

# **A Review of the Determinants of Counterfeiting and Piracy and the Proposition for Future Research**

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**Abstract:** The objective of this study is, through a review of current literature on product counterfeiting and piracy, to propose specific topics that future research needs to investigate. Specifically, the study calls for developing a framework explaining the whole process of counterfeiting production, distribution, and consumption; estimating the revenue losses more accurately; surveying real buyers rather than students; examining a variety of manufacturer and consumer motivations in contextual factors; and studying the interactive complexity between the demand-side and supply-side driving factors. In conclusion, the study discusses policy and research implications.

**Keywords:** Counterfeiting, piracy, demand-side factors, supply-side factors, policy making

## **INTRODUCTION**

Much controversy exists regarding counterfeiting and piracy. The magnitude and exact nature of the phenomena remain unknown; indeed, due to inherent measurement problems, there is no valid empirical evidence of the amount of revenue lost to counterfeiting and piracy. Many conceptual and empirical models have been used to explore both the production and consumption aspects of counterfeiting, but understanding of these activities remains incomplete. This review will examine counterfeiting and piracy research issues from several perspectives and discuss the most current research on measurement and units of analysis as well as the scope of counterfeit research in general. Propositions for further research and for strategies to prevent counterfeiting and piracy are presented throughout the review and in the conclusion.

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## CURRENT RESEARCH ON COUNTERFEITING

Counterfeiting has rarely been studied as a worldwide phenomenon. Although some studies have applied theories such as “reasoned action” (Woolley and Eining 2006), “planned behavior” (Chang 1998), “expected utility” (Peace et al. 2003), and “ethical decision making” (Wagner and Sanders 2001) to consumers’ counterfeit purchasing behavior, a thorough explanation is still lacking. Thus, it is necessary for researchers to develop more comprehensive theoretical frameworks by expanding and integrating current explanations of counterfeit production, selling, and purchasing.

**Proposition 1.** A more comprehensive research framework needs to be developed to explain the entire process of counterfeit production, distribution, and consumption.

### Measurement Issues

No rigorous scientific analysis has yet been conducted to estimate the magnitude of counterfeiting and piracy. Numerous measures of the extent of counterfeiting activities exist,<sup>1</sup> and it appears that these estimates are biased upward.<sup>2</sup> However, many reports suggest a significant growth in counterfeiting in recent years. For instance, international trade data (based on landed customs value) suggest that up to US\$200 billion of internationally traded products could have been counterfeited or pirated in 2005, an amount that is larger than the national GDP of about 150 countries.<sup>3</sup> The amount of counterfeiting worldwide might range from 5 to 10 percent of world trade; for some industries, it is about 30 percent (Trainer 2004). Trembly (1999) estimates that the overall loss to U.S. companies from infringement of intellectual property rights (IPR)

1. Bosworth (2006) shows that these include the music industry (e.g., the International Federation of Phonogram and Videogram Producers and the Recording Industry Association of America), the pharmaceuticals industry (e.g., the European Federation of Pharmaceutical Industries and Associations), and the software industry (e.g., the Business Software Alliance).
2. According to Maricich (2005), the statistics on U.S. Customs and Border Protection seizures are biased because of the following factors: (1) seizures often result from targeted examinations; (2) the amount of officer training and knowledge affects seizures; and (3) other resources operate for enforcement capacities.
3. This figure does not include counterfeit and pirated products that are produced and consumed domestically, nor does it include pirated digital products distributed via the Internet. If these items were added, the total magnitude of counterfeiting and piracy worldwide could well be several hundred billion dollars more.

is around US\$250 billion a year. Piracy remains especially an issue for the software industry, but the techniques used to measure it are still controversial.<sup>4</sup>

**Proposition 2.** A more systematic and consistent method needs to be developed to estimate revenue losses due to counterfeiting and piracy.

Most studies of revenue losses naturally employed more quantitative than qualitative research. However, many quantitative studies failed to explore the reasons behind counterfeit manufacturing or buying; nor did they encourage new avenues to probe as a result of qualitative revelations. Thus, more qualitative investigation is needed of the determinants of counterfeit buying. The resulting knowledge will be useful in revealing the sources of the revenue losses and predicting them accurately.

In addition, most studies examined counterfeit purchase intentions or past purchases as a proxy for revenue losses. But an intention is not equivalent to an actual purchase, and the existence of past purchases does not guarantee that the same amount of purchases will occur in the future. Thus, it would be desirable to examine the revenue losses in realistic settings and to pursue variables such as justifications for purchasing counterfeits. For example, because there are many retail venues for counterfeit products (e.g., street vendors, online shopping sites, traveling, and flea markets), consumers may have easy access to counterfeits. Surveying or observing buying behaviors at the vendor sites would provide more accurate data for estimating revenue losses.

Another important issue is that counterfeit users may not be the purchasers and purchasers may not be the users; most research has not made this distinction.

Finally, most studies collected data about college students' behavior. Students are convenient subjects, because they are often active buyers and consumers of counterfeits. But unlike professionals and other financially independent adults, most of them cannot afford expensive genuine brands. Therefore, a more representative sample needs to be studied to increase the generalizability of results.

**Proposition 3.** Research on counterfeiting consumption should focus on buyers who have adequate purchasing power.

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4. Microsoft has argued that its revenue might double without software piracy (Oullette 1995). The Business Software Alliance (2007) estimated that the worldwide weighted average piracy rate was 38 percent, but the median piracy rate in 2007 was 61 percent. This means that half of the countries studied have a piracy rate of 61 percent or higher. In 2007, for every two dollars spent on legitimate software purchases, one dollar's worth of software was obtained illegally (BSA 2007). USTR (2005) reported that the cost of global digital piracy (including movies and software) is about US\$200-250 billion a year.

## **Units of Analysis**

Two different units of analysis—individual and national—have been applied to exploring the determinants of counterfeiting and piracy. A number of studies have explored at the individual level why and how consumers purchase counterfeit goods as well as by what methods counterfeiters produce them. However, these studies have neglected the institutional and cultural context. The full consideration of the macro-level contextual effects requires statistical inferences based on models with multiple levels.

On the other hand, recent cross-national studies have examined national differences in the rate of software piracy (Andrés 2006; Bezmefgn and Depken 2005; Depken and Simmons 2004; Holm 2003; Husted 2000; Marron and Steel 2000; Shadlen et al. 2005). The availability of data on software piracy (as estimated by the Business Software Alliance) provides the opportunity to analyze variations across countries over time.<sup>5</sup>

However, the cross-national studies may suffer from an ecological fallacy. In other words, statistical inferences about individual behaviors drawn from aggregate data may involve incorrect information. In addition, some studies have used multilevel data about counterfeiting without considering the contextual effects of culture and other macro-level factors. They have neglected the possibility of different relationships between counterfeiting and its causal factors within different groups. For instance, the relationship between counterfeiting and education varies from country to country; the aggregated relationship between them may provide incorrect information about the individual relationship between them.

Much research on the demand side has focused on why and how consumers purchase counterfeit goods but has not closely investigated cultural factors. From the ethics perspective, for example, motivations for consumers to buy counterfeits may vary across cultures and could be very complicated. As Lai and Zaichkowsky (1999) pointed out, the Chinese consider copy as important to the good aspects of all things. So there seem to be different ethical judgments about counterfeiting in different cul-

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5. These studies suggest that national income (measured by GDP per capita) has negative impact on the rate of software piracy. Trade dependency as a proxy for IPR enforcement is negatively related to the rate of software piracy, because increased trade is likely to bring increased international pressure to adhere to global IPR protection. The studies found that individualism also has a negative effect on piracy. However, these studies also had many problems. Different scopes of data and model specifications appear to lead to different results. As Shadlen and his colleagues' (2005) study suggests, some factors, such as government effectiveness and research and development, have different effects under different model specifications. In addition, most studies have overlooked the decrease over time of software piracy. Future studies will have to examine these neglected issues.

