Copyright and Consequences

Central European and U.S. Perspectives

edited by

Lee B. Becker
University of Georgia

Tudor Vlad
University of Georgia

HAMPTON PRESS, INC.
CRESSKILL, NEW JERSEY

THE COX CENTER

Printed in the United States of America

Library of Congress Cataloging-in-Publication Data

Copyright and consequences : Central European and U.S. perspectives / edited by Lee B. Becker, Tudor Vlad.
p. cm.
Includes bibliographical references and index.
ISBN 1-57273-415-9 (cl) -- ISBN 1-57273-416-7 (ppb)
1. Copyright--Europe, Eastern. 2. Copyright--Europe, Eastern--Economic aspects. 3. Copyright--United States. I. Becker, Lee B., 1948- II. Vlad, Tudor.

KJC2655 .C67 2002
346.47004'82--dc21

2002038805

Hampton Press, Inc.
Broadway
sskill, NJ 07626

To Ann

To Cornelia

To the memory of James M. Cox Jr.

CHAPTER 13

The Effects of International Copyright Laws on National Economic Development

C. Ann Hollifield
Tudor Vlad
Lee B. Becker

During the last decades of the 20th century, a fundamental revolution emerged in the global economy. The traditional factors of industrial production and control of natural resources began diminishing in importance as sources of national economic strength. In their place, innovation, technology development, and knowledge-based industries emerged as the engines of global economic growth.

This essential shift in the structure of the global economy, which is often called a *knowledge economy*, remains poorly defined and imperfectly understood. That the phenomenon is real, however, is generally accepted, even as economists acknowledge that they remain uncertain how to measure such intangible factors as information, knowledge, innovation, and their effects on the larger economy.[1]

But there is little doubt that, in the future, the economic strength and social and political stability of nations will depend in large measure on their ability to access information and, from it, create new knowledge and innovation. This reality is rapidly increasing both the demand for, and the value of, information as a resource and a commodity in the global marketplace. Economists argue that having timely access to emerging information is becoming a necessary con-

dition for successful participation in the global economy, while developing nations recognize that the content and information-production industry will be one of the most robust and valuable industries of the 21st century.

These factors are rapidly increasing the importance of debates over the ownership and control of information and knowledge. Given the increasing value of information in the global economy—both as economic input and content commodity—it is hardly surprising that industrial nations, which hold the largest stores of economically valuable information and knowledge, have scrambled in recent years to expand the strength and scope of the international agreements governing national and international copyright. During the 1990s, the protection of intellectual property in general, and copyright in particular, were among the central issues shaping the negotiations of numerous international trade agreements such as the General Agreement on Trade and Tariffs (GATT) and the North American Free Trade Agreement (NAFTA). These efforts culminated in the GATT Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which took effect in 1995 and required participants in the World Trade Organization (WTO) agreements to comply with earlier international copyright.[2] TRIPS also gave the WTO enforcement authority over international copyright disputes. As a result, TRIPS put tremendous pressure on nations with weaker copyright and intellectual property laws, forcing them to bring their national laws into compliance or suffer trade sanctions on other economic goods.

Although much of the government's and media's attention during this period of international renegotiation has been focused on broader issues of intellectual property protection, including patents and trademarks,[3] the fact remains that in the knowledge economy, information is arguably the primary input into economic processes. Thus, it is the legal regime surrounding copyright and its enforcement that structures the bottom of the economic-value chain,[4] determining, at least in part, how rich the information inputs into a nation's economy are likely to be.

If copyright law is clearly a central and increasingly important issue in international trade regimes, what is less certain is how copyright laws actually influence information access in developing nations. On the one hand, proponents of strong laws protecting ownership of information argue that such regulations are necessary to encourage the creation and widespread dissemination of ideas and to help nations protect and capitalize on domestic content industries. They argue that a strong international copyright regime is in the best interest of all nations—developing and developed—that see themselves becoming content suppliers to the global media and information markets in the emerging information-driven economy. On the other hand, many developing nations argue that they cannot afford to pay for timely access to emerging information and that, therefore, it is necessary for them to have weak national copyright laws that permit them to pirate and reproduce what they otherwise could not afford to buy. The argument from this viewpoint is that strong international copyright regulations serve in part to reinforce the current divide between the information—and, therefore, economically—rich and the information and economically poor. Strong copyright laws, in this view, increase the likelihood that developing nations will remain economically dependent on the developed world as the knowledge economy evolves.

Complicating these debates over the impact of copyright laws even more is the emergence of digital information technologies that make the reproduction and dissemination of information possible at a near-zero per unit cost. These technologies exponentially increase the speed with which new knowledge can be disseminated, but they also exacerbate the problems of pricing and controlling information products, making owners of content wary of providing content on digital networks. The emergence of digital information networks has greatly increased the pressure on national governments to quickly implement an internationally acceptable and enforceable legal regime for protecting ownership rights in information and content products.

Finally, all but left out of the debate among copyright experts is the growing awareness among communication scholars, information technologists, and economists that information is not a monolithic concept. Rather, much as physicists note that light behaves as both a particle and a wave depending on the context, information scholars have recognized that the function, impact, and value of information varies widely according to the context in which it is created, transmitted, received, and used. The age of information technology has made it clear that while information is a necessary input for knowledge, information and knowledge are not synonymous, with knowledge implying some unpredictable element of human perception applied to information. This awareness has become a fundamental issue in software and network design, with information technology experts striving to use their understanding of the varying characteristics of information to create user-friendly information systems. Despite the high level of attention that has been focused on restructuring copyright laws to bring them into alignment with the realities of the information age, the international policy community has been less concerned with accounting for variances in information uses when constructing the international legal framework that governs information access.

This chapter then, explores these emerging issues and their implications for economic viability among nations in the emerging global knowledge economy.

THE GLOBAL KNOWLEDGE ECONOMY

Economists have concluded that knowledge has become a—and perhaps *the*—driving force in the current global economy.[5] In the 1990s, the increasingly rapid exchange of information within business and industry that resulted from

increased interconnectivity and the development of improved management information and control systems received much of the credit for the growth in productivity rates in the United States and other industrialized nations.[6] Companies that invested most heavily in information technologies were found to show greater productivity gains than those that spent less on such knowledge-supporting technologies.[7] Other research has suggested that knowledge is a key resource within companies and its application to the firm's traditional assets and core business has become the principle source of company value.[8] Many economists predict that, should current trends continue, the next wave of global economic development will be based on custom-designed creative production as opposed to the mass production and consumption patterns that characterized the industrial economy.[9]

Indeed, Kelly argued that the current global economy has reached the "tipping point" of a new economic paradigm where knowledge will become such a critical input into economic activity that the viability of nations, companies, and individuals will be assessed based on their knowledge and access to knowledge rather than on traditional measures of productivity.[10] Similarly, senior vice president and chief economist of the World Bank Group Joseph Stiglitz argued that in developed nations, "knowledge and information is being produced today like cars and steel were produced a hundred years ago."[11] Moreover, economic development experts have recognized that success in the new economy is enhanced when knowledge communities form, that is, where a critical mass of experts in a given field locate in the same geographic area, and thereby engage in a constant exchange of information, ideas, and knowledge.[12] The emergence of such knowledge communities in the United States was critical in the successful development of such recognized regions of leading-edge innovation as California's Silicon Valley, North Carolina's Research Triangle, and Manhattan's Wall Street financial community.

Consequently, nations and regions that hope to compete in the global knowledge economy of the future must have ready and immediate access to information and to emerging knowledge. They must be able to disseminate such knowledge and information widely and quickly within their nations in order to foster the development of knowledge communities, as opposed to investing in the education of a few experts who work in relative isolation within their disciplines. That less-developed nations, in particular, will be able to succeed in accomplishing this remains an open question. Although the emergence of a new economic paradigm structured on information rather than natural resources or capital intensive heavy industries may appear to create new development opportunities for less-developed nations, the reality is that differences in access to information and information technologies, educational infrastructures, and other necessary supports for a knowledge-based economy may, in fact, widen the gap between developed and developing nations in the global information age.[13]

THE ECONOMIC CHARACTERISTICS OF INFORMATION

The concept of knowledge as an economic input is a difficult one, and the complexities involved have significant implications for international copyright regimes. From an economic standpoint, knowledge is a public good, meaning that consumption by one user does not diminish or make the knowledge more scarce for other users. This essential nature of public goods makes them extremely difficult to price in the market. Moreover, as Schwartz, Kelly, and Boyer pointed out, economic models are built on the concept of resource scarcity.[14] However, not only is knowledge a public good for which dissemination and use does not increase scarcity as it would for a manufactured product, but knowledge itself is not scarce, increasing globally at an exponential rate.[15] This, too, increases the complexity of measuring the value of knowledge in the global economy. Additionally, the exponential growth of knowledge means that knowledge is, at some levels, increasingly perishable. If the new economy is driven by innovation, and innovation is based on leading-edge knowledge, then nations or regions that learn of new breakthroughs months or even years after they occur may lose the ability to compete at the leading edge of innovation against those that have more timely access to continually emerging information.

