



Consumers' attitudes toward regulation of internet auction sites

Internet auction
sites

A third-person effect perspective

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Abstract

Purpose – The purposes of this study are to examine internet users' perception of potential harm among a list of products available on internet auction sites, to discuss the influence of the third-person effect on internet users' pro-regulatory attitudes, and to investigate the effects of users' characteristics and perceived harm on their attitudes toward regulation of online auction industry.

Design/methodology/approach – An online questionnaire survey was designed and employed to collect information about internet users' third-person effect perception, pro-regulatory attitudes toward internet auction sites, and control variables such as demographics, internet usage, and innovative characteristics. A convenience sample of 592 internet users was recruited to take part in this study.

Findings – Internet users' perceptual differences are statistically significant between the estimated influence on self, teenagers, and other adults for each product. Perceived harm to self consistently predicts internet users' pro-regulatory attitudes, but not for teenagers and other adults. Perceived harm to self also predicts pro-regulatory attitudes toward these web sites, even after controlling for potential confounding variables.

Research limitations/implications – The study is limited by its convenient sampling method and measurement of internet users' actual and intended behavior. Nevertheless, because internet users play a complex role of buyers, sellers, and possible victims on auction sites, it is important to examine perceptions and motivations underlying their support for regulating online auction industry.

Originality/value – The integrated approach of mass communication, electronic commerce activities, and public policy-making perspectives ensures that future regulatory proposal of online auction industry will be comprehensive.

Keywords Internet, Auctions, Regulation, Surveys

Paper type Research paper

Introduction

Among the most popular electronic commerce (EC) applications are internet auctions (Albert, 2002; Kessler, 2004). Over 1.3 million transactions take place everyday on internet auction sites (Albert, 2002; Federal Trade Commission, 2004). Internet auctions are a multi-million dollar activity annually (Pinker *et al.*, 2003). Products sold through internet auction sites range from antiques, automobiles, collectibles, books, CDs, office products, to more controversial products (ranging from Nazi memorabilia, human organs, even real Vietnamese women) (Agence France Presse, 2003; National Post, 2004; The Seattle Times, 2003). The biggest internet auction site, eBay, has 94.9 million registered users (Kessler, 2004). From 2001 to 2003, its average annual growth was 78 percent in international users, 141 percent in transaction revenues, and 114 percent in gross merchandise sales (Kessler, 2004).



As internet auction sites continue to grow in popularity and product offerings (Halstead and Becherer, 2003), the ramifications of regulating these sites for EC industry should not be underestimated. As EC activities increase, there has been growing attention to examine potentially negative and undesirable impacts that an electronic marketplace may bring to society. As a result, scholars (Albert, 2002; Lo and Wei, 2002; Youn *et al.*, 2001) have argued strongly for the government regulation of harmful internet auction sites. Because the policy making process involves various stakeholders who are likely to have different takes on the same issue, it is important to understand their views. As consumers play a complex role of buyers, sellers, and possible victims on the internet auction sites, it is important to examine perceptions and motivations underlying consumers' support for regulating commercial websites selling illegal products.

Despite the growing interests in internet auction industry, most research is still at an early stage (Pinker *et al.*, 2003) and mostly focuses on regulatory developments (Albert, 2002; Synder, 2000), system design (Bapna *et al.*, 2004), and management issues (Pinker *et al.*, 2003). Recently, there have been several fraudulent incidents on eBay, which have resulted in government regulatory actions (*Agence France Presse*, 2003; *National Post*, 2004; Synder, 2000). Nevertheless, few studies have examined how internet users perceive personal, social, and regulatory issues associated with the internet auction industry. The importance of internet users' perception of potential harms is critical as they are participants of online auctions, as well as important actors in a regulatory policy-making process. Consumers who perceive products sold online as harmful to themselves, others, and society are more likely to support government intervention into the emerging online auction industry. To better capture the dynamics between individual consumers' perceptions, attitudes toward regulation, and internet auction activities, the third-person effect perspective from mass communication research was adopted for the present study.

This paper compares internet users' perception of potential harm with a list of products widely available on internet auction sites. Second, the influence of the third-person effect on internet users' pro-regulatory attitudes is examined. Third, this study also considers whether demographics, internet usage, and innovative characteristics of individual users, perceived harm have effects on internet users' attitudes toward government regulation of EC activities on the internet.

Literature review and research hypothesis development

Exponential growth of the online population in recent years has transformed the once intellectual-oriented internet into a vibrant marketplace for the public, allowing for various activities, ranging from EC, democracy promotion, to the more controversial activities such as cyber-pornography, child predators, and online gambling. These activities have caused public outcry for more active government involvement regulating various online activities. As a result, controls on internet contents and activities have spread to internet sites selling controversial or even illegal products. These products include pirated MP3's, CD's, VCD's and software, gambling, guns, pornography, or prostitution.

Although government regulations have been proposed and implemented in some countries, there are heated debates about whether such regulatory actions infringe on the freedom of speech for most adult internet users (McNeely and Moorefield, 1999; Schmertz and Mike, 2004). EC industry proponents have also argued that government

intervention into how businesses should be conducted in the emerging cyberspace marketplace will discourage internet users from engaging in online transactions, stifling the growing EC industry in the end (Albert, 2002; Schmertz and Mike, 2004).

Because of these conflicting viewpoints on whether and how commercial websites should be regulated and to what extent, it is important to understand what internet users think about government regulations and what factors will influence their pro-regulatory attitudes toward internet auction sites. Previous research has found that consumers' support of regulating harmful and controversial media contents is often determined by their perception of potential harm to self and others (Lo and Wei, 2002). This is known as the third-person effect in the mass communication field. Recently, the theoretical framework has been extended to study censorship of commercial websites (Youn *et al.*, 2001) and internet pornography (Lo and Wei, 2002). The following sections provide an overview of relevant literature, identify key variables and their relationships, and propose research questions and hypotheses.