**Table 1.** Cross-National Studies of Determinants of Software Piracy

	Andrés (2006)	Bezmefgn and Depken (2005)	Depken and Simmons (2004)	Holm (2003)	Husted (2000)	Marron and Steel (2000)	Shadlen et al. (2005)		
							Model 7	Model 10	Model 11
<b>Economics</b>									
National income	-.***	-.**	x	-.**	-.***	x	-.**	-.**	-.**
Income growth		+**							
Income inequality					-.***				
Inflation		x	-.**						
Trade dependency on the United States			-.*					-.**	x
Labor force participation			x						
<b>Institutional</b>									
Judicial institution	-.***			-.**		-.**			
Government effectiveness									
Bilateral investment treaties								-.**	-.**
<b>Sociocultural</b>									
Education	-.**					x	-.**	-.**	-.**
Freedom index	x	-.**							
Power distance			+**		x				
Individualism			-.**		-.***	-.**			
Masculinity					x				
Uncertainty avoidance					x				
<b>Technological</b>									
Research and development							x		
Internet users		-.**							
Time trend							-.***		-.***
Number of countries	24	77	65	75	39	49	80	80	80
Year	1994, 1997, 2000	1995, 2000, 2002	1994	2000	1996	1994, 1995, 1996, 1997	1994 – 2002	1994 – 2002	1994 – 2002

Note: - = negative, + = positive; \*, \*\*, and \*\*\* indicate significance levels of 0.1, 0.5, and 0.01 respectively; x indicates that the variable is not significant at the 0.1 level.

Source: OECD (2005), Table 3.

tures. Some consumers may believe that neither selling nor consumption of counterfeits is illegal; others may hold a double standard that says selling counterfeit products is illegal while purchasing them is legal. These different beliefs may be widely held in different cultures. What motivates consumers to purchase counterfeit products in different cultures remains unclear. For example, in collectivist cultures, consumers purchase counterfeits in order to enhance their social status but may not want to reveal to others that their products are fake in fear of social rejection. But consumers in individualist cultures, rather than trying to deceive others into thinking they bought genuine brands, often boast about buying quality counterfeits for a much lower price. Thus, examination of cultural differences is an important part of research on motivations or determinants of counterfeiting.

Most consumer research is based on the assumption of nondeceptive counterfeiting in which consumers are aware the product is a fake. However, consumers' decisions to purchase counterfeits may depend on their quality. Consumers may be more likely to buy a counterfeit with very good quality (that looks exactly the same as the genuine item) than one with low quality (that everyone recognizes as a counterfeit). Due to recent technological advances, the quality of counterfeits has increased so that it is very difficult for buyers and other viewers to distinguish between a fake and an original. Thus, there may be a continuum of deceptiveness based on counterfeit quality rather than a simple dichotomy of completely original or completely fake. Better-quality counterfeits are more likely to deceive consumers; consumers may be likely to purchase them and have little ethical guilt. In other words, consumers' ethical judgments may depend on the quality of the counterfeits. Thus, the deceptiveness of counterfeits is an important variable that needs further research.

**Proposition 4.** Motivation to manufacture and consume counterfeits needs to be examined in context at the individual level as well as the national level, taking into consideration environmental factors, cultural orientation, and counterfeit quality.

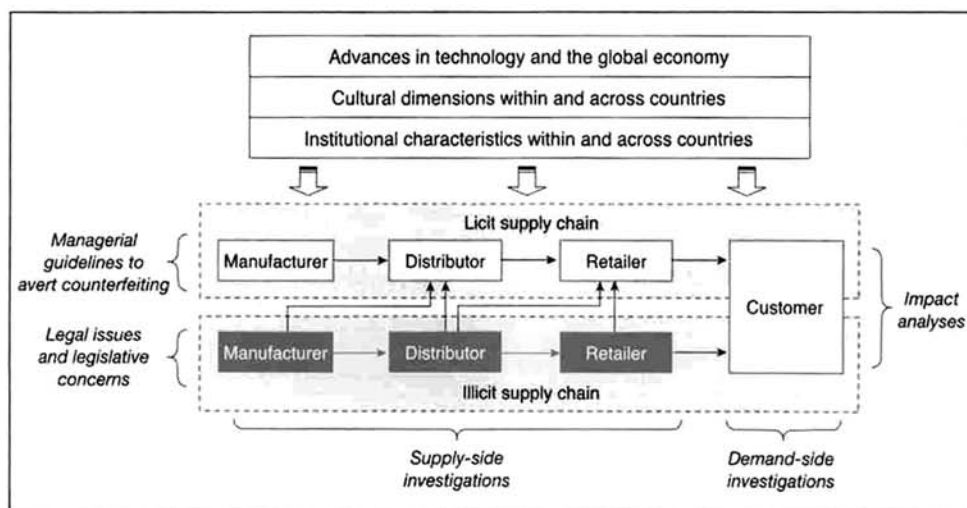
### **Determinants of Counterfeits**

Research has explored a large variety of determinants of the demand and supply of counterfeits. Counterfeiting and piracy are driven by both demand- and supply-side factors embedded in institutional and cultural environments. Demand-side research has examined various consumer behaviors regarding product characteristics and attitudes toward counterfeits; supply-side research has explored illicit supply chains, legal issues, and regulatory processes. Varying institutional and cultural mechanisms exist



in counterfeiting and piracy within and across countries. In addition, some macro factors are beyond the demand side and the operation of individual companies and governments. For instance, new technologies have benefited not only licit manufacturers but also counterfeiters. Advances in technology allow counterfeiters to manufacture with higher quality. The worldwide growth of regional economic integration (e.g., the European Union and the North American Free Trade Agreement) has favored the dismantling of border controls and eased the international flow of counterfeits. Many transition economies with weak institutions for the protection of IPR increase world trade. These global trends lead to an increase of counterfeits.

**Figure 1.** The Study of Counterfeiting and Piracy



This framework is revised from Staake and Fleisch (2008, Figure 1.3).

Figure 1 illustrates a broad framework for understanding counterfeiting. A systematic understanding of the phenomenon that takes into account both demand- and supply-side driving factors, especially those embedded in institutional and cultural factors, has still not been achieved. We have relatively little scientific knowledge of counterfeit demand and supply, the effectiveness of institutional measures to counteract it, or the impact of different cultural environments. The picture of counterfeiting and piracy in an era of global economy is still ambiguous.<sup>6</sup>

6. Eisend and Schuchert-Guler (2006) provide a critical review on counterfeiting as a purchase decision (i.e., consumer perspective). No studies have provided a comprehensive analysis of the supply-side driving factors of counterfeiting and piracy. The Organisation for Economic

**Table 2.** Demand- and Supply-Side Determinants of Counterfeiting and Piracy

Demand side	Supply side
<ul style="list-style-type: none"> <li>• Product attributes               <ul style="list-style-type: none"> <li>– Price (low price, big difference from price of genuine product)</li> <li>– Other attributes (quality, image, appearance, accessibility)</li> </ul> </li> <li>• Consumer characteristics               <ul style="list-style-type: none"> <li>– Income (high budget constraints)</li> <li>– Demographic factors (education, age, gender)</li> <li>– Attitudes toward counterfeits</li> <li>– Safety concerns (low safety impact)</li> </ul> </li> <li>• Institutional characteristics               <ul style="list-style-type: none"> <li>– (Low) risk of discovery</li> <li>– (Low) risk of prosecution</li> <li>– (Weak) penalties and sanctions</li> <li>– (Easy) access and availability of products</li> </ul> </li> <li>• Cultural factors               <ul style="list-style-type: none"> <li>– Values regarding IPR</li> <li>– Attitudes toward the purchase of counterfeits</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Market, production, distribution, and technology               <ul style="list-style-type: none"> <li>– (High) unit profitability</li> <li>– (Large) market size</li> <li>– (High) brand power, recognition, and popularity</li> <li>– (Low) investment cost</li> <li>– (Easy) technology requirements</li> <li>– (Simple and cheap) logistics</li> <li>– (Easy to establish) distribution channels</li> <li>– (Easy to hide) illicit operations</li> <li>– (Easy to deceive) consumers</li> </ul> </li> <li>• Brand owners and technologies               <ul style="list-style-type: none"> <li>– Efforts to support anti-counterfeiting strategies</li> <li>– Techniques to curb counterfeits</li> </ul> </li> <li>• Institutional characteristics               <ul style="list-style-type: none"> <li>– (Low) risk of detection</li> <li>– (Weak) legal and regulatory framework</li> <li>– (Weak) enforcement</li> <li>– (Weak) penalties and sanctions</li> </ul> </li> <li>• Cultural factors               <ul style="list-style-type: none"> <li>– Values regarding IPR</li> <li>– Attitudes toward the supply of counterfeits</li> </ul> </li> </ul>

Source: Adapted from OECD (2008), Table 2.1, Table 2.3, and Table 2.4.

