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# Preventing Software Piracy through Regional Trade Agreements: The Mexican Example

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# Preventing Software Piracy through Regional Trade Agreements: The Mexican Example

## **Cover Page Footnote**

International Law; Commercial Law; Law

# Preventing Software Piracy Through Regional Trade Agreements: The Mexican Example

## I. Introduction

According to the Software Publishers Association (SPA), unauthorized copying and distribution of business application software cost the software industry nearly half of its potential sales in 1993.<sup>1</sup> The SPA estimates that \$8 billion in software was sold world-wide in 1993.<sup>2</sup> During the same period, the SPA calculates that \$7.4 billion in software was acquired illegally.<sup>3</sup> To provide perspective on the magnitude of the problem, the Executive Director of the SPA, Ken Wasch, compared the \$7.4 billion in losses to the \$7.3 billion in sales reported by McDonald's during the same year.<sup>4</sup>

The staggering losses suffered by the producers of computer software are of specific importance in the United States due to the leading economic role played by this industry.<sup>5</sup> According to Bill Gates, the Chief Executive Officer of Microsoft Corporation, software is this country's sixth largest manufacturing business.<sup>6</sup> Between 1982 and 1993 software manufacturing grew approximately nine times faster

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<sup>1</sup> *Software Piracy Poses Global Threat; New SPA Study Urges Increased Government Attention to Enforcement in Foreign Markets*, PR Newswire, July 5, 1994, available in LEXIS, Nexis Library, Curnws File [hereinafter 1993 SPA Study]. The Software Publishers Association (SPA) is a 1,100 member trade organization which represents the interests of the software industry. *Id.*

"The SPA's figures covered business-applications software, excluding other types of programs like computer games and disk-operating systems." *Software Industry Says Copyright Piracy Cost It \$7.45 Billion in 1993*, UPI, Mar. 28, 1994, available in LEXIS, Nexis Library, Curnws File. SPA compares software purchases with the number of new personal computers bought in a year to estimate the percentage of pirated software used on the new computers. *SPA Europe Releases New Piracy Research; Estimated 1990 Loss to Piracy in Western Europe \$4.46 Billion*, Bus. Wire, Jan. 6, 1992, available in LEXIS, World Library, Allwld File [hereinafter *SPA Europe Releases New Piracy Research*].

The Business Software Alliance (BSA), another software industry organization, estimates the world-wide losses from unauthorized copying and distribution to be \$12.8 billion in 1993. *Software Pirates Cost Industry \$12.8 Billion in 1993*, Newsbytes News Network, Apr. 27, 1994, available in LEXIS, Cmpcom Library, Curnws File. According to the Executive Director of the SPA, the BSA estimates differ from the SPA estimates due to the inclusion of reseller markup in the calculations made by the BSA. Darryl K. Taft, *Software Piracy Rates Tied to Cultural Factors—NCERC Kicks Off Computer Ethics Campaign*, COMPUTER RESELLER NEWS, July 4, 1994, available in LEXIS, Nexis Library, Crn File.

<sup>2</sup> 1993 SPA Study, *supra* note 1.

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> STEPHEN E. SIWEK & HAROLD W. FURCHTGOETT-ROTH, INTERNATIONAL TRADE IN COMPUTER SOFTWARE 3-4, 11-26 (1993).

<sup>6</sup> Bill Gates, *Protection From Pirates*, WASH. POST, Oct. 18, 1993, at A19.

than the rest of the U.S. economy.<sup>7</sup> Computer software is also an important source of exports; an estimated seventy-five percent of the prepackaged software sold globally is manufactured in the United States.<sup>8</sup> In 1993, more than \$4 billion in software was sold abroad.<sup>9</sup>

The illegal duplication of software, also known as piracy, limits the ability of the industry to grow economically and to compete in the global market place.<sup>10</sup> Profits from the sale of software are often reinvested into the development of new products.<sup>11</sup> When this profit is lost to piracy, manufacturers lack the resources necessary for creating innovative software.<sup>12</sup> Ultimately, the competitiveness of U.S. software manufacturers is reduced when they are unable to create new products in a timely manner.<sup>13</sup>

Intellectual property laws provide a method of combatting the piracy of computer software. In the United States, computer software receives protection under the patent, copyright, and trade secret laws.<sup>14</sup> Internationally, many countries recognize protection for software either under their domestic laws or as signatories to an international agreement.<sup>15</sup> Because of the lack of enforcement, however, piracy is still widespread in many countries.<sup>16</sup> As a result, more than laws are required to protect software; governments must have incentives to enforce the laws.

The failure of a country to protect the intellectual property rights of foreign goods, such as software, has broad economic consequences. One effect is that the trading patterns will become distorted because "creators can no longer recover the cost of their investment in research and development, resulting in lower production, fewer trading opportunities, and higher costs to the consumer."<sup>17</sup> The infringement of intellectual property rights also creates a trade barrier between the country which manufactures the product and the country in which the product is infringed. "As exporters or investors are reluctant to introduce products or transfer technology containing key intellectual property for fear that such property will be pirated, piracy becomes a

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<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> 1993 SPA Study, *supra* note 1.

<sup>10</sup> Kenneth Wasch, *How to Take the Lead in Managing an Organization's Software Resources*, in TRADEMARKS, COPYRIGHTS, AND UNFAIR COMPETITION FOR THE GENERAL PRACTITIONER 315, 318 (A.L.I.-A.B.A. Course of Study No. C913, 1994); see also Ilene Rosenthal, *Don't Copy That Floppy: Software Piracy is a Bigger Problem Than You May Realize*, in TRADEMARKS, COPYRIGHTS, AND UNFAIR COMPETITION FOR THE GENERAL PRACTITIONER 323, 326-27 (A.L.I.-A.B.A. Course of Study No. C848, 1993).

<sup>11</sup> See Wasch, *supra* note 10, at 319.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*; Rosenthal, *supra* note 10, at 326.

<sup>14</sup> See discussion *infra* part II.C.

<sup>15</sup> See discussion *infra* part II.D.

<sup>16</sup> See 1993 SPA Study, *supra* note 1.

<sup>17</sup> Marshall A. Leaffer, *Protecting United States Intellectual Property Abroad: Toward a New Multilateralism*, 76 IOWA L. REV. 273, 277 (1991).

barrier to trade."<sup>18</sup> A trade barrier reduces the level of trade between the affected countries.<sup>19</sup> As a result, without intellectual property protection, goods are not able to flow freely between trading nations.<sup>20</sup>

One tool used by the United States to encourage foreign countries to protect the intellectual property rights of U.S. manufacturers is trade sanctions.<sup>21</sup> While they can be effective, trade sanctions are punitive in nature and strain the relations between the United States and another country.<sup>22</sup> As an alternative, the United States should pursue more regional trade agreements which include the protection of intellectual property rights as a term of the agreement.

The North American Free Trade Agreement (NAFTA) between the United States, Mexico, and Canada is an example of a trade agreement facilitating the implementation and enforcement of stronger intellectual property laws in a country whose protection was previously inadequate.<sup>23</sup> During the NAFTA negotiations, Mexico took several steps to strengthen the protection granted to computer software and to increase enforcement of the new provisions.<sup>24</sup> Under the NAFTA Mexico agreed to adhere to even more stringent requirements.<sup>25</sup>

Agreements such as the NAFTA would be especially effective in curbing widespread piracy in developing countries. By tying intellectual property protection to increased trade, a regional trade agreement would provide developing countries with economic incentives to create and enforce laws in their country that protect U.S. products from unauthorized duplication.

Part II of this Comment defines the problem of software piracy and discusses protection for the intellectual property rights of software as a method to prevent piracy. In Part III, the use of trade sanctions to encourage other countries to provide protection under their laws for U.S. products is addressed. Part IV discusses theories which link together economic growth, access to technology, and intellectual property protection. This section addresses these theories in the context of a developing nation working towards industrialization and competing in the global marketplace. Part V suggests that regional trade agreements, which include laws protecting the intellectual property rights of software, should be used as an alternative to trade sanctions to prevent piracy. Part VI traces the development of Mexico's economic policies and intellectual property protection. This section begins by examining

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<sup>18</sup> Frank J. Garcia, *Protection of Intellectual Property Rights In The North American Free Trade Agreement: A Successful Case of Regional Trade Regulation*, 8 AM. U. J. INT'L L. & POL'Y 817, 820 (1993).

<sup>19</sup> *Id.*

<sup>20</sup> Leaffer, *supra* note 17, at 277.

<sup>21</sup> See discussion *infra* part III.

<sup>22</sup> Garcia, *supra* note 18, at 821; Leaffer, *supra* note 17, at 297.

<sup>23</sup> See 1993 SPA study, *supra* note 1.

<sup>24</sup> See discussion *infra* part VI.C.2.

<sup>25</sup> See discussion *infra* part VI.D.

the weak protection for software provided by Mexico's original copyright laws. It proceeds by noting the revision to the Copyright Act which coincided with changing economic policies in Mexico. The section concludes by addressing the NAFTA and the changes in Mexico's protection for software which were a result of the agreement. Part VII suggests that other countries in Latin America are viable candidates for an agreement, similar to the NAFTA, to reduce the rampant piracy found in the region. Finally, this Comment concludes that agreements between the United States and countries in a geographic region which link trade with intellectual property protection is an effective method of reducing the infringement of U.S. manufactured products such as software.

## II. Software Piracy

### A. Background

Software piracy is both easy and inexpensive. Most desktop personal computers contain all of the equipment necessary to reproduce a program. Unlike many other products, such as cassette tapes and motion pictures, which are widely pirated, the duplicate copy can be of the same quality as the original.<sup>26</sup> Also, the only costs to the pirate are access to a computer and either a hard drive or floppy disks on which to store the information.<sup>27</sup>

There are four major methods that software pirates use to copy software illegally.<sup>28</sup> In one, the program is copied and then resold. With this type of piracy, the purchaser receives a duplicate copy of the program, usually without any documentation, for less than the retail price.<sup>29</sup> In the second method, computer sellers load the software into the hard drive as an incentive to buy a computer. Here, the purchaser receives both the computer and the software for one price.<sup>30</sup> Another method that is commonly used is when one copy of the program is purchased and then installed onto many different computers. This type of piracy is frequently found in companies or among individuals who purchase one copy and then share it with others.<sup>31</sup> In the last type of piracy, the program is posted to an electronic bulletin board from which other subscribers can download the software.<sup>32</sup>

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<sup>26</sup> Wasch, *supra* note 10, at 318.

<sup>27</sup> *Id.* at 318-19.

<sup>28</sup> *Id.* at 317-18.

<sup>29</sup> *Id.* This type of piracy is often done as a large-scale, commercial operation. See Steve Hamm, *After NAFTA, Software Vendors to Enjoy Greater Copyright Protection in Mexico*, *NAFTA Forward Spin, PC Inside, PCWEEK*, Jan. 10, 1994, available in LEXIS, Nexis Library, Cmptrs File.

