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Digital Poverty and Connectivity Disparities in South Sumatra: Mapping and Policy Implications

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A B S T R A C T

Digital poverty, defined as the inability to access and utilize information and communication technology (ICT), remains a critical issue in South Sumatra Province. This study aims to map digital poverty and connectivity disparities across districts and cities, analyze their distribution, and assess their relationship with macro poverty. Using Barrantes' (2007) framework, this research employs descriptive statistical analysis based on the National Socio-Economic Survey (Susenas) data from March 2023. The study utilizes the digital poverty index and macro index to classify regions into quadrants. The findings reveal that the highest levels of digital poverty are observed in Empat Lawang Regency (52.75%), North Musi Rawas Regency (44.625%), and PALI Regency (44.51%). Conversely, Prabumulih City (80.27%), Palembang City (80.17%), and Ogan Komering Ulu (74.43%) exhibit the highest levels of digital connectivity. These disparities highlight the urgent need for targeted policy interventions. Recommended strategies include digital literacy enhancement, improved internet access, and strengthened digital infrastructure, particularly in high-poverty regions. Effective implementation of these initiatives is crucial to reducing digital poverty and supporting sustainable economic development in South Sumatra Province.

INTRODUCTION

The 2023 World Digital Competitiveness Ranking (WDCR) recognizes Indonesia's accelerated work efforts in carrying out digital transformation in the country (Pane, 2024). Based on the 2023 annual report published by a Swiss institution, the International Institute for Management Development (IMD) explains that Indonesia's ranking in digital competitive advantage in 2023 is 45th out of 64 countries. This confirms that in 2023, Indonesia experienced an increase in competitive advantage, where it was previously ranked 51st in 2022 and 56th in 2019 (Cetindamar & Burdon, 2025; Livia, 2024).

Based on data from the International Institute for Management Development (IMD), the World Digital Competitiveness Ranking (WDCR) released at the end of 2023 explains that Indonesia's digitalization ranking is superior to a number of other Asian countries, such as India in 49th place, the Philippines in 59th place and Mongolia in 63rd place. However, in the Southeast Asian region, Indonesia is still below Singapore in 3rd place, Malaysia in 33rd place, and Thailand in 35th place (Buchaev et al., 2023; Putri, 2024; Veselica, 2019; Grindle, 2017).

Regarding digital competitiveness in Indonesia, this is also inseparable from the condition of internet speed. Increasing the speed of internet spread throughout Indonesia is the main commitment of the Ministry of Communication and Informatics (Dudhat & Agarwal, 2023; Jurries, 2017). This program is the basis for accelerating national digital transformation. In the IMD WDCR report, it is explained that there are 2 (two) main factors that need to be studied further to increase digitalization, namely factors from the education/training side and research/technology development factors. Based on the IMD data released in 2023, internet speed in Indonesia is in the 62nd position out of a total of 64 countries (Riadi & ., 2024; Sari Wiedoko, 2023; Situmorang et al., 2023; Wahyunengseh & Hastjarjo, 2023).

The phenomenon of digital transformation has an impact on people who lack expertise in utilizing technology (Kane, 2019; Mergel et al., 2019; Vial, 2021). This results in them being increasingly left behind by the progress of the era that demands people to be digitally literate (Seah, 2020). Barrantes (2007), explains that digital poverty is a condition of limited use of technology and information (ICT) due to lack of access or knowledge of its use. In addition to low-income residents, digital poverty is also experienced by residents with sufficient income. Classify the status of digital poverty into 4 (four) categories, namely extremely digitally poor, digitally poor, digitally connected, and digitally wealthy, all of which include several aspects such as connectivity, communication, and information functions.

In the 2020-2024 Strategic Plan, the Ministry of Communication and Information is trying to build a national digital foundation by encouraging the acceleration of digital transformation. Digital transformation has 10 (ten) target targets for digital Indonesia (Andita & Rafaela, 2024; Sinaga & Firmansyah, 2024). One of the targets is the growth of internet usage by 82.30 percent. When viewed in Figure 1, internet users in Indonesia and South Sumatra Province in 2023 are still far from the target. The population that has accessed the internet in the last 3 (three) months of 2023 is 69.21 percent (Indonesia) and 66.66 percent (South Sumatra). This data shows an increase in digitalization from year to year. However, even though there has been an increase, there are still people who are considered digitally poor because they have little or no access to technology or the internet.