The third-person effect

The third-person effect hypothesis was first proposed by Davison (1983) to explain that people tend to perceive media contents to impose greater harm on others than on themselves. Gunther and Storey (2003) conceptualized the third-person effect as a two-step process, suggesting:

That people may systematically perceive greater influence of communication on others (potentially overestimating these effects) than on themselves, that they may show attitudinal or behavioral reactions as a result of such perceptions (p. 200).

The hypothesis was later supported by 121 empirical studies employing experiment and survey methods (Lo and Wei, 2002; Paul *et al.*, 2000; Perloff, 1999). Recent studies using the third-person effect hypothesis also found that such an effect was even stronger when media contents were perceived as negative, socially undesirable, or potentially harmful, such as for pornography (Lo and Wei, 2002; Wu and Koo, 2001). Research has consistently found the third-person perception among media contents such as pornography (Lo and Wei, 2002; Rojas *et al.*, 1996; Wu and Koo, 2001), media violence (Salwen and Dupagne, 1999), controversial advertising (Shah *et al.*, 1999), and television contents (Gunther and Ang, 1996). Recently, the third-person effect hypothesis has been extended to study emerging new media, ranging from video compact disc (Chia *et al.*, 2004), internet pornography (Lo and Wei, 2002; Wu and Koo, 2001), and controversial web sites (Youn *et al.*, 2001). All three studies have further supported the hypothesis.

To account for the underlying process of the third-person effect, some researchers have used attribution theory concepts: fundamental attribution error and egotistical differential attributions (Rucinski and Salmon, 1990, cited in Youn *et al.*, 2001). On the basis of fundamental attribution error, people tend to underestimate others' awareness of the purposes of media contents, thus overestimating potential harms to be impacted on others. On the other hand, people have more confidence in their own ability to defend any potential harm from media contents (Youn *et al.*, 2001). As the internet is described as a medium, communication about product or service offerings on these sites can be considered as media contents. Therefore, according to the third-person effect research, it can be hypothesized that:

- H1.* Respondents will perceive internet auction sites for illegal products to have a greater impact on other adults than on themselves.

Researchers have also examined the effect of egotistical differential attribution (Stephan and Gollwitzer, 1981, cited in Youn *et al.*, 2001) on the third-person effect. Many studies have found that people perceive media contents to have more effects on others to increase their personal control over perceived harmful or unintelligent contents (Chia *et al.*, 2004). The ego-enhancement assumption suggests that, when media content is viewed as positive and smart, people tend to perceive such content to have stronger effects on themselves than on others. In this research, internet auction sites often sell products that are considered to be highly technical and require special knowledge such as computer, cell phone, or high-tech gadgets. Therefore, according to the egotistical differential attribution concept, it can be hypothesized that:

- H2.* Respondents will perceive internet auction sites for technical products to have a greater impact on themselves than on other adults.

Previous studies examining potential harm of the internet mainly centered on their impact on teenagers and children (Davidson, 1999; Richards *et al.*, 1999; Youn *et al.*, 2001). Children and teenagers are often viewed as more susceptible than adults to potential harms of undesirable contents on the internet (Laczniak *et al.*, 1995). As a result, there have been several regulatory proposals to control internet contents. These include the Child Online Protection Act to restrict access to obscenity by minors and the now-defunct Communication Decency Act to regulate cyber-pornography (McNeely and Moorefield, 1999; Youn *et al.*, 2001). As many internet auction sites are easily accessible to teenagers and children, it is likely that minors will also be influenced by products sold online. According to the third-person effect research, it is thus hypothesized that:

- H3.* Respondents will perceive internet auction sites for illegal products to have a greater impact on teenagers than on themselves.
- H4.* Respondents will perceive internet auction sites for technical products to have a greater impact on themselves than on teenagers.

According to the third-person effect hypothesis, respondents' perception of harmful media content often leads to behavioral outcome to support government regulatory actions (Chia *et al.*, 2004; Davison, 1983; Rojas *et al.*, 1996). More recent studies have shown the third-person perception has stronger effects on respondents' willingness to censor media contents such as pornography (Rojas *et al.*, 1996), media violence (Salwen and Dupagne, 1999), gambling advertising (Shah *et al.*, 1999), television contents (Gunther and Ang, 1996), internet pornography (Lo and Wei, 2002), and controversial websites (Youn *et al.*, 2001). Many of these studies have found that respondents' pro-regulation attitudes are mainly affected by their perception of potential harm done to others, rather than to themselves. Therefore, the following hypotheses are proposed:

- H5a.* The greater the perceived harm of internet auction sites for illegal products on other adults, the more likely respondents will support regulation of these websites.
- H5b.* The greater the perceived harm of internet auction sites for illegal products on teenagers, the more likely respondents will support regulation of these websites.

