"To Pirate or Not to Pirate": A Comparative Study of the Ethical Versus Other Influences on the Consumer's Software Acquisition-Mode Decision

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ABSTRACT. Consumers of software often face an acquisition-mode decision, namely whether to purchase or pirate that software. In terms of consumer welfare, consumers who pirate software may stand in opposition to those who purchase it. Marketers also face a decision whether to attempt to thwart that piracy or to ignore, if not encourage it as an aid to their software's diffusion, and policymakers face the decision whether to adopt interventionist policies, which are government-centric, or *laissez faire* policies, which are marketer-centric. Here in order to assess the decision-making of all three of these stakeholders, we focus on the consumer's point-of-view as central and examine it by considering on a comparative basis the ethical dimension versus other dimensions, including economic, legal, and other salient consumer behavior considerations. Based on a survey of 689 software consumers conducted over the Internet, the results indicate that ethics as a factor is embedded in a multidimensional set of determinant factors influencing software piracy, including attitudes, legal aspects, social support, perceptions of economic loss and age. Policy and research implications, based on these findings, are provided.

KEY WORDS: software piracy, acquisition-mode decision, consumer ethics, diffusion, marketing, government policy, consumer welfare

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Consumer pirating of products is a major threat to many businesses' viability. This paper focuses on one such form of consumer piracy, software piracy. This form of piracy involves copying and/or distributing copyrighted software without the permission of the software manufacturer. It is an ethical issue in terms of right and wrong and involves considerations of moral philosophy which prescribe how an individual should behave (Gundlach and Murphy, 1993; Logsdon et al., 1994; Swinyard et al., 1990; Tan, 2002). In this regard, it has been further framed as an ethical concern by Fukukawa (2002) who described it as one of a number of forms of ethically questionable behavior in consumption (EQB). Pirating of products is also a legal

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issue in that it is a form of using illicit goods, goods that are freely chosen or sought out by the consumer in an illegal manner (Albers-Miller, 1999). Thus, piracy in which software is illegally copied is one form of such illegal activity, as well as an ethical issue (Givon et al., 1995; Hinduja, 2003; Simpson et al., 1994; Sims et al., 1996; Wagner and Sanders, 2001).

Software piracy is also a major economic issue for marketers in terms of loss of sales (Givon et al., 1995), as well as for consumers who do not pirate but must pay extra to help cover those losses (Takeyama, 1997). Moreover, it is being facilitated and aggravated by digital piracy which involves downloading from the Internet (www.spa.org/piracy/default.asp, 2002a; Langenderfer and Cook, 2001) and even sales by *commercial pirates* on online auction sites (Copeland, 2000). Such software piracy or softlifting, as it has also been called (Simpson et al., 1994), is very widespread and global in nature (Barton and Malhotra, 1993). Recent estimates of lost sales are $12 billion in 1999 according to a study released by the Business Software Alliance and the Software Publishers Association, a group that is concerned about and is dedicated to eliminating the economic losses due to piracy (www.spa.org/piracy/default.asp, 2002b).

Moreover, the potential harm to profitability is contingent upon appropriate economic and market conditions, for example when costs are borne by purchasing customers (Takeyama, 1997). Thus, to better assess whether or not software piracy is economically harmful or helpful to both marketers and consumer welfare, it is necessary to consider consumer behavior in this regard (Kreie and Cronan, 1999). Consumer behavior is at the heart of marketing exchanges with firms and is a concern for public policy not only when marketers harm consumers but also when consumers act in ways detrimental to those exchanges (Gould, 1995; Gundlach and Murphy, 1993). Thus, with respect to software piracy where consumers act inappropriately, they are the target of government policy and regulation whereas most regulations are usually addressed to businesses. Moreover, software pirates stand in opposition to other legally compliant, purchasing consumers, as well as businesses (Gould, 1995; Takeyama, 1997). In this regard, consumers may be seen to make acquisition-mode decisions, namely whether to purchase or pirate software (cf. Strutton et al., 1994). Such a decision may also be viewed as a type of exchange, i.e., appropriation, that is but one form of consumer acquisition-mode, others taking such forms as make-buy or purchase-lease decisions (Houston and Gassenheimer, 1987; Houston et al., 1992). Analysis of this decision generates a number of broad-ranging perspectives. These include ethical, economic, and legal concerns, as well as some general consumer behavior and diffusion issues. In this respect, we seek in this paper to frame the issue in inclusive terms by considering a number of variables which prior research has shown to be important, while setting the stage for the most relevant variables to emerge in the analysis. As regards the organization of the paper, first various aspects of software piracy are explored in a literature review. Then the paper reports on a study of 689 software consumers and their perceptions and attitudes regarding such piracy. Following these analyses, we further summarize and amplify the results of the study, discuss its limitations and provide ethical, legal and research implications.

Ethical considerations

The pirating of software raises substantial ethical concerns. Choices in consumer behavior in general are influenced by behaviors that are deemed appropriate and therefore are normatively prescribed while others are seen as inappropriate and proscribed (Strutton et al., 1994). In this regard, consumers' beliefs and attitudes concerning an ethical dilemma predict their intentions toward specific actions (Reidenbach et al., 1991). Software piracy as a form of theft is generally considered to be an unethical act although varying understandings and interpretations of what constitutes such an act at times remains unclear (Hinduja, 2003). Moreover, in their study of softlifting, Simpson et al. (1994) found that consumers' unethical perceptions of piracy were not a significant factor in determining the propensity to pirate. Instead, other factors, including gender, religion, motivation for personal gain, and situational factors (e.g., not knowing where to purchase a type of software, ''It takes too long to get it through proper channels'', p. 435) were significant predictors

of software piracy. Thong and Yap (1998) found that teleological and deontological considerations entered into the picture in leading individuals to form ethical judgments concerning softlifting, as well as other information systems crimes. In particular, they found that teleological aspects of ethics, which focus on the consequences of these acts, were more likely to drive behavior than were deontological considerations, which concern what is right. A focus on teleology ties in with other factors involved in gauging the effects of software piracy, especially legal factors where the consequences may involve criminal or civil penalties.

Software piracy has also been said to be an issue that lacks moral intensity (Logsdon et al., 1994). The degree of moral intensity and the magnitude of consequences of acts are thought to be powerful drivers of ethically determined behavior (Jones, 1991). Thus, people often make distinctions between unethical acts that appear to be less harmful and those that do. This means in the case of piracy that it does not attract the same level of ethical seriousness as might the theft of physical property (Logsdon et al., 1994). This fits with the idea of various ethical interpretations of such piracy (Hinduja, 2003). In certain respects, computer technology may also exert a distancing effect in which people feel removed from personal involvement or connection with such matters as piracy (Summers and Markusen, 1992). Moreover, piracy may be seen not only as an individual activity but one of ''collective violence'' in which both organizations and less formally organized groups of people engage in non-ethical behavior in some collusive manner (Summers and Markusen, 1992). Finally, software piracy is a complex issue involving a number of factors in a consumer's decision matrix. Thus, ethics is but one of the important variables involved and must be considered on a comparative basis in relation to the others as will be discussed below.

