

FOREIGN PROTECTION OF INTELLECTUAL PROPERTY RIGHTS AND THE EFFECT ON U.S. INDUSTRY AND TRADE

**Report to the United States
Trade Representative,
Investigation No. 332-245,
Under Section 332(g)
of the Tariff Act of 1930**

USITC PUBLICATION 2065

FEBRUARY 1988

United States International Trade Commission / Washington, DC 20436



UNITED STATES INTERNATIONAL TRADE COMMISSION

COMMISSIONERS

Susan Liebler, Chairman
Anne E. Brunsdale, Vice Chairman
Alfred E. Eckes
Seeley G. Lodwick
David B. Rohr

This report was prepared principally by

Mark D. Estes, General Manufactures Division,
Robert M. Feinberg, Office of Economics

with the assistance of

Wayne Herrington, Office of the General Counsel
Elizabeth R. Nesbitt, Energy and Chemicals Division,
Janice Wayne, Ruben Moller, John Pryor,
Kate Bishop, Brian Garbecki, Avell Barnes, Zema Tucker,
and Brenda Young, General Manufactures Division
Peggy MacKnight, Textile, Leather Products, and Apparel Division
Vincent DeSapio, Minerals and Metals Division
Donald J. Rousslang, Research Division, Office of Economics
Michael J. Buchenhorner, Office of the General Counsel
Evelyn C. Kelley, Office of Data Systems

under the direction of

Walter S. Trezevant
General Manufactures Division

Compiled by

Office of Industries
Erland Heginbotham,
Director

Address all communications to
Kenneth R. Mason, Secretary to the Commission
United States International Trade Commission
Washington, DC 20436

Preface

On March, 12, 1987, at the request of the United States Trade Representative at the direction of the President, 1/ and in accordance with section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), the United States International Trade Commission instituted investigation No. 332-245, Foreign Protection of Intellectual Property Rights and the Effect on U.S. Industry and Trade. The Commission was asked to develop, to the extent possible, quantitative estimates of the distortions in U.S. trade associated with deficiencies in the protection provided by foreign countries to U.S. intellectual property rights, including trademarks, copyrights, patents, trade secrets, semiconductor chip designs, and other types of intellectual property rights. Specifically, the Commission was asked to determine, to the extent possible, the sales lost to counterfeit and other infringing products imported into the United States, and U.S. export sales as well as revenues from both U.S. and foreign sources lost as a result of protection deficiencies, and to identify the products, source countries, markets, and protection deficiencies that represent the most serious problems for U.S. firms.

Notice of the investigation was given by posting copies of the notice of investigation at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register (52 F.R. 8656), on March 19, 1987. 2/

A public hearing in the investigation was held on May 5, 1987, at the U.S. International Trade Commission Building, 701 E Street, NW, Washington, DC, and all persons who requested the opportunity were permitted to appear in person or by counsel. 3/ The Commission also collected data and information from responses to questionnaires sent to U.S. firms that benefitted from intellectual property protection, and various U.S. trade associations, including American Chambers of Commerce abroad.

In addition, information was gathered from other sources, including various public and private sources, overseas posts of the U.S. Department of State, and other Commission studies. 4/

1/ The request from the United States Trade Representative is reproduced in app. A.

2/ A copy of the Commission's Notice of Investigation is reproduced in app. B.

3/ A list of witnesses appearing at the hearing appears in app. C.

4/ A discussion of the survey design and methodology appears in app. D.

CONTENTS

	<u>Page</u>
Preface.....	i
Executive summary.....	vii
Chapter 1. Introduction.....	1-1
Definitions of intellectual property.....	1-2
Trademark.....	1-2
Copyright.....	1-3
Patent.....	1-3
Trade secret.....	1-4
Semiconductor mask work.....	1-5
Proprietary technical data.....	1-5
Inadequate intellectual property protection.....	1-5
Chapter 2. Affected Industry Sectors.....	2-1
Chapter 3. Inadequacies and Violations.....	3-1
Copyrights:	
Regime inadequacies.....	3-2
Remedy/enforcement inadequacies.....	3-4
Patents:	
Regime inadequacies.....	3-5
Remedy/enforcement inadequacies.....	3-6
Trademarks:	
Regime inadequacies.....	3-7
Remedy/enforcement inadequacies.....	3-8
Trade secrets:	
Regime inadequacies.....	3-9
Remedy/enforcement inadequacies.....	3-9
Mask works:	
Regime inadequacies.....	3-10
Remedy/enforcement inadequacies.....	3-10
Proprietary technical data:	
Regime inadequacies.....	3-11
Remedy/enforcement inadequacies.....	3-11
Secondary barriers.....	3-12
Chapter 4. Economic Effects of Intellectual Property Infringement.....	4-1
Aggregate worldwide losses.....	4-1
Lost sales of U.S.-made products:	
Sales lost because of displacement by infringing U.S. imports.....	4-5
U.S. export losses.....	4-5
Other U.S. revenue losses.....	4-5
Economic effects of certain infringement:	
Determinants of the degree of counterfeit and infringing sales.....	4-7

	<u>Page</u>
Chapter 4. Economic Effects of Intellectual Property Infringement-- Continued	
Economic effects of certain infringement--Continued	
Patterns of infringement and enforcement activity across industries..	4-7
Infringement, lost sales, and lost profits.....	4-11
U.S. employment losses.....	4-13
Impact by country.....	4-15
Chapter 5. Current and Future Trends in Protection.....	5-1
 Appendixes	
A. Request letter from the United States Trade Representative.....	A-1
B. Notice of Institution of Investigation No. 332-245 in the <u>Federal Register</u>	B-1
C. Witnesses appearing at the U.S. International Trade Commission hearing in Investigation No. 332-245, Foreign Protection of Intellectual Property Rights and the Effect on U.S. Industry and Trade..	C-1
D. Survey design and methodology.....	D-1
E. Summary of statutes relating to intellectual property for selected countries.....	E-1
F. Calculating the effects of counterfeit sales on output, total revenue, and profits on legitimate producers.....	F-1
G. Statistical Data.....	G-1
H. Projection of losses from inadequate intellectual property protection for all U.S. industries.....	H-1
 Tables	
2-1. Number of firms operating in the United States and abroad, by sectors, 1986.....	2-2
2-2. Weighted ranking of the degree of importance of intellectual property to business, by types of property, 1986.....	2-4
3-1. Number of questionnaire respondents reporting foreign intellectual property identification and enforcement expenses, intellectual property inadequacies, or secondary barriers to trade, by countries, 1986.....	3-3
4-1. Worldwide losses of revenue resulting from intellectual property inadequacies, by industries and by degree of loss, 1986.....	4-3
4-2. Factors involved in worldwide losses of revenue resulting from intellectual property inadequacies, by factors and number of firms responding, 1986.....	4-4
4-3. Sales lost, in the United States because of U.S. imports of infringing goods, by industries and degrees of loss, 1986.....	4-6
4-4. U.S. exports lost because of inadequate intellectual property protection, by industries and degrees of loss, 1986.....	4-8
4-5. Royalty and other revenue losses because of intellectual property inadequacies, by industries and degrees of loss, 1986.....	4-9

	<u>Page</u>
Tables--Continued	
4-6. Reporting companies and sales, by broad industry sectors, 1986....	4-11
4-7. Cost to U.S. industry of identification and enforcement in cases of infringement, by industries, 1986.....	4-12
4-8. Estimates of lost revenues and lost profits from infringement of intellectual property rights, by industries, 1986.....	4-14
4-9. U.S. employment losses resulting from intellectual property inadequacies, by industries and degrees of loss, 1986.....	4-15
4-10. Losses resulting from intellectual property inadequacies, by coun- tries and by selected industries, 1986.....	4-16
5-1. The trend in losses resulting from intellectual property inadequacies during the past 15 years.....	5-2
5-2. The trend in losses resulting from intellectual property inadequacies during the next 5 years.....	5-3
G-1. Copyright: Firms reporting regime inadequacies, by countries, 1986.....	G-2
G-2. Patent: Firms reporting regime inadequacies, by countries, 1986..	G-3
G-3. Trademark: Firms reporting regime inadequacies, by countries, 1986.....	G-4
G-4. Trade secret: Firms reporting regime inadequacies, by countries, 1986.....	G-5
G-5. Mask work: Firms reporting regime inadequacies, by countries, 1986.....	G-6
G-6. Proprietary technical data: Firms reporting regime inadequacies, by countries, 1986.....	G-7
G-7. Copyright: Firms reporting remedy and enforcement inadequacies, by countries, 1986.....	G-8
G-8. Patent: Firms reporting remedy and enforcement inadequacies, by countries, 1986.....	G-9
G-9. Trademark: Firms reporting remedy and enforcement inadequacies, by countries, 1986.....	G-10
G-10. Trade secret: Firms reporting remedy and enforcement inadequa- cies, by countries, 1986.....	G-11
G-11. Mask work: Firms reporting remedy and enforcement inadequacies, by countries, 1986.....	G-12
G-12. Proprietary technical data: Firms reporting remedy and enforce- ment inadequacies, by countries, 1986.....	G-13
G-13. Secondary barriers: Firms reporting barriers affecting or arising from inadequate protection, by country, 1986.....	G-14

Executive Summary

This study offers various measures of the economic effects of inadequate foreign protection of intellectual property, including worldwide aggregate losses to U.S. business, lost U.S. sales caused by imports of infringing goods, U.S. export losses, lost revenues from royalties and other fees, employment losses, the costs of identifying infractions and enforcing laws, and the effect of unlawful sales on legitimate sales and profits. In addition, the relative importance of different types of rights is discussed, including copyrights, patents, trademarks, trade secrets, semiconductor mask works, and proprietary technical data. The study also identifies the deficiencies, including those involving enforcement and remedies and the losses attributable to various countries.

The data presented were developed through the use of a questionnaire sent to 736 U.S. companies, including all of the Fortune 500, appropriate members of the American Business Conference, and smaller firms concentrated in industries known to depend on royalties or sales of goods protected by intellectual property. The data, therefore, represent estimates from a percentage of an unknown universe; the losses suffered by the U.S. industry as a whole may well be much larger. The data collected were primarily for 1986 and, thus represent a "snapshot" view of the problem. There is no evidence, however, that 1986 was an atypical year for the purposes of this study.

The principal findings of this investigation are:

- o 269 firms of 431 responding to the Commission's questionnaire reported that intellectual property was of more than nominal importance to their business in 1986. Of these, 245 reported sales of \$1.114 trillion, 80 percent of which were said to be directly affected by intellectual property rights. The firms were classified into 36 major industry groups, with the highest concentrations in computers and computer software, miscellaneous chemicals, and metals and metal products (pp. 2-1 through 2-3).
- o Two-thirds of the 162 respondents that indicated that intellectual property was unimportant to their business were in the primary commodity and basic services industries, a significantly different industry mix compared with the firms that relied on intellectual property in their business (p. 2-1).
- o Trademarks were of "great" or "very great" importance to most firms. Most firms rely to some extent on a unique name or mark. Copyrights were very important in certain industries such as publishing and printing,

- o Of 225 respondents that license intellectual property rights to either affiliates or third parties, 104 reported licensing revenue losses of \$3.1 billion resulting from inadequate intellectual property protection in 1986. The entertainment industries, including motion pictures and all audio and video recordings, were the most severely affected industries, accounting for 65 percent of the losses (p. 4-6 and table 4-5).
- o Estimated infringing product sales in the amount of \$9.5 billion were reported by 93 respondents for 1986. For the five industry aggregations, of entertainment, computers and software, consumer goods, industrial goods, and extractive industries, the ratio of these sales to legitimate sales ranged from a high of 14 percent for entertainment industries to a low of 0.4 percent for the extractive industries (pp. 4-9 through 4-12 and table 4-7).
- o Lost revenue caused by worldwide sales of infringing goods were calculated by this staff to have amounted to an estimated \$4.9 billion in 1986 for 45 responding companies, representing 62 percent of infringing sales and 4 percent of legitimate sales. The estimated profits lost as a result of these lost revenues were \$754.9 million, amounting to .7 percent of sales. Lost profits ranged from a low of .04 percent of sales for extractive industries to nearly 4 percent for the entertainment industries. It should be noted that although these losses may appear small, profits before income taxes for all U.S. corporations in 1986 were 6 percent of sales (7 percent for nondurables and 5 percent for durables). Therefore for these respondents, sales of infringing goods may have represented an average profit reduction of 10 percent (pp. 4-12 through 4-13 and table 4-8).
- o Identification and enforcement costs reported by 199 companies amounted to \$271 million in 1986, amounting to .03 percent of total sales and 1.14 percent of infringing sales. Whereas these costs appear small as a percentage of sales, in absolute terms these expenditures are not trivial, especially considered in relation to current U.S. balance of payments deficits of roughly \$40 billion (pp. 4-1 through 4-13 and table 4-8).

- o Forty-three respondents estimated that a total of 5,374 U.S. jobs were lost as a result of losses due to intellectual property inadequacies in 1986. Another 72 respondents indicated no loss of jobs. Respondents in the computer software and chemicals industries accounted for nearly 50 percent of the estimated employment loss (p. 4-13 and table 4-9).
- o Eighty-four respondents cited a total of 52 countries as having inadequate protection of copyrights. Most frequently cited were Taiwan, Brazil, Korea, Indonesia, and Argentina. Lack of protection for U.S. works in general, or specific works, and burdensome substantive or procedural formalities were the most often cited deficiencies. The most frequently cited remedy and enforcement deficiencies were inadequate civil and criminal remedies (pp. 3-2 through 3-5 and tables G-1 and G-7).
- o One hundred twenty-two companies cited a total of 54 countries as having inadequate protection of patent rights. Most commonly cited were Mexico, Brazil, Taiwan, Korea, and Japan. The most commonly cited deficiencies were no patent protection and unrealistic working requirements. The most commonly cited remedy and enforcement deficiencies were slow enforcement process, and biased or politically motivated court decisions (pp. 3-5 through 3-7 and tables G-2 and G-8).
- o Inadequate protection of trademark rights was reported by 133 companies for 66 countries. Mexico, Taiwan, Brazil, Korea, and Indonesia were most frequently cited. Unreasonable licensing requirements and difficult proof of use for renewal were the most commonly cited deficiencies. Inadequate civil and criminal remedies, no preliminary or final injunctive relief, and inadequate training and resources for enforcement were the most commonly cited remedy/enforcement deficiencies (pp. 3-7 through 3-8 and tables G-3 and G-9).
- o Deficiencies in protection of trade secrets were reported by 94 companies for 47 countries. The most often reported were Mexico, Korea, Brazil, Taiwan, China, and Japan. No protection against third parties was the most commonly cited deficiency. Slow enforcement and inadequate civil and criminal penalties

or greatly during the past 15 years. 25 percent of the respondents indicated that a great or very great portion of additional business was at great or very great risk if protection levels remained the same, and another 29 percent indicated a moderate amount of additional business at risk. Firms accounting for 72 percent of estimated worldwide aggregate losses caused by inadequate protection indicated that they expected their losses to grow moderately or greatly in the next 5 years if protection is not improved (pp. 5-1 through 5-3).

CHAPTER 1. INTRODUCTION

The purpose of this study is to examine the effects of foreign protection of intellectual property rights on U.S. industry and trade. However, any attempt to quantify these effects on the whole of U.S. industry and trade throughout some 200 countries, territories, and colonies poses difficulties. One of these difficulties is that to calculate the effect of violations of intellectual property rights on a given business the sales volume of violating goods must be known. It is not; unfortunately, statistics on such sales are not collected. Lack of confidence in intellectual property rights can cause a firm to avoid a market altogether. Since these are losses in potential they can only be grossly estimated. A firm may also decide to use less than up-to-date technology, again complicating the calculation of effects. 1/

This study relies primarily on estimates provided by respondents to a Commission questionnaire sent to 736 U.S. firms. These firms include the 1986 Fortune 500, selected members of the American Business Conference, and additional firms in industries known to rely heavily on intellectual property protection. Foremost amongst these are computer software and hardware, motion picture, record and tape, fashion wearing apparel, toys, and sporting goods industries. Similar questionnaires were made available to 14 major trade associations to give them the opportunity to provide responses on an industry basis and to solicit voluntary responses from their membership. Modified versions of the questionnaire were provided to the U.S. Chamber of Commerce. The U.S. Chamber of Commerce distributed these questionnaires to the American Chambers abroad to collect data on a country basis. Respondents were asked to provide verifiable data such as actual sales and expenses. General estimates were given on the less precise questions such as losses. Finally, opinions were solicited as to the types, trends, and causes of intellectual property problems.

The Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection (shown in app. D) provided a methodology for estimating the effects of intellectual-property inadequacies. It also gave some indications as to what constituted adequate intellectual property protection, remedies, or enforcement. In most instances the estimation methods and the benchmarks were determined by each respondent individually. 2/

1/ A previous Commission study, The Effects of Foreign Product Counterfeiting on U.S. Industry (USITC Pub. 1479, Jan. 1984, out of print), contained a compilation of more general industry estimates of losses to U.S. firms in 1982 as a result of foreign product counterfeiting, passing off, and copyright and patent infringement of products similar to those manufactured in the United States. However the primary focus of that study was on foreign product counterfeiting; licensing revenues and service industries were not included in the study.

In addition, Mexico's 1973 technology transfer law and 1976 law on inventions and trademarks were discussed in The Impact of Increased United States-Mexico Trade on Southwest Border Development (USITC Publication 1915, November 1986).

2/ Respondents were asked to provide the methodologies they used to estimate effects in addition to any case studies or anecdotal evidence that would help to define the causes and or effects of inadequacies. Few respondents supplied this additional information.

Although this information cannot be used to statistically project totals for all of U.S. industry and trade (the universe of firms relying more than nominally on intellectual property protection remains unknown 1/), it does highlight points of concern. During the course of the investigation no evidence was uncovered to suggest that 1986 was anything other than a typical year with regard to the level of worldwide intellectual property protection.

Definitions of Intellectual Property

The intellectual property of concern to the respondents to the Commission's questionnaire were copyrights, patents, trademarks, trade secrets, and, to a lesser extent, semiconductor mask works and proprietary technical data. Although U.S. law was the starting point for the following property description, these definitions represent a general summary of law on intellectual property developed for use in the questionnaire by the Commission staff along with various industry and government experts and the U.S. Chamber of Commerce.

Trademark

A trademark is any word, name, symbol, or device, or any combination thereof, adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured or sold by others. 2/ Violation of trademark laws consists of counterfeiting and other forms of infringement. Counterfeiting is the unauthorized use of a representation or copy of a registered trademark or service mark. 3/ Other forms of infringement include the offering for sale, distribution, or advertising of goods or services using a copy or colorable imitation of a trademark or service mark so similar to that of another, that deception or confusion is likely to result. Specifically excluded from this definition of violation of trademark rights are the following:

1/ Any firm doing business under a unique name is at least nominally dependent on the "intellectual property" of that name in pursuing its business. However, for the purposes of this investigation, reliance on more than this most minimal of "intellectual property" rights was required before a company's dependence on actual intellectual property was considered more than nominal. There is no evidence to suggest that those firms not responding to the Commission's questionnaire as well as those that did not receive it had experiences with intellectual property of the same type or magnitude as the respondent firms. Responding firms were not a random sample of either the universe or of the firms that received a questionnaire.

2/ Based on 14 U.S.C. 1127.

3/ A service mark is a mark or device used to identify a service, such as transportation or insurance, offered to customers.

1. offering goods produced or marketed under a trademark with the consent of the owner of the trademark right, and
2. offering goods bearing a trademark which are imported or sold in contravention of a commercial arrangement ("gray market goods").

Copyright

A copyright is a form of protection provided by a national government to authors of original works of authorship including literary, dramatic, musical, artistic, and certain other intellectual works. 1/ The owner of copyright has the exclusive right to:

1. reproduce the copyrighted work in copies or phonorecords,
2. prepare derivative works based upon the copyrighted work,
3. distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending,
4. perform the copyrighted work publicly, in the case of literary, musical dramatic, and choreographic works, pantomimes, and motion pictures and audiovisual works, and
5. display the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including individual images of a motion picture or other audiovisual work. 2/

Copyright protects an author's creative work regardless of the format in which it is cast. Copyright violations are referred to as infringement or piracy.

Patent

A patent is a grant issued by a national government conferring the right to exclude others from making, using, or selling the invention within the national territory. 3/ Also included in what are lesser forms of protection, such as utility models, petty patents, inventors' certificates, and the various other kinds of industrial patents, such as patents of importation, patents of improvement, patents and certificates of addition, etc., used in

1/ See, 17 U.S.C. 102.

2/ See, 17 U.S.C. 106.

3/ Based on 35 U.S.C. 154.

countries other than the United States. 1/ These other forms of patent protection generally coexist with regular patent protection and can provide some rights when regular patent protection is denied or unobtainable. Patents may be granted for new and useful products and processes for the manufacture of new or existing products, as well as for methods of use of new or existing products. Patent violations are referred to as patent infringement or piracy.

Trade Secret

A trade secret is information, including a formula, pattern, compilation, program, device, method, technique, or process, that derives independent economic value, actual or potential, from not being generally known, and not being readily ascertained by proper means, by other persons who can obtain economic value from its disclosure or use, and is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. 2/ Violations of trade secrets, referred to as misappropriation, are defined as follows:

1. Acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper means; or
2. Disclosure or use of a trade secret of another without the expressed or implied consent by a person who used improper means to acquire knowledge of the trade secret; or at the time of disclosure or use, knew or had reason to know that his knowledge of the trade secret was derived from or through a person who had used improper means to acquire it; acquired under circumstances giving rise to a duty to maintain its secrecy or limit its use; or derived from or through a person who owed a duty to the person seeking relief to maintain its secrecy or limit its use; or before a material change in his position, knew or had reason to know that it was a trade secret and that knowledge of it had been acquired by accident or mistake. 3/

Improper means include theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means. 4/ Trade secrets as intellectual property may well be more important than patents in certain quickly evolving high technology areas in which product development tends to outpace the often lengthy patent application process.

1/ See, e.g., Patent Cooperation Treaty, Article 2(ii) and the Paris Convention (Stockholm Revision, 1967), Article 1(4).

2/ See, Uniform Trade Secrets Act, Section 1(4).

3/ Ibid., Section 1(2).

4/ Ibid., Section 1(1).

Semiconductor Mask Work

Under the Semiconductor Chip Protection Act of 1984 ^{1/}, mask work protection exists for original mask works fixed in a semiconductor chip product by, or under the authority of the owner of the mask work, which have been registered or commercially exploited anywhere in the world. The owner has the exclusive right to do directly and to authorize others to: (1) reproduce the mask work by optical, electronic, or other means; (2) import or distribute a semiconductor chip product in which the mask work is embodied; and (3) induce or knowingly cause another person to take either of these actions. The following definitions apply:

Semiconductor chip product: The final or intermediate form of any product, having two or more layers of metallic, insulating, or semiconductor material, deposited or otherwise placed on, or etched away or otherwise removed from, a piece of semiconductor material in accordance with a predetermined pattern; and intended to perform electronic circuitry functions.

Mask work: A series of related images, however fixed or encoded, having or representing the predetermined three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product, and in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product. Violations of rights in mask works are referred to as infringement or piracy.

Proprietary Technical Data

Proprietary technical data consist of data submitted to a government agency in connection with the regulatory review of a product, such as new pharmaceuticals or chemicals.

Inadequate Intellectual Property Protection

Rating the adequacy of intellectual property protection provided by individual countries is a subjective exercise, to which U.S. industry was invited to contribute through the Commission's questionnaire. Most often the benchmark suggested in the questionnaire gauging adequacy of protection was that provided by the United States or an undefined group of developed countries; international agreements can both serve as the norm or minimum level of protection, as in the case of the Paris Convention. As indicated earlier, the industries' views are dominated by current conditions and expectations, and could change significantly if enforcement were more uniform over a wide number of markets. For example, a respondent may consider the patent protection period of a given country inadequate compared with that of the United States if that respondent's success in protecting that right in that country has been low. But if this theoretical respondent could be confident of strong protection over the life of the patent or if that time limit were uniformly applied throughout a number of markets, the same respondent may well accept a protection period shorter than the U.S. norm.

1/ P.L. 98-620, Chapter 9 of Title 17, United States Code.

Protection deficiencies may be divided into two major groups, inadequacies in the protection provision for particular types of intellectual property (regime deficiencies), and general enforcement inadequacies. One possible inadequacy affecting all forms of intellectual property is that the country may not provide any legal protection; laws establishing or protecting a particular right simply do not exist either in general or for a specific product. The list of protection deficiencies was developed from submissions made to the Office of the United States Trade Representative as reflected in its annual report on barriers to trade ^{1/} in addition to suggestions and responses supplied by interested parties and questionnaire respondents. The following general regime inadequacies were reported for the types of intellectual property covered by this study.

Copyright:

1. U.S. works are not protected.--Many countries have no treaty relationship with the United States to make U.S. works directly eligible for protection in that country, or do their laws protect U.S. works.
2. Laws do not protect all traditional and new work.--Although laws cover some types of works, they fail to cover others, such as sound recordings, computer programs, or other print or electronic compilations (e.g., data bases), or may not encompass certain media in which new works are embodied (e.g., videocassettes or computer programs in ROM).
3. Inadequate exclusive rights.--Laws grant some, but not all exclusive rights (e.g., no cable retransmission, no public performance or display right, no right to distribute or to distribute electronically).
4. Exceptions to exclusive rights are overly broad.--Including broad exceptions for public performances in hotels or film clips, too broad exceptions for educational photocopying, and compulsory licensing provisions, if any, are inconsistent with international norms.
5. Terms of protection are too short.--The term of copyright protection is less than the terms found in the major developed countries.
6. Burdensome substantive or procedural formalities.

Patents:

1. Patentability precluded by statute.--Patent laws explicitly preclude patentability for inventions in specified fields, such as pharmaceuticals.

^{1/} National Trade Estimate: 1986 Report on Foreign Trade Barriers.

2. Term is too short.--The term of patent protection is less than the term found in the major developed countries.
3. Early lapse.--Patent rights terminate early because of nonworking (i.e., the patented invention or process is not used in the country during a specified period).
4. Compulsory licensing.--Licensing to third parties is compelled for reasons such as nonworking or "public interest" (as distinguished from narrow exercise of the right of eminent domain or correction of antitrust types of violations).
5. Paris Convention nonadherence.--Countries have signed the Paris Convention but have failed to implement its provisions, or failed to adhere to its provisions.
6. Patent claims are narrowed too much.--Administrative practice forces claims to be applied so narrowly that others can easily avoid claim coverage and may even obtain patents of their own on slight variations of the invention without true innovation.
7. Unrealistic working requirements.--Exclusive protection is lost either if the invention is not worked within a time shorter than is realistic or the required working is not commercially feasible.

Trademarks:

1. Scope of what constitutes infringement is too narrow.--Applications for use of a mark are allowed, usually to national companies, even though closely similar to a preexisting trademark of another.
2. Renewal proof of use is difficult.--Continued ownership of a trademark is jeopardized because proof of its continuing commercial use must be shown within an unduly short time, or use is delayed or precluded by government action without corresponding exemption from the proof of use requirement, or use only by the owner, as distinguished from licensees or distributors, is recognized.
3. No protection of "well-known" marks.--Unregistered but internationally well-known marks are not protected against registration or use by unauthorized local parties.
4. Narrow spectrum of class protection.--A classification system more burdensome than that of the Nice Agreement is utilized.

5. Unreasonable licensing requirements.--The licensing of trademarks is subject to unreasonable conditions by government authorities that may include such things as restrictions on royalties, technology transfer limitations or mandatory joint venture arrangements.
6. Circumscribed usage or "Linking."--The value of a trademark is diminished because the trademark must be used in a specified form or manner or used in conjunction with another trademark.

Trade secrets:

1. Short time limits on confidentiality.--The term during which a trade secret may be required to be kept confidential in a trade secret agreement is unduly limited by government authority, usually through conditions placed on technology transfers.
2. No protection against third parties.--Even though an agreement to keep secrets may be made and enforced between two parties, there is no legal basis for action against a third party that benefits without authorization or induces a breach of the agreement.

Mask works:

1. No legal protection.--Mask works protection is expressly or by practice excluded from traditional forms of protection.
2. Inadequate sui generis coverage.--Traditional forms of protection are denied; sui generis protection is the only available form and it is, or is expected to become, inadequate.

Proprietary technical data:

Short time limits on confidentiality.--The term during which data are kept confidential by the responsible government agency is unreasonably limited.

Remedy/enforcement inadequacies:

The following are the inadequate remedies and penalties and the enforcement flaws addressed in the investigation. These inadequacies apply to all the above intellectual property categories.

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment relief.

3. Lack of exclusion of infringing imports.
4. Lack of compulsory court process and/or discovery. Lack of discovery can exacerbate the enforcement of process patents, inasmuch as the burden of proof rests with a party, normally the plaintiff, which is not in position to determine facts that are solely within the control of the alleged infringer. The Commission's questionnaire solicited information concerning this specific occurrence independently from other instances of the absence to discovery.
5. Inadequate civil remedies, usually in monetary damages; limits on recoveries preclude deterrent effects.
6. Fines or other criminal penalties inadequate.
7. Unreasonably slow enforcement process during which illegal activity continues.
8. Enforcement officials systematically discriminate against foreigners.
9. Training and resources for enforcement inadequate.-- Enforcement officials are so poorly trained and government funding for enforcement operations is so insufficient that even minimum levels of enforcement are not met.
10. Court decisions biased or political.--Court decisions in the past have reached conclusions that are widely recognized as biased against foreign rights holders or there is wide recognition that the judiciary is not independent of local political influence.
11. Corruption.--In the respondents opinions, officials are or are widely suspected of being susceptible to bribery and other forms of corruption.

CHAPTER 2. AFFECTED INDUSTRY SECTORS

Certain industries and products are well known targets of counterfeiters, pirates, and other infringers of intellectual property. Although not limited to consumer goods, counterfeiting activity is most prevalent in industries producing goods wherein a significant percent of the retail price is supported by a well-known trademark, such as fashion and sporting wearing apparel and footwear, cosmetics, watches, jewelry, sporting goods, aftermarket automobile parts, liquors, tobacco products, and blank tapes. Close government scrutiny of some products, such as pharmaceuticals, over-the-counter preparations, packaged foods, and sporting arms and ammunition, appear to give them some measure of protection from counterfeiting.

Copyrights are most important in industries such as printing and publishing, broadcasting, computer software, entertainment, including motion pictures, music, and all audio and video recordings, as well as character licensing for fashion and faddish goods, including toys and games, wearing apparel, and miscellaneous consumer goods. Piracy, particularly of audio and video tapes and computer software, is probably the most easily accomplished large-scale violation of an intellectual property. This vulnerability, and its high profit potential, combine to make such piracy the most widespread violation in the world.

One would expect that patents are most important in technologically innovative industries, and this is true; in the aerospace, pharmaceuticals, agricultural chemicals, computers and electronics, industrial equipment, processing and control equipment, motor vehicles and parts, photographic equipment, scientific and medical equipment, and communications industries. However, in the most rapidly advancing technological areas, where the product lifecycles are shorter than the time necessary to obtain and enforce a patent, trade secrets are gaining increasing importance. Trade secrets are also important in areas such as chemicals, in which patent protection may not be reliable.

The semiconductor mask works category itself defines the industry benefitting from its protection. The industries most concerned with the protection of proprietary technical data required by governmental regulatory agencies are the chemical and pharmaceutical industries.

Intellectual property was reported to be of more than nominal importance to the operation of 269 questionnaire respondents. These firms were placed in 1 or more of 36 industry classifications as shown in table 2-1. About 20 percent of the these firms conducted a significant portion of their business in computers and electronics and computer software, industries that benefit substantially from trademarks, copyrights, patents, and trade secrets. About 12 percent of the respondents did business in printing and publishing and 10 percent in entertainment and broadcasting, fields heavily reliant on copyright protection.

