Towards Socio-Economic Perspective of Software Piracy: The Case of Thailand

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Abstract—**This study aimed to explore the relation between certain socio-economic characteristics and the software piracy propensity and to formulate hypotheses for further investigation. Social economic statistical information was analyzed thought cultural and social behavioral lens. The results revealed certain aspects of socio-economic relationships, the hypotheses were forged, the discussion was drawn upon the preliminary findings, and implication for Thailand's ICT policy makers was offered.**

Index Terms— **Thailand, software piracy, intellectual property, policy, socio-economy**

I. INTRODUCTION

Piracy of Intellectual property has long been one of the most pressing concerns in global IT communities since it generates great business losses in the software industry. Piracy practically refers to a number of unlawful practices to acquire a form of intellectual properties, among which are Software piracy counterfeiting, internet piracy, rentals, and illegal file transfers. Software piracy, as defined by Software Publisher Association (SPA), includes the unauthorized copying of software for personal use, while counterfeiting involves the sale of unauthorized copies. Known as softlifting, software piracy has become a global phenomenon in spite of international crusades to attenuate it [1]. This concern has been growing even bigger as the spread of the Internet and communication technologies in last three decades provides an infrastructure that makes sharing digital contents and products (software, music, e-book, and video products) effortless [2].

According to Business Software Alliance (BSA) [3] and International Chamber of Commerce (ICC) [4], the total damages resulting from software privacy skyrocketed to $ 63.4 billion. Although Thailand's software piracy rate has slightly been improved from the previous years as Thailand has enforced intellectual property right treaties (Berne Convention) and legislated the National Protection Law (Copyright Protection Law [5], United States Trade Representative has reported that Thailand is one of the highest-ranked intellectual piracy problem countries in the Priority Watch List.

This has already led to seriously national economic impacts and as losses [5-8] as software industry was seriously victimized due to the counterfeit software manufactured in Thailand [9, 10], and Thailand's government has been under pressure to resolve the piracy problem. Domestically, both private sector and the government have been spending a great deal of efforts to control the counterfeit products ceases the productions[10]. The adverse economic impact resulting from piracy in software and other IP-related industries has already intensively examined in various study fields. Several studies focused on social and economic influences which may encourage software piracy activities. These economic premises mentioned were basically drawn upon national income and GDP growth rate, but social factors were not precisely identified. The relations between national economy in term of income per capita and the piracy rate were party studied in [11-13]. Interestingly, some studies found that software piracy could contribute significant public goods or productive capitals to a country that might outweigh the lost revenues to the software industry that arise from piracy [14].

In addition to economic factors, cultural context should not be neglected as it was a potential motivation driving such piracy behavior [2]. By using cultural lens, the differences between occidental and oriental cultures: the oriental values of cooperation and collective socialization, contrasted with the individual rights and liberalism glorified in the western world [15, 16]. This premise was similar to Steidlmeier's [17] finding that the intellectual property problem in the western world was less severe than in the occidental. However, the relationship of piracy behavior and cultural practice in Asian countries was not explicitly identified

II. LITERATURE REVIEW

Software piracy work on Thailand with socio-economic lens has been underdeveloped despite the fact that Thailand has intensively been cited as one of the countries with the highest piracy rates [18-20]. Mandhachitara and Smith[10] posited that the motivations of pirating activities were instituted by a complex relationship embedded within Thai social system, but Mandhachitara and Smith, however, did not substantiate on the complex relationship. Kini and colleagues [21-23] pioneered studies on software piracy among college students, and then published a series of behavioral comparative research on software piracy between Thailand and US students, taking on social structure and values and using "moral intensity" as an instrument and measurement. Still, their studies did not specify the underlying cultural factors. Liang and Yan [24] pursued a comprehensive review of factors contributing to software piracy among the college students, including Thai citizens, finding that attitude, morality, and ethics play significant

role in piracy tendency. However, they concluded that piracy-related behavior of students is influenced by the behavior of their fellows.

Several theoretical frameworks and assumptions were employed to explain software piracy behavior. Among various theoretical perspectives, culture (perspective) perhaps yielded the most descriptive, rhetorical, inferential, and application powers since certain cultural lens inherently constructed the way people perceive, think, and respond towards the world, and thus holding an impact on people's decision to participate in software piracy activities. Hofstede [25] gave a definition "culture" that "the collective programming of mind which distinguishes the members of one group or category of people from another (p. 260)." Kluckhohn et al. [26] defined "value" as "a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means, and ends of action (p. 359)." That is, culture of a particular group of people does have an inducement upon particular thinking and mode of action.

