



## **Software Piracy in Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author ADR designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author AJI managed the analyses of the study. Authors ESD and AJI managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

The enormity of software piracy varies in different countries and Nigeria is not an exception. Software piracy occurs in diverse forms such as soft lifting, hard disk loading, counterfeiting and unauthorized renting. Many reasons are behind software piracy. Software piracy has many negative economic consequences: Competition distorted by pirated software at the expense of local industries, loss of tax revenue and jobs because of the lack of a legitimate market, increase in cost recovery which, overall, affects social well-being of the citizenry. Findings have revealed that Nigeria has the highest case of software piracy, intellectual property theft and other sharp practices in the IT industry in Africa. Hence, this work investigates software piracy in Nigeria; revealing the concepts, causes, effects; and proffered solutions. We adopted the descriptive survey design. The research instrument used was online questionnaire with a sample size of 3270 people drawn from a population of respondents from the six (6) Geopolitical Zones of Nigeria. The results show that software piracy has statistically significant effect on the economy of Nigeria and that high standard of living is the biggest cause of software piracy in Nigeria.

*Keywords: Copyright; software license; software piracy.*

### **1. INTRODUCTION**

There is a contrast in many areas of life between what people deem to be wrong and the conduct

that is generally acceptable. Such an area is software piracy as established by a study in 2011 on global piracy by [1] showing that 79% of software users around the world concur that

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software does not belong to everyone and that the developers of software should be remunerated for their efforts; yet 57% of users admit to engaging in some form of software piracy [2]. Piracy is the unauthorized duplication or use of a copyrighted book, recording, television program, patented invention, trademarked product, etc. [1].

Software piracy is any unlawful distribution, or use of software [3]. It is such a "lucrative business" that has lured organized crime groups in a number of countries. Software piracy rate was reported to have been 36% by the BSA. It causes significant loss of revenue for publishers, which in turn results in higher prices for the consumer [4]. Copyright is a legal means of protecting an author's work. It can be regarded as the right granted an author (artist, writer, publisher, musician, performer, photographer, sculptor, filmmaker, architect, or any other creator) over his works. Such rights ensure that the owner of a work receives payment, recognitions and/ or royalties whenever his work is used or reproduced [5].

With the continuous decline in the level of social and economic well-being of people in various communities in Nigeria; there have been series of crime, ranging from cybercrimes and social distortion to other forms of robbery. One of such criminal acts with a viral prevalence is the act of software piracy which is also known as illegal copyright infringement of software [5].

Although the government has put in a lot of resources to curb the escalation of piracy in Nigeria, the pace of internet fraud and software piracy has increased overtime in Nigeria. However, with the war against piracy gathering impetus throughout the country, interested and affected Nigerians are joining the battle while the pirates have gone underground; copyright owners appear to be winning [6]. Software piracy does not require a hacker or skilled coder but any normal person with a computer or other computing devices can become a software pirate especially if they do not know about the software laws. With such a widespread impact, it is of great importance to understand the global impacts of software piracy and the dangers it presents. Problems associated with software piracy include: Increased chances that the software will malfunction or fail because there is no warranty, the software cannot be updated, forfeited access to support for the program such as training, upgrades, customer support and bug

fixes, increased risk of infecting your Personal Computer (PC) with malware, viruses or adware, legal repercussions due to copyright infringement and the overall economic sabotage that negatively affects the social well-being of the citizenry [7,8]. Hence, the importance of this work which investigates software piracy in Nigeria revealing the concepts, causes, effects and proffered solutions.

## 1.1 Research Questions

- What are the causes of software piracy in Nigeria?
- What is the role of ICT in the growth of software piracy in Nigeria?
- What are the effects of software piracy on the economy of Nigeria?
- What is the relationship between software piracy and the social well-being of citizens in Nigeria?

### 1.1.1 Statement of research hypothesis

#### Hypothesis 1

$H_0$ : Software piracy has no significant effect on the economy of Nigeria.