The industry mix of the 162 firms that indicated that intellectual property was of only nominal importance to their business was substantially different. Two-thirds of these firms conducted business in primary commodity or basic services industries; 15 percent of the firms were classified in the transportation services industries, 13 percent in metal mining and basic metal products, 12 percent in petroleum refining and related industries, 11 percent

Table 2-1
 Number of firms operating in the United States and abroad, by sectors, 1986

Sector	Number of firms	Sector	Number of firms
Aerospace.....	40	Metal products, metals and alloys.....	51
Broadcasting, including cable and satellite.....	4	Miscellaneous building supplies.....	4
Chemicals and allied products: Agricultural chemicals.....	32	Miscellaneous plastics products.....	10
Cosmetics, fragrances, and toiletries.....	20	Ordnance.....	4
Pharmaceuticals and similar health care products.....	20	Motor vehicles/parts and transportation equipment..	37
Other chemicals	51	Photographic equipment and supplies.....	9
Computers and electronics, including office equipment...	47	Printing and publishing	29
Computer software.....	52	Rubber products.....	10
Disposable paper products.....	11	Scientific, medical, and dental equipment and health equipment and supplies.....	26
Electrical equipment.....	41	Seeds and plant varieties...	3
Entertainment, including motion pictures, music, and all audio and video recordings...	19	Services.....	31
Extractive and refining.....	24	Sporting goods.....	3
Foods and beverages.....	28	Textiles, wearing apparel, and footwear	24
Forest products and furniture..	16	Tobacco products.....	4
Industrial, construction and farm equipment.....	28	Toys and games.....	2
Jewelry.....	2	Other industries.....	4

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

in paper and lumber production, 10 percent in basic food production, 6 percent in stone, clay, glass, and cement products.

Of the 269 questionnaire respondents that relied more than a nominal degree on intellectual property protection, 245 reported worldwide sales totalling \$1.114 trillion in 1986. ^{1/} As a reference point, worldwide sales of U.S. industry (including services, but excluding wholesale trade and government) amounted to \$5.167 trillion in 1986 ^{2/}. The share of these sales representing businesses that relied on or were sensitive to intellectual property ranged from 5 percent to 100 percent of each firm's business and totaled \$887.1 billion, an average of 80 percent of total sales. Those firms that were not reliant on intellectual property protection to more than a nominal degree had an estimated \$235 billion in sales in 1986.

Of the 251 firms that rated the overall degree of importance of intellectual property for their business, 94 percent rated the importance moderate or greater; 40 percent said intellectual property was of very great importance, 34 percent rated it great in importance overall, and 20 percent rated it moderate. ^{3/} When the responses are weighted by the sales affected by intellectual property, 54 percent of these sales were rated as greatly affected and 34 percent as very greatly affected. ^{4/} This may suggest that smaller firms on average tend to occupy the extremes in reliance on intellectual property.

Table 2-2 shows the importance of each type of intellectual property as weighted by the affected sales in 1986. Trademarks, as expected, are of great or very great importance in 83 percent of the affected sales; most firms rely to some extent on a name or mark.

Trade secrets were reported as of great or very great importance for nearly 70 percent of the affected sales and of moderate importance to another 25 percent. This importance reflects perceived inadequacies in other forms of protection in two ways. First, many trade secrets may not be capable of protection under another form of right, such as a customer list. As discussed previously, the reliance on trade secrets instead of patents in rapidly evolving technologies reflects the perceived lack of expeditious and efficacious procedures for obtaining patent protection. Second, the patent process involves the publication of the invention in the issued patent, making it easier for a competitor to misappropriate or to invent around the protected work. For a firm not intending to license its technology or other trade secrets, the use of trade secrets instead of the more formal protection of other forms of intellectual property need not negatively impact the property holder.

^{1/} The remaining 24 firms did not supply total sales data.

^{2/} U.S. Bureau of the Census, Quarterly Financial Report, and the Trinet Data Base.

^{3/} Seven respondents, although indicating that their business was more than nominally involved with intellectual property, nonetheless indicated that the degree of overall importance was slight or none, perhaps indicating that they utilize intellectual property, but are not particularly sensitive to violations.

^{4/} The rating categories of "very great", "great", "moderate", "slight", and "none" were these provided in the Commission's questionnaire (see questionnaire sections A-4 and A-5, app. D).

Table 2-2

Weighted ranking ^{1/} of the degree of importance of intellectual property to business, by types of property, 1986

(In percent)

Degree of importance	Copy-right	Patent	Trade-mark	Trade secret	Mask work	Proprietary technical data
Very great.....	18	42	64	43	2	32
Great.....	2	2	19	26	5	19
Moderate.....	21	27	13	24	23	21
Slight.....	55	6	4	6	34	23
None.....	4	1	<u>2/</u>	1	36	5

^{1/} The percentages are calculated by allocating all of the intellectual property dependent sales to the scale reported for each type of property.

^{2/} Less than 0.5 percent.

Source: Responses to Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

In general, copyrights are either of great importance to a firm or of little or no importance. Only 20 percent of the affected sales were greatly or very greatly affected by copyrights and nearly 60 percent were reported to experience little or no effect from copyright protection. Mask works were of more than moderate importance to only 7 percent of the affected sales.

Patents are very important to a large number of firms (42 percent of affected sales) and of moderate importance to a significant percentage of the rest (27 percent). Perhaps this indicates that some firms in high-technology fields rely on continuous innovation, and a significant number of firms in other industries can expect a more moderate or scattered occurrence of invention.

The relative importance of proprietary technical data (51 percent of sales affected to a more than moderate degree) reflects the size of those firms involved with regulatory agencies. However, this percentage may be misleading in that it includes all the sales affected by intellectual property for these companies, not just those subject to regulatory data requirements.

CHAPTER 3. INADEQUACIES AND VIOLATIONS

Deficiencies in intellectual property protection may be divided into two types, regime inadequacies in the protection of an individual type of property right and the more general inadequate remedies and enforcement that are not necessarily specific to a type of property. Questionnaire respondents were asked to identify regime deficiencies by type of property right, and if remedial or enforcement deficiencies were identified, to separately detail them. 1/ This information was collected on a country basis. Certain countries are frequently mentioned in almost all reports concerning intellectual property, particularly Brazil, Mexico, 2/ the Republic of Korea (Korea), and Taiwan, despite recent or planned changes in the laws of certain of these countries. To some extent the results of the survey incorporate a lag time; even though laws protecting rights may have been enacted, the respondents are answering based on past troubles. Furthermore, often, even as the reports concerning regime deficiencies decline, reports concerning remedies and enforcement remain high or start to rise.

As an example, even though Korea had strengthened intellectual property protection, the display and sale of counterfeit and other infringing goods, such as sporting goods, sporting and fashion wearing apparel, footwear, watches, and toys, was common in Seoul as late as August 1987 3/; enforcement is considered minimal. A summary of the various statutes of Brazil, Mexico, Japan, Korea, Taiwan, and Thailand concerning various forms of intellectual property is shown in appendix E.

One of the study's tasks is to differentiate intellectual property protection inadequacies and violations as between "source countries" (i.e., countries that are the source of shipments or actions that infringe U.S. intellectual property rights in the United States or third markets), and "market countries" (i.e., countries in which inadequate protection or violations of these rights are occurring). In practice, it is not usually difficult to identify leading source countries because their deficiencies or violations are widely known. However, in countries in which U.S. firms sell, which are not widely known for violations or inadequate protection of intellectual property, it can be hard for firms to determine whether the source, for example, of counterfeit products is within the country or a supplying third country. Certain generalizations can reasonably be made.

1/ It should be noted that the questionnaire identified various deficiencies, but there was no general standard by which each country's laws were to be judged, the responses reflect each individual firm's interpretation of adequate protection, including adequate remedy and enforcement.

2/ In The Use and Economic Impact of TSUS Items 806.30 and 807.00 (USITC Publication 2053, January 1988), some U.S. firms using maquiladora operations reported that one of the advantages of such operations was that the threat of theft of intellectual property was low in Mexico. This perceived advantage is a relative one that applies to the use of maquiladoras compared to engaging in foreign production in other low-wage rate countries, and results because the U.S. firm retains greater control of the maquiladora operations and relies less heavily on local supply for components than it would for investments in other foreign production facilities. These statements were not offered as a general assessment of Mexican intellectual property protection.

3/ Observed by members of the Commission staff during foreign fieldwork.

First, most source countries are also market countries for counterfeits, pirates, and other infringing goods, both from domestic violations and imports. Second, the countries that are most often cited for intellectual property inadequacies are also major sources of infringing goods. Thirdly, with the possible exception of certain audio or video piracy, the production of most infringing goods is concentrated in those countries that can produce a wide variety of goods, particularly the newly industrialized countries. As a result, African, Middle Eastern, and Central American countries are more likely to be markets but not sources (particularly not for international trade). Also, again with the exception of certain kinds of software and video piracy, most developed countries are not major sources of infringing goods.

The countries most frequently cited by the questionnaire respondents by type of inadequacy for each type of intellectual property right are reported in the following pages. 1/ The number of firms citing each country for each inadequacy is also reported. In order to place these figures in some perspective, table 3-1 shows the number of companies that made one or more responses on each country in sections of the questionnaire concerned with foreign identification and enforcement costs, intellectual property inadequacies, or secondary barriers to trade. 2/

Copyrights

Regime Inadequacies

Major inadequacies in copyright protection were reported by 84 respondents for 52 countries in 1986 as follows:

1. U.S. works not protected.--Thirty-eight countries were reported as offenders. Korea was most often cited (by 21 firms), followed by Taiwan (19), Brazil (16), Indonesia and China (14 each), Thailand (8), and India (7).
2. Law does not protect all traditional and new works.--Forty countries were cited, led by Korea with 16 reports, Taiwan (15), Brazil (14), China and Japan (9 each), Indonesia (8), and Mexico (7).
3. Inadequate exclusive rights.--Thirty-two countries were reported as offenders, with 8 firms apiece reporting Brazil and Korea.
4. Overly broad exceptions to exclusive rights.--Twenty-eight countries were reported in this category, including Brazil (10 firms), Japan (7) and Indonesia (5).

1/ Detailed data showing responses for each type of property right and inadequacy by country are shown in app. G.

2/ Sections, F, H, I, and J of the questionnaire (see app. D).

Table 3-1

Number of questionnaire respondents reporting foreign intellectual property identification and enforcement expenses, intellectual property inadequacies, or secondary barriers to trade, by countries, 1986.

Country	Firms	Country	Firms
Afghanistan.....	1	Liberia.....	3
Argentina.....	41	Libya.....	3
Australia.....	23	Macau.....	3
Austria.....	3	Malaysia.....	21
Bahamas.....	1	Mexico.....	95
Belgium and Luxembourg.....	2	Morocco.....	1
Bolivia.....	2	Netherlands.....	4
Brazil.....	98	Netherlands Antilles...	1
Bulgaria.....	1	New Zealand.....	6
Canada.....	29	Nigeria.....	9
Chile.....	7	Norway.....	4
China.....	43	Pakistan.....	10
Colombia.....	26	Panama.....	6
Costa Rica.....	2	Paraguay.....	3
Cuba.....	1	Peru.....	13
Czechoslovakia.....	1	Philippines.....	29
Denmark.....	3	Poland.....	2
Dominican Republic.....	4	Portugal.....	5
Ecuador.....	10	Republic of Korea.....	84
East Germany.....	1	Romania.....	1
Egypt.....	6	Saudi Arabia.....	15
El Salvador.....	3	Singapore.....	16
Ethiopia.....	1	South Africa.....	9
Finland.....	4	Spain.....	18
France.....	28	Sri Lanka.....	1
Greece.....	8	Sudan.....	1
Guatemala.....	1	Sweden.....	7
Honduras.....	2	Switzerland.....	7
Hong Kong.....	17	Syria.....	3
Hungary.....	1	Taiwan.....	78
India.....	64	Thailand.....	23
Indonesia.....	41	Trinidad and Tobago....	5
Iran.....	3	Turkey.....	12
Iraq.....	2	United Arab Emirates...	5
Ireland.....	3	United Kingdom.....	47
Israel.....	8	Uruguay.....	2
Italy.....	18	USSR.....	12
Jamaica.....	1	Venezuela.....	39
Japan.....	55	Vietnam.....	1
Jordan.....	1	West Germany.....	23
Kenya.....	6	Yemen.....	2
Kuwait.....	4	Yugoslavia.....	4
Laos.....	1	Zaire.....	1
Lebanon.....	2		

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

5. Terms of protection are too short.--Thirty-five countries were cited in this category, led by Brazil and Taiwan (16 firms each), Korea (11), and Japan (8).
6. Burdensome substantive or procedural formalities.--Forty-four countries were reported under this category, including Taiwan (30 firms), Brazil (23), Korea (22), Indonesia (16), Japan (14), Hong Kong (10), Argentina, India, and Singapore (9 each), China and the Philippines (8 each).

Remedy/Enforcement Inadequacies

Forty-one countries were cited as having inadequate remedies or penalties and in 25 there were said to be enforcement failures. Of these the following were detailed:

1. No preliminary or final injunctive relief.--Thirty-two countries were cited for this deficiency, including Taiwan (by 10 firms), Korea and Indonesia (7 each), Argentina and Brazil (6 each), India and Malaysia (5 each).
2. Lack of seizure and impoundment remedies.--Twenty-six countries were reported for this inadequacy, led by Korea and Taiwan (8 each), Brazil and Indonesia (7 each), and Argentina (6).
3. Lack of exclusion of infringing imports.--Thirteen countries were cited, including Brazil, Kenya, Korea, and Liberia (3 firms each).
4. Lack of compulsory process and/or discovery.--This inadequacy was reported for twenty-one countries, including Taiwan (8 firms), Korea (6), and Brazil (4).
5. Inadequate civil remedies.--Thirty-seven countries were reported in this category, led by Taiwan (19 firms), Korea (18), Brazil (14), Indonesia (13), Argentina (11), India (8), Mexico and the Philippines (7 each), and Japan, Malaysia, and Singapore (6 each).
6. Inadequate criminal penalties.--Forty countries were cited, led by Taiwan (16 firms), Korea (14), Brazil and Indonesia (10 each), Argentina and the Philippines (9 each), and Malaysia, Thailand, and Venezuela (7 each).
7. Unreasonably slow enforcement process.--Thirty-one countries, were reported for this category, including Korea (12 firms), Taiwan (11), India (7), and Argentina, Brazil, Indonesia, Japan, and the Philippines (6 each).

8. Enforcement officials discriminate against foreigners.--Twenty-four countries were identified, led by Korea (9 firms), Taiwan (7), Mexico (6), and Argentina, Brazil, and Indonesia (5 each).
9. Training and resources for enforcement inadequate.--Thirty-one countries were cited, including Taiwan (12 firms), Argentina (9), Brazil and Korea (8 each), the Philippines (7), and Indonesia and Thailand (6 each).
10. Court decisions biased or political.--Alleged for 22 countries, including Korea (9 firms), Taiwan (7), and Brazil, India, and Indonesia (5 each).
11. Corruption.--Alleged in 28 countries including Indonesia (8 firms), Korea and Taiwan (6 each), and Argentina, Brazil, and the Philippines (5 each).

Patents

Regime Inadequacies

Inadequacies in patent protection were reported by 122 companies for 54 countries in 1986 as follows:

1. No patent protection.--This deficiency was reported for 32 countries and includes primarily cases in which some products or processes are not patentable, since few countries have no patent law at all. The most reported countries include Mexico (27 firms), Brazil (22), India (17), Taiwan (12), and Korea (10).
2. Patentability precluded by statute.--Twenty-nine countries were cited, led by Mexico (39 firms), Brazil (20), India (16), and Venezuela (9).
3. Term too short.--Sixteen countries were reported, led by Mexico (which even with strengthened laws was cited by 22 firms) and Brazil (12 firms).
4. Early lapse.--Thirty-two countries were cited, including Mexico (37 firms), Brazil (29), Canada (16), India (13), and Korea (10).
5. Compulsory licensing.--Eighteen countries were reported, including Taiwan (19 firms), India (10), and Mexico (9).
6. Paris Convention nonadherence.--Twenty-four countries were cited, including Japan (28 firms), Taiwan (18), Korea (11), and the USSR (10).

7. Patent claims are narrowed too much.--Twenty-eight countries were cited, including Mexico (53 firms), Brazil (41), and Argentina (19).
8. Unrealistic working requirements.--Thirty-one countries were cited for this deficiency, including Mexico (29 firms), Brazil and Taiwan (25 firms each), Korea (22), Japan (21), and Argentina, India, and China (10 each).

Remedy/Enforcement Inadequacies

Thirty-one countries were cited as having inadequate remedies or penalties, and 27 were said to experience enforcement failures. Of these the following were detailed:

1. No preliminary or final injunctive relief.--Twenty-five countries were cited, including Brazil (11 firms), Taiwan (8), Korea and Mexico (7 each), and India and Japan (6 each).
2. Lack of seizure and impoundment remedies.--Nineteen countries were cited, led by Brazil (10 firms) and Korea, Mexico, and Taiwan (7 firms each).
3. Lack of exclusion of imports.--Twenty-one countries were reported, led by Mexico (6 firms) and India, Korea, and Taiwan (4 firms each).
4. Adverse burden of proof for process patents.--Twenty-two countries were cited, including Brazil and Mexico (6 firms each), Argentina (5 firms), and India, Japan, and Taiwan (4 each).
5. Lack of compulsory process and/or discovery.--Twenty-five countries were cited, including Brazil (14 firms), Korea (11), and Japan, Mexico, and Taiwan (10 each).
6. Inadequate civil remedies.--Twenty-six countries were cited, including Mexico (21 firms), Brazil and Taiwan (19 each), and Korea (17).
7. Inadequate criminal penalties.--Twenty-three countries were cited, including Brazil (7 firms), Mexico (6), and Korea and Taiwan (5).
8. Unreasonably slow enforcement process.--Thirty-one countries were cited, led by Japan and Mexico (19 firms each), Brazil (18), Korea (14), Taiwan (13), and India (12).

9. Enforcement officials discriminate against foreigners.--Twenty-seven countries were cited, including Mexico (17 firms), Korea (16), Japan (15), and Brazil and Taiwan (14 each).
10. Training and resources for enforcement inadequate.--Twenty-three countries were cited, including Brazil, Mexico, and Taiwan (10 firms each), and Korea (8 firms).
11. Court decisions biased or political.--Alleged for 30 countries, including Mexico (19 firms), Taiwan (13), Japan (11), Brazil (10), and Korea (8).
12. Corruption.--Alleged in 11 countries, including Mexico (9 firms), Brazil (6), and Argentina, Korea, and Taiwan (3 each).

Trademarks

Regime Inadequacies

Inadequacies in trademark protection were reported by 133 companies in 66 countries as follows:

1. Scope of what constitutes infringement is too narrow.--Cited for 29 countries, including Mexico (41 firms), Taiwan (21), Brazil (16), Venezuela (14), and Japan (13).
2. Renewal proof of use difficult.--Cited for 39 countries, including Brazil (23 firms), Mexico (18), Korea and Venezuela (16), Taiwan (15), Japan (14), and Indonesia (10).
3. No protection of "well-known" marks.--Twenty-eight countries cited, including Brazil (23 firms), Korea (22), Taiwan (17), and Japan and Mexico (15 each).
4. Narrow spectrum of class protection.--Twenty countries were cited, including Mexico (24 firms), Brazil (10), India (6), and Korea (5).
5. Circumscribed usage or "linking".--Reported for 28 countries, led by Mexico (33 firms), Brazil (32), Korea (22), India (18), Venezuela (16), and Taiwan (15).
6. Unreasonable licensing requirements.--Reported for 45 countries, including Brazil (28 firms), Taiwan (26), Mexico (25), Korea (22), Venezuela (13), Indonesia (12), China and India (11), and Japan (10).

Remedy/Enforcement Inadequacies

Forty-seven countries were cited as having inadequate remedies or penalties and 34 were said to experience enforcement failures. Of these the following were detailed:

1. No preliminary or final injunctive relief.--Thirty-one countries were cited, including Mexico (10 firms), Brazil (9), and Korea (7).
2. Lack of seizure and impoundment remedies.--Twenty countries were cited, including Mexico (7 firms) and Brazil and Taiwan (6 each).
3. Lack of exclusion of imports.--Twenty countries were cited, with none named by more than two firms except Taiwan, which was reported by four respondents.
4. Lack of compulsory process and/or discovery.--Twenty-four countries were cited, including Brazil (11 firms), Mexico (10), and Korea (9).
5. Inadequate civil remedies.--Thirty-eight countries, were cited, led by Taiwan (22 firms), Mexico (20), Brazil and Korea (14 each), and Venezuela (11).
6. Inadequate criminal penalties.--Thirty-two countries were cited, led by Mexico (11 firms), Taiwan (10), Korea (8), and Brazil (7).
7. Unreasonably slow enforcement process.--Thirty-seven countries were cited, including Mexico (21 firms), Brazil and Korea (10 each), and Taiwan (8).
8. Enforcement officials discriminate against foreigners.--Twenty-seven countries were cited, including Mexico (15 firms), Korea (11), Taiwan (8), and Brazil and the Philippines (7 each).
9. Training and resources for enforcement inadequate.--Thirty-one countries were cited, including Argentina, Mexico, and Taiwan (9 firms each), Brazil (8), and Korea (7).
10. Court decisions biased or political.--Alleged for 27 countries, including Mexico (17 firms), Taiwan (9), and Brazil, India, and Indonesia (6 each).
11. Corruption.--Alleged in 19 countries, including Indonesia and Mexico (7 firms).

Trade Secrets

Regime Inadequacies

Inadequacies in trade secret protection were reported by 94 companies in 47 countries as follows:

1. No trade secret protection.--Twenty-six countries were cited, including Brazil (28 firms), Mexico (21), and India (12).
2. Short time limits on confidentiality.--Twenty-nine countries were cited, including 11 firms that cited Brazil and 10 reporting Mexico.
3. No protection against third parties.--Thirty-one countries were cited, including Brazil (24 firms), Mexico (21), Korea (20), Taiwan (15), and China (14).

Remedy/Enforcement Inadequacies

Thirty-one countries were cited as having inadequate remedies or penalties, and 20 were said to experience enforcement failures. Of these the following were detailed:

1. No preliminary or final injunctive relief.--Reported for 20 countries, including Korea and Taiwan (8 firms each), Brazil (6), Japan and Mexico (5), and China and the USSR (4).
2. Lack of seizure and impoundment remedies.--Fifteen countries were cited, led by Taiwan (6 firms), Korea (5), and Brazil, China, Mexico, Venezuela, and the USSR (3 each).
3. Lack of exclusion of imports.--No more than two firms cited any of the eight countries listed (China, Hong Kong, Korea, Japan, Singapore, Taiwan, the USSR, and Venezuela).
4. Lack of compulsory process and/or discovery.--Twenty-one countries were cited, including Brazil and Mexico (7 firms each), Korea (6), Argentina, Japan, Taiwan, and West Germany (4 each), and China, India, the USSR, and Venezuela (3 each).
5. Inadequate civil remedies.--Twenty-four countries were cited, including Brazil (16 firms), Mexico and Taiwan (14), Korea (13), and China (9).
6. Inadequate criminal penalties.--Twenty-three countries were cited, led by Brazil, Korea, and Taiwan (5 firms

each), China and Mexico (4 each), and Japan and the USSR (3 each).

7. Unreasonably slow enforcement process.--Reported for 28 countries, including Mexico (8 firms), Brazil (7), China, India, and Korea (6 each), Japan and Taiwan (4 each).
8. Enforcement officials discriminate against foreigners.--Reported for 17 countries, led by Korea (11 firms), Mexico (9), Brazil (8), and Japan (7).
9. Training and resources for enforcement are inadequate.--Twenty-two countries were cited, including Argentina, Brazil, Mexico, and Taiwan (5 firms each), China (4), and Hong Kong, Korea, Venezuela, and Singapore (3 each).
10. Court decisions biased or political.--Alleged for 21 countries, including Mexico (9 firms), Brazil and Taiwan (6 each), Korea (5), and Japan and the USSR (4 each).
11. Corruption.--Alleged in 10 countries, including Mexico (7 firms) and Korea (3).

Mask Works

Regime Inadequacies

Inadequacies in mask work protection were reported by 14 companies in 26 countries as follows:

1. No legal protection.--Eighteen countries were cited; no country other than Korea and West Germany (3 firms each) was reported by more than 2 firms.
2. Inadequate sui generis coverage.--Eighteen countries were cited, with Japan, Korea, and West Germany each reported by 3 firms.

Remedy/Enforcement Inadequacies

Seven countries, Mexico, Colombia, Venezuela, Brazil, the USSR, China, and Korea, were cited as having inadequate remedies or penalties and one, Japan, was said to experience enforcement failures. In a separate response, the following inadequacies were detailed:

1. No preliminary or final injunctive relief.--Brazil, Korea, Mexico, and Taiwan were cited.

2. Lack of seizure and impoundment remedies.--Mexico was cited.
3. Lack of exclusion of imports.--Taiwan was cited.
4. Inadequate civil remedies.--Korea, Mexico, and Taiwan were cited.
5. Inadequate criminal penalties.--Korea, Mexico, and Taiwan were cited.

Proprietary Technical Data

Regime Inadequacies

Inadequacies in the protection of proprietary technical data were reported by 57 companies in 40 countries as follows:

1. No legal protection.--Sixteen countries were cited, including Brazil (14 firms), Mexico (6), and India (5).
2. Short time limits on confidentiality.--Thirty countries were cited, including Brazil (14 firms), Korea (11), China (10), India and Taiwan (9 each).

Remedy/Enforcement Inadequacies

Twenty-four countries were cited as having inadequate remedies or penalties and 12 were said to experience enforcement failures. Of these the following were detailed:

1. No preliminary or final injunctive relief.--Eighteen countries were cited, including Korea by six firms and China and Taiwan by four firms apiece.
2. Lack of seizure and impoundment remedies.--Fifteen countries were cited, including Korea and Taiwan by five firms apiece and China by three firms.
3. Lack of exclusion of imports.--Brazil, China, Hong Kong, Korea, Singapore, Taiwan, and the USSR were each cited by one firm.
4. Lack of compulsory process and/or discovery.--Nineteen countries were cited including Korea by six firms, Taiwan by four, and Argentina by three.
5. Inadequate civil remedies.--Reported for 20 countries, including Korea (10 firms), Taiwan (9), and Brazil (7).

6. Inadequate criminal penalties.--Reported for 15 countries, including Korea, which was cited by six firms.
7. Unreasonably slow enforcement process.--Twenty-one countries were cited, including Korea (8 firms), Taiwan (6), and China and India (4).
8. Enforcement officials discriminate against foreigners.--Reported for 11 countries, including Korea (7 firms) and Brazil (3 firms).
9. Training and resources for enforcement inadequate.--Reported for 11 countries, led by Taiwan with four firms and Brazil and Korea for three.
10. Court decisions biased or political.--Alleged for 13 countries, including Korea (4 firms) and Brazil, Mexico, and the USSR (3 each).
11. Corruption.--Alleged in five countries, Brazil, China, India, Korea, and the USSR, each by one firm.

Secondary Barriers

Other barriers to investment and trade can diminish the value of intellectual property protection either by curtailing potential sale, revenues, or profits, or by preventing or discouraging an outside intellectual property owner from establishing the right in the country in the first place. Furthermore, inadequate intellectual property protection can spawn or otherwise lead to secondary barriers. For example, a lack of patent protection in a country could allow local companies to copy a foreign patented product to obtain standing as a local industry and then petition the local government to close the border to imported products of the original rights holder. Pharmaceutical firms indicate that this is a common practice in Korea. Barriers arising from or contributing to inadequacies in intellectual property protection were reported by 118 companies in 68 countries as detailed below.

1. Import quotas.--Thirty-seven countries were cited, including Brazil (29 firm), India, Mexico, and Korea (15 firms each), Colombia (9), Argentina, China, and Venezuela (7 each), and Japan (6).
2. Discriminatory taxes.--Twenty-six countries were cited, including Brazil (20 firms), Mexico (10), India (9), Japan (7), China and Venezuela (6 each), and Argentina and Korea (4).
3. Inability to maintain a local office.--Twenty countries were cited, including Korea (7 firms), China (6), India (5), and Brazil (4).

4. Investment restrictions and local ownership requirements.--Reported in 25 countries, led by Mexico (43 firms), Brazil (31), India (Twenty-seven), Korea (24), China (13), Japan (10), and Indonesia, Malaysia, and Venezuela (7 each).
5. Embargoes.--Reported for 24 countries, including Brazil (6 firms), Korea (5), Argentina (4), and Mexico (3).
6. "Similar" prohibitions on imports, including all schemes whereby imports of types of goods that are locally-produced are restricted.--Twenty-one countries were cited, including Brazil (32 firms), Mexico (17), India (11), Argentina and Korea (8 each), and Venezuela (7).
7. Price controls.--Twenty-seven countries were cited, led by Brazil (24 firms), Mexico (14), Venezuela (9), and China, Colombia, India, and Italy (5 each).

CHAPTER 4. ECONOMIC EFFECTS OF INTELLECTUAL PROPERTY RIGHT INFRINGEMENT

The failure of foreign countries to protect the intellectual property rights of U.S. companies may lead to several types of losses; some of these represent transfers from the legitimate producers to counterfeiters, pirates, other infringers, and consumers; some represent losses to the world economy in total. To the extent that counterfeit products are viewed as good substitutes for legitimate products by consumers, counterfeit sales imply some loss of revenues. More importantly, it implies a loss of profits to legitimate owners of intellectual property rights. In addition, these diminished returns to legitimate producers are likely to reduce the incentives for, and extent of, investment in new products or processes that could be patented, trademarked, copyrighted, or otherwise viewed as intellectual property. This discouragement of investment represents a social loss in that fewer new or improved products will be available in the future. Similarly, if a legitimate producer's goodwill is harmed by an inferior infringing product, this will diminish investment and future innovative activity as well as cause current losses to the legitimate producer and to consumers.

The Commission could identify no better means of developing estimates than asking a broad range of firms in the industries most probably affected for the core evidence on U.S. losses from inadequate intellectual property protection -- estimates that could admittedly be biased and self-serving. The study, however, also built in some cross-checks: data, while estimates, are submitted under oath; data requested on costs of identification and enforcement provided an opportunity for followup inquiries on any discrepancies between losses and enforcement efforts; and estimates were obtained by industry and by country from trade associations and American Chambers of Commerce abroad as a cross-check of the cumulative results of responses by firms. The study used empirically derived economic analysis of questionnaire data on infringing sales for estimating lost profits. Whereas none of these cross-checks assures high definition or conclusiveness of results, the study found the results of the submissions of firms to be logically consistent internally. An example is that intellectual property losses reported by industries were very much in line with information reported on the differences in the relative importance of intellectual property from industry to industry.

Aggregate Worldwide Losses

Recipients of the Commission's questionnaire were asked to estimate losses in 1986 arising from all factors relating to intellectual property failures. Among the factors considered were export losses, including sales never made, sales lost relative to previous sales, export sales at risk, domestic sales displaced by imports of infringing goods, revenue losses from fees or royalties not paid, reduced profit margins, damage to reputation or tradename, research costs not recovered, research or business forgone, increased product liability costs, weakening of sales with concurrent damage to other product lines, enforced reductions in plant efficiency (e.g., those resulting from decreased sales), intentional reductions in efficiency (e.g., use of older technology in overseas plants to safeguard protected technology).

Of the 245 firms responding affirmatively to the questionnaire that also supplied overall sales data, 52 indicated losses but were unable to estimate their magnitude, and 193 provided estimates of aggregate losses resulting from inadequate intellectual property protection. Of the latter, zero to minimal losses were reported by 26 firms; the remaining 167 firms estimated aggregate losses of \$23.8 billion, with individual company losses ranging from \$10,000 to \$5 billion. The larger firms, which are more likely to be exposed in foreign markets and, therefore, could be expected to have greater losses, did in fact show greater than average absolute losses. Of the 25 largest firms responding to this question, four reported no losses and the remaining 21 reported losses of \$12.7 billion, or 54 percent of the total. The overall annual loss accounted for 2.2 percent of total company sales and 2.7 percent of their sales affected by intellectual property rights. Although we have no statistically valid basis for expanding this loss estimate to account for all U.S. industry, it is higher than the loss range of \$16-\$20 billion for all firms worldwide that is commonly quoted in the press. ^{1/}

Table 4-1 shows the estimated aggregate losses by industry groups. The largest losses were reported for the scientific and photographic industry (\$5.0 billion), computers and computer software (\$4.1 billion), electronics (\$2.3 billion), motor vehicles and parts (\$2.2 billion), entertainment (\$2.1 billion) pharmaceuticals (\$1.9 billion), chemicals (\$1.3 billion), and petroleum refining and related products (including plastics) (\$1.3 billion).

