mentioned above) generally fails to reach the very poor. Individuals in rural areas have hard time accessing education and health and are outside of the formal pension system. Public assistance safety nets are often implemented through community involvement, which also excludes the rural poor and urban indigents.

In the final chapter, Alesina, Carrasquilla, and Roberto Steiner write about the Central Bank, its improvement in terms of independence after the Constitutional reform of 1991, and the desirability for yet more independence. The authors find that the main points of conflict are that the treasury minister is the president and a voting member of the Central Bank board, and that the government is involved in exchange rate policies (and thus monetary policy) and the management of the financial system. Criticisms and proposals are in line with current views and trends on central bank independence.

Summing up, the book covers a great deal of topics from a perspective of diagnosing and prescribing. It is a study of those aspects of Colombian political and economic institutions that the editor and authors judge to be *in need of reforms.* The nature of the recommendations naturally varies with the nature of the problems. Most proposals related to political institutions involve a constitutional reform. Proposals affecting large influential groups, be their persuasion power legal—such as the teachers' union—or illegal—such as drug dealers, could be harder to implement. The original drafts of the chapters have been circulating for several years and Alesina argues that several proposals have been implemented.

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*Software Patents: Economic Impacts and Policy Implications.* By Knut Blind, Jakob Edler, and Michael Friedewald. New Horizons in Intellectual Property. Cheltenham, U.K. and Northampton, Mass.: Elgar, 2005. Pp. xi, 204. $95.00. ISBN 1–84542–488–3.

*JEL 2006–1049*

*The Democratization of Invention: Patents and Copyrights in American Economic Development, 1790–1920.* By B. Zorina Khan. NBER Series on Long-term Factors in Economic Development. Cambridge and New York: Cambridge University Press, 2005. Pp. xvi, 322. $60.00. ISBN 0–521–81135–X. *JEL 2006–1098*

I am not sure there is any sort of "iron law," but there does seem to be a correlation of some sort: the literature on the economics of patents grows in rough proportion to the number of patents actually issued around the world. (The economic literature on copyrights is growing too, though it is too young at this point to say whether the iron law applies.) So the two books under review here, for all their differences, represent two data points on a much larger trend line. But they also stand for something more: they speak to some essential themes in this larger literature, in particular themes concerning history and comparative policy that are often mentioned in economic treatments of the patent system. Because these themes are so important, and because these two books sound them out so well, I will keep them front and center in this review.

Many of the differences in perspectives offered by these two books stem from the fact that Professor B. Zorina Khan is American, and the volume by Knut Blind, Jakob Edler, and Michael Friedewald hails from Germany. Khan is far more optimistic about the overall effect of intellectual property protection on economic development; Blind, Edler, and Friedewald are decidedly cooler. While part of the disagreement is undoubtedly due to the fact that Blind, Edler, and Friedewald write only about the software industry—an industry in which patents have been controversial for decades[1]—while Khan considers the entire American economy in the nineteenth century, I would argue that their differences run deeper. They are partly the product of history, in my view. Khan's book retells the canonical American success story of the nineteenth century,[2] this time through the lens of one legal field, intellectual property. Blind, Edler, and

[1] See, e.g., *Aerotel v. Telco,* Ltd., [2006] EWCA Civ 1371 (Court of Appeal 2006) (Jacob, L. J.) (providing an excellent summary of legal cases in Europe since the 1970s dealing, mostly skeptically, with software patents).

[2] Of course, the characteristic American belief in the power and social utility if technology begins in the eighteenth century, as described so well by Lawrence A. Peskin (2003). Peskin emphasizes the rhetoric of American self-sufficiency, and the association of industry with rural virtue and energy (Peskin 136–37).

Friedewald tell a much more cautious story about the potentially harmful effects of patents on the software industry. In this the German authors echo a long continental tradition of more cautious optimism about the economic effects of patents. Thus, for this reviewer at least, the comparative policy aspects of the two books flow in part from the different historical experiences with intellectual property protection in the United States and continental Europe.

### *Khan: Democracy and Creativity During the "Long Nineteenth Century"*

Before Professor Kahn's book, economic historians had mostly limited their discussions of intellectual property policy to specific incidents and sectors. The famous article by Fritz Machlup and Edith Penrose (1950) on the "patent controversy" in Europe in the nineteenth century is a good example; it summarized the rising tide of (mostly anti-patent) opinion in the newly professionalizing ranks of economists in nineteenth century Europe. Recent work by Johann Peter Murmann (2003) on the history of the European chemical industry is another good example. But, with the exception of several fine studies of British patent policy and the "first" industrial revolution,[3] occasional references in the work of the new institutional economists, and various legal-centric histories, little systematic work had been done analyzing the economic effects of intellectual property protection in any kind of long historical perspective. Professor Khan's considerable achievement has now changed all that.