#### Hypothesis 2

$H_0$ : There is no significant relationship between software piracy and the social well-being in Nigeria.

## 2. CONCEPTUAL FRAMEWORK

### 2.1 Software Piracy

#### 2.1.1 The determinants of software piracy and assumptions

The background of the use of the computer in relation to software piracy reveals that computer and software are inseparable. Software copies should be made with appropriate authorization. The breach of copyrights, patents, trade secrets and the terms of license agreements are prohibited by law in nearly all circumstances [5]. Even when software is not so protected, such infringements are contrary to professional behavior. [9] however, states that fair use is the safety valve of copyright because without it,

copyright's constitutional purpose to promote learning, advance knowledge, and promote the progress of science would be useless.

Several factors may contribute to regional differences in piracy findings, software prices and level of incomes, and the extent of protection of intellectual property. In addition, piracy is not uniform within a country: it varies between cities, industries and demographic categories. The market for information technology today is less than 4% in developed countries, while growth is close to 20% in countries with high piracy as China, India or Russia. Emerging countries in Asia Pacific, Latin America, Eastern Europe, Middle East and Africa now account for over 30% of deliveries of microcomputers but less than 10% of deliveries of software. Thus, indicating that software piracy is widespread in those same regions [10,11,12].

## **2.2 Factors Influencing Piracy**

### **2.2.1 Economic factors**

Software is often considered unaffordable for most people in developing countries and even certain social categories of developed countries. These people generally believe that the only alternative is hacking software. Income levels may therefore influence the attitudes and behaviors towards software piracy.

### **2.2.2 Institutional factors**

Countries that have signed treaties and international conventions for the protection of IPR and who are members in international organizations for the protection of IPR are likely to have the lowest piracy rates. In addition, a strict implementation of laws and an effective judicial system does reduce the rate of piracy.

### **2.2.3 Cultural and social factors**

Countries with greater economic freedom should have the lowest piracy rates. This is due to the fact that the low prices of original software created by free competition make their pirated versions less attractive.

### **2.2.4 Technological factors**

Technological capabilities may influence the ability to copy and sell software and promoting piracy. At the same time they can help to

strengthen mechanisms for monitoring violations [13].

## **3. REVIEWING SOFTWARE PIRACY**

### **3.1 Different Forms of Software Piracy**

Software piracy occurs in different forms. The most basic type as defined by Microsoft is known to be "End User Piracy". It occurs when persons and corporations make copies of software without a legal right to do so. Some people copy software and give it to others without knowing that this is software piracy [14]. Several types of software piracy are:

#### **3.1.1 Soft lifting**

Also referred to as End User Piracy, is the act of illegal copying of software and distributing it to friends, organizations or duplication and resale in violation of the terms of the license agreement [14].

#### **3.1.2 Internet piracy**

This occurs when unauthorized software is downloaded from websites for free on the Internet. Presently, internet piracy is one of the most prolific ways to get pirated software.

#### **3.1.3 Hard-disk loading**

This is when people sell computers loaded with pirated software to persuade buyers to purchase their products.

#### **3.1.4 Software counterfeiting**

Is illegal duplication and sale of copyrighted software in such a way that it appears to be authentic.

#### **3.1.5 Unauthorized use of academic software**

Several software companies sell academic versions of their software to educational institutions which is turned into personal use or for profit purposes in violation of the law which is a form of software piracy [14].

#### **3.1.6 Renting**

This is when people give out a copy of licensed software for temporary uses at a cost. This is prohibited by "Computer Software Rental Amendments Act" of 1990.

### **3.2 Major Causes of Software Piracy in Nigeria**

The enormity of software piracy varies in different countries and Nigeria is not an exception. [15] utilized the Theory of Reasoned Action (TRA) to build a model of piracy behavior which pointed out that an individual's intention towards software piracy was a major factor. Some key reasons behind software piracy based on different studies are analyzed below [16].

