Analysis of the influence of regional spending on obligatory basic services on multidimensional poverty in Riau Province

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Abstract: This study aims to measure the percentage of multi-dimensionally poor people using the Alkire Foster method using raw data from the results of the 2018–2020 BPS Riau Province National Socio-Economic Survey, then compared with the results of measuring poverty using a monetary approach. Next, an analysis of the effect of spending on compulsory basic services on the percentage of the multi-dimensionally poor population in Riau Province was carried out. The results of this study indicate that the percentage of the multi-dimensionally poor population in Riau Province is always greater than the percentage of the monetary poor population. This means that measuring poverty with a multidimensional approach can describe poverty more broadly than the monetary approach. This reconfirms that the capability approach theory is more reliable in describing poverty than the basic need approach theory. Regional spending on compulsory basic services did not have a significant effect on reducing the percentage of multi-dimensionally poor people in Riau Province, except after adding the economic function expenditure variable.

Keywords: poverty; multidimensional poverty; government spending; capability approach.

Reference to this paper should be made as follows: Kornita, S.E., Syapsan, S., Widyatsari, A. and Prabowo, H. (2024) 'Analysis of the influence of regional spending on obligatory basic services on multidimensional poverty in Riau Province', *Int. J. Services and Operations Management*, Vol. 48, No. 5, pp.1–18.

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1 Introduction

Poverty is a complex and multifaceted issue that affects millions of people worldwide, undermining their basic human rights and limiting their access to essential resources and services (UNESCO, 2021). In an effort to combat poverty, governments and policymakers often allocate funds to support obligatory basic services, such as education, healthcare, and social welfare programs. These investments are crucial in addressing the multidimensional nature of poverty, which encompasses not only income deprivation but also limited access to education, healthcare, housing, and other vital services (Alkire et al., 2015). The high development costs cannot be overcome by the local area's revenue base. Due to a significant increase in local expenditures while the local income remains weak, a serious fiscal gap is anticipated (Hardinandar, 2020).

The development of Indonesia's economy will be influenced by government policies, particularly in the fiscal and monetary domains. This pertains to government expenditures (both recurrent and development expenditures), the amount of money in circulation, and taxation policies. In reality, government policies in fiscal and monetary realms also depend on the economic conditions, where fiscal and monetary policies differ before and after an economic crisis. The fiscal and monetary aspects play a crucial role in the economic growth of Indonesia (Ricardo, 2022). But, the envisioned economic condition is not only characterised by continuous growth but must also be accompanied by an equitable distribution of income to address poverty-related challenges and find viable solutions (Salim and Fathur, 2021).

This paper aims to analyse the influence of regional spending on obligatory basic services on multidimensional poverty in Riau Province, Indonesia. Riau Province, located on the island of Sumatra, is known for its rich natural resources and economic potential. However, like many other regions in Indonesia, it faces significant poverty challenges, with a considerable portion of its population living below the poverty line (World Bank, 2020).

The success of regional development is reflected in changes in attitudes in society, institutions, and social changes. The learning process in the perspective of an innovation system is a process where knowledge is shared enabling all parties to understand the benefits of this knowledge and synergise to apply knowledge for the common good, and

all elements in the system interact with each other towards a common goal. From a regional planning perspective, this common goal is stated in the regional medium-term development plan (RPJMD) document where the resources that are shared focus become the entry point for building interaction and synergy between stakeholders (Kornita et al., 2022).

The purpose of regional development is to improve the people's welfare. So in an effort to achieve these objectives community-based development planning is needed, by striving for the communities' basic needs to be accommodated in a transparent, democratic and accountable manner (Kornita, 2020). The two primary pillars of economic development to shape human capital are the development of education and health sectors. This constitutes a long-term investment that will yield improvements in the quality of life and the productivity of the population. The growth in population productivity will serve as the engine of economic growth and prosperity (Asyraf et al., 2023).

Understanding the relationship between regional spending on obligatory basic services and multidimensional poverty is essential for effective policymaking and resource allocation. By examining this connection, policymakers can identify the areas where investment is most needed and implement strategies to address the root causes of poverty (Alkire et al., 2015). Evidence suggests that investment in education, healthcare, and social welfare can have a positive impact on poverty reduction by improving human capital, health outcomes, and social inclusion (Chen et al., 2016; World Bank, 2018).

