

---

# The Role of ICT in Breaking a Vicious Cycle of Poverty

---

Siti Masayu Rosliah Binti Abdul Rashid<sup>1</sup>, Fatimah Hassan<sup>2</sup>, Narimah Samat<sup>3</sup>

<sup>1,2</sup>*Section of Geography, School of Distance Education, Universiti Sains Malaysia, Pulau Pinang.*

<sup>3</sup>*Section of Geography, School of Humanities, Universiti Sains Malaysia, Pulau Pinang.*

*\*Corresponding author: masayurashid@usm.my*

## **Abstract**

*Poverty reduction is a global effort to achieve the Sustainable Development Goals (SDGs). The use of Information Communication and Technology (ICT) to identify the marginalized community has been determined. In Malaysia, government intervention through ICT is extended to rural women entrepreneurs to boost the economy, thus reducing poverty. Studies have identified the importance of ICT in helping rural women entrepreneurs in this poverty dilemma. A total of 186 online women entrepreneurs registered with Malaysian telecenter were selected as respondents in this study. The results show that 94 percent of respondents earn more than RM931 per month, Poverty Line Income (PLI) Malaysia, 2014. The results show that ICT users in business activities can improve households and self-success from poverty. From a social and economic perspective, the government's intervention in introducing ICT to rural women entrepreneurs has given them many opportunities to break the previous poverty cycle.*

**Keywords:** *ICT; Rural Women; Vicious Cycle of Poverty; Intervention; Break the Cycle of Poverty*

## **1. INTRODUCTION**

Poverty can be defined in various ways and seen in various dimensions. Poverty alleviation has been major attention by planners and decision-makers not only in developing countries but also in developed nations. Various strategies and agendas such as providing continuous education, improving a living standard of rural society, improving the agricultural sector, and introducing ICT to promote economic opportunities (Samat, Rashid, and Elhadary, 2018). These strategies and agendas which do not completely eliminate poverty among them, however, successfully reduced the amount of poverty at certain levels.

The World Bank (2016) defines poverty as income poverty and uncertainty, education and health poverty, period uncertainty, personal insecurity, and social/political exclusion and non-compliance. Nearly 1.75 billion people living in extreme poverty in 1990, and due to the vigorous efforts, this number was reduced to 702 million in 2015 (World Bank, 2016).

Reaching 2016, people likely live in extreme poverty was less than 10% of the total populations. Various studies have shown that those who live in poverty are mostly living in rural areas (Amita Shah, 2007; Mukherjee & Benson, 2003; Deaton & Dreze, 2002) with low education levels and limited working skills (Ungku Abdul Aziz, 1964; Agesa, 2004). These factors indeed prevent the improvement and development of the rural communities, and, as a result, they continuously live in a vicious cycle of poverty (Khoo et al., 2018).

Furthermore, numerous reports have notified that poverty is allegedly more prominent in women than men due to various factors including unemployment, a large number of dependents, lack of part time jobs, limited financial resources, unqualified working-age and two other factors as previously mentioned i.e. low levels of education and limited working skills (Owo, 2010; Rohayu Roddin et al., 2010).

As a consequence, various initiatives have been introduced by the government to reduce the poverty level among rural communities and to empower their economic status, particularly in women. One of the initiatives is encouraging rural women entrepreneurs to venture into ICT-based businesses in order to broaden their business knowledge as well as allowing them to remain competitive. This paper aimed to investigate the role of ICT in breaking a vicious cycle of poverty among women living in the rural areas in Malaysia.

This paper covers three main sections. The first part is the introduction of literature on poverty, the role of ICT in society, and the discussion of the violent cycle of poverty. The next section outlines breaking the cycle of poverty. The methodology section revolves around how data collection has been done. In the end, the significant finding has revealed that the average revenue of most respondents who used ICT in their businesses was beyond the PLI level or more than RM931.00/month. This finding was clearly proved that using ICT in business activities did facilitate rural women entrepreneurs in increasing their monthly income. The use of ICT should be continuously introduced to rural women entrepreneurs to strengthen their economic level better, simultaneously ensuring the poverty level can be reduced among rural communities.

### *1.1 The Issue of Poverty*

Poverty alleviation is one of the biggest global issues in today's challenging world. It has been enlisted in Sustainable Development Goals (SDGs) agenda set by the United Nation with another 17 goals towards achieving a better life quality by 2030. In realizing this agenda, ICT can be used to empower the poor community. Recent studies have shown that ICT is able to change the way people live and work (The Sun, 2017). Besides, in order to equip the nation towards Industrial 4.0, various aspects of life, especially the dependence on the Internet, will change the way in which access and distribution of information will be the major determinants of national, community and individual development (Wollschlaeger, Sauter & Jasperneite, 2017; Nagamani and Veni 2016; Ibrahim Abu Ahmad, 2016). Thus, in using ICT potential, the Industrial Revolution is emerged at the right time as a step of poverty alleviation.

ICT has the potential to be used by a rural entrepreneur to reach a wider market and generate more business. For example, ICT can become an engine of economic development, boosting GDP growth, generating job opportunities, and enhancing productivity, subsequently eliminating poverty (Palvia, Baqirb & Nematia, 2017; Irawan, 2014). In addition, the use of ICT at a national level contributes to the rapid economic advances and social changes among the citizens (Castells, 2013; Mukerji, 2013; Sey et al., 2015).

Nevertheless, the rise of the Industrial Revolution 4.0 has contributed to wealth broadening and income gaps in every site of the country. It is noted that the computer and Internet would entirely replace human roles in the Industrial Revolution 4.0. Therefore, every individual needs to self-prepare in facing the economic transformation, as well as making use of the development of the Industrial Revolution 4.0. Based on the above-mentioned statements, it is undeniably factual that the expansion of the Internet and ICT utilization has a significant impact on each society, particularly in rural areas.

According to Muhammad Sani Bashir et al. (2011), approaches via ICT to build a nation are one of the strategy to bridge the digital gap between urban and rural populations as well as to improve the people's lives, especially in rural areas.

