



# **A Cross-Country Comparison of Software Piracy Determinants Among University Students: Demographics, Ethical Attitudes and Socio-Economic Factors**

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## **ABSTRACT**

Software piracy is widespread in many parts of the world. Peer-to-peer (P2P) websites such as Kazaa and more recently the bittorrent websites have made pirated software highly accessible. The issue is immensely important to both the software industry and the research community. Prior research has identified that poverty, cultural values and ethics, religion, and education can impact the piracy levels. This research is comparative analysis of university students' cultural, socio-economic and demographic attributes. It aims at identifying and understanding the software piracy determinants among university students. While efforts are underway to involve research participants from more countries, a survey is currently being conducted in four Pakistani universities and at one university in Canada. The results of the pilot study suggest correlation between the high cost of legal software and software piracy among students\*.

## **INTRODUCTION**

According to Husted, knowledge and information are now more important factors in a national economy than the traditional physical assets that used to indicate economic well-being<sup>1</sup>. Therefore, intellectual properties continue to receive increased attention. Software is an intellectual property and unauthorized duplication of computer software is a crime. In various parts of the world, software piracy is a significant concern. In 2004, software piracy accounted for \$33 billion in losses to the industry<sup>2</sup>. Besides poverty, cultural values have significant impact on software piracy<sup>3</sup>. This research therefore not only looks into the relationships between economic factors and software piracy, but also reflects on the cultural values and social norms that affect software piracy among university students in Canada and Pakistan, two countries that are culturally and economically very different.

## **SELECTED LITERATURE**

The practice of making illegal copies of software amounts to high rates in various parts of the world. A study of business students in an American university found that the act of making illegal copies of software considerably correlated with low household income of the research participants<sup>4</sup>. Software piracy has been studied in many Asian and South-Asian countries such as Saudi Arabia, Thailand, Singapore, Hong Kong and Brunei Darussalam.<sup>5-9</sup> Many of these studies have shown that low incomes are not the only reasons for which software is pirated. Demographic factors and favorable attitudes towards software piracy have also been found to correlate with the latter.<sup>10, 11</sup> A cross-cultural analysis of U.S. and Singapore revealed that attitudes towards software piracy are affected by cultural standards and customs. Therefore, "the neglect of culture as an explanation of software piracy seems odd given

the fact that cultural values have such a significant impact on a wide array of business practices in different countries".<sup>12</sup>

Several behavioral, intentional, and ethical decision-making models such as the ones based on the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) have been used in empirical studies of piracy.<sup>13,14</sup> These studies regard software piracy as an intentional behavior or as an act that is a result of a complete well thought out process.<sup>15-17</sup> However, this author suggests that software piracy can be represented as a social norm, at least in the case of Pakistani university students. The Canadian situation could be different as there are many cultural, social and economic differences between Canada and Pakistan.

## **RESEARCH JUSTIFICATION AND THE RESEARCH MODEL**

Software piracy has been studied in many Asian countries but there have been no empirical studies on software piracy in Pakistan even though the International Intellectual Property Alliance (IIPA) has recommended that Pakistan should be on the high priority country list for uncontrolled piracy of intellectual property including software.<sup>18</sup> Moreover, Pakistan also has one of the highest rates (82 percent) of software piracy in the world. Several authors have concluded that in developing countries (such as Pakistan); the collectivistic nature of the society is one of the factors that lead to high piracy rates<sup>8,19</sup>. Although Canada has an individualistic society like its neighbor, U.S., the software piracy rate is still relatively high at 36 percent as compared to other developed nations of the world such as the U.S.A. (21 percent) and United Kingdom (27 percent). There is also a lack of scholarly empirical literature on issues concerning software piracy in Canada. This work will therefore not only help in determining the factors that lead to alarming rates of software piracy in the developing countries but will also explore the differences and similarities between piracy related factors of the developed and developing nations of the world.

Further, much of the work argues for intentional behavior towards software piracy. This research in progress work tries to determine those factors that facilitate software piracy as a social norm, especially in developing countries. The model developed for this research therefore includes social norm as one of the variables as well since prior research has used norms to test attitudes and behavior towards piracy.<sup>20</sup> This model, when tested and verified could show the correlation of demographic and other facilitating variables with software piracy. The basic structure of this model has been adopted and modified<sup>21</sup> from a model that was used by Proserpio, Salvemini and Ghiringhelli.<sup>21</sup> Their model was based on a multi-causality approach to determine software piracy factors in 76 countries (including Pakistan and Canada) and is therefore appropriate for this research. The research model is shown in figure.