In addition to the "public good" nature of information, economists and other scholars have identified other economic characteristics of information that complicate the process of creating effective policy for information and copyright industries. Among the specific economic characteristics identified by Priest were the following:[16]

1. Uncertainty and risk in production. The actual value of an information product cannot be determined until after the producer has undertaken the full costs and risks of production and completed the creation process.
2. High investment-to-reproduction-cost ratios. This characteristic makes information expensive to produce and relatively inexpensive to reproduce, increasing its susceptibility to theft. As a result, it increases the risks involved in initially developing information products and, therefore, encourages consolidation in information and copyright industries, which need to capture economies of scale and scope in order to offset those risks.
3. Varied relevance of information products across consumers. Information products have varied and unpredictable relevance to different consumers, making market demand difficult to predict. Moreover, consumers of information generally buy an information product only once. In other words, consumers rarely buy multiple copies of the same book or CD or see the same film repeatedly. This makes piracy even more costly to the original producer as the pro-

ducer is likely to have lost his or her one opportunity to reach a particular customer with a specific information product.

4. The inappropriability problem of information. Because information is not diminished with use, it is easily passed along to other users who don't pay the original producer. Libraries that lend books, second-hand book stores, and even citations of other authors in scholarly works are all examples of this characteristic. This characteristic makes it difficult for producers to appropriate the full value of their product in the information marketplace.
5. Indivisibility of information. Information must be bought in lump sums, forcing consumers to buy an entire book or an entire film. This is economically inefficient because the consumer may only want a small part of the information contained in the copyrighted material. Consequently, it increases the market for pirated and appropriated copyright products.
6. The instrumental nature of information and its resulting externalities for human welfare. Information is an instrumental input into many other economic processes. Additionally, it results in significant positive, but unmeasurable, social and economic externalities. These characteristics mean that information has much greater value than other, less instrumental commodities. However, that true value is almost entirely unrealizable to the producer, resulting in the underproduction of information in relationship to its true value to society.

That information and knowledge do have measurable economic value has been conclusively demonstrated. Vickery[17] and Mirrlees[18] shared the 1997 Nobel Prize in Economics for demonstrating that asymmetries in knowledge among players in the marketplace result in nonoptimal economic decision making. The difference between the outcome of optimal decisions based on full knowledge of market conditions and nonoptimal decisions that result from lack of information represents the market value of information. Therefore, those nations that lack information or that receive information and knowledge later than their global competitors will face potentially significant economic costs.

Finally, knowledge as an economic input is a dynamic element for which the whole is greater than the sum of the parts. Knowledge builds on knowledge, growing as the result of an inflow of new information combined with ideas and concepts developed by those who encounter the new information. Innovations often occur incrementally, with an initial innovation sparking later improvements or variations that themselves represent new innovations and, therefore, new knowledge. Thus, knowledge and innovation frequently generate numerous positive externalities for the communities or nations that spawned them. Such externalities include such things as the development of support industries, new spin-off products, and the inspiration of entirely new lines of innovation for which the original idea was seminal, although not of itself sufficient.

COPYRIGHT REGULATIONS AND ECONOMIC DEVELOPMENT IN THE KNOWLEDGE ECONOMY

As the regime that structures information ownership, reproduction, dissemination, and access, national and international copyright laws are the foundation of the value chain of a knowledge-based economy. Whether the current international copyright regime as represented in the TRIPS treaty is a support for the creation of value through knowledge, a threat to that creation, or some combination of the two, is currently unclear and may well largely depend on local conditions. Arguments abound on all sides of the debate, but the difficulty of measuring knowledge and information-based inputs and outcomes makes it difficult to empirically assess the impact of current copyright regulations. What is clear is that current copyright rules are, at best, a blunt instrument for managing information exchange in the age of information and digitization. Copyright laws govern the boundary between the public and private interests in knowledge. Because of the many positive externalities associated with knowledge and education, society clearly has a strong interest in encouraging the widest possible dissemination of information. Indeed, the libertarian political philosophy, which historically has provided the philosophical underpinnings of the U.S. approach to information and communication law, is based on the fundamental principle that the greatest public good comes from vigorous and open competition in the free marketplace of ideas. Despite this philosophical commitment to open information, Western nations long have simultaneously recognized and protected the private ownership of the expression of ideas and information. The most obvious argument in favor of copyright laws is that creators have the right to receive payment for the knowledge or information and content products that they have created. Copyright provides compensation and thus an incentive to authors for intellectual production.

Proponents of strong copyright regimes also argue, however, that in serving private production interests, copyright laws also simultaneously serve the public interest by encouraging both the creation[19] and dissemination of new ideas.[20] They contend that without the economic incentives provided by copyright protections, innovators will have little reason to make the investment of time and intellectual capital involved in developing new information, knowledge, and content products. Indeed, information economists such as Priest argue that the inability of producers to realize the full value of their productions—including the value of resulting externalities for society—leads to an underproduction of information and knowledge in relationship to their positive effects on human welfare. From this perspective, copyright is seen as a critical factor in encouraging the development and publication of new knowledge and, therefore, as a critical factor in serving the public interest in developing a strong and stable economy.

It also is argued that having a strong copyright regime in place plays a central role in accelerating the dissemination of information.[21] Authors and innovators must have the assurance that their work will be respected and compensated before they will be willing to widely share their knowledge. Given that innovation processes are dependent on access to emerging information and ideas, and that innovation in science and technology are central to economic expansion in the 21st century, some proponents argue that strong copyright laws are becoming a necessary condition for nations to participate meaningfully in the global economy.[22]

But it is no longer sufficient simply to pass domestic copyright regulations. The need to receive ideas and information from around the globe means that a nation's domestic copyright laws must be acceptable to the international community.[23] It also means that there must be evidence that a country does not simply have such laws on its books, but also that it rigorously enforces them.[24]

Finally, the advent of new technologies has given birth to global knowledge and work networks. Increasingly, developing nations are benefiting from the ability of global corporations to employ people worldwide by transferring knowledge and information from work team to work team through the use of sophisticated communication networks. However, where weak copyright and intellectual property laws are maintained in developing nations, transferring information to local work teams is likely to pose an unacceptable risk to the global corporation. Thus, proponents of strong copyright argue that the failure of developing nations to develop and enforce domestic copyright regulations ultimately will preclude them from benefiting from the economic opportunities offered by digital networks and technologies.

There is some empirical evidence from research on other types of intellectual property to support these contentions about the effects of strong copyright laws on national economies. For example, Maskus and Penubarti showed that, among exporting countries, strong domestic patent laws are associated with an expansion of bilateral trade.[25] An analysis of sales of foreign subsidiaries of major companies found that direct investment in the subsidiaries was lower where intellectual property right (IPR) protection was weak.[26] Specifically, weak patents were found to serve as barriers to manufacturing exports, particularly in large economies. The studies also provided indirect evidence that strong trademark legislation led to increased importation of even low-technology goods as the exporter had an incentive to sell in the market of the importing country. Maskus and Penubarti further found that trade in goods that are difficult to imitate or in goods for which trademark is not important were less sensitive to variations in the protection of intellectual property. Finally, Smith found that market expansion took place if protection against imitation existed, particularly in patent-sensitive industries.[27]

In general, research has shown that IPRs are strengthened by countries as economic development increases, although the direction of causality cannot be determined from current evidence.[28] But although this evidence exists from research on trademark and patent laws, similar studies have not been done on the effects of copyright laws on economic growth and the development of content industries.

There is, however, a counter argument to the demand for strong and enforceable copyright laws that has been advanced for decades by developing nations, which find themselves disadvantaged in a world where information resources are largely controlled by developed countries. Less-developed nations traditionally have maintained that they need weak domestic copyright regulations because of their inability to pay the royalties required to reproduce or disseminate content that originated in foreign countries. Nonenforcement of copyright has been seen as necessary in order for less-developed nations to have anything other than marginal access to the current knowledge emerging in industrialized nations.[29]

For example, in the 1990s as the costs of books and journals soared globally, libraries and universities in such countries as Russia and the states of the former Soviet Union, as well as in many sub-Saharan African nations, found themselves forced to discontinue journal subscriptions and book purchases.[30] During the same years, the cost of books tripled in some eastern European countries, negatively impacting the ability of individuals to acquire information. In 1990, it was possible to buy 100 books with the average salary of an individual in Romania, but by the end of the decade, the total annual salary of a Romanian would have purchased only 40 books. Thus, even as the awareness of the critical role that knowledge and information play in the global economy was increasing, many less-developed nations found that much of their access to such knowledge was cut off as the result of financial constraints.