Table 4-2 shows the factors that contributed to these losses as reported by 170 respondents ^{2/}, including the percentage of respondents indicating each factor and a percentage weighted by the value of the loss reported.

In the column for percent of firms responding, results reported by small firms dominate. When figures in the column reporting weighted percentage is even smaller, it indicates that the particular factor is especially important for smaller firms. Thus, when the weighted percentage is much higher than the percentage of firms, as in "sales other than U.S. exports, lost abroad relative to sales once made" (62 percent vs. 31 percent), it indicates that the experience is dominantly that of larger firms. This is similar to the case which U.S. domestic sales are displaced by counterfeit or infringing imports, involving 87 percent of sales, and to a lesser extent that in which revenue is lost from fees and royalties not paid and profit margins reduced by infringing goods in the United States or abroad.

Based on the weighted percentage shown in table 4-2, it appears that larger firms show more export sales potentially at risk and a greater willingness to eschew risky sales, whereas export losses compared to historical exports is a relatively greater problem to smaller firms, perhaps because their overseas business is more likely to involve exporting instead of investment. Domestic sales displaced by infringing imports, reported by 49 percent of the respondents, represented a weighted percentage of 72 percent.

^{1/} An illustrative example of losses for the U.S. industry as a whole is presented in app. H.

^{2/} Three firms that could not provide an estimate of their aggregate losses did indicate the leading factors in their losses.

Table 4-1
Worldwide losses of revenue resulting from intellectual property inadequacies,
by industries and by degrees of loss, 1986

Industry	Loss 1,000 dollars	Number of firms reporting--		
		No loss ^{1/}	Some loss	Total
Aerospace.....	\$119,800	2	5	7
Building materials.....	738,550	0	6	6
Chemicals.....	1,334,250	3	18	21
Computers and software.....	4,130,164	6	25	31
Electronics.....	2,287,805	6	11	17
Entertainment.....	2,060,450	0	12	12
Food and beverages.....	86,300	2	8	10
Forest products.....	664,755	0	7	7
Industrial & farm equipment..	621,700	1	9	10
Metals and metal products....	291,500	1	6	7
Motor vehicles and parts.....	2,194,490	0	4	4
Petroleum refining and related products.....	1,295,000	3	6	9
Pharmaceuticals.....	1,908,660	0	10	10
Publishing and printing.....	127,790	0	11	11
Rubber products.....	511,200	1	4	5
Scientific and photographic..	5,090,100	1	6	7
Textiles and apparel.....	251,489	0	11	11
All other.....	151,200	0	8	8
Total.....	\$23,845,223	26	167	193

^{1/} Includes firms reporting negligible losses.

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Table 4-2
Factors involved in worldwide losses of revenues resulting from intellectual property inadequacies, by factors and number of firms responding, 1986

Loss factor	Firms responding		Weighted response 1/ Percent
	Number	Percent	
U.S. export sales lost relative to sales once made.....	73	44	35
U.S. export sales never made because too risky in the first place.....	45	27	38
U.S. export sales at risk that could be lost...	53	32	35
U.S. domestic sales displaced by imports by counterfeiters, infringers, etc.....	81	49	72
Revenue losses from fees or royalties not paid in United States or abroad.....	122	73	87
Reduced profit margins caused by infringing goods in United States or abroad.....	103	62	76
Sales, other than U.S. export sales, lost abroad relative to sales once made.....	51	31	62
Business never attempted abroad.....	71	43	45
Research costs not recovered.....	38	23	33
Foregone research opportunities.....	13	8	12
Reduction in research expenditures.....	11	7	12
Reputation damaged by counterfeit or pirate goods.....	74	44	39
Product liability costs increased.....	18	11	9
Sales force abroad reduced, weakening other product lines.....	20	12	14
Plant efficiency reduced through sales lost to infringers, etc.....	31	19	28
Destruction of new franchise/product introduction.....	24	14	11
Losses from secondary barriers arising as a result of inadequate protection.....	35	21	30
All other.....	19	11	27

4-4

1/ Weighted by allocating the entire loss reported to each factor.

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Perhaps this indicates that less well-known products were less likely to be infringed abroad and consequently less likely to be imported as infringing goods than more well-known products. Conversely, larger, more established firms may be better able to withstand potential damage to their reputations, and the weighted response percentage is lower than that of the numerical response for that factor. For each factor covering research costs or efforts, the weighted response percentage was greater than that for the unweighted response, consistent with respondents that were both larger than average and more dependent on technological innovation.

Lost Sales of U.S.-Made Products

Sales Lost Because of Displacement by Infringing U.S. Imports

Questionnaire respondents were asked to estimate lost sales resulting from pirate, counterfeit, and other infringing goods (except gray market goods) entering the United States in violation of their intellectual property rights during 1986. Total losses of \$1.795 billion were estimated by 64 respondents; 69 respondents indicated that they had suffered negligible losses because of infringing imports, and the remaining 112 did not or could not provide an estimate. This loss amounted to 0.4 percent of sales affected by intellectual property rights.

Table 4-3 shows the estimated losses from infringing imports by major industry group. Several major industries are combined into the "all other" category to avoid disclosing confidential business information; this category includes respondents in the aerospace, building materials, computers and software, entertainment, food and beverages, plastics, soaps and cosmetics, and toys and sporting goods industries. Those industries reporting the greatest losses were industrial and farm equipment, electronics, motor vehicles and parts, textiles and apparel, and chemicals.

U.S. Export Losses

U.S. exports valued at an estimated \$6.161 billion were lost by 101 respondent firms in 1986 as a result of inadequate intellectual property protection; 45 firms indicated negligible export losses, and another 99 were unable to provide an estimate. The overall loss of U.S. exports resulting from inadequate intellectual property protection amounted to 1.4 percent of sales affected by intellectual property rights.

Table 4-4 shows the breakdown of export losses by major industry group. The "all other" category includes rubber products and soaps and cosmetics.

Other U.S. Revenue Losses

Respondents were asked, to the extent that they derived revenue from licensing intellectual property rights abroad, to estimate the amount of any royalties and fees that were not paid or were never generated during 1986 as the result of inadequate intellectual property protection. Two hundred twenty-five respondents reported that they licensed intellectual property

Table 4-3

Sales lost in the United States because of U.S. imports of infringing goods, by industries and degree of loss 1986

Industry	Sales lost in the United States 1,000 dollars	Number of firms reporting--		
		No loss	Some loss	Total
Chemicals.....	\$123,200	7	10	17
Electronics.....	292,780	7	7	14
Forest products.....	51,300	3	3	6
Industrial & farm equipment...	323,500	2	5	7
Motor vehicles and parts.....	157,500	0	4	4
Pharmaceuticals.....	16,200	1	4	5
Rubber products.....	35,150	2	3	5
Scientific and photographic...	1,300	2	3	5
Textiles and apparel.....	178,504	1	10	11
All other.....	615,784	44	15	59
Total.....	1,795,218	69	64	133

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

rights either to affiliates or third parties as a normal part of their business. Fifty respondents reported no additional revenue losses in 1986; 104 respondents reported total revenue losses of \$3.115 billion, and the remaining 91 firms could not estimate their losses. The overall revenue loss accounted for 0.6 percent of sales subject to intellectual property rights.

Table 4-5 shows the breakdown by major industry groups of the additional revenue losses stemming from inadequate intellectual property protection in 1986. The entertainment industry, including motion pictures and all audio and video recordings accounted for two-thirds of the reported loss. This is not surprising considering the nature of this industry; for example, the actual production of a motion picture is generally a minor portion of the products; ultimately revenues are based on distribution. In the case of video and even more particularly audio recordings, usually only the master recording is actually shipped, production for distribution takes place in the market area. These goods are also relatively easily pirated for potentially high profits, also increasing the likelihood of losses from infringements.

Economic Effects of Certain Infringement

Determinants of the Degree of Counterfeits and Infringing Sales

Economic theory suggests that any activity, including infringement of intellectual property rights, will be carried out as long as the marginal benefits exceed the marginal costs of the activity. Costs in this context would include production costs (which will depend on labor and material costs in the country in which the infringement originates, in addition to costs of acquiring the technology and equipment required) and the costs of avoiding detection and penalties associated with enforcement of intellectual property rights. The benefits will depend on the size of the market for the legitimate product and its price elasticity of demand, and on the ability of consumers to distinguish between legitimate and infringing products. Professors Grossman and Shapiro ^{1/} suggest that an industry would face a larger share of counterfeit products as production costs abroad are relatively lower than in the U.S. (or wherever the legitimate products are manufactured), as consumers are slower to find out about the quality of goods they purchase, and as it becomes more costly to produce higher quality noninfringing goods.

This suggests that where the technology required to produce infringing versions of legitimate products is readily available and relatively inexpensive (as is the case with videocassettes, audio tapes, books, and computer software), where sales are made directly to consumers who either are indifferent to or unable to identify differences between legitimate products and infringing goods (as with personal computers, and consumer nondurables, as well as with home entertainment and computer disks and tapes), and where the cost of genuine innovation is so much higher than that of imitation (as with computers, in addition to other industries already mentioned), one should expect to see the largest damage from intellectual property infringements. On the other hand, industries selling primarily to other industries and those producing goods difficult to imitate, because of supply constraints or the high capital costs (or high costs of skilled labor) required, should face less of a problem from infringement of intellectual property rights. The next section describes the extent to which infringement and enforcement of intellectual property rights varies by industry.

Patterns of Infringement and Enforcement Activity Across Industries

For the purposes of this section of the report, companies have been classified into five broad industry sectors: (1) entertainment and publishing (entertainment); (2) other consumer products (consumer); (3) computer-related (computer); (4) industrial and transportation equipment (industrial); and (5)

^{1/} Gene M. Grossman and Carl Shapiro, "Counterfeit-Product Trade," unpublished paper, Economics Department, Princeton University, August 1986.

^{2/} This can be compared with 1986 sales by the Fortune 500 companies of \$1,723.6 billion. In several cases, companies reporting other information (e.g., infringing sales, or identification and enforcement costs) relevant to this section did not provide a figure for worldwide sales; in these cases, the Standard and Poors Corporate Register was consulted to obtain an estimate of sales, which was used for the purposes of this section. For this reason the sales figure does not correspond to that given elsewhere in the report.

Table 4-4

U.S. exports lost because of inadequate intellectual property protection, by industries and degree of loss, 1986

Industry	U.S. exports lost 1,000 dollars	Number of firms reporting--		
		No loss	Some loss	Total
Aerospace.....	\$15,200	4	3	7
Building materials.....	153,400	2	4	6
Chemicals.....	507,300	3	14	17
Computers and software.....	704,849	11	16	27
Electronics.....	1,571,175	5	9	14
Entertainment.....	24,250	1	5	6
Food and beverages.....	13,702	0	6	6
Forest products.....	305,625	1	5	6
Industrial & farm equipment....	126,000	2	3	5
Metals and metal products.....	265,500	1	4	5
Motor vehicles and parts.....	2,036,990	0	4	4
Petroleum refining and related products.....	52,000	2	5	7
Pharmaceuticals.....	270,000	2	3	5
Publishing and printing.....	18,784	1	10	11
Scientific and photographic....	3,100	3	3	6
Textiles and apparel.....	26,500	3	2	5
All other.....	66,900	4	5	9
Total.....	6,161,275	45	101	146

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Table 4-5
Royalty and other revenue losses because of intellectual property
inadequacies, by industries and degree of loss, 1986

Industry	Revenue loss \$1,000	Number of firms reporting--		
		No loss	Some loss	Total
Aerospace.....	4,500	4	4	8
Building materials.....	10,500	2	4	6
Chemicals.....	103,940	4	14	18
Computers and software.....	235,182	12	15	27
Electronics.....	15,900	7	7	14
Entertainment.....	2,034,200	0	10	10
Food and beverages.....	11,600	0	3	3
Forest products.....	307,850	2	6	8
Industrial & farm equipment....	13,000	2	3	5
Metals and metal products.....	4,000	2	3	5
Petroleum refining and related products.....	38,500	3	5	8
Pharmaceuticals.....	231,900	1	4	5
Publishing and printing.....	7,165	1	9	10
Rubber products.....	16,000	1	3	4
Scientific and photographic....	33,000	4	3	7
Textiles and apparel.....	46,485	1	8	9
All other.....	2,000	4	3	7
Total.....	3,115,722	50	104	154

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

extractive, natural resources and chemical products (extractive). Usable data were received from 244 companies with reported worldwide sales in 1986 of \$1,130 billion. 2/ Table 4-6 presents the breakdown of reporting companies by industry sector.

Ninety-three companies, with 1986 sales of \$351.3 billion, provided information on their estimate of "worldwide sales of counterfeit, pirated, or otherwise infringing versions" of their products in 1986. 1/ One hundred and ninety-nine companies, with 1986 sales of \$1,051.2 billion, reported on their expenditures to identify violations of their intellectual property rights and to enforce these rights in the United States and foreign markets. Eighty companies, with 1986 sales of \$342.1 billion, reported both on identification and enforcement costs and on their estimate of infringing sales. The responses of these companies are summarized in Table 4-7.

In total, 93 reporting companies estimated that infringing sales were \$9.5 billion, 2.7 percent of their own legitimate sales worldwide. This average, however, hides considerable variation across the five industry sectors as expected and as suggested above. The entertainment industry reported that infringement amounted to 14.3 percent of their worldwide sales, whereas the computer sector reported infringement to be almost 7.4 percent of legitimate sales. Consumer products infringement, at 2.8 percent, were near the sample average, but infringement in industrial and extractive products was quite small as a percentage of legitimate sales, at 0.8 and 0.4 percent, respectively.

Considering the magnitude of and wide variance in the percentage of infringing sales across industries it is surprising to note the relatively small and uniform magnitude of identification and enforcement costs as a percentage of sales. In total, these costs represent only 0.03 percent of worldwide sales (about 40 percent of these costs were associated with foreign markets) and only 1.1 percent of the estimated infringing sales. In addition, there seems to be no relationship across industries between the extent of infringement and the expenditures aimed at protecting intellectual property rights. While this seems a strange result at first glance, two points must be noted: (1) a more appropriate comparison than that between lost sales and identification and enforcement costs would be that between lost profits and identification and enforcement costs; and (2) one would expect some balance not between total lost profits from infringements and total enforcement expenditures, but between marginal lost profits and marginal enforcement expenditures. It is likely that U.S. companies have taken the relatively easy enforcement actions, the ones with the largest payoffs and minimal costs required, and have viewed further enforcement activities as too expensive, as having less payoff impact on infringers for the cost, or both. One final

1/ In several cases, companies provided the value of infringing sales for their most seriously affected product, without giving an estimate of total infringing sales. In other cases, companies reported total infringing sales less than infringing sales for their most seriously affected product. In both situations, for the purposes of this section, the latter value was also used to an estimate (certainly a lower bound) for total infringing sales.

Table 4-6
Reporting companies and sales by broad industry sectors, 1986

	Entertainment	Computer	Consumer	Industrial	Extractive	Total
Companies.....	29	60	61	55	39	244
Sales (\$B).....	12.0	218.9	151.6	284.6	423.8	1,130.9
Sales per company (\$B)..	0.4	4.3	2.5	5.2	10.9	4.6

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection, and Standard and Poors Corporate Register.

point: whereas identification and enforcement costs do seem to be very small as a percentage of sales, in absolute terms these expenditures, more than one-quarter of a billion dollars, are not trivial, especially considered in relation to current U.S. balance of payments deficits of roughly \$40 billion.

Infringement, Lost Sales, and Lost Profits

The reporting companies are in the best position to judge the extent of infringing versions of their products (although, of course, any figure given must be viewed as a very rough estimate). However, a given dollar value of infringing sales does not necessarily imply an equivalent dollar amount of sales lost to the legitimate producer. And, in turn, what is of most consequence to companies is not the amount of sales lost, but the amount of lost profits. Estimates of lost sales and lost profits, only from counterfeit or otherwise infringing products that are viewed by consumers as comparable in quality to the legitimate product, can be made under certain assumptions about demand and cost conditions and about the behavior of the legitimate producer. Details of the theoretical framework are given in appendix F, but some of the basic premises that flow from this framework are the following: (1) the larger the share of counterfeit sales in total sales of a product, the smaller is the share of these counterfeit sales that would be replaced by legitimate sales in the absence of infringement (i.e., the smaller is the share of counterfeit sales that can be regarded as "sales lost" by the legitimate intellectual property right owner); (2) as the royalty or profit margin on legitimate sales increases, the price-elasticity of demand for the product (under the assumption of profit maximization) should be smaller in absolute value, leading to larger revenue losses for any given volume of counterfeit-product sales; and (3) for any given reduction in revenues, lost profits will be greater as the royalty or profit margin on legitimate sales increases.

However, only 45 companies, with 1986 worldwide sales of \$113.2 billion, reported information on their "product for which the problem of infringement of intellectual property rights is most serious". This information was required for the staff to estimate lost revenues and lost profits (using equations 2 and 3 from appendix F). Two-thirds of these estimated lost

Table 4-7
 Cost to U.S. industry of identification and enforcement in cases of infringement, by industries, 1986.

Item	Entertainment	Computer	Consumer	Industrial	Extractive	Total
Infringing sales worldwide (million dollars).....	530	6,730	1,070	660	480	9,480
Share of worldwide sales (percent).....	14.33 (19) <u>1/</u>	7.43 (23) <u>1/</u>	2.82 (19) <u>1/</u>	.75 (18) <u>1/</u>	.37 (14) <u>1/</u>	2.70 (93) <u>1/</u>
Identification/enforcement costs (million dollars).....	4.38	66.86	70.68	26.18	102.98	271.08
Identification/enforcement costs as a percent of worldwide sales:						
US market....	0.01	0.02	0.04	0.01	0.02	0.02
Foreign markets....	0.03	0.00	0.02	0.00	0.01	0.01
Total.....	0.04 (22) <u>1/</u>	0.03 (50) <u>1/</u>	0.06 (50) <u>1/</u>	0.01 (44) <u>1/</u>	0.03 (33) <u>1/</u>	0.03 (199) <u>1/</u>
Identification/enforcement costs as percent of infringing sales						
US market....	0.28	0.34	0.81	0.85	5.82	0.72
Foreign markets.....	1.56	0.09	1.08	0.31	3.39	0.42
-- Total.....	1.84 (12) <u>1/</u>	0.44 (22) <u>1/</u>	1.89 (17) <u>1/</u>	1.16 (16) <u>1/</u>	9.21 (13) <u>1/</u>	1.14 (80) <u>1/</u>

1/ Figures in parentheses indicate the number of companies from which the particular estimate is derived.

Source: Responses to the Commission Questionnaire to Companies that benefit from Intellectual Property Protection.

revenues were in the U.S. market, whereas lost profits were split evenly between the U.S. market and foreign markets. For each of these companies, the estimated lost sales and profits were extended to all of the companies' estimated infringing sales. 1/ The results of this evaluation are given in table 4-8.

On average 62 percent of infringing sales were estimated to reflect lost revenues to the legitimate producers (varying by industry from 58 to 96 percent); these lost revenues were estimated to be \$4.9 billion. The pattern across industry sectors of lost revenues as a percent of total company sales closely paralleled that reported (for a larger sample) in table 2-5 for reported infringing sales; lost revenues ranged from 8.6 percent of sales for entertainment to 0.7 percent for extractive products. Estimated lost profits for the 45 companies were \$754.9 million. On average these lost profits were 0.67 percent of total company sales; however, this also varied by industry, from a high of 3.9 percent for entertainment to a low of 0.04 percent for extractive products. 2/

U.S. Employment Losses

Job losses from declining business are usually cumulative, reflecting business losses either for a single year or over time. Furthermore, certain types of intellectual property violations are more likely than others to have an effect on employment. Sales of counterfeit, pirate, or otherwise infringing goods that result in lost legitimate sales of U.S.-produced goods and services are more likely to translate into lesser employment opportunities than are losses of licensing revenues from overseas manufacturing facilities or royalties on audiocassettes reproduced abroad from U.S. masters. Respondents were asked to estimate the employment loss that resulted or was expected to result from the losses that they had reported for 1986 that were a result of inadequate intellectual property protection. Seventy-two respondents reported that they had suffered no employment losses as a result of intellectual property inadequacies in 1986; 43 respondents reported a total of 5,374 jobs lost. The remainder either could not or did not estimate an employment effect. Table 4-9 shows these employment losses by major industry groups. The other category includes petroleum refining, rubber products, metals and metal products, and motor vehicles and parts, as well as a number of industries that had responses of no employment loss, including foods and beverages, tobacco, aerospace, pharmaceuticals, soap and cosmetics, and toys and sporting goods. Respondents in the computer and software and chemical industries accounted for nearly 50 percent of the estimated employment loss.

1/ The reported infringing sales for the most seriously affected products were 88.5 percent of the total worldwide infringing sales for the 45 companies.

2/ For purposes of comparison, the Census Bureau reported that, in 1986, profits before income taxes represented about 6 percent of sales for all U.S. manufacturing corporations. (This ratio was 7 percent for manufacturers of nondurables and 5 percent for manufacturers of durable goods).

Table 4-8
 Estimates of lost revenues and lost profits from infringement of intellectual property rights, by industries, 1986

	Entertainment	Computer	Consumer	Industrial	Extractive	Total
Estimated lost revenue; (million dollars).....	191.9	3,710.8	407.6	460.5	117.6	4,888.4
Percentage of reported infringing sales.....	85	58	69	77	96	62
Percentage of worldwide sales.....	8.6	5.7	3.8	2.4	0.70	4.3
Estimated lost profits Total (million dollars)....	87.3	480.1	56.7	124.2	6.6	754.9
Percentage of worldwide sales.....	3.9 (9) <u>1</u> /	0.74 (10) <u>1</u> /	0.53 (9) <u>1</u> /	0.66 (12) <u>1</u> /	0.04 (5) <u>1</u> /	0.67 (45) <u>1</u> /

1/ Figures in parentheses indicate the number of companies from which the particular estimate is derived.

Source: Derived by Commission staff from responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Table 4-9

U.S. employment losses resulting from intellectual property inadequacies, by industries and degree of loss, 1986

Industry	U.S. employ- ment loss <u>Number of workers</u>	<u>Number of firms reporting--</u>		
		No loss	Some loss	Total
Building materials.....	478	7	4	11
Chemicals.....	1,327	5	8	13
Computers and software.....	1,328	14	8	22
Electronics.....	478	7	4	11
Entertainment.....	22	3	3	6
Forest products, printing, and publishing.....	32	4	3	7
Industrial & farm equipment..	550	3	3	6
Textiles and apparel.....	603	3	3	6
All other.....	556	26	7	33
Total.....	5,374	72	43	115

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection

Impact by Country

Questionnaire respondents were asked to identify and rank countries in the approximate order of negative marketplace impact on their operations that resulted from inadequate intellectual property protection. In assessing negative marketplace impact the following factors were considered--market size, share of market lost, export market losses in third countries, reduction in margins through price competition and price controls set by reference to the price of infringing material, goods or services; use of confidential test data by others, without the respondent's authorization, in securing government approvals; lost manufacturing efficiency because of reduced volume; loss of reputation and diminished value for the company name because of counterfeiting or other infringing activity; and increased product liability costs; the added costs of intellectual property enforcement attempts; the difficulty of doing business in a straightforward, efficient manner; and opportunity losses where inadequate intellectual property protection acted as a deterrent to business activity.

One hundred sixty-one respondents reported losses for 68 countries, including 14 countries that had a negative impact of over \$100 million each.

Table 4-10

Losses resulting from intellectual property inadequacies, by countries and by selected industries, for 1986

(In thousands of dollars)			
Country	Estimated losses reported for--		
	Firms	Industries 1/	Industry
Taiwan (49).....	\$752,501	\$530,000	Computers
		118,000	Publishing
		34,000	Electronics
Mexico (41).....	533,435	21,000	Records & tapes
		15,250	Computers
Korea (53).....	496,090	70,000	Publishing
		20,000	Computers
		20,000	Electronics
Brazil (48).....	426,285	528,000	Computers
		35,000	Electronics
		10,000	Motion Pictures
		8,000	Publishing
China (18).....	420,250	43,000	Records & Tapes
Canada (11).....	367,080	20,000	Motion Pictures
India (27).....	244,020	73,000	Records & Tapes
		3,250	Computers
Japan (37).....	191,514	230,000	Motion Pictures
Nigeria (9).....	157,500	135,000	Records & Tapes
		11,000	Publishing
Hong Kong (13).....	153,725	20,000	(For country 2/)
Saudi Arabia (7).....	130,520	115,000	Records & Tapes
Indonesia (18).....	130,031	77,000	Records & Tapes
		6,000	Publishing
		3,000	Electronics
Italy (13).....	110,150	15,000	Motion Pictures
Spain (14).....	103,428	32,000	Records & Tapes
		25,000	Motion Pictures
Egypt (6).....	93,600	85,000	Record & Tapes
		10,000	Publishing
		3,000	Electronics
Singapore (16).....	81,445	107,000	Publishing
		26,000	Computers
		20,000	Electronics
Australia (9).....	57,695		3/
Philippines (14).....	54,255	70,000	Publishing
		4,000	Electronics
Thailand (11).....	38,720	7,000	Publishing
		2,000	Computers
Venezuela (17).....	36,375	65,000	(For country 4/)
Argentina (14).....	21,700	5,150	Computers
		45,000	Pharmaceuticals
West Germany (9).....	16,581	15,000	Motion Pictures
Panama (4).....	16,050		

Footnotes shown at end of table.

Table 4-10
Losses resulting from intellectual property inadequacies.--continued

(In thousands of dollars)

Country	Estimated losses reported for--		Industry
	Firms	Industries 1/	
Dominican Republic (4).....	15,725		3/
Czechoslovakia, East Germany, Hungary, Poland, & Romania (5).....	13,000		3/
Colombia (11).....	11,820		3/
France (8).....	10,818	10,000	Motion Pictures
USSR (5).....	10,600		3/
El Salvador, Costa Rica, & Trinidad & Tobago (4)...	10,250		3/
Iran, Jordan, & Syria (4).....	8,145		3/
Netherlands (4).....	6,060		3/
Yugoslavia (4).....	5,850		3/
Belgium & Luxembourg, Denmark, and Sweden (3)....	5,000		3/
Turkey (6).....	4,200	10,000	Motion Pictures
Peru (6).....	4,100	10,000	(For country 4/)
Malaysia (5).....	3,702	20,000	Motion Pictures
		20,000	Publishing
		7,000	Computers
		20,000	(For country 5/)
Laos and Macau (2).....	3,550		3/
United Kingdom (7).....	2,362	10,000	Motion Pictures
Austria, Greece, & Switzerland (4)	2,340		3/
Israel (5).....	2,157		3/
Pakistan (4).....	2,150	26,000	Records & Tapes
Algeria, Kenya, Namibia, & South Africa (5).....	1,725		3/
Chile, Paraguay, & Uruguay (4).....	1,300		3/
Kuwait, United Arab Emirates, & Yemen (4).....	1,300		3/
Lebanon (3).....	1,300		3/
New Zealand (2).....	110		3/

1/ The losses shown by industry were reported independently of the losses reported by each firm and are not intended to either reflect the distribution of the total losses reported by firms or indicate the most adversely affected industries in each country.

2/ Estimate provided by the American Chamber of Commerce in Hong Kong, representing approximately 1150 members.

3/ No industry or country estimates were provided.

4/ Estimate provided by the American Chamber of Commerce in Venezuela.

5/ Estimate provided by the American Chamber of Commerce in Peru.

6/ Estimate provided by the American Business Council in Malaysia, representing 128 members.

Furthermore, a number of industry estimates were provided by firms or trade associations in lieu of individual company estimates, and certain American Chambers of Commerce abroad provided estimates for their countries. Table 4-10 shows these estimates for each country.

Taiwan was reported to be the country for which the greatest negative marketplace impact was experienced; 49 firms reported more than three-quarters of a billion dollars in losses. In addition, three industries alone, computers, publishing, and electronics, estimated combined losses of \$682 billion. It should be noted that, in an effort to determine how industries regard recent or scheduled improvements, respondents were asked to indicate if they thought the situation would improve significantly in the future. Twenty firms indicated that they expected improved conditions in 14 countries, and similarly improved conditions were expected by industry estimates in 3 countries. Taiwan was the country expected by most firms to improve; firms reporting \$181,000 in losses, or 24 percent of the total loss, expected significant improvements, as did the electronics industry.

The second greatest losses were reported for Mexico, amounting to \$533 million in 1986. Individual industry losses of \$21 million in publishing and \$15.3 million in computers were estimated. Respondents appear more pessimistic about Mexico's efforts to improve protection; only two respondents accounting for 3 percent of the total estimated loss expected the situation to improve.

Korea, the third largest source of losses, was also viewed as a country in which some limited improvement is expected. Fifty-three companies reported an estimated \$496 million in losses; losses of \$70 million were reported for the publishing and \$20 million each for computers and electronics. Eight firms accounting for losses valued at \$40 million, or 8 percent of the total, expected conditions to improve, as did the publishing and electronics industries in general.

Except for Singapore, the remaining countries, Brazil, Colombia, Argentina, the United Kingdom, West Germany, Spain, Malaysia, China, Hong Kong, Japan, and Australia, were reported by only one firm each as candidates for improved protection. Singapore had losses of \$81 million reported by individual firms, along with industry losses of \$107 million for publishing, \$26 million for computers, and \$20 million for electronics. The electronics industry expected significant improvement along with respondents in the record and tapes sector reporting losses amounting to 6 percent of the total.

CHAPTER 5. CURRENT AND FUTURE TRENDS IN PROTECTION

In an effort to place the snapshot of 1986 gained from the questionnaire into some perspective, respondents were asked a number of questions concerning ideal intellectual-property protection, trends in losses over the last 15 years, the amount in jeopardy in the future, and the expected trend in protection in the future. Two hundred thirty-seven respondents, accounting for sales valued at \$1.006 trillion, rated the degree to which the intellectual-property-dependent portion of their business would have improved given ideal protection in 1986. Fourteen percent of these firms, accounting for 6 percent of sales, indicated that the improvement would have been very great. Another 18 percent (23 percent of sales) indicated a potentially great improvement, and 22 percent of the firms (24 percent of sales), a moderate improvement. Thirty-nine percent of the respondents, accounting for 43 percent of the sales believe that ideal intellectual-property protection would have had only a slight beneficial effect on their business, and the remaining 8 percent (4 percent of sales) indicated no effect. As indicated before, the smaller than average firms appear to be either heavily dependent on protection, or less dependent, and occupy the extremes.

Table 5-1 shows the extent to which losses from intellectual-property violations have changed in the past 15 years. All 193 firms providing an estimate of aggregate worldwide losses in 1986 responded to this question. As can be seen 41 percent of these respondents, accounting for 84 percent of the reported losses, indicated that in the last 15 years losses had grown moderately or greatly. Only 2 percent of the firms, accounting for less than 1 percent of the reported losses, indicated that losses had declined. These results probably reflect two factors. First, the situation has undoubtedly deteriorated in the past 15 years; international trade has increased markedly; production capabilities in countries with less than adequate protection have increased; and U.S. firms have made increasing efforts to exploit foreign markets and use foreign production sites. All these factors increase the exposure of U.S. firms to intellectual-property violations. Concurrent with these developments, the overall awareness of the importance of intellectual property to profitability has increased substantially in U.S. business; thus the respondents are far more aware of losses stemming from inadequate intellectual-property protection than they were 15 years ago.

