2011

Chapter 1: The Importance of Law in Promoting Innovation and Growth

Robert D. Cooter
Aaron Edlin
Robert Litan, *Kauffman Foundation*
George Priest, *Yale Law School*

RULES FOR GROWTH

Promoting Innovation and Growth Through Legal Reform

The Kauffman Task Force on Law,
Innovation, and Growth

KAUFFMAN
The Foundation of Entrepreneurship
Kansas City, Missouri

1 The Importance of Law in Promoting Innovation and Growth

Robert Cooter, Aaron Edlin, Robert E. Litan, and George L. Priest*

Nobel Laureate and University of Chicago economist Robert Lucas, who received his prize for his theories of how people form expectations about the future and how those expectations arguably should affect economic policymakers, may be remembered by historians more so for one single famous utterance: "Once one starts thinking about [actions to accelerate economic growth], it is hard to think about anything else."[1]

It is not hard to figure out why. Economic growth is the driving force behind improvements in people's living standards. Although measuring economic progress over long lengths of time is fraught with difficulties, it is now the received wisdom that, on

* Robert Cooter is Herman Selvin Professor of Law, University of California at Berkeley. Aaron Edlin is both Professor of Economics and the Richard Jennings Professor of Law, University of California at Berkeley, and a Research Associate at the National Bureau of Economic Research. Robert E. Litan is Vice President for Research & Policy at the Ewing Marion Kauffman Foundation and Senior Fellow in the Economic Studies program at the Brookings Institution. George L. Priest is the Edward J. Phelps Professor of Law and Economics and Kauffman Distinguished Research Scholar in Law, Economics, and Entrepreneurship at Yale Law School.

[1] Robert Lucas, "On the Mechanics of Economic Development," *Journal of Monetary Economics* 22, no. 1 (1988): 5.

average, living standards for the world's population barely budged for roughly 2,000 years before the Industrial Revolution of the late 1700s and early 1800s. Only after the remarkable innovations that in retrospect make up that revolution—notably the steam engine and, shortly thereafter, the railroad—did living standards begin to rapidly advance, first in the United Kingdom and the United States, and eventually around the world.

Growth since has been the norm in most locations, though with frequent interruptions in different places and at different times due to wars and civil conflicts, financial crises, and temporary economic downturns. The average American in the early twenty-first century, for example, is roughly seven times better off than he or she was at the beginning of the twentieth century.[2] Similar or even greater advances have been achieved in other developed economies. Even faster progress has been made since as recently as 1980 in large parts of the developing world. The economies of China and India, once thought to be hopelessly moribund, have grown at annual rates of between 6 and 8 percent for more than two decades running, chalking up a record that Lawrence Summers has labeled the most remarkable example of progress in human history.[3] Even portions of Africa, home to some of the poorest nations on earth, began to show sustained vigorous growth in the 1990s and beyond (even through the 2008–9 near-global recession).

Although many concerns remain about how the gains from growth are distributed—a topic we briefly revisit at the end of this introductory chapter—there is little doubt that growth has had broad benefits. One widely used measure of extreme poverty is those who live on less than $1.25 a day. The share of the population in developing countries living below that standard shrank by half, from 52 percent to 25 percent—between 1981 and 2005.[4]

[2] Measured as per capita Gross Domestic Product, see Angus Maddison, *The World Economy: Historical Statistics* (Paris: Organisation for Economic Co-Operation and Development, 2003).

[3] Lawrence Summers, remarks at the Presidential Summit on Entrepreneurship, Washington, DC, April 27, 2010.

[4] World Bank, *Poverty Brief*, March 2010, www.worldbank.org.

That was possible only because the economies in which these people live were able to greatly expand their production of goods and services.

The gains from growth are not exclusively material. Richer societies are also healthier and permit people to live longer. It is no accident that life spans throughout the world, but especially in richer countries, have grown significantly at the same time that output per capita has expanded. With more resources, people and the societies they live in eat better and are able to afford more frequent and better health care, lowering rates of infant mortality and adding years to the average life.

Why do economies grow? This question, which once occupied the attention of the first "economists"—among them, Adam Smith, David Ricardo, and others—has continued to bedevil economists over the past several decades. By and large, economists have been better able to *describe* how growth happens rather than to predict it or to prove that particular policies are responsible for it.