Many studies have explored a variety of practices involved in the production and trade of counterfeit goods. No study has fully discussed counterfeiting and piracy in terms of supply, demand, and institutional and cultural factors at both individual and aggregation levels. The following section reviews the demand- and supply-side factors of counterfeiting and piracy as well as institutional and cultural factors. Table 2 summarizes key demand- and supply-side driving factors. Demand-side factors include product attributes, consumer characteristics, and institutional and cultural factors; supply-side factors include market potential, production, distribution and technology, and institutional and cultural factors.

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Co-operation and Development (OECD) issued a report (2008) on the economic impact of counterfeiting and piracy, specifically focusing on legal and regulatory frameworks, enforcements, and public policies across countries. However, the report did not fully discuss recent academic research findings.



**Proposition 5.** A detailed research framework that examines the complex interactions between demand-side and supply-side driving factors of counterfeiting needs to be developed. It should incorporate institutional and cultural factors at both individual and aggregation levels.

## DEMAND- AND SUPPLY-SIDE DETERMINANTS OF COUNTERFEITING AND PIRACY

### Demand-side Factors

Consumers play a crucial role in the demand side of counterfeit trade.<sup>7</sup> Demand-side studies have found that consumer attitudes toward counterfeiting and piracy are affected by factors ranging from product attributes to consumers' sociodemographic status, attitudes, and safety concerns (Bloch et al. 1993; Chakraborty et al. 1997; Cordell et al. 1996; Gentry et al. 2006; Grossman and Shapiro 1988a, 1988b; Wee et al. 1995; Yoo and Lee 2009). In addition, institutional and cultural factors influence consumers' attitudes toward the purchase of counterfeits. This section focuses on empirical findings about product attributes and consumer characteristics. Institutional and cultural factors will be addressed in later sections.

### Product Attributes

Consumers associate many attributes with a particular product or brand.<sup>8</sup> Overall,

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7. There are four types of consumers: (1) those interested in acquiring a legitimate product; (2) those that knowingly or unknowingly consume counterfeits (consumers of deceptive or non-deceptive counterfeits); (3) those that purchase counterfeits (buyers or nonbuyers of counterfeits); and (4) those interested or uninterested in the IPR status of a product. Grossman and Shapiro (1988a; 1988b) reported that deceptive counterfeiting is more likely prevalent in pharmaceuticals and electronic goods, while nondeceptive counterfeiting tends to be expected in luxury-branded goods. Bosworth (2006) also considered a spectrum of deception from "super-deceptive" (branded and counterfeit goods appear identical) to "knowingly deceptive" (all buyers are able to distinguish the counterfeit from the genuine article). Kwong et al. (2003) argued that counterfeit buyers are different from nonbuyers. Consumers who have already bought a counterfeit may have more favorable attitudes toward counterfeits. For instance, respondents with experience buying pirated CDs tended to be more likely to buy pirated CDs than those without such experience (Kwong et al. 2003).
8. Hughes (1971) suggested six perceived product attributes that have an impact on consumers' intention to buy counterfeit products: durability, image, perceived fashion content, physical

the difference between the value consumers derive from the genuine product and from the fake one is associated with price, quality, and image. Consumer satisfaction generally depends on an item's functionality and image. Wee and his colleagues (1995), based on research involving 949 Asian students, demonstrated that product attributes performed better in explaining purchase intentions than demographic factors. Staake and Fleisch (2008) summarized key reasons for and against purchasing counterfeits in terms of product characteristics.<sup>9</sup> The relationships of price, quality, and image to the purchase of counterfeits are reviewed below.

### Price

When a counterfeit has a distinct price advantage over the genuine product, consumers will select the counterfeit (Bloch et al. 1993). Many studies have addressed price advantage as a dominant reason for buying counterfeits (Albers-Miller 1999; Bloch et al. 1993; Dodge et al. 1996; Harvey and Walls 2003; Prendergast et al. 2002). Low prices of counterfeits have a positive relationship with decisions to purchase them (Gentry et al. 2006). Staake and Fleisch (2008, 54) revealed that the main reason for consumers' purchase of nondeceptive counterfeit goods was their low price. Moores and Dhillon (2000) suggested that lower prices for legal software are associated with lower intentions to engage in software piracy. Harvey and Walls (2003) compared undergraduates from the University of Hong Kong and the University of Nevada at Las Vegas and found that counterfeit purchases in the Las Vegas group were more sensitive to changes in price than those in the Hong Kong group.

In addition, the cost of obtaining counterfeits influences piracy. For instance, Cheng et al. (1997), based on a survey of 340 American graduate and undergraduate business students, demonstrated that the cost of software and its affordability are related to software piracy. Penz and Stottonger (2005) argued that the cost of searching for counterfeits is a major factor determining counterfeit purchases. Empirical studies (Moores and Dhaliwal 2004; Peace et al. 2003) confirmed that the high cost of soft-

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appearance, purpose, and quality. Lefkoff-Hagius and Mason (1993) suggested three types of attributes: characteristics (physical properties and appearance), benefit (what the product will do for the user), and image (how the product represents the user to others or self).

9. Staake and Fleisch (2008, 53) listed reasons for and against purchasing counterfeits. Reasons for purchasing counterfeits included: (1) the good quality of counterfeits, (2) the high price of the genuine article, (3) the high value for the money, (4) interest in counterfeits and the fun associated with having one, and (5) the attractiveness of the brand. Reasons against purchasing such illicit goods included: (1) limited availability, (2) bad quality, (3) lack of a warranty, (4) the better value for the money of genuine articles in the long run, (5) personal values, and (6) potential conflicts with the law.

ware increases consumers' intentions to copy it illegally. Gallegos (1999) argued that the ease and speed of copying software from Internet sites increase software piracy.

**Proposition 6.** The higher the price of the genuine item, the more likely consumers are to purchase a counterfeit.

### Quality

Overall, the higher the anticipated quality of a counterfeit, the higher the demand. Poor quality was a primary reason for not purchasing counterfeit goods. Staake and Fleisch (2008, 54-56) reported that about 58 percent of respondents mentioned the good quality of counterfeits as a strong or very strong reason for purchasing them.<sup>10</sup> Bryce and Rutter (2005) reported that price and quality were the most frequently cited motivations for the purchase of counterfeit fashion items (72 percent and 60 percent of respondents, respectively). Consumers of nondeceptive counterfeit products usually know that they have lower quality than their genuine counterparts. The acceptable level of quality of counterfeits varies depending on the product and the buyer's income level. Prendergast et al. (2002) reported that the acceptable quality of counterfeit VCDs enhanced purchase intentions for high spenders more than for low spenders, while the acceptable quality of T-shirts enhanced purchase intentions for low spenders more than for high spenders.

There is a complex interaction between price and quality of counterfeits. In general, the high quality and functionality of a counterfeit may lead to high demand. However, the higher prices of genuine items indicate high quality, whereas the low prices of counterfeits signify low quality (Wilke and Zaichkowsky 1999). Such connotations of quality have been found to be universal across countries, although actual quality has no relationship with price (Dawar and Parker 1994; Lichtenstein, Ridgway, and Netemeyer 1993). Even a low-quality counterfeit product may induce substantial demand if its price is much lower than that of the genuine product. Low-income consumers who cannot afford prestige and quality are more likely to purchase cheap counterfeits.

**Proposition 7.** The complex interaction between counterfeit quality and price and the consumer's income needs to be examined.

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10. Their survey, conducted in Zurich between August and September 2005, was designed to distinguish between those consumers who had intentionally purchased counterfeit goods in the previous three years (sample size = 94) and those who had not (sample size = 109).

### Image

The purchase of counterfeits depends on the extent to which the counterfeit product is able to project the same image as the original product. Image attributes reflect how consumers feel product use associates them with a desired group or enhances their self-image or status (Lefkoff-Hagius and Mason 1993). The primary benefit of counterfeits can be symbolic rather than functional (Yoo and Lee 2009). Counterfeits allow consumers to buy prestige at a lower price as opposed to buying quality at a higher price. Consumers find that the brand name, label, and identifying design characteristics such as logo and distinctive materials are themselves valuable. A trademark or brand in luxury goods markets provides a status image for consumers rather than quality. Consumers with a higher status consciousness prefer branded products that reflect affluence and prestige. Furthermore, they may not mind lower quality. Nia and Zaichkowsky (2000) examined the impact of counterfeit goods on image and the desire to own 25 luxury brands. Wealthy tourists may seek to acquire status by buying counterfeit goods. Gentry et al. (2002) showed that tourists knowingly acquire counterfeit luxury goods.

