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Opportunities of Using Information and Communication Technology in Reducing Poverty

Nugrahana Fitria Ruhyana^{1✉}, ²Wiedy Yang Essa

¹Sekolah Tinggi Ilmu Ekonomi Sebelas April, Sumedang

²Research and Development Agency of Bandung City

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Abstract

The development of Information and Communication Technology (ICT) is believed to improve the quality of human life, reduce inequality, and encourage the acceleration of poverty reduction. ICT can be developed as an alternative poverty alleviation program. The purpose of this study was to determine the opportunities of utilization of ICT in reducing poverty in Sumedang Regency and Bandung City. This study used quantitative methods with sources taken from National Socio-Economic Survey (Susenas) data in 2018. The data was analyzed by the Probit Regression method. ICT variables consisted of the ownership of cellular phones, computer use, and internet access. The results of the econometric model indicate that ICT can reduce the likelihood of poverty after being controlled by other related variables such as age, gender, education level, number of household members, access to business credit, and employment status. The government is expected to synergize with stakeholders to improve public services integrated with poverty reduction through the use of ICT, educating the public with productive internet, and expanding the development of ICT infrastructure.

Key words : ICT, Poverty, Urban, Rural

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INTRODUCTION

Poverty remains a strategic issue in Indonesia, particularly in West Java Province, with the highest population density nationally. It holds the third-largest number of poor people in Indonesia after East Java and Central Java, whose location is concentrated in rural areas (BPS, 2019). As a result, most districts/cities in West Java have declared poverty alleviation as a development priority. One of them is Sumedang Regency, which in its Regional Long Term Development Plan 2018-2023 targets a reduction in the poverty rate of 0.8% per year (Regional Development Research and Development Planning Agency of Sumedang Regency, 2019). The target is not easy to achieve, considering that during the period 2010 - 2018, the average reduction in the poverty rate is only 0.44% per year. In this study, the authors set the city of Bandung -the capital of West Java Province- and neighboring Sumedang Regency, as a benchmarking.

As a metropolitan/urban area, one of Bandung's challenges is to implement steps to accelerate poverty reduction to achieve 'Without Poverty' target by 2030, according to the SDGs. Likewise, since the poverty rate in the rural area of Sumedang Regency remains considerably large, the poverty condition of West Java persists as a major issue in the national development agenda.

Information and Communication Technology (ICT) is believed to be one of the factors that can reduce poverty, especially in developing countries with large infrastructure disparities between villages and cities. The lack of information accessibility has also hampered rural communities dominated by farmers to take actions like adaptations of modern technology and strategies in intensifying agricultural production (Khuhawar et al.,

2014). The use of ICTs can provide opportunities for the poor to get access to better education, health, employment, and markets. In addition, ICTs can also facilitate the use of government services and access to microfinance (Cecchini, S., & Scott, 2003; Urquhart, Liyanage and Kah, 2008).

Research conducted in several countries has proven that ICT is an effective means to tackle poverty. However, it requires the active roles of the government and all stakeholders to get the desired results and to overcome various obstacles in the development of ICT, such as socio-cultural, infrastructure, economics, and technology. For developing countries, the cost of providing hardware and access to rural areas is a common economic and infrastructure obstacle (Maxfield, 2004).

Previous studies have revealed that economic background and income per capita are considerably influential in increasing the technological literacy of a society (Neelameghan, 2004). Meanwhile, the lack of relevant local digital content also serves as a challenge in ICT development. Since many ICT tools and internet content depend largely on English media, people with limited English language proficiency struggle to master them. Besides, socio-cultural barriers also occur due to the existence of values that oppose the local culture of a society (Chib et al., 2008).

Chowdhury (2000) explains the functions of ICTs in alleviating poverty: creating young workers' skills, providing numeracy and literacy skills for children and poor parents, and combating child malnutrition by ensuring adequate information available to households, especially for mothers. ICTs can also be used to reduce information gaps in various stakeholders to enable appropriate actions for poverty reduction (Urquhart, Liyanage and Kah, 2008). Furthermore, Ariansyah (2018) research mentioned a positive impact in promoting internet coverage on monthly household income.

Poverty assessment at the micro-level with households and individuals as units of analysis for a study is the right choice for solving poverty problems, especially in developing countries (Andersson, Engvall, & Kokko, 2006). This type of research can describe the conditions/characteristics of the poor to assist policymakers in establishing appropriate interventions in poverty reduction.