The concept of multidimensional poverty recognises that poverty is not solely determined by income levels but also by a lack of access to education, healthcare, clean water, sanitation, housing, and other essential services (Alkire and Foster, 2011). Therefore, to comprehensively address poverty, it is crucial to evaluate the impact of regional spending on a range of basic services. For example, investment in education can contribute to breaking the cycle of poverty by providing individuals with the knowledge and skills necessary for socio-economic advancement (UNESCO, 2016). Adequate investment in education is vital to improve literacy rates, enhance employability, and foster human capital development (World Bank, 2018). Similarly, healthcare services are indispensable for ensuring the well-being of individuals and communities. Accessible and affordable healthcare can reduce mortality rates, improve life expectancy, and contribute to overall human development (World Health Organization, 2020).

Social welfare programs are another crucial component of obligatory basic services that aim to alleviate poverty and provide a safety net for vulnerable populations. These programs often include cash transfers, food subsidies, and healthcare support for low-income families and individuals (World Bank, 2018). By analysing the influence of regional spending on such programs, we can assess their effectiveness in reducing poverty and promoting social inclusion (Chen et al., 2016).

The success indicators in welfare are not solely dependent on the amount of funds disbursed but rather on how prosperous the community becomes as a result of those funds. Several indicators can be employed to assess an individual's well-being, including income levels, dependents, consumption patterns, and environmental conditions (Okuputra and Nasikh, 2022).

The higher the number and percentage of the poor population in a region, the greater the burden on development. Therefore, development can be deemed successful if the number and percentage of its impoverished residents decrease or even become non-existent (Riva et al., 2021).

Riau Province has made efforts to prioritise social development and poverty reduction through its regional spending policies. However, it is essential to evaluate the impact of these investments to ensure their alignment with the needs of the population. By examining the relationship between regional spending on obligatory basic services and multidimensional poverty, policymakers can gain valuable insights into the effectiveness of their poverty alleviation strategies. This knowledge can inform evidence-based policymaking and guide the allocation of resources to address the underlying causes of poverty (Hentschel et al., 2000).

There are at least two main concepts in defining poverty, namely the concept of fulfilling basic needs or the basic needs approach (Booth, 1887; BPS RI, 2012; Rowntree, 1902; World Bank, 2018), and the concept of capability or capability approach (Sen, 1979; Alkire, 2008; Ataguba et al., 2013; Dang, 2014). These two main concepts gave birth to two methods of measuring poverty, namely a monetary approach based on consumption or income (Watts, 1967; Grosh and Glewwe, 2000; Wagle, 2017; BPS RI, 2019), and a multidimensional approach (Alkire and Foster, 2011; Maipita, 2014; Budiantoro et al., 2015; Alkire et al., 2015; Kornita, 2018; UNDP, 2019).

2 Research methods

This study used a quantitative approach with a descriptive method which was carried out in 12 regencies/cities throughout Riau Province from April to June 2022. The data used in this study are:

1 Raw Data the results of the 2018–2020 National Socioeconomic Survey (Susenas) sourced from BPS Riau Province

2 Data on expenditure realisation for health functions; education; housing functions and public facilities; order and security functions; as well as the social protection function of district/city governments throughout Riau Province in 2018–2020 sourced from the Directorate General of Fiscal Balance, Ministry of Finance of the Republic of Indonesia.

Data research was collected through documentation study techniques, namely by collecting and analysing documents both written documents and electronic data which were then analysed, compared, and integrated (synthesis) to form a systematic, integrated, and complete study(Nilamsari, 2014).

There is two stages of data analysis, namely calculating the multidimensional poverty index (MPI) and the percentage of the multi-dimensionally poor population using the Alkire-Foster method (Alkire et al., 2015), then estimating the effect of the realisation of regional spending on compulsory basic services on the percentage of multi-dimensionally poor people in Riau Province through panel data regression (Hsiao, 2003; Widarjono, 2009; Basuki and Yuliadi, 2014).