**Proposition 8.** The mechanism by which tangible and intangible attributes of counterfeit products convey status needs to be examined.

### Sociodemographic Factors

The purchase of counterfeits varies across income, education, age, and gender. For instance, Solomon and O'Brien (1991) reported that consumers' age, educational background, and family economic background influence their attitudes toward software piracy. However, there have been mixed results on the effects of sociodemographic factors on the purchase of counterfeits. Some studies reported that demographic variables do not influence the purchase of counterfeits (Bloch et al. 1993), while others argued that they do matter (Cheung and Prendergast 2006),<sup>11</sup> but in an inconsistent manner (Phau et al. 2001; Tom et al. 1998; Wee et al. 1995). The following text briefly reviews how demographic factors such as income, education, age, and gender affect the purchase of counterfeits.

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11. Cheung and Prendergast (2006), based on 1,152 adult consumers from Hong Kong, Shanghai, and Wuhan, showed that high-income families, people with tertiary education, younger consumers, and males are more likely to be heavy buyers of pirated VCDs and that females are more likely to be heavy buyers of pirated clothing and accessories.

### Income

Economic situations and budgetary constraints influence demand and consumption of counterfeit and pirated items. The relationship between income and demand for counterfeit goods has been examined at both micro and macro levels. The micro-level studies have examined the effects of individual income on demand for counterfeit goods; the macro-level studies have focused on the relationship between national income and national level of counterfeit activities.

Micro studies have reported contradictory findings on the relationship between individual income and the purchase of counterfeits. For instance, Swee et al. (2001) found that lower-income groups have more favorable attitudes toward pirated CDs. Sims et al. (1996) also reported a significant relationship between household income and software piracy. However, some studies show no such relationship. Phau et al. (2001) and Prendergast et al. (2002) suggested that buyers of counterfeits are not necessarily from lower socioeconomic groups. Kwong et al. (2003) demonstrated that income is not related to pirated product purchase. An increase of income can increase the intention to buy counterfeit brands. Pheu et al. (2001) suggested that the poor are likely to spend less than the rich on counterfeit-branded clothing.

Macro studies have suggested that, at the national level, purchase of counterfeits becomes a function of per capita national income. The national level of income is related to the (aggregate) decisions of whether to purchase software or purchase it illegally. Higher per capita national income may lead to less counterfeiting and piracy. As per capita GDP increases, one would expect counterfeiting and piracy to decrease. Gopal and Sander (2000), for example, reported a strong negative relationship to be typically found between wealth and the rate of counterfeiting and piracy. Andres (2002) showed that an increase in income of 1 percent decreases piracy rates by 0.64 percent in the European Union. Moores (2008) also showed that countries with a higher per capita national income showed less counterfeiting and piracy. Husted (2000) revealed a negative relationship between the level of economic development and the rate of software piracy. In addition, Maskus and Panubarti (1995) suggested a positive relationship between the protection of IPR and the level of national income.

**Proposition 9.** The factors that influence the relationship between income and counterfeit purchase need to be identified at the micro and macro levels.

### Education

The higher the educational level, the more negative the attitude toward software piracy (Lau 2007). More highly educated respondents are more concerned with the

negative externalities resulting from counterfeiting and piracy. Better-educated consumers apparently are more aware of, and understand better, the implications arising from copyright infringement than their less-educated counterparts. In this sense, increased knowledge of intellectual property law can be negatively related to lenient attitudes toward counterfeits. A lack of awareness of IPR is likely to generate demand for counterfeits.

However, better- and less-educated consumers did not differ in their attitudes toward piracy. For instance, Logsdon, Thompson, and Reid (1994) reported that education had no significant impact on attitudes toward software piracy. Cheung and Prendergast (2006) reported that respondents with tertiary education in Hong Kong, Shanghai, and Wuhan were more likely to buy pirated VCDs. Vian and Veloutsou (2007) showed that education did not influence the intention to buy counterfeit brands in the United Kingdom and China.

On the contrary, higher education may induce more demand for counterfeits. For instance, Pheu et al. (2001) showed that low spenders on counterfeit-branded clothing had lower education levels and high spenders on counterfeit-branded clothing had higher education levels. Predergast, Cheun and Phau (2002) showed that those with tertiary education spent more money on pirated VCDs. In general, people with higher education are not inclined to purchase counterfeit products, except for functional products like reference literature and computer software.<sup>12</sup>

**Proposition 10.** The impact of education on counterfeit purchases is not consistent. Factors that might explain such inconsistency need to be examined.

### Age

Age appears to influence attitudes toward, and consequently the purchase of, counterfeits. Older people were more likely than younger people to exhibit idealistic ethics (Rawwas and Singhapakdi, 1998) and stronger business ethics (Ruegger and King, 1992). Teens and young adults were confused about what is legal and illegal in the realm of downloading music (Atkinson 2004). Gopal and Sanders (1997) reported that age was negatively related to the rate of software piracy. Bhattacharjee et al. (2003) and Madden and Lenhart (2003) showed that young adults were more likely to down-

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12. More highly educated consumers preferred to buy the counterfeit versions of functional goods such as reference literature and computer software because of price. Original goods manufacturers may also need to think seriously about their marketing mix strategy (Wee et al. 1995).



load copyright-protected music. The counterfeit-prone consumers were significantly younger. However, Wee et al. (1995) reported that age did not explain the purchase of counterfeits, especially after controlling for education level and household income.

It appears that the relationship between age and the attitudes toward counterfeits varies from western to nonwestern countries. Tom et al. (1998) reported that there was a negative relationship between age and attitude toward counterfeits in the western world. For example, older British consumers were less likely to want to buy counterfeit brands. However, age did not affect intention and purchasing frequency in China (Bian and Veloutsou 2007). Predergast, Cheun and Phau (2002) showed that consumers in the 25-34 age group were higher spenders on pirated VCDs than those in the 19-24 age group.

**Proposition 11.** Why age has a different effect on counterfeit purchases in the West and the East as well as in different product categories needs to be examined.

### Gender

Gender appears to reflect varying attitudes toward counterfeits. Women tend to have stricter business ethics than men (Ruegger and King 1992). Counterfeit clothing and accessory purchasing is related more to women, whereas men are more likely to participate in music piracy (Bhattacharjee et al. 2003; Madden and Lenhart 2003). Males had a significantly larger proportion of pirated copies than females (Holm, 2003). On the contrary, Banerjee (1992) reported no significant disparity in gender. Sacco and Zureik (1990) also argued that gender had a negligible effect.

However, men are more likely to commit software piracy than are women (Gopal and Sanders 1997; Hinduja 2001, 2003; Hollinger 1993). Solomon and O'Brien (1990) also argued that female respondents had a lower tendency toward software piracy than males. Rahim et al. (1999) reported that a significantly higher proportion (80 percent) of male respondents than of female respondents (53 percent) used pirated software. Siponen and Vartiainen (2002) found that copying of computer software among students at Oulu University in Finland was positively associated with men.

The impact of gender may differ from country to country. Men in the United Kingdom were more likely to buy counterfeits than women, but no differences were discovered in China (Bian and Veloutsou 2007).

**Proposition 12.** Why different countries as well as different product categories show a different effect of gender on counterfeit purchase needs to be examined.

### **Consumer Attitudes**

Consumers' attitudes influence their choices. Attitudes toward counterfeits are reviewed below in terms of morality, social pressure, and materialism.

#### **Morality and Lawfulness**

Morality influences willingness to purchase a counterfeit product. People with higher morality tend to have lower intentions to purchase counterfeits. Purchasers of counterfeit CDs might be expected to have fewer moral qualms regarding the practice. Consumers who attribute more integrity to themselves may have more unfavorable attitudes toward counterfeits. Ang et al. (2001) showed that consumers with lower ethical standards were expected to feel less guilty when buying counterfeits. In addition, an individual's attitudes toward crime and theft may influence the extent to which he or she knowingly acquires counterfeit or pirated products. Cordell et al. (1996) showed that consumers' willingness to purchase counterfeits was negatively related to attitudes toward lawfulness. Singaporeans, who were less supportive of software copyright laws, were more inclined to make pirated copies of software than their U.S. counterparts (Swinyard et al. 1990). Consumers who were more lawful-minded were less willing to buy counterfeits (Cordell et al. 1996). Those who had lower ethical standards were less likely to feel accountable for knowingly buying a counterfeit.