Khan writes from a very distinct tradition, and it is important to keep this in mind in reading and evaluating her book. She is an American economic historian trained at UCLA, and her background shows through on virtually every page of the book. Her mentors and heroes include Naomi Lamoreaux, Ken Sokoloff, and Harold Demsetz of UCLA and Joel Mokyr of Northwestern (p. xv). These are hardheaded economists who apply their skills to history in various ways: scholars whose work is permeated with quantitative data and arguments drawn straight from the logic of micro- and institutional economics. Khan draws from this tradition in evaluating the effectiveness of the American intellectual property system during the "long nineteenth century" (1790–1920). She moves easily from discussion of the incentive effects of legal rules to macro-level assessments of the system as a whole. In service of the latter, she marshals a wealth of data, much of it new, and painstakingly gathered, in support of her overall conclusions. The tight logic of the argument and the force of the quantitative backing they receive add up to a very convincing set of conclusions. Both in the methodology employed and in the clean, graceful writing style, she has set the bar very high indeed for those who would follow in the economic history of intellectual property.

So what are her basic conclusions? Three stand out. First, intellectual property law in the United States had a definite and mostly positive impact on economic growth during the extended nineteenth century. Second, this contrasts with the situation in Europe, where intellectual property protection was less effective and thus contributed to somewhat less robust growth there. And third, the greatest divergence in national policies centered on the class of people who benefited from intellectual property protection. This, her most original contribution, is captured in the book title: her thesis is that the more accessible, democratic character of the U.S. intellectual property system is what set it apart from its European counterparts, both in style and effectiveness. For Khan, the U.S. system did a better job of releasing the inventive and creative energies of its citizens. And in her view, this provided a notable boost to the overall economic "take-off" process at work in nineteenth century America.[4]

A word of caution is in order regarding Khan's approach. She believes that the legal system during the formative years of the American Republic was well-nigh perfect in its balancing of various social and economic interests. It is not too much to say that Khan is a rousing cheerleader for the major figures in the drama she describes. Two examples: the founding generation (particularly James Madison); and Justice Joseph Story of the

[3] Henry I. Dutton (1984) and Christine MacLeod (1988).

[4] It should be pointed out that while there are some indications that European economies struggled to adapt to industrialization, as described for example by Malcolm I. Thomis (1976), the same was true in the United States; and also, economic growth in Europe was quite healthy overall during the period Kahn is interested in, as described for example by David S. Landes (2003).

U.S. Supreme Court (whose early opinions in patent cases set the tone for a positive, pro-innovation view of patents that remained a distinctively American voice until the late nineteenth century). Figures such as these inspire Khan's great admiration: "The economic history of intellectual property laws and their enforcement leads to the inevitable conclusion that the federal judiciary and the U.S. legal system played a central role in facilitating social and economic progress during the nineteenth century. . . . [T]he judiciary objectively weighed costs and benefits, and ultimately the decisions that prevailed promoted social welfare rather than the interests of any single group" (p. 11). Now I am a big fan of the founders, and of Justice Story in particular. And I believe that much of the writing in legal academia is far too skeptical and critical, inclined still to the view that law often provides a convenient cover for the exercise of raw political power by elites. Even so, Khan may go a bit too far in her rosy assessment of the early days of U.S. intellectual property policy. Detailed histories of specific early inventions (the steamboat and the cotton gin, to name two) are enough to call into question just how perfect the early system was. And even if the *aspirations* of the "founding giants" were sound and true, one might admit that the analytical apparatus they brought to bear on policy questions was quite rudimentary. Thus while I agree with the overall drift of Khan's argument—and while I see some utility in her rhetorical excess, as a needed antidote to the overly critical "conventional wisdom" among many legal academics—I cannot quite agree with her tone all the way down the line.