Respondents were also asked to indicate how much more of their current business is at risk because of intellectual-property inadequacies; 233 firms, with sales totaling \$1.007 trillion, responded. One quarter of the respondents, accounting for \$285 million in sales, or 28 percent of the total, indicated that a great or very great portion of additional business is at risk. Twenty-nine percent of the respondents, accounting for 22 percent of sales, indicated that a moderate amount of additional business is at risk. Those firms reporting small or no additional business at risk, presumably including both those firms that are not significantly impacted, and those that feel they have little left to lose, composed 45 percent of the total, accounting for 49 percent of the total sales value.

Table 5-1. The trend in losses resulting from intellectual property inadequacies during the past 15 years.

<u>Trend of loss</u>	<u>Firms responding Percent</u>	<u>Weighted percent 1/</u>
Grown greatly.....	20	30
Grown moderately.....	21	54
Grown slightly.....	17	2
Stayed more or less constant.....	39	13
Declined slightly.....	2	2/
Declined moderately.....	0	0
Declined greatly.....	2/	2/

1/ Weighted by allocating the worldwide aggregate losses reported by each company to the appropriate rating.

2/ Less than 0.5 percent.

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Table 5-2 shows the respondents' estimate of the probable trend in losses during the next 5 years, assuming that no improvements in intellectual property protection are made. All 193 firms reporting aggregate worldwide losses responded. Twelve percent of the firms (accounting for 12 percent of total losses) indicated that they expect their losses to grow greatly; another 26 percent of the firms, accounting for 60 percent of the reported losses expected these losses to grow moderately. Thirty-eight percent of the firms, accounting for 13 percent of the losses expected the situation to remain roughly constant. Only 5 firms, accounting for less than 1 percent, expected losses to decline at all and none predicted a great decline. In general, it appears that the larger firms and those firms already experiencing the largest losses are more pessimistic than firms that are less affected in the present; a firm's outlook on the state of intellectual-property protection may follow a learning curve.

Table 5-2. The trend in losses resulting from intellectual property inadequacies during the next 5 years.

Trend of loss	Firms responding Percent	Weighted percent ^{1/}
Grow greatly.....	12	12
Grow moderately.....	26	60
Grow slightly.....	23	15
Stay more or less constant.....	38	13
Decline slightly.....	1	<u>2/</u>
Decline moderately.....	1	<u>2/</u>
Decline greatly.....	0	0

^{1/} Weighted by allocating the worldwide aggregate losses reported by each company to the appropriate rating.

^{2/} Less than 0.5 percent.

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

APPENDIX A

REQUEST LETTER FROM THE UNITED STATES TRADE REPRESENTATIVE

373

THE UNITED STATES TRADE REPRESENTATIVE
WASHINGTON
20508

January 12, 1987

16 11:52

The Honorable Susan Liebeler
Chairman
International Trade Commission
Washington, D.C. 20436

Dear Chairman Liebeler:

Intellectual property rights issues will be a major topic of negotiation in the new round of multilateral trade negotiations. The Administration has identified this as a critical area for future U.S. competitiveness and trade. To help the Administration develop its negotiating objectives and strategies in the Uruguay Round, at the direction of the President, I request that the U.S. International Trade Commission conduct an investigation of this subject under section 332(g) of the Tariff Act of 1930.

To be most useful the investigation should develop, to the extent possible, quantitative estimates of the distortions in U.S. worldwide trade associated with deficiencies in the protection provided by foreign countries to U.S. intellectual property rights. The Commission's 1982 study of trademark counterfeiting was extremely valuable. This new investigation should include the counterfeiting component of the 1982 study and should also cover trade distortions caused by infringement and misappropriation of copyrights, patents, semiconductor chip design, trade secrets, and other types of intellectual property. It should include distortions due to nonexistent, inadequate, discriminatory, and ineffectively enforced protection, as well as those due to foreign laws which conflict, or are inconsistent with, the intellectual property laws of the United States. The analysis should include both U.S. merchandise transactions, and certain service industries, e.g., the book publishing, recording and cinema.

The report should provide estimates and legal and economic analysis of the extent and types of U.S. trade distortions resulting from the forms of intellectual property protection deficiencies noted above, including:

The Honorable Susan Liebeler
January 12, 1987
Page Two

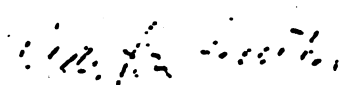
- sales lost to counterfeit or other products imported into United States as a result of protection deficiencies;
- U.S. export sales lost to markets where the suppliers of goods are based, and to third markets, where U.S. goods are displaced by pirated and counterfeited products, with separate estimates for both types of destination if possible; and
- an evaluation of which products, source countries, affected markets and protection deficiencies represent the most serious intellectual property rights problems for U.S. firms.

The investigation should, where possible, develop examples of the employment losses caused in the U.S. by foreign intellectual property protection deficiencies, and should also evaluate the efforts made by U.S. firms to assert, protect, and enforce their intellectual property rights. It would also be very helpful if the Commission can gain the cooperation of U.S. business organizations overseas to assess the extent of intellectual property problems and losses experienced by U.S. subsidiaries, branches, and joint ventures resident in selected major foreign markets, and the major types of problems encountered.

The Commission should forward its report to this Office no later than June 1, 1987.

Once this study is completed, we may call on the Commission for further analytical work in this area, including an examination of the specific intellectual property laws and policies which lead to trade distortions. Such a follow-up study could include an inventory, examination, and assessment of the specific laws and policies causing the trade distortions identified by the Commission in response to the present request. We would determine the specific elements of such a follow-up study after the trade analysis investigation is completed.

Sincerely,


Clayton Yeutter

CY:smlb

APPENDIX B

NOTICE OF INSTITUTION OF INVESTIGATION NO. 332-245
IN THE FEDERAL REGISTER

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

(332-245)

Foreign Protection of Intellectual Property Rights
and the Effect on U.S. Industry and Trade

AGENCY: United States International Trade Commission

ACTION: Institution of investigation

EFFECTIVE DATE: March 12, 1987

FOR FURTHER INFORMATION CONTACT: Mr. Mark D. Estes, General Manufactures Division, Office of Industries, U.S. International Trade Commission, Washington, D.C. 20436 (telephone 202-724-0977).

BACKGROUND AND SCOPE OF INVESTIGATION: The Commission on March 12, 1987, instituted investigation No. 332-245, following receipt of a request on January 16, 1987, from the United States Trade Representative, at the direction of the President, that the Commission conduct an investigation under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) concerning intellectual property rights issues and their effect on U.S. industry and international trade. The scheduled completion date for this study is September 21, 1987.

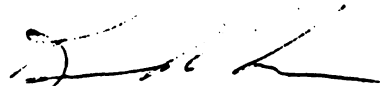
The Commission investigation will develop, to the extent possible, quantitative estimates of the distortions in U.S. trade associated with deficiencies in the protection provided by foreign countries to U.S. intellectual property rights, including trademarks, copyrights, patents, semiconductor chip design, trade secrets, and other types of intellectual property rights. The study will attempt to measure the distortions in both U.S. merchandise transactions and selected service industries due to nonexistent, inadequate, discriminatory, and ineffectively enforced protection, as well as those due to foreign laws that conflict or are inconsistent with U.S. law. Specifically, the study will determine, as possible, the sales lost to counterfeit and other infringing products imported into the United States and U.S. export sales lost as a result of protection deficiencies, and evaluate which products, source countries, markets, and protection deficiencies represent the most serious problems to U.S. firms. In addition the study will provide, as available, examples of U.S. employment losses resulting from foreign intellectual property right deficiencies, and measure the efforts made by U.S. firms to assert, protect, and enforce their intellectual property rights.

PUBLIC HEARING: The Commission will hold a public hearing on this investigation at the United States International Trade Commission Building, 701 E Street, NW, Washington, D.C., beginning at 9:30 a.m. on April 21, 1987. All persons shall have the right to appear in person or be represented by counsel, to present information and to be heard. Persons wishing to appear at the public hearing should file requests to appear and should file

prehearing briefs (original and 14 copies) with the Secretary, U.S. International Trade Commission, 701 E Street, NW, Washington, D.C. 20436, not later than noon, April 10, 1987. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at (202) 523-0161.

WRITTEN SUBMISSIONS: Interested persons are invited to submit written statements concerning the investigation. Written statements should be received by the close of business on June 5, 1987. Commercial or financial information which a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of section 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. All submissions should be addressed to the Secretary, United States International Trade Commission, 701 E Street, NW, Washington, D.C. 20436. Hearing-impaired individuals are advised that information on this matter can be obtained by contacting our TDD terminal on (202) 724-0002.

By order of the Commission.



Kenneth R. Mason
Secretary

Issued: March 12, 1987

APPENDIX C

WITNESSES APPEARING AT THE U.S. INTERNATIONAL TRADE COMMISSION
HEARING ON INVESTIGATION NO. 332-245, FOREIGN PROTECTION
OF INTELLECTUAL PROPERTY RIGHTS AND THE EFFECT
ON U.S. INDUSTRY AND TRADE

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : Foreign Protection of Intellectual Property
Rights and the Effect on U.S. Industry
and Trade

Inv. No. : 332-245

Date and time: May 5, 1987 - 9:30 a.m.

Sessions were held in connection with the investigation in the Hearing Room of the United States International Trade Commission, 701 E Street, N.W., in Washington.

WITNESS AND ORGANIZATION:

The Ad Hoc Group on Mexican Intellectual Property Protection

Robert M. Sherwood, International Business
Consultant

Pharmaceutical Manufacturers Association, Washington, D.C.

Louis G. Santucci, International Counsel

International Intellectual Property Alliance,
Washington, D.C.

William P. Nix, Vice President and Worldwide Director,
Anti-Piracy

Eric H. Smith, Counsel

APPENDIX D
SURVEY DESIGN AND METHODOLOGY

Because of the limited and incomplete nature of available data on the economic effects of inadequate intellectual property protection, the Commission found it necessary to use questionnaires as a primary data-gathering technique in order to obtain the type of information requested by the United States Trade Representative. The collection of information did not employ statistical methods. Questionnaires were sent to a total of 736 companies, out of an unknown universe. The companies included all those listed in the Fortune 500 in 1986, selected members of the American Business Conference, and additional firms in industries known to rely heavily on intellectual property. These included producers of computer software and hardware, motion pictures, records and tapes, fashion and sporting wearing apparel and footwear, toys, and sporting goods. The questionnaire was also provided to 14 industry and trade associations for the voluntary response of their members. In addition, the U.S. Chamber of Commerce sent a modified version to their American Chambers abroad.

Of the 736 questionnaires sent out directly by the Commission, 430 were returned, including 268 that indicated that intellectual property was of more than nominal importance to their business and 162 that indicated their businesses were not more than nominally affected by intellectual property. In addition, one affirmative voluntary questionnaire by an individual firm and two questionnaires completed by trade associations were received. Furthermore, responses to the U.S. Chamber of Commerce's solicitation to its members abroad garnered responses from 21 American Chambers, as follows:

1. Questionnaires or other information were supplied for 14 countries--Argentina, Belgium & Luxembourg, Bolivia, Brazil, Costa Rica, Honduras, Hong Kong, Malaysia, Mexico, Pakistan, Netherlands, Spain, and Venezuela.
2. Intellectual property protection was not considered a problem by six Chambers--Egypt, El Salvador, Peru, Portugal, Saudi Arabia, and Switzerland.
3. The Chambers in the Dominican Republic and Italy reported insufficient information to answer the questionnaire.

OMB No. 3117-0160
Approval expires: December 31, 1987

Return to:
United States International Trade Commission
Washington, D.C. 20436
by September 30, 1987

**FOREIGN PROTECTION OF INTELLECTUAL PROPERTY RIGHTS
AND THE EFFECT ON U.S. INDUSTRY AND TRADE**

QUESTIONNAIRE FOR COMPANIES THAT BENEFIT FROM INTELLECTUAL PROPERTY PROTECTION

The information called for in this questionnaire is for use by the United States International Trade Commission in connection with its investigation No. 332-245 under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)). A copy of the Commission's notice of investigation is enclosed and was published in the Federal Register on March 19, 1987 (52 F.R. 8656).

The information requested is needed to supplement data available from other sources and is required under the authority of section 332(g) of the Tariff Act of 1930. This report is mandatory and failure to reply as directed can result in the issuance of a subpoena or other order to compel the submission of records or information in your possession under the authority of section 333(a) of the Tariff Act of 1930 (19 U.S.C. 1333(a)).

The confidential commercial and financial data furnished in response to this questionnaire that reveal the individual operations of your firm will be treated as confidential by the Commission and will not be disclosed except as may be required by law. Such confidential business information will not be used in any other Commission investigation and will not be published in a manner that will reveal the individual operations of your firm.

Only the Commission personnel directly responsible for this investigation will have access to the confidential business information.

If your firm's operations rely to more than a nominal degree on intellectual property protection of any kind, complete the questionnaire and return one copy to the U.S. International Trade Commission, 701 E Street NW, Washington, D.C. 20436, as soon as possible, but not later than September 30, 1987.

: :
: :
: If your firm's operations do not : :
: rely, other than nominally, on : :
: intellectual property protection, : :
: : : : : :
: : : : : :
: check (X) here : : , : :
: : : : : :
: : : : : :
: : : : : :
: fill in the name and address of : :
: your firm on the other side of this : :
: page (page ii), sign the certifica- : :
: tion on page ii, and promptly re- : :
: it to the Commission. The enclosed : :
: postpaid envelope may be used to : :
: return the certification page or : :
: the completed questionnaire. : :
: : : : : :
: : : : : :

Name and address of reporting firm:

Please attach a list of subsidiaries and other components of your firm (as defined in definition 1. on page iv) to which this questionnaire and your responses apply. Please include the address (City and State for U.S. components and Country for foreign components) for each listing. A copy of your most recent annual report and 10-K report will normally suffice to supply this information.

If your firm is a division /, branch /, or subsidiary / of any other company, check appropriate box above and provide:

Name and address of parent company and extent of ownership:

CERTIFICATION

The undersigned certifies that the information herein supplied in response to this questionnaire is complete and correct to the best of his/her knowledge and belief.

DATE

SIGNATURE OF AUTHORIZED OFFICIAL

AREA CODE AND TELEPHONE NUMBER

NAME AND TITLE OF AUTHORIZED OFFICIAL
(Please print or type)

Name and telephone number of official (if different from the certifying official listed above) to whom the staff should address any questions concerning your firm's questionnaire responses:

NAME AND TITLE

AREA CODE AND TELEPHONE NUMBER

In order to estimate the burden on industry in completing questionnaires such as this, we would appreciate it if you would answer the following:

A. Number of man-hours needed to complete this questionnaire: _____

D-4

B. Three most time-consuming sections you completed: _____

**GENERAL INSTRUCTIONS TO QUESTIONNAIRE FOR COMPANIES THAT BENEFIT
FROM INTELLECTUAL PROPERTY PROTECTION
FOR INVESTIGATION NO. 332-245**

1. If you have any questions concerning this questionnaire or other matters related to this investigation, the following Commission staff members are conducting this investigation and are available to answer questions:

Mark Estes	Project Leader	202-724-0977
Elli Nesbitt		202-523-1768

Additional questionnaires will be supplied promptly upon request, or photocopies of this questionnaire may be used. Address all correspondence to the United States International Trade Commission, Washington, D.C. 20436, or via "mailgram" to TWX number 710-882-9507.

2. The information requested takes two forms. A few questions (Sections A - F) seek quantitative answers (generally in dollar terms). The other questions (Sections G - J) seek a well-informed opinion. The quantitative questions call for general estimates because in most instances precise information is not available. The quantification of damage to business which results from inadequate or ineffective intellectual property protection is recognized as very difficult. Nonetheless, furnish carefully considered estimates and, if you wish, provide additional comments or case examples which would help in understanding your replies. Note.--Responses to Sections B-2, B-3, E-2, and E-3 are optional.

3. The following are two methods that may be useful in answering questions that call for estimates of business not undertaken because of inadequate or ineffective protection. You may use other methods as you determine appropriate.

a. Assume that the pirate/infringing/counterfeit activity is a reciprocal of business you would have had with adequate protection and adjust for differences between your company and infringers for competitive factors such as marketing ability or credibility with consumers.

b. Assume that a given country's market is a surrogate of another's. Thus, if the GNP per capita, consumer sophistication, and other market factors are similar for two countries and protection is adequate in only one, then the difference in sales between the two can be used as a surrogate measure for the effect of inadequate protection in the other country.

4. All value information should be provided on a calendar year basis. However, in order to reduce reporting burden, you may substitute data for your fiscal year that most closely coincides with the calendar year.

5. All value information should be provided in terms of U.S. dollars, translated where necessary from market country currency to U.S. dollars using whatever method is normally applied by your firm.

DEFINITIONS. For the purposes of this questionnaire, the following definitions apply:

1. **Firm.**--A corporation (including any subsidiary corporation), business trust, cooperative, joint venture, partnership, individual proprietorship, trustees in bankruptcy, or receivers under decree of any court. This term includes the group or family of companies, both domestic and foreign, which constitute your worldwide business. Include foreign joint ventures, even if minority owned, if such a venture is conducting one of the main activities of your business to which intellectual property problems relate. The effort is to assess intellectual property problems throughout your business environment.

2. **United States.**--For the purpose of this questionnaire, the term "United States" means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and all territories and possessions of the United States.

3. **U.S. exports.**--Physical movement of goods from the customs area of the United States to the customs area of a foreign country. U.S. merchandise exports should be valued f.a.s. at the U.S. port of exportation, excluding all subsequent costs, such as loading costs, foreign import duties, and freight and insurance from the U.S. port of exportation to the foreign port of entry.

4. **Revenue.**--Income, including net sales, premiums, royalties, franchise fees, and all other forms of income.

5. **Intellectual property rights:**

a. **Trademark.**--Any word, name, symbol, or device, or any combination thereof, adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured or sold by others. Violations of trademarks consist of the following:

i. **Counterfeiting.**--Offering goods bearing an unauthorized representation of a trademark that is legally registered or otherwise protected with respect to such goods or services in the country of manufacture, sale, importation, or provision.

ii. **Infringement.**--Offering goods bearing a trademark so similar to that of another, that deception or confusion is likely to occur. Service marks may also be infringed.

Specifically **excluded** from this definition of violations are the following:

1. offering goods produced or marketed under a trademark with the consent of the owner of the trademark right, and
2. offering goods bearing a trademark which are imported or sold in the market country merely in contravention of a commercial arrangement ("gray market goods").

b. Copyright.--A form of protection provided by a national government to authors of original works of authorship including literary, dramatic, musical, artistic, and certain other intellectual works. The owner of copyright has the exclusive right to:

- i. reproduce the copyrighted work in copies or phonorecords,
- ii. prepare derivative works based upon the copyrighted work,
- iii. distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending,
- iv. perform the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and audiovisual works, and
- v. display the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including individual images of a motion picture or other audiovisual work.

Copyright protects an author's creative work regardless of the format in which it is cast. Copyright violations are referred to as infringement or piracy.

c. Patent.--A grant issued by a national government giving the inventor or patent owner the right to exclude others from making, using, or selling his invention within the national territory. Also included are utility models, petty patents, inventor's certificates, and the various other kinds of industrial patents, such as patents of importation, patents of improvement, patents and certificates of addition, etc. Patents may be granted for new and useful products as well as new and useful processes for the manufacture of new or existing products, as well as methods of use of new or existing products. Patent violations are referred to as patent infringement or piracy.

d. Trade secret.--Information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means, by other persons who can obtain economic value from its disclosure or use, and is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Violations of trade secrets are referred to as misappropriation, defined as follows:

- i. Acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper means; or
 - ii. Disclosure or use of a trade secret of another without the express or implied consent by a person who:
 - used improper means to acquire knowledge of the trade secret; or
 - at the time of disclosure or use, knew or had reason to know that his knowledge of the trade secret was
 - derived from or through a person who had used improper means to acquire it;
 - acquired under circumstances giving rise to a duty to maintain its secrecy or limit its use; or
 - derived from or through a person who owed a duty to the person seeking relief to maintain its secrecy or limit its use; or
- before a material change in his position, knew or had reason to know that

it was a trade secret and that knowledge of it had been acquired by accident or mistake.

Improper means includes theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means.

e. Semiconductor mask works.--Under the Semiconductor Chip Protection Act, mask work protection exists for original mask works fixed in a semiconductor chip product, by, or under the authority of the owner of the mask work and which have been registered or commercially exploited anywhere in the world. The owner has the exclusive right to do and to authorize the following: (1) reproduce the mask work by optical, electronic, or other means; (2) import or distribute a semiconductor chip product in which the mask work is embodied; and (3) induce or knowingly cause another person to take either of these actions. The following definitions apply:

Semiconductor chip product.--the final or intermediate form of any product--having two or more layers of metallic, insulating, or semiconductor material, deposited or otherwise placed on, or etched away or otherwise removed from, a piece of semiconductor material in accordance with a predetermined pattern; and intended to perform electronic circuitry functions;

Mask work.--a series of related images, however fixed or encoded--having or representing the predetermined three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product; and in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product.

Violations of mask works are referred to as infringement or piracy.

f. Proprietary technical data.--Data submitted to a government agency in connection with the regulatory review of a product, such as new pharmaceuticals or chemicals.

6. Inadequate intellectual property protection.--Less than adequate or ineffective protection for intellectual property. Flaws are divided into two major groups, regime inadequacies within the protection of a certain type of intellectual property, and general enforcement inadequacies. For reference you may wish to consider the "Guidelines for Standards for the Protection and Enforcement of Intellectual Property" recently released by the U.S. Chamber of Commerce.

Note: If you find any of these definitions leave out a situation which constitutes a lack of adequate protection, please respond using the "other" category and, if you wish, attach an explanation.

a. Copyright:

- i. U.S. works are not protected.--The country has no treaty relationship with the United States that makes U.S. works directly eligible for protection in that country and its law does not protect U.S. works.
- ii. Law does not protect all traditional and new works.--Although the law covers some types of works, it fails to cover others, such as sound recordings, computer programs, or other print or electronic compilations (e.g., data bases), or the law may not encompass certain media in which new works are embodied (e.g., videocassettes or computer programs in ROM).

- iii. Inadequate exclusive rights.--The country's law grants some, but not all exclusive rights (e.g., no cable retransmission, public performance or display right, no right to distribute or to distribute electronically).
- iv. Exceptions to exclusive rights are overly broad.--Including too broad exceptions for public performances in hotels or film clips, too broad exceptions for educational photocopying, and compulsory licenses, if any, are inconsistent with international norms..
- v. Terms of protection are too short.--The term of copyright protection is less than the terms found in the major developed countries.
- vi. Burdensome substantive or procedural formalities.--
- vii. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.
- ix. Enforcement failures.--See definitions under Remedies and enforcement.

b. Patents

- i. No patent protection.--The country has no patent law or has no law with respect to the field(s) of invention relevant to your business.
- ii. Patentability precluded by statute.--The country has a patent law which explicitly precludes patent applications either for inventions in specified fields relevant to your business or for applications for specific forms of protection such as product protection.
- iii. Term too short.--The term of patent protection is less than the term found in the major developed countries.
- iv. Early lapse.--A patent is subject to lapse before its term expires because of non-working.
- v. Compulsory licensing.--Licensing to third parties is compelled for reasons such as non-working or "public interest" as distinguished from narrow exercise of the right of eminent domain or correction of antitrust types of violations.
- vi. Paris Convention nonadherence.--The country has signed the Paris Convention but has failed to implement its provisions, or in implementing its provisions it has failed to adhere to its provisions.
- vii. Patent claims narrowed too much.--Administrative practice forces claims to be so narrowed that others can easily avoid claim coverage and may even obtain patents of their own on slight variations of the invention without true innovation.
- viii. Unrealistic working requirements.--Exclusive protection is lost either if (a) the invention is not worked within a time shorter than is realistic or (b) the required working is not commercially feasible.
- ix. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.
- x. Enforcement Failures.--See definitions under Remedies and enforcement.

c. Trademarks:

- i. Scope of what constitutes infringement is too narrow.--Applications or use are allowed, usually to national companies, even though very closely similar to a preexisting trademark of another.
- ii. Renewal proof of use difficult.--Continued ownership of a trademark is jeopardized because (a) proof of its continuing commercial use must be shown within an unduly short time or (b) use is delayed or precluded by government action without corresponding exemption from the proof of use requirement or (c) only use by the owner, as distinguished from licensees or distributors, is recognized.

iii. No protection of "well-known" marks.--Unregistered, but internationally well-known marks are not protected against registration or use by unauthorized local parties.

iv. Narrow spectrum of class protection.--A classification system more burdensome than that of the Nice Agreement is utilized.

v. Unreasonable licensing requirements.--The licensing of trademarks is subject to unreasonable conditions by government authorities that may include such things as restrictions on royalties, technology transfer limitations or mandatory joint venture arrangements.

vi. Circumscribed usage or "Linking".--The value of a trademark is diminished because the trademark must be used in a specified form or manner or used in conjunction with another trademark.

vii. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.

viii. Enforcement Failures.--See definitions under Remedies and enforcement.

d. Trade secrets:

i. No trade secret protection.--The country has no law which explicitly recognizes and protects trade secrets.

ii. Short time limits on confidentiality.--The term during which a trade secret may be required to be kept confidential in a trade secret agreement is limited by government authority, usually through conditions placed on technology transfers.

iii. No protection against third parties.--Even though an agreement to keep secret may be made and enforced between two parties, there is no legal basis for action against a third-party which benefits without authorization from or induces a breach of the agreement to keep secret.

iv. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.

v. Enforcement Failures.--See definitions under Remedies and enforcement.

e. Mask works:

i. No legal protection.--Mask works protection is expressly or by practice excluded from traditional forms of protection or no form of protection has as yet been established.

ii. Inadequate sui generis coverage.--Traditional forms of protection are denied, sui generis protection is the only available form and it is, or is expected to become, inadequate.

iii. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.

iv. Enforcement Failures.--See definitions under Remedies and enforcement.

f. Proprietary technical data:

i. No legal protection.--The country has no law which explicitly provides for the protection of proprietary data required by government bodies.

ii. Short time limits on confidentiality.--The term during which data is kept confidential by government agency is unreasonably limited.

iii. Inadequate remedies/penalties.--See definitions under Remedies and enforcement.

iv. Enforcement Failures.--See definitions under Remedies and enforcement.

7. Remedies and enforcement:

- a. No preliminary or final injunctive relief.--The country does not have these forms of relief or their equivalent.
- b. Lack of seizure and impoundment relief.--The country does not have these forms of relief or their equivalent.
- c. Lack of exclusion of imports.--The country does not have provision for exclusion orders or other exclusions of infringing imports.
- d. Adverse burden of proof for process patents.--The burden of proof in cases of process infringement rests with a party, normally the plaintiff patentee, which is not in a position to determine facts which are solely within the control of the alleged infringer.
- e. Lack of compulsory process and/ or discovery.--There is no court assisted procedural mechanism for compelling a reluctant party or person to testify or produce relevant information or evidence.
- f. Inadequate civil remedies.--The inadequacy is usually in the area of monetary damages, with limits on recoveries precluding any deterrent effect.
- g. Inadequate criminal penalties.--Fines equal to only a few dollars and jail sentences running to only a few days or weeks which preclude any deterrent effect.
- h. Unreasonably slow enforcement process.--Undue delays during which illegal activity continues.
- i. Enforcement officials discriminate against foreigners.--Police, prosecutors and judiciary officials systematically discriminate against foreigners in matters where they have discretion.
- j. Training and resources for enforcement inadequate.--Enforcement officials are so poorly trained and government funding for enforcement operations is so insufficient that even minimum levels of enforcement are not met.
- k. Court decisions biased or political.--Court decisions in the past have reached conclusions which are widely recognized as biased against foreign rights holders or there is wide recognition that the judiciary is not independent of local political influence.
- l. Corruption.--Officials are or are widely suspected of being subject to the influence of corruption.

Business Confidential

Page 1

INTRODUCTORY COMPANY PROFILE

Section A-1. Industry Sectors

Please indicate [X] the sector or sectors in which your firm chiefly operates in the United States and abroad.

- | | | | | | |
|----|-----|---|----|-----|---|
| 1 | [] | Aerospace | 16 | [] | Metal products, metals and alloys |
| 2 | [] | Broadcasting, including cable and satellite | 17 | [] | Motor vehicles/parts and transportation equipment |
| | | Chemicals and allied products: | 18 | [] | Photographic equipment and supplies |
| 3 | [] | Agricultural chemicals | 19 | [] | Printing and publishing |
| 4 | [] | Cosmetics, fragrances, and toiletries | 20 | [] | Rubber products |
| 5 | [] | Pharmaceuticals and similar health care products | 21 | [] | Scientific, medical, and dental equipment and health equipment and supplies |
| 6 | [] | Other chemicals | 22 | [] | Seeds and plant varieties |
| 7 | [] | Computers and electronics, including office equipment | 23 | [] | Services |
| 8 | [] | Computer software | 24 | [] | Sporting goods |
| 9 | [] | Disposable paper products | 25 | [] | Textiles, wearing apparel and footwear |
| 10 | [] | Electrical equipment | 26 | [] | Tobacco products |
| 11 | [] | Entertainment, including motion pictures, music, and all audio and video recordings | 27 | [] | Toys and games |
| 12 | [] | Extractive and refining | 28 | [] | Other: _____ |
| 13 | [] | Foods and beverages | 29 | [] | Other: _____ |
| 14 | [] | Forest products and furniture | 30 | [] | Other: _____ |
| 15 | [] | Industrial, construction and farm equipment | 31 | [] | Other: _____ |

Business Confidential

Page 2

Section A-2. Size of Your Worldwide Business

What were your worldwide sales (or revenues) for 1986?

1 \$ _____ million

Section A-3. Intellectual Property Dependent Portion of Your Business

Approximately what percentage of the worldwide sales or revenues reported in Section A-2 above represents business which relies on, utilizes or is sensitive to intellectual property protection to any noticeable degree?

2 About _____ %

Section A-4. Degree of Importance of Intellectual Property to Your Business

Indicate the overall degree of importance which sound intellectual property protection has for that portion of your business which is reflected in the percentage given above in Section A-3 by circling an appropriate number on a scale from 1 to 5 where 5 = very great, 4 = great, 3 = moderate, 2 = slight and 1 = none.

3 SCALE: (circle one) 5 4 3 2 1

Section A-5. Importance of Each Intellectual Property Category

Using the same scale of 5 to 1 as above, indicate the degree of importance which each category of protection has for that portion of your business which is reflected in the percentage given above in Section A-3.

	SCALE	Copyright	Patent	Trademark	Trade Secret	Mask Work	Proprietary Technical Data
4	Very great (5)	[]	[]	[]	[]	[]	[]
5	Great (4)	[]	[]	[]	[]	[]	[]
6	Moderate (3)	[]	[]	[]	[]	[]	[]
7	Slight (2)	[]	[]	[]	[]	[]	[]
8	None (1)	[]	[]	[]	[]	[]	[]

NOTE:

If other forms of intellectual property are important to your firm, please feel free to add those forms to this questionnaire and identify them here:

To make room, cross out a form of intellectual property which is not important for your business and substitute the added form. You may do this throughout the questionnaire as appropriate.

Business Confidential

DATA ESTIMATES

Section B-1. Estimated Aggregate Losses

For 1986, estimate your firm's worldwide aggregate losses resulting from inadequate intellectual property protection. This would include losses arising from all relevant factors (not just those listed below). If you cannot make a detailed computation, a well informed global estimate will be sufficient. Note.--The factors listed in lines 2-20 below are for identification only, you are not required to quantify individual losses by factor in computing aggregate losses.

