CHANGES IN INCOME DISPARITIES DUE TO INFORMATION AND COMMUNICATION TECHNOLOGY BETWEEN RIAU PROVINCE, WEST KALIMANTAN PROVINCE, SOUTH SUMATERA PROVINCE

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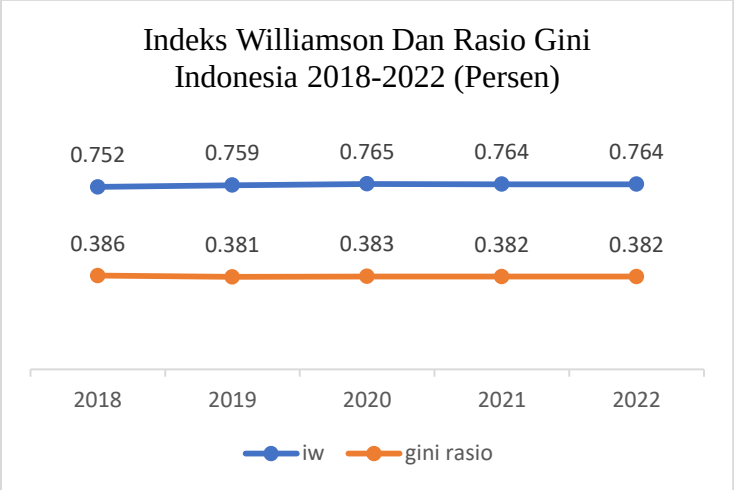
Abstract

Indonesia is a country that has quite high income disparities between regions. The occurrence of differences in income disparity conditions in several provinces in Indonesia, especially in Riau Province, West Kalimantan Province and South Sumatra Province, cannot be separated from many factors, one of which is the role of ICT. ICT plays an important role in supporting economic growth and overcoming income disparities, so this research aims to determine the structure of the economy, determine the condition of income disparities, and determine the contribution of ICT to income disparities in Riau Province, West Kalimantan Province, and South Sumatra Province in 2010-2022. This research uses a quantitative approach with regional Klassen typology analysis methods, Wiliamson index analysis, and binary logistic regression analysis. The research results show that Riau Province is included in the category of developed but depressed regions, while West Kalimantan Province and South Sumatra Province are included in the category of rapidly developing regions. The average income disparity during the 2010-2022 period, Riau Province reached 0.51%, West Kalimantan Province was 0.25%, and South Sumatra Province was 0.58%. ICT contributes to income disparities by 26.1%, with an analysis of the influence of ICT indicators, namely households that own/control a cell phone have a significant positive effect on income disparities, households that own/master a computer have a negative and insignificant effect, and the percentage of households that accessing the internet in the last 3 months had a negative and significant effect

Keywords: ***Income Disparity; ICT; Regional Klassen Typology; Williamson Index; Binary Logistic Regression***