Several previous studies have been referred to by the authors in the selection of variables, both for ICT and other explanatory variables. Rini & Sugiharti (2017) used the 2012 Susenas data covering all provinces in Indonesia with a logit model approach to estimate the probability of poor status households by including several variables of household characteristics. The variables are the head of the household's gender, age, employment status, and education level, as well as the number of household members, access to business credit, cellphone ownership, and location of residence. In the study, cellphone ownership is a significant variable that can reduce the likelihood of poor households.

Widyastuti (2015) examined the effect of cell phone, internet, and broadband penetration on the rate of poverty. With an econometric approach over 13 years, it is found that cell phone and internet penetration have a significant effect in reducing poverty. Between the two penetrations, internet penetration has a dominant influence on the rate of poverty reduction.

Anderson (2006) specifically examined the transition in and out of society in the UK in ICT poverty, which is shown from internet access in households and/or cell phone ownership. Another significant finding is that those who have a negative attitude

towards the use of personal computers tend to continue to live in ICT poverty.

Research on poverty determinants in Sumedang Regency was conducted by Darmadi (2012) with a probit model using the 2010 Susenas data. However, it emphasized more on education factors and left out ICT elements. An important finding is that the level of education, measured by the length of formal education, affects the reduction in the likelihood of poor individuals/households' existence in Sumedang Regency. Other factors that play a role in reducing poverty related to the characteristics of household heads are age, employment, number of household members, access to credit, and residence.

Research results suggest that the use of ICTs can be an effective means of improving the quality of people's lives, including reducing poverty. However, this needs to be studied in more depth, especially related to differences in community domicile in rural and urban areas. This finding is expected to be an input for local governments in overcoming the poverty problem.

The purpose of this study was to determine and compare the effects of ICT use in reducing poverty in Sumedang Regency and Bandung City. This research was the development of several previous studies related to poverty reduction at the household and individual level by emphasizing the influence of the use of ICT as a determining factor. Several other explanatory variables with a strong correlation with poverty at the micro-level were included and compared between Sumedang Regency (dominated by rural areas) with Bandung City (an urban area).

METHOD

This study used a quantitative method with data sources from the 2018 National Socio-Economic Survey (Susenas); therefore, it was a

cross-section data. Selected respondents were of 15 years and over, consisting of 2,024 respondents in Sumedang Regency and 2,632 respondents in Bandung City. Respondents' selection was based on the criteria for productive age (above 15 years old) and the intensity of ICT use, especially the internet. According to the results of a 2018 internet users' survey in Indonesia, it turns out that the most frequent users are in the age range of 15-19 years with the proportion reaching 91% in that age group (APJII, 2019).

The dependent variable in this study was binary; it worths 1 (one) for poor individuals, and 0 (zero) for individuals who are not poor. The poverty criteria used were those whose monthly per capita expenditure falls below the district/city poverty line, which is Rp. 334,743 for Sumedang Regency and Rp. 448,902 for Bandung City (BPS West Java Province, 2018). Based on the type of dependent variable data that was binary/category, namely the probability of poor and not poor, data analysis used was the probit regression model. According to Wooldridge (2003), the probit model and the

logit model are models used to analyze the relationship between dependent variables and some independent variables, where the dependent variable is a qualitative dichotomy data of 0 and 1. The probit model is preferred among economists, and it is easier to analyze.

The independent variables used to reflect the use of ICTs were cell phone ownership, computer use, and internet access. Meanwhile, the control variables were used to further strengthen the analysis. It also can assess how influential was ICT on the likelihood of poverty when some strongly related poverty variables were added empirically and theoretically. The control variables used were age, age squared, gender, education, access to business credit, employment status, and the number of household members. Based on the selection of these variables, the model in this study was formulated as follows.

$$\begin{aligned} \text{Prob_poor} = & \beta_0 + \beta_1\text{cellphone} + \beta_2\text{pc} + \beta_3\text{internet} \\ & + \beta_4\text{age} + \beta_5\text{agesq} + \beta_6\text{male} + \beta_7\text{primary_school} \\ & + \beta_8\text{junior_school} + \beta_9\text{high_school} + \\ & \beta_{10}\text{hh_member}_{15} + \beta_{11}\text{hh_member}_{64} + \\ & \beta_{12}\text{credit} + \beta_{13}\text{work} + U_i \end{aligned} \quad (1)$$