2.1 Multidimensional poverty measurement

Refer to the Alkire-Foster method (Alkire et al., 2015), multidimensional poverty measurement consists of three important aspects, namely the MPI, the percentage of multi-dimensionally poor people or also called multidimensional poverty headcount (H),

and multidimensional poverty intensity (A). The description of each of these aspects is as follows:

$$MPI = H \times A$$

Information:

MPI: multidimensional poverty indexor the MPI, which is the result of the percentage of the multidimensionally poor population (H) multiplied by the intensity of multidimensional poverty (A).

H Percentage of the multi-dimensionally poor population

A Multidimensional poverty intensity, namely the proportion of weighted average indicators in which the poor are deprived.

The stages of measuring poverty are multidimensional poverty based on the Alkire-Foster method (Alkire et al., 2015) described as follows:

1 Choose the unit of analysis, namely household, province, and district/city.

2 Choose dimensions, namely the dimensions of health, education, and standard of living.

3 Select indicators based on Global MPI standards (UNDP, 2019).

4 Create dimensional weights and indicators. Each dimension and indicator is given an equal weight of 1/3 each, then divided by an equal weight on each indicator that represents that dimension.

5 Making a multidimensional poverty line (cut-off) or a boundary where a person is said to be deprived or not deprived of each dimension is 0.333.

6 Determine the weight of each dimension and variable.

7 Calculating the deprivation score (ci) experienced by each unit of analysis which is formulated as follows:

$$C_i = W_i I_1 + W_2 I_2 + \cdots + W_4 I_4$$

with = 1 if the unit of analysis is identified as poor and = 0 if not poor, and is the weight of variable *i* with

$$I_i I_i W_i \sum_{i=1}^{d} W_i = 1$$

8 Set the second intersection point (*k*): Determine the number of indicators that are deprived (*k*) to identify someone experiencing multidimensional poverty or not with an intersection of 0.333.

9 Apply the k-intercept to get the second poverty line. The i^{th} unit of analysis is identified as experiencing multidimensional poverty when $ci \geq k$. If $ci < k$, then the unit of analysis does not experience multidimensional poverty and all information is replaced with zero.

10 Calculating the value of the multidimensional poverty headcount (H) by dividing the number of multi-dimensionally poor people (q) by the total population (n):

$$H = q / n$$

11 Calculating the average poverty gap or multidimensional poverty intensity (A), namely the average amount of deprivation experienced by the poor by calculating:

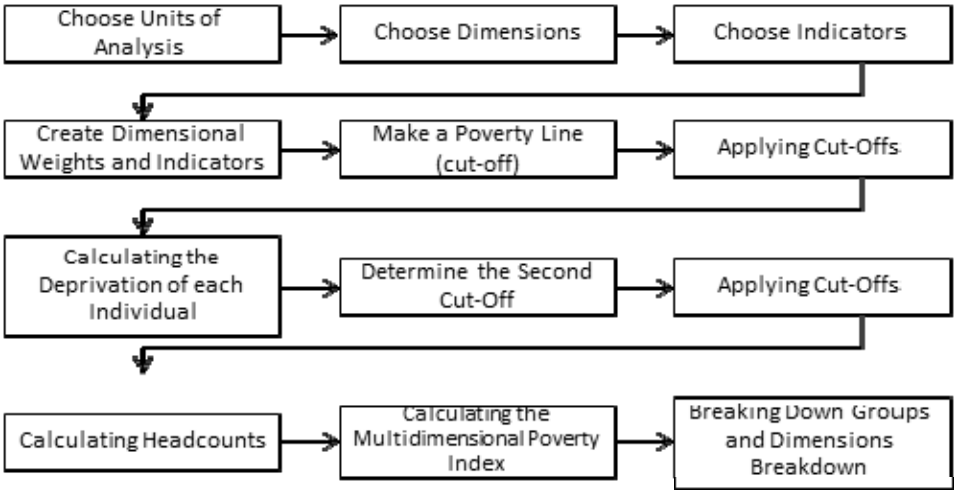
$$A = \frac{\sum_{i=1}^{q} Ci(k)}{q}$$

where $ci(k)$ is the deprivation score of poor individuals and q is the number of poor people.

12 Calculate the MPI ($M0 = H \times A$).

The 12 steps for measuring multidimensional poverty can be briefly described as follows.

