PERSPECTIVES ON COMMERCIALIZING INNOVATION

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Rationale and Scope

Intellectual property is a vital and growing part of the global economy, accounting for about half of GDP in countries like the United States. Innovation, competition, economic growth, and jobs, all can be helped or hurt by different approaches to intellectual property. But as so often is the case, the devil is in the details, and seemingly slight changes in the particular rules of the game can have remarkable impact. This book brings together diverse perspectives from fields of law, economics, business, and political science to explore the ways varying approaches to this driving element of our economy and society can positively and negatively impact life at home and abroad.

The book begins with a collection of essays on the theoretical underpinnings of modern intellectual property regimes. The book then turns to the legal and economic realities facing attorneys, business leaders, and creative professionals alike. With its diverse viewpoints exploring a wide range of issues, PERSPECTIVES ON COMMERCIALIZING INNOVATION offers a blend of thought-provoking policy analysis, empirical research, and concrete solutions to both present and future problems.

Readership

The book should appeal to a broad readership. Although appropriate for law courses and seminars on intellectual property, the book is not intended for an exclusively legal audience. As a result, the book also is appropriate for courses in business and economics at both the graduate and undergraduate levels. Its essays draw from a diverse set of fields, including law, economics, and political science.

One topic that is a particular focus in the book and of particular interest across university campuses is the Bayh-Dole Act and its impact on university research. Those who support such sponsored research as well as those who study, administer, or conduct it, and those who use it as internal technology transfer managers or outside business partners, will each find the diverse problem-solving approaches explored here to be of use.
Taking seriously the idea that one size rarely fits all and that local knowledge always can instruct, the book embraces a diverse set of international perspectives. As a result, the book should find a foreign readership in addition to its domestic audience.
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INTRODUCTION

The purpose of intellectual property (IP) rights remains a topic of longstanding debate. Some see IP rights as tools for granting private monopolies or other privileges to creative or inventive individuals. Some individuals of this view begrudge IP as a form of patronage for a select few politically effective beneficiaries, while others happily allow IP as rewards for inventive or creative efforts. Others see IP as tools for getting new inventions or creations put to use and embrace the right to exclude as a tool for getting diverse business parties to strike the necessary deals with each other that help achieve the appropriate distribution and commercialization. All seem to agree that IP rights work best when they help increase innovation and competition while getting ideas put to use as broadly and rapidly as possible. Not all agree on what this means for how rules of the game should be structured or whether particular forms of IP should even be protected at all.

This book presents several perspectives on the many economic, legal, and scientific issues surrounding the commercialization of IP, with a focus on patents. Contributors offer empirical research, policy recommendations, and new theoretical frameworks for analyzing these issues.

This book begins in Part I with a collection of essays on the ultimate goals of different IP regimes. Michael Abramowicz’s Commercializing the Public Domain considers possible exceptions to the rule “once public domain, always
Beginning with the Orphan Drug Act as an example, Abramowicz argues that there may be other cases when underutilized ideas should be taken back out of the public domain in order to facilitate their commercialization by private owners. In other words, Abramowicz argues that it might make sense to grant IP rights in underused assets even when they don’t meet the existing tests of novelty under patent law, showing one way in which the addition of IP rights can be important for solving an under-use problem, not creating one. Clarisa Long revisits first principles, examining the differences between copyright and patent law with a view to explaining how and why these two IP regimes became so divergent in their policy goals and mechanisms. A robust understanding of the underpinnings of different IP regimes is necessary when considering any effort to engage in legal reform and when trying to craft IP regimes in developing economies. Robert Merges begins to unpack some of the mechanisms by which deals actually get struck in this area of business. He highlights some of the differences between conducting those deals against a backdrop of only contract law on the one hand or contract law augmented by IP law on the other hand. In so doing, he highlights some of the important ways in which IP rights help get deals done. Approaching IP rights from a transactional perspective also has important implications for the positive law of IP, as certain IP regimes more effectively promote transactions than others.
Regardless of the reason they were created, many IP rights presently are in force. Accordingly, Part II addresses the potential problems raised by the existence of this large number of outstanding rights of exclusion. The increasing complexity of the innovation and commercialization processes raise the specter that researchers, entrepreneurs, and established firms may each face the seemingly daunting challenge of securing the cooperation of large numbers of IP owners to do their work. In some cases, these may be a large number of diffuse or even unknown owners. In other cases, the relevant parties may include intense rivals. In either case, the central fear is that the right to exclude associated with IP rights may be unduly taxing, retarding, or downright blocking important work from getting done, creating what some call a tragedy of the anticommons.