## 1. BRIEF METHODOLOGY

A self-administering survey instrument questioned respondents about various demographics, their software-acquiring frequency and sources. The survey also had a seven-point based 31 Likert-scale items to assess respondents' social and ethical attitudes towards software piracy. Various items in the questionnaire were adopted from existing studies. The questionnaire items were developed and refined with the help of expert evaluators. The pre-validation of the instrument and research model was conducted with a small sample ( $n = 33$ ) of Information Technology (IT) and Interactive Arts (IA) at the author's home university.

These two groups of students were chosen because they use a variety of software every day. Minor changes were made to the questionnaire to adapt it for the actual studies in Pakistan and Canada. The survey instrument is currently being administered in four different universities in Pakistan and in one university in Canada. To date, Pakistan has returned 120 responses, and Canada has returned 140 (128 usable).

## INITIAL FINDINGS, IMPLICATIONS AND FUTURE RESEARCH

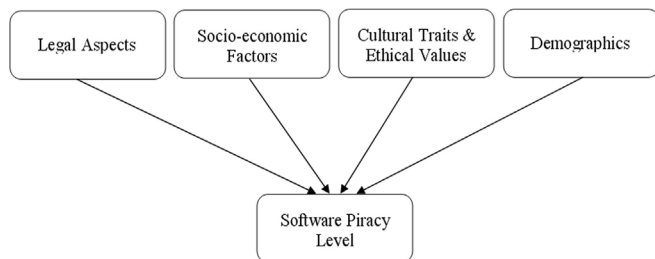
**Pilot Study Results:** Online downloading and sharing software disks seemed to be the most prominent methods of software piracy among students. Fisher's Exact Test with  $\alpha = 0.05$  was run on the questionnaire items to test the correlation between the variables. Some of the variables did not show any significant relationships, mainly due to the small sample size ( $n=33$ ). However, it was evident that students would buy legal software if such software were available at much lower prices, and that they would buy the software if they could afford it ( $P \leq 0.0047$  &  $P \leq 0.0015$ ). This suggests that the high prices of legal software have a correlation with software piracy. More than 90 percent of the respondents thought that other people used pirated software. A similar percentage of the respondents indicated that they had easy access to pirated software.

### Actual Study (Limited) Results

The survey for this study is still ongoing. As much as 150 and 100 more responses from Pakistan and Canada are expected respectively. These responses can have significant statistical impact on the results. Therefore reporting any inferential statistics about the ongoing surveys would be biased. However, a few descriptive statistics are presented in table 1. One Likert-scale item in the questionnaire tested the collectivistic attitude of students and 70% ( $n = 90$ ) Canadian respondents showed a positive attitude towards collectivism. The percentage of Pakistani students downloading pirated software from internet was significantly lower than the Canadians. This could be attributed to the much slower internet speeds in Pakistan.

Although the current study looks at only few institutions from two countries, more countries will be included in this research which will help in generalizing the model and in identifying the determinants which impact piracy levels across different countries. This can help the policy makers in understanding the factors that generate an environment for software piracy and in managing the issue more efficiently.

