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**Book Proposal for Cambridge University Press**

By: Daniel Benoliel

**A. Overview**

1. *Proposed title:*

Poor Men's Innovation: Patents, Innovation and the North-South Divide

2. *One-sentence description:*

An in-depth theoretical and empirical critique of the United Nations-led one-size-fits-all innovation policy funneled by international intellectual property instruments towards developing countries.

3. *Category:* Patent law, International Intellectual Property, Innovation Theory, Developing Countries, Emerging Economies, BRIC countries

4. *Timing of manuscript delivery:* twelve months after a signed contract

5. *Length in words:* 120,000 words (including footnotes)

**B. General outline**

The book offers an in-depth theoretical and empirical critique of the neoclassical economics one-size-fits-all innovation policy for all countries. This policy is applied primarily by means of international intellectual property instruments. A growing body of evidence shows that developing countries differ not only in their propensity to attract Foreign Direct Investment (FDI), trade, and technology, but also in their ability to innovate. Moreover, it is becoming increasingly apparent that developing countries differ in their ability to use intellectual property rights as a tool for fostering domestic innovation. These starting discoveries should be examined against the backdrop of a traditional World Bank-led inflexible North-South country group dichotomy or variations thereof. In the final analysis, an equal-country innovation policy essentially condemns the South to perpetual consumption of state-of-the-art technology from the North.

The book develops a critique that can contribute to the development of an alternative theory to the one-size-fits-all innovation-based economic growth equilibrium. This critique examines two tentative equilibria across the archetypical development divide. It thus offers a comparison between two groups of countries adjoining the North-South divide between the International Monetary Fund's (IMF) 24 listed emerging economies and the 32 listed advanced

economies.<sup>1</sup> More particularly, the book's core argument explains how and why domestic innovation in emerging economies is based much less on patenting activity as a proxy for domestic innovation than in the advanced economies. This analysis is consistent with Edward Mansfield's definition of the propensity to patent as the percentage of patentable inventions that are in fact patented or granted.<sup>2</sup>

The proposed work is novel in two important aspects. First, it is the first work to provide empirical corroboration for the distinction between the relatively high propensity to patent in advanced economies and the lower propensity to patent in neighboring emerging economies. It also provides empirical evidence showing that emerging economies heading the developing world as hotbeds for meaningful innovation are indeed slowly but surely converging with advanced economies in their propensity to patent.

The second part of the argument explains and theorizes these findings based on additional and extensive empirical and theoretical analysis. The book's methodology has only recently been made possible following the launching in 2011 of the monumental Science and Technology (S&T) dataset by the Institute for Statistics of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). This unprecedented dataset now covers 66 countries including emerging economies that previously have rarely reported on consolidated Gross Domestic Expenditure on R&D (GERD) growth indicators.

*As a policy consideration*, the book critically assesses equal-country policy ramifications incorporated by innovation-related organs of the United Nations. Such policies have been included by the World Trade Organization (WTO) in signing the Agreement on the Trade Related Aspects of Intellectual Property (TRIPS) and in the innovation-related policy of the World Health Organization (WHO). Similarly, this approach has been embodied in recent policy initiatives by the World Intellectual Property Organization (WIPO); the WIPO Development Agenda of 2007 aimed at ensuring that development considerations form an integral part of WIPO's work.

Lastly, the book critically assesses such equal-country innovation policies obliquely incorporated in the Washington Consensus standard macroeconomic reform package for crisis-wracked developing countries. The IMF, World Bank, and the United States Treasury Department have all promoted this much critiqued policy.

*Empirically*, the book offers a novel North-South empirical comparison of patent propensity rates across these countries between 1996 and 2011. To date, comparable empirical studies have been performed on cross-sectional or panel data at the firm, region or country level. The book offers a theoretical breakthrough in its comparison between two country groups.

Based on UNESCO's abovementioned dataset, the book reviews a series of adjacent GERD indicators, gauging their aggregate impact on the propensity to

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<sup>1</sup> As of 16 July 2012, the IMF listed 24 Emerging Economies: Mexico, Argentina, Pakistan, Brazil, Peru, Bulgaria, Philippines, Chile, Poland, China, Romania, Estonia, Russia, Hungary, South Africa, India, Thailand, Indonesia, Turkey, Latvia, Ukraine, Lithuania, Venezuela, Malaysia. Similarly, the IMF listed 32 Advanced Economies, mostly OECD countries: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, South Korea, Luxemburg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Kingdom, United States.