Other important decision variables

There are several important decision variables or issues other than ethical considerations that also impact software piracy, including economic, legal and consumer behavior considerations.

The economic issue

Economic issues are perhaps the most obvious of considerations in terms of investigating software piracy as an acquisition-mode issue. Whether it be consumers wanting to obtain a free good (Albers-Miller, 1999), developing countries wanting to reduce the perceived barriers to economic growth (Wagman and Scofield, 1999), or on the opposite side, marketers wanting to protect their intellectual property rights and related profits (Givon et al., 1995; Sims et al., 1996), software piracy is one which is pervaded by economic considerations. Of the many elements of economic aspects of piracy, we find it especially relevant to software piracy to consider two: (1) perceptions of manufacturer losses due to softlifting and (2) consumer equity and the sense of being ''ripped-off.'' These represent perceptions of both supply-side and demand-side issues. Here, we consider them from the consumer perspective.

Perceptions of manufacturer loss. As suggested above, the economic issue has been posed in terms of whether the software firms gain or lose more from software piracy. Price is often the main motive driving consumer demand for illicit or free goods, such as pirated software (Albers-Miller, 1999). Such goods are generally seen to affect suppliers negatively since they suffer losses when their goods are pirated (Albers-Miller, 1999). Thus, as one form of illicit goods or theft, software piracy also involves such loss – manufacturers sacrifice profits and law-abiding consumers who purchase software must pay higher prices. Consumers who are more sensitive to or aware of this issue will likely have less favorable attitudes toward theft or softlifting and therefore will be less likely to engage in such actions, themselves. Yet, there is a paradox in consumers' attitudes. Thus for example, stealing an inexpensive candy bar is thought to be far worse by many people than pirating expensive software (Cheng et al., 1997). Similarly, it has been said that most consumers would not shoplift a piece of software from a store but would copy a program from a CD-ROM or disk with much less compunction (Mosquera, 1999).

However, some perhaps counterintuitive thinking suggests that software piracy plays a positive role in increasing the legal penetration and diffusion of software (Conner and Rumelt, 1991; Givon et al.,

1995). Based on their study of software piracy in the United Kingdom, Givon et al. point to the fact that word-of-mouth interactions may serve to influence potential users of a specific piece of software to adopt the product and eventually buy it. Moreover, protecting against piracy may actually hurt a software firm's profitability in that it results in a lower base of users, thus reducing the software's value (Givon et al., 1995; cf. Katz and Shapiro, 1986).

These competing views of the economic dynamics of software piracy suggest that there are possible tradeoffs between its potential positive and negative effects. In this paper, our focus on consumers leads us to consider their perceptions rather than those of software suppliers. This means that we will consider the effects of suppliers' losses only in terms of how consumers perceive them and apply them as a possible mitigating or aggravating factor in their own behavioral choices regarding software piracy.

Consumer equity and feeling "ripped-off". Another element of economic perception is consumer equity that mirrors that of manufacturers' losses. It is also a mixed aspect of consumer behavior involving ethics and legal components as well as economic aspects. Here, while reflecting upon all these components, we will focus on equity in economic terms of being or feeling ripped-off. Equity approaches in ethics and consumer behavior predict that consumers respond to businesses they deal with in terms of perceptions of fair treatment and related expectations of goal congruence, value, and control between marketers and themselves (Gould, 1992; Houston and Gassenheimer, 1987; Houston et al., 1992). An acceleration of this equity effect may be accentuated by the distancing inherent in technology and especially computers and software (Summers and Markusen, 1992) – individual consumers perceive themselves in a David against Goliath relationship with impersonal big business, something akin to consumer or cultural resistance (Ozanne et al., 1998). They feel less guilty stealing from impersonal and invisible others than they do from visible persons (Nettler, 1984). In this regard, Glass and Wood (1996) directly applied an equity theory approach replete with formal equity ratios to a study of 271 undergraduate students in their giving of software to someone else to be copied and found that distributive fairness was a more important issue than were ethical concerns.

In general (whether general perceptions of being ripped-off or more formal equity ratios are considered), those who perceive they are being treated more fairly will be less likely to take negative actions against a company or its products than those who are perceived to be treated less fairly. For example, shoplifters (if we take shoplifting as a proxy for softlifting with perhaps even far more perceived consequences for consumers (Cheng et al., 1997)) have justified their actions in terms of their own underpayment or in terms of companies being able to absorb shoplifting losses (Cox et al., 1990). High prices may also contribute to the perception of being ripped-off (Albers-Miller, 1999).

The legal perspective

Software is a form of intellectual property, an abstract-oriented one at that when compared to other products, and its theft may be viewed as a legal violation of either or both patent and copyright infringement (Barton and Malhotra, 1993; Husted, 2000; Tamai, 1998). It may also take the form of uploading, downloading, and various other violations, both direct and indirect (Christensen, 1997; Kopp and Suter, 1998). Various parties, such as computer dealers, retailers, corporations, counterfeiters, electronic bulletin board operators, and individual consumers, may engage in these types of infringement (Barton and Malhotra, 1993).

However, individual consumers are thought to account for the largest number of cases of software piracy and are said to be the hardest to prosecute because of their frequency (Barton and Malhotra, 1993). Since the focus of this paper is on these individual consumers, we will consider the legal perspective in relation to them. In particular, since penalties exist for such piracy, we will consider such consumers' awareness of them and how that awareness does or does not drive piracy behavior. It has been suggested that criminal sanctions will constrain consumer's choice of illicit goods although there may be countervailing forces, such as the desire to perform deviant behaviors or the pressure to conform with group pressure to acquire and use il-

licit goods (Albers-Miller, 1999). It is especially important to note under these circumstances that legal aspects may often trump ethical considerations since the ''software exchange'' is not relational but rather transactional in the sense of being infrequent and short-term (Gundlach and Murphy, 1993). To that may be added the idea of the transaction being with a machine or some unknown persons so that there is no concept of a relational exchange in which individuals develop some sense of trust, responsibility and commitment (Gundlach and Murphy, 1993). Thus, ethical considerations must be assessed in relation to legal ones.

Salient consumer behavior considerations

There are probably innumerable consumer behavior considerations that enter into the piracy of software, as well as the use of software in general. Here, we consider a few that prior research indicates might be of particular importance. These include: (1) piracy as a form of evaluation and diffusion, (2) the tendency to engage in a particular consumer activity, (3) the ease of engaging in a particular consumer activity, and (4) individual differences.