Figure 1 12 steps of multidimensional poverty measurement



2.2 *Analysis effect of regional expenditure on obligatory basic services on multidimensional poverty through panel data regression*

Data the panels used in this study are 2018–2020, in 12 regencies/cities throughout Riau Province. The said panel data mode is formulated as follows.

$$Y = \alpha + B1X1_{it} + B2X2_{it} + B3X3_{it} + B5x5_{it} + e$$

Information:

Y percentage of the multi-dimensionally poor population

α Constant

B independent variable regression coefficient

$X1$ realisation of regional health function spending

$X2$ realisation of regional spending on the education function

$X3$ realisation of regional spending for the function of order and security

$X4$ realisation of regional spending on housing functions and public facilities

$X5$ realisation of regional spending on the function of social protection

i district/city

t time (year)

e term error

3 Result and discussion

3.1 Multidimensional poverty measurement in riau province and its comparison with monetary poverty

The data used to obtain the results of multidimensional poverty calculations is raw sample household data from the BPS National Socioeconomic Survey (Susenas) for 2018, 2019, and 2020. The summary of sample households used in this study is as follows.

Table 1 Number of sample households for the 2018–2020 BPS Riau Province national socio-economic survey

Regency/City	*Household*			*Household members*		
	2018	*2019*	*2020*	*2018*	*2019*	*2020*
Kuantan Singingi	554	563	615	2,059	2,115	2,275
Indragiri Hulu	595	607	655	2,342	2,425	2,602
Indragiri Hilir	696	697	755	2,637	2,693	2,720
Pelalawan	585	597	628	2,179	2,274	2,417
Siak	594	607	653	2,341	2,349	2,564
Kampar	697	712	751	2,862	2,950	2,945
Rokan Hulu	669	680	740	2,671	2,668	2,771
Bengkalis	626	635	701	2,525	2,590	2,714
Rokan Hilir	666	678	726	2,745	2,699	3,010
Kep. Meranti	514	521	565	2,073	2,087	2,206
Pekanbaru	748	739	797	2,907	2,826	3,012
Dumai	548	557	596	2,243	2,296	2,485
Amount	7,492	7,593	8,182	29,584	29,972	31,721

Source: BPS Riau Province, 2022

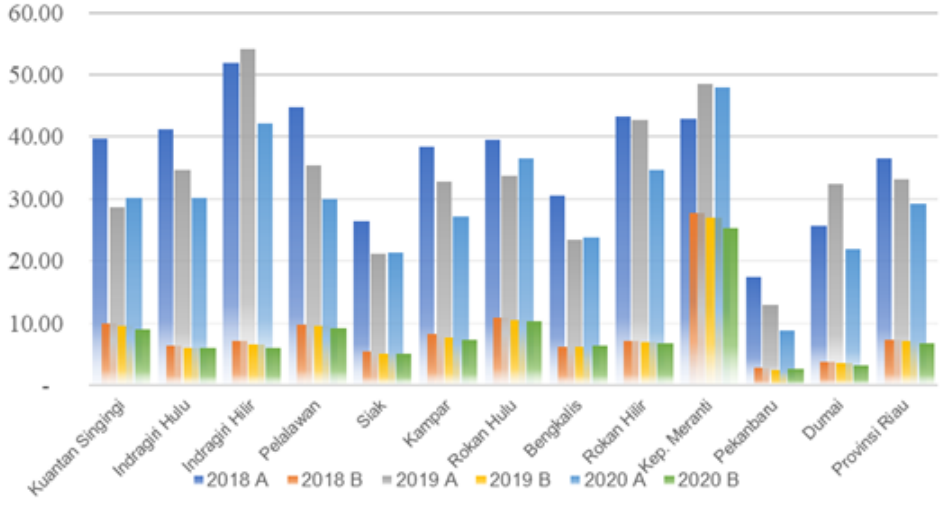
The household sample data from the BPS Susenas above were then analysed using the Alkire-Foster method (Alkire et al., 2015; UNDP, 2019) the percentage of multidimensionally poor population in Riau Province and its comparison with monetary poverty is obtained as presented in Table 2.