The existing literature on demographic predictors has only provided limited evidence to account for respondents' motivation to regulate internet auction sites. To better understand the relationships between respondents' pro-regulatory attitudes and the third-person effect, previous research has tried to examine the effects of demographic variables. Lo and Wei (2002) found that female respondents perceive greater harm caused by internet pornography, and they are more supportive of regulating internet pornography. These findings concurred with earlier studies (Andsager, 1992; Youn *et al.*, 2001) that male respondents are more tolerant of controversial media content than females. Age and educational level were also found to affect tolerance of controversial contents (Miller *et al.*, 1992). Previous studies on censorship have also identified respondents' ideological predictors (such as religiosity, authoritarianism, conservatism, and family values) as important predictors of their pro-regulatory attitudes (see Youn *et al.*, 2001, for a brief overview). Therefore, respondents' innovativeness is expected to have negative relationships with their pro-regulatory attitudes (Youn *et al.*, 2001). Another variable that has been used in earlier third-person effect research is computer use to examine its impact on perceptual differences of internet pornography (Lo and Wei, 2002). This variable is relevant as this study focuses on internet users. Therefore, the following hypotheses are proposed:

- H6.* Respondents' characteristics have effects on their pro-regulatory attitudes toward internet auction sites.
- H6a.* Female respondents are more in favor of regulating internet auction sites selling illegal products than male respondents.
- H6b.* Older respondents are more in favor of regulating internet auction sites selling illegal products than younger respondents.
- H6c.* Less educated respondents are more in favor of regulating internet auction sites selling illegal products than highly educated respondents.
- H6d.* Poor respondents are more in favor of regulating internet auction sites selling illegal products than affluent respondents.
- H6e.* Less innovative respondents are more in favor of regulating internet auction sites selling illegal products than more innovative respondents.
- H6f.* Respondents with less internet experience are more in favor of regulating internet auction sites selling illegal products than those with more internet experience.
- H6g.* Respondents who often use the internet are more in favor of regulating internet auction sites selling illegal products than those who use the internet less frequently.

Methodology

Sampling method

A convenience sampling approach was employed to recruit participants during a seven-day data collection period. Participants responded to an online questionnaire designed by ASP program that allowed data to be collected immediately after their

responses. The incentive for taking part in this study was sweepstake and winners of CD-players were notified by e-mails. Participants were required to enter their national ID number and e-mail address, so that they can claim the award and pay the necessary gift tax. This procedure was designed to avoid duplicate responses from the same individual.

Previous third-person effect studies often recruited from the general population without considering their internet usage experience (Lo and Wei, 2002; Youn *et al.*, 2001). Although this sampling method might be warranted when dealing with internet pornography (Lo and Wei, 2002) or controversial websites (Youn *et al.*, 2001), this could create potentially false responses for internet auction sites. On the one hand, problems associated with internet auction sites have not attracted as much media attention as internet pornography. As a result, respondents may not have sufficient knowledge to respond to the questionnaire. On the other hand, participants who are not familiar with how internet auction sites operate may overestimate the negative effects of internet auctions. Therefore, the study only recruited from internet user population.

The survey data were collected in Taiwan in the spring of 2001. Taiwan is one of the most wired nations in Asia. The number of host computers ranked number 9 worldwide and number 3 in Asia (Find, 2004a). Internet penetration was 50.2 percent and accounted for 11.6 million in an island state of 23 million (Internet World Statistics, 2004). Among corporate users, the penetration was 79 percent (Find, 2004b).

Sample characteristics

Total respondents for the study were 592, with valid responses of 553. A total of 53.2 percent ($n = 294$) of our sample is male, while 46.8 percent ($n = 259$) is female. The gender distribution matches closely with Taiwan's internet population profile. According to Yam's (2002) national survey of internet users in Taiwan, 55.1 percent of respondents are male, while 44.8 percent are female. Their age ranged from 16 years old to above 61 years old. Those whose age falls between 16 and 20 years account for 15.4 percent ($n = 85$), while those who fall between 21 and 25 years account for 45.6 percent ($n = 252$). Overall, younger respondents (aged between 16 and 25 years old) account for 91 percent of the sample. This is reflective of the current internet population in Taiwan. Yam's (2002) survey reported that over 86.8 percent of Taiwanese internet users are between 15-34 years old.

In terms of respondents' educational level, those with university and postgraduate degrees account for 77.1 percent ($n = 426$) of the sample. This also reflects demographic similarities to many internet population studies that show a tilt toward highly educated layers. Yam's (2002) survey also reported that about 53.7 percent of the internet users have a university or postgraduate degree.

Students account for 56.4 percent ($n = 312$) of the sample. Those working in private sectors also account for 21.7 percent of the sample. Demographics of the sample are similar to those in Yam's (2000) internet survey, the student population accounts for 40.9 percent. Those in information technology industries represent 14.4 percent of the overall internet users in Taiwan (*Advertising Age*, 2000; Yam, 2000).

One-third of the respondents in the sample have used the internet between six months and three years (33.2 percent, $n = 184$). Over 66.7 percent ($n = 369$) in this survey has used the internet for over three years. Yam's (2002) survey suggested that 31.5 percent of the respondents have used the internet for fewer than three years. The

sample in this study shows a similar internet experience. Regarding the internet usage frequency, 83.8 percent of the sample use the internet regularly (ranging from once a day to three times a day). Of their monthly income, about 92.7 percent of the sample earns fewer than NTD\$60,000, compared to 80.5 percent at the same income brackets in Yam's (2002) survey (refer to Table I).

Measurement

The survey instrument consisted of items to measure:

- the third-person effect;
- pro-regulatory attitudes toward internet auction sites; and
- control variables including demographics, internet usage, and innovative characteristics of the internet users.

To examine the third-person effect, the study employed the conventional approach commonly found in the third-person effect research. Respondents were asked in separate questions to show how strongly they agree or disagree with each product or service on the internet auction sites has an effect on "themselves," on "other adults," and on "teenagers" (Youn *et al.*, 2001). The same wording was used for each statement except for the first- or third-person pronouns. The level of agreement (or disagreement) was measured by a series of five-point Likert scales, ranging from (5) strongly agree to (1) strongly disagree. Two kinds of the third-person effects were measured to show perceptual disparity of potential harms on self versus other adults, and self versus teenagers.