<sup>2</sup> Edwin Deering Mansfield, *Patents and Innovation: An Empirical Study*, 3 Mgmt. Sci. 173, 176 (1986).

patent by both emerging and advanced economies. The central indicators are GERD by type, GERD by both the financing and performing sector, GERD by type of employment and by Gross Domestic Product (GDP)-related measurements. Each of these indicators is examined in a separate chapter describing its explanatory power in the context of low patent propensity rates in emerging economies in comparison with advanced economies. Taken jointly, these indicators promote a novel understanding of both *how* and *why* domestic innovation activity is relatively much less promoted by patenting activity in developing countries (with emphasis on emerging economies) in comparison to advanced economies. Finally, this finding informs a reappraisal of the one-size-fits-all equal-country innovation policy funneled by international intellectual property instruments.

The entire empirical part will be completed with the assistance of the Statistics Laboratory at the Faculty of Industrial Engineering and Management, the Technion – Israel Institute of Technology, under the direct supervision of Professor Ayala Cohen and Dr. Etti Doveh.

*Theoretically*, the book contributes towards a theory that could replace the equal-country innovation-based economic growth equilibrium: a theory that examines *two* equilibria across the archetypical development divide. In so doing, this book corroborates the theoretical transition that growth theory has gone through in recent years: from an adherence to innovation-based economic growth as a linear historical process of technological development or innovation to a non- or less-linear innovation theory.

The present project follows my earlier findings concerning innovation policy and related international intellectual property law discontinuities between developing and advanced countries in the context of the TRIPS agreement bargaining situation over intellectual property-sensitive goods. My work on this subject was chosen by the *Harvard-Stanford Junior Faculty Forum* and winner of the *Microsoft Research Award for Scholarship on Law and Economics for an Outstanding Research Paper*, and led to two consecutive publications [Benoiel & Salama, 2010 (104 pages); Salama & Benoiel, 2010 (37 pages)].<sup>3</sup> This work correspondingly critiques TRIPS' equal-country policies. It takes on numerous case studies especially pharmaceutical patents, open source and software patents and plant genetics.

The book is further based on three completed articles which would be incorporated in the book (see Relevant Publications, articles 1-3 below, attached as two writing samples). The book could be considered as a stand-alone volume. Equally, the book could sit comfortably in the Intellectual Property and Information Law Series in the Cambridge Program.

### C. Marketing

The book appeals to a broad audience, including scholars and students of intellectual property law and economics, researchers, and policy makers:

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<sup>3</sup> Daniel Benoiel & Bruno M. Salama, *Towards an Intellectual Property Bargaining Theory: The Post-WTO Era*, University of Pennsylvania Journal of International Law, Vol. 32 (2010); Bruno M. Salama & Daniel Benoiel, *Pharmaceutical Patent Bargains: The Brazilian Experience*, Cardozo Journal of International and Comparative Law, Vol. 18 (2010).

*For academics, scholars and students*, the book will make an extremely significant contribution. To date there is no single monograph (including articles) providing an *empirical* and systematic comparison of the impact of recent policy initiatives on developed and developing countries. As noted above, the empirical dimension of the book has only become possible recently following the publication of UNESCO's dataset. All the previous literature is neither empirical nor offers a conceptual analysis of the neoclassical economic growth origins of international intellectual property policies.

Similarly, no single monograph uses alternative endogenous economic growth theory or other innovation theories (including the innermost National Systems of Innovation theory) to critique such international intellectual property-related policies. Lastly, no single monograph offers a comprehensive account of the impact of the propensity to patent *per se* on economic growth in developing countries with emphasis on emerging economies.

*For policy makers, governments and non-governmental organizations* the book may contribute to present-day debate led primarily by national governments and non-governmental organizations. This debate concerns the United Nations' self-proclaimed plan to diminish the divide between North and South through its Millennium Development Goals by approximately 2015. The book may consequently promote particular UN Millennium Development Goals, as well as the derived policies of other United Nations organs seeking to improve maternal health, combat HIV/AIDS, malaria and other diseases or eradicate extreme poverty and hunger. These policies are connected to international intellectual property policies to an evident extent.