Supporters of the argument that developing nations need to maintain weak copyright protections until they have the opportunity to catch up economically with the developed world frequently cite the examples of Japan and, later, China. Both of those nations experienced their strongest periods of technological and economic growth during periods in which they maintained weak copyright protections. They question the ability of developing nations to create copyright industries that will survive in global competition against the mature and stable copyright industries based in developed countries, which had the advantage of evolving slowly over time and in relatively protected domestic markets.

Lesser developed nations also have long argued that there should be differential international copyright regulations based on the nature of the content in question and the economic strength of the nation seeking information access.[31] From this perspective, textbooks, technical reports, scientific journals, and other knowledge and educationally based content products should not be treated under copyright laws in the same way that Hollywood films, novels and entertainment spin-off products are treated. This argument has been supported in recent years by information scholars who have noted that information is not a monolithic product. Rather, it changes in nature depending on the use to which it is put.

Braman, for example, argued that information can be categorized into at least four different types of uses: resource, commodity, perception of pattern, and constitutive force in society.[32] When information is used as a resource, it comes in discrete pieces that act as an input in the user's activities, gaining value and coherence as the user organizes them into knowledge or information flows. Information in commodity form is where information is packaged and sold as a product, such as in books, films, or newspapers, or contributes to the creation of economic value in other processes, such as in transborder data flows of corporate information. Information as "a perception of pattern" implies the interaction of information with human cognition and is relativistic in that it recognizes that the role and value of any single piece of information will vary according to the use or insight that the user brings to it. Finally, information as a constitutive force in society recognizes the externality value of information, that is, information once loosed can have a dynamic and cumulative effect on the social, political, cultural, and economic fabric of communities and nations that goes far beyond what individuals and/or organizations are able to achieve individually with information.

Braman argued that in the current information age, policymakers can no longer afford to treat information as a monolithic concept. Policy that fails to account for the differential uses and roles of information in society and the economy will not be effective.

Using a similar rationale, less-developed nations have argued that they should have compulsory access to knowledge-related materials such as textbooks, and that that access should be granted at reduced rates.[33] Critics of this proposal have argued that it could lead to foreign-market "dumping" of content products on developing nations, resulting in the destruction of domestic content industries.[34] Supporters, however, counter that most of the world's knowledge is being produced in the industrialized world, and developing nations must have access to knowledge as it emerges in order to build their own educational infrastructures and to compete in the global economy.

International copyright agreements have attempted to respond, at some level, to these concerns. In 1971, the Paris Revisions to the Berne Convention and the Universal Copyright Convention addressed these concerns in a limited way. The agreement provided a limited compulsory copyright licensing process to assist publishers in officially designated developing nations in gaining access to materials from Western publishers. Under the process established under the Paris Revisions, publishers in developing nations seeking the rights to educational materials from Western producers could receive compulsory reprint rights if they tried and failed to negotiate a voluntary licensing agreement with the copyright holder and if their efforts met specified circumstances. Those circumstances included that at least 1 year had elapsed since the material was first published in some instances and 3 years in others. They also specified that the copyright holder had to have either refused the reprint rights request without sufficient reason, not responded to the request in a timely manner, or not be locatable.[35]

Similarly, the more recent TRIPS agreement, which makes intellectual property protections even more stringent, included Article (65), which gave developing nations and those nations in the process of moving from centrally planned to free-market economies a 4-year delay in complying with most of the intellectual property rules established in the treaty. Least developed nations were granted a 10-year delay in implementation.[36] During those periods, the provisions of the Berne Convention remain in effect for developing and least developed nations.

Other efforts also have attempted to address these concerns. In many developing nations, Western governments or other donors pay the copyright fees for reproduction of textbooks that were first published in their countries. Often these arrangements are coordinated by the Western country's embassy.

In practice, the compulsory licensing process established under the Berne Convention ensures that substantial time will have elapsed between the original publication of educational and scientific material and the point at which it reaches developing nations. In an economy where knowledge is power and information and innovation move at digital speed, such delays in acquiring access to information clearly have the potential to create the types of information asymmetries documented by Vickery[37] and Mirrlees.[38] In a knowledge economy, the processes established by the Berne Convention and TRIPS may well represent, from the perspective of developing countries, an improvement over having no process at all. But, from an economic standpoint, it still leaves those countries at a clear competitive disadvantage in the information marketplace.

Finally, although much of the debate about the relationship between access to knowledge-based information and national economic development has centered around the access that developing nations may or may not have to such information, scholars note that many of the same issues also apply to developed nations. Priest argued that copyright laws cannot address all of the economic characteristics of information that lead to the failure of information markets and, indeed, as currently administered, may exacerbate some of them, such as encouraging consolidation and monopoly power among information producers. He also argued that current copyright laws fail to account for information producers' differing motivations for producing information.[39] Specifically, he suggested that producers of scientific and cultural information are much more interested in nonmonetary rewards, such as peer and audience recognition and citation to their works, than they are in financial compensation for their productions. However, copyright law is designed to prevent people from using scientific and cultural works unless they pay for access. Limiting access through copyright reduces public awareness and recognition of scientific and cultural works, thus reducing one of the primary motivations that scientists and artists have for creating content in the first place.

Other scholars and economists have noted that because information and knowledge creation are dynamic processes with new ideas being created from awareness of pre-existing ideas, knowledge and information are key inputs

into any research and innovation process.[40] Thus, any time a strong copyright regime creates a disincentive to produce information, or raises the price of acquiring knowledge or information, it also raises the cost of new research. That, in turn, potentially slows development of new innovations that may be immensely valuable to the national economy. Therefore, it is not only less-developed nations that have an economic interest in low-cost access to new research and knowledge. Strong copyright regulations almost certainly also raise research costs and slow innovation in developed countries, although such negative externalities may be less obvious.

COPYRIGHT AND THE DEVELOPMENT OF CONTENT INDUSTRIES

In addition to the economic effects that come from access to information and ideas, it also is the case that the production of ideas and content—what Goddard called the "tradeable information sector" of the economy[41]—is a major and growing industry in developed nations.[42] Media economists categorize four distinct business sectors in copyright industries, all of which create value in the national economy: content creation, which includes the creative aspects of knowledge and content development; production, which includes the physical manufacturing of content products; distribution, which includes international export and import of content; and exhibition, which includes such companies as theater chains and local cable systems.[43]

In 1997, the core copyright industries were credited with contributing 4.3% of the U.S. gross domestic product (GDP) or a total of $348.4 billion.[44] Total copyright industries were estimated to have contributed $529.3 billion to the U.S. GDP, or 6.5%.[45] Growth in the core copyright sector between 1977 and 1997 was more than double that of the U.S. GDP as a whole and was one of the leading sectors in new job creation for the period, employing 3.8 million people by 1997, or 2.9% of the U.S. workforce.

Foreign sales and export of content represents a significant element in many developed nations' foreign trade balances. The U.S. Department of Commerce estimated that in 1997, U.S. exports from the core copyright industries were almost $67 billion, making it a larger contributor to the U.S. trade balance than such industries as Chemicals and Allied Products, Motor Vehicles and Automotive Parts and Accessories, Agriculture, and Electronic Components and Equipment.

Such data make clear why U.S. content industries repeatedly have been hailed as one of the key, consistently positive counterbalances to the nation's ongoing foreign trade deficits, and why protecting U.S. content industries by insisting on stronger international copyright protections has been a key element in U.S. trade policies since the 1980s.

UNESCO's data on foreign trade in content products shows just how unusual the U.S. experience is, however, and how unevenly success in content industries is distributed around the globe. Of the 118 countries for which UNESCO had at least 1 year of data on book and pamphlet imports and exports for the years 1995-1997, only 25 (21%), showed a positive trade balance in at least one of those years. Of those countries, 14 (56%) of those with positive trade balances during the period were located in Europe; 4 (16%) were located in North America; 4 were in Asia, 2 were in South America, 1 was in Oceania and none was in Africa (see Table 13.1). Moreover, only 12 of the countries with positive trade balances in book publishing maintained such a balance for 4 or more years between 1991 and 1997 (Table 13.1).

Trade balances on the import and export of newspapers and periodicals showed a similar distribution. Of the 119 countries for which UNESCO had trade data on newspaper and periodical imports and exports for at least 1 year between 1995 and 1997, 26 countries (22%) had positive trade balances for at least 1 year in that time period (Table 13.2). Of those with positive trade balances, 13 (50%) were located in Europe, 4 (15%) were located in Asia and South America respectively, 2 were located in North America, 2 were in Africa and 1 was in Oceania (Table 13.2). Of those nations with positive trade balances in newspaper and periodical publishing, only 12 reported positive trade balances in newspaper and periodical products for 4 or more years during 1991 and 1997.