Based on Figure 2. in 2018 (before the COVID-19 pandemic), the ICT Development Index value was 5.07 (Indonesia) and 4.81 (South Sumatra). ICT development in Indonesia has shown positive developments in the last 5 (five) years, as illustrated by the increase in the IP-ICT value. The IP-ICT value in 2018 was

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recorded as continuing to increase until 2022, both at the national level and in the Province of South Sumatra. In terms of position, the development of ICT in Indonesia and the Province of South Sumatra is classified as moderate, as indicated by the IP-ICT value of 5 on a scale of 10. Regarding this, various policies need to be implemented to achieve optimal ICT development.

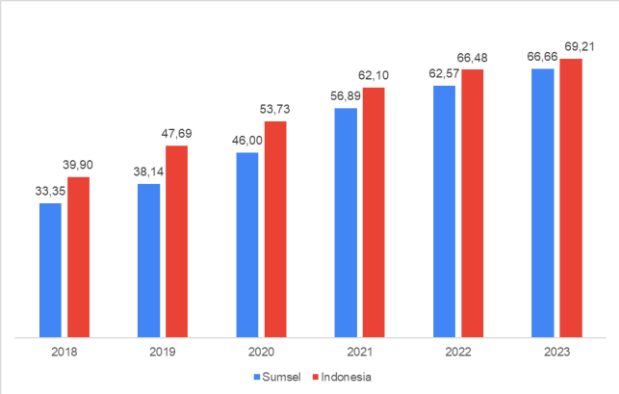

Figure 1. Population Aged 5 Years and Over Accessing the Internet in the Last 3 Months, 2018-2023
Source: National Socio-Economic Survey, 2023

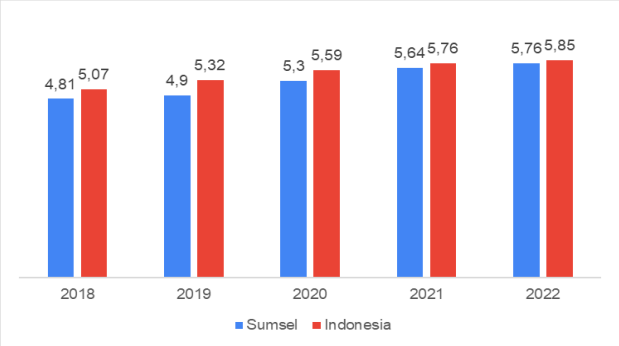

Figure 2. Development of IP-ICT in Indonesia and South Sumatra, 2018-2022
Source: National Socio-Economic Survey, 2023

Several previous researchers also mentioned that there is a relationship between ICT and the Gini ratio and macro poverty levels. Richmond & Triplett (2018), stated that the decline in the Gini ratio was influenced by the increasing use of the internet and mobile phones. Research Widyastuti et al., (2023), shown that ICT penetration has a positive contribution to reducing poverty rates. One of the reasons why it is difficult for someone to get out of the poverty cycle is the limitations of ICT, which can hinder them from improving their lives. Digital poverty has an impact on unemployment rates and income inequality. Limitations on ICT make it difficult to empower the quality of society in the digital era.

The issue of digital poverty in South Sumatra is actually directed at the South Sumatra provincial government, which needs to identify the population most affected by the lack of digital inclusion. In making policies of the South Sumatra provincial government, this identification is required in various fields and to allocate the APBD proportionally so that development programs can run well, including telecommunications, digital ecosystem development, digital literacy, and the South Sumatra Governor's program, namely village internet and public services which have been implemented since 2019 "South Sumatra Governor's Decree No. 607 / KPTS / Diskominfo / 2019". This is also in line with the Digital Transformation Acceleration and National Digital Service Integration program regulated in Presidential Regulation No. 82 of 2023. However, in the segmentation of society, various new problems and phenomena arise as a result of the use of these information systems and technologies. In the midst of conditions in improving digital poverty accompanied by economic improvements, the South Sumatra Provincial Government is required to be fast and precise in making policies. The IP-ICT value calculated by BPS only captures the standard size of ICT development in an area, but its weakness is that it does not see the distribution of areas where digital poverty can be mapped in the area. It is essential to analyze and map digital poverty, especially in South Sumatra Province.