F. Scott Kieff and Troy Paredes, in A Private Ordering Solution to the Public Problems of Anticommons, suggest a business structure premised on self restraint that allows for a business to operate even in the face of a hugely diffuse set of IP owners. Taking seriously the threats of hold out and hold up, Kieff and Paredes explore in some depth many of the corporate, bankruptcy, antitrust, and game theory problems such a structure is likely to face but also likely to overcome. In the same vein, Henry Smith highlights the importance of modularity in IP. Smith shows how IP rights can help get multiple diffuse actors to come together and strike deals by facilitating a modular approach to solving complex problems. Doug Lichtman explores the ways standards setting organizations can help get
new technological standards put to use, despite the threat of patent litigation by members or non-members. He suggests that including a defensive suspension clause in standards licenses may be the best technique for solving this problem.

The threat of litigation over even small numbers of IP rights cause some to question the wisdom of even using a property-like right to exclude in the first place. Part III delves deeper into the nature of transactions to some of the ways in which treating IP like property is particularly important to getting deals done by facilitating markets for IP and the subject matter it protects. Frank Partnoy and Shaun Martin begin this Part by showing why it makes sense to consider patents as options. They argue that seeing patents in this light allows for more accurate valuation, and therefore more efficient commercialization. Taking seriously the various regulatory approaches often advocated as alternatives to treating IP as property, Steve Haber uses a historical analysis of the early 20th century Mexican and Brazilian textile industries to examine the profound impact that regulatory approaches to capital markets can have on the development and adoption of new technologies. A heavy-handed governmental approach to business dealings, for example, displaces property rights and private ordering with government intervention and regulatory capture. Continuing the comparison between regulation and property, Terry Anderson and Gary Libecap discuss the benefits of property rights-oriented solutions to complex
environmental problems. They show how strong property rights in the hands of interested parties can more efficiently lead to environmental improvement.

Recognizing that not all property rights work well, this book continues in Part IV to explore the ways in which the particular regime of patents can be improved. One reason that inventions are not commercialized as effectively as possible is that many patents are either worthless, or harmful, and it can be difficult and expensive to separate the wheat from the chaff. Patent reform is offered by many as the best solution.

Adam Jaffe and Josh Lerner begin the discussion by exploring the many reasons behind “bad” patent applications and the issuance of “bad” patents. They conclude that reforms within the PTO could lead to a positive feedback cycle of fewer “bad” applications, more rigorous examination, and ultimately, better issued patents. Of course, this begs a fundamental question – namely, what distinguishes “bad” patents from “good” ones? R. Polk Wagner synthesizes the Court of Appeals for the Federal Circuit’s patent jurisprudence into a de facto innovation policy, and he offers some analysis and suggestions regarding how a more policy-conscious Federal Circuit might help. John Duffy considers how “embryonic” patent applications filed early in the research and development timeline differ from applications on more developed technology. He suggests that these embryonic ideas offer a great deal to society, but he also cautions that their legal protection should be embryonic as well. Of course,
just as it can be difficult to distinguish “bad” from “good” patents, it can be equally difficult to distinguish “embryonic” from non-“embryonic” applications.