Piracy as a form of evaluation and diffusion

The trial of products is an important step in their eventual diffusion, i.e., purchase, eventual use, and adoption (Rogers, 1983). Such trial is important in reducing the perceived risk that the product will not work properly and thus result in various financial and other risks. Thus, as with any other product, consumers need to form a basis of evaluation in order to adopt and purchase new software. However, software is hard to evaluate in advance of purchase because it can be viewed as an ''experience good'' or one that can generally only be assessed after purchase (Bloom, 1989), as well as being expensive for many consumers. In this regard, software piracy can be seen as a way to evaluate products and may aid in their diffusion, even if some consumers never purchase them (Givon et al., 1995).

Tendency to engage in a particular consumer activity

Engaging in a behavior relatively frequently makes it likely that an individual will repeat it (Aarts and Dijksterhuis, 2000). Moreover, theories which emphasize behavioral consistency, such as self-perception theory (Bem, 1967), view behavior as something consumers repeat over time. Likewise, reacting favorably toward a behavior is an indication of learning and developing attitudes which are generally thought to be correlated with behavior (Azjen and Fishbein, 1980). For example, the trialability of an innovative product (i.e. the behavior of trying it) and having a positive reaction is thought to increase the likelihood of engaging in the behavior of adopting a product (Rogers, 1983). Here, we expect that self-report of engaging in software piracy implies a positive attitude toward that behavior which will be correlated with continued software piracy and also will be associated with various aspects of such behavior.

Ease of engaging in a particular consumer activity

Accessibility to software is a major aspect of its integration into a consumer's daily use (Holsing and Yen, 1999). Such a situational or opportunistic factor has also been found to influence consumers' likelihood of participating in software piracy (Simpson et al., 1994). Here, we consider ease of engaging in software piracy as one of these factors. One theory for explaining such behavior predicts that consumers will be more likely to engage in an activity that is easy to do as opposed to one that is difficult to do. This theory developed by Ajzen and Fishbein (1985) extends the theory of reasoned action to reflect the ease of engaging in a behavior as predictive of what a person will do. He added perceived behavior control to predict behavioral intentions and behavior and found that it involves the ease or difficulty of engaging in a behavior (Ajzen and Fishbein, 1985).

Chang (1998) found that such perceived behavioral control was predictive of the intention to pirate software. Control is also a major factor in defining the ownership of something and the ownership of software by manufacturers may break down since it may be obscured by the ease of pirating it (Hare, 1999). In other words, control over software may be transferred from manufacturers to pirating consumers in varying degrees. Thus, to the degree that consumers feel they can control their acquisition of

software through means other than purchase, the more likely they will be able to engage in software piracy. This control issue might also be framed in terms of transaction costs with the cost of piracy being seen as more or less when compared to purchase. Clearly, piracy eliminates the cost of the purchase price, but it too may have costs in terms of the problems associated with bootlegged software, such as a lack of repair or consulting support by the marketer or perhaps legal problems and expenses if caught using it. As predicated by transaction cost theory, opportunism which involves taking advantage of reduced transaction costs will result in various acts of lying, stealing and otherwise getting one's way (Williamson, 1985).

From a related perspective, research in the diffusion area suggests that consumers who use a product, especially innovators, are likely to be involved with it, knowledgeable about its use, and innovative in adopting new related products and new uses (Rogers, 1983). Thus, the more familiar consumers are with various types and applications of software, the more likely they are to try new software and possibly pirate it as well, i.e., both are easier for more expert consumers.

Demographics

There are many demographic variables that might influence software piracy, just as they might influence consumer behavior in general. Here, we focus on two as likely to be particularly relevant to software piracy: age and gender.

With respect to age, cognitive moral development theory (CMD), which suggests that moral development involves stages of progressive ethical growth in the individual, hypothesizes that age is positively related to CMD (Kohlberg, 1969). In this regard, it is suggested that older people have been found to exhibit more idealistic ethics (Rawwas and Singhapakdi, 1998) and stronger business ethics attitudes than younger people (Ruegger and King, 1992). With respect to software piracy, Gopal and Sanders (1997) reported that younger people were more likely to engage in software piracy than were older people. In a somewhat contrary finding, Sims et al. (1996) found that older students were more likely to engage in software piracy than were younger students. However, the latter case may reflect the greater degree of experience and opportunity of older students while the other studies reflect the differential ethical attitudes of more mature people in general.

With respect to gender, research indicates gender differences among consumers with respect to technology, i.e., a gender gap that favors men (Anonymous, 1999). Also, females have been found to be stricter in their ethical attitudes in business situations than males (Ruegger and King, 1992), although this is not always true (Fallan, 1999). In the case of software piracy which reflects both technological and criminal aspects, these findings appear to be borne out. Sims et al. (1996) and Gopal and Sanders (1997) found that males were more likely to pirate than females. However, in one possibly contradicting study, Husted (2000) reported that countries that were more masculine in terms of Hofstede's global-wide classification system were not any more likely to engage in software piracy than were countries classified as feminine.

Research question

Our main concern is to incorporate measures of the various issues discussed in the previous sections and examine how such issues determine software piracy. In this regard, a number of survey items were created which represented these issues. Our main research question concerns assessing consumers' perceptions regarding software piracy and their attitudes toward it in terms of perceptions of one's own piracy behavior. This inquiry will be reflected in perceived ethics (the hypothesized relationship is that those who consider piracy unethical will be less likely to engage in it), perceived legality (the hypothesized relationship is that those who consider piracy illegal will be less likely to engage in it), economic losses from piracy (the hypothesized relationship is that those who consider piracy as a loss to firms will be less likely to engage in it), awareness of criminal penalties (the hypothesized relationship is that those who are more aware of criminal penalties will be less likely to engage in it), and the impact of one's social environment (the hypothesized relationship is that those who consider that they are in a supportive social environment for piracy will be more likely to engage in it). Demographics will also be considered.

Methodology

Procedure and sample

The data were collected through a survey posted on the World Wide Web (WWW) that could be accessed by all standard web browsers (Netscape, Internet Explorer, etc.). A 1000-line Perl/CGI computer program was written to create the web-based survey. This program was designed to automatically create a data file in a format that could be directly read by the SPSS/SAS program. In addition, to help prevent respondents from either accidentally or willfully submitting their survey more than once, the program was written to delay the recording of responses submitted in quick succession, thus dissuading duplicate submissions (cf. Meuter et al., 2000). In addition, after data collection was completed, a second program was written to scan through the data file to identify and remove any remaining duplicate entries.