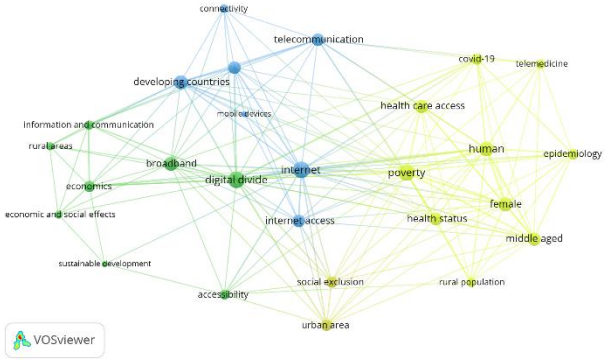

Figure 3. Vosviewer data on digitalization research, mapping or policy formulation

Based on the figure above made through the Vosviewer application, it is stated that research on digitalization in mapping or formulating policies, especially in the context of digitizing poverty, is still relatively limited. This indicates an excellent opportunity for researchers to dig deeper into how the government can utilize digital technology in designing and implementing more effective and targeted poverty alleviation policies.

The analysis in this study uses Susenas data because there are similarities in indicators with the indicators used by the International Telecommunication Union (ITU). Based on this, the researcher will map pockets of digital poverty areas throughout South Sumatra Province (Barrantes, 2007). Furthermore, the analysis of the digital poverty index in South Sumatra is then visualized with a mapping model processed using R-Studio software. This study uses quadrant analysis to produce the digital poverty index and macro poverty index values, and it also aims to map the distribution of regions according to digital poverty status and macro poverty in South Sumatra Province.

METHOD

Based on this, the researcher will map pockets of digital poverty areas throughout South Sumatra Province (Barrantes, 2007). Furthermore, the analysis of the digital poverty index in South Sumatra is then visualized with a mapping model processed using R-Studio software. This study uses quadrant analysis to produce the digital poverty index and macro poverty index values, and it also aims to map the distribution of regions according to digital poverty status and macro poverty in South Sumatra Province. The secondary micro raw data in this study were obtained from Susenas (National Socioeconomic Survey) for 17 regencies/cities in South Sumatra Province, based on data

collected in March 2023. The study employs descriptive statistical analysis based on the digital poverty measurement framework proposed by Barrantes (2007).

Data collection was conducted through face-to-face interviews between survey enumerators and respondents. Interviews were carried out with the head of the household, their spouse, or other household members who were knowledgeable about the characteristics of the variables included in the questionnaire. The Susenas Kor data collection is conducted semi-annually, with data available at the national and provincial levels in September and at the regency/city level in March. The dataset comprises both longitudinal and cross-sectional data. Data collection was carried out through a survey using a structured questionnaire and interview guidelines (Sugiyono, 2016).

The study population consists of 39,809 individuals, with a total of 11,070 sampled households spread across 17 regencies/cities. In each selected census block, 10 households were chosen as samples. The sampling unit in Susenas is the household, while the research sample or unit of observation in this study consists of individuals aged five years and above. The sampling design applied in the March 2023 Susenas follows a stratified two-stage sampling approach. The categorization in this study adopts the framework from Barrantes (2007) while being adjusted to the availability of Susenas data. Each categorization variable is defined as follows:

a. Extreme Digital Poor

- The population does not use mobile phone technology facilities at all. This is due to limited knowledge about its use or lack of communication services. However, even when services are available, the age and learning ability of the person may hinder their knowledge of how to use the equipment thoroughly.
- When asked (R.801), "Do you use a mobile phone (HP)/wireless for communication purposes?" the answer was "No."

b. Digitally Poor

- Residents who can use mobile phone or computer technology facilities but do not have internet access capabilities (lack of human resources, low education levels, high illiteracy rates, or advanced age).
- When asked (R.801), "Do you use a mobile phone (HP)/wireless for communication purposes?" the answer is "Yes."
- But when asked (R.808), "Have you ever used the internet (including Facebook, Twitter, YouTube, Instagram, WhatsApp, etc.)?" the answer is "No."

c. Connected

- Residents who use the internet from mobile phones/computers passively, such as searching for information and general communication (examples: email, chatting, browsing, etc.).
- When asked (R.801), "Do you use a mobile phone (HP)/wireless for communication purposes?" answered, "Yes."
- Then continued with the question (R.808), "Have you ever used the internet (including Facebook, Twitter, YouTube, Instagram, WhatsApp, etc.)?" answered "Yes."
- Then continued with the question (R.811), "What do (names) use the internet for?" answered code "A, B, C, D (selected)."

d. Digitally "Wealthy"