In Malaysia, various ICT projects and programs have been initiated to bridge the digital gap between urban and rural areas such as the rural telecentre (Hazura Mohamed et al., 2012) and k-community program (Musa, 2008). Although the use of ICT was generally limited at that time (Kakroo, 2007), it has been used basically for business developing and daily activities (Musa, 2008 and Shaffril et al., 2010).

The launching of the Smart Community Initiative (Inisiatif Komuniti Pintar) in 2016 aimed at enhancing the socio-economic status of local communities in several selected rural areas has successfully encouraged the communities to be more competitive on the ICT usage. The program was also implemented to help the communities to get fast and global access on the information of various aspects of matter and needs (SKMM, 2017). In addition, the Ministry of Rural and Regional Development and the Malaysian Digital Economy Corporation (MDEC) have also introduced the entrepreneurship programs to rural communities to ensure ICT and the Internet are fully utilized towards empowering rural communities. The program was aims to encourage all levels of society to engage in an online business to improve the socio-economic status of rural communities (Noor Ainum, 2017). The program also focuses on the rural development to attain high-income status as well as to stimulate the community involvement and participation towards achieving both global and national agendas i.e. Sustainable Development Goals (SDGs) 2030 and National Transformation 2050 (TN50).

Recognizing the development of ICT is of great benefits to the rural communities, ICT engagement is then expanded to women in rural areas particularly to those who involve in businesses. A lot of opportunities could be garnered if they succeed in mastering ICT effectively. However, there is a lack of opportunities at present.

### *1.2 The Roles of ICT among Rural Communities*

ICT plays a major role in all aspects of life, whether in politics, economics or in social and cultural development. Six major roles of ICT in society are identified including: (1) contributor to economic factors, (2) development information, (3) information distributors, (4) socialization agents, (5) education booster and (6) entertainment information (Mohd Noor Mat Yazid, 2010; Chapman and Slaymaker, 2009). ICT is also one of the platforms for community transformation (Musa, 2002; Furoholt and Saebo, 2018) and assets to develop more knowledgeable and informative society especially in rural areas (Kaushik and Singh, 2004; Noor Sharifah, 2006; Kwapong, 2009; Rahman and Bhuiyan, 2016).

Up to now, poverty is measured by a digital divide, where the higher the poverty rate, the lower the number of ICT indicators and vice versa (Chetty et al., 2018 & Kelles, 2003). Digital divide occurs in many countries but is more prevalent in developing countries, depending on areas, genders, educational levels and literacy, socio-economic status and ages (Hazura Mohamed et al., 2012). Based on this definition, those with poor access to digital resources are likely to left farther behind and might permanently stay on a lower economic class. Therefore, efforts to eliminate the digital inequality in these groups as well as to further alleviate the poverty in rural communities are depending on the use of ICT, especially among women entrepreneurs.

### *1.3 The Cycle of Poverty*

Attention is always given to women upon discussing the poverty issues in rural areas. Fatimah Hassan (2011) explained that poverty among women especially those from the poor families is of major concern related to rural development. In 2016, the number of women was nearly half of the total populations, which equals to men's population numbers (Department of Statistics, 2017; EPU, 2017). Given the fact that at present, women are also the income generators and major contributors to the family, it thus affects the whole communities in the rural areas if the women, themselves, remain in poverty (Siti Masayu Rosliah Abdul Rashid, 2014). As a result, rural communities continuously live in a vicious cycle of poverty (Figure 1).

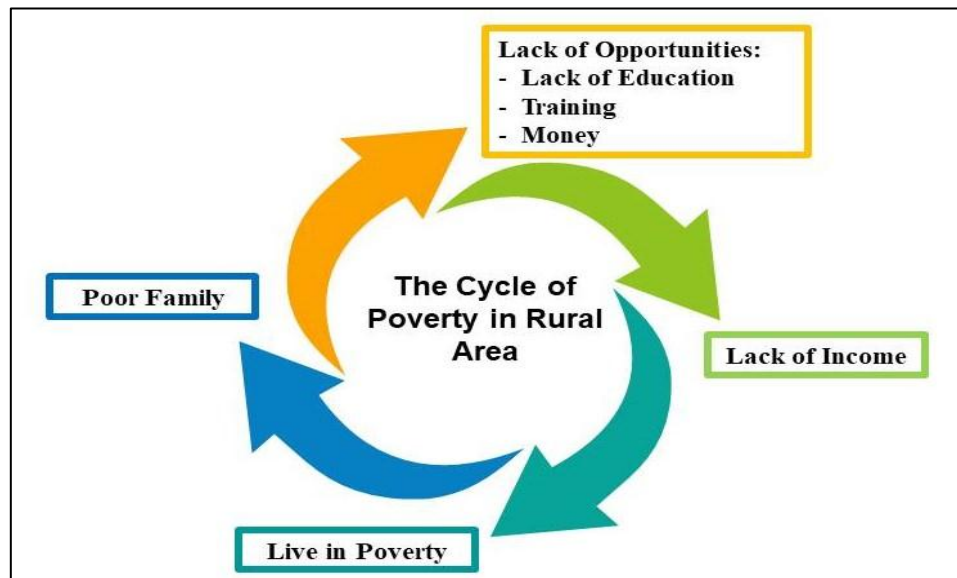


Figure 1. The Cycle of Poverty

(Source: Baldwin and Ross-Larson, 1981).

The vicious cycle of poverty is a factor of any poor family living with limited resources that lead them to continuously live in a permanent cycle of poverty (Marger, 2008). The poverty cycle is also defined as a situation in which the poor family becomes poor at least for three generations including the ancestors, the present generations, and the successive generations. By means, if the present generations fail to change their poor conditions either by educational, social, or cultural opportunities, this generational poverty would remain static in the present and would eventually be inherited by the successive generations. Several reasons can be listed from this situation such as financial crisis, unskilled individuals and lack of proper educational background. All these reasons have lead to difficulties in eliminating poverty. As a consequence, they constantly live in a poor state throughout their lives (Valentine, 1998; Baldwin and Ross-Larson, 1981).