Apart from cultural dimension, economic models address the relationship between particular cultural values and situated environment that culture has influence towards software piracy behavior. Wines and Napier [27] argued that cultural values altogether with the situated environment contributed to cultural practices. For example, economic healthiness, as an environmental factor, contributes to cultural practice as economy where people have monetary power to legally acquire a legitimate copy of software products, and there the incidence of piracy should be lower. On the contrary, for an impoverished economic system, people may be induced to software piracy. As for the later, it may possibly become culturally acceptable for the unprivileged members of the impoverished economic system to commit piracy because of extenuating circumstances.

Vitell et al. [28] developed a cross-cultural ethics model built upon cultural and political environments. Base on Hofstede's cultural model, Vitell et al. [28] highlighted the behavior of the actor: perception of ethics, perception of the negative and positive consequences of the behavior, and interactive relation among actors in different groups. Cohen et al. [29] also augmented Hofstede's model by specifically extending the model in order to capture cultural sensitivies differences that could lead an actor to certain behaviors. In their model, high power distance cultures and low power cultures played important role in cultivate behaviors and the practices between the oriental and the western.

Sell [19] offers conception of crisis, coercion, and choice, makes an analysis of intellectual property protection and antitrust policy in the developing countries. However, Sell does not reach out to cultural factors, nor firmly relate the effect and the result emerging from the problem.

This paper aimed to pursue content analysis upon economic and cultural factors which contributed to software piracy behaviors and then post hypotheses for future studies. Acquiring software piracy motivation would benefit anti-software piracy policy makers to forge a pragmatic solutions and preventions.

III. INFLUENCE-IMPACT FRAMEWORK

This research adopted Influence-Impact Model developed by Trauth [30]. She developed the framework for her study upon the influence of environmental factors on the evolution of Ireland's information economy. In a big picture, the model covers national socio-economic factors that, in turn, created an impact upon themselves. Figure 1 depicts high-level socio-economic elements consisting of policy, infrastructure, economy, and culture. The model has been proved legitimate and effective in many studies in different socio-economic landscapes. Some of which are examinations of socio-cultural influences on the diffusion of electronic data interchange in the Netherlands [31, 32], IT workforce management [33, 34], gender and IT workforce [35, 36], culture influence on IS development [37-40], the development of the software industry [41], and knowledge economy potential [42-44].

As for data collection, this research retrieved data from existing literatures, along with figures, statistics, economic data from trusted public-service organizations such BSA, ICC, ASEAN, World Bank, etc. The data generation was acquired through documents analysis based on existing literature and the documents provided the trusted public-service organizations.
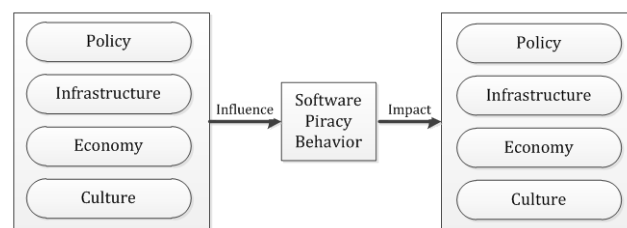

Fig. 1. Influence-impact framework. In this context, the policy, infrastructure, economy, and culture altogether create an influence toward software piracy behavior of a particular country and *vice versa*.

IV. INCOME EFFECT

The income effect was introduced by a discourse on software piracy among software developers. In 1997, SPA tried to prove their curiosity by compiling GDP in 65 countries, and they found that, for every $1,000 increase in GNP, there was a 1.3% decrease in piracy rate. Interesting, a closer examination of the data revealed the inflection point at $6,000: countries with national income per capita below the inflection point exhibited higher piracy rates [45].

The Gross Domestic Product (GDP), considered as a concise indicator of national average wealth, also indicated capacity of a country to generate wealth and well-being. GDP was pervasively employed to facilitate studies on piracy and counterfeiting [11-14, 46]. For example, people with healthy financial status have less incentive to participate in intellectual property piracy activities or purchase counterfeit products. In contrast, the impoverished counterparts with lower financial power tend to spend less on such products which costs more.

Observing certain developing countries, Traphagan and Griffith [2] found that expensive software was exclusively used among groups of individuals which were financially well-off. However, Kini and his colleagues' discovered that college students, regarded as middle-class citizens, were highly involved in software piracy activities.

Regarding individual economic performance, Sims et al. [47] investigated family earning and found a positive interconnection with motivation to purchase legitimate copyright products. Their empirical studies showed of higher piracy rates in countries with widespread poverty. Furthermore, Gopal and Sanders [45] pointed out lesser the per capita GNP associated with higher piracy rate. For instance, the piracy rate nearly 25% was found among elite groups which the per capita GNP is approximately

approaching $40,000 whereas the piracy rate is moving from 60% towards 80% among populations with the per capita GNPs lower than $6,000. In addition, Moores' [48] studies convinced Gopal and Sanders's [45] findings.