1 Estimated aggregate losses: \$ _____ million

Check those factors listed below which apply in your case:

- 2 U.S. export sales lost relative to sales once made.
- 3 U.S. export sales never made because too risky in the first place.
- 4 U.S. export sales at risk that could be lost.
- 5 U.S. domestic sales displaced by imports by counterfeiters, infringers, etc.
- 6 Revenue losses from fees or royalties not paid from United States or abroad.
- 7 Reduced profit margins caused by infringing goods in United States or abroad.
- 8 Sales, other than U.S. export sales, lost abroad relative to sales once made.
- 9 Business never attempted abroad.
- 10 Research costs not recovered.
- 11 Foregone research opportunities.
- 12 Reduction in research expenditures.
- 13 Reputation damaged by counterfeit or pirate goods.
- 14 Product liability costs increased.
- 15 Sales force abroad reduced, weakening other product lines.
- 16 Plant efficiency reduced through sales lost to infringers, etc.
- 17 Destruction of new product franchise/product introduction.
- 18 Losses from secondary barriers (see Section J).
- 19 Other: _____
- 20 Other: _____

Business Confidential

NOTE.--RESPONSE TO THE QUESTIONS IN SECTIONS B-2 AND B-3 ON THIS PAGE IS OPTIONAL

Section B-2. Estimated Infringing Sales

For 1986, estimate the worldwide sales of counterfeit, pirated, or otherwise infringing versions of your products.

1 Estimated infringing sales: \$ _____ million.

Section B-3. Specific Product Example

Please indicate your product for which the problem of infringement of intellectual property rights is most serious.

2 Most seriously affected product: _____.

If you license this product, what is your average royalty rate:

3 In the United States? _____ %

4 Abroad? _____ %

What is your average profit margin on sales of this product in 1986:

5 In the United States? _____ %

6 Abroad? _____ %

What were your sales of this product in 1986:

7 In the United States? \$ _____ thousand

8 Abroad? \$ _____ thousand

What is your estimate of counterfeit or other infringing sales of this product in 1986:

9 In the United States? \$ _____ thousand

10 Abroad? \$ _____ thousand

Business Confidential

Section C. Rank Countries by Marketplace Impact

Rank countries in approximate order by the negative marketplace impact on your operations which results from inadequate intellectual property protection, starting with the worst. In assessing negative market impact, you may wish to consider many relevant factors, in addition to sheer market size, such as: share of market lost; export market losses in third countries; reduction in margins through price competition and price controls set by reference to the price of infringing material, goods or services; use of your confidential test data by others, without your authorization, in securing government approvals; lost manufacturing efficiency because of reduced volume; loss of reputation and diminished value for your company name because of counterfeiting or other infringing activity; and increased product liability costs. Consider also the added costs of intellectual property enforcement attempts; the difficulty of doing business in a straightforward, efficient manner; and opportunity losses where inadequate intellectual property protection acts as a deterrent to your normal business activity.

Space is provided for ten countries; photocopies of this page may be used to report on additional countries. For each listed country, please furnish an estimate of losses attributable to that country for 1986. Check the last column for any country where you think negative marketplace impact will soon be reduced because of recent or anticipated improvements in intellectual property protection there.

OPTION: In furnishing your estimates of individual country losses below please do so for your company's losses from your own data. If a trade association or other organization with which you are associated compiles data for your industry which would show such losses by an individual country, you may utilize such data either for industry losses in any given country or simply for your own losses there. If you utilize the trade association alternative data source, please indicate for each country the name of the association or organization and whether the data is for your firm or your industry.

Country	Loss Estimate (in \$ millions)	This Loss Is For Your Firm	Your Industry	Trade Association and Scope of Estimate, if applicable	Expect less adverse impact in future
1 _____	\$ _____	[]	[]	_____	[]
2 _____	\$ _____	[]	[]	_____	[]
3 _____	\$ _____	[]	[]	_____	[]
4 _____	\$ _____	[]	[]	_____	[]
5 _____	\$ _____	[]	[]	_____	[]
6 _____	\$ _____	[]	[]	_____	[]
7 _____	\$ _____	[]	[]	_____	[]
8 _____	\$ _____	[]	[]	_____	[]
9 _____	\$ _____	[]	[]	_____	[]
10 _____	\$ _____	[]	[]	_____	[]

Please briefly indicate on a separate attached page the methodology used in developing any or all of the country estimates.

Business Confidential

Page 6

Section D. Specific US Losses

To assist in determining certain specific losses directly suffered by the US economy in terms of balance of trade and balance of payments, please answer these questions.

Section D-1. US Export Losses

If applicable, estimate the loss of exports from the United States which your company suffered in 1986 as the result of inadequate intellectual property protection abroad. Consider in making your estimate, not only reductions in shipments from previous levels, but also, if applicable, shipments never made because of inadequate intellectual property protection. For the latter, use the price which you would have reasonably charged for such shipments.

1 Estimated lost US exports: \$ _____ million.

Section D-2. US Import Displacement

Estimate the value of your lost sales (or revenues) resulting from pirate, counterfeit, or other infringing goods (except gray market goods) entering the United States in violation of your intellectual property rights during 1986. In determining this value, factor in any appropriate adjustment for demand elasticity relative to price differentials.

2 Estimated value of losses from displacement: \$ _____ million.

Section D-3. Other US Revenue Losses: Royalties and Fees

To the extent your company derives revenue from licensing intellectual property rights abroad (as contrasted with the sale abroad of goods or services), estimate the amount of any royalties and fees not paid or never generated during 1986 as the result of inadequate intellectual property protection. Consider in making your estimate, not only reductions from previous payment levels, but also payments never made because inadequate intellectual property protection precluded or preempted activity which would have given rise to such revenues.

3 Estimated US revenue losses: \$ _____ million.

Section D-4. U.S. Employment Losses

Job loss from declining business results is usually cumulative. It can be considered as a reflection of business losses either for a single year or over time. Estimate the loss of U.S. jobs, if any, in your firm which has resulted or will result directly from:

(a) the losses reported for 1986 in Sections D-1 through D-3 above:

4 Estimated U.S. employment losses: _____ workers.

(b) the losses of the same type over any relevant period of years, including 1986:

5 Generally estimated U.S. employment losses: _____ workers.

6 Specified period is 19__ to 1986.

D-17

Business Confidential

Section E. Royalty Rates

Section E-1. Licensing

- a. Do you license intellectual property rights to either affiliates or third parties as a normal part of your business? YES NO
- b. If yes, check the category or categories of protection in which the licensed rights exist:
 copyright patent trademark trade secret mask works

NOTE.--RESPONSE TO THE QUESTIONS IN SECTIONS E-2 AND E-3 ON THIS PAGE IS OPTIONAL

Section E-2. Rates in the United States

- a. In the licensing activity reported in Section E-1 do you have a standard royalty rate or range of rates which you normally use in the United States? YES NO
- b. If yes, what is that rate or range? _____%
- c. Is there a standard rate or range of rates in the United States for your industry? YES NO
- d. If yes, what is that rate or range? _____%

Section E-3. Rates in Other Countries

Do either the royalty rates your firm employs or the average rates for your industry differ substantially from country to country? YES NO

If yes, please report for the countries in which you license intellectual property, either the average rate or range of rates employed by your firm or the estimated average rate or rates employed by your industry. Check whether this rate or range is mandated by the country's Government. Space is provided for ten countries; photocopies of this page may be used to report on additional countries.

Country	Standard royalty rate or range	Rate is for		Rate mandated or set by Government
		Your firm	Your Industry	
1. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Business Confidential

Section F. Identification and enforcement.

Section F-1. Costs

For 1986, estimate your firm's aggregate costs of identifying violations of your intellectual property rights and the costs of enforcing your rights in the United States and foreign markets. Identification and detection costs should include security and detective services and the use of anti-counterfeiting labels and other devices. Enforcement costs include all legal costs associated with the pursuit of violators and registration(s) or recordation(s) of your trademarks, copyrights, patents, and other intellectual property rights intended primarily to prevent infringements (such as the recordation of a trademark or copyright with the U.S. Customs Service).

- a. Total cost in United States: \$ _____ thousand.
- b. Total cost in Foreign markets: \$ _____ thousand.

Section F-2. Major Countries

List the top five countries in terms of total identification and enforcement costs in 1986 and the approximate share of the costs reported in Section F-1(b) accounted for by each country.

Country	Approximate share
1. _____	_____ %
2. _____	_____ %
3. _____	_____ %
4. _____	_____ %
5. _____	_____ %

Business Confidential

Page 9

INFORMED OPINIONS

SECTION G. Concepts for Appraising Losses

Section G-1. Your Gain if Worldwide Intellectual Property Protection Were Ideal

Using a very broad conceptual approach, think about the amount by which your business would have been greater in 1986 had adequate and effective intellectual property protection been in place and enforceable for a substantial period wherever you do business in the world. Consider factors such as the greater licensing of patents and trade secrets, the greater efficiency of foreign operations from using more advanced technology, no pressure on margins from pirate sales, no loss of good will or increased liability costs from counterfeit goods, reduced enforcement expense, more certain planning horizons, greater security for investment, enhanced foreign investment which follows solid intellectual property and the like. You can no doubt think of others.

This is necessarily a hypothetical assessment and can, of course, only be made in broad general terms. Please express your informed opinion in the following terms:

Under ideal intellectual property protection conditions, indicate the degree to which those portions of your overall business which rely on, utilize or are sensitive to intellectual property protection would have gained by circling the appropriate number on the scale of 1 to 5 below where:

5 = very great, 4 = great, 3 = moderate, 2 = slight, and 1 = none.

1 SCALE (circle one): 5 4 3 2 1

Section G-2. How Much Have Infringers Taken Already

In your answer to question A 1 in Part I above, you gave attention, among other things, to the losses you have already suffered from the activities of pirates, counterfeiters and infringers. This was considered in terms of losses in 1986. Now consider the trend of annual losses over the last 15 years. Over that period the losses sustained by your business around the world because of the activities of pirates, counterfeiters and infringers have:

- 2 grown greatly
- 3 grown moderately
- 4 grown slightly
- 5 stayed more or less constant
- 6 declined slightly
- 7 declined moderately
- 8 declined greatly
- 9 other (explain) _____

Business Confidential

Section G-3. How Much More is in Jeopardy to Infringers

Beyond that which the pirates, counterfeiters and infringers have already taken or damaged, indicate how much more of your current business is at risk because of the lack of adequate and effective intellectual property protection around the world by circling the appropriate number on the scale of 1 to 5 below where 5 = very great, 4 = great, 3 = moderate, 2 = slight, and 1 = none.

1 SCALE (circle one): 5 4 3 2 1

Unless you circled "none" (1), indicate the probable trend of losses you can reasonably expect your business to sustain over the next five years assuming no improvements are made in intellectual property protection. Losses will:

- 2 [] grow greatly
- 3 [] grow moderately
- 4 [] grow slightly
- 5 [] stay more or less constant
- 6 [] decline slightly
- 7 [] decline moderately
- 8 [] decline greatly

Business Confidential

SECTION H. Inadequacies

Inadequacies in Intellectual Property Protection by Category / by Country

Respond below only for those categories of protection which in Section A-5 of the Introductory Company Profile you indicated are of "Very Great" (5), "Great" (4), or "Moderate" (3) importance for your firm's operations. For each such category of protection, list up to ten countries, in approximate order of importance to you, which you would most like to see adopt fully adequate and effective intellectual property protection. The list may include countries which are now large markets for you as well as those which could be potentially large markets if intellectual property protection were improved. Then from your knowledge or experience check for each listed country the significant inadequacies in current intellectual property protection found there. An additional list of problems is included in Section I to cover enforcement difficulties common to all the categories of protection. For definitions of the flaws see pages vi-ix.

Section H-1. Copyright.

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 U.S. works not protected.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Law does not protect all traditional and new works....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 Inadequate exclusive rights..	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Exceptions to exclusive rights overly broad.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Terms of protection are too short.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Burdensome substantive or procedural formalities.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
7 Inadequate remedies/ penalties.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
8 Enforcement failures.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
9 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section H-2. Patents (See instructions for Section H on page 10)

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 No patent protection.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Patentability precluded by statute.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 Term too short.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Early lapse.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Compulsory licensing.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Paris Convention nonadherence.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
7 Patent claims narrowed too much.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
8 Unrealistic working requirements.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
9 Inadequate remedies/ penalties.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
10 Enforcement failures.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
11 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
12 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section H-3. Trademarks (See instructions for Section H on page 10)

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 Scope of what constitutes infringement is too narrow..	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Renewal proof of use difficult.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 No protection of "well known" marks.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Narrow spectrum of class protection.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Circumscribed usage or "Linking".....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Unreasonable licensing requirements.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
7 Inadequate remedies/ penalties.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
8 Enforcement failures.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
9 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
10 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section H-4. Trade Secrets (See instructions for Section H on page 10)

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 No trade secret protection... []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Short time limits on confidentiality..... []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 No protection against third parties..... []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Inadequate remedies/penalties..... []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Enforcement failures..... []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Other: _____ []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
7 Other: _____ []	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section H-5. Mask Works (See instructions for Section H on page 10)

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 No legal protection.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Inadequate sui generis coverage.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 Inadequate remedies/ penalties.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Enforcement failures.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section H-6. Proprietary Technical Data (See instructions for Section H on page 10)

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Regime Flaws	Country (listed above)									
	1	2	3	4	5	6	7	8	9	10
1 No legal protection.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
2 Short time limits on confidentiality.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
3 Inadequate remedies/penalties.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
4 Enforcement failures.....	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
5 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
6 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
7 Other: _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Business Confidential

Section I. Remedies and Enforcement

If you checked "Inadequate remedies/penalties" or "Enforcement failures" for any category in Sections H-1 through H-6, please check below the more specific flaw or flaws as they apply for up to 10 countries. If more than 10 were indicated in Sections H-1 - H-6, photocopies of this page may be used.

Countries:

1 _____	6 _____
2 _____	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

Use letters instead of check marks to indicate the category above to which you refer. You may refer to more than one category.

P = patent C = copyright T = trademark S = trade secret
 M = mask works D = proprietary technical data O = other.

FLAWS	Countries (as listed above)									
	1	2	3	4	5	6	7	8	9	10
1 No preliminary or final injunctive relief	:	:	:	:	:	:	:	:	:	:
2 Lack of seizure and impoundment remedies	:	:	:	:	:	:	:	:	:	:
3 Lack of exclusion of imports	:	:	:	:	:	:	:	:	:	:
4 Adverse burden of proof for process patents	:	:	:	:	:	:	:	:	:	:
5 Lack of compulsory process: and/or discovery	:	:	:	:	:	:	:	:	:	:
6 Inadequate civil remedies	:	:	:	:	:	:	:	:	:	:
7 Inadequate criminal penalties	:	:	:	:	:	:	:	:	:	:
8 Unreasonably slow enforcement process	:	:	:	:	:	:	:	:	:	:
9 Enforcement officials discriminate against foreigners	:	:	:	:	:	:	:	:	:	:
10 Training and resources for: enforcement inadequate	:	:	:	:	:	:	:	:	:	:
11 Court decisions biased or political	:	:	:	:	:	:	:	:	:	:
12 Corruption	:	:	:	:	:	:	:	:	:	:
13 Other:	:	:	:	:	:	:	:	:	:	:
14 Other:	:	:	:	:	:	:	:	:	:	:

Business Confidential**Section J. Secondary Barriers Affecting Intellectual Property or Arising From Inadequate Intellectual Property Protection**

In some countries, other barriers to investment or trade can diminish the value of your intellectual property. In other cases, inadequate intellectual property protection spawns secondary barriers to your business activity, further decreasing the value of the property. For example, a lack of product patent protection for certain inventions in a country, could allow local companies which copy these products to obtain standing as local producers and then petition the Government to close the border to products from the inventor company.

Check any such secondary barriers listed below which are encountered by your operations abroad and indicate the countries where each is encountered. Space is provided for the top five countries per barrier; photocopies of this page may be used if you wish to report on additional countries.

- 1 [] Import quotas, e.g. film quotas
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 2 [] Discriminatory taxes
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 3 [] Inability to maintain a local office
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 4 [] Investment restrictions and local ownership requirements
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 5 [] Embargoes
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 6 [] "Similar" prohibitions on imports
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 7 [] Price controls
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 8 [] Other: _____
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____
- 9 [] Other: _____
 Countries: a. _____ b. _____ c. _____ d. _____ e. _____

REMINDER: Please, append any case examples that illustrate losses suffered by your company as the result of inadequate intellectual property protection. Thank you. ^{D-29}

APPENDIX E
SUMMARY OF STATUTES RELATING TO INTELLECTUAL PROPERTY
FOR SELECTED COUNTRIES 1/

1/ These summaries relate to those portions of the foreign statutes considered relevant for the purposes of this investigation. The summaries are based on information available to the Commission from the Patent and Trademark Office, the Copyright Office, the Library of Congress and private sources.

Copyright
Brazil

Laws Relating to Copyright

1. The Civil Code of the United States of Brazil, Book II, "Law of Things," Title II, "Property," Chapter VI, "Literary, Scientific and Artistic Copyright" [as amended up to Oct. 23, 1958] ("Civil Code").
2. Law on the Rights of Authors and Other Provisions (Law No. 5988) (Dec. 14, 1973); amended by Law No. 6800 (June 25, 1980) and by Law No. 7.123 (September 1983) ("Law No. 5988").
3. The Penal Code (Decree No. 2.848) (Dec. 7, 1940); amended by Law No. 6.895 (Dec. 17, 1980) ("Penal Code").

Protection of foreign authors

According to Law No. 5988, foreigners domiciled outside the country are protected by the agreements, conventions, and treaties ratified by Brazil. (art. 1).

Protected works

Law No. 5988 (art. 6) considers "[c]reations of the mind" intellectual works that include the following categories:

- (i) books, brochures, pamphlets, correspondence and other writings;
- (ii) lectures, addresses, sermons and other works of the same nature;
- (iii) dramatic and dramatico-musical works;
- (iv) choreographic works and entertainment in dumb show, the acting form of which is fixed in writing or otherwise;
- (v) musical compositions with or without words;
- (vi) cinematographic works and works made by any process analogous to cinematography;
- (vii) photographic works and works made by any process analogous to photography provided that, by reason of the choice of subject and the conditions under which they are made, they may be considered artistic creations;
- (viii) works of drawing, painting, engraving, sculpture and lithography;
- (ix) illustrations, maps and other similar works;

(x) plans, sketches and plastic works relating to geography, topography, engineering, architecture, scenography and science;

(xi) works of applied art, in so far as their artistic value may be dissociated from the industrial character of the object to which they are applied;

(xii) adaptations, translations and other alterations of original works which, provided that they have received prior authorization and do not cause a prejudice to the said original works, represent a new intellectual creation.

Rights granted to author

The Civil Code grants the author the exclusive right to reproduce a literary, scientific or artistic work (art. 649).

Law No. 5988 grants the author the right "to use, to profit by and to dispose of the literary, artistic or scientific work, and to authorize third parties to use it or profit by it, wholly or in part" (art. 29).

In addition, Law No. 5988 (art. 25) confers the following rights to the author:

- (i) the right to claim authorship of the work at any time;
- (ii) the right to have his name, pseudonym or conventional mark indicated or declared as being that of the author when his work is used;
- (iii) the right to withhold publication of his work;
- (iv) the right to ensure the integrity of the work, by opposing any modifications or acts which might, in any way, be prejudicial to it or have an adverse effect on his reputation or honor as an author;
- (v) the right to modify the work before or after its use;
- (vi) the right to withdraw the work from circulation or to suspend any previously-authorized form of use.

Duration of copyright

Law No. 5988 (art. 42) states that the "author shall enjoy the benefits of his economic rights during his lifetime." Article 42(3) adds that "other successors of the author shall enjoy the benefits of the economic rights which he has transferred to them for a period of sixty years from the first of January of the year following his death."

Sanctions

The author is entitled to demand seizure of any copies that were fraudulently reproduced from the author's work. The author is also entitled to damages. (See Civil Code, arts. 669-672).

Law No. 5988 (part VIII, "Sanctions for Violations of Copyright and Related Rights," ch. II) concerns civil and administrative sanctions. The author may apply for seizure of copies made unlawfully, as well as receive compensation for losses and damages suffered (arts. 122 and 123). Article 124 extends such sanctions to "transmissions, retransmissions, reproductions or publications made without authorization, by any means or process, of protected performances; broadcasts and phonograms." In addition, the author may apply to the police authority to prohibit "the performance, transmission or retransmission of the intellectual work, phonogram included, made without authorization." (art. 127).

The Penal Code (ch. I, "Offenses Against Intellectual Property") imposes criminal sanctions on copyright offenders. The penalty for copyright violation is detention for 3 months to 1 year, or a fine of 2,000 to 10,000 cruzeiros. If the violation consists of reproduction of an intellectual work, phonogram or video-phonogram for commercial purposes, without the authorization of the author, the penalty is imprisonment for 1 to 4 years and a fine of 10,000 to 50,000 cruzeiros. (art. 184(1)). False attribution of authorship of intellectual works is subject to imprisonment from 6 months to 2 years, and a fine of 2 to 10 contos de reis. (art. 185).

Protection of phonograms

Law No. 5988 (part V, "Related Rights," ch. II, "The Rights of Performers and Producers of Phonograms") grants copyright protection to performers. (art. 95). It also allows broadcasting organizations to make "fixations of performances" if the performers consent thereto. (art. 96).

In addition, chapter III, article 99, allows the broadcasting organizations to authorize or prohibit the "retransmission, fixation and reproduction of their broadcasts and the communication of their transmissions to the public by television in collective gathering places, where a fee is charged for admittance." Chapter II also allows the phonogram producer to authorize or prohibit "reproduction, transmission and retransmission by a broadcasting organization, and public performance by any means" (art. 98).

The duration of the related rights listed above is 60 years from the first of January of the year following fixation for phonograms, following transmission for broadcasting organizations, and following the holding of the event in other cases (art. 102).

Computer Software

Law No. 7646 of December 18, 1987 protects computer software in Brazil and makes the provisions of Law No. 5988 of December 14, 1973 (the general copyright law) applicable with modifications (arts. 1-2).

The author's rights in computer software are protected for 25 years from their introduction in any country (art. 3). Foreigners domiciled abroad have the same rights as long as equivalent rights are granted by the country of origin to Brazilians and foreigners domiciled in Brazil (art. 3). Certain acts are not considered an offense against the rights of the author, e.g., reproduction of a legally acquired copy where such reproduction is indispensable for the adequate utilization of the program (art. 7).

For commercialization, the program must be cataloged by the Special Informatics Secretariat (SEI) (art. 8). In the case of programs developed by non-national companies, SEI cataloging and approval of acts or contracts referred to in the law are conditioned on the non-existence of a "similar" computer program developed in Brazil by a national company (art. 8). Cataloging is valid for 3 years and is automatically renewable (art. 9). Appeal from SEI decisions on cataloging are appealable to the National Council for Informatics and Automation (CONIN) (art. 9). A computer program is "similar" when it is "functionally equivalent," it complies with national standards (when applicable), and it executes substantially the same function (art. 10). Cataloging by SEI will be granted to non-national companies exclusively for computer programs which apply to equipment manufactured in Brazil or abroad and which are commercialized in Brazil by companies of the same category (art. 12).

The holder of computer program commercialization rights has certain obligations, e.g., he must disclose, without cost, the correction of errors and ensure users of the complementary technical services for adequate performance of the computer program (arts. 24-26). Certain clauses in licensing and assignment contracts are prohibited (art. 27). Except as provided in art. 12, commercialization of computer programs is limited to national companies (art. 28). Approval by the competent Brazilian authorities of acts and agreements relating to the commercialization of foreign-origin programs is required for cataloging, fiscal deductions, and remittance abroad of sums due (art. 28). Such approval and recording will only be granted where the royalty is based on a fixed price per copy, not over the average world price (art. 29). Renumeration based on production, income or profits is prohibited (art. 29). Non-national companies may not receive the permission of art. 29, where their commercialization is under art. 12, they may remit funds (art. 29).

Any technology transfer agreement involving a computer program must be filed with the National Institute of Industrial Property (INPI) (art. 31). The supplier under such an agreement must furnish the recipient complete documentation. (art. 31).

The penalty for violation of a computer program copyright is imprisonment for 6 months to 2 years and a fine (art. 35). The penalty for importing, exhibiting or storing for commercialization, a non-cataloged foreign-origin program is imprisonment for 1 to 4 years and a fine (art. 37).

An injured party may also bring a suit to restrain the infringement and for damages (art. 39). The law contains provisions for search and seizure and temporary restraining orders, and also remedies against persons who bring suits in bad faith or gross mistake (art. 39).

Japan

Copyright statute

Copyright Law No. 48, promulgated on May 6, 1970 (amended by Law No. 49 of May 18, 1978, Law No. 46 of May 25, 1984, Law No. 62 of June 14, 1985 and Law No. 64 of May 23, 1986).

Protection of foreign authors

This law grants protection to works first published in Japan, including those works first published abroad and published in Japan within 30 days of that first publication. This law also applies to works Japan is obligated to protect under an international treaty (art. 6).

Protected works

The following categories of authors' works are covered by Article 10 of Law No. 48:

- (i) novels, dramas, articles, lectures and other literary works;
- (ii) musical works;
- (iii) choreographic works and pantomimes;
- (iv) paintings, engravings, sculptures and other artistic works;
- (v) architectural works;
- (vi) maps as well as figurative works of a scientific nature such as plans, charts, and models;
- (vii) cinematographic works;
- (viii) photographic works; and
- (ix) program works.

In addition, phonograms, broadcasts and wire diffusions are also protected under this law (art. 8 and 9).

Unprotected works

Article 10(3) states that the protection of "program works" does not extend to any programming language, rule or algorithm used for making such works.

Article 13 states:

The following shall not form the subject matter of the rights provided for in this Chapter:

- (i) the Constitution and other laws and regulations;
- (ii) notifications, instructions, circular notices and the like issued by organs of the State or local public entities;
- (iii) judgments, decisions, orders and decrees of law courts, as well as rulings and decisions made by administrative organs in proceedings similar to judicial ones;
- (iv) translations and compilations, of those materials mentioned in the preceding three items, made by organs of the State or local public entities.

Rights granted to author

The following rights are granted to the author: the right to make the work public (art. 18); the right to preserve the integrity of the work against any mutilation, distortion or other modification (art. 20); the exclusive right of reproduction (art. 21); the exclusive right of performance (art. 22); the exclusive rights of broadcasting and wire transmission (art. 23); the right of recitation (art. 24); the exclusive right of exhibition (art. 25); the exclusive right of cinematographic presentation and distribution (art. 26); the exclusive right of translation and adaptation (art. 27) and; the right regarding the exploitation of a derivative work (art. 28).

Duration of copyright

The term of the copyright is for the life of the author and continues for 50 years following the author's death (art. 51). For cinematographic and photographic works the copyright is for 50 years following the creation of the work (arts. 54 and 55).

For works originating in a foreign country that is a member of the International Union established by the Berne Convention for the Protection of Literary Works, if the duration of the copyright granted by that country of origin is shorter than that provided under Law No. 48, the duration of the copyright shall be that granted by the country of origin (art. 58).

The term of protection for performances, phonograms, broadcasts and wire diffusions is 20 years from the time the performance, broadcast or wire diffusion took place or from the time the first fixation of sounds was made (art. 101).

Sanctions

The authors or owners of copyrighted works may demand cessation or prevention of the copyright infringement (art. 112).

Any person who infringes a copyright shall be punished by imprisonment (not to exceed 3 years) or a fine (not to exceed 1 million yen) (art. 119).

Any person who reproduces commercial phonograms made by "those engaging in the business of manufacturing commercial phonograms in [Japan]" shall be punished by imprisonment (not to exceed 1 year) or a fine (not to exceed 300,000 yen) (art. 121(ii)).

Korea

Copyright statutes

1. Copyright Law No. 3916 of December 31, 1986.
2. Computer Program Protection Act, July 1, 1987 (CPPA).

Protection of foreign authors

Law No. 3916 states that copyrights held by foreigners are protected in accordance with provisions of treaties signed by Korea. Copyrights held by foreign authors before a treaty is signed shall not be protected (art. 3).

Foreigners residing in Korea (including those whose main office is in Korea) shall be protected by the Korean copyright law. Copyrighted work by foreigners first published in Korea, or published within 30 days of the date of original publication, shall also be protected by the Korean copyright law (art. 3).

However, the terms set forth in the above two paragraphs are only applicable if the foreign author's country of origin grants reciprocity to Korean authors (art. 3).

Protected works

Article 4 grants the following categories of works copyright protection:

1. novels, poems, articles, speeches and playrights;
2. musical works;
3. theatrical, dance, and pantomime;
4. drawings, plans, applied arts, sculpture and handicrafts;
5. architectural samples and plans;
6. photographs;

7. televised works;
8. maps, graphs, and plans;
9. computer programs.

Rights granted to author

Law No. 3916 grants authors of a copyright the following rights: right to duplicate; right to perform; right to display; right to broadcast; and right to distribute (art. 16-21)

Duration of copyright

Law No. 3916 grants copyright protection during the life of the author and for 50 years following the author's death. That law also grants copyright protection for 10 years for a work published between 40 and 50 years after the death of the author (art. 36).

The 1986 law also grants protection for performers, producers and broadcasters of phonograms for a period of 20 years from the time of performance, from the time the phonogram was produced or from the time of broadcasting. (See art. 70.)

Sanctions

Law No. 3916 imposes civil and criminal penalties (maximum 3 years imprisonment and a maximum fine of 3 million won) for the following acts: infringement of property rights including the rights of reproduction, performance, broadcasting and display; infringement of personal rights such as damage to honor and reputation; and false registration (art. 98).

The penalties for illegal publication are a maximum of 1 year imprisonment and a maximum fine of 1 million won (art. 99).

For the illegal use of an original source the penalty is a maximum fine of 1 million won (art. 100). In addition to the above enumerated penalties, the author or owner of the copyrighted work may request the infringed works be confiscated by the Government (art. 101).

Phonograph records

1. Law No. 2308 Concerning Phonograph Records [as amended up to Jan. 22, 1971].
2. Regulations of the Law Concerning Phonograph Records, Order No. 3304 of December 15, 1967.
3. Enforcement Decree of Law Concerning Phonograph Records, Presidential Decree No. 5936 of December 31, 1971.

Law No. 2308 requires registration of phonograph records (art. 3) "in order to promote the national art and to polish the emotional life of nation with improvement of content of phonograph records" (art. 1).

Article 5 prohibits the following persons from registering phonograph records under Law No. 2308:

1. Person who is not a national of R.O.K.;
2. Corporation or party of foreign country;
3. Person who has no address in R.O.K.;
4. Corporation or party who is a representative or has voting rights more than as a person falling under item 1 to 3.

Computer program protection act

The Computer Program Protection Act (CPPA) grants copyright protection of computer programs to foreigners only if Korea is under a treaty obligation to grant such protection or if the programs are first published in Korea (or not longer than 30 days from the first publication in another country). Such protection may also be subject to reciprocity. (Because of the unavailability of the CPPA in English; the information used in this report concerning the CPPA was obtained from an article by Tae Hee Lee, "Korea's New Computer Program Protection Act," at 8. East Asian Executive Reports, Feb. 1987.)

The CPPA grants copyright protection of computer programs for a term of 50 years from the date of creation. The definition of computer programs is "a manifestation of a series of directions and commands used either directly or indirectly in the computer in order to achieve a specific result." Protection is not granted for "program languages, program rules and program solutions used in programming."

The CPPA prohibits "unauthorized use, reproduction, adaptation, distribution, publication and issuance." If there is an infringement of the computer program's copyright, the owner may demand cessation of the infringement and destruction of any products resulting from the infringement. The owner also has a right to damages if the infringement was intentional or negligent. The damage amount is presumed to be the amount of the loss suffered by the owner. The owner is also entitled to damages in the amount corresponding to royalties.

Computer programs must be registered to have an enforceable copyright against a third party. However, ownership rights will not depend on registration. Registration must take place within 1 year of the program's creation and a reproduction of the program must be submitted to the Ministry of Science and Technology at the time of registration.

Mexico

Copyright statute

Law Amending the Federal Law of Copyright of December 29, 1956 (as amended up to Dec. 30, 1981).

Protection of foreign authors

Article 28 states, "[w]hen the author of a work is the national of a State with which Mexico has not concluded a Treaty or Convention, or when a work is first published in a State which is in this position in relation to Mexico, copyright shall, subject to reciprocity, only be protected for seven years from the date of first publication of the work." Article 30 grants protection under the Mexican copyright law to works of nationals of a State with which Mexico has concluded a copyright treaty, as long as the Mexican law is compatible with the treaty.