Requests for completing the survey were sent to USENET newsgroups on the Internet, during an 8 month period. USENET is a world-wide distributed discussion system, containing vast collections of related messages on numerous topics, called newsgroups. Newsgroups are organized by a subject hierarchy. Interested members can post messages to others with similar interests within a relevant newsgroup. These messages are then broadcast to other interested members, by their request, via the Internet. This approach of targeting USENET news groups is consistent with prior Internet surveys in which reaching out and contacting respondents is a major task (Taylor, 1999/2000). Targeted newsgroups included those that cater to individuals deeply involved in computing (programmers, system analysts, computer enthusiasts, etc.); and those groups that serve a more general audience (engineers, educators, students, etc.). In this respect and as has been done often in the past (Couper, 2000), the sample is limited to those having access to the Web, but has the properties of a judgment sample in which consumers who are likely to be heavy users of computer software were identified. Such a survey approach utilizing the Internet is also thought to have some advantages for reaching groups of people who are involved in sensitive areas like software piracy (Coomber, 1997). Indeed, it has been reported that information systems professionals who might be a part of this sample were *less ethical* with respect to software piracy (Oz, 2001). Thus, there is also a trade-off involved in using this method. On the one hand, it allows the researchers to reach out on a broad basis to any software pirates there might be in forums they might frequent. On the other hand, there is no list of such people from which to construct a random sample and therefore, the sampling procedure is necessarily judgmental (cf. Coomber, 1997; Couper, 2000).

Web surveys are also thought to have other advantages over other survey methods, such as mail or faxes methods in terms of rapid response, automatic coding of data, and cost (Cobanoglu et al., 2001). However, according to Miller (2001) and as with all survey methods, caution should be observed in terms of various measurement issues although we suspect the consumers responding to the survey here were sophisticated enough to deal with any problems posed by the web itself (e.g., reactions to using keystrokes as opposed to writing, respondent self-presentation may differ on the web from other interview methods although there is also thought to be less interviewer bias to interfere with or influence consumer response).

At the end of the submission period a total of 1092 responses were recorded, including international responses which were excluded from the study so we could focus on a relatively homogenous sample. Of the remaining responses, 14 were identified by the above-mentioned software program to be duplicates and were deleted. An additional 57 were found to be incomplete and were also removed. After eliminating these, there were a total of 689 usable responses from those reporting they were from the U.S. available for analysis. This is a reasonably good rate in terms of completing the survey and is consistent with the findings of Basi (1999) that respondents to online surveys tend to complete them.

The vast majority of respondents were male, 90%. In terms of age, 48.4% were 25 or younger and in terms of education most were college educated, 80.2%. With respect to occupation, fully 40.8% were employed in the computer industry. Income distribution was fairly broad-based with only 30.1% of respondents having an income above $55,000. With respect to piracy, itself, the average number of software packages pirated was 3 and the mean value of the software pirated was $175.00. These findings

indicate that many in the sample have experience with software piracy and thus that there is a degree of ecological validity in the conclusions we reach based on this data.

The following was the message posted in the USENET newsgroups for completing the surveys.

> To all computer users:
> We are conducting a study to investigate people's attitudes towards software piracy. In order to accomplish this research project, we have designed a web-based survey. We would appreciate your assistance and cooperation in completing this survey. It should not take more than ten minutes to complete this survey. The survey can be accessed by any web browser at the following location:

(Note: the location is disguised to protect the anonymity of the response process).

Survey contents and measures

The development of the scale items used in this study reflects various piracy-related issues we found in both the academic and popular press. Some scale items are also adapted from the shoplifting literature (Cox et al., 1990; Ray, 1987; Strutton et al., 1994) to fit the issue of software piracy because both it and shoplifting are related in being both ethically and legally questionable consumer behaviors involving some element of theft (cf. Cheng et al., 1997; Fukukawa, 2002). However, it should be noted that these items are thematically adapted from this literature rather than in word for word fashion to reflect situational differences in the two. For example, items reflecting resentment toward or lack of concern for stores in the shoplifting case, were adapted to reflect the software situation. Thus to illustrate, the item ''Because if the store had more reasonable prices s/he would not have to take such actions'' found in the work of Strutton et al. was adapted to the piracy situation as follows: ''Many software companies rip me off, so it is all right for me to pirate their software.''). The survey was pretested among 10 students who were computer users for purposes of clarity and understanding. Based on their feedback, the wording of some questions was changed to make the questions more clear.

The survey contained a variety of measures to assess consumer attitudes and behaviors including: (1) an introductory section in which software piracy was defined, (2) attitude measures regarding piracy, (3) self-reported software piracy behavior and software use, and (4) classification-demographic questions. These items accurately reflected the domains we were interested in and along with the pretest were taken as an indicator of content validity.

Introduction. In the introduction to the survey, we included a definition of software piracy so that all survey participants would start with a similar idea of what the term meant. This definition read as follows:

> *Software piracy is* defined as the act of making or distributing copies of copyrighted software without authorization from the software manufacturer. The only exception is the user's right to make a single backup copy for archival purposes.

Perceptions and attitudes concerning software piracy. Given our theoretical considerations and through pretesting, we developed a number of items designed to assess consumer's perceptions and attitudes concerning software piracy, which reflected the economic (e.g. ''Software piracy contributes to an increase in prices of software products.''), legal (''I am aware of the criminal and other legal penalties for piracy.''), ethical (e.g., ''I consider piracy of computer software as unethical.''), and consumer (e.g. ''Many software companies rip me off, so it is all right for me to pirate their software.'') issues discussed above. These were measured on a five-point Likert scale (1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Indifferent, 4 = Somewhat Agree, and 5 = Strongly Agree) – see Table I. The item loadings in the resulting principal component analysis tended to reflect our original ethical, legal, economic and consumer theoretical concerns though the first component captured much of the ethical and legal aspects in one component we label, ATTITUDE. Many of the questions assess attitudes about the individual, but some also reflect the idea of collective violence or social support for unethical activity suggested by Summers and Markusen (1992, e.g. ''My supervisor doesn't mind if I use pirated software.''; ''Most computer users pirate software.''). These items were subjected to an

exploratory factor analysis and subsequent reliability analysis (Churchill, 1979) with items loading less than 0.5 being excluded from factors and factors being excluded with exploratory reliabilities as measured by Cronbach's α of lower than 0.5.

Self-reported software use and pirating behavior. A number of questions assessed self-reported software use and piracy behavior and were used to operationalize "pirating" in the analyses. These included the assessment of the number of software packages purchased in the last year, whether one pirated any software in the last year, the number of software packages pirated in the last year (ranging from none to over 15), percentage of pirated software used frequently, percentage of pirated software one would have purchased if it were not possible to pirate it, money spent purchasing software in the last year, and the value of pirated software acquired in the last year.

Classification questions. These items assessed demographics in terms of gender, age, occupation, education, country of residence, state of residence if from the U.S. ethnic origin, and household income.