Broadly speaking, the accepted framework for describing growth over the long run (putting aside the inevitable short-run fluctuations due to constant changes in aggregate demand) specifies it as the product of a series of inputs: physical capital (buildings and machines), human capital (human work, adjusted for the skills people bring to their jobs), and "innovation," a catchall term that economists use to capture all growth that is not due to the first two factors. MIT economist Robert Solow won his Nobel Prize for showing in the 1950s that in the United States innovation was by far the most important "factor of production" of the three. Subsequent empirical work by Edward Denison, Robert Barro, and others has confirmed this to be the case in developed economies. There is a broader range of opinion about the relative contribution of the three factors of production in lesser-developed economies, which have the advantage of being able to copy or import cutting-edge technologies from the developed world, and thus seem to rely more heavily on investment in physical capital and education to achieve growth rather than innovation

(although this has been changing in parts of the world where innovations aimed at satisfying the wants of low-income individuals are more likely to come from local residents than from abroad).

As important as the construction of the basic growth framework has been, a number of questions remain unanswered. What is inside the "black box" called innovation? What factors influence it and to what degrees? If policymakers had definitive answers to these questions, they would be in a far better position than they are now to boost rates of economic growth on a sustained basis in many different locations.

One standard answer is that innovation is driven by advances in knowledge, which in turn seem to be correlated with spending on research and development, more so by governments (which in principle focus more on basic science where the gains are true "public goods") than by the private sector (where the advances are more applied, and the gains more easily captured by those who discover them, but even then most of these gains, too, accrue to society at large). Any connection between R&D spending and innovation, however, must be loose since there is a large random component to discovery, although in principle—to borrow an analogy from the sport of hockey—it seems logical that more goals are likely to be scored the higher the number of "shots on goal." Still, because not all R&D spending is fungible, any aggregate number for R&D effort is difficult, if not impossible, to adjust for the quality of the researcher or the research itself. More fundamentally, R&D spending is unlikely to translate into new products, services, and modes of production—and thus, to advance growth—unless those innovations are commercialized and then meet the test of the market. Too often, too much attention is paid to just R&D efforts and not enough to commercialization activities; the two may not always be highly correlated. Recently, economist William Baumol has drummed this distinction home by theorizing about the critical role played by "innovative entrepreneurs" in the growth process.[5]

Economists also have sought other keys to unlock the mystery of what accounts for innovation and growth. Perhaps their favorite empirical technique is the "cross-country regression" in which data on GDP for different countries over an extended time period are "regressed" against a number of independent, supposedly causal variables (capital, labor, R&D intensity, and other factors).[6] In principle, these regressions permit the testing of various hypotheses about what factors are correlated with growth, controlling for the influence of a range of other factors. In practice, however, the literature based on these cross-country regressions is far from definitive. Apart from the obvious and unsurprising connections between growth and the basic factors of production already identified, researchers have found, depending on the sample periods and the identities of the countries in the regressions, that growth can be influenced (or not) by such other factors as openness to trade and foreign investment, religious intensity of the population, and measures of violence representing civil conflict or crime, among other variables. Yet another line of research, pioneered by Stanford economist Paul Romer, suggests that growth and innovation may be "endogenous"—that is, innovation is not some independent or autonomous factor that cannot be explained, but instead is the product of, or is heavily influenced by, other factors of production, notably investments in physical and human capital.[7]

This book focuses primarily on still one other broad driving force behind growth—the types and quality of the "institutions" (the formal and informal rules societies set or establish over time)—that either foster or discourage people's engagement in growth-

---

[5] William J. Baumol, *The Microtheory of Innovative Entrepreneurship* (Princeton, NJ: Princeton University Press, 2010).

[6] Perhaps the most prominent example of such work can be found in Robert J. Barro, *Determinants of Economic Growth: A Cross-Country Empirical Study (Lionel Robbins Lectures)* (Boston, MA: The MIT Press, 1998).