1. INTRODUCTION

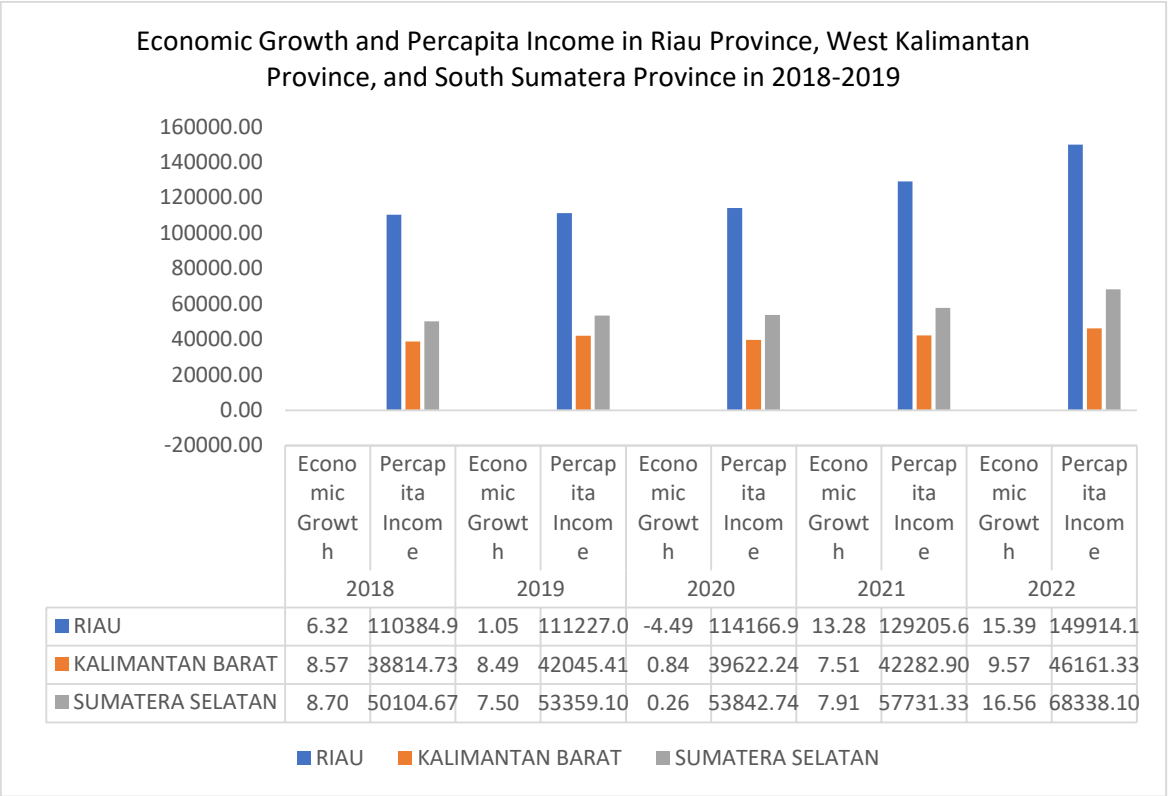
Income disparity is an important problem for the development of a region to achieve equitable prosperity. Therefore, income disparities must be addressed immediately so as not to give rise to various complex problems such as high poverty rates and low levels of social protection. According to(Wijayanti P Kurniawati, 2022)Income disparity is a situation where income between regions has a fairly unequal difference over a long period of time.



Graphics 1. Williamson Index and Gini Ratio in Indonesia in 2018-2019

Indonesia is a country that has a relatively high income gap between regions(Nasution, 2020). The inequality value in Indonesia as measured using the Williamson index is in the range of 0.752 - 0.764, almost close to 1, meaning that Indonesia is in a condition of high regional inequality. Meanwhile, inequality in Indonesia, when viewed from the Gini ratio, has a value in the range of 0.381 - 0.392, meaning that inequality in Indonesia is included in the moderate category where income is distributed evenly. However, regional development inequality still does not show the same results. Income disparities occur because development between regions is not equal. Unequal development is influenced by several things, namely development acceleration, regional characteristics, geographical conditions, natural resources, human resources, social and cultural, due to the strong influence of regional characteristics on the formation of economic development patterns, it is not surprising that economic development patterns in various regions of Indonesia it is not uniform.

Indonesia has several provinces with the same characteristics of superior commodity sectors, such as Riau Province, South Sumatra Province and West Kalimantan Province. These three provinces have superior plantation sector commodities. The most superior commodity is palm oil, more than 90% of palm oil plantations in Indonesia are located on the islands of Sumatra and Kalimantan, and around 95% of crude palm oil is produced in these regions. Palm oil has an important role in advancing the national economy, advancing the people's economy, attracting workers and encouraging economic growth(Laili, 2018). The development of a region can be measured using domestic economic growth. The relationship between economic growth and economic development is close, especially because the ability of economic growth to impact economic development in a region. To evaluate the progress of economic development, not only economic growth indicators are needed, but also attention to income inequality. One way to achieve economic development in the region is through increasing per capita income. Economic development is said to be realized if per capita income continues to increase at a relatively fast rate.