Table 2 Comparison of the percentage of multi-dimensionally poor population (a) and the percentage of monetary poor population (b) in Riau Province in 2018–2020 (percent)

Regency/City	*2018*		*2019*		*2020*	
	A	*B*	*A*	*B*	*A*	*B*
Kuantan Singingi	39.73	9.92	28.70	9.56	30.07	8.91
Indragiri Hulu	41.20	6.30	34.64	6.06	30.13	5.96
Indragiri Hilir	51.80	7.05	54.07	6.54	42.13	5.93
Pelalawan	44.79	9.73	35.31	9.62	29.95	9.16
Siak	26.44	5.44	21.12	5.03	21.37	5.09
Kampar	38.33	8.18	32.75	7.71	27.16	7.38
Rokan Hulu	39.50	10.95	33.73	10.53	36.45	10.31
Bengkalis	30.46	6.22	23.36	6,27	23.77	6.40
Rokan Hilir	43.32	7.06	42.79	7.01	34.68	6.72
Kep. Meranti	42.84	27.79	48.59	26.93	48.01	25.28
Pekanbaru	17.48	2.85	12.99	2.52	8.73	2.62
Dumai	25.72	3.71	32.40	3.56	21.93	3.16
Provinsi Riau	36.60	7.39	33.21	7.08	29.17	6.82

Source: MPI Data Analysis Results, 2022

Figure 2 Comparison of the percentage of multi-dimensionally poor population (a) and the percentage of monetary poor population (b) in Riau province in 2018–2020 (see online version for colours)



Based on the data in Table 2, the percentage of the multi-dimensionally poor population is always greater than the percentage value of the monetary poor population. This happened in every district/city as well as accumulatively in Riau Province starting from

2018, 2019 to 2020. To better illustrate the comparison of multidimensional poverty and monetary poverty in Riau Province, the data in the Table 2 are presented in Figure 2.

The figure reaffirms that the percentage of the multi-dimensionally poor (A) is greater than the percentage of the monetary poor (B) which at the same time states that the first research hypothesis has been fulfilled. The highest gap between the two measurements is in Indragiri Hilir Regency, while the lowest gap is in Pekanbaru City.

3.2 Realisation of regional expenditures for compulsory basic service affairs of the Riau provincial government and regency/city governments throughout Riau province

The realisation of regional spending on compulsory basic service affairs classified by functions of health, education, peace and order, housing and public facilities, and social protection is presented in detail as follows.

Table 3 Realisation of regional expenditures for obligatory basic services for district/city health functions in Riau Province in 2018–2020 (Rp. Billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	158.87	194.63	197.42
Indragiri Hulu	204,16	211.48	217.53
Indragiri Hilir	341.45	391.82	445.28
Pelalawan	166.11	211.24	248.57
Siak	228.85	237.94	328.83
Kampar	292.51	364.31	415.90
Rokan Hulu	144.02	216.89	205.89
Bengkalis	432.59	460.14	502.12
Rokan Hilir	179.90	227.60	256.46
Kep. Meranti	148.45	164.78	169.77
Pekanbaru	200.78	237.04	258.90
Dumai	276.23	350.92	376.29

Source: DJPK, 2022

3.3 Results of analysis of the influence of regional expenditures on compulsory basic services on multidimensional poverty

By using the random effects model, the panel data regression equation is run with five independent variables of mandatory spending on basic services on the percentage of multi-dimensionally poor people for further simultaneous tests, partial tests, and tests of the coefficient of determination.

3.3.1 F Test (simultaneous test)

The F test was carried out to determine the effect of the independent variables jointly (simultaneously) on the dependent variable as presented in the following table.

Table 4 Realisation of regional expenditures for obligatory basic services for district/city education functions in Riau Province in 2018–2020 (Rp. Billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	486.66	535.57	456.88
Indragiri Hulu	429.91	486.07	456.83
Indragiri Hilir	544.50	577.30	582.03
Pelalawan	392.57	449.99	465.51
Siak	542.58	501.57	599.94
Kampar	837.53	932.80	892.65
Rokan Hulu	320.84	537.90	510.88
Bengkalis	849.38	998.33	796.08
Rokan Hilir	506.33	540.44	534.43
Kep. Meranti	249.70	257.43	279.86
Pekanbaru	684.65	665.62	630.36
Dumai	326.92	367.61	353.42