Foreigners located in Mexico are granted the same rights as Mexican authors (art. 29).

Protected works

Article 7 lists 10 categories of copyright protection:

Article 7. The protection of an author's rights is conferred in respect of his works having characteristics which fall within one of the following categories:

- (a) Literary works;
- (b) Scientific, technical, and juridical works;
- (c) Teaching and instructional works;
- (d) Musical works, with or without words;
- (e) Works of dancing, choreography, and pantomime;
- (f) Pictorial works of drawing, engraving, and lithography;
- (g) Sculpture and works of a plastic character;
- (h) Architectural works;
- (i) Photographic and cinematographic works, and works for broadcasting and television;
- (j) All other works which, by analogy, can be regarded as falling within the generic categories of artistic and intellectual works aforementioned.

The protection of the rights that this Law establishes shall have legal effect when the works are expressed in the form of writing, engraving, or in any other objective and durable form, capable of reproduction or communication to the public by any means.

Rights granted to author

Article 4 grants the following rights:

The rights granted to the author of a work . . . include the right of publication, reproduction, performance, exhibition, adaptation and any public use thereof effected by any means, according to the nature of the work, and in any special manner by the means specified in current international treaties and conventions to which Mexico is a party. Such rights are transmissible by all lawful means.

In addition, article 5 states:

Translations, compendiums, adaptations, transpositions, arrangements, instrumentations, dramatisations, or transformations of a work, either wholly or in part, may not be published, diffused, presented or publicly exhibited without the consent of the author.

Limitations on authors' rights

Article 18 states:

The rights of an author shall not extend to the following cases:

- (a) The industrial application of the ideas contained in his works'
- (b) The use of a work in the reproduction or presentation of a current event, unless for purposes of monetary gain;
- (c) The publication of works of art or of architecture that are visible from public places;
- (d) The translation or reproduction by any means of brief extracts from scientific, literary, or artistic works in educational or scientific publications, or in chrestomathies, or in publications devoted to literary criticism or scientific research, provided an indication is given of the source from which they have been taken and the reproduced texts have not been altered;
- (e) The copying by manuscript, typewriting, photography, photostat, painting, drawing, or microfilm of a published work, provided it is for the exclusive use of the person making the copy.

Duration of copyright

The rights are granted for the life of the author and continue for 50 years after the author's death. Thereafter, the right to use and exploit the work passes to the public domain (art. 23(i)).

Article 28 limits copyright protection for 7 years from the date of first publication (subject to reciprocity) of the work for authors that are nationals of a State with which Mexico has not concluded a treaty or convention.

Sanctions

Depending on the nature of the copyright violation, imprisonment may be imposed for a term ranging from 30 days to 6 years. In addition, a fine may be imposed ranging from \$50 to \$10,000. (See arts. 135-143). Penalties are computed by taking into account the financial status of the offender, the damage caused, and the offender's previously committed copyright offenses (art. 144).

According to article 146, the Courts may (1) seize before, during or after a performance, entrance monies obtained in respect of such performance, (2) seize electro-mechanical apparatus used in performing the copyrighted work, and (3) intervene in business negotiations.

Taiwan

Copyright statute

Copyright Law of the Republic of China, May 14, 1928; amended April 27, 1944, January 13, 1949, July 10, 1985.

Protection of foreign authors

Article 17 states that a foreign national may be eligible for copyright registration if one of two conditions are met:

1. The work was first published within the territory of the Republic of China; or
2. According to a treaty or the law or custom of the applicant's country, intellectual works produced by ROC nationals are entitled to equivalent rights in that country.

The owner of a copyright duly registered pursuant to the preceding paragraph shall be entitled to the rights under this Law, provided that this shall not include rights relating to translation of the works other than creative musical works, scientific-technological and engineering design drawings, artistic works or compilations thereof.

Protected works

The following works are entitled to a copyright according to Article 4: literary works; oral works; translation of literary works; translation of oral works; compilations; artistic works; pictorial works; musical works; motion pictures; sound recordings; video tapes; photographic works; lectures, musical performances, stage presentations and choreography; computer programs; maps; scientific-technological or engineering design drawings; and other works.

Unprotected works

Article 5 excludes the following works from being the subject matter of a copyright: the Constitutions, laws and regulations, and official documents; slogans, common symbols, terms, formulae or equations, numerical charts, forms, note books, and calendars; news reports solely for the purpose of transmitting facts; and questions in various types of examinations.

Rights granted to author

The author of works set forth above has the following rights: exclusive rights of reproduction, public recitation, public broadcasting, public presentation, public performance, public exhibition, compilation, translation, and/or lease and the exclusive right of adaptation (art. 4).

Duration of copyright

The term of the copyright is for the life of the author (art. 8). A copyright of a work of compilation, translation of a literary work, motion picture, sound recording, video tape, photograph or computer program is for a term of 30 years (arts. 12 and 13).

Sanctions

The copyright owner may demand removal of any copyright infringement and compensation for loss or damages caused by the infringement. The amount of damages will depend on the profit made by the infringer and the loss incurred by the copyright owner, but will not be less than 500 times the actual retail price of each of the infringed works (art. 13).

In addition, penal sanctions are available. For reproducing a copyrighted work without authorization, the sentence is a minimum 6 month term of imprisonment and a possible maximum fine of 30,000 yuan (art. 38). For copyright infringement the sentence is a maximum of 2 years imprisonment and the possibility of a maximum fine of 20,000 yuan.

Thailand

Copyright statute

Copyright Act, B.E. 2521 (Dec. 11, 1978).

Protection of foreign authors

This Act grants protection to Thai nationals or persons "who stay in [Thailand] at all time or most of the time during the creation of the work" (sec. 6). If a copyright is made under the laws of a State that is a signatory of a copyright convention, and that State grants reciprocal copyright protection to Thailand, that work will enjoy protection under this Act subject to conditions made by royal decree (sec. 42).

Protected works

The Act defines "work" as "a creative work in the form of literary, dramatic, artistic, musical, audio-visual, cinematographic, sound and video broadcasting work, or any other work in the literary, scientific or artistic domain" (sec. 4).

Rights granted to author

The owner of the copyright has an exclusive right of: reproduction or adaptation; publication; granting benefits accruing from the copyright to other persons; and granting licence to other persons (sec. 13).

Duration of copyright

A copyright is granted for the life of the author and 50 years after the author's death (sec. 16). A copyright for a photographic, audio-visual, cinematographic or sound and video broadcasting work is granted for 50 years from the date of creation of the work (sec. 18).

Sanctions

Copyright infringement is subject to a fine from 5,000 baht to 100,000 baht (secs. 43 and 44).

Patents 1/

Brazil

The principal statute relating to patents in Brazil is Title 1 of the Industrial Property Code, Law No. 5772 of December 21, 1971, as currently amended and implemented.

Grant

Patents are granted, on application and after examination thereof, by the National Industrial Property Institute (INPI) of the Ministry of Industry and Commerce. Four types of patents are granted: Patents for inventions (regular patents), utility models, industrial designs, and models (art. 2).

Term

Regular patents: 15 years from filing date of application; utility models and industrial models and designs, 10 years (art. 24).

Patentable subject matter (regular patents)

An invention is patentable if it is new and capable of industrial utilization. Article 6. There are numerous exceptions (art. 9). Among these are: agricultural chemical products; food and pharmaceutical products and processes, metallic alloys in general, microorganisms and uses thereof, medical techniques, systems and programming for various purposes, including calculation; and nuclear products and processes.

Maintenance fees

An issue fee is required (art. 21). Annuities are payable beginning 3 years after application (art. 25).

Working requirement

A patent will lapse if the patentee does not commence working within 4 years of issue, or, if the patent is licensed, within 5 years (art. 49). A patent will also lapse if working has ceased for 2 years (art. 49). Proceedings to declare a patent to have lapsed are commenced ex officio or by petition of an interested party. The burden of proof is on the patentee (art. 49). Force majeure is a defense (art. 49).

1/ Unless otherwise specified in the text, "patents" refers to the regular patent of a country as opposed to lesser forms of protection that it may additionally afford, such as patents of addition, utility models, etc. These lesser forms are not known in United States law.

Compulsory license

A patent will be subject to compulsory license proceedings if working does not commence within 3 years of issue, or, if the patent is licensed, within 4 years. A patent will be subject to compulsory license proceedings if working has ceased for 1 year (art. 33). In the absence of an international agreement to which Brazil is a party that provides otherwise, working must be in Brazil, not by importation (art. 33). A nonexclusive compulsory license may be granted in the public interest, even if the patent is being worked, when such working does not meet market demand. Id. The burden of proof in such proceedings is on the patentee (art. 33). Patents may be expropriated for reasons of national security or the public interest (art. 39).

Licensing restrictions

Licenses must set out the terms of payment and the conditions relating to use of the invention (art. 29). They must not limit the use of the invention, the export of the covered products, or on the import of materials necessary to make the covered products (art. 29). Improvements made by the licensee belong to him (art. 29). Licenses must be recorded with INPI (art. 30). In addition, Normative Act No. 15 of September 18, 1975, sets out numerous restrictions that must be met before approval will be granted. Such approval is necessary to legitimize royalty payments, permit their deduction as an expense, and inuring the benefit of working by the licensee to the patentee.

Infringement

Definition.--Patentee's rights are not clearly specified in law.

Procedure; relief.--Violators of patent law are subject to civil and criminal penalties.

Japan

The principal statute relating to patents in Japan is Law No. 121 of April 13, 1959, as currently revised and implemented.

Grant

Patents are granted on application and after examination thereof by the Patent Office. Four types of patents are granted: Patents of invention (regular patents), patents of addition, utility models, and designs.

Term

Regular patents expire 15 years from date of publication but no more than 20 years from application. Patents of addition expire with the original

patent. Utility models expire 10 years from date of publication, but not more than 15 years from application. Designs expire 15 years from registration.

Patentable subject matter (regular patents)

An invention is patentable only if it can be utilized in industry (art. 29). There are a few exceptions, such as products of nuclear processes (art. 32).

Maintenance fees

Three years annuity are payable on grant. Annuity payments are required annually thereafter.

Working requirement

A patentee may be subject to compulsory license proceedings if the patent is not adequately worked in Japan within 3 years of grant (art. 83).

Compulsory license

A patent will be subject to compulsory license proceedings if the patent is not adequately worked in Japan within 3 years of grant (art. 83). Compulsory license proceedings are commenced on request of an interested party before the Director General of the Patent Office (art. 83). In addition, a patentee may be subject to compulsory license proceedings if the patented invention is necessary to the public interest (art. 93). These compulsory license proceedings are commenced by request to the Ministry of International Trade and Industry (art. 93).

Licensing restrictions

Exclusive licenses must be registered with Patent Office (art. 77, 98(ck)). International licenses must be approved by the Fair Trade Commission for compliance with the Antimonopoly Act. Guidelines exist for such approval and these prohibit such terms as certain export restrictions and tie-ins.

Infringement

Definition.--A patentee has the exclusive right to use the invention commercially (art. 68). There are a few specified exceptions relating to articles in transit, articles in Japan at the time of application, and preparations by pharmacists (art. 69). Infringement consists of making, selling leasing or commercially importing the patented article (art. 101).

Procedure; relief.--Damages are obtainable (art. 102). Where the claimed invention is a process for making an article not publicly known in Japan, any identical article is presumed to be made by the process (art. 104).

Injunctive relief and seizure are available (art. 100). There are also criminal provisions for infringement, i.e., prison for up to 5 years or a fine of up to 500,000 yen (art. 196).

Korea

The principal statute relating to patents in Korea is the Patent Law, as currently revised and implemented.

Grant

Patents are granted, on application and subsequent examination thereof, by the Office of Patents Administration.

Term

Regular patents expire 15 years from publication or, if not published, from registration (art. 53). Extensions are possible (art. 53).

Patentable subject matter (regular patents)

Patents are granted for inventions that are industrially applicable (art. 6). There are certain exceptions (art. 4). Among these are patents for food and beverages and atomic energy inventions (art. 4).

Maintenance fees

An issue fee is required (art. 76).

Working requirement

If a patent is not continuously worked in Korea for 3 years or more, other parties may request nonexclusive licenses. Parties desiring these licenses may request them within 4 years of the patent application.

Compulsory license

A patent may be expropriated by the Government in the public interest for reasonable remuneration (art. 50).

Licensing restrictions

License must be registered with and approved by the Ministry (art. 45).

Infringement

Fines of up to 20,000,000 won and possible imprisonment of up to 5 years.

Definition.--The patentee has the right to exclusively make, use, sell, import or distribute commercially and industrially the claimed article or the article produced by the claimed process (arts. 45, 64). There are certain exemptions (art. 46). Among these is noncoverage of pharmaceutical compositions if compounded by pharmacists (art. 46). A prior user is deemed to have a nonexclusive license (art. 47).

Procedure; relief.--The patentee may obtain a court injunction to prohibit or prevent infringement (art. 155). The patentee may obtain damages, but only for intentional or negligent infringement (art. 156).

Mexico

The principal statute relating to patents in Mexico is Title One of the Inventions and Trademarks Law of 1976 as currently revised and implemented. The most important amendment is the general one of January 16, 1987.

Grant

Patents are granted on application and subsequent examination thereof by the Ministry of Trade and Industrial Promotion. Three types of patents are granted: regular patents, improvement patents, and invention certificates.

Term

Regular patents expire 14 years from date of issue (art. 40).
Invention certificates expire 14 years from date of grant (art. 67).

Patentable subject matter (regular patents)

Patents are granted for inventions which are new, the result of inventive activity and susceptible of industrial application (art. 4). There are certain specified exceptions (arts. 9, 10). Among these are vegetable and animal species and processes for producing them, alloys, foods and beverages and processes for making them, nuclear energy inventions unless excepted biotechnological processes to produce pharmaceuticals, chemicals and medicines, beverages and foods for animal consumption fertilizers, pesticides, herbicides, fungicides or products having biological activity, and genetic processes for making vegetable and animal species (art. 10).

Maintenance fees

An issue fee and annuities are required (arts. 203, 204).

Working requirement

A patent may lapse if it is not adequately worked in Mexico within 4 years of issue (art. 47).

Compulsory license

A patent may be the subject of compulsory license proceedings if it is not adequately worked in Mexico within 3 years of issue (art. 50). Grounds for compulsory licensing grant include failure to work, suspension of working for more than 6 months (with recognition for cyclical or seasonal production), when the national market or export markets are not being served (but the patentee is given an opportunity to expand to serve such markets) (art. 50). Patents may also be the subject of compulsory license at any time in the public interest (art. 56). They may also be expropriated in the public interest (art. 63).

Licensing restrictions

Licenses must be registered with and approved by the Ministry of Trade and Industrial Promotion (art. 45).

Infringement

Definition.--The patentee generally has the exclusive right to exploit the patent to his advantage (arts. 3, 37). A patent does not grant the right to import the product or a product made by the patented process (art. 37). There are certain exceptions (art. 39). Invention certificates, which encompass broader subject matter than patents, ordinarily only entitle the owner to a royalty (providing the third-party and the patentee agree on a royalty or it is authorized) (arts. 67, 77).

Procedure; relief.--Patent infringement is addressed as a criminal act (art. 211). The infringer may be subject to prison for 2-6 years and a fine of 100-100,000 times the daily general minimum wage in effect in the Federal District (art. 212). The District Attorney conducts preliminary inquiry during which he may issue appropriate restraining orders (art. 213). However, a prosecution may only proceed with the prior (nonprejudicial) declaration on technical aspects of the Ministry of Trade and Industrial Promotion which is noticed to the Attorney General (art. 213). The patentee may also sue for damages (art. 214). The Federal Courts ordinarily have jurisdiction over both criminal and civil actions (art. 215).

Taiwan

The principal statute relating to patents in Taiwan is the Patent Law of May 29, 1944, as currently amended and implemented. The principal amendment is the Patent Law of April 16, 1979.

Grant

Patents are granted, on application and after examination thereof, by the Patent Office of the Ministry of Economic Affairs (art. 10). Two main types of patents are granted: Patents of invention (regular patents) and patents of addition (supplementary patents) (arts. 6, 8). Patents for new utility models and designs are also granted (arts. 95, 111).

Term

Regular patents expire 15 years from date of publication but no more than 18 years from application (art. 6). Supplementary patents expire with the regular patents that they supplement (art. 8). New utility models expire 10 years from date of publication but no more than 12 years from application (art. 99). Designs expire 5 years from publication but no more than 6 years from application (art. 114).

Patentable subject matter

An invention is patentable if it is new and has industrial utilization value (art. 1). There are numerous exceptions (art. 4). Among these are: chemicals, drinks, foods and medicines (art. 4).

Maintenance fees

An issue fee is required (art. 75). An annuity is required each year from date of publication (arts. 75-80).

Working requirement

Failure to work for 4 years may result in compulsory license. Failure to work in the 2 years after issuance may result in revocation of patent.

Compulsory license

A patent will be subject to compulsory license proceedings if it is not adequately worked in Taiwan within 3 years from grant (art. 67). Compulsory license proceedings may be commenced ex officio or on request of an interested party (art. 67). Grounds for compulsory license include: inadequate manufacture in Taiwan and failure to grant a license the owner of a patent of addition who must practice the patented invention in order to practice his own patent of addition (art. 68). Notwithstanding adequate working, a compulsory

license may still be granted to permit market demand to be met (art. 69). Patents may be expropriated for Government purposes with compensation to be paid to the patent owner (art. 72).

Licensing restrictions

Certain restrictions are declared void (art. 46). Among these are tie-ins and royalty rates so high that the licensee cannot earn a reasonable profit (art. 46).

Infringement

Definition.--The patentee has the exclusive right to manufacture, sell or use the invention (art. 42). If the invention is a process, the right extends to the process and products directly produced by that process (art. 42). There are specified exceptions to these rules (art. 43). A published application that results in a patent is treated as a patent ad interim (art. 44).

Procedure and relief.--Both injunctive relief and damages are provided for (arts. 81-82). The court may, on application, order provisional seizure of alleged infringing articles (art. 83). The court may also, on application, issue an injunction to prevent anticipated infringement (art. 84). Criminal actions may be brought on complaint (art. 93). Counterfeiting of patented articles may result in prison or hard labor and/or a fine of up to 40,000 yuan (art. 89). Imitating a patented article or using a patented process may result in prison for up to 2 years or forced labor and/or a fine of up to 10,000 yuan (art. 90). Selling, displaying or importing counterfeited or imitated articles may result in prison for up to 1 year or forced labor and/or a fine of up to 5,000 yuan (art. 91).

Thailand

The principal statute relating to patents in Thailand is the Patent Act (B.E. 2522) of March 16, 1979, as currently revised and implemented.

Grant

Patents are granted on application and after examination thereof by the Director General of the Department of Commercial Registration of the Ministry of Commerce. Two types of patents are granted: Regular patents and product design patents.

Term

Regular patents expire 15 years from date of application; product design patents, 7 years.

Patentable subject matter (regular patents)

Inventions must be applicable to industrial uses in order to be patentable.

Maintenance fees

Annual fees are due beginning with 5 year of patent term (sec. 43).

Working requirement

A patent may be subject to lapse proceedings if not worked in Thailand within 6 years of grant i.e., if there is no production or sale in Thailand or if sales are at exorbitant prices (sec. 55).

Compulsory license

A patent will be subject to compulsory license proceedings 3 years after grant if, without sufficient reason, production or sales in Thailand are insufficient to meet the demands and needs of the public or if sales are at exorbitant prices (sec. 46). A patent may also be subject to compulsory license proceedings if it would be infringed by working a later patent, providing the patentee would not be severely damaged, and the later invention is of great commercial importance and cannot be otherwise efficiently worked (sec. 47).

Licensing restrictions

Patentee may not impose the following on licensees: (1) conditions, (2) limitations, or (3) royalties that tend to damage or obstruct industrial, manufacturing, agricultural, or commercial development.

Infringement

Definition.---The rights of a patent holder are exclusive, i.e., the right to forbid all other persons from producing, selling (or possessing for sale) any patented products or from using patented processes.

Procedure; relief.---Fines and imprisonment may be imposed on infringers.

Trade Marks

Brazil

The principal statute relating to trademarks in Brazil is title II of the Industrial Property Code, Law No. 5772 of December 21, 1971, including Decree-Law No. 7903 of August 27, 1957 (title IV, arts. 175, 179 to 189).

Trademarks must be registered to be entitled to protection in Brazil. Certain marks are unregistrable (art. 65). Registered marks are protected only for the class or goods or services for which they are registered. However, "well known" marks (which have their own register) are protected in all classes (art. 67). Registrations are for 10-year terms and may be renewed for successive 10-year terms (art. 85). Trademarks may be licensed. Licenses must be approved and recorded by INPI (art. 90). Payment terms may be fixed by law and there may be no restrictions on the license on the industrialization, commercialization or export of the subject goods (art. 90). Registrations may lapse for nonuse of 2 years in the absence of force majeure (arts. 94-95). Registrations may also be annulled by courts and, in some cases, by INPI if unlawfully granted (art. 98). The Normative Act sets out detailed requirements for trademark licenses. Approval and recordal are the bases for payment of royalties, deducting royalties as an expense, and insuring the benefit of trademark use to the owner.

Infringement; counterfeiting

Persons are liable for infringement if they reproduce the trademark without the necessary authorization, or imitate, in such a manner as to create confusion, industrial marks or trademarks. A person who uses a mark referred to in the preceding sentence or sells or places on sale a product distinguished by such a mark, or uses a mark which indicates a false origin or sells or places on sale a product distinguished by such a mark is also liable for infringement (Decree-Law, arts. 179, 180-189).

Procedure and relief

The relief available includes a civil action for damages, and an injunction is provided for. In addition to an injunction and damages, the trademark owner may request the seizure and destruction of a counterfeit or imitated mark, including the packages or products bearing the mark, if necessary (Decree-Law, art. 184). A criminal action is possible and may result in imprisonment from 1 to 6 months or a fine from 500 to 5,000 cruzeiros. There is a separate provision for imprisonment from 3 months to 1 year and a fine from 1,000 to 15,000 thousand cruzeiros (Decree-Law, art. 175). Decisions usually take about 2 years in civil cases. Some attorneys' fees and costs may be recovered. The unlawful use of a mark reproducing or imitating a well-known mark registered in Brazil constitutes an aggravation of the offense (Decree-Law, art. 67).

Both civil and criminal actions may be preceded by court-ordered search and seizure proceedings, which may be ex parte. In the case of industrial or commercial establishments legally organized and in public operation, preliminary remedies are restricted to the official investigation and to the seizure of products or articles ordered by a court (Decree-Law, Art. 186). Preliminary injunctive relief is not available.

Prohibition of importation by customs

Products bearing forged or imitated marks may be seized ex officio by the customs authorities during their inspection as part of the court-ordered search and seizure (Decree-Law, art. 185).

Japan

The Trademark Law (Law No. 127 of Apr. 13, 1959, as amended), is the principal statute relating to trademarks in Japan.

Trademarks must be registered to be entitled to protection in Japan (sec. 18). Certain marks are unregistrable (sec. 4). Registered marks are protected only for the class of goods for which they are registered. Registrations are for 10 years and are renewable (sec. 19). Trademarks may be licensed.

Infringement and counterfeiting

The owner of a trademark right has an exclusive right to use the registered trademark with respect to the designated goods (sec. 25). It is infringement for another to use a mark identical or similar to the registered trademark on goods identical or similar to the designated goods. It is also infringement (1) to possess the designated goods or similar goods bearing a mark similar to the registered trademark for the purpose of delivery to another; (2) to possessing implements or materials for applying a mark similar to the registered trademark on the designated goods or similar goods; (3) to deliver, or hold for the purpose of assignment or delivery, instruments for applying a mark similar to the registered mark on the designated goods or similar goods; (4) to manufacture or import instruments for applying a mark similar to the registered mark on the designated goods or similar goods; or (5) to manufacture, assign, deliver or import, in the course of trade, articles to be used exclusively for manufacturing instruments for applying a mark similar to the registered trademark.

Procedure and relief

Actions for infringements are begun in the appropriate district (trial) court, from which appeal may be had to the High Court and thence to the Supreme Court. The court may enjoin a person who is infringing or is likely to infringe and order the destruction of the articles by which the act of infringement was committed, the removal of the facilities used for infringement, or other measures necessary to prevent further infringement (sec. 36). Where a person has intentionally or negligently infringed, compensation for damage caused may be awarded; the profits gained by the infringer through the infringement are presumed to be the amount of damage suffered by the owner. The owner of a trademark right may claim an amount of money that he would normally be entitled to receive for the use of the registered trademark, as the amount of damage suffered by him but is not precluded from damages exceeding the amount referred to (sec. 38). The court may also order an infringer to take measures for the recovery of the business

reputation of the trademark owner, such as a public letter of apology (sec. 39).

Any person who has infringed a trademark right or a right of exclusive use is liable to imprisonment with labor for up to 5 years or a fine of up to 500,000 yen (sec. 78).

Summary ex parte proceedings are available for temporary injunctions.

Prohibition of importation by customs

Article 21 of the Law concerning the Establishment of Tariffs (Law No. 54, 1910) prohibits importation of goods that infringe.

Korea

The principal trademark statute in the Republic of Korea is the Trademark Law, Law No. 71 of November 28, 1949, as amended. The law provides a registration system for trademarks; trademark rights are created by registration and consist of the exclusive right to use the registered trademark with respect to the goods noted in the registration.

Certain marks are unregistrable (secs. 8-9, 26). Registered marks are protected only for the class of goods or services for which they are registered (sec. 23). Registrations are for 10 years and are renewable (secs. 20-21). Trademarks may be licensed. Such licenses must be approved and recorded by the Director of the Patent Office (sec. 29). A trademark right may be extinguished, inter alia, if the trademark owner ceases to deal in the designated goods (sec. 34).

Infringement; counterfeiting

Infringement is the use of a trademark identical with or similar to the registered trademark of another on goods identical with or similar to the goods for which the mark is registered. It is also an infringement to deliver, sell, counterfeit, imitate or possess a trademark identical with or similar to the registered trademark of another, for the purpose of using or causing a third party to use such trademark on goods identical with or similar to the designated goods for which the mark is registered. It is also an infringement to manufacture, deliver, sell, or possess instruments for the purpose of counterfeiting or imitating a registered trademark of another or causing a third party to counterfeit or imitate such trademark. Section 36. This definition clearly includes counterfeiting.

Procedure and relief

Actions for trademark infringement are brought in the district court. Appeal is to a three-judge panel of the district court and thence to the Supreme Court. The court may order damages and injunctive relief as well as the destruction of the infringing marks and the means for making and applying

them. Damages in an amount equivalent to the profits normally gained through use of such trademark over and above the infringement profit may be claimed. However, the total amount of compensation cannot exceed three times the amount of the damage suffered. Section 37. The court may order the necessary measures to restore the business reputation of the owner of a trademark right upon the request of the owner, instead of or in addition to the payment of damages by any person who has infringed the trademark right intentionally or negligently and thereby caused prejudice to the business reputation of the owner (sec. 39).

Preliminary injunctive relief may also be granted. There are also penal provisions:

Section 60 (Offense of Infringement).

Any person who has infringed a trademark right provided under Section 36 shall be liable to imprisonment for a term not exceeding five years or to a fine not exceeding ten (10) million won.

Criminal proceedings are begun by indictment filed by the public prosecutor in the district court which because of the length of the potential prison term, sits as a three-judge panel. Appeal is to the High Court and thence to the Supreme Court.

Prohibition of importation by customs

There are no provisions for prohibition of infringing imports by the customs authorities.

Mexico

The principal trademark statute is the Law on Inventions and Marks of 1976, as amended. The statute creates a registration system for trademarks; the right to exclusive use of a mark is obtained by its registration.

Certain marks are unregistrable (art. 91). Registered marks are protected only for the class of goods for which the mark is registered (art. 94). Registrations are for 5 years and are renewable (art. 112). Trademark rights will lapse if not effectively used within 3 years of registration (art. 117). Authorized use by another is permitted and inures to the benefit of the trademark owner (arts. 134-138).

Infringement and counterfeiting

Infringement is defined as--

- II. Using a mark which is confusingly similar to another mark which is registered, if such confusion has been declared by the Ministry of Trade and

Industrial Promotion to protect the same or similar products or services as those protected by the registered mark.

- III. Using, without the consent of its title holder, a registered mark as an element of a commercial name or a corporate name, provided that such names are related to establishments which operate with the products or services protected by the mark. [Article 210.]

Procedure and relief

These are deemed "administrative infractions" and are punishable as follows:

Article 225. Administrative infractions to this Law or to the other provisions derived from it shall be sanctioned by:

- I. A fine of from one hundred to one hundred thousand pesos. In case the infraction persists fines may be imposed for each day which passes without the corresponding mandate being obeyed, provided it does not exceed the corresponding maximum amount.
- II. The temporary closing, up to 60 days.
- III. The indefinite closing.
- IV. Administrative arrest, up to 36 hours.

In addition the following acts are crimes:

- IV. Using without the consent of its title holder, a registered mark to distinguish the same or similar products or services which that one protects.
- V. Offering for sale or place in circulation the products referred to by Sections I, II and IV of this Article or those covered by Section II of Article 210, notwithstanding the declaration of confusion provided for therein, or likewise, products protected by a registered trademark after altering them. Provisions of the present Section will be applicable, where pertinent, in regard to service marks.
- VI. Offering for sale or place in circulation products protected by a registered trademark, after having altered, substituted, or omitted it, partially or totally. [art. 211.]

VII. Using a trademark confusingly similar to a registered trademark after an administrative penalty has been imposed.

Such crimes are punished as follows:

A sentence of 2 to 6 years in prison and/or a fine of one hundred to one hundred thousand times the daily general, or at the daily minimum wages in effect in the Federal District. [art. 212.]

These administrative and criminal provisions are in addition to civil damages (Law, art. 214). Administrative sanctions are conducted before the Ministry and may be reviewed by it within 15 working days. (Law, title X ch. V). Actions for injunctions and civil damages are begun in the Federal or State courts, at the option of the plaintiff; criminal actions are brought exclusively in the Federal courts by the Attorney General (Law, art. 215). Criminal actions, however, can only be begun if the "SEPAFIN" has declared the existence of the act that is a crime. (Law, art. 213). The Ministry has considerable power to obtain information and to conduct searches of a suspected infringer's premises (Law, title X, ch. II).

There are no provisions in the law for preliminary injunctions.

Prohibition of importation by Customs

There is no provision for barring infringing imports by the customs authorities.

Taiwan

The principal trademark statute is the Trademark Law, as amended, January 26, 1983. The statute provides a registration system for trademarks. The right to exclusive use of the trademark begins on the date of registration.

Certain marks cannot be registered. Registrations are for 10 years and are renewable (art. 24). Trademarks may be cancelled if not used for more than 2 years after registration (art. 31).

Infringement; counterfeiting

Trademark infringement is only generally defined but includes counterfeiting.

Procedure and relief

Actions for trademark infringement are begun in the district court from which appeal may be taken to the High Court and then to the Supreme Court. The Executive Yuan (branch) is to coordinate with the Judicial Yuan to

establish a special patent and trademark court. Indeed, there are already special courts in the Taiwan High Court, Nos. 12 and 13, designated to hear cases relating to industrial property rights. A major stumbling block to access of U.S. firms to Taiwan courts appears to be on its way to removal. Until recently, only companies registered in Taiwan could sue in Taiwan courts, excluding some U.S. companies that were not registered in Taiwan. In March 1983, the Judicial Yuan gave an advisory opinion that the ROC-USFCN treaty prevails over Taiwan domestic law to permit unregistered U.S. firms to sue. This advisory opinion is not binding, and there are those in Taiwan who dispute its correctness.

The relief generally available for trademark infringement is as follows:

° Article 61 (In case of trademark infringement)

The trademark proprietor may, when the right to exclusive use of a trademark has been infringed by another person, request such infringement be removed. If damages are sustained, he may also claim damages.

The person requesting the removal of such infringement referred to in the preceding paragraph may request that the trademark and all relevant papers used in the commission of infringement be destroyed.