This cycle is referred to as a pattern or behavior of an individual of which it cannot easily be changed (Payne, 2005). In addition, the cycle is also known as a development trap or a poverty trap (Payne, 2005; Valentine, 1998). Payne (2005) defines the poverty cycle as a situation based on specific incidents within the lifespan of an individual or family members with a poor generation in which the cycle occurs from generations to generations without any intention to stop it. Payne (2005) also summarizes the permanent poverty cycle occurs as the poor community have their own cultural values, making them trapped in the existing cycle for generations. Furthermore, some are reluctant, having little or no motivation to change, thus, they decide to continuously live in this cycle of poverty instead.

Various efforts and initiatives have been implemented by each country in the world to break the cycle of poverty. Thomas (2007) stated that a bill related to the Poverty Advisory Council was set up to reduce the poverty rate in 2017 and to entirely eliminate poverty by 2027. In New York City, for instance, the government has organized a television program offering \$

5,000 a year to parents who were interested in achieving specific goals of a family with a priority given to the goals which are related to their children. This initiative was inspired by the Mexican State movement that offered money to poor families in a television program aimed to break the poverty cycle while helping the children to escape from poverty entrapment (George, 2003).

Children under the care of poor parents or guardians are likely exposed to poverty (Ashworth, Hill & Walker, 1994). However, Harris (2013) and Kenworthy (1999) assumed that the children from poor families are blessing and could be parts of the problem-solving mechanisms. Thus, exposing the poor children to early childhood education is crucial to ensure they gain similar access to educational opportunities as the rich. Hence, a continual parental guidance is also required to avoid any social problem among young generations such as unplanned pregnancies, unwanted births and child marriages. By doing so, young generations especially the children would have an ample opportunity to have a better and higher educational accomplishment, subsequently breaking the cycle of poverty among their families (Harris, 2013).

In solving the vicious cycle of poverty, several aspects need to be addressed. As mentioned earlier, children from poor families are the primary assets to end poverty, hence, priority should be given to child developmental aspects. As leaders in the family, parents need to equip themselves with proper educational knowledge since education is a key indicator of economic mobility of a family (Hertz, 2006). This is particularly true by given the fact that educational aspect influences the income level of a family and has a stimulus effect on children (Magnuson, 2013). In addition, the income grade also affects the aspects of health, education, and well-being of the family (UNESCO, 2015). All these aspects are among the risk factors associated with poverty. Therefore, knowledge or educational aspect could be attributed as the main indicator in preventing poverty of one's family.

Indeed, poverty is an incurable disease, spreading its harmful effect to the whole generation if left untreated. Education is a part of the solutions for rural communities to lift themselves out of the vicious cycle of poverty. Educated individuals would have better employment opportunities, earning higher incomes and live in more comfortable living conditions compared to non-educated individuals. Apart from education, government intervention through ICT is another initiatives to break the cycle of poverty. Various studies have demonstrated the advantages of using ICT in poverty alleviation mainly in rural communities (Bekoe et al., 2018; Wade, 2004). This alternative improvement is very much required as the world has experienced a series of global transformation; from agricultural to industrialization and, at present, the era of ICT arise.

Hence, the conceptual framework of government intervention through ICT as an effort to break the cycle of poverty among rural communities will be discussed further in this study.

#### *1.4 Breaking the Cycle of Poverty*

The emergence of ICT could serve as a basic socio-economic transformation in improving the quality of life among rural communities. A few African countries such as Botswana, Cameroon and Ghana have urged their people to use ICT and have successfully enhanced the ability of the rural communities to venture into Small Medium Enterprise (SME) businesses by offering high-quality products to the customers (Esselaar et al., 2008). This is due to the stringent demand of ICT SME operators who emphasize on the product quality, thus, forcing the entrepreneurs to improve the quality of their products and services. Also, the launching of ICT through the establishment of Rural Schoolnet at primary and secondary schools in South Africa has provided an ample opportunity to the local people to explore new applications and recently introduced technologies (Herselman, 2003).

Studies by Mochrie, Galloway & Deakins (2003) and Deakins, Galloway & Mochrie (2003) also revealed that the use of ICT among rural Scottish businessmen has greatly contributed to their monthly income, far exceeding the income prior to using ICT as a marketing platform. This scenario is attributed to the fast-reaching information as well as receiving an immediate response by the sellers through the Internet and mobile phones, thus, influencing the consumers to purchase the advertised products via online purchasing (Mochrie, Galloway & Deakins, 2003).

In Colombia, the community telecentre has been introduced in rural regions for the purpose of raising a living standard of the communities through the use of the Internet. The center has managed to strengthen several rural industries, namely agricultures, fisheries and livestock industries (Amariles et al., 2006).

All the above-mentioned findings evidently show that the use of ICT is one of the key strategies for rural communities becoming high-income earners, subsequently improved their socio-economic status. Hence, ICT also implicitly play an important role in eliminating poverty in rural areas as well as producing an educated and innovative society.

The cycle of poverty requires strategic interventions. For example, Figure 2 illustrates the conceptual framework for government intervention through ICT as an effort to break the cycle of poverty among rural communities. The government intervention, for example through ICT can help the rural communities escaping from poverty, and strategically breaking the cycle of poverty.