[7] Paul M. Romer, "Increasing Returns and Long Run Growth," *Journal of Political Economy* 94, no. 5 (October 1986): 1002–37; Romer, and "The Origins of Endogenous Growth," *Journal of Economic Perspectives* 8, no. 1 (Winter 1994): 3–22. For a popular guide to Romer's growth theory, see David Warsh, *Knowledge and the Wealth of Nations: A Story of Economic* Discovery (New York: W.W. Norton & Company, 2006).

enhancing activities. The importance of this principle has been explicitly validated by the Nobel prizes given to the several economists who have explained why institutions matter.[8] Economies, like games, cannot function effectively without clear rules set and enforced by someone or some bodies or organizations. Examples include rules of property and contract ultimately enforced by judicial systems, which ensure that those who undertake and succeed at productive endeavors are able to retain a sufficient portion of the gains from their labors to induce them to undertake these actions in the first place.[9]

Yet beyond this basic insight—that certain fundamental "rules of law" should be protected, formally or even informally through norms and customs—not much attention has been paid by economists (or lawyers) to the institutions, laws and legal systems in particular, that are best suited for promoting innovation and economic growth. A noteworthy exception is the running debate between researchers who continue to argue whether Anglo-Saxon legal systems are more conducive to growth (and the coincident development of financial systems) than civil law systems, or vice versa.[10] In principle, so one argument goes, Anglo-Saxon systems rely more on judicial doctrine and administrative rules, and thus are supposedly more flexible and adaptable to change than civil

---

[8] These Nobel Laureates include Douglas North, James Buchanan, and Oliver Williamson.

[9] The vast proportion of the gains from true innovation rightly "leak out" to the rest of the society and greatly exceed the benefits to the innovators themselves. See William D. Nordhaus, "Schumpeterian Profits and the Alchemist Fallacy," Yale Working Papers on Economic Applications and Policy, Discussion Paper No. 6 (2005), http://www.econ.yale.edu/ddp/ddp00/ddp0006.pdf. In contrast, the social benefits of investment in physical capital are not likely to be that much greater than the private benefits to those who undertake the investment.

[10] See, e.g., the work of Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Economic Consequences of Legal Origins," *Journal of Economic Literature* 46, no. 4 (2008): 285–332 and Edward L. Glaeser and Andrei Shleifer. "Legal Origins," *Quarterly Journal of Economics*, 117 no. 4 (2002): 1193–1229 (favoring the Anglo-Saxon view); Curtis J. Milhaupt and Katharina Pistor, *Law and Capitalism: What Corporate Crises Reveal About Legal Systems and Economic Development Around the World* (Chicago: University of Chicago, 2008) and Kenneth Dam, *The Law-Growth Nexus* (Washington, DC: The Brookings Institution Press, 2006) (challenging the view that legal origins matter); and Mark J. Roe, and Jordan I. Siegel. "Finance and Politics: A Review Essay Based on Kenneth Dam's Analysis of Legal Traditions in The Law-Growth Nexus," *Journal of Economic Literature*, 47, no. 3 (2009): 781–800 (who support the notion that legal origins matter).

law systems that rest more heavily on less flexible statutes. An opposing view credits the statutory civil law systems with providing more certainty than the judicial/regulatory systems. Others contend that these distinctions are more theoretical than real, and that "legal origins" have very little or no effect on the recent or current growth of economies.[11] Wherever one comes out on this debate—on which we take no position here—it doesn't provide policymakers in any branch of government with clear direction about what *specific rules* are best for growth. The arguments take place instead at a broad systems level and do not provide much practical guidance on the narrower issues that guide the everyday life of citizens and firms in real economies.

A much larger "law and economics" literature has developed over several decades that *has* focused on the economic impact of a broad range of specific rules, but the principal focus of the scholars who have led the way—Aaron Director, Ronald Coase, Richard Posner, Guido Calabresi, and Gary Becker, among others—has been largely about what economists call "static efficiency" rather than "dynamic efficiency" or growth. The distinction is critical. Static efficiency refers to how effective any set of social and economic arrangements is in generating the maximum output of goods and services for any current level of inputs *using existing technologies*. Most of the law and economics scholarship to date has been about figuring out which rules—first in antitrust, then in the basic areas of common law (contracts, property, and torts), and subsequently in virtually every legal field—are most "efficient" in this sense.