Firstly, lack of awareness in proper use of software is considered to be the key point influencing software piracy. Many people misuse software products because they do not read license agreement during installation. They install software in their computers, make a copy of it and give it to others. They do not even realize that what they have done is illegal and against the copyright law.

Secondly, the high price of software is another factor causing software piracy. The economy of any country has a strong correlation with the piracy rates. According to a global study conducted by BSA, piracy rate was higher in developing countries like Nigeria, than in the developed countries.

Thirdly, several studies regarding software piracy have shown that the piracy rate is mostly higher in the Asian and African countries in comparison with the countries in the North America and Western Europe since they know copyright rules and laws [17].

Fourthly, availability of pirated software on the Internet is one of the major factors increasing the software piracy rate globally. Internet piracy is when the Internet is used to download illegal software.

Fifthly, due to software unique digital format, it is an easy medium to pirate and easily disseminated using low cost digital media and the Internet.

Sixthly, it has been found that there is a strong correlation between social or cultural factors and software piracy. These factors refer to the prevailing social structure of a country and the attitudes shared by the members of that society [6].

### **3.3 The Effects and Consequences of Software Piracy on Nigeria Economy**

The Internet has made global distribution of content easier than ever, with the ultimate promise of cutting costs by reducing the role of middlemen who produce, distribute, and sell the physical copies. Sadly, the digital era has an ugly side for producers and developers in the IT sector as consumers are able to access content without permission and with no payment [7,18]. While people using or distributing illegal software do not consider its harmful effects, software piracy has been conclusively shown to have a negative effect on the economy. Software production employs millions of people and accounts for billions of money in revenue turnover. Pirated software causes loss of revenue and tens of thousands of jobs. Decreased revenue can directly affect consumers as well because it leads to cost cutting measures in terms of reduced technical support [11]. Pirated software harms everyone, from software content developers to distributors, and eventually all users.

The illegal duplication and distribution of software has a considerable impact on the economy, costing huge amount of money in loss revenues, subsequently job losses, retail losses, and governmental tax losses, money that would have gone back into local communities for building of infrastructure and job creation [13,19]. Investigations by the Business Software Alliance (BSA) have revealed Nigeria has the highest case of software piracy, intellectual property theft and other sharp practices in the Information and Technology (IT) industry [20]. According to the BSA, the effects of software piracy and other vices cost the Nigerian economy over N82 billion yearly, putting a strain on technology companies ability to create more jobs and new technologies.

### **3.4 The Role of ICT in the Growth of Software Piracy in Nigeria**

The widespread of computers and the internet has provided many advantages to everyday life, but also created new opportunities for unethical and illegal acts such as software piracy. Computers have since the 1970s become ever faster, smaller and cheaper. Even though Internet has become an essential tool for education and entertainment in life of students, it is widely accepted that the spread of the Internet has facilitated growth of a variety of crimes, such as digital piracy [3]. Software Piracy, which is the

unauthorized use or copying of software illegally, has become a major problem for businesses and it is widespread in many parts of the world which led to drain of the economy. As the access to computer grows, the percentage for using pirated software also grows. Software piracy technically covers a great area of ethical principles, as they relate to computers and information technology. This is because people might inadvertently commit the act without realizing that they are ethically/morally/legally wrong [21].

When one buys software, it means that they are actually buying the software license but not the software [22]. Computers, as a result of information technology have merely transformed the ways in which old ethical issues arise and added new stress to old problems. But unlike the analog technologies of the past, today's digital technology allows an infinite number of perfect copies to be made inexpensively from just one original and allows those copies to be distributed almost with no cost worldwide using the Internet. Entirely eliminating this kind of piracy is impossible. Once one digital copy of software is created without copy protection measures, individuals can quickly distribute it over the Internet and CD until it is widely available. Officially the same CD and license number have been used. Thus, when people purchase the CD with the license number, they think that they have the right of usage anywhere and any number of times [7,23].