A total of 18 statements were used to measure responses to a list of products available on internet auction sites (Cronbach's $\alpha = 0.842$). Respondents also answered three statements measuring respondents' third-person perception about potential harms of illegal EC activities on internet auction sites (Cronbach's $\alpha = 0.879$). The items include "Overall, I think illegal EC activities on internet auction sites are harmful to me," ... "to other adults," ... "to teenagers." Three statements were used to measure respondents' third-person perception about electronic commerce activities on internet auction sites (Cronbach's $\alpha = 0.886$). The items included "Overall, I think legal electronic commerce activities on internet auction sites are harmful to me," ... "to other adults," ... "to teenagers."

Pro-regulatory attitudes toward internet auction sites were measured with two separate questions. The first item was related to respondents' overall attitudes toward government regulations of internet auction sites (e.g. "government regulation is important to protect consumers using internet auction sites"). The second item was about their attitudes toward contents regulations of internet auction sites (e.g. "government should regulate products sold on the internet auction sites"). The level of agreement (or disagreement) was measured by a series of five-point Likert scales, ranging from (5) strongly agree to (1) strongly disagree. These two items showed acceptable internal consistency with an alpha value of 0.888. A composite score from these two items was computed for later analysis.

Furthermore, to control for personal experience with internet and individual characteristics, respondents were asked to indicate their experience with internet, internet usage frequency, and innovative tendencies. Finally, demographics variables such as gender, education, occupation, and age were also included.

		Cases	%
Gender	Male	294	53.2
	Female	259	46.8
Age	16-20 years old	85	15.4
	21-25 years old	252	45.6
	26-30 years old	141	25.5
	31-35 years old	27	4.5
	36-40 years old	18	3.3
	41-45 years old	11	2.0
	46-50 years old	12	2.2
	51-55 years old	6	1.1
	61 years old and above	1	0.2
Educational levels	Post graduate level	163	29.5
	University level	263	47.6
	Junior college level	58	10.5
	Senior high and vocational school level	68	12.3
	Junior high school and elementary school level	1	0.2
Occupation	Students	312	56.4
	Servicemen	8	1.4
	Government	35	6.3
	Professional	19	3.4
	Agriculture, fishery, dairy, mechanics	2	0.4
	Businessmen	7	1.3
	Private sector employees	120	21.7
	Higher education institutes	28	5.1
	Home keepers and unemployed	21	3.8
	Retired	1	0.2
Years of internet use	Below 6 months	10	1.8
	6 months to 1 year	19	3.4
	1-2 years	67	12.1
	2-3 years	88	15.9
	3-4 years	99	17.9
	4-5 years	108	19.5
	5 years and above	162	29.3
Internet usage frequency	Once a day	173	31.3
	Twice a day	122	22.1
	Three times a day	168	30.4
	Once in two days	25	4.5
	Once in three days	20	3.6
	Once a week	28	5.1
	Once in two weeks	17	3.1
Monthly income	Below NTD\$20,000 *	330	59.7
	NTD\$20,001-30,000	65	11.8
	NTD\$30,001-40,000	64	11.6
	NTD\$40,001-50,000	36	6.5
	NTD\$50,001-60,000	17	3.1
	NTD\$60,001-70,000	11	2.0
	NTD\$70,001-80,000	7	1.3
	NTD\$80,001-90,000	4	0.7
	Above NTD\$100,001	19	3.4

Table I.
Demographic profiles of
the sample

Note: *As of August 5, 2004, US\$1 = NTD\$34 **Source:** Yahoo! Finance

Individual characteristics such as innovativeness were included as it may influence respondents' perception of the third-person effect of internet auction sites that are often considered to be a new retailing format. In addition, internet users are also considered to be innovators in society. The innovative scale was measured by four items (e.g. "I love to try something new") and had a Cronbach's alpha value of 0.812.

Findings

H1 and *H3* propose that respondents would perceive illegal products sold on internet auction sites to have a larger effect on other adults (*H1*) and teenagers (*H3*) than on themselves. To test these two hypotheses, paired *t*-tests are conducted for each type of product. Statistically significant effects are found when self-group is compared with other adults and teenagers (see Table II).

Overall, third-person effect is empirically supported by the data. Respondents consistently and systematically believe that illegal EC activities would have more effect on other adults than on themselves ($t = -2.094, p = 0.037 < 0.05$) and on teenagers ($t = -10.827, p = 0.000 < 0.001$). The mean differences also indicate that respondents tend to perceive themselves as less affected when compared with other adults (3.94 versus 4.37) and teenagers (3.94 versus 4.28) for illegal EC activities on internet auction sites.

When specific product types are compared, similar third-person effect is observed. Respondents perceived pirated software to have a larger impact on other adults ($t = -10.257, p = 0.000 < 0.001$) and teenagers ($t = -13.534, p = 0.000 < 0.001$) than on themselves. Pornographic materials on internet auction sites also show a similar disparity. While respondents agree that pornography will have a larger effect on other adults than on themselves ($t = -5.519, p = 0.000 < 0.001$), the differences in mean differences between self (3.83) and teenagers (4.38) is noteworthy ($t = -13.902, p = 0.000 < 0.001$). As to issues regarding selling of human organs on internet auction sites, the third-person effect is also observed among self versus other adults (4.39 versus 4.48, $t = -5.009, p = 0.000 < 0.001$) and self versus teenagers (4.39 versus 4.56, $t = -0.17, p = 0.000 < 0.001$). Compared with pornography and pirated software, the smallest third-person effect for human organs is because of the higher perceived harm on self for this product type. It is also worth mentioning the estimated impact on teenagers is consistently larger than on other adults across three illegal products sold on internet auction sites. *RH1* and *RH2* are both supported by empirical data from this study.