Taking into account Thailand's economy back to 1960s, the GDP improved over time since the export index has dramatically increased. However, in the past 30 years, GDP percentage growth slightly decreased from 7.4% down to 5, and therefore this recessive trend may negatively result in lower GNP per capita. Regarding the Gopal and Sanders' [45] linear model, Thailand was fitted in the model duce the high piracy rate and per capita GDP.

Therefore, the hypothesis is that the GDP index, GNP index, and income per capita altogether contribute to software piracy propensity in Thailand.

V. COLLECTIVISM

Erez and Early [49] defined individualism and collectivism as "a set of shared beliefs and values of a people concerning the relationship of an individual to aggregates or groups or individuals to. It represents the way individuals relate to others in their society, and it reflects their emotional and cognitive attachments to particular networks of individuals." Hofstede [50] referred individualism as a continuum dealing with the ties between individuals – loose or tight. Triadis and Bhawuk [51] argued that people situated in collectivist culture and the people immersed in individualist culture are morally different. The former views morality as the good of the in-group (family, friends, colleagues, etc.) while the latter construct morality as equality of the individual [52, 53]. This rationality was effectively useful to explain Americans' decision (not) to buy pirated products [54].

As for collectivist culture, Hofstede [50] and Swinyard and his colleagues [16] found that a cultural value was highly placed upon sharing practice within groups, and this accounted for a chronic software piracy problem in societies, collectivist cultures. Shin et al. [20] asserted that culture does have an effect on piracy behavior. For example, piracy rate keeps rising as the level of collectivism grows larger. Therefore, collectivism index was helpful to forecast and indicate the occurrence of software piracy activities.

In this regard, Thailand is considered a high collectivist culture [55-57]. Mattila and Patterson [55] articulated on the "polar extremes" between the Thai and the Western cultures "in terms of personal interaction style, communication style, notions of self, and the development and maintenance of interpersonal relationships." They re-confirmed that sharing was the centered value of the collectivist culture [20], and this could be alluded to indecent behaviors such software piracy.

As illustrated in the figure 2, Thailand's collectivism index was rated as 80 [20], and its piracy rate was very high. In addition, other countries with high collectivism index also displayed high piracy rate, especially in the developing countries such as Malaysia, Indonesia, Guatemala, and Pakistan, just to name a few. In this regard, the collectivism index was evidence of the correlation between software piracy and national collectivism.

Therefore, the hypothesis is that the collectivism mindset contributes to software piracy behaviors in Thailand.
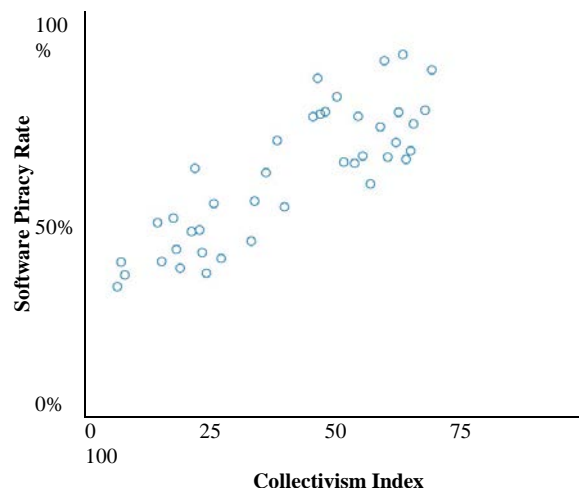

Fig. 2. Relationship between software piracy rate and collectivism index*. The scatter plot reveals that the software piracy rate rises according to the collectivism index.
*Modified from Shin et al. [20]

VI. DISCUSSION

Thailand has long been internationally and domestically received pressures to cease the piracy. As a WTO member, Thailand has adopted intellectual property right treaties (Berne Convention) and National Protection Law (Copyright Protection Law) [2, 5], but the enforcement of the treaties and the law was not successful. In early 1990s, the government underwent the software anti-piracy initiatives. The feedback was however disturbingly negative. The criticism was the policy could prevent the Thailand from ICT advancement [58]; the enforcement was not only ineffective, but also stirred up mass resentment. Since then, Thailand has always been on in the US's Priority Watch List and recently sitting above 70%, illustrated in table 1.