It goes without saying that a strong content industry that produces internationally salable products contributes to economic stability. However, the ability to profit from such products depends, first, on having domestic content development and production industries in place, and then on the existence of a strong and enforceable international framework of copyright laws that makes unauthorized reproduction of content products illegal and provides for compensation to the producers. Without such protections, it is impossible for a country to capitalize on content distribution or, in some cases, to recoup the development and production expenses involved. Thus, nations that either have strong content industries or have ambitions to develop them have a vested interest in supporting the strengthening of international copyright laws.

Indeed critics of industrialized nations' current efforts to enforce more stringent copyright regulations worldwide have argued that this issue of export and foreign trade is a primary motivation behind the current policy trend. However, the advent of new satellite and digital networking technologies and the expanded capacity for information and entertainment content that they provide have created openings for new players in global content production industries. Recognizing the low-capital intensive and environmentally clean nature of content-production businesses, many developing nations have become increasingly interested in creating their own content industries. That ambition has created an increased interest in stronger international copyright protections even among developing nations.

TABLE 13.1
Countries With Positive Trade Balances in Books and Pamphlets in at Least 1 Year, 1995-1997

	Books and Pamphlets
Asia	
	China*
	Hong Kong*
	Jordan
	Singapore*
Europe	
	Belgium*
	Denmark*
	Federal Republic of Yugoslavia
	Finland*
	France
	Germany*
	Italy*
	Moldova
	Netherlands*
	Russian Federation
	Slovakia*
	Slovenia*
	Spain*
	United Kingdom*
North America	
	Dominican Republic*
	Netherlands Antilles
	St. Vincent & the Grenadines
	United States*
South America	
	Chile
	Columbia
Oceania	
	New Zealand

Note. *Indicates countries for which 5 or more years of data were available between 1991 and 1997 and which showed a positive trade balance for at least five of those years.
Source: UNESCO Statistical Yearbook (1999). Paris: United Nations Educational, Scientific and Cultural Organization Publishing.

Proponents of stronger international copyright laws have argued that such a framework is important to developing nations not only in order to help them capitalize on content products that they currently may be producing, but also to protect fledgling domestic knowledge and content industries from being overwhelmed by foreign competitors before they have the chance to become established and stable. This last argument recognizes that where national copyright laws are weak, the ability to pirate content from overseas and sell it with near-zero physical reproduction costs allows foreign content to be priced below domestic content. If weak national copyright laws drive down compensation to domestic content producers, then local authors have either a disincentive to produce information at all, or an incentive to sell the information they do produce

TABLE 13.2
Countries With Positive Trade Balances in Newspapers and Periodicals in at Least 1 Year, 1995-1997

	Newspapers and Periodicals
Africa	
	Algeria*
	Egypt
Asia	
	Hong Kong*
	India*
	Pakistan*
	Singapore*
Europe	
	Czech Republic
	Denmark*
	Finland*
	France*
	Germany*
	Italy*
	Lithuania
	Macedonia
	Moldova
	Netherlands*
	Slovakia*
	Spain*
	United Kingdom*
North America	
	Dominican Republic*
	United States*
South America	
	Argentina*
	Chile*
	Columbia*
	Uruguay*
Oceania	
	New Zealand

Note. *Indicates countries for which 4 or more years of data were available between 1991 and 1997 and which showed a positive trade balance for at least four of those years.
Source: UNESCO Statistical Yearbook (1999). Paris: United Nations Educational, Scientific and Cultural Organization Publishing.

to foreign companies—thereby crippling the ability of their nation to develop a competitive knowledge or content industry such as publishing.[46] Local authors who choose to remain in the domestic market without strong copyright protection are likely eventually to be suffocated by counterfeit or pirated materials. This is particularly true in nations where individual economic power is limited, so that consumers are likely to be willing to settle for even poor-quality counterfeit products so long as the price is low.

Finally, nations that have thriving black markets in content products may lose valuable tax revenues that would be created by legitimate industries. Additionally, because of the limited ability to sell pirated materials, countries may lose exports that could either provide direct national income or improve the import–export trade balance. Potential losses in tax and export income represent losses of additional resources for national development.

Hastening the impetus to strengthen international copyright laws has been the emergence in the past decade of digital technologies and international networks. Although the piracy—or illegal reproduction and distribution—of information products such as films, music, and software has been longstanding, digital technology makes the process much easier and less costly for the pirate. Since the 1960s and 1970s and the advent of widespread access to photocopying machines and videocassette recorders, the international piracy of content has expanded tremendously. Also contributing to the rise in piracy is the fact that the life cycle of information is getting shorter and shorter as global networks speed the rate at which it is disseminated and spawns new ideas. As the perishability of information products rises, so too does the demand for replication and, therefore, for piracy.[47]

According to the International Intellectual Property Alliance (IIPA), a trade association representing content producers, currently up to 99% of the motion pictures and entertainment software, 95% of the records and music, and 91% of the business applications used in some countries are pirated.[48] The IIPA estimated that in 1999, losses in international trade to copyright industries in the United States alone as a result of content piracy topped $9.9 billion (Table 13.3). Total losses were down from 1998.

Also increasing international support for stronger copyright is the awareness in both developing and developed nations that content carries cultural messages. When a nation is unable to supply its own demand for information and entertainment through economically viable domestic copyright industries, the majority of messages reaching the populace will be foreign-produced content that will be culturally loaded in ways that may or may not be compatible with local values and traditions. Communication research has established that media messages do have long-term effects on society and, therefore, concerns about the domination of local media by foreign content are not lightly dismissed.[49]

This concern about foreign cultural influences through media content has caused even industrialized economic powers such as Canada and the European Community to impose quotas on the import of legally acquired content products. Such restrictions, of course, have little effect on the black market of pirated content products. Proponents argue that stronger copyright laws protect nations against the cultural influences of international media both by hindering the pirates who illegally import pilfered content products and by protecting the development of fledgling domestic media industries that, if allowed to grow, eventually may be able to supply a greater proportion of local demand for information. Thus, concerns about the cultural imperialism inherent in international media and content also have been sources of international support for strong domestic copyright protections.

TABLE 13.3
Estimated U.S. Trade Losses on Pirated Copyright Products 1998-1999 (in millions U.S. dollars)

Type of Loss	*19991998*	
Records and music	$ 1,683.5	$ 1,613.1
Motion pictures	1,323.0	1,420.5
Books	672.8	618.5
Entertainment software	3,019.6	2,952.4
Business applications	3,211.1	3,437.0
Total Losses	$ 9,910.0	$10,041.5

Note. Source: http://www.iipa.com/html/full_reports.html.

COPYRIGHT, ECONOMIC DEVELOPMENT, AND THE AGE OF INFORMATION NETWORKS

Research on the relationship between information infrastructures and economic development leaves little doubt that access to communication networks is positively, if not necessarily causally, related to economic development.[50] In developed nations, information networks are facilitating rapid information creation and exchange that often results in innovation.[51] In less-developed areas, the emergence of digital networks has equally important development implications. Information infrastructures have the ability to reduce the disadvantages of time and distance that hinder the economic development of rural and underdeveloped areas.[52] E-commerce applications make it possible for distant customers to do business with remotely located local producers, enlarging the available customer base for businesses in rural or economically underdeveloped areas.[53] Perhaps even more importantly, digital networks can make economically valuable information available to remotely located businesses, enhancing their ability to compete against more centrally located producers.

Digital networks also are an important new production and distribution technology for information producers. The digitization of content permits producers to reproduce information products at a near-zero per unit cost, while also providing a new and almost costless mode of distribution. Thus, for information producers, digital networks have the potential to slash production and distribution costs. Those savings could either increase profits or be passed on to information consumers in the form of lower costs.

At the same time, however, digitization and the development of global information infrastructures also bring into play processes that raise both the costs and risks of producing information and entertainment products. The reduction in production, reproduction, and distribution costs made possible by digital technologies and networks potentially reduces the barriers to entry for new players in information marketplaces. The increased competition would be expected to reduce market share for information producers and, at least initially, reduce costs to consumers. However, at the point that competition reduces prices below production costs, providers would either begin to leave the market, or they would be forced to produce less costly and, therefore, presumably lower quality information products.

Additionally, as already has been noted, the speed and ease of content reproduction and distribution using digital technologies makes it easier for information consumers to reproduce and distribute information and content without compensating the original creators. That trend has exploded with the emergence of digital networks and software that make it simple to copy such things as digital music and book files.