- Residents actively use the internet from mobile phones/computers. This group has the knowledge needed to make transactions or utilize government electronic applications or other forms that imply active interaction or use of ICT.
- When in question (R.801), "Do you use a mobile phone (HP)/wireless for communication purposes?" answered "Yes."
- Then continued with a question (R.808), "Have you ever used the internet (including Facebook, Twitter, YouTube, Instagram, WhatsApp, etc.)?" answered "Yes."
- Then continued with a question (R.809), "What media are used to use the internet?" answered, "more than 1 (one) code A, B, C, D, E".
- Then continued with a question (R.810), "Where do you use the internet?" answered, "more than 1 (one) code A, B, C, D, E, F".
- Then continued with a question (R.811), "What do (name) use the internet for? " Answered with code "A, B, C, D, E, F, G, H, I, J, K, L (selected)."

This study uses the R-Studio data processing application to create a digital poverty area mapping, quadrant analysis, and the Digital Poverty Index using the Headcount Index.

The Headcount Index is often used to calculate poverty rates. The formula is:

$$P_0 = \frac{N_p}{N}$$

Where:

Po = Headcount Index
Np = Number of people who are digitally poor
N = Total population (residents who aged 5 years and over)

Furthermore, the calculation for the macro poverty index is obtained from the population clustering based on the average expenditure/capita/month. The population that is said to be rich in macro terms is the population that has an average expenditure/capita/month value above the Poverty Line, while the poor population in macro terms is the population that has an average expenditure/capita/month value equal to or below the Poverty Line of the district/city in South Sumatra Province. BPS calculates the macro poverty index, namely

:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q} \left[\frac{z - y_i}{z}\right]^\alpha$$

α = 0;
z = district/city poverty line in 2023
yi = average per capita expenditure per month of the population below the poverty line (i=1, 2, 3, ..., q), yi ‹ z
q = number of people below the poverty line
n = number of people

Furthermore, from the calculation results above and processed using R-Studio software, the digital poverty index and macro poverty index values in South Sumatra Province will be obtained. For the digital poverty quadrant analysis, the 4 (four) groups of digital poverty status are grouped into two, namely

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poor and non-poor. The groups included in people with low incomes are the extreme digital poor and the digital poor. Meanwhile, the groups included in the non-poor group are connected and digitally prosperous.

RESULTS AND DISCUSSION

Digital Poverty Conditions in South Sumatra Province

There are 4 (four) categories of digital poverty status, namely extreme digital poverty, digital poverty, connected, and digitally rich. Digital poverty status is determined based on responses to questions related to ICT in the Susenas Block VIII March 2023 questionnaire. From the processing of SUSENAS raw data that has been carried out in Figure 3. it is known that the majority of the population of South Sumatra Province in 2023 falls into the digitally "connected" category, namely 61.19 percent, which means that 61-62 out of 100 residents use ICT (cell phones (HP)/wireless) for passive internet needs which function only to obtain information and communicate via email, chat, browsing, Facebook, Twitter, YouTube, Instagram, WhatsApp, etc.

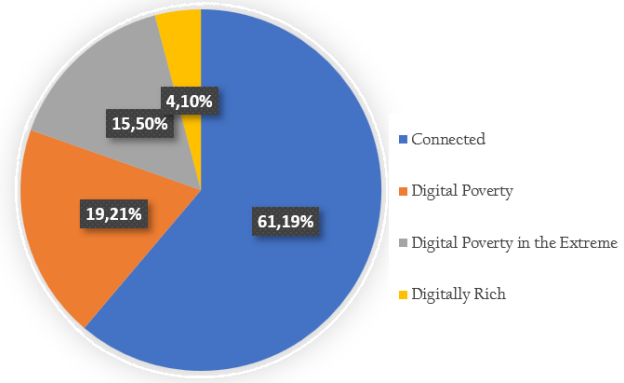

Figure 4. Percentage of Digital Poverty by Category in South Sumatra Province, 2023
Source: National Socio-Economic Survey, 2023

However, in this condition, in 2023, 15.50 percent of the population in South Sumatra Province will experience extreme digital poverty, which means that 15-16 out of 100 residents do not use mobile phones/other ICT technology facilities at all. This is due to a lack of training or communication services. Even when services are available, the person's age and learning ability can hinder their knowledge and ability to use the equipment thoroughly. Furthermore, 19.21 percent of the population in South Sumatra Province 2023 will experience digital poverty, which means that 19-20 out of 100 residents have used information and communication tools but are not yet connected to the internet, so they are only used for communication. Factors such as lack of human resources, low levels of education, high levels of illiteracy, or advanced age can be the causes.