	2018		2019		2020		2021		2022	
	Economic Growth	Percapita Income	Economic Growth	Percapita Income	Economic Growth	Percapita Income	Economic Growth	Percapita Income	Economic Growth	Percapita Income
RIAU	6.32	110384.9	1.05	111227.0	-4.49	114166.9	13.28	129205.6	15.39	149914.1
KALIMANTAN BARAT	8.57	38814.73	8.49	42045.41	0.84	39622.24	7.51	42282.90	9.57	46161.33
SUMATERA SELATAN	8.70	50104.67	7.50	53359.10	0.26	53842.74	7.91	57731.33	16.56	68338.10

Graphics 2. Economic Growth and Per Capita Income in Riau Province, West Kalimantan Province, and South Sumatra Province in 2018-2019

Based on data from graph 2, it is identified that the achievement of economic prosperity in the three provinces is still uneven because GDP per capita still has a relatively high difference. Based on the two indicators, namely economic growth and per capita income, it can be seen that high economic growth has not focused on increasing per capita income and income distribution. The occurrence of income disparities cannot be separated from infrastructure development problems, one of which is the development of Technology, Information and Communication (ICT) infrastructure. According to Todaro & Smith in(Dewi et al., 2022)Technology is able to contribute to the economic growth of a region. Apart from that, ICT also makes an important contribution to the exchange and expansion of information specifically in regions. Thus, the role of Information and Communication Technology (ICT) is crucial in the development process of a region and reduces backwardness compared to other regions. According to(Das and Drine, 2020)ICT can reduce income disparities between groups in society, especially by opening new opportunities for income growth and increasing access to knowledge with the spread of ICT which can also increase worker productivity. But according to(Harry Patria and Azeez Erumban, 2020)The trend of progress in Information and Communication Technology (ICT) will have an inequality impact due to the fact that its benefits are enjoyed more by individuals with high incomes and large companies. As a strategy for better regional development, it is important for local governments to make policy decisions to maximize the use of population, palm oil commodities and ICT infrastructure to achieve community welfare.

2. IMPLEMENTATION METHOD

A. Research sites

Riau Province, West Kalimantan Province and South Sumatra Province were used as research areas based on the similarities in superior characteristics of the largest palm oil commodities.

B. Data and data sources

The data used in this research include data on economic growth, GDP per capita, population, households that own/control cell phones, households that own/control computer phones, households that accessed the internet in the last 3 months in Riau province, Kalimantan province West, and South Sumatra provinces during the 2010-2022 period. The data used in this research comes from secondary data obtained from the Central Statistics Agency (BPS).

C. Data analysis

Data analysis in this research was carried out using quantitative analysis methods. Quantitative analysis is used to:

1. Analysis of economic patterns and structures through regional Klassen typology analysis;
2. Analysis of income disparities through Williamson index analysis;
3. Analysis of ICT contribution through binary logistic regression analysis.

D. Typology Analysis of Regional Rankings

The entire document should be in Times New Roman or Times font. Type 3 fonts must not be used. Other font types may be used if needed for special purposes. According to Leo Klassen in(Nur Hidayah and Tallo, 2020), The application of typological analysis aims to recognize patterns and structures of economic growth in various regions. , to understand differences in the level of inequality between regions based on economic position in Riau Province, West Kalimantan Province and South Sumatra Province, the appropriate method to apply is Klassen Typology. This approach utilizes secondary data in the form of GDP per capita and economic growth rate. Riau Province, West Kalimantan Province and South Sumatra Province which were then processed using the SPSS application.

Table 1 Regional Klassen Typology Categories

y r	yi>y	yi<y
r>r	high income and high growth	high growth but low income
ri<r	high income but low growth	low growth and low income

Source :(Kuncoro, 2018)

Note: in this context, ri refers to the GRDP growth rate in the study area, while r refers to the GRDP growth rate at the regional level. Additionally, yi refers to per capita income in the study area, and y refers to per capita income at the regional level.