<sup>30</sup> Wasch, *supra* note 10, at 317. Because the hardware seller has taken one authorized copy and loaded it into the hard disks of many computers, the computer purchaser is not purchasing an authorized copy of the software with his computer.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.* at 318. In a recent case, a student at the Massachusetts Institute of Technology (MIT) ran an electronic bulletin board which was linked to the global computer network, the

### B. Prevention

In the 1980s, some manufacturers tried to reduce software piracy by producing programs which either could not be copied at all or could only be copied a limited number of times.<sup>33</sup> Software producers have since limited their use of this method because purchasers of the software making legitimate copies to use as backups complained about the limitations imposed on their use of the product.<sup>34</sup> Manufacturers also found that this method did not significantly reduce piracy.<sup>35</sup>

Currently, a common method of combatting software piracy is through the enforcement of the intellectual property rights in software. Under an intellectual property system, a government creates and enforces laws that encourage creative, skilled people or institutions to invest their resources into the development of new products.<sup>36</sup> In return, the creators or inventors receive the right to control the use of and to gain the economic benefits from the product.<sup>37</sup> Under this system, when the intellectual property rights belonging to a person or company are infringed, legally recognized remedies exist that the person or company can pursue to compensate them for their losses.

### C. Intellectual Property Protection in the United States

#### 1. Background

Patent, copyright, and trade secret law are three methods commonly used in the United States to protect the intellectual property rights found in computer software.<sup>38</sup> Whether a computer program should be protected by patent, copyright, or trade secret law depends on the nature and use of the program.<sup>39</sup> The three forms of intellec-

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Internet. On this bulletin board, subscribers posted software which could be downloaded by other subscribers. According to U.S. government estimates, \$1 million in software may have been pirated in this instance. If the estimates are correct, the MIT case is the largest single incident of software piracy ever reported in the United States. The student was subsequently charged with conspiracy to commit wire fraud by the Department of Justice. Philip Elmer-Dewitt, *Nabbing the Pirates of Cyberspace*, TIME, June 13, 1994, at 62, 62.

<sup>33</sup> *Piracy One of Many Software Issues*, CORPORATE LEGAL TIMES, June 1994, available in LEXIS, Nexis Library, Curnws File; Elmer-Dewitt, *supra* note 32, at 62.

<sup>34</sup> *Piracy One of Many Software Issues*, *supra* note 33.

<sup>35</sup> *Id.*

<sup>36</sup> Andrew G. Rodau, *Protection of Intellectual Property—Patent, Copyright, and Trade Secret Law in the United States and Abroad*, 10 N.C. J. INT'L L. & COM. REG. 537, 537-38 (1985). In the United States, Congress has constitutional authority to develop an intellectual property system: "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I, § 8, cl. 8. Two forms of federal intellectual property protection which derive from this constitutional provision are the patent and copyright law systems.

<sup>37</sup> Rodau, *supra* note 36, at 537-38.

<sup>38</sup> JAMES V. VERGARI & VIRGINIA V. SHUE, FUNDAMENTALS OF COMPUTER—HIGH TECHNOLOGY LAW 511 (1991).

<sup>39</sup> *Id.* at 514.

tual property protection are not mutually exclusive.<sup>40</sup> In fact, different parts of a program can receive different treatment under intellectual property law.<sup>41</sup> Software producers, therefore, can consider both the nature and use of the product in choosing the intellectual property system which will provide the most effective protection for their product.

## 2. Patent Protection

Patent law protects the inventor or discoverer of "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof."<sup>42</sup> If a patent is issued for the product,<sup>43</sup> then the holder receives the exclusive right to make, use, and sell the invention for a period of seventeen years.<sup>44</sup> After the patent period expires, the information can be used freely by the public.

For computer software to receive a patent, the developer must show that the program is novel and that the subject matter is non-obvious.<sup>45</sup> Once this threshold requirement is met, courts will then examine the function of the software. If the value of the program lies in the algorithm, the step-by-step method, or a mathematical equation used to solve a problem, the software is not patentable.<sup>46</sup> Algorithms have been deemed nonpatentable subject matter by the U.S. Supreme Court because they are viewed as a natural formula which cannot be monopolized by one party.<sup>47</sup> However, if the software containing an algorithm is used as a step in a process creating a patentable product, the software will be patented as a part of the overall process.<sup>48</sup>

When patented, software, like other products, will be protected from duplication for seventeen years.<sup>49</sup> With the rapid advances made in technology, the useful life of software will usually be less than seven-

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<sup>40</sup> *Id.*

<sup>41</sup> For example, the producer may copyright the object code, while withholding the source code as a trade secret. *Id.* at 525.

<sup>42</sup> 35 U.S.C. § 101 (1988).

<sup>43</sup> *Id.* §§ 102-103.

<sup>44</sup> *Id.* § 154. Section 281 creates a cause of action if the patent is infringed. *Id.* § 281. The software creator may sue for an injunction, damages, or attorneys fees. *Id.* §§ 283-285.

<sup>45</sup> *Id.* §§ 102-103. The determination of whether the non-obvious standard has been met is a factual determination by the court. *See, e.g.,* *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

<sup>46</sup> *See* *Diamond v. Diehr*, 450 U.S. 175, 186 (1980).

<sup>47</sup> *Gottschalk v. Benson*, 409 U.S. 63 (1972).

<sup>48</sup> *Diamond*, 450 U.S. at 187. Patentability appears to be determined by the size of the role played by the computer program as a step in the overall process. *Compare In re Grams*, 888 F.2d 835 (Fed. Cir. 1989) (holding that a process which relies on an algorithm and has a physical step only to collect data for the computations is not patentable) *with In re Iwahashi*, 888 F.2d 1370 (Fed. Cir. 1989) (holding that patentability should be determined by the nature of the apparatus as a whole, and therefore, the use of an algorithm did not automatically render a process unpatentable).

<sup>49</sup> 35 U.S.C. § 154 (1988).



teen years. As a result, patent protection can effectively provide the software producer with a monopoly on the use and distribution of the product during its entire useful life. Therefore, a patent is a desirable form of intellectual property protection for software, when it is an available option.

### 3. Copyright Protection

Under U.S. copyright laws, the author or creator of an original work that can be represented in a tangible medium is granted the exclusive right to duplicate the work.<sup>50</sup> The duration of copyright protection is determined by the nature of the work.<sup>51</sup> If a copyrighted work is infringed during the period of protection provided for it by statute, the owner has the option of taking legal action against the infringer.<sup>52</sup> The remedies provided in the copyright statute are as follows: injunctive relief,<sup>53</sup> impoundment,<sup>54</sup> damages and profits,<sup>55</sup> statutory damages,<sup>56</sup> costs and attorney's fees,<sup>57</sup> and criminal penalties.<sup>58</sup>

Under copyright law, computer programs are considered literary works.<sup>59</sup> Computer software is written in a language or code which serves as the literal manifestation of the program.<sup>60</sup> To be protected from infringement, software must first meet the statutory definition for

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<sup>50</sup> 17 U.S.C. §§ 102, 106(1) (1988).

<sup>51</sup> Generally, copyright protection lasts for the author's lifetime plus the fifty years following the author's death. If the work is a joint effort and is not created for hire, then the protection extends for the life of the last surviving author and fifty years thereafter. For a commercial product, the copyright period is seventy-five years from the date of first publication, or a hundred years from the date of creation, whichever terminates first. *Id.* § 302.

<sup>52</sup> Infringement is the unauthorized use of the rights reserved by the copyright owner. *Id.* § 501(1). A work must be registered with the copyright office before an infringement suit can be filed. *Id.* §§ 408-412.

<sup>53</sup> *Id.* § 502.

<sup>54</sup> *Id.* § 503.

<sup>55</sup> *Id.* § 504.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* § 505.

<sup>58</sup> *Id.* § 506. In October 1992, the statutory criminal penalties for copyright infringement were modified. While software is not expressly protected, the new definition of what constitutes copyright infringement is broad enough to include computer programs. See 18 U.S.C. § 2319(b) (1988 & Supp. IV 1992); *Legislation: Congress Clears Bill on Criminal Penalties for Copyright Infringement*, 44 Pat. Trademark & Copyright J. (BNA) No. 1101, at 635 (Oct. 15, 1992).

<sup>59</sup> *Whelan Assoc. v. Jaslow Dental Lab.*, 797 F.2d 1222, 1234 (3d Cir. 1986). Computer programs are defined in the copyright statute as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 101 (1988).

<sup>60</sup> Computer programs are written in a language such as C or Fortran. While in language format, the programs are described as source code. Anyone educated in the language can read the source code and decipher the program. Before a program can be read by the computer, it must be translated from the programming language into a form understood by the computer. Therefore, the program is "compiled." A compiler translates the program from source code into machine code. Machine code, also known as object code, is a series of one's and zero's which is recognized by the computer as a particular command. Object code

originality, which requires the producer to create, rather than copy, the work.<sup>61</sup> Copyright protects the "expression" of the computer program, but not the "idea."<sup>62</sup> Since a precise definition for "expression" and "idea" as applied to software has not been established, the courts evaluate the content of programs on a case-by-case basis.<sup>63</sup> The distinction between "expression" and "idea" becomes relevant when trying to determine exactly what parts of a program are protected from duplication under copyright law.

One major benefit of relying on copyright protection for a computer program is the small number of reporting requirements that are required before copyright protection attaches to a product.<sup>64</sup> On the other hand, under the Copyright Act, a program is not protected from all forms of duplication; the statute authorizes the owner of a copy of a computer program to make another copy of the software for archival purposes or when it is necessary to use the program effectively.<sup>65</sup>

#### 4. Trade Secret Protection

Trade secret law provides a third source of protection for computer software. Trade secrets are often protected by application of common law principles or by statute. A trade secret is defined in the Restatement of Torts as "any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it."<sup>66</sup> The Restatement definition of a trade secret does not expressly protect computer software; however, courts applying this definition have found trade secret protection for computer programs.<sup>67</sup>

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can be read by only a few computer specialists. See J.B. Taphorn, *Software Protection in the International Marketplace*, 10 N.C. J. INT'L L. & COM. REG. 617, 618-19 (1985).

<sup>61</sup> 17 U.S.C. § 102 (1988).

<sup>62</sup> See *Baker v. Selden*, 101 U.S. 99 (1879) (establishing the distinction between "idea" and "expression" when determining what aspects of a work can be protected from duplication under copyright law).

<sup>63</sup> "Distinguishing between ideas and the expression of those ideas is not an easy endeavor, and given the varying nature of computer programs it must necessarily be ad hoc." *Gates Rubber Co. v. Bando Chem. Indus.*, 9 F.3d 823, 836 (10th Cir. 1993).

<sup>64</sup> See 17 U.S.C. §§ 401, 408(a) (1988). This contrasts with the extensive procedures required for patent protection. See 35 U.S.C. §§ 100-105, 111-122, 131-135, 141-146, 151-157 (1988).

<sup>65</sup> 17 U.S.C. § 117 (1988). According to the statute, the owner of a copy of a computer program may reproduce or adapt the program if the following criteria are met:

- (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that is used in no other manner, or
- (2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

*Id.*

<sup>66</sup> RESTATEMENT OF TORTS § 757 cmt. b (1939); see also *id.* cmt. d (listing the six factors to consider when determining whether information is a trade secret).