Such a task is necessarily forward-looking, though as we will highlight shortly, it does not strictly focus on economic growth in the main sense in which we will use the term here. A useful analogy may be to view law as akin to a guide or a pathfinder in the western part of the United States in the nineteenth century. At any point in time, there was a most efficient direction of transit for a party wanting to travel from, say, St. Louis to San Francisco. The

[11] For an excellent guide to this literature, see Roe and Siegel, "Finance and Politics."

various available alternative routes—through New Mexico, Colorado, or Wyoming, for example—each entailed a different set of obstacles or costs: mountains, hostile Native Americans, rivers or deserts to cross, and the like, which changed in various ways over time. The role of the guide was to determine the route that maximized the chances of arrival, preferably at the lowest cost.

Legal rules serve a similar function with respect to economic activity. Rules defined to be "efficient" guide human activity in the direction that will maximize output from existing resources (analogous to the routes in the travel story just described).

This sense of "static" efficiency does not capture, however, the impact of rules on what can be usefully called "dynamic efficiency," or the maximum rate of production of *new* products, services, or modes of operation, given any existing level of resources (capital and labor). Broadly speaking, the law and economics literature has not tackled this much more difficult, and we believe more important, challenge of designing rules to maximize economic *growth* that generates more resources over time for the inhabitants of any society.

In making this distinction between static and dynamic efficiency, we do not dismiss the huge contribution of the law and economics pioneers. They have helped to change legal conversations: from what obligations people owe to each other or what rights people should have, to what the economic impact is likely to be of specifying those obligations or granting those rights. This primarily has been a "positive" conversation in the sense that it is about understanding the consequences of legal decisions. Whether society should actually adopt certain rules, once understanding their likely impacts, is a normative question that, strictly speaking, is not necessarily to be decided with only static economic efficiency considerations in mind. Considerations of how rules affect the distribution of income in general, and which parties or groups stand to gain or lose in particular, are always important as a fundamental matter of political economy.

The Purpose of this Book

Our main purpose here is to try to change legal conversations yet again, hopefully in an even more useful direction. We have both positive and normative objectives in mind.

Continuing in the law and economics tradition, it is thus critical to pin down the connection—both the direction (positive or negative) and the magnitude or importance—between certain legal rules and institutions and innovation and growth. But it is also equally important to identify *changes* in those rules—whether they are set by judges, legislators, or regulators—that might plausibly enhance growth on a sustained basis. As Harvard economist Benjamin Friedman has powerfully argued, growth has a critical moral and political dimension as well.[12] In particular, growth acts as a "social lubricant" that eases potential demographic and ethnic tensions within and across societies. Conversely, as history reminds us all too often, the absence of growth can trigger horrible outbreaks of conflict. The clearest example is the global devastation of World War II and the Depression that preceded it.

More pertinent to the matters at hand, growth vastly trumps static efficiency in importance, assuming the two to be in conflict, which they can be in some cases. Take the case of proposals to extend patent lives: These will increase monopoly power of the patent holder and thus distort prices during the extended life of the patent, but in the long run may enhance incentives for invention and thus growth. It is probably more generally true, however, that policies that enhance growth also improve static efficiency, such as when antitrust law (properly applied) enhances competition. In any event, even a highly inefficient economy in the static sense cannot generate the kinds of gains from becoming vastly more efficient that are possible from the gains in wealth generated by sustained growth highlighted at the outset of this chapter. As Cooter and Edlin have put it, sustained growth is

[12] Benjamin Friedman, *The Moral Consequences of Economic Growth* (New York: Knopf, 2005).

exponential; improvements in static efficiency, at best, have only multiplicative effects.[13]

This is not to say that growth should be pursued for its own sake without regard to anything else. Economic progress has not been achieved without such "externalities" as air and water pollution, whose ill effects are not well accounted for in the prices of goods and services whose output gets counted in measures of output. There is a deep and growing literature on how best to "internalize" these externalities, whether through well-enforced property rights (as Ronald Coase and his intellectual descendants would argue) or through well-designed taxes and regulation (as many other economists have argued).[14]

Likewise, there are important reasons why societies should take into account how the benefits of growth—namely, incomes and wealth—are distributed across groups and individuals. Distributional or equity concerns are important considerations for their own moral and political reasons. Efforts to improve equity may or may not hurt growth. For example, when government uses tax revenue to improve education and health of the poor, it can lead both to more equitable outcomes and enhance growth by providing more educated, healthy workers and potentially entrepreneurs. Likewise, too much inequality can trigger populist backlashes that may result in growth-penalizing regulatory, trade, and tax policies.[15] Indeed, progressive income taxes, however much they make (after-tax) incomes more equal, also can penalize work and entrepreneurship and thus diminish growth.