Results

Extent and nature of piracy

A first question to consider is how much pirating is done and then what is actually pirated. A little less than half of the respondents indicated that they engaged in piracy, 42.5%. Of these, 36.7% reported pirating word processing software (15.2% of the total sample), 19.2% reported pirating spreadsheets (7.9% of the total sample), 57.3% reported pirating graphics software (23.8% of the total sample), 37.4% reported pirating operating systems (15.5% of the total sample), 34.6% reported pirating programming language software (14.3% of the total sample), 71.3% reported pirating utilities (29.6% of the total sample), 68.2% reported pirating games (28.3% of the total sample), and 31.5% reported pirating other software (13% of the total sample).

Principal components analysis

A principal components analysis was run on the attitudes toward software piracy and self-beliefs (see Table I). The item loadings in the resulting principal component analysis tended to reflect our original ethical, legal, economic and consumer theoretical concerns though the first component captured much of the ethical and legal aspects in one component we label, ATTITUDE. In this regard as noted above, we achieved a high degree of content validity in representing the domains in question although one aspect to note is that consumers seem to conflate or combine ethical and legal aspects of attitude toward piracy (ATTITUDE). The analysis resulted in nine components for which index scores were created: (1) ATTITUDE: legal–ethical attitudes toward piracy, Cronbach's α (reliability) =0.96, (2) ECONOMIC LOSS: perceived losses to firms, $\alpha = 0.78$, (3) COMPUTER EXPERTISE, $\alpha = 0.44$, (4) AFFORDABILITY, $\alpha = 0.54$, (5) SOCIAL: people and circumstances surrounding the consumer support software piracy, $\alpha = 0.55$, (6) UNETHICAL TO SELL: manufacturers and consumers incur loss, $\alpha = 0.48$, (7) CONSIDER PENALTIES MINOR, $\alpha = 0.46$, and (8) AWARE: aware of the penalties for piracy, no α since this is only a single item. Based on the requirement for exploratory reliabilities to be at least 0.5 or above, only the following factors were each summed as an index and included in further analysis: ATTITUDE, ECONOMIC LOSS, AFFORDABILITY, and SOCIAL FACTORS. Principal components analysis using only items that have loadings of 0.5 or higher is said to reflect convergent validity in that the measures loading on any one component more highly correlate with those loading on the same component than other variables in the analysis and discriminant validity in that they correlate less with variables loading on components other than their own (Peters, 2002). Thus, through the application of principal components analysis, we demonstrate convergent and discriminant validity for the scales developed in this study. The reliabilities as a measure of internal consistency are a further indicator of convergent validity, i.e., that aspect of construct validity in which each item reflects the same construct. AWARE was also included on an exploratory basis (Table II).

Discriminant analysis

Discriminant analysis was run in order to test for the predictors of piracy as determined by the central

TABLE I
Principal components loadings of the attitudinal measures

Variables	Fact1	Fact2	Fact3	Fact4	Fact5	Fact6	Fact7	Fact8
1. I consider piracy of computer software as unethical.	0.84	0.12	0.04	−0.10	−0.16	0.03	0.08	0.03
2. I consider software piracy to be the same as stealing.	0.82	0.23	−0.04	−0.04	−0.07	0.01	−0.05	−0.06
3. I consider software piracy to be acceptable behavior.	−0.80	−0.14	0.15	0.19	0.14	−0.03	−0.00	0.06
4. It is unethical to share software with others.	0.79	0.12	0.01	0.03	−0.03	−0.04	−0.02	−0.09
5. People who pirate software should feel guilty.	0.79	0.14	−0.02	−0.05	−0.11	0.14	0.05	0.05
6. I consider software piracy to be a crime.	0.78	0.24	−0.03	−0.09	0.03	0.16	−0.04	0.02
7. People who pirate software should be punished.	0.76	.24	−0.06	−0.09	−0.12	0.13	0.07	0.04
8. It is fair to prosecute software pirates.	0.74	0.17	0.00	−0.14	0.10	0.21	0.10	0.05
9. I share my software with others.	−0.69	0.00	0.16	0.21	0.21	−0.03	0.03	0.13
10. Pirating just a small software package is not so bad.	−0.67	−0.02	0.01	0.15	.21	−0.15	−0.03	0.09
11. If you don't have enough money for software you really need, it is ok to pirate it.	−0.67	0.06	0.13	0.36	0.19	−0.03	0.06	0.15
12. Many software companies rip me off, so it is all right for me to pirate their software.	−0.53	−0.06	0.03	0.49	0.06	−0.18	−0.08	−0.07
13. It is not worth the risk of getting caught to pirate.	0.48	−0.05	−0.27	−0.01	−0.18	−0.18	−0.27	0.17
14. If I like a certain software package that I have pirated, I recommend it to my friends.	−0.38	−0.06	.35	.23	.22	0.17	0.10	0.17
15. Software piracy contributes to an increase in prices of software products.	0.37	0.70	0.01	0.02	−0.01	0.01	−0.04	−0.01
16. Software manufacturers incur a loss due to piracy.	0.35	0.69	−0.08	−0.24	0.04	0.19	0.02	0.10
17. Software manufacturers are benefited by piracy.	−0.32	−0.68	0.12	0.02	0.12	−0.04	−0.01	0.12

18. I like the idea of having a large software collection.	−0.19	0.36	0.22	0.26	0.27	−0.18	0.11	0.12
19. I consider myself to be an experienced computer user.	−0.01	0.03	0.70	0.00	−0.25	−0.08	0.10	−0.23
20. After I become experienced with a software package, I am able to provide some technical support for others who use this package.	−0.05	−0.06	0.68	−0.04	0.14	0.13	−0.06	−0.11
21. Most computer users pirate software.	−0.11	−0.10	0.57	0.13	0.30	−0.04	0.05	0.28
22. Software companies could charge lower prices and still be profitable.	−0.29	−0.08	0.03	0.68	0.08	−0.12	−0.03	−0.08
23. Software is too expensive to purchase.	−0.32	0.04	0.14	0.62	0.03	−0.12	−0.00	0.18
24. My religious beliefs are strong.	0.11	−0.08	−0.26	0.56	0.05	0.32	0.21	−0.08
25. My supervisor doesn't mind if I use pirated software.	−0.25	0.01	−0.16	0.05	0.69	−0.09	0.07	−0.01
26. My friends don't mind if I use pirated software.	−0.22	−0.09	0.18	0.18	.68	−0.07	−0.07	0.06
27. It is easy to pirate software without getting caught.	−0.04	0.04	0.39	−0.09	0.58	0.05	0.19	−0.24
28. Software manufacturers incur a loss due to individuals selling pirated software.	0.08	0.13	0.00	−0.06	−0.07	0.77	−0.08	−0.03
29. It is unethical to sell pirated software.	0.22	−0.02	0.09	−0.06	−0.05	0.72	−0.09	−0.03
30. If people get caught pirating, it will not affect their future very much.	0.04	−0.16	00.08	−0.02	0.13	−0.14	0.81	−0.04
31. I think the criminal and other legal penalties for piracy are minor.	0.12	0.16	0.00	0.08	−0.03	−0.05	0.79	0.12
32. I am aware of the criminal and other legal penalties for piracy.	0.07	0.01	0.15	0.01	0.05	0.05	−0.07	−0.84

Factor labels: Component 1 = Attitude; Component 2 = economic loss; Component 3 = computer expertise; Component 4 = affordability; Component 5 = social; Component 6 = unethical to sell; Component 7 = consider penalties minor; Component 8 = aware.