<sup>67</sup> *E.g.*, *Rivendell Forest Prods. v. Georgia-Pacific Corp.*, 28 F.3d 1042 (10th Cir. 1994);

Under the Uniform Trade Secrets Act (UTSA), computer software is expressly protected.<sup>68</sup> The UTSA, which has been adopted in whole or in part by thirty-eight states and the District of Columbia, essentially codifies the common law protection for trade secrets.<sup>69</sup> The substantial differences between the UTSA and the common law are the remedies available if the protected information is misappropriated.

Unlike patent protection, which requires the code of the program to be on file with the patent office, trade secret protection relies on the taking of steps to prevent the code from being disclosed.<sup>70</sup> There are some drawbacks, however, to trade secret law. A software manufacturer can lose trade secret protection if it does not take reasonable precautions to prevent disclosure of the "secret" of the program.<sup>71</sup> Trade secret law also does not protect software producers from the appropriation of their programs through reverse assembly.<sup>72</sup> It does, however, protect against the use of "improper means" by another party to discover the "secret" of the product.<sup>73</sup> If a court finds that "improper means" were used, it can grant a state law remedy to the creator.<sup>74</sup> Thus, in limited circumstances, trade secret law can be an effective tool to protect the intellectual property rights of software producers.

In conclusion, patent, copyright, and trade secret law are used to protect the intellectual property rights of software in the United States. Internationally, copyright law has been the tool frequently used by foreign governments to reduce or eliminate software piracy. The terms of the international copyright conventions, which have been signed by many countries, have been looked to as one source of protection for software.<sup>75</sup> Countries have also provided protection for software under

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Integrated Cash Management Servs. v. Digital Transactions, 920 F.2d 171 (2d Cir. 1990); Computer Assocs. Int'l v. Bryan, 784 F. Supp. 982 (E.D.N.Y. 1992).

<sup>68</sup> Unif. Trade Secrets Act § 1, 14 U.L.A. at 437-38 [hereinafter UTSA]. Many states have read "programs" to include "computer programs." *Id.*, Prefatory Note, 14 U.L.A. at 437-38. See *Aries Info. Sys. v. Pacific Management Sys. Corp.*, 366 N.W.2d 366 (Minn. Ct. App. 1985) (holding a specially designed computer software system to be a trade secret).

<sup>69</sup> See UTSA, *supra* note 68, Prefatory Notes, 14 U.L.A. at 433 (1985 & Supp. 1994).

<sup>70</sup> VERGARI & SHUE, *supra* note 38, at 525-26.

<sup>71</sup> *Id.*

<sup>72</sup> Reverse assembly, also known as reverse engineering, is the process by which a computer program is translated from the machine code into a form easily read by trained programmers. Casey P. August & Derek K.W. Smith, *Understanding Some Intricacies of Software: Expression, Interfaces, and Reverse Assembly*, 11 COMPUTER LAW. (P-H) No. 4, at 16 (Apr. 1994); see also John E. Titus, Comment, *Right to Reverse Engineer Software: Is Japan Next and Does It Really Matter?*, 19 N.C. J. INT'L L. & COM. REG. 491, 495-97 (1994).

<sup>73</sup> RESTATEMENT OF TORTS § 757 (1939). Improper means are defined by the Restatement as "means which fall below the generally accepted standards of commercial morality and reasonable conduct." *Id.* § 757 cmt. f; see also *E.I. duPont deNemours & Co. v. Christopher*, 431 F.2d 1012 (5th Cir. 1970) (analyzing what constitutes using improper means in discovering a trade secret).

<sup>74</sup> VERGARI & SHUE, *supra* note 38, at 520.

<sup>75</sup> See discussion *infra* part II.D.

their domestic laws.<sup>76</sup> In addition, the European Union has issued a directive which encourages its member countries to provide copyright protection for software.<sup>77</sup> While patent and trade secret law are not precluded as viable sources of protection where available, this Comment focuses on copyright protection for the software produced by U.S. manufacturers.

#### D. *International Copyright Conventions*

While copyright infringement issues are handled domestically, there are international agreements that aim to coordinate the protection afforded to products exchanged between the member nations. Two global agreements are the Berne Convention<sup>78</sup> and the Universal Copyright Convention (UCC).<sup>79</sup> A third group of agreements, the Inter-American Copyright Conventions, address copyright issues between Latin American countries and the United States.<sup>80</sup> Of the Inter-American Conventions, the Buenos Aires Convention (BAC) is the most influential.<sup>81</sup> Many of the signatories to the BAC have also signed the UCC.<sup>82</sup> Because the UCC addresses many of the same issues as the BAC and was adopted after the BAC, the UCC supersedes the BAC in the countries which have signed both.<sup>83</sup>

The formation of the Berne Convention and the UCC were progressive steps in the globalization of intellectual property protection. Under the Conventions, the works which receive copyright protection amongst the signatories are expressly defined. The Berne Convention

<sup>76</sup> See *infra* note 95 and accompanying text.

<sup>77</sup> See *infra* notes 103-04 and accompanying text.

<sup>78</sup> Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 331 U.N.T.S. 217 [hereinafter Berne Convention]. As of January 1993, ninety states were signatories of the Berne Convention. Paul E. Geller, *International Copyright: An Introduction*, in 1 INTERNATIONAL COPYRIGHT AND PRACTICE, at INT-221 (Melville B. Nimmer & Paul E. Geller eds., 1993).

<sup>79</sup> Universal Copyright Convention, Sept. 6, 1952, 6 U.S.T. 2732, 216 U.N.T.S. 133 [hereinafter UCC]. As of January 1993, eighty-four states were signatories of the Universal Copyright Convention. Geller, *supra* note 78, at INT-227.

<sup>80</sup> See EDWARD W. PLOMAN & L. CLARK HAMILTON, COPYRIGHT: INTELLECTUAL PROPERTY IN THE INFORMATION AGE 54 (1980) (listing the six conventions making up the Inter-American Conventions).

<sup>81</sup> Buenos Aires Convention, Aug. 11, 1910, 38 Stat. 1785, 155 L.N.T.S. 179 (effective May 1, 1911); see also PLOMAN & HAMILTON, *supra* note 80, at 55-56 (discussing the importance of the BAC).

<sup>82</sup> The following countries are signatories of both the Buenos Aires Convention and the Universal Copyright Convention: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Mexico, Nicaragua, Panama, Paraguay, and Peru. See 17 U.S.C. § 104 (1988 & Supp. IV 1992) (listing the proclamations, treaties, and conventions establishing copyright relations between the United States and other countries). Honduras and Uruguay are signatories to the Buenos Aires Convention, but have not signed the Universal Copyright Convention. *Id.* El Salvador and Venezuela are signatories to the Universal Copyright Convention only. *Id.*

<sup>83</sup> Alfred L. Rinaldo, Jr., *The Scope of Copyright Protection in the United States Under Existing Inter-American Relations: Abrogation of the Need for U.S. Protection Under the Buenos Aires Convention by Reliance Upon the UCC*, 22 BULL. COPYRIGHT SOC'Y 417, 426 (1975).

protects works "in the literary, scientific and artistic domain, whatever may be the mode or form of its expression."<sup>84</sup> The UCC provides protection for "literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and paintings, engravings and sculpture."<sup>85</sup> By defining protected works, the Conventions provide a basic foundation for protection among their member states.

The Conventions also operate to resolve conflicts-of-laws issues.<sup>86</sup> Both the Berne Convention and the UCC rely on national treatment to protect works between the member countries.<sup>87</sup> Under national treatment, a foreign complainant receives the same protection under a nation's copyright laws as would be accorded to a domestic party.

Neither Convention expressly protects software as a work.<sup>88</sup> The lack of express protection is usually not critical because many of the signatories of either the Berne Convention or the UCC provide software with copyright protection under their national laws.<sup>89</sup> However, because both Conventions rely on national treatment, a problem could arise when one signatory's laws do not provide copyright protection for software.

The overall failure of the Conventions to provide comprehensive protection for software is demonstrated by the high rates of piracy in countries which are members of one or both Conventions. For example, Malaysia, which is a member of the Berne Convention,<sup>90</sup> has a piracy rate of eighty-eight percent.<sup>91</sup> Spain and Portugal, members of both Conventions,<sup>92</sup> have a combined piracy rate of seventy-nine percent.<sup>93</sup>

#### *E. Impact of Intellectual Property Protection*

Intellectual property protection appears to reduce piracy and to increase sales in many countries. In the United States, the laws protecting computer software result in one of the lowest piracy rates in the world. According to 1993 SPA estimates, sixty-seven percent of the software acquired in the United States was purchased legally.<sup>94</sup> The lowest rate of piracy in the world is found in the United Kingdom where software is provided express protection under the domestic

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<sup>84</sup> Berne Convention, *supra* note 78, art. 2(1), at 221.

<sup>85</sup> UCC, *supra* note 79, art. I, 6 U.S.T. at 2733, 216 U.N.T.S. at 134.

<sup>86</sup> PLOMAN & HAMILTON, *supra* note 80, at 49, 58.

<sup>87</sup> Geller, *supra* note 78, at INT-78,-79.

<sup>88</sup> Geller, *supra* note 78, at INT-81.

<sup>89</sup> *See id.*

<sup>90</sup> Geller, *supra* note 78, at INT-222.

<sup>91</sup> 1993 SPA Study, *supra* note 1.

<sup>92</sup> Geller, *supra* note 78, at INT-222, -223, -227.

<sup>93</sup> 1993 SPA Study, *supra* note 1.

<sup>94</sup> *Id.* However, since the United States is the largest consumer of software in the world, the monetary losses were the greatest of any country. Last year, piracy cost an estimated \$1.568 billion in sales. *Id.*

copyright laws.<sup>95</sup> In the United Kingdom, an estimated seventy-three percent of software was acquired legally.<sup>96</sup>

Copyright law alone, however, is not enough to protect software from piracy; it must be enforced by the country's government.<sup>97</sup> India provides express copyright protection for software, yet the estimated piracy rate is ninety-five percent.<sup>98</sup> While India faces many of the difficulties with creating and enforcing intellectual property laws found in newly industrialized and developing countries,<sup>99</sup> widespread piracy problems are also found in many industrialized countries.<sup>100</sup>

One country in which the implementation and enforcement of intellectual property laws has made a marked difference in sales is Italy.<sup>101</sup> In an SPA piracy study for the years 1988, 1989, and 1990, only eleven percent of the Macintosh and only eighteen percent of the DOS applications were acquired legally.<sup>102</sup> In December 1992, Italy adopted the European Union directive<sup>103</sup> on copyright protection for computer software.<sup>104</sup> A 1993 study by the SPA indicated that thirty-nine percent of software used in new computers was purchased legally.<sup>105</sup> In addition, software sales increased by 104% over the previous year in the first quarter of 1994.<sup>106</sup>

As the market for computer goods grows, the piracy of U.S. manufactured software products will continue to be a problem. To reduce the economic losses to the software industry, U.S. policymakers should encourage countries with high rates of piracy to enact and enforce stronger intellectual property protections. One method used by the United States is to impose or threaten to impose trade sanctions

<sup>95</sup> William R. Cornish, *United Kingdom*, in 2 INTERNATIONAL COPYRIGHT LAW AND PRACTICE, at UK-25 (Paul E. Geller ed., 1993).

