

Contents

1	Introduction: Law and Economics in a Nutshell	1
1.1	Foundations of Law and Economics	1
1.2	Methodology of Law and Economics	2
1.3	Object and Aim of Law and Economics of Patents	4
1.4	Structure of the Book	5
	References	6
2	Understanding Patents: Historical and Legal Aspects	9
2.1	Short History of Patents	9
2.2	Patent Legal Foundations	11
2.2.1	United States	11
2.2.2	France	13
2.2.3	England	14
2.2.4	Internalisation of Patent Law	16
2.3	Patent Granting Procedure	19
2.4	Scope of Patent Protection	21
2.5	Global Patenting Trends	23
	References	27
3	The Economics of Patents: Justifications and Trade-Offs	31
3.1	Economic Justifications for Patents	31
3.2	The Trade-Off Between Innovation and Efficiency	33
3.3	The Role of Patents in Technology Transfer and Licensing	38
3.4	The Concept of Patent Trolls and Patent Thickets	40
3.4.1	Patent Trolls	40
3.4.2	Patent Thickets	43
	References	45
4	Determining Economic Impact of Patents: Innovation and Competition	47
4.1	Quantifying the Economic Value of Patents	47
4.2	The Role of Patents in Fostering Innovation	51

4.3	The Impact of Patents on Competition	53
	References	56
5	Patent Reforms and Future Trends	59
5.1	Recent Changes in Patent Laws and Regulations	59
5.1.1	Patents and Artificial Intelligence	59
5.1.2	Digitalisation and Fee Reduction	61
5.1.3	Robustness and Reliability of Patent Rights	62
5.1.4	Support for Innovation Ecosystems	64
5.2	Emerging Trends in Patent Enforcement and Indirect Protection	65
5.2.1	Coordination of Enforcement Authorities	65
5.2.2	Patent Pledge and Patent Pool	66
5.2.3	Patents As Foreign Direct Investments	68
5.2.4	Patent Protection and TRIPS Agreement	71
5.3	Patent Systems and Policy Challenges	72
5.3.1	Women Inventors	72
5.3.2	Patents and Emerging Technologies	75
5.3.3	Patent System and Climate Change	77
5.3.4	Patents and Globalization	79
	References	83
6	Concluding Remarks and Policy Reflections	87
6.1	Concluding Remarks	87
6.2	Policy Reflections	89
	References	92
	Appendix A: Patent Applications and Grants	93
	Trend in Patent Applications Worldwide, 2013–2022	93
	Trend in Patent Grants Worldwide, 2013–2022	93
	Trend in Patent Applications for the Top Five Offices, 2013–2022	94
	Trend in Patent Grants for the Top Five Offices, 2013–2022	94
	Trend in Patents in Force Worldwide, 2013–2022	95
	Distribution of Patent Examination Outcomes for Selected Offices, 2022	95
	Patent Office Procedural Data, 2022	95
	Appendix B: Women Inventors and Patenting	97
	Share of Women Among Listed Inventors in PCT Applications, 2013–2022	97
	Share of PCT Applications with at Least One Woman As Inventor and with at Least One Man As Inventor, 2013–2022	97
	Share of Women Among Listed Inventors and Share of PCT Applications with at Least One Woman As Inventor for the Top 20 Origins, 2022–2022	98

Share of PCT Patent Applications with Women Inventors by Field of Technology, 2022	99
Appendix C: Patent Applications by Technology Field	101
Patent Applications by Field of Technology	101
Trend in Patent Applications in Energy-Related Technologies, 2012–2021	103
Appendix D: Patent Applications and Grants by Origine	105
Resident and Non-resident Patent Applications	105
Resident and Non-resident Patent Grants	105
Flows of Non-resident Patent Applications Between the top Five Origins and the Top 10 Offices, 2022	106
Flow of Patents in Force Between Selected Origins and Offices, 2022	107
Flows of PPH Requests Between Offices of First Filing and Offices of Later Examination, 2022	109
Flows of PPH Requests Between Offices of First Filing and Offices of Later Examination, 2022	110