TABLE II
Descriptive statistics of major variables

Variables	Mean	Standard deviation
Dependent variables		
NUMBER	3	4.618
FREQUSE	25.20	29.61
SUBSTITUTE	20.69	27.83
VALUE	$175	$288
Independent variables		
ATTITUDE	3.58 (on a scale of 1–5)	1.17
ECONOMIC LOSS	3.60 (on a scale of 1–5)	1.14
UNETHICAL TO SELL	4.505(on a scale of 1–5)	0.75
AFFORDABILITY	3.69 (on a scale of 1–5)	0.954
SOCIAL	2.96 (on a scale of 1–5)	1.07
AWARE	4.37	0.95
PURVALUE	$371	$285
PURNUM	6	4.6
GENDER	89.9% Male; 10.1% female	N.A.
AGE	33 (Range 20–50 years)	10.17
INCOME	$68,917	46,359
EDUCATION	15 years. (Under graduate degree)	3
YEARS	7.34	1.38

question (the dependent variable), "Have you *pirated* a software package during the last *one year* period?" The response could be either yes or no (coded as 1 and 0, respectively). The independent variables included are the six attitude and perception factors, PURVALUE (value of software purchased in the last year), PURNUM (number of software packages purchased), GENDER, AGE, INCOME (household), and EDUCATION and YEARS (the consumer's years of experience with computers).

The results, based on the use of initial and holdout samples, indicated quite robust predictive power for the independent variables included in the analysis (see Table III). Correct classification for the initial sample was 83.66% and for the holdout sample it was 85.76%. Based on the standardized canonical discriminant function coefficients and significance levels (all were significant $p = 0.0000$), ATTITUDE had the highest standardized canonical discrimination function coefficient (−0.82), followed by AGE (−0.33), PURVALUE (0.32), and SOCIAL (0.26). These findings suggest that attitudes toward piracy (finding it illegal and unethical has a negative effect on pirating), age (younger people are more likely to pirate than older people), money spent on purchase of software (those spending more money on software also report pirating more), and social support factors (those in an environment of support for piracy are more likely to pirate) all play a role in determining piracy behavior.

Canonical correlation and univariate regression analysis

To consider the other dependent variables which were more continuous than the bivariate pirating in the last year item, canonical correlation analysis was run for the following dependent variables: number of software packages pirated (NUMBER), the percentage of pirated software used frequently (FREQUSE), the percentage of software that would have been purchased had it been impossible to pirate it (SUBSTITUTE) and the value of software pirated (VALUE). The independent variables included the same variables used for the discriminant analysis runs: the attitude factors, number of software packages purchased in the last year (PURNUM), amount of money spent on purchasing software in the prior year (PURVALUE), GENDER, AGE, INCOME, EDUCATION, and YEARS.

TABLE III
Discriminant analysis between those who pirate and those who don't

Variable	Standardized canonical discriminant function coefficients
A. Standardized canonical discriminant coefficients for the significant variables	
ATTITUDE	−0.82
SOCIAL	0.26
PURVALUE	0.32
AGE	−0.34

B. Classification results for the initial sample

	Group	Predicted group membership		
		Cases	Group	
			1	2
Yes	1	152	124	28
			81.4%	18.6%
No	2	164	30	134
			18.3%	81.7%
	Ungrouped cases	1	0	1
			0%	100%
C. Classification results for the holdout sample				
Yes	1	120	97	23
			81.4%	18.6%
No	2	189	31	158
			11.4%	88.6%
	Ungrouped cases	2	2	0
			100%	0%

Panel B: Percent of grouped cases correctly classified: 81.65%.
Panel C: Percent of grouped cases correctly classified: 82.52%.

The overall multivariate statistics for the canonical correlation analysis were significant ($p = 0.000$). Given this overall result, we assessed the significance for levels for each of the univariate regression analyses for each of the dependent variables. All were significant ($p = 0.000$) as were the individual adjusted R^2 reported below ($p = 0.000$).

NUMBER. NUMBER represents the number of software packages pirated during the last year. The adjusted $R^2 = 0.32$. The regression of it on the independent variables yielded the following significant variables: ATTITUDE ($t = -5.79$, $p = 0.000$), SOCIAL ($t = 2.09$, $p = 0.038$) and AGE ($t = -2.06$). ATTITUDE dominated this analysis with a β weight of −0.41 while SOCIAL was 0.12 and AGE was −0.11 while all others were below 0.10. Consumers with a positive attitude toward software piracy (the inverse of finding it illegal and unethical which has a negative effect on pirating), those with social support for piracy (e.g., friends and supervisors) and younger pirated more software in quantity than others.

FREQUSE. FREQUSE is the percentage of pirated software used frequently. The adjusted $R^2 = 0.18$. ATTITUDE ($t = -3.96$, $p = 0.000$) and AGE ($t = -2.63$, $p = 0.009$) were significant. Consumers who have an especially positive attitude toward software piracy (the inverse of finding it illegal and unethical which has a negative effect on pirating) and those younger in age are likely to use pirated software more frequently than others.

SUBSTITUTE. SUBSTITUTE is the approximate percentage of pirated software the consumer would have purchased if pirated software had not been available. Its adjusted R^2 was 0.06 with significance for ECONOMIC LOSS ($t = 2.46$, $p = 0.014$) and AGE ($t = -2.17$, $p = 0.031$). In this case, consumers who were aware of or more sensitive to piracy losses and those who were younger would have purchased a higher percentage of software if pirated software had not been available.

VALUE. VALUE concerns the estimated value of pirated software a person has acquired in the last year. For its regression, the adjusted R^2 was 0.26 with ATTITUDE ($t = -4.71$, $p = 0.000$), PURVALUE ($t = 2.76$, $p = 0.006$), AGE ($t = -3.47$, $p = 0.001$) and INCOME ($t = 2.04$, $p = 0.042$) being significant. Consumers who had negative attitudes toward software piracy reported less software acquired through piracy as did older consumers. Interestingly, the value of software pirated was positively related both to the amount pirated and income, indicating that active software users may tend to obtain software by whatever means they can.