#### D. Competing works

Mention can be made of eight titles available that address the theme of the book:

1. *Intellectual Property Rights: Legal and Economic Challenges for Development (Initiative for Policy Dialogue)* by Mario Cimoli, Giovanni Dosi, Keith E. Maskus Ruth L. Okediji and Jerome H. Reichman (Oxford University Press) (expected 2014) offers a comprehensive theoretical discussion of the role of intellectual property rights and their relation with innovative activities from a historical perspective. The book offers no in-depth comprehensive empirical analysis in support of its broad theoretical setting.

[Price ex. tax \$115]

2. *International Intellectual Property Law, Cases and Materials, 3d (University Casebooks)* by Paul Goldstein and Marketa Trimble (2012) offers a thorough casebook organized by contemporary foreign, as well as U.S., case law to equip law students with the knowledge they need to engage in international intellectual property practice and litigation. The book offers neither a unifying theoretical setting nor an empirical one.

[Price ex. tax \$141.48]

3. *International Intellectual Property Integrated World Economy, 2nd Edition (Aspen Casebooks)* by Frederick Abbott, Thomas Cottier and Francis Gurry (2011) offers a luminous casebook of international intellectual property practice. The book offers neither a unifying theoretical setting nor an empirical one.

[Price ex. tax \$183.98]

4. *The Development Agenda: Global Intellectual Property and Developing Countries* by Neil Weinstock Netanel (Editor) (2008) offers a rich edited compilation of articles examining WIPO's Development Agenda from various disciplines, including economics, political science and law. The book offers neither a unifying theoretical setting nor an empirical one.

[Price ex. tax \$69.98]

5. *World Intellectual Property Organization (WIPO): Resurgence and the Development Agenda (Global Institutions)* by Christopher May (2007) introduces the contemporary structure of WIPO's global governance to scholars of international political economy. The book offers neither a unifying theoretical setting nor an empirical one.

[Price ex. tax \$123.28]

6. *Global Intellectual Property Rights: Knowledge, Access and Development* by Peter Drahos and Ruth Mayne (2002). This 2002 book offers a historical narration of how intellectual property have been the product of the strategic behavior of multinationals, rather than democratic dialogue. The book offers neither a unifying theoretical setting nor an empirical one.

[Price ex. tax \$37.80]

7. *Innovation Policy: A Guide for Developing Countries* by World Bank (2010). This World Bank guidebook offers a set innovation policies. It offers a broad methodological framework for policymakers. The guidebook offers the one-size-fits-all innovation theoretical setting which my book critiques. Furthermore, this guidebook neither adheres to UNESCO's abovementioned dataset nor to related international intellectual property instruments.

[Price ex. tax \$32.93]

8. *Handbook of Innovation Systems and Developing Countries: Building Domestic Capabilities in a Global Setting* (by author editors Bengt-Ake Lundvall, K.J. Joseph, Cristina Chaminade and Jan Vang (2011)). This edited handbook adapts an innovation systems (IS) approach to developing countries from a theoretical and empirical viewpoint. It neither adheres to UNESCO's seminal dataset nor to related international intellectual property instruments.

[Price ex. tax \$57.73]

## E. About the author

I am a law professor at the University of Haifa's Faculty of Law and Director of Patents at the Faculty's Haifa Center of Law and Technology (HCLT). My main fields of research and teaching are within the fields of international intellectual property, patent law and innovation, and entrepreneurship law.

I hold a Doctor of the Science of Law (J.S.D.) with Honors (Instructor: Mark Lemley) from the School of Law at UC Berkeley (Boalt Hall). I was also been a John M. Olin Research Fellow with the John M. Olin Center for Law and Economics for two years during my doctoral studies. I am an alumnus of the Information Society Project (ISP) center at the Yale Law School, where I completed a one-year visiting fellowship. I have also been a Post-Doctoral German Academic Exchange Service (DAAD) Residential Fellow with the Law and Economics Graduate College at the University of Hamburg, Germany.

My publications to date have been in the fields of international intellectual property, patent law and innovation theory, and public international law. My leading publications are with the *California Law Review*, *Berkeley Law & Technology Journal*, *Yale Journal of Law and Technology*, *Michigan Journal of International Law*, and the *University of Pennsylvania Journal of International Law*.