H2 and *H4* state the third-person effect of technical products sold on internet auction sites would lead to greater perceived impact on self, than on other adults or teenagers. To test these hypotheses, paired *t*-tests are run for each product. A significant third-person effect is found for all three technical products. Statistically significant effects are found when self-group is compared with other adults and teenagers (see Table II). Respondents' overall evaluation of legal EC activities on internet auction sites indicate the third-person effect also can be observed among self versus other adults (2.37 versus 2.41, $t = -2.606, p = 0.009 < 0.01$) and self versus teenagers (2.37 versus 2.67, $t = -10.418, p = 0.000 < 0.001$). However, when compared to their evaluation of illegal products online, the third-person effect gap is much lower in both self versus other adults and self versus teenagers pairs. This result

	Overall evaluation of legal EC activities	Overall evaluation illegal EC activities	Software	Consumer electronics	Audio-visual equipments	Pirated software	Human organs	Pornography
<i>Self vs other adults</i>								
Self	2.37	3.94	2.43	2.29	2.26	3.02	4.39	3.83
Other adults	2.41	4.37	2.54	2.36	2.33	3.36	4.48	3.98
Mean								
differences	-0.04	-0.43	-0.11	-0.07	-0.07	-0.34	-0.09	-0.15
<i>t</i> -value	-2.606	-2.094	-5.557	-4.558	-3.971	-10.257	-5.009	-5.519
Degree of freedom	552	552	552	552	552	552	552	552
<i>p</i> -value	0.009**	0.037*	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
<i>Self vs teenagers</i>								
Self	2.37	3.94	2.43	2.29	2.26	3.02	4.39	3.83
Teenagers	2.67	4.28	2.77	2.50	2.50	3.51	4.56	4.38
Mean								
differences	-0.30	-0.34	-0.34	-0.21	-0.24	-0.49	-0.17	-0.55
<i>t</i> -value	-10.418	-10.827	-11.197	-7.693	-8.462	-13.534	-7.056	-13.902
Degree of freedom	552	552	552	552	552	552	552	552
<i>p</i> -value	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Notes: Mean scores ranged from (1) strongly disagree to (5) strongly agree; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

shows the third-person perception could be influenced by the legality of the product type.

When specific product types are examined, similar third-person effect is observed. Respondents perceive software sold on internet auction sites to have smaller effect on themselves than other adults (2.43 versus 2.54, $t = -5.557$, $p = 0.000 < 0.001$) and teenagers (2.43 versus 2.77, $t = -11.197$, $p = 0.000 < 0.001$). Consumer electronics and audio-visual (AV) equipments also yield similar differences between self versus other adults and self versus teenagers. The gaps in perceived influence in consumer electronic are -0.07 between self versus other adults (2.29 versus 2.36, $t = -4.558$, $p = 0.000 < 0.001$) and -0.21 between self versus teenagers (2.29 versus 2.50, $t = -7.693$, $p = 0.000 < 0.001$). For AV equipments, the gaps in estimated impact are -0.07 between self versus other adults (2.26 versus 2.33, $t = -3.971$, $p = 0.000 < 0.001$) and self versus teenagers (2.26 versus 2.50, $t = -8.462$, $p = 0.000 < 0.001$). Results show that, when compared with illegal products, respondents have expressed a higher disagreement for potential impacts of technical products (e.g. software, consumer electronics, and AV equipments). Mean values approaching 2 are observed in the technical product groups, while those approaching 4 are observed in the illegal product groups. Based on these findings, RH3 and RH4 are not supported.

Predictors of consumers' pro-regulation attitudes toward internet auction sites

H5a and *H5b* state the third-person perception of internet auction sites could predict respondents' pro-regulatory attitudes. To test these two hypotheses, regression analyses are run for each product (see Table III). Following procedures used by Stenbjeree and Leets (1997) and Youn *et al.* (2001), the estimated impact of the first and third-person variables is analyzed separately. Contrary to previous third-person effect research, the findings do not support the relationships between the third-person effect and pro-regulatory attitudes toward internet auction sites. Both first and third-person variables explain from 5.9 to 1.4 percent of total variance in respondents' pro-regulatory attitudes toward internet auction sites. Both *H5a* and *H5b* are not supported by the empirical data.

In terms of overall evaluation of legal EC activities, respondents' perceived impacts on other adults ($\beta = 0.116$) and teenagers ($\beta = 0.113$) appear to be moderate predictors of respondents' pro-regulation attitudes. When examining respondents' product-specific pro-regulation attitudes, perceived harm on self is found to be a significant predictor for software ($\beta = 0.175$, $p = 0.028 < 0.05$), consumer electronics ($\beta = 0.249$, $p = 0.009 < 0.01$), AV equipments ($\beta = 0.204$, $p = 0.019 < 0.05$). The positive beta coefficients indicate the larger estimated impacts have on respondents, the more likely they would support regulations of internet auction sites. For these three technical products, perceived harm on other adults and teenagers does not predict respondents' pro-regulatory attitudes toward internet auction sites.