Source: DJPK, 2022

Table 5 Realisation of regional expenditures for compulsory services for district/city peace and order functions in Riau Province in 2018–2020 (Rp. billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	14.59	18.66	16.7
Indragiri Hulu	25.57	26.12	20.10
Indragiri Hilir	37.68	37.65	30.13
Pelalawan	38.79	33.16	34.20
Siak	20.40	24.13	24.79
Kampar	18.38	22.98	20.98
Rokan Hulu	20.56	23.25	19.30
Bengkalis	6.62	7.80	6.36
Rokan Hilir	14.67	18.69	20.51
Kep. Meranti	23.21	32.56	21.23
Pekanbaru	55.45	64.91	61.73
Dumai	17.54	25.67	32.26

Source: DJPK, 2022

Based on the results of data processing as presented in Table 2, the calculated F value of 3.527580 is greater than the F table value of 2.53 and the significance value is 0.012586 less than 0.05, then H0 is rejected and Ha is accepted, meaning that the variables X1, X2, X3, X4, and X5 influence Y.

Table 6 Realisation of regional expenditures for mandatory basic service functions of housing and regency/city public facilities in Riau Province in 2018–2020 (Rp. Billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	279.04	210.95	105.98
Indragiri Hulu	149.84	207.50	13,20
Indragiri Hilir	223.66	132.99	91.51
Pelalawan	212.87	133.82	186.42
Siak	3.04	8.76	3.66
Kampar	397.23	459.55	312.43
Rokan Hulu	630.57	327.04	171.04
Bengkalis	1289,49	821.42	346.72
Rokan Hilir	540.98	401.26	411.97
Kep. Meranti	246.07	215,34	155.58
Pekanbaru	892.60	437.96	313.90
Dumai	246.80	149.99	141.40

Source: DJPK, 2022

Table 7 Realisation of regional expenditures for obligatory basic services for district/city social protection functions in Riau Province in 2018–2020 (Rp. Billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	10.65	11.84	11.85
Indragiri Hulu	22.51	30.49	17.79
Indragiri Hilir	22.28	25.40	30.96
Pelalawan	23,11	24.56	24.70
Siak	22.70	27.74	46.67
Kampar	18.07	22.46	23.05
Rokan Hulu	21.02	21.06	16.19
Bengkalis	26.46	32.66	27.60
Rokan Hilir	29.53	45.42	56.83
Kep. Meranti	16.04	17.57	20.53
Pekanbaru	28.56	31.75	25.48
Dumai	18.98	24.11	19.41

Source: DJPK, 2022

Table 8 F test results

R-squared	0.370249	Mean dependent var	6.259739
Adjusted R-squared	0.265291	SD dependent var	4.589413
SE of regression	3.933824	Sum squared residue	464.2491
F-statistics	3.527580	Durbin-Watson stat	2.219578
Prob. (F-statistic)	0.012586		

Source: Eviews Processed Results, 2022

3.3.2 T test (partial test)

The t-test was conducted to test whether one independent variable has a significant influence on the dependent variable or not. In the data processing, the natural logarithmic (LN) transform was carried out on the independent variable because the range of expenditure values (billions of rupiah) was too far compared to the dependent variable the percentage of multidimensional poor people as presented in the following table.

Table 9 T test results

Variables	*Coefficient*	*Std. error*	*t-Statistics*	*Prob.*
C	406.9953	195.4051	2.082829	0.0459
LOG_X1	–19.00550	7.668832	–2.478279	0.0191
LOG_X2	2.697178	7.900093	0.341411	0.7352
LOG_X3	0.432941	4.422190	0.097902	0.9227
LOG_X4	1.189536	1.415394	0.840428	0.4073
LOG_X5	0.474786	4.934678	0.096214	0.9240

Source: Eviews Processed Results, 2022

Based on the results of data processing as presented in Table 9, the effect of the independent variables on the dependent variable partially is as follows:

1 The results of the t-test on variable X1 obtained a calculated t value of 2.478279 which is greater than the t table value of 2.04227 and a significance value of 0.0191 is less than 0.05, then H0 is rejected, and Ha is accepted, meaning that X1 affects Y.