Interestingly enough, however, Yoo and Lee (2004) found no ethical differences between counterfeit buyers and genuine item buyers in their study of female college students in South Korea. They argued that this finding indicated that consumers do not necessarily feel guilt about buying counterfeits, because there is no law against purchasing counterfeits and consumers do not think that spending a small amount of money for a counterfeit will damage the original manufacturer and related businesses. In addition, consumers buy counterfeits for a hedonic purpose, so they are not that serious about the purchase and do not feel unethical about it.

**Proposition 13.** The conditions under which consumer ethics affect counterfeit purchases negatively need to be identified.

#### **Social Pressure**

Consumers' attitudes toward the purchase of counterfeits depend on the extent to which their reference groups approve of it. Friends and relatives may act as inhibitors or contributors to the consumption of counterfeits, depending on whether they approve of this behavior. For instance, Ferrell and Grisham (1985) addressed the importance of reference groups, specifically peers, in affecting people's ethical behavior in their "significant others" variable. Al-Jabri and Abdul-Gader (1997) also addressed the

influence of group belief on software piracy. Ford and Richardson (1994), relying on meta-analysis, reported that in most studies reference groups influenced a person's ethical decision-making. In addition, universalism and conformity were related to willingness to buy counterfeit goods (Furnham and Valgeirsson 2007). Normative susceptibility concerned purchase decisions that were based on expectations about what would impress others.

**Proposition 14.** Exactly how social norms and peer pressure affect counterfeit purchasing in the context of culture (e.g., collectivism and individualism), individual ethics, and attitudes toward counterfeits needs to be investigated.

### **Materialism**

Psychology and marketing researchers have explored the relationship between materialism and moral standards (Belk 1983; Fournier and Richins 1991; Muncy and Eastman 1998). Materialists were found to be more self-serving and less concerned about the interests of other people (Muncy and Eastman 1998; Richins and Dawson 1992). They tended to ignore the negative consequences of piracy on society and were more likely to purchase counterfeit products (Yoo and Lee 2004; 2009). Furnham and Valgeirsson (2007), relying on the Richins materialism scale, suggested that beliefs about counterfeits, demographic factors, and materialism were related to people's willingness to buy counterfeit products. Ang et al. (2001) considered motivations for purchasing counterfeit CDs among 3,621 participants. Compared with those who did not purchase counterfeits, those who did had more trust in the shops that sold them and regarded the purchase as less risky.

**Proposition 15.** As materialism surely affects consumption of counterfeits, it would be important to develop policy and marketing measures that discourage consumers from acting on materialism.

### **Health and Safety Concerns**

Consumer's general awareness of health and safety varies across countries. Cross-country differences exist in the conscious demand for potentially dangerous counterfeits such as toys, consumer electronics, and pharmaceuticals. This problem is especially prevalent in developing countries, where false medications may outnumber genuine products three to one. Further research is needed on these issues.

Health and safety concerns may influence consumers' decisions on whether or not to purchase a counterfeit or pirated product. They may explain why the secondary mar-

ket for some items (like pharmaceuticals) is small, while the market for others (like movies and music) is relatively large. The harmful effects of counterfeit products vary widely and generally relate to the category of goods. Pharmaceutical products represent the most dangerous type of counterfeit, as false medicines are produced without regard to safety of production methods or composition. Counterfeit pharmaceuticals and medicines may cause serious side effects and even lead to death. Such consumer safety issues have received significant media attention, which has alerted the public to the counterfeiting problem (Wechsler 2002; Nash 1989). Health and safety problems were more related to deceptive counterfeits—such as pharmaceuticals and replacement parts for airplanes and automobiles—than nondeceptive products (Bosworth 2006).

**Proposition 16.** Policy makers and marketing managers need to more actively educate consumers on safety and health issues deriving from, in particular, nondeceptive counterfeits.

### Supply-side Factors

Studies of supply-side issues in the counterfeit market have paid attention to production settings, strategies, motives of unlawful actors, and how counterfeit products are found in the legitimate supply chain. Most supply-side studies appear to focus on various anti-counterfeiting strategies that can protect the original brand company, including diplomatic and legislative pressures and product and packaging changes using magnetic codes and special inks. Some research has examined how to discourage counterfeiting through trademark registration, protection strategies, and regulatory actions. However, counterfeit supply is still a black box phenomenon for many stakeholders. There is little scientific evidence regarding the basic characteristics of counterfeit producers.<sup>13</sup> An understanding of the motives, production settings, and strengths and weaknesses of the illicit counterfeiters would benefit the legitimate stakeholders and provide greater protection. Moreover, performance measures for anti-counterfeiting activities could help to identify, select, and improve successful prac-

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13. According to Staake and Fleisch (2008), there are five types of counterfeit producers: (1) disaggregators, (2) imitators, (3) fraudsters, (4) desperados, and (5) counterfeit smugglers. Each type has specific counterfeiting skills, targeted products, and conflicts with the law. Disaggregators supply products, primarily clothing and accessories, with an average functional quality. Imitators produce counterfeits with a high visual and functional quality. Desperados provide expensive but simple-to-mimic products, such as pharmaceuticals or automotive spare parts, whose quality is difficult to evaluate prior to purchase. Counterfeit smugglers have strong ties to organized crime.

tices. Deeper insights into the supply side of the counterfeit market may help to better understand its growth and progression, and may also improve strategies to protect intellectual property.

Three dimensions influence production and supply of counterfeits: (1) market characteristics, (2) technological and logistical factors, and (3) efforts of brand owners. The following discussion will focus on market potential and technology issues. The institutional environments will be reviewed separately in the section on institutional factors.

### **Market Characteristics**

#### **Profits**

The larger market for a particular product may lead to a larger incentive to exploit the linked markets for illegal production. The higher potential profitability of counterfeiting may provide a higher incentive for illegal producers to engage in it. Profitability depends on the ratio of benefits to costs. The benefits of counterfeit production stem from free-rider effects with respect to research, development, and marketing costs. Other benefits come from the choice of cheap materials and production processes as well as from lower labor costs and tax evasion. On the other hand, counterfeit production does involve significant costs for production, maintaining an illicit distribution network, and the risk of personal fines and imprisonment.

The degree of profit of counterfeits may vary from primary markets to secondary markets. Deceptive counterfeits based on trademark and copyright infringement target the primary market. On the other hand, the many low-priced nondeceptive counterfeits of branded clothing, software, and music DVDs target the secondary markets. In addition, Onkvisit and Shaw (1989, 205) argued that price differential is the major reason for the gray market to exist.

**Proposition 17.** The profit structure and sources of counterfeiting are still unknown. More knowledge about them would help policy makers and marketing managers to develop more effective measures to discourage counterfeiting.

#### **Size of Markets**

The larger the market for a specific product, the larger the incentive may be to exploit the connected markets for counterfeits. High price differentials between genuine and counterfeit products may lead to higher profits for counterfeiters. When the genuine items are priced too high and unaffordable, consumers are likely to seek cheaper alternatives. Such a price differential creates incentives to supply counterfeits,

whose prices are typically a fraction of the prices for legitimate goods. In addition, the number and volume of e-commerce sites make it difficult for rights holders and enforcement agencies to identify and move against counterfeiters and pirates. The firm eBay alone recorded 596 million new listings in the second quarter of 2006 (eBay, 2006).

**Proposition 18.** The relationship between the size of the market for genuine products and that for counterfeits needs to be investigated.

#### Brand Power

The more power a brand has, the greater is the incentive to counterfeit it. Counterfeiting high-powered brands may lead to more profits due to their larger market size, higher popularity, and higher price premium.

**Proposition 19.** The extent to which brand power attracts counterfeiting varies depending on different factors, for example product category. These factors need to be identified.

#### Technology and Logistics of Distribution

To develop the market potential, the production and distribution of counterfeit and pirated goods must also be feasible, both economically and technologically. The need for costly production equipment may limit the number of persons able to engage in certain types of counterfeiting. Counterfeit producers also need elaborate logistics skills to distribute their products. They must conceal their illicit activity and disguise the location of their production plants. The costlier and more complex the logistics for bringing illicit goods to the market, the lower the likely level of infringement. The food and beverage sector explains why counterfeiting is relatively limited.