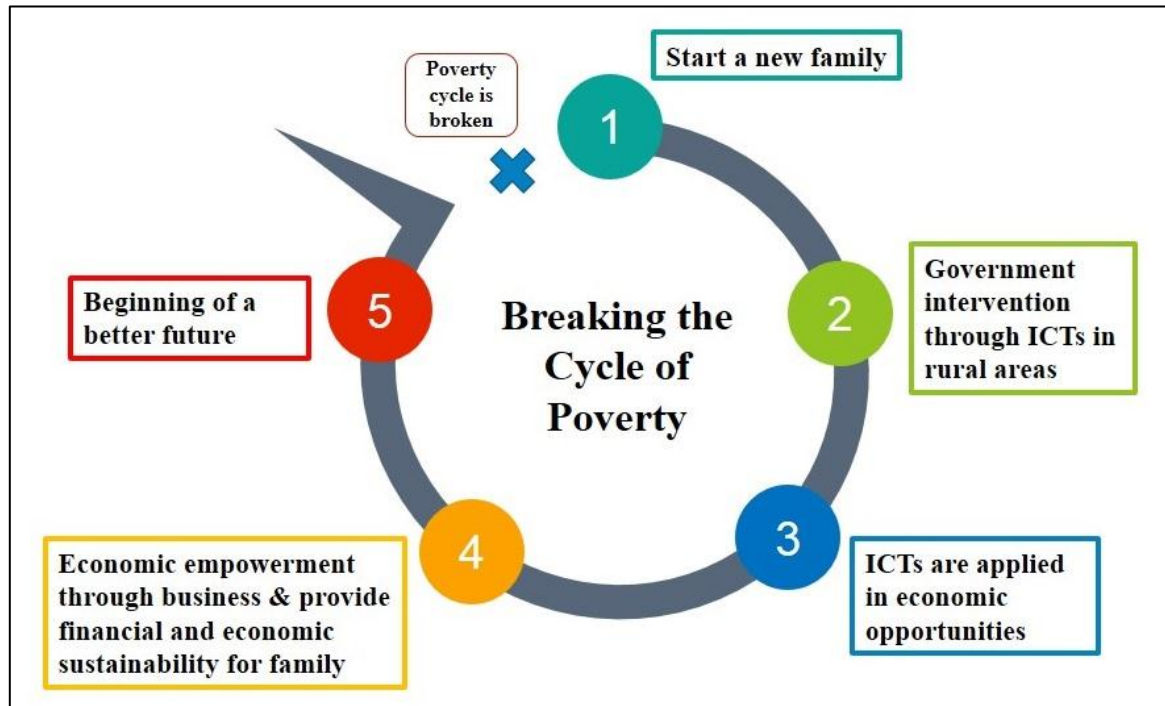


Figure 2. Breaking the Cycle of Poverty

(Source: Baldwin and Ross-Larson, 1981).

Figure 2 shows several stages in breaking this cycle. The first stage of poverty in a family will be identified and followed by government intervention through ICT in the second stage. At this stage, the family will be exposed to the importance and roles of ICT in their lives. ICT-based infrastructures, training and assistance will be fully provided by the government to encourage the families in rural communities to use ICT in their economic or daily activities.

In the third stage, the family who believes that ICT is beneficial in increasing their economic opportunities would continuously use ICT via the Internet, mobile phones and other devices. At this stage, they begin to realize that ICT is able to provide substantial benefits to their business activities.

In the fourth stage, their economic status is strongly empowered by the ICT usage in the business activities by increasing the household income and financial resources to their families. At the fifth stage, the rural communities would be able to lead a better life and eventually end the vicious cycle of poverty.

## 2. METHODOLOGY

This study applied a quantitative methods to collect the data where purposive sampling was used to gather all data from the respondents. The selected respondents must have an online business using the internet or mobile phones (short messaging or telephone calls), aged between 21 and 61 years old. All respondents were registered members of the Pusat Internet Desa (Internet Center Village Entrepreneurs Club) and Medan Infodesa (MID) throughout



Malaysia. In addition, snowball sampling was also used to select rural women entrepreneurs involved with an online business via Facebook based on the information given by other respondents.

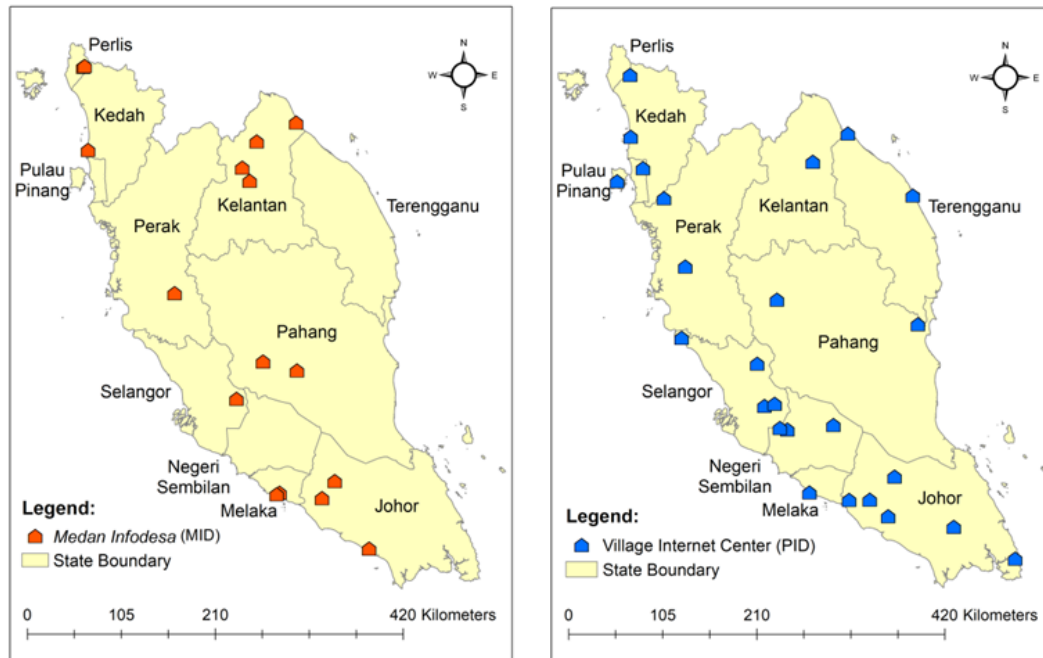


Figure 2. The selected location of telecentre in Malaysia

A total of 346 entrepreneurs were registered with Pusat Internet Desa (Internet Center Village Entrepreneurs Club) and Medan Infodesa (MID) throughout Malaysia. From that number, 186 respondents were selected using Slovin formula ( $n = N / 1 + n (0.05)_2$ ) with 95% confidence level for 5% margin of error (Sevilla et al., 2007). An interview using questionnaires method was conducted with 186 respondents to get a feedback from the respondents. Data was collected and analysed using Statistical Package for Social Science (SPSS) version 22.