E. Williamson Index

The Williamson index in statistics is a coefficient of variation that is often used as a tool to measure differences. Jeffrey G. Williamson, inventor of the Williamson Index, originally applied this technique to assess inequality or disparities in development between regions. In the context of this research, the case study involves districts/cities in Riau Province, West Kalimantan Province and South Sumatra Province. The data used includes GRDP per capita and total population between districts/cities in Riau Province, West Kalimantan Province and South Sumatra Province which were then processed using Microsoft Excel software. Per capita income between regions in Riau Province, West Kalimantan Province and South Sumatra Province. In the period 2010 to 2022, disparities or inequality can be seen. Based on this context, it can be concluded that GDP per capita in the various regions is not the same size. Therefore, it is necessary to measure the extent to

which this inequality occurs. The Williamson index formula used to measure this is as follows(BPS Central Java, 2020).

$$I_w = \frac{\sum i\ (Yi - Y)^2 \frac{fi}{n}}{Y}$$

Source:(Michael P. Todaro, 2006)

Information :
Iw : Williamson coefficient of variation
Yi: GDP per capita for each district/city
Y : Average GDP per capita in the Province
fi: Number of residents in each district/city
n : Total Population of the Province
With the Williamson Index inequality criteria as follows:

a) If 0.1 < Iw < 0.5 then the level of inequality is low.
b) If Iw > 0.5 then the level of inequality is high.

F. Binary Logistic Regression

The binary logistic regression statistical model is used to explain the relationship between the independent variable and the dependent variable which is dichotomous (two categories)(Kartikasari, 2020). According to Harlan in(Susetyoko, Wiratmoko Yuwono and Elly Purwantini, 2022), The use of Binary Logistic Regression aims to assess the impact of the independent variable (X), both continuous and categorical, on the dependent variable (Y) which has a dichotomous or binary value. In this research, the analytical method applied is logistic regression, which aims to evaluate the impact of the percentage of households that own or control a cell phone, the percentage of households that own or control a computer, and the percentage of households that have accessed the internet in the last 3 months on income disparities. Logistic regression analysis is used because the dependent variable in this study is binary, that is, it can be "yes" or "no". The logistic regression model applied to test the hypothesis is as follows:

$$I_w = \alpha + \beta_1 TS + \beta_2 KOMP + \beta_3 INT + e$$

Source: By Author, 2024

Information:

y = Williams index (dummy; 0: “Low” and 1: “High”)
α = Constant
β_1,β_2,β_3 = Regression coefficient indicates how much change occurs in the related variable as a result of a one unit change in each independent variable.
TS = Percentage of households that own/control a cellular telephone
$KOMP$ = Percentage of households that own/control a computer
INT = Percentage of households that have accessed the internet in the last 3 months
e = Term Error

3. RESULTS AND DISCUSSION

3.1 RESULT

A. Typology of Regional Rankings

To understand regional typologies based on patterns and structures of economic growth, identification uses two main indicators, namely regional economic growth and regional per capita income. Based on this pattern, regions can be grouped into four classifications: Quadrant I for developed and fast growing regions, Quadrant II for developed but depressed regions, Quadrant III for rapidly developing regions, and Quadrant IV for relatively underdeveloped regions. Klassen's typology analysis uses a regional approach which considers the growth rate of GRDP and per capita income as the main variables in Indonesia in 2010-2022 to obtain the following classification results:

Table 2. Pattern and Structure of Indonesia's Economic Growth 2010-2022 according to the Class Typology

Quadrant III: Fast Developing Regions North Sumatra, West Sumatra, South Sumatra, Bengkulu, Lampung, Kep. Bangka Belitung, Central Java, In Yogyakarta, East Java, Banten, Bali, NTT, West Kalimantan, Central Kalimantan, South Kalimantan, North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo, West Sulawesi, Maluku, North Maluku	Quadrant I: Fast Developing and Fast Growing Areas Jambi, Kep. Riau, Dki Jakarta, North Kalimantan, West Papua
Quadrant IV: Relatively Disadvantaged Areas Aceh, West Java, NTB	Quadrant II: Developed But Depressed Regions Riau, East Kalimantan, Papua