Discussion

Summary and limitations

This paper has considered the acquisition-mode issue of software piracy (or softlifting) from a number of perspectives and found that a number of explanatory concepts suggested in the research question section were important: economic (ECONOMIC LOSS, PURVALUE), legal–ethical (ATTITUDE), and consumer related (SOCIAL, AGE). These findings largely confirmed our original conceptualizations though some of the variables were combined in the principal components analysis, reflecting consumer perceptions. For example, legal and ethical factors were combined in ATTITUDE and the item "easy to pirate..." loaded with other social factors, seemingly reflecting a social network factor as well because of social aspect of getting caught also reflected in it. To the degree that the components that emerged from the principal components analysis are predictive (i.e., ECONOMIC LOSS, ATTITUDE and SOCIAL), the results demonstrate not only the trait validity aspects of nomological or overall validity in terms of convergence and discrimination but also the predictive validity aspect of nomological validity in terms of confirming the effects of these constructs hypothesized in our research question (Peter, 1981).

However, our findings also indicate that the issue of piracy is a complex one with varying motives and needs being expressed. Software is a risky product in terms of functional performance, knowledge of what it does or does not do, and monetary loss. In many respects, software acts as an experience good one which cannot be given a trial very well in advance of purchase (Bloom, 1989), especially in terms of the longitudinal aspect of software in which it must be learned and adapted to over time. For instance, while software in some respects is predictable in its use, it can also be very unpredictable in terms of how it may work in particular situations that my occur, such as the tractability of software in particular applications or situations, crashes and downtime. In this situation, software piracy may be seen as a form of transformation in which the software itself becomes a search good through trial before purchase and the consumer thus gains a better idea of what is involved. Thus, while software piracy appears to create a "free good", it also may be seen to reduce the possibility of getting a "negative cost good". When framed this way, and as our data suggest, software piracy is often a defensive and opportunistic consumer strategy applied in order to lessen perceived risk and prevent losses.

When ethics is considered in relation to other variables, several major conclusions stand out. First, as indicated by ATTITUDE, ethics is clearly an important variable in consumers' orientations to software piracy. Consumers who are less concerned with ethics are more likely to pirate than others. A second finding is that ethics and legal aspects may be conflated or combined by consumers as indicated in the ATTITUDE variable. This finding does possess a certain logic in that laws are viewed as properly deriving from ethics, although this relationship is often problematic. Therefore, while there is much softlifting activity beyond personal use, consumers generally distinguish the purposes behind softlifting on an ethical basis. Another important finding concerns social support for piracy (SOCIAL). In this regard, softlifting is not a mere individual action, but takes place in a technologically oriented community

ecosystem in which piracy for many is a tolerated, if not an ethically or socially prescribed, consumer and business tool. This also may help to explain why item 27, ''It is easy to pirate software without getting caught'' loaded on this factor, namely that a social environment where there others support piracy or at least ignore instances of it would be more likely to encourage piracy. Such a finding is consistent with research that reference or peer group norms, as well as individual influences, may have a strong influence on ethical decision-making and behavior (e.g. Trevino and Youngblood, 1990). It should be further noted that results seem to support the idea that social and legal factors may be separate (Bommer et al., 1987), contrary to other results which report them loading together (Eining and Christensen, 1991; Simpson et al., 1994). These results may be due to the fact that the legal factor has both ethical and social aspects but that the ethical aspect, which we assessed more directly here than the other studies appeared to, has a stronger connectivity with the legal factor in consumers' minds. Nonetheless, further research should explore this issue. In any case, consumers' direct perceptions of ethics should definitely be included in future piracy-softlifting studies. Altogether, these results regarding all the explanatory variables lead to synergistic implications that are quite a bit different than if software piracy is only framed in one or the other of economic (loss to the firm and free good to the consumer), legal, social or ethical terms.

These findings are subject to some limitations. One major limitation is that the sample could not be randomly drawn and instead has properties of judgment samples in which known groups of people are purposely sampled. In this study, this means that the known group to the extent it could be defined consisted of USENET or Internet savvy consumers and would exclude non-USENET or Internet savvy consumers. Obviously, the savvy USENET/Internet user could differ from other computer users and perhaps would have more ability or opportunity to pirate. Therefore, while this group would certainly be a prime target for studies of software piracy, such as ours, other consumers could also engage in softlifting. A related limitation is that some demographic groups of people may have been over-sampled and others under-sampled or underrepresented. Males, especially younger ones, for instance, may have been over-represented in the sample though it is also likely that they will engage in software piracy more often than others. Still, the results as reflected in the finding that younger rather than older software users were more inclined to report engaging in software piracy, are consistent with and do provide further support for the basic idea of cognitive moral development (CMD), namely that age is positively related to moral development. Nor did we address the specific costs of any particular type or brand of software. Perhaps more expensive software or certain brands or types are more likely to be softlifted. Future research might disaggregate software and softlifting in this regard. We also did not address hacking inclinations or skill and such factors might looked at in future research for their influence on pirating. Also while perceived ease of pirating was considered in this paper, the fact that it loaded on SOCIAL may be a limitation which suggests that further clarification of its effect should be considered in future studies. Another limitation is that there may be some social desirability in the responses. While this may be true for some of them, the fact that nearly half of the sample (42.5%) did report pirating software would indicate that there is a degree of integrity in the data. It is still possible that there is an under-reporting of software piracy in this study though this potential social desirability is something that would plague any survey or study of this type and other controversial topics.

Ethical and legal implications

In this section, we will discuss a number of possible solutions to the software piracy, acquisition-mode problem that draw both upon our data, as well as upon consideration of the current business, economic and technological ecosystem in general (Benkler, 2001). Thus while we propose various types of solutions, all should be seen as largely or wholly integrated with the idea of informing consumers about the pitfalls of piracy and channeling their behavior into appropriate outcomes. It should be added that these approaches are based on the idea that software marketers want to control or stop piracy, which is probably the dominant idea among them. However, to the degree that they feel that piracy is a marketing tool as suggested by Givon et al. (1995), these solutions might be ignored or

inversely applied (e.g., new legal solutions would not be sought, ethical appeals would not be emphasized, and marketing solutions might draw upon utilizing software pirates as beneficial opinion leaders). Thus, perhaps the central strategic focus for both software marketers and policymakers should be on understanding and managing what consumers learn in terms of their software consumption experience, including acquiring, using and pirating it (cf. Hoch and Deighton, 1989).

However, for policymakers, the issue of software piracy when framed in this way is paradoxical. Government cannot condone any criminal act, such as software piracy, even were the act found to have some beneficial effects as in facilitating the diffusion of new software, thus perhaps even resulting in greater and/or faster economic growth. Thus, policymakers should, in a similar manner to marketers, attempt to find approaches which somehow manage the adoption of new software by aiding in its diffusion while still preventing or fighting piracy. Even so, the role of government remains to be further defined and developed. Should government leave the solution to marketers or should it intervene? Should it encourage open solutions (e.g., open source code) or should it allow marketers to put restrictions on software design and use, possibly in effect slowing down the development of the digital ecosystem? Some solutions will tend to be more government-centric while others will tend to be more marketer-centric. But there is also contention about who is or should be responsible; many stakeholders have multiple interests, often at odds with one another.