<sup>96</sup> 1993 SPA Study, *supra* note 1.

<sup>97</sup> A typical example of the methods used to enforce the intellectual property rights of computer software is demonstrated by the following description of a Czech Republic raid. "Police searching a business suspected of using pirated software will typically look for some documentation: start-up disks, user manuals, a sales receipt, anything that would come with an original purchase." J. Dee Hill, *Czech Republic: Still Soft on Software*, THE WARSAW VOICE, June 19, 1994, available in LEXIS, World Library, Allwld File.

<sup>98</sup> See 1993 SPA Study, *supra* note 1.

<sup>99</sup> See *infra* part IV.B.

<sup>100</sup> 1993 SPA Study, *supra* note 1. For example, "Italy, Belgium, Luxembourg, the Netherlands and the Nordic countries have high national incomes, but their low levels of enforcement encourage relatively high piracy rates." *Id.* Interestingly, cultural attitudes towards the protection of intellectual property has been found to be a better predictor of piracy rates in a country than national income. Taft, *supra* note 1, at 69.

<sup>101</sup> *Western Europe Software Sales Reach \$522 Million in First Quarter 1994; Unit Sales Increase 59%*, PR Newswire, June 20, 1994, available in LEXIS, News Library, Curmws File [hereinafter *Western Europe Software Sales*].

<sup>102</sup> SPA Europe Releases New Piracy Research, *supra* note 1.

<sup>103</sup> In 1991, the member states of the European Union adopted a directive which recognized protection for computer programs as literary works. Council Directive 91/250 of 14 May 1991 on the Legal Protection of Computer Programs, 1991 O.J. (L 122) 42.

<sup>104</sup> *Western Europe Software Sales*, *supra* note 101.

<sup>105</sup> 1993 SPA study, *supra* note 1.

<sup>106</sup> *Western Europe Software Sales*, *supra* note 101.

against countries which fail to recognize the intellectual property rights of U.S. products.<sup>107</sup>

### III. Trade Sanctions and Intellectual Property Protection

Under the Omnibus Trade and Competitiveness Act of 1988,<sup>108</sup> which modified Section 301 of the Trade Act of 1974,<sup>109</sup> the United States Trade Representative (USTR) must identify foreign countries whose policies provide inadequate or ineffective intellectual property protection.<sup>110</sup> If the USTR finds that a country provides ineffective intellectual property protection, that country is placed on "watch" status.<sup>111</sup> If the country's protection continues to be weak, it will then be placed on "priority watch" status.<sup>112</sup> Finally, if conditions fail to improve, the country will be given "priority" status.<sup>113</sup>

Once a country is designated a priority country, it is likely that the USTR will pursue bilateral negotiations.<sup>114</sup> Following six to nine months of negotiations, the USTR has the option of invoking trade sanctions to encourage improved protection for the intellectual property rights of U.S. goods.<sup>115</sup> Countries listed by the USTR as watch or priority watch countries are subject to heightened scrutiny, but they

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<sup>107</sup> See *infra* part III.

<sup>108</sup> Pub. L. No. 100-418, 102 Stat. 1107 (codified in scattered sections of 19 U.S.C. and 50 U.S.C. app.).

<sup>109</sup> Trade Act of 1974, Pub. L. No. 93-618, § 301, 88 Stat. 1978, 2041-43 (1975) (codified at 19 U.S.C. § 2411 (1988)).

<sup>110</sup> *Id.* § 2242(b).

<sup>111</sup> The countries on the 1994 watch list are Italy, Spain, Poland, Indonesia, Taiwan, United Arab Emirates, Australia, Venezuela, the Philippines, Greece, Egypt, Pakistan, Cyprus, Peru, El Salvador, Guatemala, Chile, and Colombia. *USTR Delays Citing China, India, Argentina Under Special 301 Law*, 11 Int'l Trade Rep. (BNA) No. 18, at 690 (May 4, 1994) [hereinafter *USTR Delays Citing Under Special 301*]. Countries which the USTR identifies as having intellectual property protection which could be improved are Brazil, Canada, Germany, Honduras, Israel, Panama, Paraguay, Russia, and Singapore. *Id.* In an April 30, 1994 announcement by the USTR, Colombia, Egypt, Honduras, Poland, Russia, Taiwan and Venezuela were recognized for enacting new intellectual property laws or strengthening the existing protections. *Id.* "At the same time, Korea, Thailand, Egypt, the United Arab Emirates, Italy, Mexico, and Taiwan received mention for having undertaken 'significant' enforcement efforts over the past year." *Id.*

<sup>112</sup> Countries presently on the priority watch list are the European Union, Japan, South Korea, Saudi Arabia, Thailand, and Turkey. *Id.*

<sup>113</sup> 'Priority foreign countries' are those countries that: (1) have the most onerous and egregious acts, policies and practices which have the greatest adverse impact (actual or potential) on the relevant U.S. products; and, (2) are not engaged in good faith negotiations or making significant progress in negotiations to address these problems. If a country is identified as a 'priority foreign country', the USTR must decide within 30 days whether to initiate an investigation of those acts, policies and practices that were the basis for identifying the country as a 'priority foreign country.'

*USTR Announcement and Fact Sheets on Decisions Affecting Foreign Government Procurement, Intellectual Property Protection, and U.S.-Japan Supercomputer Pact*, 11 Int'l Trade Rep. (BNA) No. 18, at 722, (May 4, 1994).

<sup>114</sup> *USTR Delays Citing Under Special 301*, *supra* note 111, at 690.

<sup>115</sup> *Industry Presses U.S. to Act Against 36 Countries for Copyright 'Piracy'*, 11 Int'l Trade Rep. (BNA) No. 8, at 274 (Feb. 23, 1994).

are not subjected to trade sanctions immediately.<sup>116</sup>

Trade actions under Section 301 can be effective tools to encourage foreign countries to implement stronger intellectual property protection. For example, following a 1993 designation as priority countries, Brazil and Thailand "escaped sanctions by passing intellectual property protection laws or taking other steps to protect copyrights, patents, trademarks or trade secrets."<sup>117</sup> Other countries, such as India, have been slower to resolve their intellectual property problems. India has been listed as a priority country since 1991, and it has made progress in improving trademark and copyright protection.<sup>118</sup> However, patent protection continues to be a problem area.<sup>119</sup>

The trade sanctions, which are provided for in the statute, have also been effective tools to influence other countries to improve their intellectual property protection for U.S. products. For example, in 1987 the USTR investigated the lack of patent protection for pharmaceutical products in Brazil.<sup>120</sup> When trade negotiations failed to resolve the issue, the United States imposed a one hundred percent ad valorem tariff on a variety of Brazilian products; the total cost to Brazil was valued at \$40 million.<sup>121</sup> The sanctions were lifted in 1990 following a pledge by the Brazilian government to adopt patent protection legislation.<sup>122</sup>

The threat of retaliation under Section 301 can serve as an impetus for countries to improve intellectual property protection. However, Section 301 has been criticized "for being inconsistent with GATT's bilateral/multilateral dispute settlement approach."<sup>123</sup> Furthermore, trade sanctions should not be considered a panacea.<sup>124</sup> They may not completely resolve the situation, and they do not assist in correcting the underlying economic problems which prevent developing and newly industrialized countries from providing effective protection for intellectual property.

#### IV. Intellectual Property Protection and Economic Growth

##### A. Economic Theory

The intellectual property systems in the United States and other

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<sup>116</sup> *Id.*

<sup>117</sup> *USTR Delays Citing Under Special 301*, *supra* note 111, at 690.

<sup>118</sup> *Id.*

<sup>119</sup> *Id.*

<sup>120</sup> *Brazil Drafts New Law to Revise Protection on Pharmaceutical Product, Process Patents*, 8 Int'l Trade Rep. (BNA) No. 16, at 585 (Apr. 17, 1991).

<sup>121</sup> *Hills Lifts \$40 Million in Sanctions After Brazil Pledges to Enact Patent Law*, 7 Int'l Trade Rep. (BNA) No. 27, at 996 (July 4, 1990).

<sup>122</sup> *Id.*

<sup>123</sup> Kevin C. Kennedy, *Reforming U.S. Trade Policy to Protect the Global Environment: A Multilateral Approach*, 18 HARV. ENVTL. L. REV. 185, 220 (1994).

<sup>124</sup> See Jagdish Bhagwati, *It's the Process, Stupid*, ECONOMIST, Mar. 27, 1993, at 69.



industrialized countries are credited with encouraging the development of new technology which in turn leads to economic growth.<sup>125</sup> Extrapolating from the success of the industrialized countries, a common economic theory holds that intellectual property protection for innovative products is an important step in the industrialization of developing nations.<sup>126</sup>

Technology provides a country with the resources to develop new industries or to modernize existing operations.<sup>127</sup> The country can utilize more effective processes to produce a higher quantity of goods.<sup>128</sup> Also, products can be manufactured more efficiently, which reduces the price of the final product.<sup>129</sup> If the country successfully implements new systems reducing the production costs, and if the increased output is greater than the population growth rate, then the country should experience economic growth.<sup>130</sup>

### B. Developing Countries

Many developing countries encourage the increased privatization of domestic industries as a step in the industrialization process.<sup>131</sup> To be economically competitive, these private businesses need information and technology which allow them to manufacture products efficiently. This is a problem, however, because the developing country will have difficulty acquiring the needed material from abroad or locally if it does not enact and enforce intellectual property laws.<sup>132</sup>

Without protection for their investment in the research and development of new technology, both foreign and domestic producers will be dissuaded from becoming involved in a developing country's market. Research and development require substantial expenditures, and a business invests resources in a project that it believes will generate a

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<sup>125</sup> Janet H. MacLaughlin et al., *The Economic Significance of Piracy*, in INTELLECTUAL PROPERTY RIGHTS: GLOBAL CONSENSUS, GLOBAL CONFLICT? 89, 97 (R. Michael Gadbaw & Timothy J. Richards eds., 1988); Edwin Mansfield, *Intellectual Property, Technology and Economic Growth*, in INTELLECTUAL PROPERTY RIGHTS IN SCIENCE, TECHNOLOGY, AND ECONOMIC PERFORMANCE 17, 19 (Francis W. Rushing & Carole G. Brown eds., 1990).

<sup>126</sup> Richard T. Rapp & Richard P. Rozek, *Benefits and Costs of Intellectual Property Protection in Developing Countries*, J. WORLD TRADE L., Oct. 1990, at 75, 77.

<sup>127</sup> *Id.* at 75.

<sup>128</sup> *Id.*

<sup>129</sup> See Mansfield, *supra* note 125, at 19.

<sup>130</sup> *Id.*; see also Rapp & Rozek, *supra* note 126, at 103.