Source: Author, data processed 2024

1. Regional Klassen Typology Analysis of Riau Province

To understand the regional typology in showing the economic pattern and structure in each district/city in Riau Province using indicators of economic growth and GDP per capita, researchers used data on economic growth and GDP per capita in 12 districts/cities of Riau Province in 2010-2022. The Klassen typology analysis obtained using the regional approach is as follows:

Table 3. Pattern and Structure of Economic Growth in Riau Province 2010-2022 according to Class Typology

Quadrant III: Fast Developing Regions Kuantan Singingi, Indragiri Hilir, Pelalawan, Kampar, Rokan Hulu, Meranti Islands, Pekanbaru City	Quadrant I: Fast Developing and Fast Growing Areas -
Quadrant IV: Relatively Disadvantaged Areas Indragiri Hulu, Dumai	Quadrant II: Developed But Depressed Regions Siak, Bengkalis, Rokan Hilir

Source: Author, data processed 2024

2. Regional Klassen Typology of West Kalimantan Province

To understand regional typologies in showing economic patterns and structures in each district/city in West Kalimantan Province using indicators of economic growth and GDP per capita, researchers used data on economic growth and GDP per capita in 14 districts/cities of West Kalimantan Province in 2010- 2022. The Klassen typology analysis obtained using the regional approach is as follows:

Table 4. Pattern and Structure of Economic Growth in West Kalimantan Province 2010-2022 according to Class Typology

Quadrant III: Fast Developing Regions Mempawah, Sekadau, North Kayong	Quadrant I: Fast Developing and Fast Growing Areas Ketapang, Kubu Raya
Quadrant IV: Relatively Disadvantaged Areas Sambas, Bengkayang, Landak, Sintang, Kapuas Hulu, Melawi	Quadrant II: Developed But Depressed Regions Sangau, Pontianak City, Singkawang City

Source: Author, data processed 2024

3. Regional Klassen Typology of South Sumatra Province

To understand regional typologies in showing economic patterns and structures in each district/city in South Sumatra Province using indicators of economic growth and GDP per capita, researchers used data on economic growth and GDP per capita in 17 districts/cities of South Sumatra Province in 2010- 2022. The Klassen typology analysis obtained using the regional approach is as follows:

Table 5. Pattern and Structure of Economic Growth in South Sumatra Province 2010-2022 according to Class Typology

Quadrant III: Fast Developing Regions Lahat	Quadrant I: Fast Developing and Fast Growing Areas Muara Enim
Quadrant IV: Relatively Disadvantaged Areas Ogan Komering Ulu, Ogan Komering Ilir, Musi Rawas, Banyuasin, South OKU, East OKU, Ogan Ilir, Empat Lawang, PALI, North Musi Rawas, Prabumuli, Pagar Alam, Lubuk Linggau	Quadrant II: Developed But Depressed Regions Musi Banyuasin, Palembang City

Source: Author, data processed 2024

B. Analysis of Income Disparities Between Districts/Cities Using the Williamson Index Analysis Tool

To see a clearer picture of the conditions in Riau Province, West Kalimantan Province, and South Sumatra Province, next, the analysis of the equal distribution of GRDP per capita between districts/cities that has been carried out will be explained using the Williamson Index analysis method. In the context of the Williamson index, if the index value is close to 0, it indicates that there is small inequality or economic growth that tends to be evenly distributed among the districts/cities being analyzed. On the other hand, if the index value is close to 1, it indicates that there is large inequality or uneven economic growth between the districts/cities. Researchers used data on population and GRDP per capita in the districts/cities of Riau Province, West Kalimantan

Province and Sumatra Province in 2010-2022. The Williams index analysis obtained using the regional approach is as follows:

Table 6. Williamson index for Riau Province, West Kalimantan Province and South Sumatra Province 2010-2022

Year	Williamson Index		
	Riau Province	West Kalimantan Province	South Sumatera Province
2010	0.57	0.24	0.56
2011	0.69	0.24	0.56
2012	0.70	0.25	0.58
2013	0.70	0.26	0.57
2014	0.65	0.25	0.57
2015	0.51	0.25	0.57
2016	0.47	0.25	0.55
2017	0.45	0.26	0.55
2018	0.48	0.25	0.56
2019	0.44	0.25	0.56
2020	0.32	0.25	0.58
2021	0.34	0.25	0.59
2022	0.37	0.26	0.68
Average	0.51	0.25	0.58

Source: Author, data processed 2024

Information: = Highest level of inequality

= Low level of inequality

C. Binary Logistics Test

1. Regression Model Feasibility Test

The feasibility of the regression model was analyzed through the results of the Hosmer and Lemeshow goodness-of-fit test. The Hosmer and Lemeshow test tests the null hypothesis which states the suitability of empirical data to the model.

Table 7. Regression Model Feasibility Test

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	12,998	8	,112

Source: Processed Data (SPSS Output, 2024)

Based on table 7 obtained from the Hosmer and Lemeshow tgoodnesh of fit test results, a chisquare value of 12.998 was obtained with a significance value of 0.112. The test results show that the probability value is greater than the significance level, namely α = 0.05 (0.112>0.5). This means that the independent variable contributes significantly to the dependent variable. Based on the output table, it can be concluded that the regression model in the research is appropriate and the model is feasible for predicting the observed values.

2. Test the Overall Model (Overal Model Fit)

The statistical analysis used is based on the Likelihood function. The likelihood (L) of a model refers to the probability that the proposed model reflects the input data.

Table 8. Overall Model Test

2Log initial likelihood (block number = 0)	54,040
2Log initial likelihood (block number = 1)	45,547

Source: Processed Data (SPSS Output, 2024)

The value from the initial -2Log likelihood to the final -2Log likelihood shows a decrease in the -2Log likelihood value of 8.493. These results can be interpreted as meaning that the initial -2Log likelihood value is greater than the final -2Log likelihood. It can be concluded that the hypothesized model is fit and adding independent variables to the regression model shows that the regression model is getting better.

3. Ngel Karke Value Test (R^2)

Nagelkerke's R Square is an adjustment of the Cox and Snell coefficients, and is a test to assess the extent to which the independent variable can provide an explanation and influence the dependent variable.(Ghozali, 2018).

Table 9. Ngel Karke Value Test (R^2)

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	45.547a	,196	,261

Source: Processed Data (SPSS Output, 2024)

The meaning of the Nagelkerke R Square value is the ability of the independent variables, namely households that own/control cell phones, households that own/control computers, and households that use the internet in the last 3 months to be able to explain the dependent variable, namely the Williamson index (income disparity). amounting to 26.1%. Meanwhile, the remaining 73.9 is explained by other variables that are outside this research model.

4. Model Test (F Statistics)

The omnibus test functions as a simultaneous test to assess the overall impact of all independent variables.

Table 10. Model Test (F Statistics)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8,493	3	,037
	Block	8,493	3	,037
	Model	8,493	3	,037

Source: Processed Data (SPSS Output, 2024)

It is known that the value is 8.493 with a significance value of 0.037. By using the number of observations (n=39) and the number of dependent and independent variables (k=4), the degree of

freedom (df1) value is 3 (K-1) and the df2 value is 35 (nk) using the value (α= 0.05) obtained a value of 2.874. So it can be seen below > (8.493>2.874) with a significance value of 0.037 or less than 0.05 (0.037<0.05). It can be concluded that households that own or control cell phones, households that own or control computers, and households that have accessed the internet in the last 3 months simultaneously influence income disparities (Williamson index).$F_{hitung}F_{tabel}F_{tabel}F_{hitung}F_{tabel}$

5. Wald Test (t Test)

The t test using the Wald test in binary logistic regression is used to determine the effect of the independent variable on the dependent variable partially (individually).