To determine the third-person effect among illegal products, a series of regression analyses were conducted. Respondents' overall evaluation of illegal EC activities predicted their pro-regulation attitudes ($\beta = 0.294$, $p = 0.000 < 0.001$). Respondents' estimated harm on themselves also predicts their attitudes toward regulation in pirated software ($\beta = 0.139$, $p = 0.042 < 0.05$), human organs ($\beta = 0.252$, $p = 0.010 < 0.01$), and pornography ($\beta = -0.278$, $p = 0.000 < 0.001$). Of all illegal product types,

Table III.
Regression of
pro-regulation scales on
first- and third-person
effect variables

Effects on		Overall evaluation of legal EC activities	Overall evaluation illegal EC activities	Pro-regulation attitude ****				Human organs	Pornography
				Software	Consumer electronics	Audio-visual equipments	Pirated software		
Self	<i>t</i> -value	1.246	5.037	2.209	2.639	2.353	2.042	2.568	3.723
	β	0.116	0.294	0.175	0.249	0.204	0.139	0.252	-0.278
	<i>p</i> -value	0.213	0.000 ***	0.028 *	0.009 **	0.019 *	0.042 *	0.010 **	0.000 ***
Other adults	<i>t</i> -value	-0.592	-0.976	-1.025	-1.579	-1.692	-1.853	-0.031	-1.898
	β	-0.054	-0.041	-0.086	-0.612	-0.155	-0.125	-0.004	-0.161
	<i>p</i> -value	0.554	0.329	0.306	0.155	0.091	0.064	0.975	0.058
Teenagers	<i>t</i> -value	1.964	-1.331	0.193	-0.488	0.949	6.879	-1.620	-0.746
	β	0.113	-0.679	0.012	-0.030	0.044	0.055	-0.169	-0.045
	<i>p</i> -value	0.050 *	0.184	0.847	0.626	0.459	0.380	0.106	0.456
Total <i>R</i> square		0.028	0.029	0.014	0.014	0.015	0.059	0.020	0.026
	<i>F</i> -value	5.251 ***	5.437 ***	2.653 *	2.646 *	2.764 *	11.523 *	3.829 *	4.970 ***
	<i>p</i> -value	0.001 ***	0.000	0.048 *	0.048 *	0.041 *	0.061	0.010 *	0.002 ***

Notes: **p* < 0.05; ***p* < 0.01; ****p* < 0.001; *****p* < 0.0001; High score represents stronger support for government regulation of internet auction sites. The index was derived from computing mean value of two pro-regulation items

respondents' perceived harm on other adults and teenagers is not significantly associated with their attitudes toward regulating internet auction sites. While estimated impacts on self positively predict respondents' support for government regulation, the perceived harm of pornography on self turns out to be negatively associated with their pro-regulation attitudes ($\beta = -0.278, p = 0.000 < 0.001$). This result suggests the larger the perceived harm of pornographic materials on self, the less support respondents would have to regulate these websites. It also shows that respondents may judge pornography to have some impacts on themselves, but these effects may not be viewed as negative or harmful. It is also likely the impacts of pornographic materials are underestimated because of respondents' motivation to use internet auction sites. The self-gratifying nature of pornographic materials may lead internet users to perceive obtained benefits to outweigh potential harms or risks involved.

To examine if the first- and third-person variables continued to predict respondents' pro-regulation attitudes toward internet auction sites after controlling for other confounding variables, a series of hierarchical regression analyses are run using SPSS 12.0 software package. A total of ten independent variables are divided into five separate groups. These variables include demographics (i.e. gender, age, education, and income), attitudinal (i.e. innovativeness), internet usage (i.e. years of internet use and internet usage frequency), and first- and third-person effect variables (i.e. self, other adults, and teenagers). Demographic variables are entered in the first block, followed by innovativeness (2nd block), internet usage (3rd block), estimated impact on self (4th block), and estimated impact on other adults and teenagers (5th block). This approach offers the most conservative test in the model that would ensure any influences associated with the third-person variables would not be attributed to their relationship with other variables associated with pro-regulation attitudes (Youn *et al.*, 2001). The results of hierarchical regression are used to estimate the incremental and total variances associated with the variable groups are reported in Table IV. The final betas for individual variables from final regression equation are also reported in the same table.

Following procedures used by Stenbjeree and Leets (1997) and Youn *et al.* (2001), the estimated impact of the first and third-person variables is analyzed separately. Demographic variables as a group only account for 2.7 percent of the variance in respondents' attitudes toward regulating internet auction sites for both legal and illegal products. As suggested in Table IV, gender ($\beta = -0.096, p < 0.05$) and age ($\beta = 0.170, p < 0.001$) has significant predictive power of respondents' pro-regulation attitudes, while education level ($\beta = -0.055$) and income ($\beta = -0.074$) are not significant predictors. The positive beta coefficient for age suggests the older respondents are, the more supportive they are toward regulating internet auction sites. Furthermore, the negative beta coefficient for gender indicates the male respondents are less likely to support regulation of internet auction sites. While education level and income are negatively associated with respondents' pro-regulation attitudes, but these variables do not reach significance level. Based on the results reported above, *H6a* and *H6b* are supported, while *H6c* and *H6d* are not.

Respondents' innovative characteristics account for 2.9 percent of the variance in their attitudes toward regulating internet auction sites. Incremental *R*-square is 0.002 for this step. Respondents' innovativeness ($\beta = -0.046$) is found to be negatively

Table IV.
Regression of
pro-regulation scales on
first- and third-person
effect variables