---

[13] Robert D. Cooter and Aaron Edlin, "Maximizing Growth vs. Static Efficiency or Redistribution" (working paper, University of California at Berkeley, 2010).

[14] The central assumption underlying Coase's famous theorem—that assignment of property rules has no impact on the allocation of resources—is that transactions costs are essentially zero so that the parties can costlessly rearrange rights to achieve the most welfare-enhancing outcome. In the typical pollution case, however, there may be only one or a few polluters and many harmed parties who cannot costly negotiate with the polluter to quit. In that event, taxes or regulation may be the preferred solution.

[15] See William Russell Easterly, *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good* (New York: Penguin Group, 2006).

The magnitudes of these effects on growth, both positive and negative, will vary and likely be subjects of continuing dispute. Citizens and policymakers must bring their own value judgments to policy questions and weigh the trade-offs between equity and growth, if there are any.

Nonetheless, while addressing externalities and distributional equity are important objectives, they are not the central focus of this book, which is about growth and how legal systems can best foster it, primarily through boosting innovation. The book also concentrates on the legal system we collectively know best—that of the United States—although many of the suggestions and themes we advance here should be relevant to many other countries at all stages of economic development.

Can Growth Continue?

At various times, critics have questioned whether growth can continue indefinitely—though, importantly, not during and after the 2008–9 recession that has highlighted the importance of growth by its absence. After all, it is argued, the world has only a finite amount of resources (energy-producing sources in particular), and thus, once those are exhausted, must not growth come to a halt? If this is the case, then there would be no point to this book or attempts to design laws and institutions to promote growth.

Fortunately, finiteness in resources does not mean that growth must eventually stop. To see why, it is essential to contrast *inexhaustible ideas* with scarce or exhaustible resources.

Products of the mind—theorems, principles, designs, inventions, expressions, and compositions—can be used without excluding others from using them. Economists call this characteristic "nonrivalry." Looking into the future, nonrivalry implies non-depletion. When anyone from the present generation uses an idea, it remains available for future generations to use. In contrast, scarce "real" resources—like capital, labor, land and fuel—have *rival* uses. When one uses a scarce resource, it is unavailable for others

to use. To be sure, some scarce resources renew—like a forest, a river, or grains. But other resources—like oil or iron—deplete irrevocably as they are used.

By making people richer, innovations induce and enable people to consume more goods and services. Some innovations conserve resources, while others hasten resource exhaustion. Many scholars believe that, on balance, the world is depleting its resources at an unsustainable rate. Addressing this danger will require faster innovation or less consumption. Faster innovation, and thus continued economic growth, is obviously the preferred approach of the two. All of the chapter authors proceed on this premise.

The Plan of the Book and Summary of Recommendations

The book is divided into several sections, each containing one or more chapters on particular legal topics. The initial section covers legal issues affecting entrepreneurship, including policies toward high-skilled immigrants who have displayed higher propensity to be entrepreneurs than native-born Americans, ways to enhance entrepreneurship in the academic community, and related issues covering the replication of scientific research, which is an important precondition for successful commercialization of new ideas.

Given the importance of finance to the startup and growth of new companies, and hence to general economic growth, the second section includes three chapters devoted to law and finance. Because the taxation of income directly affects how companies are financed, the first of these chapters examines ways to change the federal tax laws to enhance growth. The other finance-related chapters address from different perspectives how changes in the regulation of financial institutions and markets and financial reporting, especially in light of the financial crisis of 2007–8 and its aftermath, could add to growth.

The law affects the ways firms operate in many different ways, and the third section of the book contains multiple chapters

addressing various aspects of this broad topic. The subjects in this section include changes aimed at making the market for legal services more competitive, revisions in contracts and tort doctrines, changes in choice of law rules and antitrust law, and at the local level, changes in zoning. Many of the recommendations in this section were vigorously debated among the authors, especially in the case of changes in tort doctrines, where two very different views (by Stein and Parchomovsky on the one hand, and Priest on the other) about how to proceed are found in this volume.