### 3. RESULTS AND DISCUSSION

Table 1. Profile of Rural Women Entrepreneurs (N=186)

Profile	Frequency	Percentage
<b>Age</b>		
21 – 30	78	41.9
31 – 40	55	29.6
41 – 50	32	17.2
51 – 60	18	9.7
61 and above	3	1.6

<b>Education</b>		
Primary	5	2.7
Secondary	121	65.0
Tertiary	60	32.3
<b>Types of business</b>		
Handicraft business	28	15.1
Clothing business	43	23.1
Food-based business	79	42.5
Direct selling products	33	17.8
Other Services / business	3	1.6
<b>Business online experience (Years)</b>		
Less than 1 year	102	54.8
1 – 5 years	76	40.8
5 years and above	8	4.4

Source: Fieldwork.

There were 186 respondents were interviewed. Seventy-eight respondents, aged between 21 to 30 years-old possessed the highest number of rural women entrepreneurs, accounted for almost half of the total respondents (41.9 percent). The lowest number, however, was represented by woman entrepreneurs in the age of 61 and above with only three respondents (1.6 percent). This indicates that the interviewed respondents were at the productive ages and had a high maturity level in responding to the given questions.

In terms of their education levels, most respondents (65 percent) had academic qualifications at the secondary level, whereas 32.3 percent had qualifications at the tertiary level and the remaining respondents (2.7 percent) were at the lower level. Therefore, most interviewed respondents were able to understand and answer the questions provided.

Majority of the respondents (42.5 percent) involved in the food-based business, followed by clothing-based business (23.1 percent) and direct selling (17.8 percent). Other types of businesses were handicraft (15.1 percent) and service providers (1.6 percent). A hundred and two respondents (54.8 percent) have operated their businesses in less than one year. Meanwhile, 76 respondents (40.8 per cent) have operated within one to five years. Only eight respondents (4.4 per cent) have operated their businesses for more than five years.

Furthermore, the survey also incorporates the monthly household income level of the respondents. This study has determined the level of household income of the respondents based on Malaysia's Poverty Line Income (PLI) (2014) of RM930 for poor households (EPU, 2017). Table 2 shows the monthly income before and after using ICT among respondents.

Table 2. Monthly Income before and after using ICT (Based on PLI Malaysia, 2014)

<b>Income</b>	<b>Before</b>	<b>After</b>
Less than RM930.00	114	11
	(61.0%)	(6.0%)
Over than RM931.00	72	175
51 – 60	(39.0%)	(94.0%)

Source: Fieldwork.

Based on the findings, there was an increase in income among respondents after using ICT. The analysis shows that 39 percent or (72 respondents) categorized as non-poor households (more than RM931.00) before using ICT have increased to 94 percent (175 respondents) after using ICT. Meanwhile, 61 percent (114 respondents) of them were categorized as poor households (less than RM930.00 before using ICT, reduced to only 6 percent (11 people).

### 3.2 The Use of ICT in Improving the Economy of Rural Women Entrepreneurs

Table 3 shows the use of ICT among rural entrepreneurs measured by several indicators such as computer ownership status, computer access point, a frequency of usage, duration of ownership, internet browsing status, internet browsing period, and internet interest (Siti Masayu Rosliah Abdul Rashid, 2014).

Table 3. Analysis of ICT usage among rural entrepreneurs (N=186)

<b>Indicator</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Computer ownership</b>		
Yes	161	86.6
No	25	13.4
<b>Computer access point</b>		
Own home	135	72.6
Relative's home	5	2.7
Cyber cafe	10	5.4
Telecentre	35	18.8
Others	1	0.5
<b>Frequency of computer usage</b>		
Every day	57	30.6
Several times a week	86	46.2
Not sure	43	23.2

<b>Internet surfing status</b>		
Yes	186	100.0
No	0	0.0
<b>Times estimates for internet surfing</b>		
Less than 1 hour	23	12.4
1-2 hours	78	42.0
2-3 hours	51	27.4
More than 3 hours	34	18.2
<b>The importance of the Internet</b>		
Very important	92	50.0
Important	76	40.8
Not important	18	9.2

Source: Fieldwork.

A total of 161 respondents (86.6 percent) had a computer, whereas, 25 respondents (13.4 percent) do not owned a computer. Most of the respondents (72.6 percent) chose their own home to access the computer compared to telecentre (18.8 percent), cyber cafe (5.4 percent), relative's house (2.7 percent), and other places (0.5 percent). Out of 186 respondents, 134 (72.0 percent) used the computer on a daily basis. While, 44 respondents (23.7 percent) used the computer a few days a week, and the remaining eight respondents (4.3 percent) had an uncertain period of using the computer. Besides, it was shown that most respondents had a long exposure to the computer usage given the fact that 86 respondents (46.2 percent) owned a computer within a period of one to five years, compared to 57 respondents (30.6 percent) who owned a computer in less than a year. Meanwhile, 43 respondents (23.2 percent) had a computer for more than five years, longer than the two groups of respondents previously mentioned.

All respondents surfed internet. Majority of the respondents (42.0 percent) surfed the Internet for one to two hours, while 27.4 percent spent two to three hours. About 18.2 percent of the respondents spent more than three hours, whereas, only 12.4 percent spent less than an hour for the Internet surfing. Ninety-two respondents (50.0 percent) believed that the Internet was very important for their businesses. While, 76 respondents (40.8 per cent) agreed that the Internet was important, and the remaining 18 respondents (9.2 per cent) claimed that the Internet was not important.