Although the book title includes both patents and copyrights, most of the substantive chapters (six out of eight, by my count) are concerned with patent law. Though relatively brief, the coverage of copyright issues is notable in two respects. The first is this: it represents some of the most in-depth coverage of the economic history of copyright yet attempted (this field long having been a poor cousin to the analysis of patent- and invention-related issues by economists and economic historians). Second, it is of a piece with the general tone of the patent chapters. The description of U.S. copyright law is so glowing it borders on the Pollyanish. Federal policy regarding copyright protection in the United States was notoriously miserly in the nineteenth century—so much so that foreign authors such as Charles Dickens complained bitterly about it. The primary objection was that the United States failed to respect foreign copyrights, and as a consequence U.S. authors received no foreign copyrights for their works. In Khan's telling, this was a rational (indeed, optimal) policy: "[D]uring the period when the U.S. was itself a developing country, it regarded widespread copyright 'piracy' of foreign materials as international fair use" (p. 225). Khan provides solid backing for the widespread anecdotal evidence that the U.S. publishing industry adapted to weak protection by specializing in "pirated" editions of foreign books. (This chapter will be especially useful for policy advocates who argue that U.S. trade negotiators are ignoring their own history when they berate developing countries for having weak intellectual property systems.) As a consequence, the descriptive aspects of these chapters are really quite a fine contribution.

But the normative conclusions are debatable on a number of grounds. Particularly questionable is Khan's analysis of data on the number of U.S. citizens who chose to make a living as an author (particularly of fiction, a type of writing with an inherently more international potential market, compared to nonfiction works, dominated by fields such as geography and law, with a highly local dimension). She uses her carefully constructed tables and regressions (again, a model of painstaking historical/empirical scholarship) to argue that the eventual accession of the United States to the international copyright regime in 1891 did not result in a large increase in the number of U.S. citizens identifying themselves as professional authors of fiction (p. 274). But a careful look at the evidence shows that the opposite inference is at least equally plausible. Khan argues that there was significant growth in the number of authors and "professional authors" in the 1840–60 birth cohort of writers of fiction books, and that because fiction authors begin their careers on average "in the[ir] early thirties," (p. 274) this demonstrates that the 1891 change in copyright law had little effect on this segment of the market. But three stark facts stand out. First, the median year in the birth cohort under discussion is 1850, and the average entry age for fiction authors is 34.8 years, call it 35. So the median author from this cohort entered the fiction field around 1885, during the

period when publishers knew quite well that international copyright protection was on the horizon.[5] (Since the number of authors was growing throughout the period under study, the median year when weighted by number of entrants would occur even later.) Second, there was noticeable growth in the ratio of "professional authors" to all authors (which includes part-timers and professionals) in the first birth cohort to enter the field after the 1891 reform (those born in 1870–89): professionals grew from 17.6 to 18.2 percent during this period. And third, in the midst of this mixed empirical story, there are the voices of numerous actual authors and publishers based in the United States—including the aforementioned Putnam, and Edgar Allen Poe (p. 272)—complaining bitterly about the lack of international copyright protection and its effect on their careers and work.[6] Khan ignores this evidence, citing instead modern theories about how an increase in piracy can indirectly stimulate the market for "complementary works" such as lecture tours—shades of the argument popular today that online music filesharing is actually good for the music industry. Many actual musicians, echoing the complaints of Dickens and others from long ago, might well beg to differ. At any rate, if her observations were correct, we would expect (in a world of rational profit maximizers) that some subsequent authors would have experimented with the "Dickens model," by giving away their books to stimulate the market for lectures and the like. If anyone did, I have never heard of it. Maybe authors in this period were just missing out on a good thing. On the other hand, maybe not. Maybe James Joyce, T. S. Eliot, and all the other post-1891 authors who assiduously sought and protected their U.S. copyrights knew something about the market for international copyrighted works that modern scholars—for all their knowledge of network externalities and bandwagon effects (Khan, p. 274)—have overlooked. It's a thought.

[5] See the statement by U.S. publisher G. H. Putnam in a trade press article from 1879: "An international copyright is the first step toward that long-awaited-for Great American Novel" (Quoted by Khan, p. 265).

[6] For another recent book arguing persuasively that music composers responded favorably to enhanced copyright protection, see Frederic M. Scherer (2004).

### *American versus European Views on Intellectual Property*

This talk of international copyright matters leads to the volume by Blind, Edler, and Friedewald on software patents. Here, just as with nineteenth century copyrights, Europe and the United States are quite at odds over an important question of intellectual property policy. Only this time, the roles are reversed: the United States aggressively permits software patents, while in Europe they are harder to obtain, issued on a narrower class of inventions, and generally subject to more scrutiny and criticism. The reasons for this disparate treatment are quite interesting in their own right, although the Blind, Edler, and Friedewald volume does not really touch on them. These authors instead take this difference for granted. Their interest is strictly with European software companies. So I will focus on that, only returning to comparative issues in the conclusion.