	Overall evaluation of legal EC activities β	Overall evaluation illegal EC activities β	Pro-regulation attitude ^a Software β	Consumer electronics β	Audio-visual equipments β	Pirated software β	Human organs β	Pornography β
<i>Demographics</i>								
Gender ^b	-0.096 *	-0.096 *	-0.096 *	-0.096 *	-0.096 *	-0.096 *	-0.096 *	-0.096 *
Age ^c	0.170 ***	0.170 ***	0.170 ***	0.170 ***	0.170 ***	0.170 ***	0.170 ***	0.170 ***
Education ^d	-0.055	-0.055	-0.055	-0.055	-0.055	-0.055	-0.055	-0.055
Income ^e	-0.074	-0.074	-0.074	-0.074	-0.074	-0.074	-0.074	-0.074
<i>R</i> square after step 1	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
<i>Attitudinal</i>								
Innovativeness ^f	-0.046	-0.046	-0.046	-0.046	-0.046	-0.046	-0.046	-0.046
<i>R</i> square after step 2	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
<i>Internet usage</i>								
Years of internet use ^g	0.121 **	0.121 **	0.121 **	0.121 **	0.121 **	0.121 **	0.121 **	0.121 **
Internet usage frequency ^h	0.103 *	0.103 *	0.103 *	0.103 *	0.103 *	0.103 *	0.103 *	0.103 *
<i>R</i> square after step 3	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
<i>Effect on Self</i>								
Self ⁱ	0.140 ***	0.24 ***	0.100 **	0.145 **	0.093 *	0.165 **	0.105 *	-0.095 *
<i>R</i> square after step 4	0.075	0.099	0.065	0.057	0.064	0.059	0.066	0.064
<i>Effect on Others</i>								
Other adults	-0.028	-0.035	-0.041	-0.006	-0.137	-0.030	-0.084	-0.153
Teenagers	0.103	-0.081	0.021	-0.039	0.049	-0.164	-0.041	-0.048
<i>R</i> square after step 5	0.080	0.104	0.065	0.058	0.068	0.058	0.066	0.076
Total <i>R</i> square	0.266	0.314	0.241	0.226	0.243	0.235	0.241	0.251

Notes: ^aHigh score represents stronger support for government regulation of internet auction sites. The pro-regulation index was computed by two pro-regulation statements; ^bCoded as 0 = female, 1 = male; ^cCoded as 0 = young (below 30 years old), 1 = old (above 30 years old); ^dCoded as 0 = low (below junior college), 1 = high (above junior college); ^eCoded as 0 = low (below NT\$40,000), 1 = high (above NT\$40,001); ^fHigh score represents more innovative. The innovativeness index was computed by four innovative statements; ^gCoded as 0 = low (below 2 years), 1 = high (above 2 years); ^hCoded as 0 = low (fewer than once in two days), 1 = high (between once to three times a day); ⁱ $p < 0.01$; *** $p < 0.001$

associated with their pro-regulation attitudes, meaning the less innovative respondents are more in favor of regulating internet auction sites. Nevertheless, this predictor does not reach statistical significance. Therefore, *H6e* is not supported.

Variables related to users' internet usage are considered next. The incremental R-square is 0.026. Respondents' years of internet use ($\beta = 0.121, p < 0.01$) and usage frequency ($\beta = 0.103, p < 0.05$) are significant. The positive beta coefficients for both usage variables also indicate the more experienced respondents are the more likely to support regulation of internet auction sites. The results suggest the greater amount of time that respondents spend on the internet, the less positive their attitudes are toward internet auction sites. It is likely that the more time respondents spent on the internet, the more likely they would have firsthand experience with the pros and cons of these auction sites. Therefore, both *H6f* and *H6g* are supported.

The full model explains 23.5 percent to 31.4 percent of total variance in respondents' attitudes toward regulating internet auction sites. After controlling all possible confounding variables, the predictive impacts on self on respondents' attitudes toward internet auction sites remain stable.

For respondents' overall evaluation of illegal EC activities, the estimated effect on self remain a significant predictor of their pro-regulation attitudes ($\beta = 0.24, p < 0.001$), while the estimated effect on other adults ($\beta = -0.035$) and teenager ($\beta = -0.081$) are negative and not significant. Similar results are found in respondents' overall evaluation of legal EC activities on self ($\beta = 0.140, p < 0.001$), other adults ($\beta = -0.028$), and teenagers ($\beta = 0.080$). This suggests that, while a larger perceived impact on self would lead to more support for regulating internet auction sites, a larger perceived impact on other adults and teenagers does not necessarily lead to more support for regulation. The relationships between product type and pro-regulation attitudes remains consistent in pirated software ($\beta = 0.165, p < 0.01$), human organs ($\beta = 0.105, p < 0.05$), pornography ($\beta = -0.095, p < 0.05$), software ($\beta = 0.100, p < 0.01$), consumer electronics ($\beta = 0.145, p < 0.01$), and AV equipment ($\beta = 0.093, p < 0.05$).

Discussion and conclusion

While the present study showed results consistent with previous third-person effect research on consumers' perceptions of potential impact of harmful internet auction websites on themselves, other adults, and teenagers, the first-person perception turned out to be the most powerful predictor of consumers' pro-regulatory attitudes across both legal and illegal product categories. Findings from this study support the propositions of the traditional third-person research that people tend to perceive illegal EC activities to have smaller impacts on themselves, than on other adults and teenagers. The trends are observed in product-specific as well as non-product specific (overall) third-person perceptions both in legal and illegal EC activities on internet auction sites. The findings concur with propositions drawn from the fundamental attribution error concept that people tend to underestimate others' awareness of the purposes of media contents, thus overestimating potential harms on others. Similar to Youn *et al.* (2001), this study also found that, compared to the self versus other adults pair, people perceive greater impacts of pirated software and pornography on teenagers. It is noteworthy that people perceive greater harm to have greater harm on teenagers, compared to self and other adults. The present study is similar to Lacznia

et al.'s (1995) findings that children and teenagers are often viewed as more susceptible than adults to potential harms of undesirable contents on the internet.