As Priest pointed out, these economic characteristics of information are being brought ever more sharply into play as the result of the expansion of global digital information networks.[54] The potential effect is to increase the economic risks of creating and disseminating information and ideas, even as the importance of such creation and dissemination to economic and social processes is becoming more apparent. For these reasons, developing new policies and technologies that hinder illegal access and reproduction of content products and that provide copyright production to content products that are made available on digital networks has become one of the highest priorities in the information policy arena over the past decade.

A MODEL OF THE RELATIONSHIP BETWEEN COPYRIGHT LAW AND ECONOMIC DEVELOPMENT

Taken together, the arguments that have been advanced on both sides about the effects of copyright laws on economic development and the importance of information in the emerging economy suggest that the relationship may be more complex than is accounted for by current international policy. Within the context of the knowledge economy, there are at least four points at which information intersects with other economic processes to create value for a national economy: creation, production, distribution, and innovation. Innovation, of course, is a function of the instrumental characteristic of information and, therefore, is dependent on timely access to emerging information, regardless of its point of origin.

Copyright laws affect all four of these points of value creation. The primary function of copyright law has been to protect the economic interests of content producers and distributors. Supporters of strong copyright enforcement have argued that such protection also is necessary to encourage content creation, and to enable countries to trade in the information products they produce. Others have argued, however, that copyright hinders the society's ability to capitalize on the instrumental value of information and creates a production disincentive to scientists and others who produce the type of information that is most likely to generate innovation and other positive economic and social externalities.

It seems likely that there is merit in all of these arguments. The complexities of both the processes of content production and distribution and of the economic characteristics of information itself suggest that the effects of copyright laws may vary along these four processes of creation, production, distribution, and access/instrumentality. Indeed, it might be expected that the effects could vary within each of the four processes, depending on the context. However, such hypotheses remain untested.

METHODOLOGICAL CONSIDERATIONS

One of the problems facing policymakers in both developed and developing nations as they debate these positions is the absence of empirical evidence on either side of the dispute. Maskus, who has done the most important work in this area, has noted that economists did not even attempt to test the effects of differences in IPR legislation and enforcement until the 1990s. The consequence has been, he noted, that both those arguing for and against strong controls have done so without empirical support for their position—a situation that, according to Maskus, remains largely true today.[55]

Data that could be used to "test" the competing perspectives on the economic implications of copyright are difficult, if not impossible, to obtain. UNESCO is generally considered the best source of data on book and periodical production and trade. However, scholars who follow the global publishing industry note that UNESCO's data are based on self-reports from individual nations, which often use differing definitions of industry segments, measure production differently, and report their data to UNESCO inconsistently.[56]

Thus, comprehensive, reliable, and comparable data on content-production industries is impossible to obtain on a nation-by-nation basis. The data

that are available from UNESCO, whereas the best data available anywhere in the judgment of industry experts, are limited.

That the arguments surrounding the effects of copyright laws on national economic development need to be tested is clear. In such a test, following the theoretical arguments advanced in this chapter and the methodological and theoretical scheme of Maskus, copyright law and enforcement would be viewed as an input variable representing public investment in this area of IPRs. For example, a country's decision to join the Berne Convention or sign the Copyright Treaty[57] is a public infrastructure investment in copyright protection.

However, a significant problem with using the existence of copyright laws in a country as a variable is that the fact that a country has such a law in place says nothing about enforcement. A country can sign a treaty and even have strict internal regulation but largely ignore key elements of protection. One option is the use of the IIPA recommendations of countries for the "Special 301" classification schemes developed by the U.S. Trade Representative. These recommendations are based on copyright piracy levels in specific countries. The IIPA places countries judged to be most guilty of piracy on a "Priority Foreign Countries List," followed at the second level by countries on the "Priority Watch List." Countries that also are known to pirate but at a more limited level are placed in the lowest level classification, the "Watch Lists."[58]

More relevant to the core debate discussed in this chapter are the consequences of copyright—the output variables. Production figures for copyright products, which are among the data collected by UNESCO, would be appropriate output measures for the study of copyright's consequences. However, such data, although helpful, would not necessarily offer insight into one of the key arguments of the copyright debate—that weak copyright laws undercut the ability of nations to support the development of domestic knowledge. For example, weak copyright legislation and enforcement might lead to a country having vibrant production and distribution industries based in pirated content products, but it still might not be able to support the creation of new knowledge by its own citizens.

Similarly, cumulative measures of trade balances on content products might also be used as a measure of copyright effects. A positive trade balance would be expected to reflect relatively strong content creation, production, and distribution industries. However, at some level, such measures reflect the global production levels of copyright industries as opposed to the effectiveness of a particular industry segment within a particular country. A small nation might have a vibrant domestic knowledge industry but still have a negative trade balance in content products because of the sheer volume of information produced outside its borders. Global and even national trade data cannot effectively measure the economic activity of a domestic industry segment.

Measuring information access also is problematic. Based on developing countries' arguments about their need for differential copyright rules for scientific and educational materials, textbook and journal production might be

taken as surrogate measures for information access. However, these measures are blunt at best, and cannot be used to evaluate the degree to which the textbook and scientific journal materials are the result of domestic creation.

Finally, piracy rates and losses in revenues for the producers of copyrighted products in nations with strong knowledge-production and content industries might be used as a measure of the strength of global copyright laws and enforcement. However, such data offer only limited insight into the consequences that the pirating nations may experience in terms of their own domestic production as a result of the losses.

In summary, there are a number of ways that the relationship between international copyright laws and national economic development might be measured. None of the approaches, however, can offer a comprehensive view simply because of the complexities of the relationship itself and the possibility that the relationship may vary along the knowledge-production chain. Strong copyright laws may, for example, enhance knowledge-creation and international trade in content products but harm production and domestic distribution. Similarly, weak copyright laws may undercut creation and international trade, while spurring production and domestic distribution.

Despite these measurement issues and the known problems with existing global content production and trade data, testing the competing arguments surrounding international copyright law must remain a priority issue on the agenda of those who seek to understand the real effects of international policy in this increasingly critical area. For that reason, available data were used to conduct preliminary tests of the hypotheses advanced by both sides regarding the effects of copyright laws on national economic development.

UNESCO's country-by-country data on book production, textbook production, and international trade balances for books, periodicals, and newspapers were used to measure the outcome of copyright.[59] UNESCO measures production in terms of the number of book and textbook copies produced by each country. International trade balances are measured as the difference between the figures for the import and export of books and pamphlets. The countries for which UNESCO had production and trade data also were classified and coded according to their position on the "Special 301" Recommendations lists. Countries also were coded based on when they instituted major copyright reforms during the 1990s. The year in which those reforms became law was entered as a measure of compliance with international copyright regimes.[60]

In the analysis, a mean score for level of piracy was developed by averaging each country's Special 301 list placements between 1990 and 2000. Each country's annual trade balance for printed materials was summed across the years 1992-1996, while production figures for books and textbooks were summed across the years 1992-1996. Bivariate correlations were run to examine the relationships between piracy levels, copyright reform, book production, textbook production, and international trade balances in the import and export of books, periodicals, and newspapers. The data were examined for all of the

nations for which data in all the years required were available. Additionally, a second analysis was done using only data from the eastern European nations that are the central focus of this book.

Finally, to ensure that differences in estimated piracy level and placement on the 301 lists were not an artifact of differences in population size, the book, textbook and international trade balance data were adjusted for population to produce a per capita measure. The analysis was repeated to examine the relationship between piracy and copyright reform and per capita production and trade in copyright materials.

The number of nations for which all the required data were available was quite small, ranging from 51 with data on both copyright reform and the Special 301 lists, to three eastern European countries for which the necessary international trade balance data were available.

ANALYSIS

Analysis of the data suggests there is some justification for developing countries' arguments that international copyright laws hinder their ability to get timely access to knowledge and information. Having a high mean score for piracy—which reflects being consistently high on the "Special 301" lists between 1990 and 2000—was strongly related to increased levels of textbook production for the 11 countries for which data were available (Table 13.4). If, as developing nations have argued, textbook production is related to information access in the knowledge and information economy, this would suggest that piracy improves information access. Similarly, a moderate positive correlation was found between having delayed copyright reform and textbook production. Slowness in reforming copyright was measured as the year in which major legal reform took place.[61]

A more careful analysis using data adjusted for the population size of the nations examined still suggested that piracy was moderately correlated with increased levels of textbook production, while delaying copyright reform was strongly related to higher levels of textbook production (Table 13.5). Thus, both the unadjusted and adjusted analyses were consistent in indicating that both piracy and delayed copyright reform were positively related to improved information access, as reflected by textbook production.