#### Ability to Conceal Counterfeits and Deceive Consumers

A greater ability to conceal production, distribution, and sales may provide a greater incentive to counterfeiting. The ability to conceal operations influences trademark and copyright infringement. In addition, a greater ability to deceive consumers into believing that an item is not counterfeit may lead to a greater possibility of trademark infringement. Consumers are more likely to select the fake over the legitimate product if both products show a high congruence in terms of physical attributes. The more consumers think that original and fake products are similar with regard to quality, physical appearance, and durability, or with regard to image, the more likely they are to purchase counterfeits. (Penz and Stöttinger 2008).



**Proposition 20.** The relative importance and impact of each type of similarity between originals and counterfeits (e.g., quality, physical appearance, durability, and image) needs to be investigated.

### Marketing and Sale of Products

The extent of counterfeiting and piracy depends heavily on marketing and sale of products. The easier it is to establish channels through which counterfeit and pirated products can be distributed and sold (or the less effort is required to penetrate existing channels), the greater the opportunities for parties to engage in an IPR-infringing business. The more costly and complex the logistics for bringing counterfeit products to the market, the greater the barriers to counterfeiting.

Both the economic costs of transport and handling, and the risk of detection, prosecution, and penalties influence the likelihood and extent to which a product is counterfeited. A multilevel distribution system provides greater opportunities for infringers to infiltrate it. Counterfeiters easily establish sales links for both deceptive and nondeceptive products using e-mail, online auctions, and related sales sites. A greater incentive to target genuine products exists when production, distribution, and sales of counterfeits are easy to conceal.

**Proposition 21.** How each major aspect of counterfeit marketing and sales impacts the efficiency of counterfeit market penetration needs to be examined to develop more effective anti-counterfeiting policies.

### Internet

The Internet has provided counterfeiters and pirates with a new and powerful means to sell their products via online auction sites, stand-alone e-commerce sites, and e-mail solicitations. The online environment is attractive to counterfeiters and pirates for a number of reasons, including market reach and the relative ease of deceiving consumers (OECD 2007).

The Internet provides sellers with a means to reach a global audience at low cost and around the clock. For counterfeiters and pirates who have traditionally thrived in localized, often informal markets, this resource represents a major opportunity to expand sales. It is possible for a counterfeiter or pirate located anywhere in the world to establish online merchant sites quickly. Such sites can also be taken down easily or moved to jurisdictions where IPR legislation and enforcement are weak.

While it is easy for counterfeiters and pirates to establish sales links for both deceptive and nondeceptive counterfeits using the Internet, technologies and services are

available for monitoring possibly limiting some of those activities.

**Proposition 22.** The Internet is an emerging distribution method for counterfeits, but little is known about how counterfeiters use it. Future research needs to identify what types of consumers are likely to buy counterfeits online and what characteristics of online counterfeit sites lure consumers most effectively.

### **Efforts by Brand Owners**

Companies using strong proactive marketing strategies may be able to overcome the adverse effects of international piracy.<sup>14</sup> The effectiveness of anti-counterfeiting strategies depends on the extent to which brand companies can reinforce the intellectual property environment (Chaudhry et al. 2005). Harvey and Ronkainen (1985) suggested brand owners employ some elementary strategies against the counterfeit trade such as hands-off, prosecuting, withdrawal, and warning. Globerman (1988) argued that the brand companies need to make private efforts to protect their products rather than relying on intensification of trade legislation. Also, Shultz and Saporito (1996) proposed more detailed anti-counterfeiting strategies, such as “high-tech labeling” and “co-opting offenders.” Olsen and Granzin (1992; 1993) discussed how brand companies can prevent illegal distributors from selling counterfeit products. Hung (2003) argued that few brand companies can prevent counterfeit trade based on legal activities. On the other hand, some companies may view being counterfeited as a better opportunity to diffuse brand awareness (cf. Freedman 1999; Gentry et al. 2003; Shultz and Saporito 1996). Gentry and his colleagues (2003) showed that counterfeiting of sports paraphernalia significantly contributes to the globalization of the brand.

Recent studies (Jacobes et al. 2001) have suggested defensive mechanisms against counterfeits (i.e., anti-counterfeiting marketing strategies). Harvey and Ronkainen (1985) emphasized that warning consumers of the danger of counterfeits diminishes the desire for them. Bush et al. (1989) advocated for informing the public and trade of the risks of purchasing counterfeit products. Harvey (1987; 1988) emphasized more assertive action and follow-up through legal means. Bush et al. (1989) proposed stronger anti-counterfeiting laws, stricter enforcement of existing laws, and financial incentives for rejecting phony goods. Olsen and Granzin (1992) proposed financial incentives for

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14. Jacobes et al. (2001) suggested that the company should (1) know the process of IPR protection, including its legal and administrative rules, (2) develop strategies to manage IPR, (3) establish a mechanism to evaluate the effect of continued protection, and renew protection as appropriate, and (4) develop a framework to monitor infringement.

channeling members to reject counterfeiters and warning the public about them. Finally, Chaudhry and Walsh (1996) proposed high-tech security labeling (i.e., holograms and hidden words on product labels) as a primary means of brand protection.

**Proposition 23.** Many anti-counterfeiting methods have been proposed and implemented, but there has been little examination of when to use what method in which product category. Research is needed on the relative effectiveness of each major method.

## **Institutional Factors**

This section discusses the effect of institutions on counterfeiting and piracy on the demand side, the supply side, and overall (when demand- and supply-side effects are entangled).

### **Overall**

Institutional factors are major contributors to variations in the rates of counterfeiting and piracy both within and across countries. They influence both suppliers and consumers. In particular, many studies have discussed institutional effects on the rate of software piracy. For instance, recent studies using cross-sectional data identified institutional factors as the primary determinants of software piracy rates (Burke 1995; Gopal and Sanders 1998; Husted 2000; Marron and Steel 2000). Andres (2002) showed that piracy rates were sensitive to the strength of software protection. Papadopoulos (2003), using the same proxy variable for IPR protection in a sample of 84 countries, found that piracy shares in the sound recording market decreased with the strengthening of IPR protection. Van Kranenburg and Hogenbirk (2005) found that countries with stronger copyright systems had lower piracy rates, especially in the entertainment software industry.

Institutional characteristics can be divided into two dimensions: foundations and effectiveness. The foundations dimension includes legal institutions and infrastructure for IPR protection and international copyright convention membership and membership duration; the effectiveness dimension includes rule of law, judicial efficiency, IPR enforcement, and quality of bureaucracy.

The institutional components of IPR protection are crucial to the prevention of counterfeiting and piracy. Those countries that signed unilateral, bilateral, and multi-lateral treaties or conventions for IPR protection and are members of international organizations for IPR protection tended to have lower software piracy rates (Ki et al. 2006). However, the institutional foundation did not guarantee the effective prevention

of counterfeiting and piracy, because law enforcement components and judicial efficiency were more important than the statute component. The effectiveness of institutions requires resources (Ostergard 2000), and government officials in these countries should be trained to set up, implement, and maintain a system for IPR protection.

**Proposition 24.** Legal and diplomatic steps to maximize institutional foundations and effectiveness in each country need to be developed.

### **Demand Side**

Various institutional characteristics affect the consumption of counterfeits. Institutional environments embedded in infringement activities influence the demand for illicit products. The demand-side factors include availability and risk of discovery and penalty.

#### **Availability**

The level of availability and ease of acquisition influence demand for counterfeiting and piracy. Due to their illicit nature, counterfeit and pirated products are generally not freely available. Easy access to counterfeits may also boost demand. Opportunities to purchase counterfeits vary depending on the country and method of distribution; for example, they are greater in open markets than in regulated markets and in some online markets.

**Proposition 25.** An accurate survey of counterfeit retail outlets will help policy makers to develop more effective measures of counterfeit prevention.