The main points of the Blind, Edler, and Friedewald volume can be stated succinctly: companies that produce software in Europe "want neither an extension of patenting [from the level extant in Europe in 2001] nor an exclusion of software-based inventions from patenting" (p. 3). The general consensus among the European firms surveyed was general skepticism about the extension of patent protection to "software per se" in the style of the United States. But within the broad consensus view, there are some interesting contrasts and countercurrents. I will describe them in the following paragraphs. But first, I need to explore the makeup and timing of the Blind, Edler, and Friedewald data sample, because this has an important bearing on some of the divergent trends that emerge out of this most useful study.

Blind and coauthors were evidently impressed by the strength of anecdotal evidence about the resistance of European software companies to the strengthening of software patents. Impressed, but frustrated, I should say, for right at the outset they mention that their book was motivated by a desire to get some firm empirical backing for all the anecdotal information swirling around (p. 3). This impelled them into a substantial empirical research project: with the backing of a German government agency (the Federal Ministry for Economics and Labor) they solicited internet

questionnaire responses from 1,200 German companies, eventually receiving 286 usable responses (Table, p. 40). Of these, 196 were from software companies proper, 67 were from manufacturing companies that incorporate a substantial software component into their products (the so-called "secondary sector"), and 23 were companies located abroad. The authors supplemented this broad-based empirical survey with 22 detailed case studies, involving extensive interviews and follow-up questioning (p. 3). This last feature is a most useful aspect of the study, as it allowed more in-depth exploration of the thinking and strategy of the respondent firms.

Overall, as I said earlier, German companies involved in the software industry seem quite content with the "European equilibrium" regarding patentability as it existed in 2001 (and still largely exists today). In the words of the authors, they "speak out most strongly for retaining the status quo" (p. 88). This is not really surprising. And although providing ample empirical backing for a widely shared, anecdotally based belief is an important contribution, it would not in itself make the Blind, Edler, and Friedewald volume really *interesting*. But underneath this consensus there are some fascinating contrasts and countercurrents. These features, which have to be teased out of the data and case studies, are what would lead me to recommend the volume to a friend or colleague interested in the European software patent controversy, or the economic aspects of patents in general. In particular, close attention to the survey responses and interviews reveals three very interesting themes: (1) more mature companies worry about patents less than smaller, younger ones; (2) companies vary significantly in their ability to capitalize on the novel business strategies made possible with the advent of patents; and (3) the specific concerns of software companies provide a very useful guide to policymakers called on to make micro-adjustments in the patent regime as it applies to software.

Taken as a whole, these themes, lurking beneath the surface of the Blind volume's major findings, begin to fill out a more shaded view of the economic effects of patents, and thus contrast nicely with the vision laid out by Professor Kahn in her book, which seems by comparison more satisfying theoretically but factually more monochromatic.

The first of the three countercurrents in the Blind, Edler, and Friedewald volume concerns company maturity. Put simply, software firms that have been around longer are more accustomed to the ways of patents, and consequently greet patents with less concern. This is captured in a table in Blind's book, which shows the age of the IP departments in the firms responding to the survey. The preponderance of pure software firms ("primary" software companies) have very young IP departments (1–5 years old in 2001), while fully half of the "secondary" software firms have IP departments older than 20 years (table, p. 68). This carries over when the data are looked at by company size: the secondary software firms (again, manufacturing companies that incorporate software into their products) are in general larger than the "primary" or dedicated software companies, and there are far more very small firms (1–19 employees) among the primary software companies (36 percent), as compared to secondary software firms (19 percent) (table 3.2, p. 74). Age and size have a good deal to do with firms' attitudes toward and deployment of patents. As the authors say, "[a] positive correlation [can] . . . be drawn between the age, the company size (according to the number of employees) and the export activities on the one hand, and the propensity to patent on the other hand" (p. 71); and "[t]he use of patents increases with increasing company size . . . " (p. 75). This corresponds with other facts presented in the book, and with other information about the software industry: Younger and smaller firms are traditionally more afraid of patents. Indeed, they employ "protective measures" of all kinds far less than larger firms (p. 76). The authors note too that, although some companies report a fear that patents will impede the innovation dynamics of the software industry, "[t]his fear is significantly weaker in the firms of the secondary sector, which have worked with patents for decades in their areas of major activity" (p. 79). This is a crucial fact to keep in mind, because the large empirical part of the Blind, Edler, and Friedewald study is a *survey*: it is based on questions asking about the experience and opinions (including predictions) of the firms that responded to the authors' questionnaire. The point is that cautious opinions regarding patents are to some extent a function of the age and composition of firms—of industry structure, in other words.