In eastern Europe, piracy was strongly related to textbook production before adjustment for population size among the seven cases for which data were available (Table 13.6), although there was no relationship between copyright reform and the production of educational materials. However, on a per capita basis, textbook production in eastern Europe was found to be weakly related to piracy and moderately related to delayed copyright reform (Table 13.7). Thus, the findings of the relationships between per capita textbook pro-

TABLE 13.4
Correlations Between Piracy, Copyright Laws, Textbook Production, Book Production, and International Trade Balances for Books, Periodicals, and Newspapers

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
Average IIPA Watch List Classification 1990-2000	1.0				
N	62				
Slowness in Reforming Copyright Laws	.077	1.0			
N	51	51			
Textbook Production 1992-1996	.943	.472	1.0		
N	11	9	11		
Book Production 1992-1996	.462	-.411	.737	1.0	
N	11	9	9	11	

(Continues)

TABLE 13.4 (Continued)

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
International Trade Balances 1992-1997	.000	-.034	.095	.836	1.0
N	37	33	6	6	37

[a]A high score reflects higher levels of piracy.
[b]A high score indicates more recent acceptance of international copyright standards

TABLE 13.5
Correlations Between Piracy, Copyright Laws, Book Production, Textbook Production and International Trade Balances for Books, Periodicals, and Newspapers, Adjusted for Population Size of Nation

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
Average IIPA Watch List Classification 1990-2000	1.0				
N	62				
Slowness in Reforming Copyright Laws	.077	1.0			
N	51	51			
Textbook Production 1992-1996	.388	.739	1.0		
N	11	9	12		
Book Production 1992-1996	-.170	.134	.424	1.0	
N	11	9	9	11	

(*Continues*)

TABLE 13.5 (Continued)

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
International Trade Balances 1992-1997	-.033	-.220	.252	.226	1.0
N	34	30	6	6	34

[a]A high score reflects higher levels of piracy.
[b]A high score indicates more recent acceptance of international copyright standards

TABLE 13.6
Eastern European Countries: Correlations Between Piracy, Copyright Laws, Book Production, Textbook Production and International Trade Balances for Books, Periodicals, and Newspapers

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
Average IIPA Watch List Classification 1990-2000	1.0				
N	17				
Slowness in Reforming Copyright Laws	-.274	1.0			
N	11	11			
Textbook Production 1992-1996	.978	-.018	1.0		
N	7	7	7		
Book Production 1992-1996	.585	-.470	.938	1.0	
N	8	7	6	8	

(*Continues*)

TABLE 13.6 (Continued)

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
International Trade Balances 1992-1997	-.880	.824	1.0	-.917	1.0
N	3	3	2	3	3

[a] A high score reflects higher levels of piracy.
[b] A high score indicates more recent acceptance of international copyright standards

duction, piracy levels, and copyright reform were consistent across the entire data set and within the eastern European subsample.

Production levels for noneducationally related books, periodicals, and newspapers were not as clearly related to piracy and copyright reform. Before adjusting for population size, book production was found to be moderately related to piracy but also moderately related to having moved early to reform national copyright laws (Table 13.4). Once production levels were adjusted on a per capita basis, those relationships became very weak. Book production was found to have a weak negative relationship with piracy and a weak positive relationship with delays in strengthening national copyright laws (Table 13.5). The data are roughly the same for eastern Europe (Tables 13.6 and 13.7).

Before nations' international trade balances in copyright products were adjusted on a per capita basis, being on the "Special 301" lists for copyright violations had no relationship to the issue of whether a country had a positive international trade balance in the import–export of books, periodicals and newspapers (Table 13.4). Nor was there any relationship found between trade in copyright products and the timing of copyright reform.

However, when trade data were adjusted for population, a weak correlation was found between the early implementation of national copyright reform and having a positive trade balance in copyright products (Table 13.5). Piracy, however, continued to be unrelated to trade when the data were adjusted. For the eastern European subsample of three cases, piracy was strongly negatively related with trade in copyright products, while having delayed copyright reform was almost equally positively related to positive trade balances on both an adjusted and unadjusted basis (Tables 13.6 and 13.7). However, these findings must be viewed with great caution as trade data on copyright products were available for only three eastern European countries.

Finally, it should be noted that analysis showed little relationship between having moved early to strengthen national copyright laws and having been removed or downgraded on the "Special 301" lists of international copyright pirate nations (Table 13.4). This supports the contention that there is a gap between having national legal structures protecting copyright and actual enforcement of those laws. For the 11 nations in the eastern European subsample, however, there was a weak relationship between early copyright reform and a lower level of piracy as measured by placement on the Special 301 lists between 1990 and 2000 (Table 13.6).

When viewed as a whole, these analyses provide support for developing nations' arguments that they are better off delaying copyright reform and engaging in piracy than they are complying with international copyright conventions, if the goals are to gain access to emerging information and to stimulate domestic production of educational materials. It must be noted, however, that one alternative explanation for the moderate to strong relationship between delayed copyright reform and both textbook and book production is that developing nations move to strengthen their national copyright laws after domestic production starts

TABLE 13.7
Eastern European Countries: Correlations Between Piracy, Copyright Laws, Book Production, Textbook Production and International Trade Balances for Books, Periodicals, and Newspapers, Adjusted for Population Size of Nation

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
Average IIPA Watch List Classification 1990-2000	1.0				
N	17				
Slowness in Reforming Copyright Laws	-.274	1.0			
N	11	11			
Textbook Production 1992-1996	.296	.571	1.0		
N	7	6	7		
Book Production 1992-1996	-.066	.373	.716	1.0	
N	8	7	6	8	

(Continues)

TABLE 13.7 (Continued)

	Average IIPA Watch List Classification 1990-2000[a]	*Slowness in Reforming Copyright Laws*[b]	*Textbook Production 1992-1996*	*Book Production 1992-1996*	*International Trade Balances 1992-1997*
International Trade Balances 1992-1997	-.985	.602	.10	.174	1.0
N	3	3	2	3	3

[a]A high score reflects higher levels of piracy.
[b]A high score indicates more recent acceptance of international copyright standards

to increase. If this were the case, it would suggest that copyright reform was at least partly an effort to protect and support growing domestic copyright industries, as much as to comply with international conventions. If so, this would support copyright advocates' arguments that copyright reform is necessary for the development of viable domestic content creation and production.

One finding that was consistent across the analyses was the positive effect of copyright reform on international trade balances in copyrighted materials. Moreover, the positive relationship between copyright reform and international trade strengthened when population size was controlled. In contrast, a consistent presence on the "Special 301" of national copyright violators had no relationship with trade in copyright products. This finding makes sense in that you would expect countries to find it somewhat more difficult to export pirated material. From the standpoint of economic development, this suggests that even in those cases where piracy may stimulate content production, that production would be primarily for domestic consumption and, therefore, would contribute little to the nation's balance of trade. In contrast, copyright reform appears to pave the way for a country to develop its own content exports.

All of the findings outlined here, however, must be viewed with a great deal of caution. The analyses suffer from a number of limitations. Because of lack of data, the project examined only book production and did not include such key copyright industries as films, television programming, and software. Although the best data available on the subject, UNESCO's numbers are suspect because of differences in the way countries collect data and measure production and trade. Data were available for only a limited number of countries and for only 5 years, and that period included a time of major international copyright reform. Any effects of that reform would not have had time to show up in the data.

Additionally, the available data provided only blunt measures. For example, the "Special 301" List measures a nation's level of piracy across all copyright products. A better measure for the purposes of this study would have been measures of book piracy only. Similarly, the measure of when a nation instituted copyright reform is not necessarily an accurate measure of copyright enforcement. Indeed, correlations between presence on the "Special 301" and the length of time since a country instituted copyright reform showed no relationship between the two. All of these limitations must be seriously considered.

Finally, as previously noted, the adjusted and unadjusted data on the production of noneducationally related textbooks, periodicals and newspapers give a conflicting picture of whether piracy stimulates production. However, even if piracy, in some cases, does have a positive effect on production, the data reported here shed little light on the question of whether pirating copyright materials encourages domestic knowledge creation and development. One of the main arguments in favor of strengthening copyright laws in developing nations is that such protection is necessary to encourage domestic authors to create knowledge and information that will then fuel the wider economy.

However, the UNESCO data on copyright industry production levels do not indicate how much of the production reported is domestically created material and how much of the content is imported. Therefore, these findings fail to address one of the central issues of the international copyright debates.

Nevertheless, these analyses represent the first attempt that has been made to empirically test the competing arguments about the relationship between copyright and economic development. Although, as noted earlier, research has been done on the relationship between national economic activity and other types of intellectual property such as patents and trademarks, a search of the literature revealed no empirical tests of the arguments surrounding copyright and economic development. This gap in knowledge exists despite the fact that arguments about that relationship have been the foundation of international copyright treaties for the past several decades.