#### **Consumer Risk: Discovery, Prosecution, and Penalty**

The purchase of counterfeits may involve the institutional risks of discovery, prosecution, and penalty. While many studies have focused on consumers' perceived risks from counterfeits, few studies have discussed the institutional risk from the purchase of counterfeits (Yoo and Lee 2009). Previous studies have shown that consumers recognized the potential consequences of purchasing counterfeit products (e.g., safety problems, money loss, and poor quality). These risks concern mainly the utility of counterfeits; however, the purchase of counterfeits can also lead to public exposure and accusations of immoral or illegal activities.<sup>15</sup>

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15. Recent studies have discussed non-normative consumer behaviors, including overt criminal offenses such as shoplifting and changing price tags, as well as passive offenses such as

Higher institutional risks may lower the intention to purchase counterfeits. However, the perceived risks from the purchase of counterfeits vary depending on the level of risk-taking and lawfulness. The degree to which a consumer will take institutional risks depends on the degree of IPR protection and his or her legal and moral standards. Music, movie, and software associations have increased the number of lawsuits and targeted not only heavy suppliers of copyrighted material but also consumers. In addition, increased media coverage of piracy and the rights holders' anti-piracy efforts have increased the perceived risk for consumers buying pirated products. These factors may lower the intention to purchase counterfeits. On the other hand, consumers may not associate legal or public welfare issues with counterfeiting (Bloch et al. 1993; Cordell et al. 1996; Cordell and Wongtada 1991), and this lack of consumer awareness may increase the potential size and profitability of markets for deceptive counterfeits.

**Proposition 26.** There are criminal penalties for purchase or use of some illicit products, such as drugs and illegal weapons, but not for most counterfeits. Policy makers need to study what kind of legal penalties can be imposed on counterfeit buyers and users in an effort to support legitimate brand businesses.

### **Supply Side**

Legal protection of intellectual property forms the basis of every anti-counterfeiting strategy. There are, however, considerable country differences in the effectiveness and efficiency of IPR protection. In general, the more economically developed a country is, the better its IPR protection (Ginarte and Park 1997; Marron and Steel 2000; Varsakelis 2001). Marron and Steel (2000) suggested that piracy rates were lower in countries with strong institutions that enforce contracts and protect property from expropriation. The supply-side institutions that seek to prevent counterfeiting and piracy include (1) legal frameworks, (2) international standards, and (3) enforcement.

### **Legal Frameworks**

The legal and regulatory systems designed to combat counterfeiting can affect counterfeiters significantly. They provide original brand companies with instruments to bring suit against counterfeiters and to seek to recover their losses from counterfeiting. Whereas strong systems prevent counterfeiting, weak systems can be perceived as

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taking advantage of price tag error (Cole 1989; DePaulo 1986; Jolson 1974; Wilkes 1978). But they have neglected counterfeiting, a consumer behavior that is not only unethical and non-normative, but also risky (Cordell et al. 1996).

tolerant. Penalties may have a strong impact on the activity of counterfeiters. The impact of enforcement on counterfeiting may differ greatly depending on the severity of the sanctions. Because of their weaker legal protections for IPR and lower levels of enforcement, developing countries, particularly those in the Asian Pacific, have higher levels of piracy than the industrialized countries of the West.

**Proposition 27.** Policy makers need to identify and address factors that reduce the effectiveness of anti-counterfeiting in developing countries.

#### International Standards

IPR protection across national borders relies on several international agreements. Most European countries are signatories to the main international copyright treaties such as the 1886 Berne Convention for the Protection of Artistic and Literary Works, the 1996 World Intellectual Property Organization (WIPO) Copyright Treaty, and the 1994 Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). The substantive legislation on intellectual property stems from the pressure of WIPO and the World Trade Organization (WTO), within which the TRIPS Agreement was drawn up. In addition, the North American Free Trade Agreement addresses the protection of intellectual property and requires an agreement between trading partners to enforce IPR. Another organization that firms could rely on to help prevent piracy is the International Anti-Counterfeiting Coalition. This organization can launch an advertising campaign to discourage consumers from buying fake merchandise. Previous studies (Ginarte and Park 1997; Sell 1998) have addressed the effects of membership in international treaties and organizations (e.g., the Berne Convention, the Paris Convention, and WIPO) on counterfeiting and piracy. However, membership in international anti-counterfeiting organizations is not enough to protect the genuine products. Shadlen et al. (2005) argued that multilateral and bilateral pressure<sup>16</sup> for the protection of intellectual property should be considered beyond simple membership in organizations and that its effect on software piracy is larger than its effect on economic development.

**Proposition 28.** Policy makers need to examine which strategies can most effectively protect brand owners in their country from counterfeiting and piracy in other countries.

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16. Shadlen et al. (2005) argued that bilateral pressure originating in the United States, home of most of the world's exporters of packaged software, plays a crucial role in preventing counterfeiting and piracy.



### Effectiveness of Enforcement

It appears that the capacity for enforcing anti-counterfeiting strategies is much more important than the simple introduction of a legal framework. Despite a rapid increase in violations of IPR, most WTO members have adopted legislation implementing minimum standards of IPR enforcement. Vigorous enforcement legislation is essential for combating counterfeiting and piracy, but it alone is not sufficient. For instance, while China's intellectual property laws have recently approached the standards set by TRIPS, enforcement of these laws remains inadequate to deter counterfeiting and piracy (Mertha 2005). In addition, cultural characteristics and corruption may hamper the effectiveness of enforcement in some countries. For instance, bribery associated with counterfeiting and piracy weakens the effectiveness of public institutions. In countries such as China this has proved problematic, as the official bodies have either been too passive or had insufficient resources. The Chinese IPR system cannot be viewed in isolation from its cultural background of Confucianism (O'Connor and Lowe 1996, 63). China's cultural background has also influenced its approach to dispute resolution, with a preference for arbitration and mediation over litigation.

Effective enforcement involves multiple measures such as public campaigns, organization, empowerment, and incentives. For instance, China conducted a wide-ranging and intensive enforcement campaign against criminal infringement of trademarks (the Mountain Eagle campaign) that involved raids on offices, warehouses, and stores (OECD 2007). Several countries have special anti-counterfeiting units utilizing the expertise of enforcement officials. The Korea Customs Service, for example, has teams dealing especially with IPR enforcement (OECD 2007). Taiwan has special police units for IPR enforcement, including a unit specializing in identifying and dismantling illegal optical disk operations. The European Union launched two major, multi-week joint customs operations to seize counterfeit goods in ports (OECD 2007).

More powers have been granted to enforcement agencies; in fact, in a number of countries, police or customs officials can act on their own initiative to seize infringing goods without a prior court order. To increase the effectiveness of enforcement, both South Korea and Taiwan have set up reward mechanisms for informants and law enforcement personnel who have been instrumental in seizing counterfeit products.

**Proposition 29.** Policy makers need to establish a law enforcement strategy that is effective in the context of local cultural and business traditions.

### Cultural Factors

Understanding different cultures is essential to identifying differences between countries in the production and consumption of counterfeits. The ways in which sup-

pliers and consumers deal with counterfeits vary between cultures (Husted 2000; Maron and Steel 2000; Proserpio et al. 2005). For instance, Chinese consumers are so accustomed to cheap pirated goods that they are unwilling to pay full price for the real thing. It almost seems that imitation is a way of life. Different cultural values also involve different levels of satisfaction with counterfeit and pirated goods. Many studies have illustrated that culture, especially as it differs across countries, has significant effects on both the demand and supply sides of counterfeiting (Eining and Christensen 1991; Nyaw and Ng 1994; Swinyard et al. 1990; Vitell, Nwachukwu, and Barnes 1993). More specifically, previous studies have emphasized cultural differences in attitudes toward intellectual property laws and the cross-cultural aspects of software piracy (Gopal and Sanders 1998; Moores and Dhillion 2000; Moores and Dhaliwal 2004). Investigating cultural differences may be a promising approach to researching determinants of counterfeiting.

#### Cross-national studies

Previous studies dealing with cultural factors have focused mainly on cross-national differences in counterfeiting and piracy rather than on micro relationships between consumers' cultural orientations and attitudes toward counterfeits. For instance, many studies have explored the relationship between culture and software piracy rates across countries (Moores 2008; Ronkainen and Cusumano 2001; Santos and Rebeiro 2006). These studies were based on cultural dimensions suggested by Hofstede (2001), including power distance, uncertainty avoidance, individualism, masculinity, and long-term orientation. *Power distance* refers to the degree of acceptance of equality or inequality within society and is correlated with the use of violence in domestic politics. *Uncertainty avoidance* refers to the need for rules and regulations to avoid ambiguity and uncertainty in social settings and is correlated with the legal requirement in developed countries to carry identity cards. *Individualism* refers to the extent to which individuality is prized above group (collectivist) ideals and is correlated with national wealth. *Masculinity* refers to traditional masculine ideals of achievement, power, and control. *Long-term orientation* refers to thrift and perseverance and is correlated with the national economic growth rate.