As in all areas of law, and despite its tremendous value, empirical research in IP law is too rare. Several chapters of the book, therefore, present empirical research, some of which addresses issues of general impact in Part V, while others focus on the Bayh-Dole Act in Part VI.

The empirical research of David Adelman in the area of biotechnology patents explores what he sees as long-term trends over the past 15 years relating to the influence of PTO rules and case law on the number of issued patents, the consistently diffuse ownership of biotechnology patents, and the apparent lack of a general anticommons problem. In other words, Adelman’s research seems to suggest that despite the existence of circumstances that might be expected in theory to be associated with a particularly bad anticommons effect, little effect is observed in practice. Naomi Lamoreaux and Kenneth Sokoloff demonstrate that individual inventorship has been steadily declining as the complexity of inventions and the difficulty of commercialization have increased. Their result is important because it shows how the institution of property rights can be an alternative vehicle to full integration within a single firm for helping groups of individuals manage complexity and integration. Nevertheless, the trend away from individual inventorship is not present in all groups. Lisa Cook’s research shows that, among African-American patentees,
there has been a trend away from growing research teams and corporate assignment of patents and towards individual inventorship and government assignment. An important implication of this work is that property rights in patents can be a way to empower minorities by giving them a seat at the bargaining table when their participation within groups or firms is foreclosed.

One of the most significant American legal developments in this area has been the passage of the Bayh-Dole Act, which allows universities and small businesses to patent the results of their federally-funded research. Looking back on the past 27 years, several contributors consider the effects of the Act, its successes, failures, and consequences.

John Allison, Arti Rai, and Bhaven N. Sampat report the results of their empirical research on university-owned software patents. Allison, Rai, and Sampat note that both software-related and pure software patents make up a growing share of university-owned patents. They also find that the most important factor behind the patenting of software is the university’s propensity for filing for patents generally, and that this finding suggests that universities may be treating software much like biotechnology without regard for the different routes to commercialization that these two types of technology often take. Mark Lemley argues that, although universities share some characteristics with patent trolls—particularly their nonpracticing status—universities are unlike trolls in that they provide strong social benefits through technology transfer; in
particular, the licensing of university research-derived patents helps create an efficient market for technology. Charles McManis and Sucheol Noh evaluate the theoretical underpinnings of the Bayh-Dole Act by reviewing the available empirical evidence, particularly as related to genetic research. Though their study is perhaps not yet the final word on the matter, they conclude that the evidence tends to support the Bayh-Dole policies. Indeed, the empirical research of John P. Walsh, Charlene Cho, and Wesley M. Cohen confirms that Bayh-Dole has not led to an anticommons outcome, at least in the field of biomedical research. They found that only a small number of interviewed researchers are unconcerned with patents on knowledge inputs to their work and that a similarly small fraction reported interruptions in their research due to licensing agreements.

Part VII concludes with a focus on the way increasing globalization and use of the Internet have increased the use in international markets for IP. Many countries are seeking to develop successful IP regimes, and the final essays reflect on some ways in which particular countries succeed and fail to commercialize innovation domestically and internationally.

Paul C. B. Liu, William Kuang-Wei Chueh, and Mong-Yao Ker compare the effects of Bayh-Dole in America to the effects of similar legislation in Taiwan, the Science and Technology Basic Law, and the development of the Industrial Technology Research Institute. Although the Taiwanese law was necessarily
adapted to the legal, cultural, and economic climate of Taiwan, the common policy goal of stimulating the commercialization of innovation by incentivizing university research remained the same. Not all cultures are as amenable to the market-oriented approaches followed by countries like the United States. As Richard Gold points out, purely economic incentives may prove insufficient in some countries, such as Russia and Thailand, where cultural views of IP differ substantially from those in the US. In the end, a one-size-fits-all system is unlikely to work on a global scale.

This book gives a rich variety of views on the problems of commercializing innovation, and it offers new insights and possible solutions to many of those problems. We hope that this book will inspire its readers to find their own perspectives and formulate new solutions in turn.