The most important conclusion that can be reached from the analysis reported here is that significant additional research is needed. Moreover, that research needs to be grounded on careful measures and data collection methods that generate reliable and comparative data. Additionally, the research needs to be conducted over a long period of time to allow any effects of changes in law and policy to show up in production and trade data. And finally, the research needs to distinguish between the possible variance in the effects of copyright across the four different points at which information is known to create value in national economies: creation, production, distribution, and innovation resulting from access and instrumentality.

CONCLUSION

Although economists still have not developed the tools necessary to measure the short and long-term economic effects of copyright laws, the fact that such laws have real and widespread economic impact is becoming increasingly apparent. Concerns that lack of copyright protections will stymie information creation and dissemination, combined with the desire to capitalize on the commodity value of various types of content products, have made increasing the strength of international copyright regimes a major priority for international negotiation among developed nations. Moreover, despite long-standing opposition to strong copyright enforcement, even developing nations are recognizing that a stronger international copyright regime may assist them in protecting and developing their own domestic copyright industries and in protecting their societies from the cultural encroachments of foreign media messages.

Conversely, however, critics of copyright policy argue that laws protecting the ownership of ideas have significant negative effects on society including increasing the costs of research and innovation, reinforcing the economic gap between developed and developing nations, and encouraging the consolidation of media corporations and content producers, thus potentially lim-

iting the diversity of available ideas. Additionally, they argue that in the current corporatized environment of information production, the authors of ideas are rarely rewarded for their intellectual property, with the rewards going instead to the companies that act as gatekeepers to dissemination.

The dispute surrounding the relationship between international copyright law and national economic development is far more than merely an interesting intellectual or legal exercise. For developing nations, in particular, the stakes are high. As the modern economy increasingly is driven by knowledge and innovation, the ability to attain necessary knowledge inputs in a timely manner conceivably could be the difference between whether a country is able to attain economic self-sufficiency in the next century. Nor can it be ignored that content products are becoming increasingly valuable commodities in their own right and, consequently, copyright industries are becoming an increasingly important sector of modern economies. Thus, developing nations must engage the issues surrounding copyright laws not only from the perspective of the effects information and knowledge inputs have on the larger economy, but also with an eye to the effects that copyright laws have on the development of viable copyright industries that can contribute to national employment, tax income, and international trade balances.

A significant challenge facing national and international policy makers working in the copyright arena is the fact that no research exists that tests the effects of copyright laws on national information access and innovation, or on content creation, production, and distribution, including trade. The initial efforts to provide such tests made here suggest that, in fact, the effects of copyright laws may vary along that value-creation chain and by type of content.

Specifically, it would appear—based on the most careful analyses reported in this chapter using population-adjusted data—that information access, as measured by domestic textbook production, is enhanced by piracy. However, per capita domestic production of noneducational books, newspapers and periodicals appears to suffer at least slightly in nations with high piracy levels. This would be an undesirable effect for a number of reasons. Higher production levels would be expected to produce higher employment and increased tax income for governments. That, in turn, would provide additional support for national economic and social development—although to the extent that production is based on illegal piracy, that assumption may not hold.

Having moved early to reform national copyright laws also was found to be negatively related to textbook and book production levels, when production data were adjusted for population. However, it may be that nations are delaying copyright reform until after a domestic production industry begins to grow. If piracy does in fact depress production, then it would be logical to move to reform copyright laws to accelerate production growth, once a domestic production industry started to become established. Unfortunately, the period for which data were available was too short to permit this hypothesis to be tested. And the available data show no relationship between copyright reform and levels of piracy.

The data suggest that nations' ability to engage in positive international trade in copyright commodities benefits from having moved to strengthen domestic copyright regulations. The higher level of content exports in nations that have undergone copyright reform suggests—but doesn't conclusively demonstrate—that domestic content creation also may have been enhanced by copyright reform. One would expect content exports to be related at some level to the domestic creation of content—and not simply to the reproduction of foreign materials. Increased international exports in copyright commodities also supports development by lowering the trade deficits faced by many nations.

Finally, it must be noted that one element that could not be measured using the available data was whether information access was being effectively translated into national innovation. Within the context of the global knowledge economy, this is, of course, the crucial question. However important it may be to have vibrant copyright industries as a sector of a national economy, the true value of information comes from its instrumental nature. Information access, combined with human inspiration, has the power to transform national economies through innovation. The ability to innovate will be a key component to success in the economy of the 21st century.

In the face of such critical and unanswered questions, the appropriate structure for international copyright law should not be taken for granted. Policymakers need to recognize that information is not a monolithic concept and that, consequently, information creates economic value in a variety of ways—through the knowledge and innovation that emerges from access to information resources, as well as through the creation, production, distribution, and international trade in information and content commodities. The complexities of these relationships make it almost inevitable that copyright laws will have differential effects within that value chain. If so, decisions to develop and enforce copyright laws will become a series of choices about the benefits that a nation wishes to capture—and those it is willing to forego—in the knowledge economy.

Clearly, far more needs to be known about the precise nature of the effects copyright laws have on national economic development, and care needs to be taken to structure national and international copyright regimes in a way that captures the greatest array of economic benefits. Research in this area is just beginning. But in the knowledge economy of the coming century, it is imperative that future policy on international copyright be grounded in evidence, rather than the endlessly competing arguments that have provided the foundation of international legal regimes in the past.

ENDNOTES

1. Robert Shapiro, Lee Price and Jeffrey Mayer, eds., *Digital Economy 2000* (U.S. Department of Commerce, Economics and Statistics Administration, 2000). Source: http://www.esa.doc.gov.

2. *See* Michael Shapiro, "Chapter 2," this volume.
3. Keith E. Maskus, *Intellectual Property Rights in the Global Economy* (Washington, D.C.: Institute for International Economics, 2000).
4. Porter defined a value chain as a strategically relevant stream of activities that influence costs and potential sources of differentiation in firms, through which competitive advantage is gained. Although Porter defined value chains in terms of the activities of firms, the concept also is useful when examining the streams of related activities that create value in the economy. Michael Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: The Free Press, 1985).
5. William H. Melody, "The Information Society: Implications for Economic Institutions and Market Theory," *Journal of Economic Issues*, XIX (1985): 523-539.
6. Gurmukh Gill, Jesus Dumagan and Susan LaPorte, "Contribution of Information Technology to U.S. Productivity Growth," in Robert Shapiro, Lee Price & Jeffrey Mayer, eds., *Digital Economy 2000*, 33-42.
7. Data regarding the effects of information technology investments on productivity at the industry-level are more mixed (Gill, Dumagan and LaPorte, eds., *Digital Economy 2000*). Some research shows that industries that invested heavily in information technology had higher productivity gains than those that did not, but the findings of research in this area are not consistent. Gill, Dumagan and LaPorte argue that measurement problems may be the source of the inconsistencies.
8. J.C. Spender and Robert M. Grant, "Knowledge and the Firm: Overview," *Strategic Management Journal*, 17 (Winter 1996): 5-9; Haridimos Tsoukas, "The Firm as a Distributed Knowledge System: A Constructionist Approach," *Strategic Management Journal*, 17 (Winter 1996): 11-25; and Ralph Weindling, "Intellectual Property and Technology Management: New Dimensions From New Management Concepts," in Ali Akhunov, George Bugliarello, & Eugenio Corti, eds., *Intellectual Property and Global Markets: An East-West Dialogue* (Amsterdam: IOS Press, 1999), 50-55.
9. Wolfgang Michalski, Riel Miller, & Barrie Stevens, "Anatomy of a Long Boom," in *The Future of the Global Economy: Towards a Long Boom?* (Paris: Organization for Economic Co-operation and Development, 1999), 7-32; and Peter Schwartz, Eamonn Kelly and Nicole Boyer, "The Emerging Global Knowledge Economy," in *The Future of the Global Economy: Towards a Long Boom?* (Paris: Organization for Economic Co-operation and Development, 1999), 77-113.
10. Kevin Kelly, "New Rules for the New Economy: Twelve Dependent Principles for Thriving in a Turbulent World," *Wired*, 5 (1997): 140-144, 186-197.
11. Joseph Stiglitz, "Public Policy for a Knowledge Economy: Remarks at the Department for Trade and Industry and Center for Economic Policy Research" (London: The World Bank Group, Jan. 27, 1999). *Source:* www.worldbank.org/html/extdr/extme/jssp012799a.htm.