Table 1. Descriptive statistics of Canada vs. Pakistan



## ENDNOTES

- \* Detailed materials (including complete results) related to this paper can be requested from the author.
- † Hereafter, all piracy rates will be referenced from this study unless specified otherwise.
- ‡ Also see endnote 6.
- § Also see endnotes 1 and 5.
- \*\* This is only the basic structure of the model. A detailed breakdown of the model's components is available from the author.
- <sup>1</sup> Bryan W. Husted, "The Impact of National Culture on Software Piracy," *Journal of Business Ethics*, 26 (2000): 197-211.
- <sup>2</sup> Business Software Alliance (BSA) and International Data Corporation (IDC), "Second Annual BSA and IDC Global Software Piracy Study," <http://www.bsa.org/globalstud/upload/2005-Global-Study-English.pdf> (accessed January 7, 2006).
- <sup>3</sup> W. R. Swinyard, H. Rinne and A. Keng Kau, "The Morality of Software Piracy: A Cross-cultural Analysis," *Journal of Business Ethics*, 9, no. 8 (1990): 655-664.
- <sup>4</sup> Hsing K. Cheng, Ronal R. Sims and Hildy Teegen, (1997). "To Purchase or to Pirate Software: An Empirical Study," *Journal of Information Management Systems*, 13, no. 4 (spring 1997): 49-60.
- <sup>5</sup> Im Al-Jabri and Ah Abdul-Gader, "Software copyright infringements: an exploratory study of the effects of individual and peer beliefs," *Omega*, 25, no. 3 (1997): 335-344.
- <sup>6</sup> Ranjan B. Kini, H. V. Ramakrishna and B. S. Vijayaraman, "An exploratory study of moral intensity regarding software piracy of students in Thailand," *Behaviour & Information Technology*, 22, no. 1(2003): 63-70.
- <sup>7</sup> Trevor T. Moores and Jasbir Dhaliwal, "A reversed context analysis of software piracy issues in Singapore," *Information and Management*, 41 (2004): 1037-1042.
- <sup>8</sup> Trevor T. Moores and Gurpreet Dhillon, "Software Piracy: A View from Hong Kong," *Communications of the ACM*, 43, no. 12 (2000): 88-93.
- <sup>9</sup> Md. Mahbubur Rahim, Mohd. Noah Abd. Rahman and Afzaal H. Seyal, "Softlifting Intention of Students in Academia: A Normative Model," *Malaysian Journal of Computer Science*, 13, no. 1(June 2000): 48-55.
- <sup>10</sup> George E. Higgins and D. A. Makin, "Self-control, deviant peers, and software piracy," *Psychological Reports*, 95 (2004): 921-931.
- <sup>11</sup> Susan L. Solomon and James A. O'Brien, "The Effect of Demographic Factors on Attitudes toward Software Piracy," *Journal of computer Information Systems*, 30, no. 3 (1990): 40-46.
- <sup>12</sup> Husted, 200.
- <sup>13</sup> Icek Ajzen and Martin Fishbein, *Understanding Attitudes and Predicting Social Behavior*. (New Jersey: Prentice-Hall, 1980).
- <sup>14</sup> Icek Ajzen, "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, 50, no. 2 (1991): 179-211.
- <sup>15</sup> Tung-Ching Lin, Meng Hsiang Hsu, Feng-Yang Kuo and Pei-Cheng Sun, "An Intention Model-based Study of Software Piracy," in *Proceedings of the Thirty-Second Annual Hawaii international Conference on System Sciences-Volume 5* (Washington, DC, USA, January 05 - 08, 1999), 5030.
- <sup>16</sup> Timothy C.H. Kwong and Matthew K.O., "Behavioral Intention Model for the Exchange Mode Internet Music Piracy," in *Proceedings of the 35th Annual Hawaii international Conference on System Sciences-Volume 7* (Washington, DC, USA, January 07 - 10, 2002), 191.
- <sup>17</sup> Jih-Hsin Tang and Cheng-Kiang Farn, "The Effect of Interpersonal Influence on Softlifting Intention and Behaviour," *Journal of Business Ethics*, 56 (2005): 149-161.

- <sup>18</sup> International Intellectual Property Alliance. "2005 Special 301 Report: Pakistan," <http://www.iipa.com/rbc/2005/2005SPEC301PAKISTAN.pdf> (accessed January 9, 2006).
- <sup>19</sup> Seung Kyoon Shin, Ram D. Gopal, G. Lawrence Sanders and Andrew B. Whinston, "Global Software Piracy Revisited," *Communications of the ACM*, 47, no. 1 (2004): 103-107.
- <sup>20</sup> Madhavan Parthasarathy and Robert A. Mittelstaedt, "Illegal Adoption of a New Product: A Model of Software Piracy Behavior," *Advances in Consumer Research*, 25 (1995): 693-698.
- <sup>21</sup> Luigi Proserpio, Severino Salvemini and Valerio Ghiringhelli, "Entertainment Pirates: Understanding Piracy determinants in the Movie, Music and Software Industries," in *8<sup>th</sup> International Conference on Arts & Cultural Management (Montreal, Canada, July 3-6, 2004)* [http://www.hec.ca/aimac2005/PDF\\_text/ProserpioL\\_SalveminiS\\_GhiringhelliV.pdf](http://www.hec.ca/aimac2005/PDF_text/ProserpioL_SalveminiS_GhiringhelliV.pdf) (accessed January 7, 2006).

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