If there is anything to this point, it counsels against reading too much of a comparative angle

into the findings of Blind, Edler, and Friedewald. It would be easy, for example, to relate the European caution regarding patents to some of the themes Kahn emphasizes in her book, including differing ideologies concerning patents and intellectual property in Europe versus the United States. Someone taking this tack might draw on Kahn's discussion of the more "democratic" features of the U.S. system to argue that an industry dominated by small companies might feel less welcome in the European patent system, given the orientation of that system to larger companies. I think in the end there is something to be said for this view. But one must be careful not to make too much of it. For even in the United States, many smaller software companies continue to be less enthusiastic about patents than the larger firms in the industry. And also, software is perhaps the quintessential global industry. Hence the views of software firms in Germany and the United States are probably far more affected by the business they are in than the country they are in while engaging in that business.

Nevertheless, differences in national attitudes can probably bear some of the weight of explanation for the divergence in acceptance of patents in the German and U.S. software industries. Assuming this to be true permits me to venture an assertion: the fears of the German industry may well be overblown. I have studied the course of software patents in the United States, where similar fears were quite common during the early days of software patenting. It is safe to say that the dire predictions about the demise of the industry at the hands of runaway patents have not come true, and that the U.S. software industry continues on its robust growth trajectory well into the "patent era" (Robert P. Merges 2006 and forthcoming). It is also safe to say that individual companies—large and small—have adapted reasonably well to the advent of patents, and indications are that patents are being incorporated effectively into firm-level operations and strategy. Put simply, while there is no real proof that they have been outright good for the industry, they have certainly not killed it, and many software firms have found some good uses for patents (Ronald J. Mann 2005).

Divergences in firm-level strategies represent the second countercurrent in the Blind book. Here we find a very interesting contrast with Kahn's book, which by its nature describes the effects of patents at a much more "macro" or aggregate level. When firms were asked what purposes they thought patents could serve, they responded with a number of interesting answers. Many said that patents were fairly effective at protecting the firm from imitation by competitors (3.5 effectiveness on average, out of 5 for primary software firms, higher for the secondary firms); that patents could to some degree help increase a company's value (over 3 effectiveness on average out of 5); and might improve access to capital (2.5 out of 5). But—and here is where the case studies really shine—the aggregate numbers mask some interesting differences in firm experience and strategies. Some of the interview reports create the impression of lightbulbs going on in the minds of software company executives. One of the twenty-two companies interviewed, for example, reports that although it did not in the past seek patents, "an important customer in the hardware field adopted the unprotected features of the [interviewed] firm in its own software program and integrated it into its whole system" (p. 123). My own research shows that this is not unusual: patents can help when an erstwhile partner attempts to carve a firm out of the "value chain" by copying its core technical assets (Merges 2005). And indeed, many (predominantly medium-sized) companies reported the hope that software patents will "positively influence the cooperation possibilities of their firm, in that the trade with more strongly coded property rights will reduce possible difficulties in collaborating with other firms" (p. 96). Another company, said to be a successful firm in the competitive field of "automation, measurement, and control engineering" (p. 122), deploys its patents both to protect "market share" against its much larger rivals and "as an effective instrument to underline clearly [its] technological leadership over its competitors" (p. 122). These interview fragments are of course not determinative. But they do suggest that some firms have figured out how to use patents to distinguish themselves from competitors. Perhaps the company interviewed after it was "burned" by its customer will become a leader in structuring technology transfer agreements around a core of patent assets. Perhaps the other firm will continue to rely on patents as a bulwark against larger competitors. And if not these particular firms, then perhaps others will deploy patents creatively. The point is this:

enough firms may adopt strategies of this sort that it becomes a moot point whether patents *in the abstract* will help or hurt the software industry. When patents appear on the scene, some firms will figure out how to use them effectively. While this would not of course prove that patents are good for the industry, it would help to show why it is risky to predict doom and gloom from the advent of patents, or from other regulatory and legal shocks as well. Indeed, this kind of adaptability makes it very difficult for social scientists to do their jobs at all. Entrepreneurs seem to adapt to their environment faster than we can study how the environment is changing and what those changes mean.