In relation to my present research, my earlier article *Towards an Intellectual Property Bargaining Theory: The Post-WTO Era*, *University of Pennsylvania Journal of International Law*, Vol. 32 (2010) [104 pages] was chosen by the *Harvard-Stanford Junior Faculty Forum* as one of 10 best articles for 2009/2010. This article also won a *Microsoft Research Award for Scholarship on Law and Economics for an outstanding research paper* in 2010.

My book proposal is further based on numerous related courses and seminars I regularly teach at the University of Haifa Faculty of Law at the Haifa Center of Law and Technology (HCLT), as well as (for the last three years) at the Israeli Technion – Israel Institute of Technology with the Bronica Entrepreneurship and Innovation Center (BEIC). These jointly include an advanced course on Intellectual Property in BRIC Countries (4 credits), a seminar on Entrepreneurship in Developing Countries (4 credits), Patent Law (3 credits), a seminar on Patent Law and Theory (4 credits), as well as a course on Legal and Financial aspects of Technological Entrepreneurship (2 credits). I have also received numerous prizes, awards and research grants in the fields of intellectual property and law and technology.

## F. Relevant publications:

1. Daniel Benoliel, The International Patent Propensity Divide, *North Carolina J. L. & Tech.* 15(1) (January 2014) (52 pages)
2. Daniel Benoliel, Patent Convergence Club Among Nations, *Marquette Intellectual Property L. Rev.* (forthcoming 2014) (51 pages)
3. Daniel Benoliel, Patent-Government Financing and Performing Relations: An International Perspective (forthcoming 2014) (48 pages)

4. Bruno M. Salama & *Daniel Benoliel*, Pharmaceutical Patent Bargains: The Brazilian Experience, *Cardozo Journal of International and Comparative Law*, Vol. 18 (2010) (37 pages)
5. *Daniel Benoliel* & Bruno M. Salama, Towards an Intellectual Property Bargaining Theory: The Post-WTO Era, *University of Pennsylvania Journal of International Law*, Vol. 32 (2010) (104 pages)
6. *Daniel Benoliel*, Intellectual Property in Israel, Circa 2010, *Din Udvarim L. J.*, vol. 6(1) (2011), 139-172 (in Hebrew) (33 pages)
7. *Daniel Benoliel* & Timothy Chirwa, The Impact of FDI on Least Developing Countries (LDCs): The Case of Pharmaceuticals (forthcoming 2014) (work in progress)

## **G. Proposed outline**

### **Book endorsements**

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### **Table of Treaties and Abbreviations**

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## **Chapter I - Setting the Framework: Patenting and Economic Growth**

[30 pages]

Introduction

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B) Of Patenting as Linear Innovation

C) Towards Non Linear Innovation Patenting

II. The Role of the United Nations in Fostering Innovation

A) World Intellectual Property Organization (WIPO) Development Agenda and Beyond

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Conclusion

## **Chapter II - The North-South Patenting Divide**

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Conclusion

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I. Patent Club Convergence: The Positive Framework

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B) Coalitions and Convergence Clubs

C) Growth Theory and Convergence over Innovation-Led Growth

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III. Theoretical Ramifications

Conclusion



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[30 pages]

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## **General Conclusion**

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## **H. Chapter-by-Chapter Summary**

### **Introduction**

[4 pages]

This part introduces the book's core argument and methodology. It proposes a reexamination of the one-size-fits-all equal-country innovation policy funneled by international intellectual property policies.

The book begins by posing two simple questions concerning the impact of patenting activity over innovation policy. Firstly, *how* is domestic innovation promoted by patenting activity in emerging economies in comparison to advanced economies? Secondly, *why* is the propensity to patent by emerging economies relatively lower?

The introduction then describes the policy implications of the book's findings. These correspond with the United Nations *Millennium Development Goals* program to diminish the divide between North and South by 2015. Finally, the introduction defines the book's wide audience as including both scholars and students of intellectual property law and economics, as well as policy makers, governments and non-governmental organizations.

### **Chapter I - Setting the Framework: Patenting and Economic Growth**

[30 pages]

This chapter departs from the transition growth theory has undergone in recent years. A shift from innovation-based economic growth modeled as a *linear* historical process of technological development. The latter account traditionally upheld that developing countries were deemed to be at an earlier stage than developed ones along an archetypical linear path of historical economic progress. Such model linearity was said to equally foster growth across countries by means of translation of GERD supply into "better" innovations. That is, based on a single economic equilibrium.