Meanwhile, in 2023, the population of South Sumatra, which has a digitally rich status, will be 4.10 percent. This means that out of 100 residents of South Sumatra, only 4-5 residents have optimized the use of ICT. In other words, they can already use information and communication tools accompanied by being connected to internet access so that its use can be utilized/optimized to communicate and digital services. Digitally affluent residents can use mobile phones/computers/other ICT to access the internet actively. In addition, residents in this group have the skills needed to make transactions or use government electronic applications, as well as other forms that show active interaction or use of ICT.

Table 1. Condition of Digital Poverty in South Sumatra, 2023

No	District/City	Extreme Digitally Poor Population (%)	Digitally Poor Population (%)	Connected Population (%)	Digitally Rich Population (%)
(1)	(2)	(3)	(4)	(5)	(6)
1	Ogan Komering Ulu	8,87	16,70	69,70	4,73
2	Ogan Komering Ilir	17,63	21,98	59,35	1,04
3	Muara Enim	18,23	18,27	61,64	1,85
4	Lahat	15,94	20,17	59,79	4,10
5	Musi Rawas	20,49	20,46	57,35	1,71
6	Musi Banyuasin	14,01	23,98	60,05	1,96
7	Banyuasin	22,04	17,19	58,47	2,30
8	Ogan Komering Ulu Selatan	21,60	22,76	54,63	1,01
9	Ogan Komering Ulu Timur	15,38	24,75	56,75	3,12
10	Ogan Ilir	16,43	22,62	57,56	3,39
11	Empat Lawang	25,00	27,75	46,66	0,60
12	Penukal Abab Lematang Ilir (PALI)	18,87	25,64	52,43	3,06
13	Musi Rawas Utara	14,98	29,64	53,98	1,40
14	Palembang	8,91	10,92	70,24	9,93

15	Prabumulih	8,29	11,45	72,05	8,22
16	Pagaralam	11,45	27,44	55,96	5,15
17	Lubuk Linggau	14,36	17,26	62,09	6,28
	Sumatera Selatan	15,50	19,21	61,19	4,10

Source: Processed from Susenas data March, 2023

From Table 1. above, the highest digital poverty conditions (extreme digital poverty and digital poverty) in districts/cities in South Sumatra Province are Empat Lawang Regency at 52.75 percent, North Musi Rawas Regency at 44.625 percent and PALI Regency at 44.51 percent. The Communication and Informatics Service (Diskominfo) of Empat Lawang Regency stated that, until 2023, Empat Lawang Regency is still included in one of the blank spot areas (areas not covered by internet signals). There are 13 villages that still have blank spot status. In other villages, they are spread across several internet signal points. Some of which are provided by the local town. However, in the Empat Lawang Regency Government office complex located on Jalan Poros Ujung, there are no longer any blank spot areas because the internet in collaboration with PT. Sempurna Telekomunikasi Indonesia is already active. In addition, in 2023, Empat Lawang Regency did not receive village internet assistance from the South Sumatra Provincial Government.

Since 2021, the Empat Lawang Regency Government's efforts to overcome blank spot areas include the inauguration of the Site Net One program at Simpang Perigi and the inauguration of the Village Digitalization program throughout Empat Lawang Regency in Tanjung Agung Village, Ulu Musi District. The Empat Lawang Regency Government has been collaborating since 2021 with PT. Sempurna Telekomunikasi Indonesia will back up areas that are not covered by signals. However, this step is still in process, so the condition of digital poverty in the Empat Lawang Regency area has not immediately had a significant impact; in fact, the digitally poor population in Empat Lawang is still relatively high in 2023. Furthermore, North Musi Rawas Regency (Muratara) and Penukal Abab Lematang Ilir Regency (PALI) are areas that were split from the parent regencies, namely Musi Rawas Regency (Muratara Regency) and Muara Enim Regency (PALI Regency). So, the development of supporting facilities and infrastructure for internet access needs is still quite behind that of other regencies/cities. Based on the National Strategy Report for Accelerating Development of Disadvantaged Regions 2020-2024 shows that the status of Muratara Regency is still included in the list of disadvantaged districts for 2020-2024.