The Trademark Law contains a special provision for infringement of a well-known foreign trademark which is not registered in Taiwan.

° Article 62-1 (Foreign trademark infringement case and its punishment)

A person who, with intent to deceive others, uses a trademark which is identical with or similar to a well-known foreign trademark not registered with the Trademark Authority in respect of the same goods or goods in the same class shall be punished with imprisonment for not more than 3 years or detention; in lieu thereof, or in addition thereto, a fine of not more than 30,000 Yuan (equivalent to NTD90,000).

The punishment stipulated in the preceding paragraph shall be applicable only where the country of the proprietor of the foreign trademark, by virtue of its law, or by conclusion of a treaty or an agreement with the Republic of China, provides reciprocal trademark

protection. This shall also apply to agreement concluded between groups or institutions from both countries for reciprocal trademark protection approved by the Ministry of Economic Affairs (MOEA) of Taiwan.

This protection is available only where the country of the trademark owner extends similar privileges to citizens of Taiwan. 1/

Other penal provisions are as follows:

° Article 62-2 (Trademark infringement and its punishment)

A person whose acts fall under any of the following circumstances shall be punished by imprisonment for not more than five years or detention; in lieu thereof, or in addition thereto, a fine of not more than 50,000 Yuan (equivalent to NTD150,000):

(1) Using the device of a trademark which is identical with or similar to that of another person's registered trademark on the same goods or goods in the same class;

(2) Applying the device of a trademark which is identical with or similar to another person's registered trademark to advertisements, labels, descriptions, quotations or any other documents in respect of the same goods or goods in the same class, and displaying or circulating said advertising materials.

° Article 62-2 (Trademark infringement intended and its punishment).

A person who knowingly sells, displays, exports or imports goods specified in the two preceding articles shall be punished with imprisonment for not more than one year or detention; in lieu thereof, or in addition thereto, a fine of not more than 10,000 Yuan (equivalent to NTD30,000):

° Article 63 (Using another person's trademark as trade name and its punishment).

Where a person using the name of another person's trademark malafide as a specific portion of the name of his own company or trade firm and conducting business in connection with the same goods or goods in the same class fails to apply for change of the name on the register despite a request for such change has been made by an interested party, he shall be punished with imprisonment for not more than one year or detention, in lieu thereof a fine of not more than 2,000 Yuan (equivalent to NTD6,000).

In addition to these penal provisions, the trademark infringer may be liable for damages and enjoined from further infringement. Law, Article 61. Forfeiture of the articles involved may be imposed for contraventions of these

1/ The Board of Foreign Trade (BOFT), Ministry of Economic Affairs is to prepare a list of such internationally known trademarks.

penal provisions. Law, Article 62-3. In addition, the trademark owner may require him to publish the court's decision in local newspapers at his own expense. Law, Article 65. Damages are provided for as follows:

° Article 64 (Presumption on damages sustained)

The following shall be presumed to be damages sustained due to infringement upon the right to exclusive use of a trademark:

- (1) The amount of profits which the infringer has derived from the act of infringement;
- (2) The decreased portion due to the infringement in the amount of profits which the trademark proprietor normally derives from the use of his registered trademark.

As of June 1983, the Taiwan Government reported 90 criminal trademark counterfeiting decisions, compared with 178 for all of 1982. In other words, the decision rate remains about the same. However, there is a considerable difference in sentencing. As of June 1983, imprisonment was ordered in 71 of the 90 cases compared with 94 in all of 1982. Fines were levied in only 16 cases as of June 1983 compared with 79 in all of 1982.

It is apparently possible to have the Police Authority conduct a raid on suspected infringer's premises to obtain evidence. This is done by filing a complaint with the police authority, which then obtains a search warrant from the district attorney's office.

The Executive Yuan through the Judicial Yuan is to request the judicial authorities to expedite all counterfeiting cases, impose more severe punishment and impose sentences of longer than 6 months to avoid the possibility of buying out by a nominal fine.

An anticounterfeiting committee has been established by the Ministry of Economic Affairs (MOEA). It is composed of MOEA agencies and representatives from the Ministry of Justice and police units. Its function is to collect information on counterfeiting and to facilitate counterfeiting investigations. It has the power to refer cases to the courts or to the Board of Foreign Trade. From January 1982 to June 1983, the Committee referred 72 cases to the courts. In addition, as prerequisite to obtaining an export permit, regulations require that evidence of ownership of any trademark registered in Taiwan be presented to the Board of Foreign Trade if the trademark is applied to the involved articles or evidence of the buyer's right to use the trademark if it is registered in a foreign country. In any event, all exports must be marked "made in Taiwan." Intentional violation of these rules may result in withdrawal of all export privileges. As of August 1983, the Board had considered 34 cases compared with 45 for all of 1982. A penalty was levied in 32 of these cases compared with 44 in 1982.

Prohibition of importation by customs

There is apparently no provision for prohibition of imports by customs. However, the customs authorities assist in implementing the BOFT export regulations by spot checks, referring cases to the anticounterfeiting committee.

Thailand

The principal trademark statute in Thailand is the Trade Marks Act, B.E. 2474, effective October 4, 1961 as amended and implemented. Thailand is presently considering a new trademark law.

The present law provides a registration system for trademarks; trademark rights are created by registration and consist of the exclusive right to use it for all the goods of the class or classes in respect of which registration has been granted (sec. 27). Certain marks are unregistrable (sec. 5). Registrations are for 10 years, renewable for a 10-year period (sec. 35). A trademark right may be cancelled, inter alia, for nonuse (sec. 42).

Action for infringement of unregistered trademarks may be based on passing-off or unfair competition theories. Section 420 of Thai Civil and Commercial Code provides for compensation for acts of infringement.

APPENDIX F

CALCULATING THE EFFECTS OF COUNTERFEIT SALES ON
OUTPUT, TOTAL REVENUE, AND PROFITS OF LEGITIMATE PRODUCERS

Introduction and Summary

This appendix provides a methodology for estimating the effects of counterfeiting on sales, total revenues, and profits of legitimate producers. Before proceeding to the formal model, we first list the data needed to apply the methodology, summarize the equations for estimating the effects of the counterfeiting, and supply an example for calculating these effects.

The data needed to apply the model are the value (or volume) of counterfeit sales, the value (or volume) of legitimate sales in the market where the counterfeiting occurs, and the rate of profit per unit of sales that the legitimate producer could reasonably expect in this market absent the counterfeiting. These data can be obtained if legitimate producers can supply answers to the following questions:

1) What is the value of your sales in the market where counterfeiting occurs?

2) What is the value (quantity) of counterfeit sales in this market? (If you do not have reliable information on this value, can you give a rough guess as to the value (quantity) of these sales as a percent of your own in this market?)

3) What is your profit per unit of sales in this market? (Or, alternatively, how much would you charge foreign producers for the license to make and sell your product?)

Given the answers to these questions, the effects of counterfeiting can be calculated as follows. The equation for calculating the loss in sales (number of units) of the legitimate producer is

$$LQ = [R(Q_C)^2/Q_P](1 - R) + Q_C. \quad (1)$$

LQ = the loss in sales of the legitimate producer.

R = 1/(rate of profit per unit of sales for the legitimate producer in the market where counterfeiting occurs).

Q_C = counterfeit sales.

Q_P = total sales in the market where counterfeiting occurs, legitimate plus counterfeit.

The equation for the loss in revenues of the legitimate producer is

$$LR = V_P[LQ/Q_P - [1 + (Q_C/Q_P)](Q_C/Q_P)^2/(1 - R)], \quad (2)$$

where LR is the loss in revenue and V_P is the value of total sales (counterfeit plus legitimate). The equation for the loss in profits of the legitimate producer is

$$LP = LR - V_P(LQ/Q_P)(1 - 1/R + Q_C/RQ_P). \quad (3)$$

Example

Suppose Firm A charges royalties equal to 5 percent of sales when it licenses the right to use its brand name to foreign producers. Suppose also that this firm estimates that counterfeit sales are roughly 25 percent of its own sales in a particular market. Then Q_C/Q_P is .2 and R is 20. From (1) we have

$$LQ = [R/(1 - R)](Q_C/Q_P)Q_C + Q_C = -20/19(.2)Q_C + Q_C = .79Q_C$$

so that the loss in sales of the legitimate producer is approximately 80 percent of the volume of counterfeit sales, and approximately 20 percent of legitimate sales. From (2) we have

$$LR/V_P = [.79Q_C/Q_P + (1.2)(.04)/19] = .79(.2) + .003 = .161.$$

We can alter the equation to obtain the loss in revenues as a proportion of total revenues of the legitimate producer by using the relationship

$$V_L = V_P(Q_P - Q_C)Q_P = (1 - .2)V_P = .8V_P$$

where V_L is the revenue of the legitimate producer. Thus we have

$$LR/V_L = 1.25LR/V_P = .203.$$

The loss in profits of the legitimate producer, again as a percent of his actual sales (total revenue), is given by (3) as

$$\begin{aligned} LP/V_L &= 1.25LP/V_P = 1.25[LR/V_P - (LQ/Q_P)(1 - 1R + Q_C/RQ_P)] \\ &= 1.25[.161 - (.79)(.2)(1 - .05 + .2/20)] = .012 \end{aligned}$$

Since the firm could expect to make 5 percent profit on sales absent counterfeiting, this loss represents about one-quarter of profits per unit of sales.

The above example used data on the ratio of the volume of counterfeit sales to the volume of legitimate sales to estimate the effects of the counterfeiting. The same analysis can be used if data are available only for the values of legitimate sales and counterfeit sales.

The Model

Counterfeiting harms legitimate producers by increasing the amount of competition they face, thus reducing the demand for their outputs. The harmful effects can continue even after counterfeit sales have ceased if consumers are fooled by a counterfeit of inferior quality and as a result suspect the quality of the genuine article or become wary of being fooled again. ^{1/} In what follows, we assume that the counterfeit good is a perfect substitute for the genuine article in the eyes of the consumer. This

^{1/} Although not done for monetary profit, the 1983 episode of Tylenol poisonings are an extreme example of this kind of effect. The poisoned Tylenol pills were in effect counterfeit goods.

assumption will cause our model to tend to overstate the extent that counterfeiting displaces sales of the genuine article. However, the model will not necessarily overstate the adverse effects on legitimate sales, because other effects of counterfeiting, such as besmirching of the reputation of the genuine article when consumers are fooled by imitations of inferior quality, are not considered.

Counterfeiting can only occur where a legal restriction prevents prospective competitors from entering a market for a specific product (such as a brand-name good). Such barriers to entry give legitimate producers some degree of monopoly power. Therefore, we use a model of monopolistic competition to analyze the effects of counterfeiting. Figure 1 provides an example of the analysis. Here, S_C is the counterfeit supply curve. It is drawn with a sharp upward slope, because the likelihood of detection and punishment increase with the volume of counterfeit sales, causing counterfeiters to demand higher prices as their exposure increases. S_C may represent a single counterfeiter, or a number of individual counterfeiters. S is the marginal cost curve for the legitimate producer. This cost curve is not the supply curve of the legitimate producer, because he has some monopoly power that he can exploit. ^{1/}

The demand curve for the good, D , is drawn as downward sloping to reflect the monopoly power of the legitimate producer. The marginal revenue curve derived from this demand is the dashed line MR . If the demand were horizontal (perfectly elastic) as it is in the case of perfect competition, the legitimate producer could sell all he wanted at the market price, and he would not lose sales volume nor suffer any reduction in price as a result of counterfeiting.

P_L and Q_L are the price and quantity of legitimate sales in the absence of any counterfeiting. Q_L is determined by the intersection of the legitimate producer's cost curve with the marginal revenue curve, and the price P_L is determined by the corresponding point on the demand curve. The effects of counterfeiting on the price and quantity sold depend on the reaction of the legitimate producer. We assume here that he responds by relinquishing completely the part of the market that the counterfeiters can supply. According to economic theory, this is the response of a profit-maximizing dominant supplier of a market in the presence of a fringe of competitive suppliers who share a small part of the market.

^{1/} In the case of perfect competition, the producer's marginal cost curve (above some shut-down point) is the same as his supply curve.

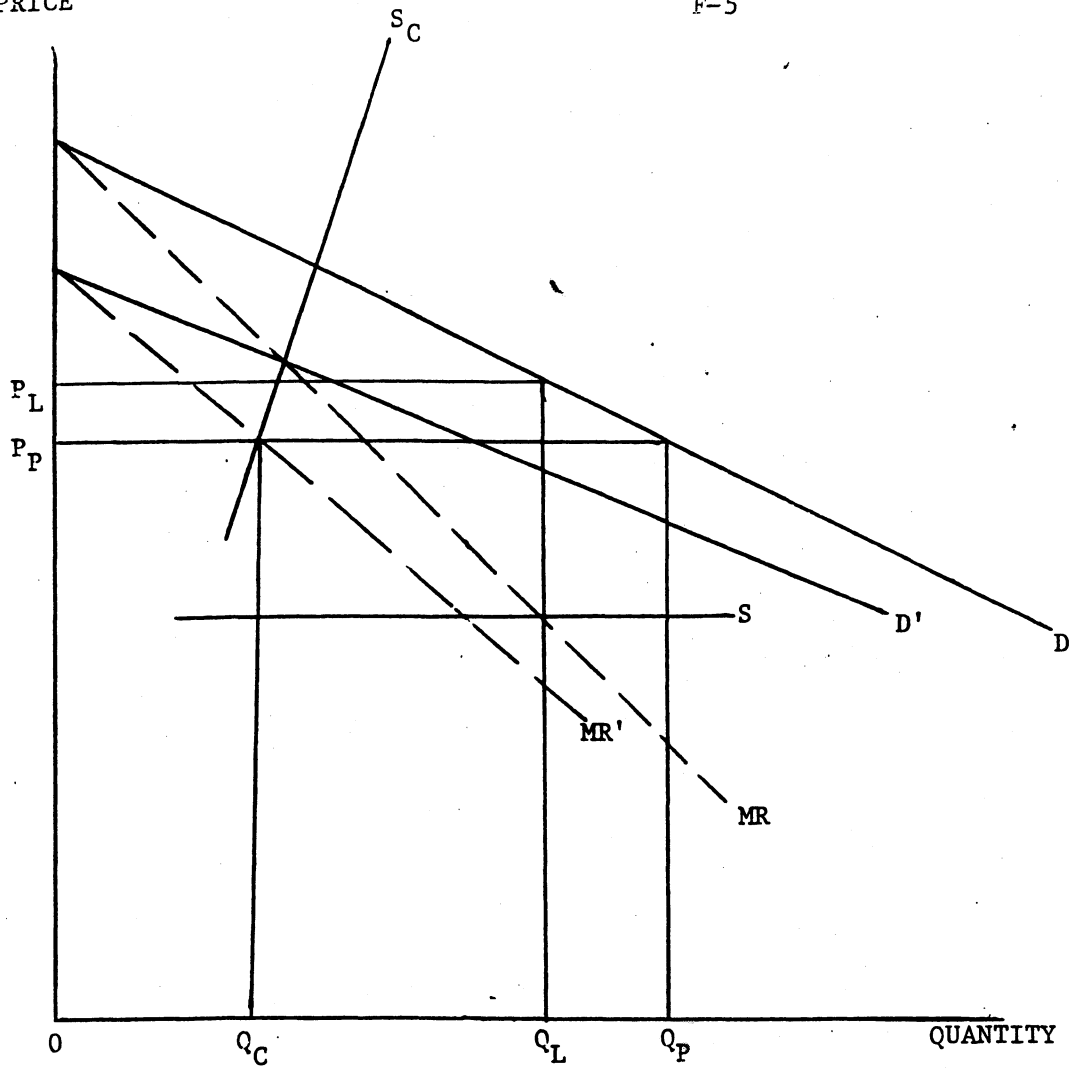


FIGURE 1

In figure 1, this response causes the legitimate producer to maximize profits on the basis of the residual demand curve D' which is derived by subtracting the counterfeit quantity supplied from the total quantity demanded at each price. The new demand D' starts at zero quantity where the counterfeit supply intersects the original demand curve, and it intersects the original demand curve where the counterfeit supply is zero. The new marginal revenue curve facing the legitimate producer thus becomes MR' , and he maximizes profits by selling at the postcounterfeit price of P_p (the point on the new demand curve directly above the intersection of his cost curve S and the new marginal revenue curve MR'). At that price, total sales of the counterfeit and genuine articles add up to Q_p , with legitimate sales of $(Q_p - Q_c)$ and counterfeit sales of Q_c . Note that the reduction in quantity sold of the genuine article caused by the counterfeiting ($Q_L - Q_p + Q_c$) is less than the quantity of counterfeit sales. This is true, because counterfeiting reduces the monopoly power of the legitimate producer and causes total sales to increase. The counterfeiting also causes the price charged by the legitimate producer to decline. (In fig. 1, this decline is from P_L to P_p).

At first face, the above analysis does not appear well suited to many counterfeit cases, because counterfeit goods often sell at a price that is much lower than that of the genuine article. However, on closer examination, this objection does not appear to seriously detract from the analysis. The counterfeit units used in the analysis are perfect-substitute equivalents of the more expensive genuine article. For example, if counterfeit blue jeans are sold from the back of a truck on a street corner, they are actually different goods from blue jeans of the identical material and styling sold in a fashionable retail outlet. Jeans bought from the retail outlet can usually be tried on for fit, and the consumer may be able to return the jeans if he finds later that they are flawed or if he simply changes his mind. Also, the retail outlet is likely to have a more pleasant ambience, regular hours, and a well-advertized location. Locating the counterfeit supply may impose some information costs on the consumer, because a well-advertized, stable location for the counterfeiter would increase the likelihood that he would be detected and punished. If the consumer knows the product is counterfeit, he may also feel moral qualms about engaging in an illicit transaction. These are all attributes of a good that make up part of its price. If counterfeiters are able to supply an entire market with goods that are perfect-substitute equivalents and lower priced than the genuine article, we should expect to see the legitimate producer forced out of that market entirely.

The Model in Equation Form

Let the cost function of the legitimate producer be given as

$$S = f(Q, C^*, T),$$

where S is the cost per unit of output for the legitimate producer, Q is the level of output, C^* is a vector of costs of inputs to production and T is the technology used. Also, let quantity demanded (D) be given as

$$D = g(P, P^*, A),$$

where P is the own price of the good, P^* is a vector of prices of substitutes and complements of the good, and A is an activity variable, such as income. Finally, let the counterfeit supply curve (S_C) be given as

$$S_C = h(P, C^*, T).$$

For simplicity, we assume that the variables C^* , T , P^* and A are unaffected by the introduction of counterfeiting. This assumption is reasonable in the majority of cases, and it greatly reduces the complexity of our model.

In the absence of counterfeiting, the producer would maximize his profits by equating marginal revenue and marginal cost, or

$$(dP/dQ)Q + P = (dS/dQ)Q + S. \quad (4)$$

Denoting the elasticity of demand as $ED = (dQ/Q)/(dP/P)$ and the elasticity of the legitimate producer's cost function as $ES = (dQ/Q)/(dS/S)$, we can rewrite (4) to express the price charged by the legitimate producer in the absence of counterfeiting (P_L) as

$$P_L(1 + ED)/ED = S_L(1 + ES)/ES,$$

or

$$P_L = S_L(ED + ESED)/(ES + ESED). \quad (5)$$

where S_L is the cost per unit of output at the profit maximizing level of output in the absence of counterfeiting.

With the counterfeit supply, the demand facing the legitimate producer, D' , is given as

$$D' = D - S_C$$

The elasticity of this demand curve is given as

$$ED' = EDQ_P/(Q_P - Q_C) - ES_C Q_C/(Q_P - Q_C), \quad (6)$$

where ES_C is the elasticity of the counterfeit supply. We will assume that this counterfeit supply is perfectly inelastic (ES_C is zero). With this assumption, equation (6) simplifies to

$$ED' = EDQ_P/(Q_P - Q_C). \quad (7)$$

The price that maximizes profits after the introduction of counterfeiting is thus given as

$$P_P(ED + 1 - Q_C/Q_P)ED' = S_P(1 + ES)/ES. \quad (8)$$

where P_p is the new (postcounterfeit) price, S_p is the new cost per unit of output, and ED is the elasticity of the demand curve D' .

For additional simplicity, we also assume that the cost curve of the legitimate producer, S , is perfectly flat, or that ES is infinite. This assumption agrees well with the available empirical evidence as regards cost curves within manufacturing. ^{1/} When this assumption is relaxed, equations for the effects of counterfeiting become considerably more complex.

With the assumption that ES is infinite, the percent change in price caused by counterfeiting can be expressed as

$$(P_p - P_L)/P_p = (Q_C/Q_p)^2/(1 + ED), \quad (9)$$

and the percent change in total quantity sold because of the counterfeiting is given as

$$(Q_p - Q_L)/Q_p = ED(P_p - P_L)/P_p,$$

or

$$(Q_p - Q_L)/Q_p = ED(Q_C/Q_p)^2/(1 + ED). \quad (10)$$

The resulting loss in volume of sales to the legitimate producer (LQ) is given as

$$LQ = Q_L - Q_p + Q_C \quad (11)$$

where Q_C is the volume of counterfeit sales and the quantity $(Q_p - Q_L)$ can be obtained by multiplying the quantity solved for in equation (10) with the total volume of sales in the market (Q_p). The loss in total revenue to the legitimate producer (LR) is given as

$$LR = V_p[LQ/Q_p + (1 - Q_C/Q_p)(P_p - P_L)/P_p] \quad (12)$$

where V_p is the total value of sales of the good (both counterfeit and legitimate sales), LQ is given by equations (7) and (8), and $(P_p - P_L)/P_p$ is given by equation (9). The loss in profits to the legitimate producer (LP) is given as

$$LP = LR - S_L LQ. \quad (13)$$

Applying the Model

Equations (9) through (13) above require data on the price of legitimate sales before and after counterfeiting, the costs of the legitimate producer, the elasticity of the demand facing the legitimate producer before the

^{1/} See A. A. Walters, "Production and Cost Functions: An Econometric Survey," *Econometrica*, Vol. 31 (January-April 1963), pp. 1-66.

counterfeiting, and the elasticity of demand facing the legitimate producer after counterfeiting. The demand elasticity can be derived as follows. From equation (5), we see that

$$S_L = P_L(1 + ED)/ED,$$

since S is assumed to be constant with respect to changes in output (ES is infinite). Solving this expression for ED yields

$$ED = -P_L/(P_L - S_L) \quad (14)$$

Multiplying both the numerator and denominator of (14) with quantity gives

$$ED = -TR/(TR - TC), \quad (15)$$

where TR is total revenue and TC is the total cost of goods sold for the legitimate producer in the absence of counterfeiting. This expression is simply the negative inverse of the rate of profit per dollar of legitimate sales that would have occurred in the absence of counterfeiting. There are several possible sources for this rate of return. One would be to find the producer's profit rate in a market where counterfeiting was not a problem, and use this rate as a proxy for the one that would exist in the market with counterfeiting, absent the counterfeiting. Another source for this rate is the fee per unit of output that the legitimate producer charges when he licenses the right to produce his good to others. Finally, if we can get data on profits of the legitimate producer from sales in the market where counterfeiting occurs, we can calculate ED' and then use equation (7) to solve for ED. However, when using balance-sheet data from firms to calculate the rate of profit, it is important to remember that we need economic rather than accounting profits. Thus, the cost of goods sold must include an imputed rate of return to equity investment of the legitimate producer, as well as other opportunity costs he incurs. (One such imputed rate of return would be the overall rate of return to equity in the United States.)

From equations (9) and (15), we see that the equation for the percent change in price caused by the counterfeiting can be written as

$$(P_P - P_L)/P_P = (Q_C/Q_P)^2/(1 - R), \quad (16)$$

and from (10) and (15), we see that the percent change in total quantity sold because of the counterfeiting can be written as

$$(Q_P - Q_L)/Q_P = R(P_P - P_L)/P_P,$$

or

$$(Q_P - Q_L)/Q_P = -R(Q_C/Q_P)^2/(1 - R). \quad (17)$$

where R is the inverse of the rate of profit for the legitimate producer per unit of sales in the absence of counterfeiting. Equation (17) indicates that

the adverse effects of counterfeiting on the volume of legitimate sales is less than the volume of counterfeit sales, because the term $(Q_C/Q_P)^2$ is positive and less than unity and R is greater than unity.

If the counterfeit sells for a price substantially lower than that of the genuine article, it would be a better procedure to approximate the perfect-substitute-equivalent units of counterfeit sales by taking the total value of counterfeit sales and dividing by the price of the genuine article. This is equivalent to replacing equation (17) with the equation

$$(Q_P - Q_L)/Q_P = -R(V_C/V_P)^2/(1 - R) \quad (18)$$

where (V_C/V_P) is the value of counterfeit sales as a proportion of total sales in the market.

Using (11) and either (17) or (18), the loss in the volume of sales of the legitimate producer as a percent of total sales (legitimate plus counterfeit) is then given as

$$LQ/Q_P = -(Q_P - Q_L)/Q_P + Q_C/Q_P. \quad (19)$$

The loss in total revenue to the legitimate producer (LR) is approximated by the equation

$$LR = V_P[LQ/Q_P - (1 + Q_C/Q_P)(Q_C/Q_P)^2/(1 - R)], \quad (20)$$

and the loss in profits to the legitimate producer (LP) is approximated by the equation

$$LP = LR - V_P(LQ/Q_P)(1 - 1/R + Q_C/RQ_P) \quad (21)$$

Equations (20) and (21) are approximations, because they ignore the cross-product of changes in quantity and price. However, the error introduced by these approximations will be small as long as counterfeiters do not have a dominant share of the market.

In equations (19) and (20), the term Q_C/Q_P can be replaced with the term V_C/V_P if the counterfeit sells for a much lower price than the genuine article.

The above equations apply where the legitimate producer operates under conditions of constant cost. If his costs increase with the level of output, the model becomes considerably more complex.

APPENDIX G
STATISTICAL DATA

Table G-1
 Copyright: Firms reporting regime inadequacies, by countries, 1986

Country	Regime inadequacies (see key at end of table)						
	1	2	3	4	5	6	7
	------(Number of firms)-----						
Brazil.....	16	14	8	10	16	23	1
Taiwan.....	19	15	5	3	16	30	0
Republic of Korea.....	21	16	8	4	11	22	0
Indonesia.....	14	8	6	5	5	16	0
Japan.....	4	9	4	7	8	14	0
China.....	14	9	4	3	4	8	1
India.....	7	5	2	2	5	9	1
Mexico.....	4	7	2	4	7	6	0
Hong Kong.....	6	5	2	2	4	10	0
Philippines.....	7	5	1	1	5	8	0
Singapore.....	5	5	2	1	5	9	0
Argentina.....	5	5	1	1	5	9	0
Thailand.....	8	3	2	2	3	7	0
Malaysia.....	5	4	1	2	3	7	0
Kenya.....	0	3	3	4	4	4	0
West Germany.....	3	4	3	0	4	4	0
United Kingdom.....	2	4	3	1	3	4	0
Venezuela.....	4	3	0	0	4	6	0
Nigeria.....	0	1	3	4	3	5	0
Saudi Arabia.....	3	3	3	4	0	3	0
Liberia.....	3	3	3	2	1	3	0
France.....	3	3	2	0	3	2	0
Pakistan.....	2	1	1	1	4	4	0
Italy.....	4	3	2	0	1	2	0
Colombia.....	1	2	1	1	2	3	0
Turkey.....	1	1	0	1	1	4	0
Israel.....	1	1	1	0	1	3	0
Australia.....	2	1	1	0	0	2	0
Egypt.....	1	1	0	1	0	2	0
Netherlands.....	3	0	0	0	0	2	0
Spain.....	1	1	0	0	1	2	0
Syria.....	0	1	1	1	1	1	0
Belgium & Luxembourg.....	1	1	0	0	1	1	0
Denmark.....	1	1	1	0	0	1	0
Finland.....	1	1	1	0	0	1	0
South Africa.....	0	1	1	0	1	1	0
Canada.....	1	1	0	0	0	1	0
Dominican Republic.....	0	0	0	1	1	1	0
El Salvador.....	0	0	0	1	1	1	0
Iran.....	1	1	0	0	0	1	0
Panama.....	0	1	0	0	1	1	0
Peru.....	0	0	0	1	1	1	0
Sweden.....	0	1	1	0	0	1	0
USSR.....	1	0	0	0	1	0	1
Costa Rica.....	0	0	0	0	0	1	0
Greece.....	0	0	0	1	0	0	0
New Zealand.....	0	1	0	0	0	0	0
Norway.....	0	0	1	0	0	0	0
Switzerland.....	1	0	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Key to regime inadequacies:

1. U.S. works not protected.
2. Law does not protect all traditional and new works.
3. Inadequate exclusive rights.
4. Exceptions to exclusive rights overly broad.
5. Burdensome substantive or procedural formalities.
7. Other.

Table G-2
 Patent: Firms reporting regime inadequacies, by countries, 1986

Country	Regime inadequacies (see key at end of table)								
	1	2	3	4	5	6	7	8	9
	----- (Number of firms) -----								
Mexico.....	27	39	22	37	9	6	53	29	3
Brazil.....	22	20	12	29	6	8	41	25	7
Taiwan.....	12	7	4	9	19	18	8	25	1
India.....	17	16	7	13	10	3	8	10	0
Republic of Korea.....	10	7	6	10	3	11	5	22	0
Japan.....	2	6	0	2	2	28	5	21	4
Argentina.....	9	6	5	6	6	4	19	10	2
Spain.....	9	2	5	9	0	3	8	9	0
China.....	6	6	2	5	4	1	3	10	2
Venezuela.....	6	9	3	3	1	0	8	7	1
Colombia.....	6	6	1	3	2	0	6	6	0
Canada.....	8	1	0	16	1	0	1	2	0
USSR.....	4	2	1	2	1	10	1	7	0
Italy.....	2	0	0	3	0	1	2	8	1
Yugoslavia.....	3	3	2	2	0	3	1	0	0
Peru.....	3	2	1	3	2	0	0	2	0
West Germany.....	0	1	0	0	0	5	0	5	2
Indonesia.....	1	1	1	0	4	0	0	3	1
Philippines.....	1	1	1	4	0	1	1	2	0
Chile.....	2	1	0	1	1	0	3	2	0
Hong Kong.....	1	1	0	1	1	0	1	3	0
France.....	0	1	0	0	0	1	1	4	0
Thailand.....	1	1	0	0	3	0	2	0	0
Greece.....	2	1	0	0	0	0	1	2	0
United Kingdom.....	0	1	0	2	0	1	0	2	0
Finland.....	2	1	0	2	0	0	0	0	0
Netherlands.....	0	0	0	1	0	3	0	0	1
Portugal.....	1	0	1	1	0	0	1	1	0
Costa Rica.....	1	1	0	1	0	0	0	1	0
Malaysia.....	0	0	0	1	1	1	1	0	0
Norway.....	2	0	0	2	0	0	0	0	0
Romania.....	1	0	0	1	0	1	0	1	0
Sweden.....	0	0	0	1	0	1	1	1	0
Turkey.....	2	0	0	0	0	0	1	1	0
Australia.....	0	1	0	0	0	1	1	0	0
Belgium & Luxembourg.....	0	1	0	0	0	0	1	1	0
Hungary.....	1	0	0	1	0	1	0	0	0
Singapore.....	0	1	0	0	0	0	0	2	0
Denmark.....	0	0	0	1	0	0	0	1	0
Laos.....	1	0	0	1	0	0	0	0	0
Poland.....	0	0	0	0	0	2	0	0	0
Israel.....	0	0	0	1	0	0	0	0	0
Pakistan.....	1	0	0	0	0	0	0	0	0
Panama.....	0	0	0	0	0	0	1	0	0
South Africa.....	1	0	0	0	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Key to regime inadequacies:

1. No patent protection.
2. Patentability precluded by statute.
3. Term too short.
4. Early lapse.
5. Compulsory licensing.
6. Paris Convention nonadherence.
7. Patent claims narrowed too much.
8. Unrealistic working requirements.
9. Other.

Table G-3
 Trademark: Firms reporting regime inadequacies, by countries, 1986.