Finally, given that innovation is driven and characterized largely by changes in technology, the fourth section of the book covers emerging legal subjects relating to this subject in particular. One of the new legal areas that has perforce grown up and around the Internet is the area loosely known as "cyberlaw." The first three chapters in this section cover aspects of this subject, ranging from copyright doctrines, to new digital ways to incorporate and govern corporations and other legal entities, to the important issues surrounding identity and privacy on the Internet. The next chapter broadly covers the important topic of intellectual property, with a special focus on possible ways to improve the patent system so that it better promotes innovation and growth. The final chapter in this section examines some of the novel security issues that modern technological innovations force us to confront and looks at the question of how to ensure that growth and innovation do not create conditions that are, in turn, hostile to growth and innovation.

Table 1.1 summarizes the specific legal recommendations advanced in the chapters that follow. The list of suggestions includes changes in judicial doctrine, regulation or administrative action, statutes (at different levels of government), or changes in private law or organization (the kinds of changes required are indicated by the letters next to each item). The recommendations are advanced solely by the authors of each respective chapter, and although the authors in this project may agree with many of

them, all of the authors were not asked to and therefore do not endorse each of the items on the list.

The range of pro-growth ideas outlined in the chapters that follow is certainly not exhaustive. Other legal scholars, economists, and interested parties no doubt will be able to add to this list, including reforms that might enhance the effectiveness of the U.S. educational system, the American workforce, and U.S. trade policy, among other topics. Moreover, since we are concentrating here solely on *legal* reforms, we do not examine the host of expenditures, government guarantees, and other reforms that might also enhance growth.

Nonetheless, the wide-ranging discussion of just the legal topics that the subsequent chapters do cover reveals several broad or cross-cutting themes that readers may wish to keep in mind as they read through all or some of the specific essays that follow.

For example, one broad theme running through the recommendations outlined in many of the chapters is that in order to best promote innovation, the legal system—both the rules and the rule-making institutions—must be flexible and adaptable. Rigid rules and processes for generating them can be quickly outmoded by changes in technology. Inflexibility impedes innovation itself.

Second, count on private actors, especially entrepreneurs in a highly entrepreneurial society such as the United States, to constantly try to evade rules that get in their way. These acts of circumvention can be, and generally are, entirely "legal." Whether they are "good" or "bad" however is entirely context specific. Innovations that circumvent inefficient rules that were eventually abolished—such as the long-standing rules that fixed the prices that airlines, trucks, and securities brokers could charge, or the interest rates that banks could pay their depositors—are socially useful and should not be condemned or inhibited. But "innovations" that end-run constructive rules, such as those requiring banks to maintain certain minimum levels of capital to ensure their financial safety and to protect the deposit insurance fund, can be socially destructive. Broadly speaking, it is our view—and

we believe the view of the majority of the authors in this volume—that, with perhaps a few exceptions, rules and policy should not prescreen innovations, but rather let the market take the first crack. Only where social ills prove to outweigh the social benefits should regulators constrain, punish, or in extreme cases ban, innovative products and services.

Third, and related to the first two themes, the law must allow for constant uncertainty. Change by definition is uncertain. We can't predict where it will come from and shouldn't try. The chapters on contracts and torts, in particular, urge judges, lawmakers, and agencies not to penalize newness by giving too much deference to existing customs or methods of compliance, while recognizing the benefits that certainty in rules gives to private actors.

Fourth, laws and institutions going forward need to permit collaboration, especially in the age of the Internet, which has dramatically lowered the cost for parties in different cities, states, or countries to work cooperatively together. The creation of new ways for companies to incorporate and be governed digitally, a subject explored by Goodenough in chapter 14, is an example of how changes in the law can do more than permit collaboration; they actually facilitate it.[16]

We conclude the book with some brief thoughts about the political economy of implementing the changes outlined here. We worked on this book during the recovery from what is likely to be the worst recession since the Depression, and even at this writing, the strength and durability of the recovery are open to question. While debate will certainly continue over the effectiveness of the massive fiscal and monetary stimulus implemented during the onset and depth of the recession, the virtue of legal reforms such as those outlined here is that, with few exceptions (such as

[16] Successful commercialization of new ideas requires not only collaboration but also trust—what Cooter and Edlin (2010) have called the "double trust dilemma." Combining a new idea with capital requires the innovator to trust the financier not to steal the idea, while the financier must trust the innovator not to steal the money the financier provides. Much commercial law has developed to address these twin challenges.

possibly in the tax arena), they cost governments little or nothing. Indeed, to the extent that legal reforms increase growth, they generate more tax revenue and thus ease budget pressures (which in the wake of the recession and heading into years of baby-boomer retirement are intense). For this reason alone, we believe that policymakers at all levels of government should have some interest in the ideas that follow.