Meanwhile, the PALI Regency also had the status of a disadvantaged area in 2015. Disadvantaged areas are areas that have low development quality, so their communities are less developed than other areas. Development of Disadvantaged Areas (PDT) must be the main priority that must be fixed by the local government, especially with the aim of ending digital poverty. Furthermore, the status of the highest connected and digitally affluent population is in Palembang City at 80.17 percent, Prabumulih City at 80.27 percent, and Ogan Komering Ulu Regency (OKU) at 74.43 percent. According to data from the South Sumatra Provincial Communication and Information Service, until 2023, Palembang City has zero status (no) blank spot areas. Prabumulih City and OKU Regency are areas where the development of supporting facilities and infrastructure for internet access needs is relatively high, so local people find it very easy to connect to internet access provided by both the district/city government and the provision of personal internet access from home.

Digital Poverty Index and Macro Poverty Index

Based on Table 2, it is known that the 3 (three) regions with the highest digital poverty index are Empat Lawang Regency (0.5274); PALI Regency (0.4451); and Muratara Regency (0.4462). The high digital poverty index value is due to the fact that most of the areas are rural areas and 2 (two) of them are new district expansion areas, namely Muarata Regency and PALI Regency.

Table 2. Tabulation of Digital Poverty Index and Macro Poverty Index of South Sumatra, 2023

District/City	Digital Poverty Index Macro	Poverty Index
(1)	(2)	(3)
Ogan Komering Ulu	0,2557	0,1146
Ogan Komering Ilir	0,3961	0,1315
Muara Enim	0,3650	0,1093
Lahat	0,3611	0,1500
Musi Rawas	0,4095	0,1413
Musi Banyuasin	0,3799	0,1490
Banyu Asin	0,3923	0,0958
Ogan Komering Ulu Selatan	0,4437	0,1036
Ogan Komering Ulu Timur	0,4013	0,0999
Ogan Ilir	0,3905	0,1328
Empat Lawang	0,5274	0,1180
Penukal Abab Lematang Ilir	0,4451	0,1091
Musi Rawas Utara	0,4462	0,1826
Kota Palembang	0,1983	0,1022
Kota Prabumulih	0,1974	0,1091
Kota Pagar Alam	0,3889	0,0888
Kota Lubuklinggau	0,3163	0,1265
Provinsi Sumatera Selatan	0,3471	0,1177

Source: Processed from Susenas data March, 2023

Macro poverty is a condition where people are unable to meet their basic needs. Poverty can be distinguished based on the concept of absolute poverty (defined as an absolute level of income or standard of living) and relative poverty (defined as a measure influenced by other measures related to distribution or proportion). Table 3 shows the condition of macro poverty in South Sumatra in 2023. The highest Poverty Line in 2023 is in Prabumulih City at IDR 649,951/Capita/Month. The lowest Poverty Line is in Pagaralam City at IDR 408,917/Capita/Month. South Sumatra Province is on the Poverty Line of IDR 520,754/Capita/Month with a percentage of the number of poor people in March 2023 of 11.78 percent, or in other words, there are 1,045,680 poor people. The largest poor population in South Sumatra Province in 2023 is Palembang City, with 179,450 people;

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Ogan Komering Ilir Regency, with 114,480 people; and Musi Banyuasin, with 101,630 people. The essential data of the digital poverty index and macro poverty index obtained in Table 3 are used as a reference for mapping and analyzing the quadrants of regional distribution in South Sumatra.

Table 3. South Sumatra Macro Poverty Tabulation, 2023

Regency/City	Poverty Line - March (Rp/Capita/Month)	Number of Poor Population - March (Thousand)	Percentage of Poor Population – March (%)
(1)	(2)	(3)	(4)
Ogan Komering Ulu	548.200	44,11	11,46
Ogan Komering Ilir	444.881	114,48	13,15
Muara Enim	467.396	73,24	10,93
Lahat	547.203	63,36	15,00
Musi Rawas	564.151	59,75	14,13
Musi Banyuasin	593.258	101,63	14,90
Banyu Asin	509.264	85,88	9,58
Ogan Komering Ulu Selatan	413.228	39,30	10,36
Ogan Komering Ulu Timur	410.548	69,91	9,99
Ogan Ilir	571.657	59,33	13,28
Empat Lawang	411.191	30,78	11,8
Penukal Abab Lematang Ilir	487.341	21,72	10,91
Musi Rawas Utara	604.903	36,67	18,26
Kota Palembang	643.356	179,45	10,22
Kota Prabumulih	649.951	22,33	11,23
Kota Pagar Alam	408.917	12,73	8,88
Kota Lubuklinggau	583.867	31,02	12,65
Provinsi Sumatera Selatan	520.754	1.045,68	11,78