### *3.3 The Role of ICT in Improving the Economy of Rural Women Entrepreneurs*

Perceptions of the importance of ICT and the respondents' monthly income are depicted in Table 4. A total of 173 respondents agreed that ICT managed to increase their income, while 13 respondents disagreed. Of the 173 respondents, 98.8 percent (171 respondents) had a monthly income of more than RM931.00, exceeding the National PLI level in 2014. Only 13 respondents rejected the perception that ICT has helped them in increasing their income.

These findings indicated that those who considered ICT was important in their businesses were those who earned more than Malaysia's PLI.

Table 4. Perceptions of the importance of ICT and the respondents' monthly income

<b>Respondents' monthly income according to (Malaysia PGK, 2014)</b>	<b>Perceptions of ICT importance in helping to increase respondents' monthly income</b>		
	<b>Yes</b>	<b>No</b>	<b>Total</b>
More than RM931.00	171	4	175
Less than RM930.00	2	9	11
<b>Total</b>	<b>173</b>	<b>13</b>	<b>186</b>

Source: Fieldwork.

Five main purposes of using the Internet have been listed by respondents based on multiple answer choices, that is (1) to conduct online transactions (96.2 percent), (2) to access social sites such as Facebook, Instagram, Twitter and others (92.0 percent), (3) to obtain current information related to business (89.7 percent), (4) to update their business page / blog (85.5 percent), and (5) to obtain entertainment information and show businesses (75.8 percent) (Table 5).

Table 5. Purposes of using the Internet among respondents

<b>Purpose</b>	<b>Frequency (N=186)</b>	<b>Percentage (%)</b>
To do business online	179	96.2
To browse social sites like Facebook, Instagram, Twitter and others	171	92.0
To obtain current information related to the business	167	89.7
To update business page / blog	159	85.5
To obtain information about entertainment and show businesses	141	75.8

Source: Fieldwork.

Respondents mainly used the Internet to perform online transactions, implying that the respondents are committed to using ICT in their business activities. Several factors may have influenced the respondents to get involved in online businesses. Majority of the respondents (46.3 percent) initiated the online business as a new life venture as well as to generate family income. While 27.4 percent of the respondents were interested when saw the success of their friends or other individuals in doing online businesses. About 16.1 percent of the respondents wanted to spend the time to work from home and the remaining 10.2 percent wished to save money and energy as no rented kiosk or shop needed.

Table 6. Factors influencing the respondents to initiate online businesses

<b>Factors</b>	<b>Frequency (N=186)</b>	<b>Percentage (%)</b>
Seeking out something new while generating family income	86	46.3
Seeing a friend's success or other individuals in online businesses	51	27.4
Ability to work at home	30	16.1
Saving money and energy as no rented kiosk or shop needed	19	10.2
<b>Total</b>	<b>186</b>	<b>100.0</b>

Source: Fieldwork.

Economic intervention by the government via the introduction of ICT in rural areas has indeed profited the communities, mainly to women entrepreneurs. The use of ICT in their businesses has facilitated them on generating more household income, simultaneously elevating them from endless poverty.

#### **4. CONCLUSION**

Efforts to reduce poverty and to further improve the quality of life among rural communities by the Malaysian government have indeed yielded promising results through the introduction and adoption of ICT. Major finding has revealed that the average revenue of most respondents who used ICT in their businesses was beyond the PLI level or more than RM931.00/month. This finding was clearly proved that the use of ICT in business activities did facilitate rural women entrepreneurs in increasing their monthly income. The use of ICT should be continuously introduced to rural women entrepreneurs to better strengthening their economic level, simultaneously ensuring the poverty level can be reduced among rural communities as a whole.

#### **Acknowledgement**

We would like to thank Universiti Sains Malaysia (USM) for funding this project through Universiti Sains Malaysia's Short-Term Grant, grant number [304/PJJAUH/6315365].

## 5. REFERENCES

- [1] Agesa, R.U. (2004). One family, Two Households: Rural to Urban Migration in Kenya. *Review of Economics of the Household*. 2(2).161–178.
- [2] Amariles, F., Paz, O.P., Russel, N. and Johnson, N. (2006). The impacts of community telecentres in Rural Colombia. *The Journal of Community Informatics*. 2(3). Retrieved from <http://ci-journal.net/index.php/ciej/article/view/256/277>
- [3] Amita Shah. (2007, March). Patterns, processes of reproduction, and Policy Imperatives for Poverty in Remote Rural Areas: A Case Study Southern Orissa in India. Paper presented at the Understanding and addressing spatial poverty traps: an international workshop, Spier Estate, Stellenbosch, South Africa.
- [4] Ashworth, K., Hill, M. and Walker, R. (1994). Patterns of Childhood Poverty: New Challenges for Policy. *Journal of Policy Analysis and Management*, 13(4).
- [5] Baldwin, H. & Ross-Larson, B. (1981). *Toward a better World: The Developing World*. World Bank Education Materials. Washington D.C. Retrieved from <http://documents.worldbank.org/curated/en/320061468763510826/pdf/multi-page.pdf>
- [6] Bekoe, S., Atiso, K., Ayoung, D.A. and Dzandu, L. (2018). Examining Internet Usage Patterns and Socio-Economic Benefits of Marginalised Communities: The Case of Community Information Centres in Ghana. *Library Philosophy and Practice (e-journal)*. 1-27. Retrieved from
- [7] <https://search.proquest.com/docview/2165580502/fulltextPDF/C955EFC93CA3452FPQ/1?accountid=14645>
- [8] Castells, M. (2013). *Communication power*. OUP Oxford. Retrieved from <https://global.oup.com/academic/product/communication-power-9780199681938?cc=my&lang=en&>
- [9] Chapman, R. and Slaymaker, T. (2002). *ICTs and Rural Development: Review of the Literature, Current Interventions and Opportunities for Action*. (Working paper No. 192). London, United Kingdom: Overseas Development Institute Publisher.
- [10] Chetty, K., Qigui, L., Gcora, N., Josie, J., Wenwei, L., and Fang, C. (2018). Bridging the digital divide: measuring digital literacy. *Economics: The Open-Access, Open-Assessment E-Journal*. 12(2018-23). 1–20. Retrieved from: <https://www.econstor.eu/bitstream/10419/177899/1/1019792663.pdf>
- [11] Deakins, D., Galloway, L. and Mochrie, M. (2003). The Use and Impact of ICT on rural SME's in Scotland (pp. 139-150). *International Small Business Association Conference*, Guildford.
- [12] Deaton, A. and Dreze J. (2002). Poverty and Inequality in India: A Re-examination. *Economic and Political Weekly*. 37(36). Retrieved from
- [13] <http://economics-files.pomona.edu/Andrabi/courses/Econ126/DeatonDrezeIndia.pdf>
- [14] Department of Statistics Malaysia. (2017). *Household Income and Property Survey Report 2016*. Retrieved from <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=bm5MMldnTFEzb0k0TEwrdTdWb0ZjUT09>