Table 11. Wald Test (t Test)

Variables in the Equation

		B	S.E	Wald	df	Sig.	Exp(B)
Step 1a	T.S	,228	,107	4,553	1	,033	1,256
	COMP	-,169	,132	1,642	1	,200	,845
	INT	-,046	,021	4,704	1	,030	,955
	Constant	-15,750	8,086	3,794	1	,051	,000

a. Variable(s) entered on step 1: TS, KOMP, INT.

Source: Processed Data (SPSS Output, 2024)

Based on table 11 which is the output of the binary logistic regression results, the binary logistic regression equation can be formulated as follows:

IW = -15.750 +0.288TS-0.169KOMP-0.046INT+e

1. **β_0**= constant (α) of -15.750, then the income disparity (Williamson index) is -15.750%.
2. **β_1**= regression coefficient of the percentage of households that own/control cellular telephones (TS) is 0.288, so every increase in one household unit that owns or controls cellular telephones will increase the income disparity value (Williamson index) by 0.288%
3. **β_2**= regression coefficient for households that own or control computers (KOMP) is -0.169, then every increase in one household unit that owns or controls computers will reduce the income disparity value (Williamson index) by 0.169%.
4. **β_3**= regression coefficient for households that have accessed the internet in the last 3 months (INT) is -0.046, so every increase in one household unit that has accessed the internet in the last 3 months will reduce the income disparity value (Williamson index) by 0.046%.

By using the number of observations (n=39) and the number of dependent and independent variables (k=4), the degree of freedom (df) value is 35 (nk) using the t table value (α=0.05) to obtain the t value table of 1.68597. From the results of the analysis based on table 4.44 it can be analyzed as follows:

1. Households Who Own/Control a Cellular Telephone (TS)

It can be seen below > (4.533>1.68597) with a significance value of 0.037 or less than 0.05 (0.033<0.05). It can be interpreted that households that own/control cell phones have a positive and significant effect on income disparities (Williamson index).$t_{hitung} t_{tabel}$

2. Households Who Own or Control Computers (KOMP)

It can be seen below < (1.642<1.68597) with a significance value of 0.037 or more than 0.05 (0.200>0.05). It can be interpreted that households that own or control computers have a negative and insignificant effect on income disparities (Williamson index).$t_{hitung} t_{tabel}$

3. Households Who Have Accessed the Internet in the Last 3 Months (INT)

It can be seen below > (4.704>1.68597) with a significance value of 0.037 or less than 0.05 (0.030<0.05). It can be interpreted that households that own/control cell phones have a negative and significant effect on income disparities (Williamson index).$t_{hitung} t_{tabel}$

3.2 DISCUSSION

1. Differences in Economic Patterns and Structures in Riua Province, West Kalimantan Province and South Sumatra Province

The economic patterns in Riau Province, West Kalimantan Province and South Sumatra Province are different. This is in line with research conducted by(Christianingrum, 2021)in his research entitled "Disparities in Indonesia's Economic Development" Regional development is not always spatially evenly distributed. Some regions experience rapid economic growth, while other regions experience slow growth. This inequality can be caused by various factors, such as the geographical characteristics of the region, resource potential nature, quality of human resources, as well as the tendency of investors to choose regions that have infrastructure such as transportation, electricity, telecommunications, banking, insurance and skilled labor. Apart from that, the inequality in the redistribution of income from the central government to the regions can also influence the inequality of regional development .

2. Differences in Income Disparity Levels in Riau Province, West Kalimantan Province, and South Sumatra Province

Based on measuring income disparities in the three provinces, it can be concluded that in general, many regions only focus on growth and development without paying attention to efforts for equality within the region. This phenomenon reflects a pattern where already rich regions tend to develop further, while poor regions tend to become increasingly marginalized. The development of a region is greatly influenced by its potential. Improving infrastructure and availability of facilities can speed up the development process. The availability of complete infrastructure in an area can also be the basis for determining a growth center, because the presence of a large city can accelerate the development of the surrounding area. The city hierarchy also influences the level of services available at service centers in the area. The high value of the Williamson Index indicates the magnitude of the challenge for local governments in resolving the problem of large inequality. Therefore, researchers will continue testing to determine the contribution of ICT to income disparities.