<sup>131</sup> Seymour E. Goodman, *Computing in a Less-Developed Country; International Perspectives*, COMM. ACM, Dec. 1991, available in LEXIS, Nexis Library, Casm File. Access of a country to information technology is becoming a distinguishing feature between countries which are considered to be "fast" and those deemed to be "slow." "It may also be argued that computers and telecommunications are now so available, so cheap, and so easy to use that a less-developed country (LDC) has unprecedented opportunities to become a 'fast' country within a generation or two, as exemplified by Singapore." *Id.*; see also Richard P. Rozek, *Protection of Intellectual Property Rights: Research and Development Decisions and Economic Growth*, in INTELLECTUAL PROPERTY RIGHTS IN SCIENCE, TECHNOLOGY, AND ECONOMIC PERFORMANCE 31, 33 (Francis W. Rushing & Carole G. Brown eds., 1990).

<sup>132</sup> See Rozek, *supra* note 131, at 33; MacLaughlin et al., *supra* note 125, at 98.

profit.<sup>133</sup> Without intellectual property protection for a new process or product, the creator could lose its investment when another party appropriates the item and reproduces or distributes it at a lower cost. As a result, the prices in the market for the product will be driven down, and the legitimate owner faces either an economic loss or substantially reduced profits. Therefore, without an adequate return on their investment, innovators do not have a strong incentive to spend their resources on creative activities.<sup>134</sup>

Despite the purported value of intellectual property laws for creating economic growth, developing countries are often skeptical of implementing a system in their own country. There are a number of explanations for this trend.

One reason developing countries may have an economic incentive to emphasize the short term when evaluating the costs of implementing an intellectual property system is that they face significant initial costs in its establishment.<sup>135</sup> First, the government must write laws and expend resources on their enforcement.<sup>136</sup> Second, "costs may arise due to the increased economic activity within a country. For example, new plants may require new roads or may cause environmental problems."<sup>137</sup> Third, the country loses low cost access to expensive products. Pirated versions are usually cheaper than a legitimate version.<sup>138</sup> Finally, the country's consumer surplus declines when purchasers are required to pay a higher price for the product.<sup>139</sup>

Another reason that developing countries are less likely to implement these intellectual property protections is that a different attitude towards public and private property is often found in these countries.<sup>140</sup> Developing countries do not have a history of recognizing intellectual property protection because in the past, these countries did not engage in the production of innovative products or information that required such protection.<sup>141</sup> Furthermore, because these products benefit the society as a whole, the countries believe that information found in protected products, such as pharmaceuticals, should be a public good.<sup>142</sup> Developing countries, therefore, are hostile to raising

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<sup>133</sup> MacLaughlin et al., *supra* note 125, at 100.

<sup>134</sup> Rozek, *supra* note 131, at 35 (citing L. DeAlessi, Property Rights and Privatization (Nov. 20, 1986) (paper prepared for the Academy of Political Science Conference on Prospects for Privatization)).

<sup>135</sup> *See id.*

<sup>136</sup> *Id.* at 33.

<sup>137</sup> *Id.*

<sup>138</sup> Laurent Belsie, *Playing Catch Up in a High-Tech World*, CHRISTIAN SCI. MONITOR, Feb. 27, 1991, at 13. For example, a pirated version of Windows 3.0, a \$200 program, could be purchased in Venezuela in 1991 for \$10. *Id.*

<sup>139</sup> Allen S. Gutterman, *The North-South Debate Regarding the Protection of Intellectual Property Rights*, 28 WAKE FOREST L. REV. 89, 122 (1993).

<sup>140</sup> Goodman, *supra* note 131.

<sup>141</sup> *Id.*

<sup>142</sup> Mansfield, *supra* note 125, at 27.

the expense of a product with a high public benefit by granting the developer a monopoly on its use or distribution.<sup>143</sup>

A third reason why developing countries have weak intellectual property protections is that these countries often emphasize their need for the protected items to generate economic growth.<sup>144</sup> They argue that with access to innovative products and information at a low cost, their economic condition would improve, and ultimately, the rest of the world would benefit from their economic growth.<sup>145</sup>

An additional reason why developing countries frequently ignore intellectual property protection is that they tend to emphasize the short-term benefits of weak intellectual property protection. By using pirated technology, the developing country can acquire the materials needed for industrialization, but at a lower cost.<sup>146</sup> The country can also allow the pirating of products to become a domestic industry employing local workers.<sup>147</sup> Finally, by misappropriating foreign goods, a developing country can maintain its balance of trade by retaining resources, such as money, in the domestic economy.<sup>148</sup>

To avoid the costs of an intellectual property system, developing countries often look for cheaper routes of obtaining technology. "Free riding" is one tactic for acquiring technology cheaply.<sup>149</sup> Essentially, the country relies on piracy as a resource. Over the long term, however, this policy limits and reduces the access of developing countries to high technology materials. This is because, without intellectual property laws to protect their investment, foreign producers will be reluctant to ship their products into the developing country or to invest in the local economy.<sup>150</sup> As a result, the countries lose access to technical products and expertise. The countries are also deprived of the collateral benefits of foreign investment. For example, when foreign corporations operate in a country, they employ local workers and spend money on local services.<sup>151</sup> Investment by foreign companies can therefore have direct, positive impacts on the local economy, which these developing countries often fail to take into account in their cost-benefit analyses.

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<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *See id.*

<sup>146</sup> Leaffer, *supra* note 17, at 282.

<sup>147</sup> *Id.*

<sup>148</sup> *See id.*

<sup>149</sup> Robert M. Sherwood, *Why a Uniform Intellectual Property System Makes Sense for the World*, in *GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY* 168, 169 (Mitchel B. Wallerstein et al. eds., 1993) (defines and analyzes free riding in developing countries).

<sup>150</sup> *See Rapp & Rozek, supra* note 126, at 99.

<sup>151</sup> Rozek, *supra* note 131, at 32.

C. *Developing Countries and Intellectual Property Laws: An Economic Analysis*

If the economy of a developing country is primarily based on agriculture or early forms of industry that use and produce small amounts of technology, the costs of establishing an intellectual property system may outweigh the benefits. However, as a country pursues industrialization, there is a point where it becomes in the country's best interests to bear the costs of recognizing intellectual property protection in order to foster the growth of domestic industries and to encourage investment by foreign manufactures into the local economy.

The newly industrialized countries (NICs) are one group which are at this economic threshold. NICs have been defined as "those developing economies that by 1989 had an income per capita of at least U.S. \$2000, a share of manufacturing in gross national product of at least 30 percent, and exports of manufactured products accounting for more than 40 percent of total export revenues."<sup>152</sup> Of all developing countries, NICs are the most likely to recognize the value of intellectual property protection in their economic development. During the process of industrialization in these countries, a point is reached where the costs of piracy begin to outweigh the benefits.<sup>153</sup> Therefore, encouraging the creation of new technology becomes more important than widespread diffusion of a product at a low cost.<sup>154</sup>

A NIC must consider whether it can bear the economic costs of establishing an intellectual property system. One method of determining whether protection is viable at the country's stage of industrial development is to calculate the amount of economic growth required to offset the losses to the economy when pirated products are less readily available.<sup>155</sup> This process is part of a cost-benefit analysis of the implementation of an intellectual property system. In the analysis, two factors which should be considered are:

- (1) the economy's current growth rate; and (2) the relative contribution that pirate-related industries make to the domestic economy. The higher the current growth rate is for an economy, the smaller the increase in the growth rate needed to compensate for lost revenues. Likewise, the smaller the current contribution made by piratical industries to domestic GNP, the smaller the growth rate required to compensate for the losses.<sup>156</sup>

The growth rate of NICs, in comparison with other developing countries, is often strong enough to sustain the implementation of intellec-

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<sup>152</sup> Carlos A. Primo Braga, *The Newly Industrializing Economies*, in GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY 168, 169 (Mitchel B. Wallerstein et al. eds., 1993). Examples of newly industrialized countries are Brazil, Hong Kong, Malaysia, Mexico, Singapore, the Republic of Korea, and Taiwan. *Id.*

<sup>153</sup> *Id.* at 172.

<sup>154</sup> *Id.*

<sup>155</sup> MacLaughlin et al., *supra* note 125, at 107.

<sup>156</sup> *Id.*

tual property protection. These countries require only a small increase in the economic growth rate to offset the losses from reducing piracy.<sup>157</sup> As a result, NICs are frequently in the strongest economic position to implement an intellectual property system and to sustain the economic losses.<sup>158</sup>

## V. Linking Trade Agreements with Intellectual Property Protection

Considering the importance of high technology products to the U.S. economy,<sup>159</sup> the U.S. government has an interest in encouraging the creation and enforcement of intellectual property laws in other countries. Regional trade agreements are one method of facilitating this process in developing nations. Such agreements would directly link trade benefits with stronger intellectual property protection. One of the trade benefits would be to reduce barriers, such as tariffs, between member nations. As a result, the countries could export more products and increase their balance of trade. For a developing country, the resulting economic growth would help offset the costs attendant to the implementation and enforcement of an intellectual property system.

The NAFTA is a recently implemented regional trade agreement between the United States, Mexico, and Canada that links trade benefits to intellectual property protection. Thus far, the NAFTA has served as an impetus for Mexico to implement and enforce stronger legal protections for software.<sup>160</sup> While piracy continues to be a problem,<sup>161</sup> there is a promising trend of increased enforcement of copyright laws and greater sales of software.<sup>162</sup> At the same time, U.S. software producers have responded to these changes with an increased willingness to do business in Mexico.<sup>163</sup> The improved protection for software in Mexico serves as an example of the benefits which can be reaped from linking trade with intellectual property. This Comment argues that an agreement similar to the NAFTA could operate to resolve comparable issues in other developing countries.

## VI. Mexico: The Example

### A. *Developing Country to Newly Industrialized Country*

#### 1. *Early Economic Policies*

During the early stages of its industrialization process, Mexico fol-

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<sup>157</sup> *Id.* Argentina, Brazil, India, Mexico, the Republic of Korea, Singapore, and Taiwan are countries with economies which would require only a small increase in the growth rate to offset the losses from reducing piracy. *Id.*

<sup>158</sup> *See id.*

<sup>159</sup> *See supra* notes 6-9 and accompanying text.

<sup>160</sup> *See* discussion *infra* part VI.C.2 and VI.D.

<sup>161</sup> *See infra* note 209 and accompanying text.

<sup>162</sup> *See* discussion *infra* part VI.E.