Taking into consideration the income effect, it is advisable that price discrimination, as a pricing mechanism, be an effective strategy fighting against the software piracy because the copyright versions are relatively expensive in certain developing economies when compared with their average income per capita. Pursuing on original pricing could be futile and therefore inevitably drive individuals to purchase the counterfeit [59]. The average national income in Thailand is for example one-tenth of the US, and there it would not be logically possible for a student to afford a $10,000 Autodesk Maya, one of the predominant software for graphic animation filming, to do undergraduate computer graphic design assignment.

Obviously the motivation to pirate is due to the greatly difference between legitimate and pirated copies that is exacerbated by the relatively low income in the developing and the underdeveloped countries. If there are "stricter copyright laws, coupled with high prices of legitimate software, will severely restrict software usage by a large majority of the general and even computer literate population" [45]. Therefore, the price discrimination and the subsidy are highly suggested as remedy for software piracy problem in developing and underdeveloped countries.

The preliminary finding implied that the collectivism's qualities (cultural characteristics) along with national income per capita (situated economics) altogether contributed to "sharing" behavior and therefore behavioral patterns for software piracy practices. This implication was compatible with a series of studies on software piracy among college students which recently conducted by Kini and his colleges

[21-23]. Kini and his colleagues argued that people's particular directly and indirectly created a moral pattern and designated the course of future action. Moreover, this could lead to self-prophesy, a situation where social paradigms proves resistant to change because the people buy into a belief that an unfortunate social phenomenon cannot be improved, so they act in response to such belief.

TABLE I.   SOFTWARE PIRACY RATE BY COUNTRY, 2007 - 2011*

	2011	2010	2009	2008	2007
Australia	23%	24%	25%	26%	28%
Bangladesh	90%	90%	91%	92%	92%
Brunei	67%	66%	67%	68%	67%
China	77%	78%	79%	80%	82%
Hong Kong	43%	45%	47%	48%	51%
India	63%	64%	65%	68%	69%
Indonesia	86%	87%	86%	85%	84%
Japan	21%	20%	21%	21%	23%
Malaysia	55%	56%	58%	59%	59%
New Zealand	22%	22%	22%	22%	22%
Pakistan	86%	84%	84%	86%	84%
Philippines	70%	69%	69%	69%	69%
Singapore	33%	34%	35%	36%	37%
South Korea	40%	40%	41%	43%	43%
Sri Lanka	84%	86%	89%	90%	90%
Taiwan	37%	37%	38%	39%	40%
Thailand	72%	73%	75%	76%	78%
Vietnam	81	83%	85%	85%	85%
Other AP	91	91%	90%	91%	91%
Total AP	60	60%	59%	61%	59%

*Figures from BSA Global Software Piracy Study

Ironically, both of the cultural perspectives and economic factors fail to describe a very active piracy though P2P file-sharing in America. America itself is a highly individualistic nation; moreover, it also has healthy GDP and income per capita, so it was supposed to be that Americans have less incentive to participate in such software piracy activities. On P2P networks, the contents transferred through file-sharing networks range from entertainment media content to software applications and from a small MP3 files to huge DVD-quality movie files. Therefore, the validity of cultural and economic factors toward piracy behaviors could be questionable. However, the proponents of the idea of socio-economic factors may argue that there are, even in individualistic countries, contemporary sub-cultures that run against the mainstream ones. Unfortunately, less work has been done on this regard.

VII. IMPLICATION FOR THAILAND

Merely adopting intellectual properties policies from well-developed economies without localization and adaptation proved unrealistic and product for the case of Thailand. However, price discrimination may be considered practical and useful as it was, and therefore software publishers, including the manufactures themselves, are suggested to lower the price in order to dissuade consumers from buying pirated products. To this light, the government may subsidize software publishers that exercise price discrimination in flavor of low-income groups.

To demonstrate, there was a success story about software subsidy initiative between Thailand's government and Microsoft Corporation. Microsoft Corporation customized Microsoft Windows XP Home Edition by excluding extravagant features while preserving the core functionalities, a lean version of Microsoft Windows XP were much cheaper and affordable, so the low-income groups had access to legitimate operating system copies.

In contrast, open-source Linux-based operating systems campaign was at the time less pervasive as the open-source software were still considered new, popular only among technicians, and lacking of compatibility and interoperability with Microsoft Windows which highly penetrates Thai's household, private sector, and public sector.

All in all, there may remain certain questions for future research. Against the preliminary findings, U.S. has recently displayed salient trait of piracy behaviors such P2P file sharing practice over intellectual properties. Interesting, Japan has been thought of a high collectivism country, but its software piracy rate has been against all other countries with high collectivism index. This is worthwhile for further investigation.

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