Table 1. Research Variable Description

No	Variable Name	Operasional Definition
A Dependent Variable		
1	Prob_poor	Poor individual categorized probability (per capita expenditure < BPS poverty line) 1: poor, 0: not poor
B Independent Variable		
1	Cellphone	Cellphone ownership dummy 1: cellphone owner, 0: no cellphone
2	PC	Computer use dummy (including PC/Desktop, Laptop/Notebook, Tablet) 1: computer user, 0: non computer user
3	Internet	Internet use dummy (including social media) 1: internet user, 0: non internet user
C Control Variable		
4	Age	Age (year)
5	Agesq	Age-squared (year)

No	Variable Name	Operasional Definition
6	Male	Gender dummy 1: male, 0: female
7	Primary_school	Primary school level dummy 1: primary school graduate, 0: others
8	Junior_school	Junior high school dummy 1: junior high school graduate, 0: other
9	High_school	High school dummy 1: high school graduate, 0: others
10	hhmember_15	Number of household members under 15 years old (person)
11	hhmember_64	Number of household members above 64 years old (person)
12	Credit	Credit access dummy 1= accept credit, 0: no credit
13	Work	Employment status 1: employed, 0: unemployed

RESULTS AND DISCUSSION

Table 2 presents the description of the variables of the 2018 Susenas respondents in Sumedang Regency and Bandung City. Most of them are dummy, except for the age and number of household members; therefore, the mean value can reflect the percentage of the variable. The mean value of the poor-group variable from the 2018 Susenas respondent data was 0.134 for Sumedang Regency; it can be interpreted that the

percentage of poor respondents in Sumedang Regency was 13.4%, which was higher than Bandung City (6.3 percent). This result was in line with the poverty level released by BPS for the estimation of the district/city level in West Java in 2018. However, in this study, the percentage of poverty was higher because weighting was not carried out, and selected respondents were limited from the age of 15 years and over.

Table 2. Susenas Respondent Description of Sumedang Regency and Bandung City, 2018

Variable	Sumedang Regency (N=2024)				Bandung City (N=2632)			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
poor	0.134	0.341	0	1	0.063	0.244	0	1
cellphone	0.716	0.451	0	1	0.847	0.360	0	1
computer	0.151	0.358	0	1	0.410	0.492	0	1
internet	0.407	0.491	0	1	0.708	0.455	0	1
age	42.400	17.400	15	94	39.358	16.374	15	97
age-squared	2102.000	1603.390	225	8836	1817.025	1441.951	225	9409
male	0.491	0.500	0	1	0.497	0.500	0	1
elementary	0.502	0.500	0	1	0.234	0.423	0	1
junior high	0.206	0.405	0	1	0.203	0.403	0	1
high school	0.221	0.415	0	1	0.383	0.486	0	1
univ	0.071	0.256	0	1	0.180	0.385	0	1

under_15	0.927	0.895	0	5	0.857	0.952	0	7
above_64	0.268	0.542	0	2	0.200	0.473	0	3
credit	0.425	0.495	0	1	0.359	0.480	0	1
work	0.620	0.485	0	1	0.590	0.492	0	1

Source: Susenas, 2018 (tabulated)

As previously predicted, respondents using ICT were more dominant in urban areas, in this case, Bandung City, compared to Sumedang Regency, especially in the use of computers and the internet. However, the percentage of cellphone users from the poor group was higher in Sumedang Regency, while for computer and internet users, there were no difference.

Table 3. Marginal Effect of Probit Model

Variable	Marginal Effect	
	Sumedang	Bandung
cellphone	-0.056***	-0.018
computer	-0.085***	-0.056***
internet	-0.095***	-0.043***
age	-0.007***	-0.000
age-squared	0.000*	-0.000
male	0.016	0.013
elementary	0.127**	0.094***
junior high	0.062	0.103***
high school	0.033	0.072**
under_15	0.075***	0.046***
over_64	0.026	0.020*
credit	-0.010	-0.006
work	-0.011	-0.019*
Σ Respondent	2024	2632
Likelihood Ratio	87.514	189.259
LR(prob)	0.000***	0.000***
Pseudo R2	0.1309	0.2353

* p<0.1, ** p<0.05, *** p<0.01

Turning to the testing of the probit model (Table 3), it is evident that there was a simultaneous influence of all the independent variables and control variables existed in the econometric model of the dependent variable, in this case, the poverty probability. This can be seen from the significant likelihood ratio value at the 99

percent confidence level. As for the goodness of fit of the model shown by the pseudo-R-square, microdata (individuals and households) usually has many factors that are difficult to accommodate in one econometric model. According to Wooldridge (2003), pseudo-R-square is a log of probability; therefore, in determining the model of large samples, the goodness of fit is less important than the statistical significance of the more important explanatory variables.