In any case, many consumers in this study indicated that they had positive attitudes toward piracy, which in turn were related to reported piracy behavior. These attitudes might be difficult to counter, especially as technology evolves and digital access increases (cf. Langenderfer and Cook, 2001). Still, various multi-faceted remedial approaches might be tried, some of which involve legal and ethical applications mixed with marketing and some of which are mainly marketing-driven in scope. For legal–ethical aspects, marketing can be applied in terms of creating promotional communications which address these issues as themes. Likewise, marketing solutions in terms of product design and modification as discussed above can serve as a form of loss prevention. For example, as a counter-piracy measure, Microsoft has introduced a product activation system into its Windows XP product that involves contacting the company for a unique identifier.

Companies that feel the sting of the losses from software piracy might consider an alternative policy perspective that is based in and is part of their marketing strategies, educational programs (especially for the young who are more likely to pirate), and advertising campaigns. In this respect, placing emphasis on product diffusion and trial could be paramount. Such measures as beta testing of free versions of new software or providing trial, abridged or abbreviated versions of fully market-ready software (e.g., trial with built-in time expirations, trial of smaller free versions) may prove useful (Takeyama, 1997). Similarly, consumer trial in stores, educational settings, and even cybercafes might also facilitate evaluation. In using β test software, marketers must study the relationship between its use and early adoption of the fully tested software. What are the elements of a successful jump from the former to the latter and what does the consumer look for in software?

Ethics is a major but amorphous issue when it comes to regulation and government, as well as business, especially when it comes to consumers' ethics. Both government and business might want to influence or draw on ethics but usually must resort to other tools such as legal or technological constraints. Nonetheless, ethics serve as the foundation of policy and need to be considered. Indeed, the consumers in this study also provided evidence that some of them had ethical concerns about piracy and thus were less likely to either use or sell pirated software. This finding would suggest that using ethical appeals which emphasized the moral implications of engaging in this act of thievery might be used. Both government and marketers may draw on ethical appeals in reaching out to consumers through advertising and public service announcements. However, in relation to many consumers, ethical appeals may not work very well since many consumers either do not see software piracy as especially a matter of ethics or even if they do, they are likely to disregard the ethical aspects. For some, ethics are an issue and this segment of consumers needs to be followed closely for its impact on other segments. For example, they may act as opinion leaders or role models for those otherwise inclined to engage in software piracy. Institutions of all types might also

serve as role models by stating and enforcing policies that discourage softlifting. Perhaps putting greater emphasis on educating consumers, especially younger ones, (and businesses) about the legal remedies that already exist for software piracy via advertising and publicity may be sufficient (Fruitman, 2001), especially as a majority of our respondents are not aware of the penalties for pirating software.

However, ethics with regard to software piracy remain problematic for other consumers. They may see software piracy as having less negative consequences than shoplifting and are also unlikely to be moved by the economic losses claimed by software companies which they perceive to be very wealthy, if not too wealthy. In addition, as indicated by the factor analysis conducted in this study, consumers tended to conflate the ethics and legality of software piracy, at least as concerns their own attitudes. While more research is needed on the relationship of these two aspects, the present results suggest that for many, they are perceived as perhaps part of a larger sociocultural values component that cannot be ignored.

Research implications

The ethics of software piracy should be further investigated in terms of their relationship to other factors involved in such behavior. In particular and as suggested by the results of this study, the relationship of ethical norms and legal restraints should be further investigated and untangled. In addition, the implied hierarchy of ethics (e.g. using pirated software for one's own use versus selling it to others) should be studied in greater detail. Another issue for future research involves the ethical aspects embedded in social factors, social support processes, and the implied social contract and norms (Dunfee et al., 1999). Software piracy takes place in various communities of users and the ethical–social norms of these communities reflect or give credence to the act. The results of our study and others shed light on these norms; however, future researchers might build on these past results to consider what the social contract is and how it might be modified, if necessary, to provide a better climate of trust and relationship in the software marketplace. Extensive research on community evolution and norm formation would strongly benefit this domain of research as well as others.

The results of this study might also be compared to and tested in relation to other approaches to the study of software piracy and/or other illegal consumer behavior. For example, Thong and Yap (1998) applied the ethical framework of Hunt and Vitell (1986) to the issue of softlifting and it is possible that applying such a framework in conjunction with the perspective taken in this study might illuminate the results of both approaches. In this regard, the consideration of the ethical categories of teleology and deontology from Thong and Yap's study might be useful in revealing how ethical considerations enter into the overall thinking of consumers. Since they found that the teleological perspective in terms of the consequences of one's behavior was especially important, it seems that future research might tie this finding into understanding of the legal and economic consequences, as we have done here, as well as the potentially mitigating emotional or other psychological aspects involved which we did not consider (cf. Babin and Babin, 1996; Kuo, 2001). For example, self-efficacy in resisting the temptation to pirate might be a fruitful avenue of research to explore. In this vein, researchers should investigate how consumers make decisions by considering the possible legal consequences, the potential for getting caught and the ease of engaging in piracy and other illegal behaviors. Another approach concerns the Theory of Planned Behavior which in a study by Chang (1998) was found to be a useful conceptualization in predicting the act of software piracy. Chang concluded that reducing the opportunity to pirate by authorities was most important in thwarting such activity. However, by tying together this and other frameworks, researchers might develop more fine-grained understandings. Finally, software piracy might also be studied both in relation to other forms of piracy (e.g. consumer music piracy, pharmaceutical counterfeiting by manufacturers) and in relation to other unethical or illegal consumer practices, such as shoplifting, fraud, and the like for similarities and differences.

Conclusion

Software piracy as an acquisition-mode issue is not only a major concern for marketers (marketer-centric), but also is a complex policy issue (government-centric)

in which the benefits of punitive policies must be weighed against the effects of more liberalized ones. Such policies should be evaluated in terms of consumer ethics, attitudes and behavior, supply conditions, and the strategies employed to insure optimal profits. Ultimately, controls should be applied which provide for maximal purchase of software while affording consumers the appropriate amount of product trial, reduction of risk, and comfort with the product. No doubt, in terms of consumer welfare there will always be some free good effects as consumers act in what they perceive to be their own economic self-interests, and the interests of some consumers (e.g. those who for whatever reason feel the need to pirate software) will continue to tend to be in opposition to those of others (e.g., those who purchase software). However, marketers can deal with such piracy by minimizing the free good effect while creating an environment and incentives that motivate the consumer market as a whole to engage in ethical behavior involving purchasing the product. Finally, government can be a partner, whether it is more interventionist in terms of imposing criminal penalties and promoting ethical behavior or more *laissez faire* in monitoring and allowing the marketplace to develop its own marketing and technological solutions.

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