We have covered the first two countercurrents, national differences and firm-level strategy. All that remains is the third: suggestions about the policies that are appropriate in helping the software industry adapt to the advent of patents. To begin, it must be recalled that the firms in the Blind survey say they are content enough with limited, moderate patent protection for software-related inventions. They do not advocate abolition of patents on all aspects of software, nor do they support more liberal claiming of software as in the United States (p. 88). I mentioned these primary findings of the Blind book at the outset of this section. What interests me now is what lies behind this desire to maintain what I have called the "European equilibrium" regarding software patents. Or, to put it somewhat more provocatively, what is it that prevents European firms from wholeheartedly embracing patents for all aspects of software? The Blind, Edler, and Friedewald volume, though not specifically directed toward an answer to this question, provides some very helpful guidance on this issue. And it is potentially influential guidance. These industry-specific concerns could assist policymakers to implement a patent regime that is more responsive to the needs of the software industry. The reasons why greater patent protection is resisted, in other words, might be transmuted, even in a world where software patents become more common, into useful policies designed to soften any negative impact patents might have on the industry.

Blind, Edler, and Friedewald uncover two overriding problems with software patents that could be addressed through wise public policies. The first is low quality patents. The survey response which lists "dynamic of innovation activities" as one of the effects of patents comes up with a quite negative score in the empirical data (p. 98), meaning that many companies are quite worried that patents will negatively affect their research and development activities. Obviously, an emphasis on preventing weak patents from issuing will help to address this concern. What usually worries software firms is that too many patents will issue that cover too many discrete features of software products. Restricting patents to truly meritorious inventions can go a long way toward addressing this issue. Minor features, under a wise and effective patent regime, will seldom be patented.

The second problem is the feared effects of patents on interoperability. Many respondents worry that patents will interfere with the ability of different software components to interact and interface with each other (p. 99). These are valid concerns, with far-reaching consequences. Not only is it crucial for different software to interact at the functional level, but interoperability policy can exert crucial influence on software industry structure. This is the great lesson of the longstanding legal battles involving Microsoft. And of course, one motive that leads European regulators to scrutinize this area quite carefully is the belief that liberal interoperability policy is essential to the survival and health of the European software industry, given that large foreign (mostly U.S.) companies own and control several essential "backbone" technologies in the software industry (Windows and iPod/iTune, to name two prominent examples). What the Blind volume makes crystal clear is that these concerns must addressed before European software firms will be comfortable with a robust regime of patent protection in their industry. Fortunately for them, many of the policies necessary to encourage effective interoperability are well understood. What is needed is a sensitivity to the importance of interoperability, which can be effectuated through a number of discrete legal doctrines and policies: rules relating to estoppel and implied licensing, injunctions, damages, and antitrust/misuse defenses. The important point is this: these policies can be implemented regardless of which aspects of software are patentable. They are ex post rules, which regulate not which patents issue but how those patents are deployed. They are designed to guard against the

kinds of harm—such as the strategic blocking of interoperability—that industry members are afraid will be caused by the spread of software patents.

### *Conclusion*

There is no doubt that some of the fears of the software companies are realistic. And it may be—though I myself have come to doubt it—that patents for software overall are a bad idea. But for a number of reasons, patents will in all likelihood continue to creep into the software industry, even in Europe where they are often despised. Blind, Edler, and Friedewald provide hints about why this is so in their interview data; one company whose primary asset is innovative software happens to operate in the automation engineering field. In the interviews, this company's patents "belong in the area of measurement and control engineering, although the patented processes are always realized in the form of software" (p. 122). This firm is not concerned about the European rules, because "it can always formulate all [patent] claims in the language of automation technology," even though for this firm "software of sufficient innovativeness and with technical content is regarded equally as an engineering feat" (p. 122). In other words, under current European rules, which resemble the regime in the United States in the 1980s and early 1990s, this software firm can obtain patents because all its software has a clear "hardware dimension." But another firm specializing in software that is in some sense further removed from computer hardware has to either "characterize" its technology so as to qualify for patents, or push ever outward the boundaries of software protection. In the United States, these "lines in the sand" have proven very hard to construct and defend, at least on a consistent and principled basis. Software is so evanescent, and can be coded, implemented, and described in so many diverse ways that it is difficult to impose defensible boundaries signifying that the software on "one side of the line" is patentable, while that on "the other side" is not.