<sup>163</sup> *See infra* note 234-35 and accompanying text.

lowed a policy of economic protectionism.<sup>164</sup> This policy stemmed from a desire to reduce the involvement of foreign countries and companies in Mexico and to protect the fledgling domestic industries from foreign competition.<sup>165</sup> Initially, the Mexican economy progressed under the protectionist policies.<sup>166</sup> However, the economic collapse of the 1980s exposed the failings of an isolationist, protectionist policy.<sup>167</sup> Rather than flourishing behind the barriers, Mexico's industries stagnated and were no longer competitive with international manufacturers.<sup>168</sup> In an effort to revive the economy, the Mexican government altered its policies and pursued increased trade between Mexico and other nations.<sup>169</sup>

## 2. Early Intellectual Property Protection

Mexico's economic growth was limited by its failure to provide effective intellectual property protection for high technology products. Foreign producers faced with protectionist barriers, such as tariffs, were further dissuaded from investing in the Mexican market by the lack of legal protections available for their products.<sup>170</sup> Domestic manufacturers were also adversely affected by the weak intellectual property protections.<sup>171</sup> As with foreign companies, domestic enterprises needed to recoup the investment made in research and development in order to continue their innovative activities.<sup>172</sup> As a result of its ear-

<sup>164</sup> Guillermo Marrero, *Mexican Reforms Under Way: Increased Foreign Investment is the Goal*, NAT'L L.J., Dec. 6, 1993, at 25; see also Ewell E. Murphy, Jr., *Opportunities for U.S. Business in Mexico*, MEX. TRADE & LAW REP., Dec. 1, 1993, available in LEXIS, World Library, Mtr File.

<sup>165</sup> See M. Angeles Villarreal, *Mexico's Changing Policy Toward Foreign Investment: NAFTA's Implications*, MEX. TRADE & L. REP., Aug. 1, 1993, available in LEXIS, World Library, Mtr File.

<sup>166</sup> Terry Wu & Neil Longley, *A U.S.-Mexico Free Trade Agreement: U.S. Perspectives*, J. WORLD TRADE L., June 1991, at 5, 6 (1991). After World War II, Mexico experienced rapid economic growth, known as the "Mexican Miracle," for 30 years. *Id.*

<sup>167</sup> *Respect Restored*, ECONOMIST, Feb. 13, 1993, at survey 3. In 1987, inflation was 159% and the government deficit was 16% of the Gross Domestic Product. *Id.*

<sup>168</sup> Wu & Longley, *supra* note 166, at 6.

<sup>169</sup> Murphy, *supra* note 164; see also Luis C. Schmidt, *Computer Software and The North American Free Trade Agreement: Will Mexican Law Represent a Trade Barrier?*, 34 IDEA—J.L. & TECH. 33, 33 (1993).

<sup>170</sup> Max Jarman, *Mexican Demand For Computers 'Exploding'*, ARIZ. BUS. GAZETTE, Apr. 3, 1992, available in LEXIS, Nexis Library, Papers File; M. Angeles Villarreal, *Mexico's Computer Industry and the United States*, MEX. TRADE & L. REP., June 1, 1992, available in LEXIS, World Library, Mtr File.

<sup>171</sup> "In 1992, the Mexican software industry suffered losses estimated between 250 and 260 million dollars, due to the illegal copying of software. The value of the legal software market was estimated at 210 million dollars in 1991, thus, losses suffered last year were greater than the market's entire value." *Computer Software Piracy Equals Entire Value of Legal Market*, Notimex Mexican News Service, Mar. 4, 1993, available in LEXIS, Nexis Library, Notimx File.

<sup>172</sup> In an interview with Notimex, Jose Manuel Hurtado, a Mexican computer expert, discussed the impact of inadequate investment by Mexican software companies into research and development. According to his statement,

Mexico's computer industry is in no position to compete with its U.S. and Canadian counterparts due to a lack of research investments. . . . [T]he technical quality and creativity of Mexico's computer industry are inadequate given the

lier policy, Mexico reduced its access to the high technology products from foreign and domestic sources.

Software especially received weak protection under the copyright laws. Prior to 1991, the Mexican copyright law did not expressly include software as a protected work.<sup>173</sup> While the government issued an administrative resolution in 1984 stating that software was copyrightable, the measure was ineffective because it was revocable at any time.<sup>174</sup>

During this period, Mexico was a signatory of both the Berne Convention<sup>175</sup> and the Universal Copyright Convention.<sup>176</sup> Thus, in Mexico, under both Conventions, a U.S. software producer would receive the copyright protection available under Mexican law. However, since Mexico did not provide express protection for software under its copyright laws until 1991,<sup>177</sup> the Conventions were an ineffective source of protection for the interests of U.S. manufacturers. It was during this period, despite its membership in the two Conventions, that Mexico became the world's leading pirate of computer software.<sup>178</sup>

## B. *Mexico's Modification of Economic Policies and Intellectual Property Protection*

### 1. *Overview*

In response to the economic difficulties of the 1980s, the Mexican government began pursuing policies which encouraged international trade and provided stronger intellectual property protection for high technology products.<sup>179</sup> The initial stages of this process involved lowering trade barriers and modifying the copyright laws. For computer goods, the Mexican government lowered the tariffs and licensing restrictions which had acted as a barrier to trade. It also revised the copyright law to provide express protection for software. In its most recent efforts, Mexico pursued the NAFTA, an agreement that will ulti-

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absence of sufficient investment. . . . [He] added that modernizing Mexico's computer industry is key to the success of government projects aimed at bringing Mexico into the ranks of first-world nations.

*Specialist Warns Mexico Lags in Computer Industry*, Notimex Mexican News Service, Aug. 17, 1992, available in LEXIS, Nexis Library, Notimx File.

<sup>173</sup> Gabriel Garcia, Comment, *Economic Development and the Course of Intellectual Property Protection in Mexico*, 27 TEX. INT'L L.J. 701, 729 n.110 (1992) (citing Ley Federal de Derechos de Autor, 261 D.O. 1, Dec. 21, 1963 (Mex.)).

<sup>174</sup> *Copyright Law Aids Software, Sound Recordings*, Business Latin America, Aug. 5, 1991, available in LEXIS, World Library, Buslam File [hereinafter *Copyright Law Aids Software*]; see also Michael S. Mensik, *Negotiation and Drafting Effective Licenses in Mexico*, MEX. TRADE & L. REP., Mar. 1, 1992, available in LEXIS, World Library, Mtr File; Schmidt, *supra* note 169, at 44-46 (discussing the administrative act and its applications).

<sup>175</sup> Geller, *supra* note 78, at INT-222.

<sup>176</sup> Geller, *supra* note 78, at INT-227.

<sup>177</sup> Garcia, *supra* note 173, at 729.

<sup>178</sup> Jarman, *supra* note 170.

<sup>179</sup> Marrero, *supra* note 164, at 25.

mately eliminate all trade barriers between the three signatories and provide strong intellectual protection for high technology products.<sup>180</sup>

### 2. *Reducing Trade Barriers for Computers: An Example of Mexico's Change in Policy*

Initially, Mexico limited trade with foreign producers of computer equipment through its restrictive economic policies.<sup>181</sup> One measure was the 1981 computer decree.<sup>182</sup> In this statement, Mexico tried to stimulate its domestic computer industry through local incentives and trade restrictions.<sup>183</sup> While the computer decree was never enacted into law, it established Mexico's policy towards computer imports.<sup>184</sup> The trade restrictions consisted of tariffs and license requirements which strictly limited the access of foreign competition to the Mexican market.<sup>185</sup>

In a modification of its previous policy, the Mexican government issued a new regulation in 1989, which permitted foreign computer companies to open production facilities in Mexico with limited government interference.<sup>186</sup> In addition, in 1990 the Mexican government dropped the licensing requirements for imported computers, but increased the tariffs on finished computer products.<sup>187</sup> The new measures significantly opened the Mexican market to participation by foreign computer companies. Even though tariffs were raised, the licensing requirements had been the significant barrier to trade.<sup>188</sup>

### 3. *Revisions to the Copyright Act*

In 1991, Mexico revised the Copyright Act to provide express protection for computer software.<sup>189</sup> Under the new law, software piracy was expressly made illegal, enforcement measures were broadened,

<sup>180</sup> When Mexico agreed to negotiate the NAFTA with the United States, "Mexico turned its back on decades of nationalism and economic autarky. It confirmed Mexico's recent commitment to market principles." Judith H. Bello & Alan F. Holmer, *The North American Free Trade Agreement: Its Major Provisions, Economic Benefits, and Overarching Implications*, in *THE NORTH AMERICAN FREE TRADE AGREEMENT: A NEW FRONTIER IN INTERNATIONAL TRADE AND INVESTMENT IN THE AMERICAS* 1, 3 (Judith H. Bello et al. eds., 1994).

<sup>181</sup> Villarreal, *supra* note 170.

<sup>182</sup> *Id.*

<sup>183</sup> *Id.* Mexican companies primarily write programs targeted to a local or a specific need. *Computer Software and Services*, MEX. TRADE & L. REP., Nov. 1, 1992, available in LEXIS, World Library, Mtr File. However, domestic producers have written Spanish and English translation programs which were marketed abroad. *Id.*

<sup>184</sup> WILLIAM R. CLINE, *INFORMATICS AND DEVELOPMENT: TRADE AND INDUSTRIAL POLICY IN ARGENTINA, BRAZIL, AND MEXICO* 77 (1987).

<sup>185</sup> Villarreal, *supra* note 170.

<sup>186</sup> *Id.*

<sup>187</sup> *Id.*

<sup>188</sup> *Id.*

<sup>189</sup> Garcia, *supra* note 173, at 729 n.110 (citing Decreto por el que se Reforman y Adicionan Diversas Disposiciones de la Ley de Derechos de Autor, D.O., July 17, 1991 (Mex.)).



and tougher penalties were established for offenders.<sup>190</sup> The law also granted exclusive rights to reproduce and distribute work to the copyright holder for a period of fifty years.<sup>191</sup> A third modification to the original Copyright Act was the amendment to the provisions regarding public inspection of works.<sup>192</sup> Originally, works deposited with the Mexican Register of Copyrights, including computer code, were open for public inspection; under the 1991 revision, access to programs and documentation was made available only by the consent of the copyright holder.<sup>193</sup>

One provision of the 1991 Copyright Act, the right of the owner to make back-up copies of the software, is considered to be a weakness in the protection afforded by the copyright law for software.<sup>194</sup> It allows the owner to make back-up copies of the software and imposes limited penalties for infringement in situations where the copies were made for pecuniary gain.<sup>195</sup> By limiting the remedy to a particular type of infringement, the Mexican government left open the question of whether it is actionable for an owner to copy the software and to give it to others for free.<sup>196</sup>

#### 4. *Designation as a Priority Watch Country*

While Mexico's economy was a substantial factor in leading to the modifications in its trade and intellectual property policies, another factor which should not be discounted was Mexico's placement on the priority watch list in 1989 by the USTR. Mexico was targeted under Section 301 for the weak intellectual property protection given to U.S. products.<sup>197</sup> After the Mexican government took significant steps to strengthen its intellectual property laws, Mexico was removed from the priority watch list.<sup>198</sup> The threat of trade sanctions under Section 301 appears to have been a significant impetus for the changes in Mexican law; it has also been credited with encouraging Mexico's participation in the NAFTA.<sup>199</sup>

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<sup>190</sup> *Computer Software and Services*, *supra* note 183. "Penalties for retail pirates, for example, included prison terms of between six months and six years and fines between US \$400 and US \$4000." *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

<sup>193</sup> Schmidt, *supra* note 169, at 48.

<sup>194</sup> *Copyright Law Aids Software*, *supra* note 174.