Computer technology entices its users to perpetrate crime because of its numerous capabilities such as speed, aesthetic attraction, increased availability of potential victims, international scope, according to Richard Rubin [24]. Among the many unlawful practices that weaken the IT sector worldwide, the illegal copying, transfer, reproduction, and usage of copyrighted software are the most significant threats to the software industry in particular in the Middle East and Africa (MEA) region which as a whole had a piracy rate of 59% in 2008, but countries like Libya, Iraq, Nigeria, and Zimbabwe had rates of pirated software well above 80% [25].

#### 4. EMPIRICAL REVIEW

The fair use of computers and information technology has been an ongoing discourse in the last decade. Of all the issues within computer ethics, the unauthorized duplication of software (usually called software piracy) has captured

more than its fair share of attention. Software piracy is an old trade. To protect the software from being pirated has become the core issue in the field of software protection. In a study, [26] focuses on software piracy among university students. Students from computer background are more involved in piracy as compared to others. Limitation of the study was that it was limited to the university students only. In his paper, [27] analyzes the optimal protection strategy for software developer in horizontally and vertically differentiated markets. This study mainly focuses on the effects of protection costs and risk in a competitive market and does not include the externalities and other factors. [28] presents an extensive literature review on software piracy and then reports the findings of an empirical study on the impact of demographic factors on software piracy factors among IT professionals in Turkey. The results show that age, experience and gender have significant impact on software piracy. However, the survey was limited only to IT professionals. [29] studied and tested a causal model of Internet piracy among university's students using a structural equation modeling (SEM) procedure. Studies in this line of inquiry is rather limited, particularly in the context of Malaysia, larger sample size to generate better insights into this issue is required.

Petar and Claudia [30] in their paper studied the influence of technical copy protections on application software piracy. The findings proved useful to managers of software companies and policy-makers in reviewing existing software protection policies, laws and regulations, such that any flaws or loopholes can be identified. [31] determined the various influences on software piracy using a large sample of countries. Results show that economic, institutional, and technological factors exert important influences on software piracy, albeit with some qualitative and quantitative differences. But this investigation does not involve examining the piracy differences across software types. [32] proposed an integrated approach for controlling the software piracy. This model is beneficial in combating software piracy and securing the software from redistribution.

#### 5. RESEARCH METHODOLOGY

This research work adopted the descriptive survey design. The descriptive survey design deals with the systematic collection of facts from a target audience or population. The population

of study comprised of respondents from the six (6) Geopolitical Zones of Nigeria. The sampling method used for the study is convenience sampling with a sample size of 300 people from all Geopolitical Zones of Nigeria. The sample for this study was drawn from the population of the study.

The research instrument used for this study was an online questionnaire. The online questionnaire was selected by the researcher because it had the capability of eliciting factual data from a given population, covering a wide range of responses titled: "Software Piracy in Nigeria". The research instrument was prepared by the researcher and submitted for validation by the different levels of scrutiny departmentally. The questionnaire was divided into five (5) sections covering the research questions. The various sections are as follows:

**Section A:** Personal information of the respondents

**Section B:** Source of Software.

**Section C:** Awareness of Software piracy

**Section D:** Causes of Software Piracy

**Section E:** Effect of Software Piracy

## 6. RESULTS AND DISCUSSION

This section shows the presentation, analysis and interpretation of the data gathered in the

course of this study. The data are presented in tables and analysis of the data was done online, also using Statistical Package for Social Sciences (SPSS) version 21 Produced by IBM Corp. The Questionnaires were administered to the respondents online based on the six (6) Geopolitical zones in Nigeria.

### 6.1 Data Presentation and Interpretations

#### 6.1.1 Personal information

This section gives the personal information of the respondents across the six (6) geopolitical zones in Nigeria.

