fieldwork Instructions for the Questionnaire Survey	321
Appendix F: Structure of the Questionnaire Form	323
Appendix G: Questionnaire Form Applied to Suppliers in Turkey Automotive Industry	327
Appendix H: List of the Domestic Automotive Main Manufacturers (DAMM)	343
Appendix I: Semi-Structured Interview Guide used in Interviews with the AMMs in Turkey	345
Appendix J: Summary Statistics for Key Indicators in the Survey according to Firm Descriptions	349
Appendix K: Description of the Explanatory Variables used in the Econometric Analysis	351
Appendix L: Descriptive Statistics for the Explanatory Variables used in the Econometric Analysis	353
Appendix M: Correlation Matrix	355
References	357
About the Author	371

Multinational Companies, Knowledge and Technology
Transfer

Turkey's Automotive Industry in Focus

Sönmez, A.

2013, XXVI, 371 p. 26 illus.,

ISBN: 978-3-319-02033-4