2 The results of the t-test on variable X2 obtained a t-count value of 0.341411 which is smaller than the t-table value of 2.04227 and a significance value of 0.7352 is greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X2 has no effect on Y.

3 The results of the t-test on variable X3 obtained a calculated t value of 0.097902 which is smaller than the t table value of 2.04227 and a significance value of 0.9227 greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X3 has no effect on Y.

4 The results of the t-test on variable X4 obtained a calculated t value of 0.840428 which is smaller than the t table value of 2.04227 and a significance value of 0.4073 greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X4 has no effect on Y.

5 The results of the t-test on the variable X5 obtained a calculated t value of 0.096214 which is smaller than the t table value of 2.04227 and a significance value of 0.9240 greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X5 has no effect on Y.

3.3.3 Determination coefficient test (R-Squared)

The coefficient of determination test is carried out to find out how much the independent variable can explain the dependent variable as presented in the following table.

Table 10 Determination coefficient test results

R-squared	0.370249	Mean dependent var	6.259739
Adjusted R-squared	0.265291	SD dependent var	4.589413
SE of regression	3.933824	Sum squared residue	464.2491
F-statistics	3.527580	Durbin-Watson stat	2.219578
Prob. (F-statistic)	0.012586		

Source: Eviews Processed Results, 2022

Based on the results of data processing as presented in Table 10, it is known that the adjusted R-Squared value is 0.265291 or 26.5291%. The coefficient of determination shows that the independent variables consisting of X1, X2, X3, X4, X5 can explain the Y variable by 26.5291%, while the remaining 73.4709% (100 – adjusted R-Squared value) is explained by other variables. which were not included in this research model.

3.4 Addition of economic spending variables to the panel data regression equation

In this section, the results of panel data regression analysis will be presented with the addition of spending on the economic function as the independent variable. This addition was made because there are two indicators of multidimensional poverty that are not interfered with by spending on compulsory basic services, namely the cooking fuel indicator and the source of lighting indicator. In fact, these two indicators are intervened by spending outside of mandatory basic service spending, namely spending on economic functions as presented in the following table.

Table 11 Realisation of regional expenditures for compulsory services for basic economic functions in districts/cities in Riau Province in 2018–2020 (Rp. Billion)

Regency/City	*2018*	*2019*	*2020*
Kuantan Singingi	42.22	60.64	42.42
Indragiri Hulu	75.04	108.45	55.71
Indragiri Hilir	103.51	108.64	92.44
Pelalawan	75.19	99.67	78.36
Siak	108.11	193.10	102.49
Kampar	112.90	108.83	93.69
Rokan Hulu	74.81	86.14	60.59
Bengkalis	193.32	223.23	168.26
Rokan Hilir	75.24	96.17	91.51
Kep. Meranti	83.65	96.91	45.71
Pekanbaru	203.84	187.15	265.49
Dumai	89.32	94.09	98.86

Source: DJPK, 2022

By using the fixed effect model, the panel data regression equation is run with five independent variables of mandatory spending on basic services plus a sixth variable, namely spending on the economic function (X6) on the percentage of

multi-dimensionally poor people for further simultaneous tests, partial tests and tests of the coefficient of determination.

3.4.1 F test (simultaneous test)

The F test was carried out to determine the effect of the independent variables jointly (simultaneously) on the dependent variable as presented in the following table.

Table 12 F test results

R-squared	0.941801	Mean dependent var	33.23444
Adjusted R-squared	0.886835	SD dependent var	10.66470
SE of regression	3.587604	Akaike info criterion	5.699699
Sum squared residue	231.6763	Schwarz criterion	6.491459
Likelihood logs	–84.59458	Hannan-Quinn criter.	5.976044
F-statistics	17.13429	Durbin-Watson stat	3.633852
Prob. (F-statistic)	0.000000		

Source: Eviews Processed Results, 2022

Based on the results of data processing as presented in Table 12, the calculated F value is 17.13429 greater than the F table value of 2.43 and the significance value is 0.000000 which is less than 0.05, then H0 is rejected and Ha accepted, meaning that the variables X1, X2, X3, X4, X5, X6 affect Y.