Table 1 shows the age distribution of the respondents. The result shows that 791 of them which is 24.2 percent are between the age bracket of 16–24 years; 1290 of them which represent 39.4 percent are between 25-34 years; 789 of them which is 24.2 percent are between 35-44 while 400 of them which is 12.2 percent are 45 years and above.

Table 2 shows the respondents geopolitical zones in Nigeria. The result shows that 480 of the respondents which is 15 percent are from the South-South; 479 which is 15 percent of them are from South-East; 529 of them which is 16 percent are from South-West; 531 which is 16 percent of them are from North-Central; 800 which is 24 percent of them are from North-East while 451 which is 14 percent are from North-West.

**Table 1. Age of respondents**

S/N	Age range	No of respondents	% of respondents
1.	16 – 24	791	24.2
2.	25 – 34	1290	39.6
3.	35 – 44	789	24.2
4.	45 and above	400	12.0
	Total	3270	100.0

Source: Online Survey, 2019

**Table 2. Geo-political zones of the respondents**

S/N	Geo-political zone	No of respondents	% of respondents
1.	South-South	480	15
2.	South-East	479	15
3.	South-West	529	16
4.	North-Central	531	16
5.	North-East	800	24
6.	North-West	451	14
	TOTAL	3270	100

Source: Online Survey, 2019

**Table 3. Level of education of the respondents**

S/N	Level of education	No of respondents	% of respondents
1.	Tertiary	2820	86.2
2.	Secondary	420	12.8
3.	Primary	30	1.0
4.	Non- formal	0	0
	Total	3270	100.0

Source: Online Survey, 2019

Table 3 shows the level of education of the respondents. The result shows that 2820 which is 86.2 percent of the respondents have obtained or are in the tertiary level of education; 420 which is 12.8 percent of them are in the secondary level; 30 of them which is 1 percent are in the primary level while none is non-formal or uneducated.

### 6.2 Source of Software

This section gives information on how individuals, organizations get software products, the number of people that use software and the price at which they purchase the software products.

Table 4 shows the distribution of organizations that use software products. The result shows that

2693 respondents which is 82.4 percent work in an organization that use software while 577 of them which is 17.6 percent do not work in an organization that use software.

Table 5 shows the distribution of how organizations get software. The result shows that 1212 which is 37.1 percent of the organizations download free software online; 1050 which is 32.1 percent copy from a friend or neighbor organization; 428 representing 13.1 percent buy online while 580 which is 17.7 percent buy from vendors.

Table 6 shows the price at which organizations buy software from vendors. The result shows that 2447 which is 74.8 percent buy at the price less than N3000 while 823 which is 25.2 percent buy at the price of N3000 and above.

**Table 4. Organization that use software**

S/N	Software use by organisation	No of respondents	% of respondents
1.	Organizations that use Software	2693	82.4
2.	Organization that do not use Software.	577	17.6
	Total	3270	100.0

Source: Online Survey, 2019

**Table 5. How organizations get software**

S/N	How organizations get software	No of respondents	% of respondents
1.	Download free software online	1212	37.1
2.	Copy from other organizations	1050	32.1
3.	Buy Online	428	13.1
4.	Buy from Vendor	580	17.7
	Total	3270	100.0

Source: Online Survey, 2019

**Table 6. Price of software from vendor**

S/N	Price	No of respondents	% of respondents
1.	Price < N3000	2447	74.8
2.	Price ≥ N3000	823	25.2
	Total	3270	100.0

Source: Online Survey, 2019

**Table 7. The distribution of individuals using a smart phone**

S/N	Usage of smart phone	No of respondents	% of respondents
1.	Uses a Smart phone	3187	97.5
2.	Does not use a Smart phone	83	2.5
	Total	3270	100.0

Source: Online Survey, 2019

**Table 8. How individuals obtain phone's software**

S/N	Individual phone software	No of respondents	% of respondents
1.	Download from store	1571	48.0
2.	Copy from a friend	1239	37.9
3.	Free online download	460	14.1
	Total	327	100.0

Source: Online Survey, 2019

Table 7 shows the distribution of individuals using a smart phone. The result show 3187 which is 97.5 percent use a smart phone while 83 which is 2.5 percent do not use a smart phone.