The probability of poor individuals is partially determined by the marginal effect coefficients of each explanatory variable in Table 3. The ICT variables shown by computer use and internet access were statistically significant at a 99 percent confidence level in a negative direction so as to reduce the likelihood of poor individuals in Sumedang Regency and Bandung City. Respondents accustomed to using computers had an 8.5 percent lower chance of poverty in Sumedang Regency and 5.6 percent in Bandung compared to noncomputer users, assuming *ceteris paribus*. Likewise, respondents with access to the internet had a 9.5 percent lower chance of being poor in Sumedang Regency and 4.3 percent in Bandung compared to those who did not, assuming *ceteris paribus*.

The impact of the use of computer and the internet on reducing the poverty probability was more significant in Sumedang Regency than in Bandung City; this indicates that their usage can accelerate the improvement of the quality of life of the community, including reducing poverty, especially in areas that are still under developed. Xu (2017) argues that the development of ICTs, especially in remote locations, can increase people's economic opportunities and access to financial resources,

enabling people to access information about government policies, social services, health care, and education.

Based on estimates from the 2018 Susenas data (BPS, 2018), in Sumedang Regency, there were around 15% of the population who use computers, while in Bandung City, there were approximately 40%. This result was strongly related to employment and various community activities in urban areas that use more computerized systems. Likewise, public

access to the internet in Sumedang Regency was only around 40 percent, while in Bandung City, it reached 68 percent. Judging from the infrastructure of cellular telecommunications facility providers according to Village Potential data (BPS, 2018a), in Sumedang Regency, there were still four villages that have not been reached by internet signals. Villages / sub-districts with the best internet access of very strong signals only existed in 44 regions (Table 4).

Table 4. Network Types and Cellphone Signal Strength in Villages and Sub-Districts of Sumedang Regency

Cellphone Network Type	Cellphone Signal Strength			Total
	Very Strong	Strong	Weak	
4G/LTE	44	69	1	114
3G/H/H+/EVDO	9	97	36	142
2.5G/E/GPRS	0	6	11	17
No internet signal	0	2	2	4
Total	53	174	50	277

Source: BPS, 2018a (processed)

One of the three pillars of the Master Plan for the Acceleration and Expansion of Indonesia's Economic Development 2011-2023 is the strengthening of connectivity by providing reliable broadband access throughout the country. Indonesia's National Broadband Plan sets 2019 targets for broadband penetration rates of 30% in urban areas and 6% in rural areas as well as mobile broadband penetration rates of 100% in urban areas and 52% in rural areas Puspitasari & Ishii (2016). As a result, mobile internet plays a huge role in Indonesia to achieve these targets. Therefore, it is essential to expand the coverage of internet signals to remote rural/urban areas.

Cellphone ownership was only significant in Sumedang Regency with a contribution to the poverty decrease of 5.6%, assuming *ceteris paribus*. In Bandung City,

there was no relation between cellphone ownership with the likelihood of poverty, even for cellphones that were constantly connected to the internet. On average, urban society was also better in operating computers compared to their counterpart in rural areas. In Sumedang Regency with its rural characteristics, the major role of cellphones was to support community activities, as Slater & Kwami (2005) found. Most people stated that the most popular benefit of cellphones was to cut down on unnecessary trips/travels. This finding is reasonable since a quick cellular communication eliminates the need to travel elsewhere. Likewise, family information about health, financial, and personal issues can be obtained easily without much expense.

The lower role of cell phones compared to the internet in reducing poverty has been stated in several previous studies. Widiyastuti (2015)

claimed that every 1% increase in cell phone penetration could reduce poverty rates by 0.18%; meanwhile, internet penetration has an impact on reducing poverty rates by up to 0.27%. A study also found a link between access to cellphones and economic growth, with a more significant repercussion occurring in developing countries than in developed countries (Waverman, L., Meschi, M., & Fuss, 2005). The use of cellphones can improve community welfare as a result of affordability in both supply and demand, flexibility, and minimal obstacles to adopt (Bhavnani, A., Chiu, R. W. W., Janakiram, S., Silarszky, P., & Bhatia, 2008; Arifin, 2012). Moreover, research by Rini & Sugiharti (2017) found that ownership of a cellphone proved to be significant in determining the likelihood of poor household status.