Macro-level studies have discussed how such cultural factors are related to counterfeiting and piracy across countries. For instance, Ronkainen and Cusumano (2001) showed that countries valuing individualism have lower levels of piracy and that countries with a higher power distance have significantly higher levels of piracy. Santos and Rebeiro (2006) reported that countries with low individualism and low uncertainty avoidance display more counterfeiting. Moores (2008) suggested four hypotheses regarding the relationship between them: (1) the higher the individualism of a country,

the lower the SPR; (2) the lower the power distance index of a country, the larger the decline in the SPR; (3) the lower the masculinity score of a country, the larger the decline in the SPR; and (4) the lower the uncertainty avoidance index of a country, the larger the decline in the SPR. The author illustrated that countries with a higher degree of individualism were more likely to have larger declines in SPR and that those with a higher degree of power distance, masculinity, and uncertainty avoidance were expected to have smaller declines in SPR.

Some macro studies have tested the relationship between corruption and counterfeits across countries. Several researchers have also explored the relationship between software piracy and corruption (Husted 1999; Wagner and Sanders 2001). Nations with higher levels of corruption were less interested in the protection of intellectual property than those with lower levels of corruption. Corruption may undermine enforcement in different ways: illicit production facilities may go undetected if authorities choose to ignore them; distribution channels may be breached if fake goods are allowed to be mixed with genuine articles at various stages of distribution; or complaints may never be acted on if authorities effectively shelve cases.

**Proposition 30.** Macro-level cultural traits have been investigated for their relationship with counterfeiting, but future research needs to investigate the impact of micro-level cultural traits. To enable such research, however, a scale of each personal-level cultural orientation should first be created.

#### Culture and Software Piracy

Previous studies have noted culture as a crucial actor influencing software, music, and movie piracy rates (e.g., Goodwin and Goodwin 1999; Husted 2000; Marron and Steel 2000; Proserpio, Salvemini, and Ghiringhelli 2005; Venkatachalam and Solorzano 2001). Swinyard et al. (1990) argued that Asians were more likely to accept software piracy because of their favorable judgment of counterfeiting activities. Simmons (2004, 140) described the differences between Western and Asian cultural approaches to IPR, saying that while western culture emphasizes individual ownership, Asian culture favors sharing their developments as a whole.

Hofstede's well-known cultural model (Hofstede 1980, 1991, 2001) plays a key role in research on software piracy (see for example Bagchi, Kirs, and Cerveny 2006; Depken and Simmons 2004; Husted, 2000; Ki et al., 2006; Kyper et al. 2004; Moores, 2003; Ronkainen and Guerrero-Cusumano, 2001; Shin, Gopal, Sanders, and Whinston 2004). The results related to cultural factors were inconclusive though the same set of Hofstede's cultural constructs was used. Marron and Steel (2000) showed that coun-

tries with an individualist culture had lower piracy rates than did countries with a collectivist culture. Moores (2008) argued that the rate of decline in software piracy was a cultural phenomenon.

**Proposition 31.** Related to Proposition 30, it would be interesting to examine whether or not the impact of Hofstede's cultural dimensions on counterfeiting can also be found at the individual level.

#### Culture and Attitudes Toward Intellectual Property Laws

The protection of IPR varies across cultures. Societies place different amounts of emphasis on enforcing the rights of foreign agents (Depken and Simmons 2004). Samuelson (1999) suggested that many national IPR laws contain provisions that are embedded in cultural values. Swinyard, Rinne, and Kau (1990) argued that moral judgments may differ according to culture or national origin.

Culture has been found to be a main determinant for counterfeiting behaviors due to different perceptions of IPR (Shultz and Nill 2002). Simple introduction of a legal framework did not guarantee the protection of genuine products, because its effectiveness depended on cultural attitudes toward the anti-counterfeiting strategies. For instance, China's piracy problem was related to cultural attitudes toward counterfeits and lawfulness rather than to the country's legislative enactments and international treaty commitments.

**Proposition 32.** Policy makers need to develop anti-counterfeiting strategies that fit local cultural values while not diminishing legal objectives.

## CONCLUSION

This review suggests several important implications for policy and avenues for future research.

### Policy Implications

Counterfeiting is a complex individual and social phenomenon. Previous research has suggested various factors that directly or indirectly influence the production and purchase of counterfeit goods. There is no single solution to this problem; anti-counterfeiting strategies should be multifaceted.

Policy tools against counterfeiting should include both structural and behavioral

approaches. The behavioral approach can provide information about the negative effects of counterfeiting and attempt to influence consumer's moral attitudes toward it. The structural approach can introduce more stringent legal frameworks, enforcement measures, and punishments for counterfeiting production as well as consumption.

Public information campaigns are useful in preventing the purchase of counterfeits. Consumers do not fully consider the adverse effects and risks involved in the purchase of counterfeit products (Yoo and Lee 2004). More education about the financial, health, and social risks associated with counterfeits may make consumers more reluctant to purchase and use them (Wee et al. 1995).

In addition, public policy should facilitate the development of new technologies to curb counterfeiting, including hidden magnetic or microchip tags, disappearing/reappearing inks, holographic images, and digitized fingerprints of labels (Mason 1985). For example, Microsoft Corp. and other software companies have tried using holographic security labels as an extra layer of protection against counterfeiting (Cottman 1992).

## **Future Research**

Both clear empirical evidence and satisfactory policy solutions to global counterfeiting remain lacking. Many controversial issues still remain unresolved. More valid measurement of the degree of counterfeit activities is necessary, along with more research to identify the relative importance of various determinants of counterfeiting and its effects on individuals and the economy as a whole (Bosworth 2006).

No estimates have been made of the total magnitude of counterfeiting and piracy worldwide. The most widely cited aggregate figure on infringements relies on international trade. However, there is no consensus on the validity of the sources of the estimates and the techniques used to create them.<sup>17</sup> Because of the problems of measurement, adequate scientific data are lacking on the scale and nature of counterfeiting and piracy and the welfare and economic losses that they cause.

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17. Data on counterfeiting and piracy can be developed using various methods and sources. Four types of information are used to estimate the magnitude of counterfeits: (1) enforcement information about discovery of counterfeit goods and legal actions taken against infringing parties, (2) results of surveys and sampling, (3) economic information acquired through inquiries of producers, suppliers, and consumers and econometric analysis and simulations, and (4) anecdotal information such as reports on accidents or health problems and "whistle-blowing" activities. Measurement problems arise because the use of different units of measurement by different countries and official bodies makes comparisons across countries difficult.

Better theories are needed concerning why and how producers manufacture counterfeits and consumers purchase them. Various approaches and models have been used to identify counterfeiting's psychological, institutional, and cultural dimensions. However, tests of competing models with more valid data about counterfeits are essential. For instance, we can test the relative importance of the rational choice and moral choice models or the price choice and non-price choice models. In addition, increase in and diffusion of counterfeits is a global phenomenon and needs global-based theoretical models. Technological advances also play a key role.

More rigorous research methods are needed to identify the effects on counterfeiting of different determinants. Many studies in this area have relied on nonexperimental data and have suffered from causality problems in the equation model. In addition, counterfeiting involves both individual and nonindividual levels that require multilevel analysis. The multilevel model provides a natural and appropriate framework for combining data from different sources at one of the levels assumed in the model. We can specify a multilevel model with the individual at level 1 and the country at level 2. For level 1, we can use various individual-level datasets to show the associations of income, education, age, gender, and other factors with the purchase of counterfeits; for level 2, we can use various country-level datasets with socioeconomic, institutional, and cultural factors. The integration of individual data with aggregate data allows us to investigate a relationship between individual behaviors and national characteristics.

It can be easily thought that consumers buy counterfeit products principally because of the low price. This may indicate that counterfeit products appeal to low-income consumers who cannot afford to purchase genuine brands. However, higher-income consumers also purchase counterfeits (Gentry et al. 2006). An interesting question to explore is why owners of genuine brands purchase counterfeit products and how their motivations differ from those of other purchasers of counterfeits. Understanding these nonprice determinants would help manufacturers to make more effective policy and marketing decisions.

Research has provided implications for educators, marketers, or policy makers for strategies against counterfeit purchasing. However, there has been little research on the effect of these strategies. Thus, further studies are necessary to verify the effectiveness of anti-counterfeiting policies and investigate why they have been effective or not and what further strategies are needed.



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