Table 8 shows the distribution of how individuals get software programs on their smart phones. The result shows that 1571 which is 48 percent download from store; 1239 which 37.9 percent copy from a friend while 460 which is 14.1 percent get free online download.

### 6.3 Awareness of Software Piracy

This section provides information from the respondents on their knowledge on software piracy in Nigeria. Respondents were asked to rate their level of agreement with each statement or question with appropriate responses on a five item Likert scale. Where (5) is "Strongly Agree", (4) is 'Agree', (3) is "Neither Agree nor Disagree nor Neutral", (2) is "Disagree" and (1) is "Strongly Disagree".

Table 9 shows the responses of respondents to lack of awareness as one of the causes of software piracy in Nigeria. 911 which is 27.9 percent of the respondents strongly agreed; 1788

which is 54.7 percent agreed; 290 which is 8.9 percent were neutral; 259 which is 7.9 percent disagreed while 22 which is 0.6 percent strongly disagreed.

### 6.4 Cause of Software Piracy

Table 10 shows the responses of respondents stating if Information Communication Technology (ICT) contributes to software piracy in Nigeria. The result shows that 1154 which is 35.3 percent of the respondents strongly agreed; 1640 which is 50.2 percent agreed; 195 which is 5.9 percent were neutral; 245 which is 7.5 percent disagreed while 36 which is 1.1 percent strongly disagreed that Information Communication Technology (ICT) contributes to software piracy in Nigeria.

Table 11 shows the responses of respondents showing weak legal enforcement as a cause of software piracy in Nigeria. 1078 of the respondents which are 33.0 percent strongly agreed; 1792 which is 54.8 percent agreed; 255 which is 7.8 percent were neutral; 135 which is 4.3 percent disagreed while 10 which is 0.3 percent strongly disagreed that weak legal enforcement is also a cause of software piracy in Nigeria.

**Table 9. Lack of awareness**

S/N	Lack of awareness	Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	911	27.9	27.9
2.	Agree	1788	54.7	82.6
3.	Neutral	290	8.9	91.5
4.	Disagree	259	7.9	99.4
5.	Strongly Disagree	22	0.6	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

**Table 10. Contribution of ICT to software piracy in Nigeria**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1154	35.3	35.3
2.	Agree	1640	50.2	85.5
3.	Neutral	195	5.9	91.4
4.	Disagree	245	7.5	98.9
5.	Strongly Disagree	36	1.1	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

**Table 11. Weak legal enforcement**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1078	33.0	33.0
2.	Agree	1792	54.8	87.8
3.	Neutral	255	7.8	95.6
4.	Disagree	135	4.1	99.7
5.	Strongly Disagree	10	0.3	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

**Table 12. Standard of living**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	825	25.2	25.2
2	Agree	1270	38.8	64.0
3	Neutral	431	13.2	77.2
4	Disagree	649	19.9	97.1
5	Strongly Disagree	95	2.9	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

**Table 13. Level of poverty**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	670	20.5	20.5
2	Agree	1200	36.7	57.2
3	Neutral	317	9.7	66.9
4	Disagree	683	20.9	87.8
5	Strongly Disagree	400	12.2	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

Table 12 shows responses of respondents to high standard of living as a cause of software piracy in Nigeria. 825 which is 25.2 percent strongly agreed; 1270 which is 38.8 percent agreed; 431 which is 13.2 percent were neutral; 649 which is 19.9 percent disagreed while 95 which is 2.9 percent strongly disagreed.

Table 13 shows the responses of respondents to poverty as a contributing factor to software piracy in Nigeria. 670 which is 20.5 percent strongly agreed; 1200 which is 36.7 percent agreed; 317 which is 9.7 percent were neutral; 683 which is

20.9 percent disagreed while 400 which is 12.2 percent strongly disagreed that poverty is a contributing factor to software piracy in Nigeria.