More generally, the authors of this book believe that both scholars of the legal system and legislators and judges who design and implement the system should begin to consider seriously the effects of law on innovation and growth. The ideas presented here and the proposals that follow from them represent a first effort toward that end. Because there is no limit on the extent to which the United States or any other society can grow economically, there is much more to be done. The authors of the book remain committed to the proposition that careful attention in the future to law and its effects on innovation will improve the rate of growth itself, and thus enhance living standards for Americans now and in future generations.

Accordingly, we hope that policymakers at all levels of government will be receptive, at least in principle, to the kinds of ideas broached in this book. We do not expect any of them to be adopted all at once, or even many of them to be implemented. But we modestly hope to have stimulated a much-needed discussion among academic scholars, policymakers, and interested citizens over the linkages between laws, legal systems, and innovation and growth that will be both continuing and beneficial for years to come.

Table 1.1 Rules for Growth: A Summary of Options

Note:
J = changes in judicial doctrine
P = private law/organizational change
R = changes in regulation or administrative actions
S = statutory change

Law and the Entrepreneur

Importing Entrepreneurs: Immigration Reform

- (S) Increase the number and allocation of H1B and EB visas.
- (S) Grant new visas for immigrant graduates of U.S. universities.
- (S) Grant new visas for immigrant entrepreneurs.

Enhancing Academic Entrepreneurship

- (P) Standardize licensing of technologies developed by faculty inventors.
- (P) Create multi-university technology commercialization consortiums to realize economies of scale.
- (P) Use successful serial entrepreneurs to screen technologies for commercialization.
- (P) Allow faculty inventors freedom to license (Free Agency).
- (P) Permit faculty inventors to own all intellectual property in their innovations.

Enhancing Replication and thus Effectiveness of Scientific Research

- (P) Legal obstacles to dissemination, sharing, use and re-use of scientific research should be minimized and require strong and compelling rationale before use.
- (R, S) Government funding agency policy should require openness and sharing of data (including greater enforcement of current sharing policies, promoting public access to final manuscripts by the creation of digital archives, and documenting and disseminating best practices).
- (S) An automatic exception from patent use restriction on code used for academic research purposes should be created.

Law and Finance

Growth-Enhancing Tax Reform

- (S) Shift toward a consumption tax.
- (S) Make research and development (R&D) tax credit permanent.
- (S) Make R&D credit flat rather than incremental.
- (S) Narrow the definition of qualified research to require that research exceed, expand, or refine commonly held knowledge.

Improving Financial Regulation and Reporting

- (R) Accounting rules should require public corporations to list all of their assets and liabilities on their balance sheets.
- (R) Policymakers and regulators should rely more on private market signals (such as those from the credit default swap market) to set and enforce rules.
- (S, R) Regulators could implement rules that rely on market measures of risk instead of measures of risk generated by oligopolistic regulated institutions (such as credit rating agencies).
- (S, R) Policymakers should consider consolidating rather than expanding the number of regulatory agencies.
- (S) Cost-benefit requirement for rule making should be extended to independent agencies.
- (S, R) Regulators should more explicitly consider a range of regulatory options that could achieve a targeted benefit, and adopt an approach that opposes the minimum regulatory cost for a given benefit.
- (R) Regulators should increase disclosure as to how ratings of securities are determined.
- (S, R) The Federal Reserve's independence should be maintained.
- (S, R) Securities class actions should be reformed; shareholders should be allowed to decide whether to keep them at all and, if so, in what form.

Law and Firm Operations

Public and Private Law Production

- (J, S) Open legal markets to competition, initially by creating a federal licensing regime that exempts providers from state-based regulation by the bar and state supreme courts.

- (S) Develop a public-law framework for privately produced legal regimes.
- (S) Reduce barriers to trade in legal regimes in both state-by-state and international transactions.