Country	Regime inadequacies (see key at end of table)						
	1	2	3	4	5	6	7
------(Number of firms)-----							
Mexico.....	41	18	15	24	33	25	5
Brazil.....	16	23	23	10	32	28	3
Taiwan.....	21	15	17	2	15	26	3
Republic of Korea.....	9	16	22	5	22	23	1
Venezuela.....	15	16	8	0	16	13	2
Japan.....	13	14	15	2	6	10	5
India.....	6	7	4	6	18	11	8
Colombia.....	9	4	4	1	9	6	1
Indonesia.....	1	1	5	2	4	12	1
China.....	0	8	2	2	1	11	1
United Kingdom.....	3	3	1	1	2	12	1
Argentina.....	4	4	1	1	6	5	0
Philippines.....	3	5	1	1	0	8	0
Peru.....	7	1	1	0	5	3	0
Thailand.....	0	5	3	1	1	6	1
Hong Kong.....	2	4	2	2	0	5	0
West Germany.....	2	4	2	2	0	3	0
Ecuador.....	2	2	0	0	4	3	1
Malaysia.....	1	1	1	1	1	6	1
Spain.....	0	4	1	0	1	4	1
Chile.....	2	4	1	0	1	2	0
Paraguay.....	2	1	1	0	2	2	1
Saudi Arabia.....	0	3	1	0	0	3	1
Singapore.....	0	0	1	3	0	3	1
Canada.....	1	1	0	0	3	0	1
France.....	3	1	1	0	0	1	0
Nigeria.....	0	1	0	0	0	4	1
Australia.....	0	4	1	0	0	0	0
Belgium & Luxembourg.....	2	1	0	0	1	1	0
Israel.....	1	1	0	1	0	1	1
Italy.....	1	2	2	0	0	0	0
Panama.....	1	1	0	0	1	2	0
United Arab Emirates.....	0	2	0	0	0	3	0
Bolivia.....	1	1	0	0	1	1	0
Greece.....	1	0	0	1	1	1	0
Egypt.....	0	0	0	0	0	3	0
Pakistan.....	0	1	1	0	0	1	0
USSR.....	1	0	1	0	1	0	0
Afghanistan.....	0	0	1	0	0	1	0
New Zealand.....	0	2	0	0	0	0	0
Portugal.....	0	0	0	0	1	0	1
Turkey.....	0	0	0	0	0	2	0
Uruguay.....	0	0	0	0	1	1	0
Yugoslavia.....	0	0	0	0	1	1	0
Austria.....	0	1	0	0	0	0	0
Ethiopia.....	0	0	0	0	0	1	0
Kenya.....	0	0	0	0	0	1	0
Kuwait.....	0	0	0	0	0	1	0
Libya.....	0	0	0	0	0	1	0
South Africa.....	0	1	0	0	0	0	0
Sweden.....	0	0	0	0	0	1	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Key to regime inadequacies:

1. Scope of what constitutes infringement is too narrow.
2. Renewal proof of use difficult.
3. No protection of "well known" marks.
4. Narrow spectrum of class protection.
5. Circumscribed usage or "linking".
6. Unreasonable licensing requirements.
7. Other.

Table G-4

Trade secret: Firms reporting regime inadequacies, by countries, 1986.

Country	Regime inadequacies (see key at end of table)			
	1	2	3	4
	----- (Number of firms) -----			
Brazil.....	28	11	24	5
Mexico.....	24	10	21	5
Republic of Korea.....	6	8	20	2
Taiwan.....	2	8	15	2
Japan.....	6	8	9	2
India.....	12	3	8	1
China.....	4	5	14	0
Venezuela.....	6	1	6	2
Argentina.....	5	3	4	1
USSR.....	1	3	4	0
Colombia.....	1	2	3	1
Philippines.....	3	1	2	1
Indonesia.....	1	2	2	1
Israel.....	2	1	2	0
Spain.....	2	1	2	0
Hong Kong.....	0	2	2	0
Thailand.....	0	1	3	0
West Germany.....	1	1	2	0
France.....	1	0	2	0
Malaysia.....	1	1	1	0
United Kingdom.....	1	0	2	0
Belgium & Luxembourg.....	1	0	1	0
Netherlands.....	0	1	1	0
Peru.....	0	1	1	0
Yugoslavia.....	1	0	0	1
Chile.....	0	0	1	0
Denmark.....	0	1	0	0
Dominican Republic....	0	0	1	0
Ecuador.....	1	0	0	0
Finland.....	0	1	0	0
Kuwait.....	0	0	1	0
Morocco.....	1	0	0	0
Norway.....	0	1	0	0
Pakistan.....	1	0	0	0
Portugal.....	1	0	0	0
Saudi Arabia.....	0	0	1	0
South Africa.....	0	1	0	0
Sweden.....	0	1	0	0
Switzerland.....	0	0	1	0
Turkey.....	0	0	1	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Key to regime inadequacies:

1. No trade secret protection.
2. Short time limits on confidentiality.
3. No protection against third parties.
4. Other.

Table G-5
Mask work: Firms reporting regime inadequacies, by countries, 1986.

Country	No legal protection	Inadequate <u>sui generis</u> coverage	Other
	(Number of firms)		
Republic of Korea..	3	3	1
West Germany.....	3	3	0
Japan.....	2	3	0
France.....	2	2	0
Italy.....	2	2	0
Taiwan.....	2	2	0
United Kingdom.....	2	2	0
Brazil.....	1	1	1
China.....	1	1	1
Mexico.....	1	1	1
USSR.....	1	1	1
Argentina.....	1	1	0
Hong Kong.....	1	1	0
Indonesia.....	1	1	0
Israel.....	1	1	0
Norway.....	1	1	0
Singapore.....	1	1	0
Sweden.....	1	1	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Table G-6
 Proprietary technical data: Firms reporting regime inadequacies, by
 countries, 1986.

Country	No legal protection	Short time limits on confidentiality (Number of firms)	Other
Brazil.....	14	14	0
Republic of Korea.....	3	11	1
India.....	5	9	0
China.....	3	10	0
Mexico.....	6	6	0
Taiwan.....	0	9	0
Japan.....	3	3	1
USSR.....	1	4	1
Argentina.....	2	3	0
Malaysia.....	2	2	0
Philippines.....	1	2	1
Colombia.....	1	2	0
Hong Kong.....	0	3	0
Singapore.....	1	2	0
Spain.....	2	1	0
Venezuela.....	2	1	0
Israel.....	1	1	0
Thailand.....	0	2	0
West Germany.....	1	1	0
Canada.....	0	1	0
Costa Rica.....	0	1	0
Dominican Republic....	0	1	0
Ecuador.....	0	1	0
Egypt.....	0	1	0
France.....	0	1	0
Indonesia.....	0	1	0
Italy.....	0	1	0
Nigeria.....	0	1	0
Saudi Arabia.....	0	1	0
Sweden.....	0	1	0

Source: Responses to the Commission's Questionnaire to Companies that Benefit from Intellectual Property Protection.

Table G-7
 Copyright: Firms reporting remedy and enforcement inadequacies, by countries,
 1986

Country	Remedy and enforcement inadequacies (see key at end of table)											
	1	2	3	4	5	6	7	8	9	10	11	12
	----- (Number of firms) -----											
Taiwan.....	10	8	2	8	19	16	11	7	12	7	6	2
Republic of Korea..	7	8	3	6	18	14	12	9	8	9	6	1
Brazil.....	6	7	3	4	14	10	6	5	8	5	5	2
Indonesia.....	7	7	0	3	13	10	6	5	6	5	8	1
Argentina.....	6	6	2	3	11	9	6	5	9	4	5	0
India.....	5	3	1	3	8	4	7	2	5	5	2	0
Philippines.....	3	3	0	0	7	9	6	2	7	1	5	1
Japan.....	3	1	0	2	6	7	6	4	5	4	3	0
Singapore.....	4	4	1	3	6	6	3	4	4	3	2	0
Malaysia.....	5	4	0	3	5	7	4	1	5	0	2	0
Thailand.....	2	1	1	1	6	7	4	1	6	3	3	1
Mexico.....	3	4	1	3	5	3	2	6	3	3	3	0
China.....	3	3	1	3	7	6	3	2	4	1	1	1
Venezuela.....	3	3	0	1	3	7	4	2	4	4	4	0
Hong Kong.....	3	2	1	3	4	5	3	2	3	3	2	0
Nigeria.....	2	2	0	1	4	5	5	0	5	3	3	0
Turkey.....	1	1	0	0	4	5	4	0	5	1	2	1
Kenya.....	1	0	3	0	1	4	4	3	4	0	4	0
Pakistan.....	0	0	0	0	4	4	3	1	3	0	2	0
Liberia.....	3	3	3	0	3	1	0	0	0	0	3	0
Netherlands.....	0	0	0	0	3	3	3	0	3	1	2	0
Saudi Arabia.....	3	3	0	0	2	2	2	0	1	1	1	0
Italy.....	2	2	0	1	2	1	2	1	0	1	1	0
Israel.....	1	1	0	1	2	3	1	0	2	0	0	0
Spain.....	1	1	0	0	2	2	2	1	0	1	1	0
West Germany.....	1	0	0	1	2	1	2	1	1	1	0	0
Colombia.....	1	0	0	0	2	2	0	1	1	0	1	0
Costa Rica.....	1	1	0	1	1	1	1	0	0	0	0	0
United Kingdom.....	1	1	0	1	1	1	1	0	0	0	0	0
Egypt.....	1	0	0	0	1	1	1	0	1	0	0	0
Greece.....	1	0	0	0	1	1	1	0	1	0	0	0
Syria.....	1	1	1	1	0	1	0	0	0	0	0	0
Australia.....	0	0	0	0	1	1	0	0	1	1	0	0
Dominican Republic.....	0	0	0	0	1	1	0	1	0	0	1	0
El Salvador.....	0	0	0	0	1	1	0	1	0	0	1	0
Panama.....	0	1	0	0	0	1	0	0	1	0	0	0
Peru.....	0	0	0	0	1	1	0	1	0	0	1	0
Bulgaria.....	0	0	0	0	0	1	1	0	1	0	0	0
Canada.....	0	0	0	0	1	0	1	0	1	0	0	0
Iran.....	0	0	0	1	0	1	0	0	1	0	0	0
Libya.....	0	0	0	0	1	1	0	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing imports.
4. Lack of compulsory process and/or discovery.
5. Inadequate civil remedies.
6. Inadequate criminal penalties.
7. Unreasonably slow enforcement process.
8. Enforcement officials discriminate against foreigners.
9. Training and resources for enforcement inadequate.
10. Court decisions biased or political.
11. Corruption.
12. Other.

Table G-8
 Patent: Firms reporting remedy and enforcement inadequacies, by countries,
 1986

Country	Remedy and enforcement inadequacies (see key at end of table)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	----- (Number of firms) -----												
Mexico.....	7	7	6	6	10	21	6	19	17	10	19	9	3
Brazil.....	11	10	3	6	14	19	7	18	14	10	10	6	3
Taiwan.....	8	7	4	4	10	19	5	13	14	10	13	3	1
Republic of Korea.....	7	7	4	2	11	17	5	14	16	8	8	3	3
Japan.....	6	3	1	4	10	5	2	19	15	3	11	0	4
India.....	6	3	4	4	7	8	3	12	5	4	6	1	0
Argentina.....	5	3	3	5	7	8	3	5	7	6	6	3	0
China.....	3	3	3	2	4	7	3	5	3	4	3	1	0
USSR.....	3	2	2	2	2	6	4	4	4	2	5	1	1
Spain.....	2	2	1	2	3	6	2	3	3	0	3	0	2
Italy.....	2	2	0	1	3	2	1	7	2	0	2	0	0
Colombia.....	2	0	2	2	2	2	1	4	2	1	2	0	0
Philippines.....	1	1	2	2	2	2	1	3	2	1	2	1	0
Venezuela.....	2	2	1	1	1	3	1	1	2	1	2	0	1
West Germany.....	2	1	0	0	4	1	0	2	3	2	2	0	1
Singapore.....	2	1	1	0	2	2	1	1	3	1	2	0	1
Indonesia.....	2	1	0	1	2	2	0	3	2	1	2	0	0
Hong Kong.....	2	0	1	0	0	1	2	2	2	2	1	0	1
Turkey.....	1	1	1	1	2	1	1	2	1	1	1	1	0
Peru.....	1	0	2	1	2	1	0	2	1	0	1	0	0
Chile.....	1	0	2	0	2	1	0	2	1	0	1	0	0
Egypt.....	0	1	1	0	0	1	1	2	1	1	1	1	0
Greece.....	0	0	2	2	1	0	0	1	1	0	1	0	0
Ecuador.....	1	0	0	1	1	1	1	1	0	1	0	0	0
Hungary.....	1	0	0	1	1	1	1	1	0	1	0	0	0
Romania.....	1	0	0	1	1	1	1	1	0	1	0	0	0
France.....	1	0	0	0	0	0	0	3	1	0	0	0	0
Portugal.....	0	1	1	1	0	0	0	0	1	0	0	0	0
United Kingdom.....	0	0	0	0	0	1	0	2	0	0	1	0	0
Canada.....	0	0	0	0	1	0	1	1	0	0	0	0	0
East Germany.....	0	0	0	0	0	0	0	1	1	0	1	0	0
Israel.....	0	0	0	0	0	0	1	0	0	1	1	0	0
Pakistan.....	0	0	0	0	0	0	0	1	0	1	1	0	0
Belgium & Luxembourg.....	0	0	0	0	0	0	0	0	0	0	1	0	1
Sweden.....	0	0	0	0	0	0	0	0	1	0	1	0	0
Poland.....	0	0	0	0	0	0	0	0	0	0	1	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing.
4. Adverse burden of proof for process patents.
5. Lack of compulsory process and/or discovery.
6. Inadequate civil remedies.
7. Inadequate criminal penalties.
8. Unreasonably slow enforcement process.
9. Enforcement officials discriminate against foreigners.
10. Training and resources for enforcement inadequate.
11. Court decisions biased or political.
12. Corruption.
13. Other.

Table G-9
 Trademark: Firms reporting remedy and enforcement inadequacies, by countries,
 1986

Country	Remedy and enforcement inadequacies (see key at end of table)											
	1	2	3	4	5	6	7	8	9	10	11	12
	------(Number of firms)-----											
Mexico.....	10	7	2	10	20	11	21	15	9	17	7	1
Taiwan.....	7	6	4	7	22	10	8	8	9	9	3	3
Brazil.....	9	6	2	11	14	7	10	7	8	6	0	2
Republic of Korea..	7	4	1	9	14	8	10	11	7	5	4	3
Indonesia.....	3	2	2	4	8	3	6	6	3	6	7	3
Argentina.....	5	3	0	5	7	3	4	5	9	3	2	0
Venezuela.....	2	2	2	3	11	2	8	4	3	5	4	0
India.....	4	1	2	3	7	3	8	5	4	6	1	0
Colombia.....	4	1	2	3	7	4	8	4	4	4	1	1
Thailand.....	2	1	2	2	6	4	5	4	4	3	4	1
Philippines.....	4	0	2	0	6	3	4	4	6	2	4	2
Japan.....	3	1	1	2	2	0	5	7	2	4	0	0
Ecuador.....	2	1	1	1	4	2	5	3	3	3	2	0
Malaysia.....	1	0	0	0	5	3	3	1	5	1	1	0
Hong Kong.....	1	0	0	1	2	2	3	1	3	2	1	2
Paraguay.....	2	2	1	1	3	1	3	2	1	2	0	0
Singapore.....	2	1	0	1	3	2	1	1	3	1	1	2
United Arab Emirates.....	1	1	1	1	4	1	2	1	2	2	1	1
China.....	1	0	0	1	4	1	1	0	3	0	0	1
Panama.....	0	1	0	0	2	1	1	2	1	2	2	0
Uruguay.....	1	1	1	0	2	0	2	2	0	2	0	0
Spain.....	0	0	0	0	4	1	1	1	0	2	0	1
Greece.....	1	0	0	0	2	2	3	0	1	0	0	0
Nigeria.....	1	1	1	0	1	1	2	0	1	0	1	0
Turkey.....	1	0	1	0	1	1	3	1	1	0	0	0
West Germany.....	2	0	0	0	2	0	0	2	1	2	0	0
Saudi Arabia.....	0	0	0	1	2	1	1	1	1	1	0	0
Chile.....	1	0	1	1	1	0	1	1	0	1	0	0
Egypt.....	1	0	0	0	2	1	2	0	1	0	0	0
Hungary.....	1	0	0	1	1	1	1	0	1	0	0	0
Kenya.....	1	0	0	0	1	1	1	0	1	0	1	0
USSR.....	1	0	0	1	0	1	1	1	1	0	0	0
El Salvador.....	0	0	0	0	1	0	1	1	0	1	1	0
Lebanon.....	0	0	0	1	1	1	1	0	1	0	0	0
Romania.....	1	0	0	1	1	1	1	0	0	0	0	0
Israel.....	0	0	0	0	1	1	0	0	1	0	0	0
Libya.....	0	1	1	0	0	0	1	0	0	0	0	0
Yugoslavia.....	1	1	1	0	0	0	0	0	0	0	0	0
Australia.....	0	0	0	0	1	1	0	0	0	0	0	0
Canada.....	0	0	0	0	1	0	1	0	0	0	0	0
Ethiopia.....	0	0	0	0	1	0	0	0	0	0	0	1
Sweden.....	0	0	0	0	0	0	0	0	0	0	0	2
Belgium & Luxembourg.....	0	0	0	0	0	0	0	0	0	1	0	0
Denmark.....	0	0	0	0	0	0	0	0	0	0	0	1
Finland.....	0	0	0	0	0	0	0	0	0	0	0	1
Italy.....	0	0	0	0	0	0	1	0	0	0	0	0
Peru.....	0	0	0	1	0	0	0	0	0	0	0	0
United Kingdom.....	0	0	0	0	0	0	0	0	0	1	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing.
4. Lack of compulsory process and/or discovery.
5. Inadequate civil remedies.
6. Inadequate criminal penalties.
7. Unreasonably slow enforcement process.
8. Enforcement officials discriminate against foreigners.
9. Training and resources for enforcement inadequate.
10. Court decisions biased or political.
11. Corruption.
12. Other.

Table G-10
 Trade secret: Firms reporting remedy and enforcement inadequacies, by
 countries, 1986

Country	Remedy and enforcement inadequacies (see key at end of table)											
	1	2	3	4	5	6	7	8	9	10	11	12
	----- (Number of firms) -----											
Mexico.....	5	3	0	7	14	4	8	9	5	9	7	1
Republic of Korea..	8	5	2	6	13	5	6	11	3	5	3	3
Brazil.....	6	3	0	7	16	5	7	8	5	6	2	2
Taiwan.....	8	6	2	4	14	5	5	4	5	6	2	2
China.....	4	3	2	3	9	4	6	3	4	1	1	0
Japan.....	5	2	1	4	7	3	5	7	1	4	0	1
USSR.....	4	3	1	3	5	3	4	4	2	4	2	1
Argentina.....	3	1	0	4	4	2	1	3	5	3	2	0
Venezuela.....	3	3	1	3	6	2	1	1	3	3	1	1
India.....	1	1	0	3	3	1	6	2	1	2	2	0
Hong Kong.....	1	1	2	0	2	2	3	2	3	2	1	1
West Germany.....	1	0	0	4	2	1	2	2	1	2	0	0
Singapore.....	1	0	2	0	2	2	0	2	3	1	0	1
Colombia.....	2	0	0	1	1	2	2	1	2	1	0	0
Israel.....	1	1	0	1	2	2	1	0	1	0	0	0
Spain.....	0	0	0	1	2	0	2	0	0	0	0	2
Thailand.....	0	1	0	0	1	1	1	0	1	2	0	0
United Kingdom....	1	1	0	1	1	1	1	0	0	1	0	0
Ecuador.....	1	0	0	1	0	1	2	0	1	0	0	0
Indonesia.....	1	0	0	0	1	0	1	1	1	1	0	0
Netherlands.....	0	0	0	1	1	1	1	1	0	1	0	0
Hungary.....	1	0	0	1	0	1	1	0	1	0	0	0
Romania.....	1	0	0	1	0	1	1	0	1	0	0	0
Italy.....	0	0	0	1	0	0	3	0	0	0	0	0
Dominican Republic.....	0	1	0	0	0	0	1	0	0	1	0	0
East Germany.....	0	0	0	0	0	0	1	1	0	1	0	0
Malaysia.....	0	0	0	0	1	1	0	0	1	0	0	0
Saudi Arabia.....	0	0	0	1	1	0	0	0	1	0	0	0
Australia.....	0	0	0	0	1	1	0	0	0	0	0	0
Egypt.....	0	0	0	0	1	0	1	0	0	0	0	0
Belgium & Luxembourg.....	0	0	0	0	0	0	0	0	0	1	0	0
Turkey.....	0	0	0	0	0	0	1	0	0	0	0	0
Yugoslavia.....	0	0	0	0	0	0	1	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing.
4. Lack of compulsory process and/or discovery.
5. Inadequate civil remedies.
6. Inadequate criminal penalties.
7. Unreasonably slow enforcement process.
8. Enforcement officials discriminate against foreigners.
9. Training and resources for enforcement inadequate.
10. Court decisions biased or political.
11. Corruption.
12. Other.

Table G-11

Mask work: Firms reporting remedy and enforcement inadequacies, by countries, 1986

Country	Remedy and enforcement inadequacies (see key at end of table)					
	1	2	3	4	5	6
	----- (Number of firms) -----					
Taiwan.....	1	0	1	1	1	1
Mexico.....	1	1	0	1	1	0
Republic of Korea..	1	0	0	1	1	0
Brazil.....	1	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing.
4. Inadequate criminal penalties.
5. Unreasonably slow enforcement process.
6. Other.

Table G-12
 Proprietary technical data: Firms reporting remedy and enforcement
 inadequacies, by countries, 1986

Country	Remedy and enforcement inadequacies (see key at end of table)											
	1	2	3	4	5	6	7	8	9	10	11	12
------(Number of firms)-----												
Republic of												
Korea.....	6	5	1	6	10	6	8	7	3	4	1	1
Taiwan.....	4	5	1	4	9	2	6	1	4	1	0	0
China.....	4	3	1	2	4	2	4	2	2	0	1	0
Brazil.....	1	0	1	2	7	1	2	3	3	3	1	0
USSR.....	2	2	1	1	4	2	2	2	1	3	1	1
India.....	1	2	0	2	3	1	4	2	0	2	1	0
Mexico.....	0	1	0	2	4	1	2	2	1	3	0	0
Hong Kong.....	1	2	1	1	1	1	3	0	1	0	0	0
Argentina.....	1	1	0	3	2	1	1	0	1	0	0	0
Japan.....	1	1	0	1	1	0	3	2	0	1	0	0
Singapore.....	1	1	1	1	1	1	1	0	1	0	0	0
Costa Rica.....	1	1	0	1	1	1	1	0	0	0	0	0
Indonesia.....	1	1	0	1	1	1	1	0	0	0	0	0
Nigeria.....	1	1	0	1	1	1	1	0	0	0	0	0
Malaysia.....	1	0	0	1	1	1	1	0	0	0	0	0
Netherlands.....	0	0	0	1	1	1	1	1	0	1	0	0
Venezuela.....	0	0	0	1	2	0	0	0	1	0	0	0
West Germany.....	1	0	0	2	0	0	0	1	0	1	0	0
Italy.....	1	0	0	0	0	0	2	0	0	1	0	0
Dominican												
Republic.....	0	1	0	0	0	0	1	0	0	1	0	0
Saudi Arabia.....	0	0	0	1	1	0	0	0	1	0	0	0
Spain.....	0	0	0	0	2	0	0	0	0	0	0	1
Egypt.....	0	0	0	0	1	0	1	0	0	0	0	0
France.....	1	0	0	0	0	0	0	1	0	0	0	0
Thailand.....	0	1	0	0	0	0	1	0	0	0	0	0
United Kingdom....	1	0	0	0	0	0	0	0	0	1	0	0
Belgium &												
Luxembourg.....	0	0	0	0	0	0	0	0	0	1	0	0
East Germany.....	0	0	0	0	0	0	1	0	0	0	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to inadequacies:

1. No preliminary or final injunctive relief.
2. Lack of seizure and impoundment remedies.
3. Lack of exclusion of infringing.
4. Lack of compulsory process and/or discovery.
5. Inadequate civil remedies.
6. Inadequate criminal penalties.
7. Unreasonably slow enforcement process.
8. Enforcement officials discriminate against foreigners.
9. Training and resources for enforcement inadequate.
10. Court decisions biased or political.
11. Corruption.
12. Other.

Table G-13
 Secondary barriers: Firms reporting barriers affecting or arising from
 inadequate protection, by country, 1986

Country	Secondary barriers (see key at end of table)						
	1	2	3	4	5	6	7
	----- (Number of firms) -----						
Brazil.....	29	20	4	31	6	32	24
India.....	15	9	5	27	2	11	5
Mexico.....	15	10	1	43	3	17	14
Republic of Korea.....	15	5	7	24	5	8	4
Venezuela.....	7	6	3	7	1	7	9
China.....	7	6	6	13	2	2	5
Argentina.....	7	5	2	5	4	8	4
Japan.....	6	7	3	10	0	2	4
Colombia.....	9	3	0	1	0	3	5
Indonesia.....	2	0	2	7	0	1	3
Taiwan.....	3	4	2	5	2	2	0
Australia.....	3	4	0	1	0	2	2
Thailand.....	1	3	0	5	1	3	0
Canada.....	2	2	0	3	0	0	0
Italy.....	0	1	0	2	0	1	5
Philippines.....	1	2	1	2	1	0	1
Malaysia.....	0	1	1	7	0	1	1
France.....	2	1	0	1	0	0	3
Saudi Arabia.....	0	2	2	2	2	1	0
Spain.....	1	0	0	4	0	1	3
Peru.....	3	0	0	0	1	0	0
Pakistan.....	1	0	1	0	2	0	1
West Germany.....	0	1	1	0	0	0	0
Trinidad & Tobago.....	3	0	0	0	2	1	0
United Kingdom.....	1	1	0	0	0	0	2
USSR.....	1	0	1	1	1	1	1
Turkey.....	0	0	0	1	0	2	0
Chile.....	1	2	0	1	0	0	0
Ecuador.....	0	0	0	0	0	0	1
Kuwait.....	0	0	1	0	1	0	0
Nigeria.....	1	0	0	1	0	0	1
Panama.....	0	1	0	1	0	0	1
South Africa.....	0	0	0	0	2	1	0
Egypt.....	2	0	0	0	1	0	0
Greece.....	0	0	0	0	0	0	2
Hong Kong.....	2	0	0	0	1	0	0
Israel.....	1	1	0	0	0	0	0
Afghanistan.....	1	1	0	0	0	0	0
Dominican Republic.....	2	0	0	0	0	0	0
Iran.....	0	0	0	0	2	0	0
Libya.....	0	0	0	0	1	0	0
Kenya.....	0	0	0	0	0	0	1
Norway.....	0	1	0	0	0	0	0
Singapore.....	1	0	0	0	0	0	0
Sweden.....	1	0	0	0	0	0	0
Syria.....	0	0	1	0	0	0	0
Yemen.....	2	0	0	0	0	0	0
Austria.....	0	1	0	0	0	0	0
Costa Rica.....	0	0	0	0	0	0	1
Cuba.....	0	0	0	0	1	0	0
Czechoslovakia.....	1	0	0	0	0	0	0
El Salvador.....	0	0	0	0	0	0	1
Jamaica.....	1	0	0	0	0	0	0
Netherlands Antilles.....	0	0	0	0	0	0	1
Paraguay.....	1	0	0	0	0	0	0
Poland.....	1	0	0	0	0	0	0
Romania.....	1	0	0	0	0	0	0
Switzerland.....	0	0	1	0	0	0	0
Sri Lanka.....	0	0	1	0	0	0	0
Sudan.....	0	0	0	0	1	0	0
Vietnam.....	0	0	0	0	1	0	0

Source: Responses to the Commission's Questionnaire to Companies That Benefit from Intellectual Property Protection.

Key to secondary barriers:

1. Import quotas.
2. Discriminatory taxes.
3. Inability to maintain a local office.
4. Investment restrictions and local ownership requirements.
5. Embargoes.
6. "Similar" prohibitions on imports.
7. Price controls.

APPENDIX H

**PROJECTION OF LOSSES FROM INADEQUATE INTELLECTUAL
PROPERTY PROTECTION FOR ALL U.S. INDUSTRIES**

On pages 4-2 and 4-3 of this report, it is indicated that 193 of the firms in Commission's sample reported estimated worldwide aggregate losses of \$23.8 billion in 1986. Because the sample did not provide a statistically verifiable basis on which to project this loss estimate (based on a sizeable but still fractional sample of U.S. firms) to the total of susceptible transactions, we did not attempt to make such a projection has not been included in the body of the report. However, in order to provide some information in response to the request of USTR to develop, to the extent possible, quantitative estimates of the distortions in U.S. worldwide trade associated with deficiencies in the protection by foreign countries to U.S. intellectual property rights, the following projection, with caveats about its limitations, follows.

The data collected by the Commission's questionnaire cannot be projected to U.S. industry as a whole with any statistical validity. This is due to three characteristics of the samples and universe involved: (1) the universe of all U.S. businesses is unknown; (2) the sample of questionnaire recipients was not randomly-drawn; and (3) those companies responding do not represent a random sample (of either all companies or all those sent questionnaires). Further characteristics of the survey which affect the resulting data are discussed on pages 1-1, 1-2, and 4-1.

However, one can illustrate a likely range of aggregate losses from inadequate foreign intellectual property protection by making a number of assumptions concerning properties of both responding and nonresponding companies. One assumption is that responding companies reporting no information other than that intellectual property was of only nominal importance to their businesses had no losses from inadequate protection. Another is that companies' views of their estimated losses are accurate. (Although some respondents particularly concerned about intellectual property losses may have exaggerated their estimated losses, firms with little concern about overseas markets may have underestimated). The range of possible estimates is wide. At the bottom end, to assume that companies not surveyed had no losses gives a \$24 billion loss estimate. This is surely too low because we can not reasonably assume that our survey was answered by all firms suffering losses. At the high end, to assume that firms not surveyed experienced the same ratio of losses to sales as those surveyed would give an estimate of \$102 billion. Neither is this a reasonable assumption because our sample concentrated on industries and firms known to have the greatest problems with intellectual property losses. Almost certainly the firms not included in the survey, as a group, should have a loss ratio significantly lower than the firms surveyed, some of which were chosen because of their expected high loss ratios. For firms not surveyed, a loss ratio of only a quarter to a half as high seems a more reasonable assumption, as applied below.

To get a reasonable illustration of aggregate losses from inadequate foreign protection of intellectual property, one can start with the \$23.8 billion reported by 193 companies with 1986 sales of \$991 billion, for a ratio of losses to sales of 2.4%. If one assumes that, for the 52 companies reporting intellectual property to be of more than nominal importance, reporting their 1986 sales (\$123 billion in total), but not reporting their worldwide losses, the ratio of losses to sales was 1.2%; this would imply additional losses of \$1.5 billion. This would give a total of \$25 billion in losses for the 407 companies responding to the Commission's questionnaire and reporting 1986 sales (\$1.349 trillion in total), including 162 companies

reporting intellectual property to be of only nominal importance to their businesses. For all respondents then, estimated losses would be 1.9% of worldwide sales. One can further assume that for all non-responding companies (both those sent and those not sent questionnaires) the ratio of losses to sales was roughly one-quarter to one-half that of the respondents (0.48 percent to 0.95 percent). Using a figure for worldwide sales by U.S. industry in 1986 of \$5.167 trillion (including services but excluding wholesale trade and government), nonrespondent sales would be \$3.818 trillion and their losses would range from \$18 billion to \$36 billion. Thus, estimated worldwide losses to U.S. industry in 1986 from inadequate foreign protection of intellectual property rights would range from \$43 billion to \$61 billion. It should be stressed that this figure may be "reasonable," but its limitations and lack of statistical validity should be kept in mind.