Table 14 shows the responses of respondents to high cost of license software as a cause of software piracy in Nigeria. 1630 which is 49.9 percent strongly agreed; 1303 which is 39.9 percent agreed; 215 which is 6.5 percent were neutral; 105 which is 3.2 percent disagreed while 17 which is 0.5 percent strongly disagreed that high cost of license software is a cause of software piracy in Nigeria.

**Table 14. High cost of license software**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1630	49.9	49.9
2	Agree	1303	39.9	89.8
3	Neutral	215	6.5	96.3
4	Disagree	105	3.2	99.5
5	Strongly Disagree	17	0.5	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

**Table 15. Pirated software on the internet**

S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1433	43.8	43.8
2	Agree	1527	46.7	90.5
3	Neutral	242	7.4	97.9
4	Disagree	58	1.8	99.7
5	Strongly Disagree	10	0.3	100.0
	Total	3270	100.0	100.0

Source: Online Survey, 2019

Table 15 shows the responses of respondents to pirated software on the internet as a catalyst to the increase in software piracy. 1433 respondents which is 43.8 percent strongly agreed; 1527 which 46.7 percent agreed; 242 which is 7.4 were neutral; 58 which is 1.8 disagreed while 10 which is 0.3 percent strongly disagreed that pirated software on the internet is a catalyst to the increase in software piracy.

**6.5 Effect of Software Piracy**

Table 16 shows the responses of respondents if there is a relationship between software piracy and social well-being in Nigeria. 1011 which is 30.9 percent strongly agreed; 1509 which is 46.2 percent agreed; 373 which is 11.4 percent were neutral; 297 which is 9.1 percent disagreed while 80 which is 2.4 percent strongly disagreed that there is a relationship between software piracy and social well-being in Nigeria.

Table 17 shows the responses of respondents to software piracy as having significant effect on the

economy of Nigeria. 1086 which is 33.3 percent strongly agreed; 1544 which is 47.2 percent agreed; 223 which is 6.8 were neutral; 210 which is 6.4 percent disagreed while 207 which is 6.3 percent strongly disagreed that software piracy has significant effect on the economy of Nigeria.

**7. RESEARCH HYPOTHESIS**

**Hypothesis 1**

**H<sub>0</sub>:** Software piracy has no significant effect on the economy of Nigeria.

**H<sub>1</sub>:** Software piracy has significant effect on the economy of Nigeria.

**7.1 Decision Rule**

In taking decision for “r”, the following rules shall be observed;

If the value of “r” tabulated is greater than “r” calculated, accept the alternative hypothesis (H<sub>1</sub>) and reject the null hypothesis (H<sub>0</sub>).

**Table 16. Social well-being**

Relationship between software piracy and social well-being in Nigeria				
S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1011	30.9	30.9
2	Agree	1509	46.2	77.1
3	Neutral	373	11.4	88.5
4	Disagree	297	9.1	97.6
5	Strongly Disagree	80	2.4	100.0
	Total	327	100.0	100.0

Source: Online Survey, 2019

**Table 17. Software piracy has significant effect on the economy of Nigeria**

Software piracy has significant effect on the economy of Nigeria				
S/N		Frequency	Percentage frequency	Cumulative percentage
1	Strongly Agree	1086	33.3	33.3
2	Agree	1544	47.2	80.5
3	Neutral	223	6.8	87.3
4	Disagree	210	6.4	93.7
5	Strongly Disagree	207	6.3	100.0
Total		3270	100.0	100.0