12. James Cortada, "Progenitors of the Information Age: The Development of Chips and Computers," in A.E. Chandler, Jr. and James W. Cortada, eds., *A Nation Transformed by Information: How Information Has Shaped the United States From Colonial Times to the Present* (New York: Oxford University Press, 2000): 177-216; James Reed Golden, *Economics and National Strategy in the Information Age: Global Networks, Technology Policy and Cooperative Competition* (Westport, CT: Praeger, 1994); and Weindling, "Intellectual Property."
13. Robert D. Dalziel, "International Telecommunications and the Role of Intellectual Property," in Akhunov, *Intellectual Property and Global Markets*, 56-64.
14. Schwartz, "The Emerging Global Knowledge Economy."
15. Kelly, "New Rules"; W. Curtiss Priest, "An Information Framework for the Planning and Design of 'Information Highways,'" (1994). Available: www.eff.org/GII_NII/Govt_docs/cits_nii_framework_ota.report; and Schwartz, "The Emerging Global Knowledge."
16. Priest, "An Information Framework."
17. William Vickery, "Counterspeculation, Auctions, and Competitive Sealed Tenders," *Journal of Finance* 16, (March 1961): 8-37.
18. J.A. Mirrlees, "Taxing Uncertain Outcomes," *Oxford Economic Papers*, 42 (1990): 34-45.
19. Priest, "An Information Framework."
20. George Bugliarello, "Science and Technology Policy and Intellectual Property: Seeking New Global Linkages," in Akhunov, *Intellectual Property and Global Markets*, 14-19.
21. *Ibid.*
22. *Ibid.*
23. *Ibid.*
24. Dalziel, "International Telecommunications."
25. Keith E. Maskus and Mohan Penubarti, "Patents and International Trade: An Empirical Study," in Keith E. Maskus et al., eds., *Quiet Pioneering: Robert M. Stern and His International Economic Legacy* (Ann Arbor: University of Michigan Press, 1977), 95-118.
26. Maskus, *Intellectual Property Rights*, 135.
27. Pamela J. Smith, "Are Weak Patent Rights a Barrier to US Exports?," *Journal of International Economics* (1999): 151-77.
28. Keith E. Maskus, Mohan Penubarty, "How Trade-Related are Intellectual Property Rights?," *Journal of International Economics* 39 (1995): 227-48.
29. Meheroo Jussawalla, *The Economics of Intellectual Property in a World Without Frontiers: A Study of Computer Software* (New York: Greenwood Press, 1992).
30. Phillip G. Altbach, "Subtle Inequalities of Copyright," in Phillip G. Altbach, ed., *Copyright and Development* (Chestnut Hill: Bellagio Publishing Network), 1-12.

31. *Ibid.*
32. Sandra Braman, "Defining Information: An Approach for Policy Makers," *Telecommunications Policy*, 13 (1989): 233-243.
33. Phillip G. Altbach, "Subtle Inequalities."
34. Dina Nath Malhotra, "Copyright: A Perspective From the Developing World," in Altbach, *Copyright and Development*, 35-48.
35. Lynette Owen, "Copyright—Benefit or Obstacle?" in Altbach, *Copyright and Development*, 93-108.
36. Developing and Least Developed members were not exempted from provisions requiring them to provide the same protection to authors of other countries that they extended to authors of their own, and which prohibited them from selectively applying their own copyright laws to other nations subject in both cases to certain exemptions previously outlined in other treaties.
37. Vickery, "Counterspeculation."
38. Mirlees, "Taxing Uncertain Outcomes."
39. Priest, "An Information Framework."
40. Jussawalla, *The Economics of Intellectual Property*; and Stiglitz, "Public Policy."
41. John Goddard, "Editor's preface," in Mark E. Hepworth., *Geography of the Information Economy* (London: Guilford Press,1990), xiv-xvii.
42. Jeremy Beale, "Content as a New Growth Industry," Organization for Economic Co-operation and Development, V. 4., No. 46, (Paris 1996).
43. Alan B. Albarran, *Management of Electronic Media* (Belmont: Wadsworth Publishing Co., 1997).
44. These data are based on estimates by IIPA. See: http://www.iipa.com/html/pr_02161999.html.
45. Core copyright industries were defined as those that primarily produce products that are copyrighted. These include the book, newspaper, periodical, music, publishing, recorded music, motion picture, theatre, radio, television, cable, advertising and computer software industries. Total copyright industries were defined to include industries that either create or distribute copyrighted products, or depend on those industries that do. Under this definition, book, music, and video retailers, computer manufacturers, as well as other industries also were included.
46. Even this contention is not without controversy. Priest ("An Information Framework") noted that there is a question regarding whether copyright laws lead to a misappropriation of the value of some information products. Different information products are brought to the marketplace as the result of different types of investment. The economic characteristics of science and cultural products generally have made it necessary to fund development through government grants, by private foundations, and by charitable contributions. Copyright laws, however, often return the financial rewards for the products that are developed through these public-funding efforts to private institutions that gain distribution rights. In many cases, the scientist, writer or artist receives little, if any, of the monetary reward that results from the copyrighting of scientific and cultural information, and the original funder receives none at all.
47. Jussawalla, *The Economics of Intellectual Property.*
48. These data are based on estimates by IIPA. See: http://www.iipa.com/html/022398_press_release.html.
49. Jennings Bryant & Dolf Zillmann, *Media Effects: Advances in Theory and Research* (Hillsdale: Lawrence Erlbaum Associates, 1994).
50. Francis J. Cronin, Edwin B. Parker, Elisabeth K. Colleran and Mark A. Gold, "Telecommunications Infrastructure and Economic Growth: An Analysis of Causality," *Telecommunications Policy*, 15 (1991): 529-535; Francis J. Cronin, Elisabeth K. Colleran, Paul L. Herbert and Steven Lewitzk, "Telecommunications and Growth: The Contribution of Telecommunications Infrastructure Investment to Aggregate and Sectoral Productivity," *Telecommunications Policy*, 17 (1993): 677-690; Francis J. Cronin, Edwin B. Parker, Elisabeth K. Colleran and Mark A. Gold, "Telecommunications Infrastructure Investment and Economic Development," in *Telecommunications Policy*, 17 (1993a): 415-430; Francis J. Cronin, Patricia M. McGovern, Michael R. Miller and Edwin B. Parker, "The Rural Economic Development Implications of Telecommunications," *Telecommunications Policy*, 19 (1995): 545-559; Ruby Roy Dholakia and Bari Harlam, "Telecommunications and Economic Development: Econometric Analysis of the U.S. Experience," *Telecommunications Policy*, 18 (1994): 470-477; Heather E. Hudson and Edwin B. Parker, "Information Gaps in Rural America: Telecommunication Policies for Rural Development," in *Telecommunications Policy*, 14 (1990): 193-205; Edwin B. Parker, Heather E. Hudson, Don A. Dillman, Sharon Strover and F. Williams, *Electronic Byways: State Policies for Rural Development Through Telecommunications* (Boulder: The Aspen Institute, 1995); Frederick Williams, *The New Telecommunications: Infrastructure for the Information Age* (New York: The Free Press 1991).
51. Robin Mansell and Uta Wehn, eds., *Knowledge Societies: Information Technologies for Sustainable Development* (Oxford: Oxford University Press, 1998).
52. U.S. Congress, Office of Technology Assessment, "Rural America at the Crossroads: Networking for the Future" (Washington, D.C., 1991, April).
53. It must be noted that although digital networks and E-commerce applications are realizing the potential of delivering new customers to remotely based businesses, previous research has found that the introduction of new communication technologies into remote areas has, in the past, often had a long-term negative impact on the local economy. Generally, the local customers of rural businesses have used information technologies to learn about and access urban businesses. Urban businesses, by virtue of their larger customer bases, are better able to capture economies of scale and scope and, therefore, often can out-compete rural businesses on the basis of both price and selection. Thus, although the introduction of new information infrastructures into rural and disadvantaged areas often are hailed for their economic

development potential, the actual net long-term effects of enhanced communication can be negative for rural economies.

54. Priest, "An Information Framework."
55. Maskus, Intellectual Property Rights, 87.
56. Al Greco, personal communication, Fordham University, December 3, 2000.
57. For a list of countries, *see* http://www.wipo.int/treaties/index.html.
58. The IIPA recommendations clearly include considerations of market size and other factors as well as piracy and cannot be considered pure measures of piracy. They are the best measures available. *Source:* www.IIPA.com.
59. *UNESCO Statistical Yearbook* (1999). Paris: United Nations Educational, Scientific and Cultural Organization Publishing.
60. Changes in copyright law were identified through official documents and in consultation with the expert contributors to this book.
61. The indices for piracy and copyright reforms were based on the 1990 to 2000 period despite the fact that the criterion measures were for 1992 to 1996 period. The intent was to reflect the cumulative environment of piracy and copyright reform.