3. Contribution of ICT to Income Disparity in Riau Province, West Kalimantan Province, and South Sumatra Province

The contribution of ICT as measured through indicators of households that own or control cell phones, households that own/control computers, households that have accessed the internet in the last 3 months to income disparities in this study is 26.1% seen from the magnitude of Nagelkerke R Square. Based on the results of the binary logistic regression testing that has been carried out, it can be seen that the variables of households that own or control cell phones, households that own/control computers, households that have accessed the internet in the last 3

months have a simultaneous effect on income disparities (Williamson index) during the period 2010-2022. This research is in line with research conducted by(Harry Patria and Azeez Erumban, 2020)entitled The Impact of "ICT Adoption on Income Inequality in Provinces in Indonesia" Simultaneous test results show that the application of Information and Communication Technology (ICT) with indicators of cellphone, computer and internet adoption levels has a significant impact on income inequality in various provinces in Indonesia.

4. CONCLUSION

1. From the results of the regional classification typology analysis in 2010-2022, there are differences in the economic pattern structure of Riau Province, West Kalimantan Province, and South Sumatra Province. In this analysis, Riau Province is included in the category of developed but depressed provinces (quadrant II). Meanwhile, West Kalimantan Province and South Sumatra Province are included in the category of fast developing provinces (quadrant III). With details for each district/city as follows

a. Riau Province: Based on the results of the regional class typology analysis of districts/cities in Riau Province during the 2010-2022 period, it is known that there are 7 of the 12 districts/cities in Riau Province that fall into the Quadrant III category (fast developing regions), while there are no districts /cities that fall into the quadrant I category (fast developing and fast growing areas).
b. West Kalimantan Province: Based on the results of regional class typology analysis in 14 districts/cities in West Kalimantan Province during the 2010-2022 period, it is known that there are 6 districts that fall into the quadrant IV category (relatively underdeveloped regions). Ketapang Regency and Kubu Raya Regency are included in the quadrant I category (fast developing and fast growing areas).
c. South Sumatra Province: Based on the results of regional class typology analysis in 17 districts/cities in South Sumatra Province during the 2010-2022 period, it is known that 13 districts/cities in South Sumatra Province fall into the Quadrant IV category (relatively underdeveloped regions). Muara Enim Regency is included in quadrant I category (fast developing and fast growing areas).

2. Based on the Williamson index analysis, Riau Province, West Kalimantan Province and South Sumatra Province have different levels of income disparity. The average williamson index value in 2010-2022, Riau Province is included in the high income disparity category with a value of 0.51%, West Kalimantan Province is included in the low income disparity category with a value of 0.25%, and South Sumatra Province is included into the high income disparity category with a value of 0.58%, this figure is the largest when compared to Riau province and West Kalimantan province.
3. Based on the results of the binary logistic regression test analysis, it can be seen that ICT contributes to income disparities in the three provinces (Riau, West Kalimantan and South Sumatra) with a contribution of 26.1%, with the following explanation:

a. From the results of the binary logistic regression test, households that own or control a cell phone have a positive and significant effect of 0.228 on income disparities in the three provinces (Riau, West Kalimantan and South Sumatra) in 2010-2022.
b. From the results of the binary logistic regression test, households that own/master computers have a negative effect of -0.169 and are not significant on income disparities in the three provinces (Riau, West Kalimantan and South Sumatra) in 2010-2022.
c. From the results of the binary logistic regression test, households that have accessed the internet in the last 3 months have a negative and significant effect of -0.046 on income disparities in the three provinces (Riau, West Kalimantan and South Sumatra) in 2010-2022.

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