Source: Online Survey, 2019

**Table 18. Conclusion 1 based on decision rule**

		Software Piracy has significant effect on the economy of Nigeria	High Standard of Living is a cause of software piracy in Nigeria
Software Piracy has significant effect on the economy of Nigeria	Pearson Correlation	1	.853
	Sig. (2 - tailed)		.000
	N	3270	3270
High Standard of Living is a cause of software piracy in Nigeria	Pearson Correlation	0.853	1
	Sig. (2 - tailed)	.000	
	N	3270	3270

Note: There is a statistically significantly (0.00) strong relationship (0.853) between the responses of the respondents that said that software piracy has significant effect on the economy of Nigeria and those that said that high standard of living is a cause of software piracy in Nigeria

**Table 19. Conclusion 2 based on decision rule**

		There is a relationship between Software Piracy and social well – being in Nigeria	High Standard of Living is a cause of software piracy in Nigeria
There is a relationship between Software Piracy and social well – being in Nigeria	Pearson Correlation	1	.915
	Sig. (2 - tailed)		.000
	N	3270	3270
High Standard of Living is a cause of software piracy in Nigeria	Pearson Correlation	0.915	1
	Sig. (2 - tailed)	.000	
	N	3270	3270

Note: There is a statistically significantly (0.00) strong relationship (0.915) between the responses of the respondents that said that there is a relationship between software piracy and the social well-being in Nigeria and those that said that high standard of living is a cause of software piracy in Nigeria

If the “r” calculated is greater than the “r” tabulated, accept the null hypothesis (H<sub>0</sub>) while the alternative hypothesis is rejected.

From Table 18 above, since the value of “r” tabulated is greater than “r” calculated, accept the alternative hypothesis (H<sub>1</sub>) and reject the null hypothesis (H<sub>0</sub>) and conclude that software piracy has significant effect on the economy of Nigeria.

**Hypothesis 2**

**H<sub>0</sub>:** There is no significant relationship between software piracy and the social well-being in Nigeria.

**H<sub>1</sub>:** There is significant relationship between software piracy and the social well-being in Nigeria.

Level of significance (α=0.01).

From Table 19 above, since the value of “r” tabulated is greater than “r” calculated, accept the alternative hypothesis (H<sub>1</sub>) and reject the null hypothesis (H<sub>0</sub>) and conclude that there is a relationship between software piracy and the social well-being in Nigeria.

## 8. CONCLUSION

The study made the following findings based on the responses received from the respondents that: There is a relationship between software piracy and social well-being in Nigeria; Information and Communication Technology (ICT) contributes to software piracy in Nigeria; Lack of awareness is one of the causes of software piracy in Nigeria; Weak legal enforcement is also a cause of software piracy in Nigeria; High standard of living is a cause of software piracy in Nigeria; Poverty is a contributing factor to software piracy in Nigeria; High cost of license software is another cause of software piracy in Nigeria; Pirated software on the internet is a catalyst to the increase in software piracy; Software piracy has significant effect on the economy of Nigeria.

In conclusion, software piracy has significant effect on the economy of Nigeria we can see from the result of the data analysis that there is a statistically significantly strong relationship (0.853) between the responses of the respondents that said that software piracy has significant effect on the economy of Nigeria and those that said that high standard of living is a cause of software piracy in Nigeria and high cost of license software is a cause of software piracy in Nigeria.

Also there is a relationship between software piracy and social well-being in Nigeria as seen in the result of data analysis that there is a statistically significantly strong relationship (0.915) between the responses of the respondents that said there is a relationship between software piracy and social well-being in Nigeria and those that said high standard of living is a cause of software piracy in Nigeria and high cost of license software is a cause of software piracy in Nigeria.

Having known the some of the major causes of software piracy in Nigeria, the study recommends that:

- There should be increase public education and awareness on the penalties involved in software piracy in Nigeria which should be

focused on long term goals as social change does not happen instantaneously, as it will also act as great inhibitor to reduce piracy.

- There should be a strong legal enforcement from the government or body responsible for software products in Nigeria.

Nigeria should encourage domestic software development as this might reduce the high cost of software products in Nigeria.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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