This course naturally led to a neoclassical economics policy inclination towards one-size-fits-all international intellectual property instruments for fostering

innovation. The neoclassical economics-based innovation policy draws a parallel to the creation of the United Nations innovation-related policies within WIPO, WHO, the WTO's TRIPS Agreement or the Washington Consensus, as mentioned.

This introductory chapter then explains that against the backdrop of the demise of the Washington Consensus plan a growing theoretical inclination emerged towards non-linear, or at least less-linear, innovation theory and policy. Riding the rising wave of non-linear innovation dialectics, the Organization for Economic Cooperation and Development (OECD) and the European Union (EU) began to transform non-linear innovation into their policy. The OECD's modus operandi noticeably uses patent statistics for measuring economic growth. The book's empirical analysis follows suit, while adopting a novel (albeit partly related) methodology and deriving leading indicators from UNESCO's 2011 dataset.

## **Chapter II - The North-South Patenting Divide**

[30 pages]

This chapter analyses the book's first thematic question: *how* is domestic innovation promoted by patenting activity in emerging economies in comparison to advanced economies? As an starting point, it corresponds with the IMF's 2012 updated classification of the two country groups. In reply it offers two new characteristics backed by the book's empirical breakthrough.

The first is the significant gap in the propensity to patent between the two country groups of emerging economies and advanced economies. The book hence coins the term *the North-South patenting divide*. It explains why these unequal patent propensity rates corroborate critique of the neoclassical economic growth literature. Numerous organs of the United Nations continuously promote innovation and international intellectual property policies based on that literature.

The second characteristic of the archetypical North-South patent propensity divide is the systematic decrease in the gap over time. In so arguing, the book coins the term *emerging economies upward convergence*. The latter explains how the propensity to patent by emerging economies is slowly yet steadily nearing towards that of advanced economies. To paraphrase Thomas Friedman, when it comes to innovation-based growth the world may not necessarily be flat, but it may well be flattening.

## **Chapter III - Convergence Clubs, Coalitions and Innovation Gaps**

[30 pages]

Departing from the North-South patenting divide embodied in the IMF's emerging and advanced economies, this chapter offers a more nuanced classification on a wider patent propensity analysis of 66 innovating countries worldwide between 1996-2011. The analysis in this chapter reaches beyond emerging and advanced countries and includes all innovating countries reported in the above UNESCO 2011 dataset. It aims to override the IMF overarching country macroeconomics groupings and to search for international clustering patterns over patent propensity as a proxy for domestic innovation *per se*.

The chapter first explains how even beyond emerging and advanced economies, country coalitions increasingly are becoming the informal preferred response of

developing countries to imbalances in power, particularly in the WTO. However, it is noted that few specific innovation and intellectual property-related country coalitions have thus far converged. Following coalition theory, surely these exclude both loose compilations of civil society groups over broad egalitarian principles such as the Access To Knowledge (A2K) or the Open Source movements. These accordingly exclude the plethora of overly-generalized regional coalition blocs, such as the African Group or the European Union.

The chapter then offers its main contribution. It empirically delineates two large patent propensity-gaps within the North-South patent propensity divide that define three novel country convergence patterns. A first North-South gap refers to the great distance that separates the middle group of “*followers*” from approximately half of the most innovative OECD “*leaders*” in terms of patent propensity capabilities. The second gap similarly refers to the significant gap that separates the weaker “*marginalized*” from the “*followers*” clubs. Departing from previous theories, the chapter explains why only a half of the emerging economies fit in the middle *followers* country group. Similarly, the chapter shows why a second half of emerging economies including Brazil, Russia, India and China (BRICs) belong to the lower *marginalized* convergence group. In the future, such codenamed *convergence clubs* may arguably coalesce into possibly more accurate innovation and intellectual property-related coalitions within the relevant United Nations organs.

#### **Chapter IV - Innovation-based Growth and Institutional Analysis**

[30 pages]

This chapter opens the second part of the book’s dual core argument. It defines the central characteristics of the North-South patenting divide. These account for the propensity to patent based on the annual rate of United States Patent and Trademark Office (USPTO) granted patents and GERD measurements. The latter include GERD by both the financing and performing sector, GERD by type, GERD by type of employment and by Gross Domestic Product (GDP)-related measurements. Each category of indicators is analyzed in a consecutive chapter.