The less significant role of cellphones compared to the internet in reducing poverty can also be explained by the behavior of the former users that tend to use cellphones only as a means of communication. Slater and Kwami (2005) found that cellphone users in Ghana generally only use them as a communication tool and rarely as a source of information due to lack of insight into the existence of a website, use of search engines, and this even occurs among young users. In Indonesia itself, based on the results of the APJII (2019) survey, the main reasons for internet users were to communicate via message (24.7%), access social media (18.9%), and search for job vacancies (11.5%). This indicates that the internet is more widely used as a means of communication, especially in social media applications, compared to means of finding productive information. Ideally, the existence of ICT as a communication facility and digital application should make the dissemination of information such as business, job

vacancies, education information and others, much easier (Rini and Sugiharti, 2017).

If measured simultaneously, the three ICT variables (cell phone ownership, computer use, and internet access) had a significant influence, at a 99 percent confidence level, in reducing the probability of poverty in both Sumedang Regency and Bandung City. Thus, ICT had been proven statistically to be an essential factor in poverty reduction development strategies as it has been applied in several countries.

Based on the finding that cellphones were only considerably influential in rural areas while the internet and computers remained significant in both urban and rural areas, it shows that the use of ICT would contribute more to poverty reduction. This is especially true in rural areas as pockets of poverty, if the community skills in using ICT tools can be improved and the infrastructure of internet access is expanded.

Statistically, respondents' age variable significantly reduced the poverty probability in Sumedang Regency at a 99 percent confidence level, while in Bandung City, it was not significant. A negative sign indicated that each increase in a person's age of one year would result in a decrease by 0.7%, assuming *ceteris paribus*. The quadratic age was used to prove that the relationship between age and income was not linear since there is a life cycle when people lost productivity at retirement age. Entering this phase, there will be a decrease in income according to the lifecycle income hypothesis theory from Franco Modigliani (Mankiw, 2010). In Sumedang Regency, the age squared variable remained significant at a 90 percent confidence level; this proves that at a certain age, increasing age will increase the probability of becoming poor.

Differences in poverty probability based on respondents' age between Sumedang Regency and Bandung City might be influenced

by the type of work. In the research of Putri dan Setiawina (2013), it is explained that in the work productive period, generally, the more age increases, the income will follow, which also depends on the type of work performed. Physical strength to carry out activities is closely related to age; if people's ages have surpassed the productive period, then their physical strength decrease so that the productivity decreases and income also falls. Types of jobs that rely on physical strength are mostly found in rural areas where most of the community's livelihoods are in the primary sector such as agriculture (agricultural labor) or construction (construction labor). In the contrary, types of work in urban areas are more heterogeneous and rely more on expertise or skills in the secondary sector (manufacturing industry) and tertiary or services.

Statistically, sex differences did not significantly affect the poverty probability both in Sumedang Regency and Bandung City. This shows that at the individual level, poverty is likely to occur regardless of gender differences in the two regions. At the household level, Darmadi's (2012) study also produced findings that the gender of the head of the household did not affect the chances of households becoming poor in Sumedang Regency. While on a broader scope nationally, Rini dan Sugiharti (2017) prove that poverty is more likely to occur in households where the head of the household is female. However, when viewed from the direction of the probit regression results, the chances of men to become poor are slightly higher than women. According to the Integrated Database, in total there were 38.14 million men and 37.35 million women in the lowest three deciles (Lockley, Tobias and Bah, 2013). This may indicate the

phenomenon that work competition between men and women has increased. Companies tend to prefer female workers because they are more obedient (less demanding) with much better work performance and are more conscientious.

Whereas in Bandung City, different levels of education greatly affect the poverty probability, in Sumedang Regency, only elementary school graduates had a 12.7% higher chance of being poor when compared to college graduates, assuming *ceteris paribus*. For junior and senior high school graduates, the poverty probability was no different compared to college graduates. In Bandung City, the differences between levels of education were more clearly seen, where graduates from the elementary, junior high, and high school levels had a higher poverty probability than college graduates at 9.4%, 10.3%, and 7.2% respectively, assuming *ceteris paribus*. This indicates educational qualifications in urban areas greatly affect the type of work and income received by the community. Employment in urban areas also relies more on skills, expertise, and knowledge so that education levels highly determine the level of work competitiveness. However, in rural dominated areas, employment tends to be homogeneous and generally depends on the agricultural sector. Previous research in Sumedang Regency proved that the higher the level of education of the household head, the lower the chance of his household falling into poverty (Darmadi, 2012). Education level is also related to knowledge and technology adoption in the community. One of the main factors in the failure to reduce poverty is the lack of knowledge in managing technology and in information obtained (Setyaningsih, 2018). The importance of human resource capacity through ICT education must be highlighted because the Indonesia.