Source: Processed from Susenas March 2023 data

Digital Poverty Mapping

The thematic map of digital poverty in South Sumatra Province is divided into three categories: the low category, namely in the range of 0.24 to 0.28; the medium category, namely 0.28 to 0.45; and the high category, namely in the range of 0.45 to 0.57. Areas with a low digital poverty index are directly proportional to the poverty status of the area. In other words, this happens because the area has a low digital poverty rate (extreme digital poverty and digital poverty) as well. Based on the visual thematic map processed with the R-Studio software application, Figure 3. shows that the 2023 digital poverty index data shows that the areas in the low category are in Palembang City with an index value of 0.1983, Prabumulih City with an index value of 0.1974, and Ogan Komering Ulu Regency with an index value of 0.2557. Meanwhile, digital poverty in the high category is in Empat Lawang Regency with an index value of 0.5274, North Musi Rawas Regency with an index value of 0.4462, and PALI Regency with an index value of 0.4451. Meanwhile, the remaining regencies/cities are in the medium category of digital poverty.

Judging from the distribution of the digital poverty index of the thematic map visualization, it is explained that the high category of digital poverty areas is dominated by regencies/cities that have recently experienced regional expansion, namely Empat Lawang Regency, PALI Regency, and North Musi Rawas Regency.

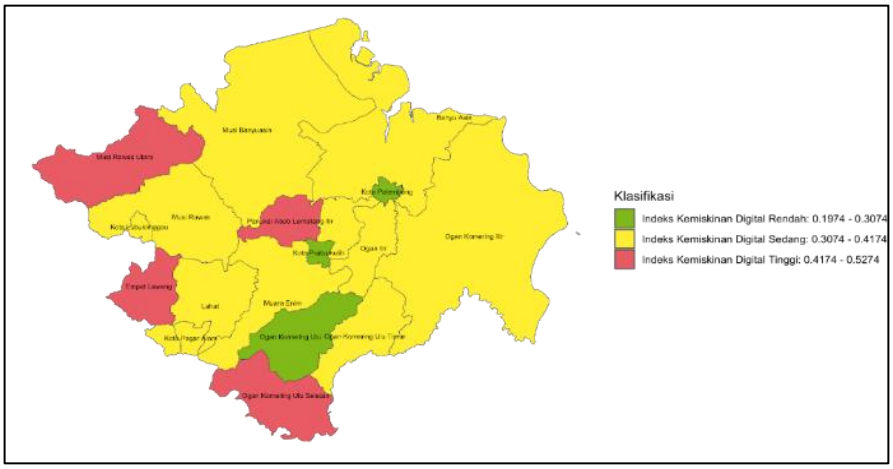

Figure 4. Thematic Map of Digital Poverty by Regency/City in South Sumatra Province, 2023

Source: Processed from Susenas data March, 2023

The Relationship between Digital Poverty and Macro Poverty

The initial stage is to group digital poverty into four categories, namely extreme digital poverty, digital poverty, connected, and digital wealth, based on ownership and use of landline/mobile phones, laptops/computers/tablets, and internet access. For the digital poverty quadrant analysis, the 4 (four)

groups of digital poverty status are grouped into two, namely poor and non-poor. The groups included in the poor are the extreme digital poverty and the digital poor. The groups included in the non-poor group are connected and digitally rich. Furthermore, economic poverty is grouped into 2 (two) groups, namely the poor population (expenditure below the Poverty Line) and the non-poor population (expenditure above the Poverty Line). Areas with high levels of macro poverty do not guarantee that their population is digitally poor, but it can also occur in districts/cities with low levels of macro poverty. Therefore, a quadrant analysis is needed to see how macroeconomic poverty and digital poverty are related comprehensively.

Based on Figure 6, there are 4 (four) quadrants used to identify the level of digital poverty and the level of economic poverty in districts/cities throughout South Sumatra Province in 2023.

- Quadrant I Analysis
  Regions with high digital poverty index and macro poverty index categories are Ogan Ilir Regency, Ogan Komering Ilir Regency, Musi Rawas Regency, Musi Banyuasin Regency, and North Musi Rawas Regency.

- Quadrant II Analysis
  Regions with low digital poverty index and high macro poverty index categories are Lubuk Linggau City and Lahat Regency.