Chapter IV in particular offers a conceptual and statistical analysis of the impact of industrial sectors referred also as GERD by type, over the North-South patenting divide. In so doing the chapter analyzes two GERD-related variables, namely the *financing* and the *performance* of GERD. This analysis further distinguishes between three types of such innovating sectors, namely the Government, the Business sector and private investment from abroad by Multi-National Corporations (MNC). It conceptually departs from the neoclassical economic growth theory and present-day policy favoring MNC-based GERD activity in as part of an equal-country innovative narration.

The chapter upholds that advanced and emerging economies differ in terms of the impact of their industrial sectors or institutions in fostering patent propensity. In startling contrast to present day findings focusing solely on advanced economies, the chapter further explains that for emerging economies there is a negative relationship between the performance of innovation activity by the business sector accounted as patent propensity. Equally, it shows that for advanced economies there is a negative relationship between the performance of innovation activity by the government accounted as patent propensity.

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## **Chapter V - GERD by Type, Patenting and Innovation**

[30 pages]

The chapter analyzes a consecutive GERD-related indicator category, namely GERD by type upon its impact on the North-South patenting divide.

It shows the inclination by emerging economies to center their GERD-related expenditures on *Basic Research*, as distinct from the other two more patent-dependable GERD-related types of expenditure, *Applied Research* and *Experimental Development*. This finding ultimately supports earlier empirical ones validating relatively low patent propensity rates by emerging economies in comparison with advanced countries, since in principle basic research leads to a lower propensity to patent.

This chapter noticeably corresponds with earlier empirical findings by the seminal 2005 *World Investment Report* of the United Nations Conference on Trade and Development (UNCTAD), which reached similar conclusions on the basis of a much smaller dataset. The methodology for this chapter matches the OECD's 2002 *Proposed Standard Practice for Surveys on Research and Experimental Development* codenamed the *Frascati Manual* and calculation definitions thereof.

## **Chapter VI - GERD by Employment, Human Resources and Patent Propensity**

[30 pages]

The chapter theorizes on a third category of GERD-related indicators, namely *GERD by type of employment*. It explains the impact of ratios of numerous GERD-related human capital indicators on propensity to patent rates across the North-South patenting divide. In so doing, it corroborates earlier yet limited empirical findings depicting the decline in the rate of propensity to patent in the United States, the United Kingdom, Germany and France between 1990-1970 due to a decline in the ratio of number of patents per scientific and engineering employee thereof. This chapter analyzes the 2011 UNESCO dataset concerning GERD-related personnel by sector of employment by full-time equivalence (FTE) and full-time & part-time headcount (HC).

The calculation method used for this chapter applies the 2002 Frascati Manual as well as the specific *OECD Canberra Manual* of 1995 on statistical measurement of Human Resources devoted to Science and Technology (HRST). The chapter ultimately characterizes differing patent propensity rates as proxy for domestic innovation by both emerging and advanced countries abridging the archetypical divide.

## **Chapter VII - GDP-related growth, GNP and Patent Propensity**

[30 pages]

The chapter theorizes on a fourth category of GERD-related indicators, namely *GERD by GDP-related growth rates*. It explains the impact of GDP-related growth rates on the propensity to patent across the archetypical patenting divide. It estimates high marginal growth correlation between patent propensity and GDP and

Gross National Product (GNP) indicators in emerging economies in comparison with advanced economies between 1996-2011

This finding further shows high correlation with increase in GDP indicators in emerging economies by comparison with advanced economies. It corresponds with the idea that national economic growth patterns in emerging economies may better explain relatively proven higher marginal growth patent propensity rates in emerging economies.

A central implication thereof may be that emerging economies may leverage patent propensity more effectively than advanced economies in promoting economic growth over time. This hypothesis may correspond at least in part with earlier seminal yet limited findings by Griliches in 1990 showing that the number of domestic patent applications in the United States between 1880-1989 increased much more slowly than real GNP and investment – notwithstanding the sharp increase in the number of patent applications and grants in the United States in the late 1980s and early 1990s.

## **General Conclusion**

[10 pages]

This section rates the explanatory power of the mentioned patent propensity GERD-related indicators. Offering a unifying statistical model this chapter measures the relative impact of all indicators over the propensity to patent across the divide. It offers both theoretical ramifications and supporting policy suggestions based on the book's overall theoretical analysis.

## **I. Sample chapters**

Please find attached two sample writings relating broadly to chapters I-III, above.

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