Broadband Plan includes a national digital literacy program (Puspitasari & Ishii 2016).

The variable number of household members under the age of 15 years shows a very significant influence on the confidence level of 99 percent in a positive direction. This indicates that more household members under the age of 15 years will increase the probability of poverty for individuals in the household. The marginal effect value for Sumedang Regency was 0.075, and in Bandung was 0.044. It means that every addition of household member under the age of 15 will increase the chance of poverty by 7.5% in Sumedang Regency and 4.6% in Bandung City, assuming *ceteris paribus*. This result is in line with several previous studies stating that the number of household members is correlated with increasing poverty probability (Darmadi, 2012; Rini and Sugiharti, 2017). The increase in family dependency, especially if the household income is quite low, causes lower per capita spending, approaching the poverty line. This indicates the importance of controlling the population and increasing Family Planning education.

The number of household members over the age of 64 years only had a significant chance of increasing poverty in Bandung City, at a confidence level of 90 percent. The magnitude of this influence was only 2% of every additional household member over the age of 64, assuming *ceteris paribus*. This value was lower compared to the number of household members under the age of 15, considering that people exceeding productive age can still generate income by receiving a pension or having investments. On the contrary, the non-productive population below 15 years of age is a school-age child who generally has not produced income. The notion of the significant effect

of non-productive age above 64 years could be due to the high life expectancy and the higher cost of living so that the presence of non-productive parents in very low-income households will add to the family's economic burden.

In this study, business credit access did not significantly affect poverty probability both in Sumedang Regency and Bandung City. Although some previous studies suggest that access to credit was able to reduce poverty significantly (Darmadi, 2012; Rini and Sugiharti, 2017), in the model used in this study, it showed weaker effect compared to other variables even though the direction was already opposite to poverty probability. Other studies explain that the impact of micro-credit tends to be different between households as differences in the economic environment. Morduch (1998) even found that micro-credit does not have much influence on poverty probability, although it can reduce the volatility of consumption of the poor (Quibria, 2012). This finding can be used to evaluate the ineffective distribution of microcredit to the poor since the distribution of People's Business Credit (KUR) in West Java in 2018 was dominated by trade sector (71.93%), and the lack of government roles regions in determining the target of KUR recipients that were only about 10 percent of the total debtors proposed by the regional government (Regional Office of the Directorate General of Treasury of West Java Province, 2019).

Respondents' employment status had the potential to reduce the poverty probability in Bandung City at a 90 percent confidence level, by 1.9% compared to the unemployed, assuming *ceteris paribus*. However, in Sumedang Regency, the employment status was insignificant. This shows that those who live in urban areas are faced with the challenge of finding more competitive jobs that are characterized by high levels of unemployment

in urban areas. In 2019, West Java is the province with the highest open unemployment rate in Indonesia, which is mostly in urban areas (6.3%), compared to rural areas which are only 3.45 percent (Komalasari, 2019). According to Wirosardjono (1992) in Rini & Sugiharti (2017), poor people generally have limited access to information, namely information on employment, training, and other productive activities. Thus, ICT is expected to be a tool for wider socio-economic development. However, information flow alone is not enough to eradicate poverty, which requires economic growth at the macro level enjoyed by all levels of society.

CONCLUSION

In this digital era, access to information and communication plays an important role in improving the quality of human life, one of which is a means to reduce poverty. Based on the results of a simultaneous probit regression test, ICT variables like cell phone ownership, computer use, and internet use, were proven to reduce the likelihood of poverty in Sumedang Regency and Bandung City. Partially, internet access and computer use had the potential to reduce the likelihood of individuals becoming poor in Sumedang Regency and Bandung City. Furthermore, cellphone ownership only reduced the probability of poverty in Sumedang Regency. Other influential factors were age, education, and the number of household members under the age of 15 years. On the other hand, in Bandung City, poverty was also affected by education level, the number of non-productive age household members, and employment status.

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