- [15] Economic Planning Unit - (EPU). (2017). Data Asas Malaysia: Pendapatan & Kemiskinan Isi Rumah. Jabatan Perangkaan Malaysia dan Unit Perancang Ekonomi (EPU), Jabatan Perdana Menteri. Retrieved from
- [16] <http://www.rurallink.gov.my/wp-content/uploads/2015/05/1-DATA-ASAS-MALAYSIA1.pdf>
- [17] Esselaar, S., Stork, C., Ndiwalana, A. and Deen-Swarray, M. (2008). ICT Usage and Its Impact on Profitability of SMEs in 13 African Countries. *Information Technologies and International Development*, 4(1).
- [18] Fatimah Hassan. (2011). Kejayaan Wanita dalam Program Pembasmian Kemiskinan Luar Bandar Malaysia: Kajian Kes Projek Amanah Ikhtiar Malaysia. *Wanita dan Perjuangan*, 73-98. Universiti Tun Hussein Onn Malaysia. Johor.
- [19] Furoholt, B. and Saebo, O. (2018). The role telecentres play in providing e-government services in rural areas longitudinal study of Internet access and e-government services in Tanzania. *Electronic Journal of Information System in Developing Countries*, 84(0). 1-14. Retrieved from <https://doi.org/10.1002/isd2.12006>
- [20] George, A. (2003). Poverty, Tracking, and the Social Construction of Failure: International Perspectives on Tracking. *Journal of Children & Poverty*. 9(1). Retrieved from <http://www.tandfonline.com/doi/pdf/10.1080/1079612022000052698?needAccess=true>
- [21] Harris, I.B. (2013). *Children in Jeopardy: Can We Break the Cycle of Poverty*. Yale University Press.
- [22] Hazura, M, Hairulliza, M.J, Siti Fadzilah, M.N and Zawiyah, M Y. (2012). Bridging digital divide: A study on ICT literacy among students in Malaysian rural areas. *Australian Journal of Basic and Applied Sciences*. 6(7), 39-45.
- [23] Herselman, M.E. (2003). ICT in rural areas in South Africa: Various Case Studies. *Informing Science*. Retrieved from
- [24] <http://proceedings.informingscience.org/IS2003Proceedings/docs/120Herse.pdf>
- [25] Ibrahim Abu Ahmad. (2016). Is it the Dawn of Industrial Revolution 4.0 in Malaysia. *Malaysia's National Foresight Magazine - MIGHT*, 4-7.
- [26] Irawan, T. (2014). ICT and economic development: comparing ASEAN member states. *International Economics & Economic Policy*. 11(1-2), 97-114. DOI: <https://doi.org/10.1007/s10368-013-0248-5>
- [27] Kakroo, U. (2007). ICT empowering citizens of Malaysia: development with destiny. Retrieved from
- [28] <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN026242.pdf>.
- [29] Kaushik, P.D and Singh, N. (2004). Information Technology and Broad-Based Development: Preliminary Lessons from North India. *World Development*. 32(4). 591-607. DOI: 10.1016/j.worlddev.2003.11.002.
- [30] Kenworthy, L. (1999). Do social-welfare policies reduce poverty? A cross-national assessment Archived 2011-09-28 at the Wayback Machine. *Social Forces*. 77(3), 1119-1139.
- [31] Khoo, S. L., Mohamad Shaharudin Samsurijan, P. S. Gopal, Nor Malina Malek and Zahri Hamat. (2018). Urban poverty alleviation strategies from multi-dimensional and