Contracts

- (J) Induce efficient, transaction-specific investment by both parties.
- (J) Establish a framework for iterative collaboration and adjustment of the parties' obligations under conditions of continuing uncertainty.
- (J) Limit the risk of opportunism that could undermine parties' incentive to make relation-specific investments in the first place.

Torts (Contrasting Recommendations)

- (J, S) Some participating authors favor eliminating courts' reliance on custom in making liability determinations; others disagree.
- (J, S) Some participating authors support using fault only in the context of comparative negligence and otherwise moving toward strict liability; others sharply disagree, believing that further movements toward strict liability would stifle innovation.

Legal Process

- (S) Proposals aimed at increasing growth through a change in law or legal institutions should recognize the existence of multiple jurisdictions and the potential for jurisdictional choice and competition.
- (S) Federal law could impose procedural constraints on state laws blocking enforcement of choice law contracts.

Antitrust

- (R, J) Markets should be defined to include the prospect of global, not simply U.S. domestic, competition.
- (R) The United States should aggressively oppose the application of antitrust laws of other countries that have less economically sound antitrust regimes.
- (S) The United States should expand antitrust laws to prohibit protectionism and industry subsidies wherever they appear.
- (R, J) Special antitrust rules should take account of the unique characteristics of network industries.

Land Use and Zone Laws

- (R, S) Price growth, don't prohibit it; properly calibrated exactions can enable efficient growth by pricing it, thereby forcing developers and consumers to internalize the costs of new development.
- (R, S) Promote interjurisdictional competition, don't stifle it; interjurisdictional competition subjects local governments to some approximation of market competition and may spur regulatory innovations that themselves promote growth and innovation.
- (R, S) Develop alternatives to traditional zoning regulations.

Law and Technology

Cyberlaw

- (S, J) Courts and legislatures should consistently limit the extent to which existing players that own elements of platform technologies use the law to extract value from new parties dependent on those platforms.
- (J) Accept the chaotic, complex, open nature of a system that has been important to innovation and growth; do not try to make order with law.
- (S, J) Employ a narrow construction of scope and applicability of control points based on copyrights or patents (such as employing a broad reading of the *de minimis* doctrine and continuing to expand Digital Millennium Copyright Act exemptions through the Librarian of Congress).
- (S) Create a new kind of injunctive relief in copyright cases that would tie damage-like payments to actual revenue of entrepreneurs who use existing copyrighted materials without permission.
- (S) Eliminate business method patents.

Digital Incorporation

- (S) Authorize a fully digital formation process for corporations and LLCs.
- (S) Authorize a wide range of digital communication as ways in which the formal actions of the corporation and LLC may be taken.
- (S) Authorize the use of software as the original means for setting out agreements and bylaws that govern the actions of LLCs and corporation.

Identity and Privacy

- (R) Subjecting social rule making to scientific and technological modeling and experimentation will spur technological competition and innovation for governance.
- (S, R) Statutes and regulations must encourage and incentivize the innovative use of technologies to create spaces where the expectation of privacy can be met and enforced.
- (S, R) Provide protections to those innovators who take legitimate risks to improve the protection and sharing of private information.
- (R) Establish an open, evolving governance platform for privacy and security that encourages and engages an ongoing series of real world market experiments.
- (R) Encourage the adoption of independent digital auditing and rating mechanisms.

Intellectual Property

- (S, R) Apply evenhandedly a second-pair-of-eyes review (SPER), in which patent applications undergo a second examination, if adopted, to weed out bad patents.
- (R) Change training and incentives so that patent examiners search prior art more effectively.
- (R) The U.S. Patent Office should focus its examination resources on important patents and place less emphasis on the rest; importance would be determined by a tiered review process in which inventors would pay for patent reviews, which would serve as a signal for validity (in theory, by only paying for those they viewed as most important).
- (S) Develop a post-grant opposition process—triggered by competitors—that further scrutinizes a patent and can harness private information from patent competitors; this would signal to the Patent and Trademark Office which patents are the most serious and important.

Secure Platforms for Future Growth

- Develop a comfort level with a certain degree of platform surveillance.
- Develop clear rules assigning liability for platform vulnerabilities that are recklessly introduced or maintained in the system.

- Most challenging, recognize that certain companies, by dint of their businesses, may have unique *affirmative obligations* to the security of platforms.