- Quadrant III Analysis
  Regions with high digital poverty index and low macro poverty index categories are Pagaralam City, Banyuasin Regency, East OKU Regency, PALI Regency, South OKU Regency, and Empat Lawang Regency.

- Quadrant IV Analysis
  Regions with low digital poverty index and macro poverty index categories are Muara Enim Regency, Ogan Komering Ulu Regency, Prabumulih City, and Palembang City.

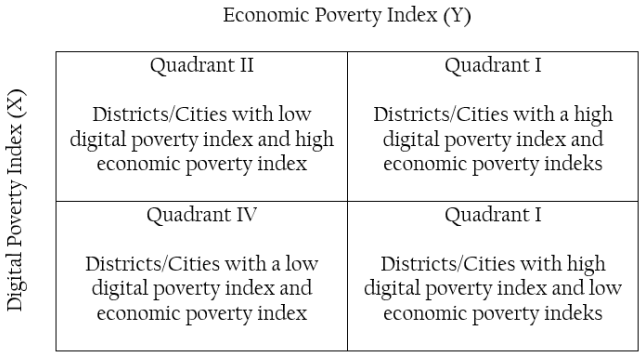

Figure 5. Typology of the Relationship between the Digital Poverty Index and the Macro Poverty Index
Source: Processed by researchers (2025)

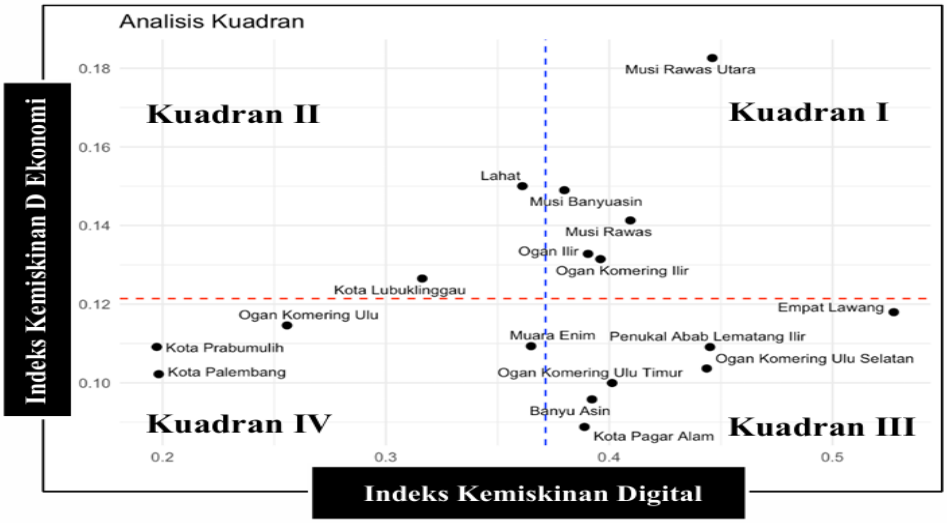

Figure 6. Quadrant Analysis of Digital Poverty Index and Macro Poverty Index in South Sumatra Province, 2023

CONCLUSION

The findings of this study reveal significant disparities in digital poverty across districts and cities in South Sumatra Province. Empat Lawang, North Musi Rawas, and PALI regencies exhibit the highest levels of digital poverty, while Prabumulih City, Palembang City, and Ogan Komering Ulu (OKU) Regency demonstrate stronger digital connectivity. These results highlight the uneven distribution of digital access and infrastructure, which could exacerbate socio-economic inequalities if left unaddressed. The study underscores the necessity for targeted policy interventions, including digital literacy programs, expanded internet access, and improved ICT infrastructure, particularly in high-poverty areas. Addressing these disparities is essential for fostering digital inclusion and supporting economic development in the region.

This study is subject to several limitations. First, the analysis relies on secondary data from the National Socio-Economic Survey (Susenas), which may not fully capture real-time digital accessibility and usage behaviors. Second, the study primarily employs a descriptive statistical approach, limiting causal inferences between digital poverty and macroeconomic indicators. Future research should incorporate qualitative methods or mixed approaches to gain deeper insights into individual and community-level digital challenges. Additionally, further studies could explore the impact of specific government initiatives on digital inclusion and assess the effectiveness of digital literacy programs in reducing regional disparities. Expanding the analysis to other provinces in Indonesia would also provide a broader comparative perspective on digital poverty nationwide.

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