- multi-ethnic perspectives: Evidences from Malaysia. *Kajian Malaysia*. 36(2), 43–68. DOI: <https://doi.org/10.21315/km2018.36.2.3>
- [32] Kwapong, O.A.T.F. (2009). Comparing Knowledge and Usage of ICT among Male and Female Distance Learners of an Endowed and Deprived Area in a Developing Country in Africa. *Information Technology Education*, (pp. 131-139). Retrieved from <http://jite.org/documents/Vol8/JITEv8p001-017Kwapong415.pdf>
- [33] Nagamani, S.T. and Veni, G.K. (2016). ICTs for the Empowerment of Rural Women: A Review. *International Journal of Computer Science and Technolog*. 7(2). 166.
- [34] Noor Ainum. (2017, March 25). Kerjasama KKLW-MDEC jayakan e-usahawan luar bandar. *Berita Harian*. Retrieved from <http://www.bharian.com.my/node/264026>
- [35] Noor Sharifah. (2006). ICT Management Centre for Rural Community in Peninsular Malaysia. Inaugural Lecture Series. Technology University of Malaysia, Johor.
- [36] Marger, S. (2008). *Social Inequality: Patterns and Processes*. McGraw-Hill Higher Education.
- [37] Mochrie, R., Galloway, L., and Deakins, D. (2003). Learning together: the Value of Internet Forums to Small rural Bussiness. IAREP Conference, Rimini.
- [38] Mohd. Noor Mat Yazid. (2010). *Modenisasi, masyarakat Malaysia dan ICT: Isu, Cabaran dan Penyelesaian*. Program Jenayah Cyber dan Isu Pernegerangan manusia di Malaysia, Resital Hall.
- [39] Muhammad Sani Bashir, Bahaman Abu Samah, Zahid Emby and Hayrol Azril Mohamed Shaffril. (2011). Impact of Individual Characteristics and Telecentre Success in Malaysia. *Australian Journal of Basic and Applied Sciences*. 5(9). 371-380.
- [40] Mukerji, M. (2013). *ICTs and Development: A Study of Telecentres in Rural India*. Palgrave Macmillan.
- [41] Mukherjee, S. and Benson, T. (2003). The Determinants of Poverty in Malawi. *World Development*. 31(2). 339-358. DOI: [https://doi.org/10.1016/S0305-750X\(02\)00191-2](https://doi.org/10.1016/S0305-750X(02)00191-2)
- [42] Musa, A.B. (2002). *Peranan dan penggunaan ICT di kalangan masyarakat*. Serdang: Penerbit Universiti Putra Malaysia.
- [43] Musa, A.B. (2008). *Benefiting Information and Communication Technology for All*, Inaugural Lecture Series. 13–14. University Putra Malaysia Publisher. Serdang, Malaysia.
- [44] Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=EA1750FFB06A13D92E6C374696BAA3AB?doi=10.1.1.618.9604&rep=rep1&type=pdf>
- [45] Owo, N.J. (2010). Gender and Development: Nigeria as a Case Study. *Journal of Sustainable Human Development Revision*. 2. 81-91. Retrieved from <http://shdevr.org/ej/index.php/shdr/article/view/71/70>
- [46] Palvia, P., Baqirb, N., and Nematia, H. (2017). ICT for socio-economic development: A citizens' perspective. *Information & Management*. 55(2). 160-176. Retrieved from <http://dx.doi.org/10.1016/j.im.2017.05.003>
- [47] Payne, R.K. (2005). *A Framework for Understanding Poverty: A Cognitive Approach*. Highlands, Tex: Aha! Process.

- [48] Rahman, T. and Bhuiyan. S.H. (2016). Multipurpose community telecentres in Rural Bangladesh: A study of selected Union Information and Service Centers. *Information Development*. 32(1). 5-19. Retrieved from <http://journals.sagepub.com/doi/pdf/10.1177/0266666913518445>
- [49] Rohayu Roddin, Nur Sharipah Sultan Sidi, Yusmarwati Yusof, Maziana Mohamed and Abdul Rasid Abdul Razzaq. (2010). Poverty Alleviation among Single Mother in Malaysia. *International Journal of Business and Social Science*. 2(17). 92-99. Retrieved from [http://www.ijbssnet.com/journals/Vol\\_2\\_No\\_17/13.pdf](http://www.ijbssnet.com/journals/Vol_2_No_17/13.pdf)
- [50] Samat, N., Rashid, S.M.R. and Elhadary, Y.A. (2018). Analyzing Spatial Distribution of Poverty Incidence in northern region of Peninsular Malaysia. *Asian Social Science*. 14 (12). 86-96. DOI:10.5539/ass.v14n12p86
- [51] Sevilla, C.G., Ochave, J.A., Punsalan, T.G., Regala, B.P. and Uriarte, G.G. (2007). *Research Methods*. Rex Printing Company in Quezon City.
- [52] Sey, A., Bar, F., Coward, C., Koepke, L., Rothschild, C. and Sciadas, G. (2015). There when you need it: The multiple dimensions of public access ICT uses and impacts [ICTD2013 Special Issue]. *Information Technologies & International Development*. 11(1). 71–86. Retrieved from
- [53] <http://itidjournal.org/index.php/itid/article/viewFile/1363/511>
- [54] Shaffril, H.A.M., Samah, B.A., Hassan M.A. and Silva, J.L. D. (2010). Socio-economic Factors That Impinge Computer Usage in Administration Works among Village Leaders in Malaysia. *Scientific Research and Essays*. Retrieved from
- [55] <http://www.academicjournals.org/sre/PDF/pdf2010/4Dec/Shaffril%20et%20al.pdf>.
- [56] Siti Masayu Rosliah Abdul Rashid. (2014). *Penggunaan Teknologi Maklumat dan Komunikasi dalam Aktiviti Perniagaan Wanita Luar Bandar (PhD thesis)*. Universiti Sains Malaysia, Penang.
- [57] Suruhanjaya Komunikasi dan Multimedia Malaysia - (SKMM). (2017). *Buku Maklumat Statistik Edisi Khas 2016*. Retrieved from <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/MCMC-CM-Statistical-Pocket-Book-2016.pdf>
- [58] The Sun Daily. (2017, May 24). Empowering Malaysian Industry in the Face of Fourth Industrial Revolution. *The Sun Daily*. Retrieved from <http://www.thesundaily.my/news/2017/05/24/empowering-malaysian-industry-face-fourth-industrial-revolution>
- [59] Thomas, B. (2007). States and Localities. *CQ Researcher*. 17(31). 738–739. Retrieved from <http://www.wiscap.org/pdfs/Domestic%20Poverty%20CQR%20September%207%2007.pdf>
- [60] Ungku Abdul Aziz. (1964). Poverty and Rural Development in Malaysia. *Kajian Ekonomi Malaysia*. 1(1). 75-105.
- [61] Valentine, C. A. (1968). *Culture and Poverty: Critique and Counter-Proposals*. University of Chicago Press.
- [62] Wollschlaeger, M, Sauter, T, and Jasperneite, J. (2017). *The Future of Industrial Communication: Automation Networks in the Era of the Internet of Things and Industry*

- 4.0. IEEE Industrial Electronics Magazines. Retrieved from <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7883994>
- [63] World Bank. (2016). Understanding different dimensions of poverty. Retrieved from: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTURBANPOVERTY/0,,contentMDK:20276602~menuPK:7173807~pagePK:148956~piPK:216618~theSitePK:341325~isCURL:Y,00.html>