Furthermore, this study also focuses on examining the theoretical relationships between first and third-person perceptions of internet auction sites, demographics and innovative characteristics, and support for government regulations of internet auction sites. Although the perceived disparity of potential impacts on self, other adults, or teenagers exists, it is noteworthy that respondents in this study do not support government regulation of internet auction sites, merely because certain products sold on these sites would be harmful to themselves. In other words, contrary to previous third-person effect research (Lo and Wei, 2002; Youn *et al.*, 2001), the present study does not support the third-person perception as one of the most powerful predictors influencing consumers' attitudes toward regulating internet auction sites.

Although previous studies have shown that the third-person perception has effects on people's willingness to censor media contents such as pornography (Rojas *et al.*, 1996), media violence (Salwen and Dupagne, 1999), gambling advertising (Shah *et al.*, 1999), television content (Gunther and Ang, 1996), internet pornography (Lo and Wei, 2002), and controversial websites (Youn *et al.*, 2001), more recent studies have begun to examine a multitude of factors underlying consumers' pro-regulation attitudes. Chia *et al.* (2004) examined both preventive and punitive explanations to study motivations underlying people's support for media censorship. Their study reports that people's general attitudes toward censorship are affected by their perceived harm of sexual content on self, rather than on other adults. In other words, people show a stronger support for banning the trade and web display of sexual contents when they perceived the contents to make themselves permissive. Their study supports that perceived impacts of media content on self lead to their support for government preventive measures to ban the circulation and display of sexual contents. The reversed third-person perception and its effect on pro-regulatory attitudes may be related to the concept, "optimistic bias." According to this concept, individuals believe they are better or smarter than other people and they will be able to learn something positive out of perceived negative communication content (Chia *et al.*, 2004). Because the individual consumer tends to overestimate their invincibility, it is less likely that they will support government regulations of the internet auction sites.

To establish the theoretical linkage between first-, third-person effect, and pro-regulatory attitudes, the study has also identified several important variables affecting consumers' support to regulate internet auction sites. Gender and age are found to have significant relationships with consumers' pro-regulatory attitudes with female respondents more in favor of regulations. The tendency for female respondents to support regulation has been found in other third-person effect research (Chia *et al.*, 2004; Lo and Wei, 2002; Youn *et al.*, 2001).

Furthermore, older consumers are found to be more in favor of regulation. Although innovative characteristics were previously found to predict pro-regulatory attitudes (Youn *et al.*, 2001), findings from this study do not support the relationship. Youn *et al.* (2001) include both internet and non-internet users in their sample, which may have inflated the effect of innovativeness because internet users are likely to be more innovative than non-users. As reported in their study, 7 percent of their sample does not use the internet at all. Internet usage (measured by hours on the net a day) also

predicts pro-regulatory attitudes toward a pornography website. Methodological implications related to sample characteristics should be explored further.

Although the existing literature on demographic predictors has only provided limited evidence to account for respondents' motivation to regulate internet auction sites, empirical data from the present study further support the importance of demographics in predicting consumers' pro-regulatory attitudes toward communication contents. Lo and Wei (2002) found that female respondents perceive greater harm caused by internet pornography, and they are more supportive of regulating internet pornography. This also concurs with earlier studies (Andsager, 1992; Youn *et al.*, 2001) that male respondents are more tolerant of controversial media contents than females. Age is likely to affect tolerance of controversial contents (Miller *et al.*, 1992). Recent third-person effect studies have begun to explore the impacts of demographics and other consumer characteristics on perceiving third-person effects and ensuring behavioral outcome (Chia *et al.*, 2004; Lo and Wei, 2002). More research should be conducted to explore the dynamics among these variables in shaping consumers' pro-regulatory attitudes.

Limitations of this study

Several limitations of this study should be considered in evaluating the results obtained. Although the sample in this study is comparable to the characteristics of internet users as presented in other national surveys (Yam, 2000), a convenience sample of internet users has limited the external validity of the findings. Despite the effort to solicit responses from non-student groups, students still account for 56.4 percent of the sample who have shown far less variance in demographics, innovativeness, and computer use than would be expected. Although the present study has lent further support to the third-person effect phenomenon, future studies should employ random sample to increase the representativeness of the cross-sectional population. On the other hand, because student population still accounts for the majority of internet users in Taiwan, selecting students is a more meaningful and appropriate decision, despite the possibility of introducing bias. Nevertheless, it should be acknowledged that student population in itself is a limitation to this study because students will be likely to perceive third-person effects differently from other internet user groups in Taiwan. Moreover, the liberal environment within a university campus is likely to affect students' perception of negative consequences associated with internet auctions and government intervention into the cyberspace.

Furthermore, the convenience sampling method fails to achieve the randomness that enables us to generalize the findings. In addition, self-reported data on internet usage are less than ideal. However, Ferguson (1994) and Bellamy and Walker (1996) pointed out self-report scales provide a conservative and acceptable measure of actual media behavior.

Another concern is the measures of the dependent variable (i.e. "government regulation is important to protect consumers using internet auction sites" and "government should regulate products sold on the internet auction sites") rely on participants' self-reported attitudes toward regulating the internet auction sites. As Lo and Wei (2002) pointed out there is still a gap between actual and intended behavior. Furthermore, measures derived from preventive and punitive aspects (Chia *et al.*, 2004) may be able to provide more comprehensive aspects of examining consumers' attitudes toward regulations.

Despite these limitations, this study contributes to understanding of internet users' perceived impacts of a variety of EC activities and attitudes toward regulating internet auction sites. Findings for this study have implications for theoretical model trying to extend the third-person effect framework to emerging internet technologies. The integrated approach of mass communication, EC activities, and public policy making perspectives would ensure future regulatory proposal of internet auction sites will be more comprehensive.

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