So is there any hope that the fears expressed by respondents to the Blind, Edler, and Friedewald survey will be addressed? The answer is yes, and here is where a return to that pragmatic and balanced spirit so admired by Professor Kahn in her book could really save the day. The best we are likely to have is a series of ex post policies that mitigate the deleterious effects of patents on the software industry. Such policies will include (1) careful policing of the quality of patents, with an eye toward minimizing the deleterious effects of too many patents of dubious merit; and (2) sensitivity to the interoperability issues that are of such importance to the software industry.

Of course, in the end getting these issues right is mostly an empirical question. But because of the difficulty of obtaining rock-solid empirical evidence on the "big questions," the best we can do is often a combination of tantalizing but not definitive empirical work, some case studies and historical/comparative research, and good old-fashioned theorizing from first principles. From this point of view, we have a long way to go. But the volume under review makes a solid contribution. It ought to encourage similar efforts, in the United States and elsewhere. Indeed, because of the relative lack of information in this area, we might well call it a case of Blind, Edler, and Friedewald leading the blind. Or something to that effect. . . .

While more data are being gathered, we would do well to remember the basic principles stressed by Kahn. Her faith in the abiding logic of property rights and markets, together with her interest in institutional detail, provides just the right perspective on the vexing problem of software patents examined by Blind, Edler, and Friedewald. A dose of that Kahnian optimism might free the Europeans of their deep-seated concerns about software patents. In any event, her recounting of the success story of the U.S. economy over the "long nineteenth century" ought to reinvigorate our faith in the dynamism of economic growth. With patents or without them, because of them or in spite of them, the software industry is likely to face a bright future. Intellectual property policy might help, as Kahn argues it did in the United States. But it is not likely to be decisive. For those of us interested in legal policy, that is not only humbling; it is also a huge relief.

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*Biography of a Subject: An Evolution of Development Economics.* By Gerald M. Meier. Oxford and New York: Oxford University Press, 2005. Pp. viii, 250. ISBN 0–19–517002–4, cloth; 0–19–517003–2, pbk. *JEL 2005–0747*

Gerald Meier is the James Boswell of "development economics." The last term is advisedly put in quotes, for as I argued over two decades ago (Deepak Lal 1983) "development economics" is different from the economics of developing countries. The former is the attempt to develop a "new" economics and denies the "mono-economics" claim of the latter that traditional economics is applicable to developing countries in the same way as it is to developed ones (Albert O. Hirschman 1982). As Meier notes "it was not until the 1950s that development economics emerged as a special subdiscipline of economics" (p. 12). However, I have argued that, by promoting the *Dirigiste Dogma,* it did great damage to the prospects of the world's poor. Meier's collection of snippets of the major writings on both "development economics" and the economics of developing countries in his various editions of *Leading Issues in Economic Development,* charted and provided a running commentary on these debates. They were of great value to both students and their instructors in the growing number of university courses on economic development. So one would have hoped for a more even handed approach if his new book were to be a rounded biography of writings on economic development. But this turns out not to be so.

Till the end of the 1980s, Meier rightly notes, the "orthodox reaction" of mainstream economists had won this battle with "development economics." The first half of Meier's book charts this familiar ground, which has been covered by many others and it is by and large uncontroversial, though I. M. D. Little (1982)—who he cites—and the present reviewer, who he does not—arguably did so more succinctly and analytically. This part of Meier's book reminded me of the characterization of the published record of two millennia of Chinese history by William J. F. Jenner (1992): "that [it] rarely tells an outright lie but passes on the views of earlier bureaucrats as modified by later bureaucrats, and deals mainly with matters of concern to the monarchy and to officialdom" (p. 5). Substitute "development economist" for monarch and bureaucrat, and you have a fair description of this part of the book. Meier's self- appointed task of showing that his subject—development economics—is alive, necessarily involves air brushing much of the critique and contributions of the mainstream economics of developing countries from his biography. Perhaps that explains the strange subtitle of the book "An Evolution of Development Economics." Why "an" and not "the"? What are the other evolutions of the subject?

It is in the second half of the book about what Meier claims is "The New Development Economics" that his judgment really goes awry and the purpose of this book becomes clear. The heroes of this part are Joseph E. Stiglitz and Dani Rodrik. Meier claims that the new development