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> *U.S. Special 301 Process Undermining GATT, Hurts U.S. Credibility, Brazil Official Says*, 6 Int'l Trade Rep. (BNA) No. 26, at 845 (June 28, 1989).

<sup>198</sup> *Mexico's New Patent Protection Plan Will Take It Off Special 301 Priority List*, 7 Int'l Trade Rep. (BNA) No. 5, at 147 (Jan. 31, 1990). Mexico was removed from the priority watch list in 1990. *Id.*

<sup>199</sup> Garcia, *supra* note 18, at 821.

### C. *Economic Growth in Mexico*

#### 1. *Increased Demand for Software*

Following the changes in economic policy and the modifications to the intellectual property laws, Mexico entered a period of economic growth.<sup>200</sup> One result of the increased prosperity has been a greater demand for computer products.<sup>201</sup> The total market grew from \$180.6 million in 1991 to an estimated \$233 million in 1992.<sup>202</sup> As the number of computers in the Mexican market rose, the demand for software increased.<sup>203</sup> The market for imported software grew from \$11 million in 1989 to \$52 million in 1991.<sup>204</sup> Under the NAFTA, existing tariffs on computer equipment will be removed,<sup>205</sup> and this should reduce the price of imported computer equipment and software. As a result, the demand in Mexico for computer equipment should continue to rise.<sup>206</sup>

#### 2. *Continued Concerns Regarding Software Piracy*

Prior to the NAFTA, U.S. software producers were concerned about the lack of effective legal protection for their products.<sup>207</sup> The 1991 Copyright Law was an effort to provide stronger protection for software, but its protection was ineffective due to a lack of enforcement.<sup>208</sup> As a result, Mexico had a very high rate of software piracy. According to SPA estimates, eighty-two percent of the software used in Mexico was a pirate copy.<sup>209</sup>

During the NAFTA negotiations, the Mexican government increased efforts to enforce the copyright protection for software to as-

<sup>200</sup> Following the economic reforms of the late 1980s, inflation was 12% in 1992, and the government ran a surplus in 1992 equal to 1% of the Gross Domestic Product. *Respect Restored*, *supra* note 167, at survey 3. Between 1989 and 1992, the Gross Domestic Product of Mexico grew at a rate of at least three percent per year. *Mexico—Computer Software and Services*, Market Rep., Apr. 1, 1992, available in LEXIS, World Library, Mktprt File.

<sup>201</sup> Jarman, *supra* note 170.

<sup>202</sup> *Computer Software and Services*, *supra* note 183.

<sup>203</sup> Javier Flores, *Business Application Software*, MEX. TRADE & L. REP., Oct. 1, 1992, available in LEXIS, World Library, Mtr File.

<sup>204</sup> *Computer Software and Services*, *supra* note 183.

<sup>205</sup> The tariff on computer equipment was 20%. Kimberly Patch, *Industry Applauds Early NAFTA Gains: Passage Could Boost Sales, Cut Piracy, Computer Industry Executives Support House Passage of North American Free Trade Agreement*, PCWEEK, Nov. 22, 1993, available in LEXIS, Nexis Library, Cmptrs File. The tariff on software imports was 10%. Hamm, *supra* note 29.

<sup>206</sup> As of 1992, the International Trade Administration estimated that U.S. software products would eventually constitute 94% of the software products sold in Mexico. Jarman, *supra* note 170.

<sup>207</sup> Mary Witoshynsky, *Computer Age Pirates: Beefed-up Intellectual Property Laws May Soon See Their Day in Court*, Bus. Mex., July 1992, available in LEXIS, Nexis Library, Curnws File.

<sup>208</sup> *Intellectual Property: Enforcement of Copyright Protection Still Faulty*, Subcommittee Told, 9 Int'l Trade Rep. (BNA) No. 9, at 1709 (Sept. 30, 1992); see also Schmidt, *supra* note 169, at 49-50 (discussing problems with ineffective enforcement).

<sup>209</sup> 1993 SPA Study, *supra* note 1.

sure U.S. software manufacturers of its good faith.<sup>210</sup> Several different steps were taken. First, the government and National Association of Computer Program Industry (ANIPCO), the domestic group which represents the interests of software producers, began a campaign to educate the public about software piracy.<sup>211</sup> Second, the government established a special division within the Attorney General's office to investigate companies suspected of engaging in software piracy.<sup>212</sup> Finally, the government, in conjunction with ANIPCO, began raiding the offices of companies which were believed to be using pirated software.<sup>213</sup>

The results of the pre-NAFTA education and enforcement efforts by the Mexican authorities were increased sales of software and investment in the Mexican market by U.S. producers. According to Microsoft, its sales rose 86% in 1992 and almost 200% in 1993.<sup>214</sup> A subsidiary of Wordperfect was opened in Mexico City two years ago, and its sales have grown by 200% during the last year.<sup>215</sup> Overall, software sales increased 22.5% from 1992 to 1993.<sup>216</sup> With increased sales and profits, these companies had an incentive to manufacture products tailored to the Mexican market or to invest in the local industries.<sup>217</sup> For example, Autodesk, the makers of the AutoCAD program, enlisted thirty-three independent software developers in Mexico to provide specialized programs for the local market.<sup>218</sup> Thus, the improved protection for intellectual property rights increased the interest of U.S. software manufacturers in locating offices and doing business in Mexico.<sup>219</sup>

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<sup>210</sup> Tod Robberson, *Mexico Puts Software Pirates on Notice, U.S. Industry Keeps Watch For Follow-Through on Protection of Copyrights and Patents*, WASH. POST, Mar. 6, 1993, at A25.

<sup>211</sup> *Government To Provide Copyright Advice & Prosecute Violators*, SourceMex: Economic News & Analysis on Mexico, Mar. 17, 1993, available in LEXIS, Nsamer Library, Mexico File; *Mexico Steps Up Efforts To Stop Software Piracy; Special Bureau Established to Oversee Enforcement*, SOFTWARE INDUSTRY REP., July 19, 1993, LEXIS, Nexis Library, Nwltrs File [hereinafter *Mexico Steps Up Efforts*].

<sup>212</sup> *Mexico Steps Up Efforts*, *supra* note 211.

<sup>213</sup> Thus far, Mexican officials have targeted software piracy in large corporations, rather than focusing on individual consumers. Maria Hope, *Mexico vs. The Software Pirates*, WORLD PRESS REV., Dec. 1993, available in LEXIS, Nexis Library, Asapii Groupfile.

Before the NAFTA became effective in 1994, Mexican authorities raided, and in some cases, filed criminal charges against several Mexican corporations. Many of the cases were resolved through negotiations between the companies pirating the software and the software industry representatives. *Mexico Steps Up Efforts*, *supra* note 211; Robberson, *supra* note 210, at A25.

<sup>214</sup> *NAFTA Prompts Software Agreement Between Microsoft and Mexican Government: Mexico Supports Intellectual Property Provisions in NAFTA*, Bus. Wire, Oct. 28, 1993, available in LEXIS, Nexis Library, Bwire File [hereinafter *NAFTA Prompts Software Agreement*].

<sup>215</sup> Hamm, *supra* note 29.

<sup>216</sup> *Computer Industry Sales Up 9.9 Percent in 1993*, MEX. TRADE & L. REP., May 1, 1994, available in LEXIS, World Library, Mtr File.

<sup>217</sup> See Hamm, *supra* note 29.

<sup>218</sup> *Id.*

<sup>219</sup> *Id.* Employment opportunities are also created in the United States. According to Microsoft, it has increased the number of positions in the Latin American operations division

#### D. North American Free Trade Agreement

In the final version of the NAFTA, which became effective January 1, 1994,<sup>220</sup> specific terms were included to provide intellectual property protection for software. Under the NAFTA, computer programs will be recognized by all parties as "literary works within the meaning of the Berne Convention."<sup>221</sup> The terms of the NAFTA also provide protection for "the entire structure, sequence, and organization of software programs, data bases, layout sequences, and semiconductors for a minimum of 50 years."<sup>222</sup> Overall, the copyright protection for software provided by the NAFTA is stronger than was previously available in Mexico.

Prior to the NAFTA, software piracy was not effectively prevented by either the 1991 revision to the Copyright Act or by Mexico's membership in the UCC and the Berne Convention.<sup>223</sup> As a result, the NAFTA also includes provisions detailing the enforcement of laws providing stronger intellectual property protection. For example, judicial, administrative, and other actions<sup>224</sup> can be taken against those who infringe intellectual property rights.<sup>225</sup>

#### E. Impact of NAFTA

The Mexican computer market is now poised for substantial growth. According to a market research firm, Select-International Data Corporation (IDC), 1993 sales of personal computers rose twenty-one percent to 19,174 units.<sup>226</sup> In 1994, IDC estimates that computer sales will grow seventeen percent.<sup>227</sup> IDC also estimated that the size of the total computer market in Mexico, both hardware and software,

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by more than 300% during the past two years. *Nafta Prompts Software Agreement*, *supra* note 214.

<sup>220</sup> North American Free Trade Agreement, Dec. 8 and 17, 1992, U.S.-Can.-Mex., 32 I.L.M. 289 (1993) [hereinafter NAFTA].

<sup>221</sup> *Id.* art. 1705(1)(a), 32 I.L.M. at 671.

<sup>222</sup> *Mexico Lures High-Tech Exports By Reform of Investment, Intellectual Property Laws*, 10 Int'l Trade Rep. (BNA), No. 37, at 1583, 1584 (Sept. 22, 1993) [hereinafter *Mexico Lures High-Tech Exports*].

<sup>223</sup> Prior to the NAFTA, Mexico failed to recognize computer software as a protected product under the Berne Convention. Charles S. Levy & Stuart Weiser, *Intellectual Property, in THE NORTH AMERICAN FREE TRADE AGREEMENT: A NEW FRONTIER IN INTERNATIONAL TRADE AND INVESTMENT IN THE AMERICAS* 269, 271 (Judith H. Bello et al. eds., 1994).

<sup>224</sup> *Mexico Lures High-Tech Exports*, *supra* note 222, at 1584.

<sup>225</sup> See NAFTA, *supra* note 220, arts. 1714-18, at 676-78. Among the remedies for infringement are the following: ordering a party to stop the infringing activity; ordering a party to pay damages when it knew or should have known it was engaging in an infringing activity; ordering a party to pay the right holder's expenses, including reasonable attorney's fees; and ordering a party to compensate parties who were wrongfully enjoined or restrained in the proceeding, including reasonable attorney's fees. *Id.* art. 1715(2)(c)-(f), at 677.

<sup>226</sup> *Mexico-Computer News Briefs*, Newsbytes News Network, July 26, 1994, available in LEXIS, Cmpcom Library, Curwms File.