3.4.2 T test (partial test)

The t-test was conducted to test whether one independent variable has a significant influence on the dependent variable or not. In the data processing, the natural logarithmic (LN) transform was carried out on the independent variable because the range of expenditure values (billions of rupiah) was too far compared to the dependent variable the percentage of multidimensional poor people as presented in the following table.

Table 13 T test results

Variables	*Coefficient*	*Std. error*	*t-Statistics*	*Prob.*
C	427.6333	213.5411	2.002581	0.0605
LOG_X1	–30.74054	9.809642	–3.133707	0.0057
LOG_X2	10.86316	8.872932	1.224303	0.2366
LOG_X3	12.96122	6.424019	2.017618	0.0588
LOG_X4	1.178905	2.011264	0.586151	0.5651
LOG_X5	1.040385	5.559115	0.187149	0.8536
LOG_X6	–9.676890	4.526396	–2.137880	0.0465

Source: Eviews Processed Results, 2022

Based on the results of data processing as presented in Table 13, the effect of the independent variables on the dependent variable partially is as follows:

1 The results of the t-test on variable X1 obtained a calculated t value of 3.133707 which was greater than the t table value of 2.04523 and a significance value of

0.0057 less than 0.05, then H0 was rejected, and Ha was accepted, meaning that X1 influenced Y.

2 The results of the t-test on variable X2 obtained a calculated t value of 1.224303 which is smaller than the t table value of 2.04523 and a significance value of 0.2366 is greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X2 has no effect on Y.

3 The results of the t-test on variable X3 obtained a calculated t value of 2.017618 which is smaller than the t table value of 2.04523 and a significance value of 0.0588 is greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X3 has no effect on Y.

4 The results of the t-test on the variable X4 obtained a calculated t value of 0.586151 which is smaller than the t table value of 2.04523 and a significance value of 0.5651 greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X4 has no effect on Y.

5 The results of the t-test on variable X5 obtained a calculated t value of 0.187149 which is smaller than the t table value of 2.04523 and a significance value of 0.8536 greater than 0.05, then Ha is rejected and H0 is accepted, meaning that X5 has no effect on Y.

6 The results of the t-test on variable X6 obtained a calculated t value of 2.125896 which was greater than the t table value of 2.137880 and a significance value of 0.0465 less than 0.05, then H0 was rejected, and Ha was accepted, meaning that X6 influenced Y.

3.4.3 Determination coefficient test (R-squared)

The coefficient of determination test is carried out to find out how much the independent variable can explain the dependent variable as presented in Table 14.

Table 14 Determination coefficient test results

R-squared	0.941801	Mean dependent var	33.23444
Adjusted R-squared	0.886835	SD dependent var	10.66470
SE of regression	3.587604	Akaike info criterion	5.699699
Sum squared residue	231.6763	Schwarz criterion	6.491459
Likelihood logs	–84.59458	Hannan-Quinn criter.	5.976044
F-statistics	17.13429	Durbin-Watson stat	3.633852
Prob(F-statistic)	0.000000		

Source: Eviews Processed Results, 2022

Based on the results of data processing as presented in Table 14, it is known that the adjusted R-Squared value is 0.886835 or 88.6835% which indicates that the independent variables consisting of X1, X2, X3, X4, X5, and X6 are able to explain the variables Y is 88.6835%, while the remaining 11.3165% (100 – adjusted R-Squared value) is explained by other variables not included in this research model.

4 Conclusions

It was found that the percentage of the multi-dimensionally poor population in Riau Province was always greater than the percentage of the monetary poor population. This means that measuring poverty with a multidimensional approach is able to capture poverty more broadly than the monetary approach, while at the same time reiterating that the capability approach theory is more reliable in capturing poverty than the basic needs approach theory. Regional spending on compulsory basic services has no significant effect on the percentage of the multi-dimensionally poor population in Riau Province, except after being added to spending on economic functions.

Local governments are advised to make poverty measurement using a multidimensional approach a complementary method for measuring poverty in addition to measuring poverty using a monetary approach and make the percentage of the multi-dimensionally poor population an indicator of development planning achievement targets so that it can be used as material for evaluating the success of development programs, especially poverty alleviation. The allocation and optimisation of the realisation of regional spending on mandatory basic services need to be increased so that it can provide interventions for reducing the multidimensional poverty rate in Riau Province.

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