<sup>227</sup> *Id.*

was \$3.2 billion at the end of 1993.<sup>228</sup> According to another research firm, Dataquest, the Mexican market for computer goods is expected to grow to \$1.41 billion by 1995.<sup>229</sup> Two different rationales are offered for the growth of the computer market by those in the U.S. computer industry. "Hardware executives tout the eliminated tariffs that will reduce prices and open up the Mexican market further, while software vendors cite NAFTA's intellectual property provisions, which will protect software packages as literary works."<sup>230</sup>

Demand for U.S. produced software is rising. During the first quarter of 1994, the SPA estimates that \$11.6 million of software was sold in Mexico.<sup>231</sup> This represents a twenty-four percent growth rate.<sup>232</sup> Foreign software products that are predicted to be in the highest demand in Mexico are sophisticated or specialized programs such as word processing, spread sheets, communications software, databases, and virus scanners.<sup>233</sup>

In conjunction with the rising demand for software, major U.S. producers are continuing to invest in the Mexican market. These companies are opening offices in U.S. cities, such as Miami, that are oriented towards Latin America.<sup>234</sup> They are also establishing or expanding offices in Mexico to serve both the Mexican and Latin American markets.<sup>235</sup>

Meanwhile, Mexican authorities are continuing their efforts to provide intellectual property protection for software. The Attorney General's office has conducted several raids against companies operating in Mexico.<sup>236</sup> The purpose of the raids is to expose software piracy and to confiscate the copied materials. Following a raid, software interest groups such as ANIPCO and the Business Software Alliance (BSA) enter negotiations with the company to work towards eliminat-

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<sup>228</sup> Brendon Macaraeg, *Endorsing NAFTA; North American Free Trade Agreement; Trends; Brief Article*, PC MAG., Feb. 8, 1994, available in LEXIS, Nexis Library, PC File.

<sup>229</sup> *Id.*

<sup>230</sup> *Id.*

<sup>231</sup> *Strong Sales in Japan Highlight Q1 1994 Results; Sales in Asia/Pacific and Latin America Reach \$215 million*, PR Newswire, June 27, 1994, available in LEXIS, Cmpcom Library, Curnws File [hereinafter *Strong Sales in Japan*].

<sup>232</sup> *Id.*

<sup>233</sup> *Computer Software and Services*, *supra* note 183.

<sup>234</sup> See Pedro Pereira, *Lotus Signs Big 3 for Latin America Push—Ingram, Merisel, Tech Data to Boost Growth*, COMPUTER RESELLER NEWS, July 25, 1994, available in LEXIS, Nexis Library, Crn File.

<sup>235</sup> See *Uniface Expands Mexican Operations; New Office in Mexico City to Increase Local Support for Developers Building Enterprise Client/Server Systems*, Bus. Wire, Sept. 8, 1994, available in LEXIS, Nexis Library, Curnws File; *Tricord Opens Mexico City Office; Announces Reseller Pact; Company Expands International Presence; Signs Scale as Authorized Reseller*, PR Newswire, July 15, 1994, available in LEXIS, Cmpcom Library, Curnws File.

<sup>236</sup> See *Mexico—Pirated Software Found at Ad Agency*, Newsbytes News Network, Mar. 22, 1994, available in LEXIS, Nexis Library, Curnws File; *Also in the News*, 11 Int'l Trade Rep. (BNA) No. 15, at 593 (Apr. 13, 1994); *Software Raiders Target Mexican Firm*, Newsbytes News Network, Aug. 15, 1994, available in LEXIS, Cmpcom Library, Curnws File.

ing the use of pirated software in the company.<sup>237</sup> If the company reaches an agreement with the ANIPCO or the BSA, then punitive measures, such as pursuing criminal penalties, are not taken.<sup>238</sup>

Overall, the NAFTA is working to achieve the objectives of U.S. software producers. By lowering protectionist barriers, the free trade aspects of the agreement allow U.S. companies to increase investment in the Mexican economy either through the distribution of their product or directly into local manufacturing. Also, under the NAFTA, Mexico is providing a higher level of protection for the intellectual property rights of goods such as software. One indication that the heightened protection is working to reduce piracy is the dramatic increase in software sales. Another indication is the willingness of the authorities to enforce the copyright laws that protect software. As a result of the NAFTA, it appears that Mexico is a promising market for U.S. software producers.

## VII. Expanding the Use of Regional Trade Agreements: Is Latin America Next?

Following the successful implementation and ratification of the NAFTA, U.S. policymakers are contemplating expanding the pact to include other Latin American countries.<sup>239</sup> Trade analysts believe Chile has the highest probability of becoming the fourth member of the NAFTA.<sup>240</sup> The NAFTA could one day include all of Latin America, which would create a free trade zone stretching from Alaska to Argentina.<sup>241</sup> However, policymakers recognize that the NAFTA may not be appropriate for some Latin American countries because of their economic or political climate.<sup>242</sup> As a result, in some cases the United States may have to negotiate separate agreements with individual countries or facilitate multilateral agreements similar to the NAFTA.<sup>243</sup>

Latin American countries are considered to be major growth markets for U.S. software products.<sup>244</sup> According to the SPA, "[s]ales in

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<sup>237</sup> Aquiles Cantarell, *20th-Century Piracy: A Virulent Problem, Keeping Your Computer Healthy*, BUS. MEX., Aug. 1994, available in LEXIS, Nexis Library, Curnws File.

<sup>238</sup> *Id.*

<sup>239</sup> David C. Scott, *NAFTA Club's Open Door*, CHRISTIAN SCI. MONITOR, Dec. 15, 1993, at 24. According to Vice President Gore, "Latin America is the second fastest growing economic market in the world and was the fastest growing export market for U.S. goods over the last five years." *Id.*

<sup>240</sup> *Latin America and the Caribbean*, 11 Int'l Trade Rep. (BNA) No. 3, at 111 (Jan. 19, 1994).

<sup>241</sup> *Id.*

<sup>242</sup> *Latin American Pacts May Differ; Fast-Track Renewal Important*, USTR Says, 11 Int'l Trade Rep. (BNA) No. 4, at 138 (Jan. 26, 1994).

<sup>243</sup> *Id.*

<sup>244</sup> Latin America is considered to be the most rapidly expanding market for software to be used in personal computers. Louise Kehoe, *Microsoft Steps Up Sales Drive in South America*, FIN. TIMES, Mar. 30, 1994, at 30.

Latin America totaled \$103 million in 1993, an 80 percent increase over 1992. Unit sales were up 157 percent."<sup>245</sup> Estimates by SPA for the first half of 1994 show that the Latin American market is continuing to grow.<sup>246</sup> For the reporting software companies, software sales were up thirty-two percent for the first half.<sup>247</sup> Specifically, sales increased ninety-two percent in Brazil, five percent in Mexico, and seventy-six percent in other Latin American countries.<sup>248</sup>

With a bright future for the software market in Latin America, the high rates of piracy found in these countries is a significant problem. According to the 1993 SPA estimates, Central and South American countries, excluding Brazil and Mexico, had a ninety-five percent piracy rate.<sup>249</sup> Brazil had an eighty-nine percent rate.<sup>250</sup> Therefore, before the market potential for U.S. software producers can be fully realized, the problem of piracy among Latin American countries must be addressed.<sup>251</sup>

In several Latin American countries, steps are being taken by local interest groups and the governments to improve domestic protection for computer software. In Guatemala, the Guatemalan Computer Industry Association is working to inform software users about piracy and to encourage changes to the local copyright laws to improve protection for computer programs.<sup>252</sup> Venezuela enacted a law in August 1993 that provides copyright protection for software.<sup>253</sup> Meanwhile, in Argentina the federal police have raided local businesses in search of pirated software.<sup>254</sup> Finally, Brazil plans to combat piracy by removing registration and tax requirements on imported software.<sup>255</sup>

The role of the NAFTA or a similar agreement could be to facilitate further changes in the protection of U.S. software products in Latin America. The potential benefits of a trade agreement could serve as a catalyst to countries reluctant to bear the costs of intellectual property protection for software. Also, such an agreement would encourage countries that have made changes to continue. Finally, a re-

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<sup>245</sup> *Software Sales Boom in Asia & Latin America*, Newsbytes News Network, Apr. 5, 1994, available in LEXIS, Cmpcom Library, Curnws File.

<sup>246</sup> *Asia/Pacific and Latin America Egn[sic] Software Sales Reach \$214 Million for Q2 1994; Sales Growing Three Times Faster Than in North America and Western Europe*, PR Newswire, Sept. 26, 1994, available in LEXIS, Nexis Library, Curnws File [hereinafter *Asia/Pacific and Latin America Software Sales*].

<sup>247</sup> *Id.*

<sup>248</sup> *Id.*

<sup>249</sup> 1993 SPA Study, *supra* note 1.

<sup>250</sup> *Id.*

<sup>251</sup> *Asia/Pacific and Latin America Software Sales*, *supra* note 246.

<sup>252</sup> *Guatemala—Software Piracy*, Market Rep., Apr. 20, 1994, available in LEXIS, World Library, Mkrpt File.

<sup>253</sup> *Venezuela—Computer Software*, Market Rep., Nov. 16, 1993, available in LEXIS, World Library, Mkrpt File.

<sup>254</sup> *Argentina—Software Copyright Fraud*, Market Rep., Apr. 14, 1993, available in LEXIS, World Library, Mkrpt File.

<sup>255</sup> James Brooke, *Brazil Luring Computer Companies*, N.Y. TIMES, Aug. 6, 1994, at A33.

gional trade agreement could establish a minimum level of protection among the member countries.

### VIII. Conclusion

As demonstrated by the NAFTA's impact on software protection in Mexico, regional trade agreements can provide an effective, efficient method of securing intellectual property protection for products manufactured by U.S. companies. A regional trade agreement is economically efficient because it allows a developing country to gain increased access to the U.S. market and other member countries' markets. The developing country can export its products for prices which are economically competitive. In return, it can import the technology and other materials which it needs for further industrialization. Through this exchange, the developing country has an opportunity to increase its economic growth and thus compensate for the losses from reduced piracy.

A regional trade agreement also provides an efficient method of establishing a minimum standard of intellectual property protection in the area. To reap the benefits of trade between the member countries, each member must adhere to the intellectual property standard set forth in the agreement. Rather than requiring a patchwork of bilateral agreements between the United States and other countries in the region, this method establishes a level of protection among many countries with one agreement. Enforcement costs would also be reduced because the economic links between the member countries would operate as an incentive to maintain the terms of the agreement.

While Latin America is the United States current focus for regional agreements that link stronger intellectual property protection with trade, this concept should be expanded to include developing countries in other parts of the world. For example, countries in South and South East Asia are possible candidates for such a program.<sup>256</sup> Developing countries in these areas engage in widespread piracy as a part of their industrialization processes.<sup>257</sup> In light of the success in Mexico, trade agreements should also be used in these regions to curb the misappropriation of products, such as software, which need intellectual property law protection.

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<sup>256</sup> See Paula Stern, *Expand Free Trade East As Well As South*, *NEW PERSP. Q.*, Fall 1993, at 46, 47; *Singapore, Korea Have Interest in Joining NAFTA*, *Official Says*, 11 *Int'l Trade Rep.* (BNA) No. 10, at 378 (Mar. 9, 1994). Taiwan has also expressed interest in joining the NAFTA. *Calling Poland and Taiwan*, *ECONOMIST*, Mar. 13, 1993, at 19.

<sup>257</sup> See 1993 SPA Study, *supra* note 1.