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THE INFLUENCE OF INFRASTRUCTURE EXPENDITURES FROM THE MINISTRY OF PUBLIC WORKS AND PUBLIC HOUSING ON THE CONDITION OF NATIONAL ROADS BY PROVINCE 2020-2021

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Abstract
This research was conducted to determine the influence of the existing infrastructure budget at the Ministry of Public Works and Public Housing on the condition of national roads according to province during the 2020-2021 period. Model one uses a simple linear regression test to see the correlation and significance between stable road conditions and the infrastructure budget. Model two uses multiple linear regression tests with the Ordinary Least Square (OLS) method to see the correlation and significance between stable road conditions and infrastructure budgets, Activity Performance Indicators (IKK), real GRDP/constant prices (pdrbhk), and roads in Java and Bali (djabal). The linear regression results of Model 1 show a constant (α) = 1.040, meaning that even though the infrastructure budget variable with Good Road Conditions is zero, the constant remains at 1.040. Model 2 shows a constant (α) = 0.798, meaning that even though the infrastructure budget variable with Road Steady Condition is zero, the constant remains at 0.798. Model 1 coefficient β (X) = 0.443, meaning that if the infrastructure budget increases by 1%, the length of national roads in steady condition (good and fair) will increase by 0.443%. The deterministic coefficient r2 a is 0.425, meaning that 42.5% of the variation in the variable value of the length of national roads in steady condition (good and fair). Model 2 coefficient β (X) = 0.391, meaning that if the infrastructure budget increases by 1%, the length of national roads in steady condition (good and fair) will increase by 0.391%.
Keywords: Infrastructure, budget, economic growth, roads

INTRODUCTION

Infrastructure development has been one of the government's main focuses since President Joko Widodo was first inaugurated in 2014. President Jokowi has firmly stated that the government wants to accelerate infrastructure development throughout Indonesia, both in the western, central and eastern parts. This is intended to increase connectivity and stimulate economic growth throughout the country.

The government has set the goal of developing road infrastructure to encourage national economic growth and connect regions. Road infrastructure has a huge influence on the implementation of distribution and logistics which are the lifeblood of economic, political, socio-cultural and national security defense, as well as connectivity between regions and geographical conditions in Indonesia. President Jokowi emphasized that the infrastructure development program is part of the implementation of realizing justice for all people. So, development is no longer focused on Java alone, but on all regions in Indonesia.

According to the World Bank report regarding the Indonesia Public Expenditure Review 2020, Indonesia's extraordinary development progress over the last 20 years has been supported by macroeconomic stability and prudent fiscal management. However, Indonesia still faces large human resource and infrastructure gaps that hamper its competitiveness and ability to create jobs and reduce poverty in the medium term. mobilize infrastructure financing from the private sector, and increase the efficiency and effectiveness of public spending to maximize its impact on development outcomes (World Bank, 2020).

Infrastructure is a supporter of community welfare and private investment. Infrastructure is also a driving force of economic growth which is seen as a locomotive for

national and regional development. The importance of infrastructure in economic growth is a matter of debate among economists, even the availability of infrastructure is one of the things needed to achieve the expected economic growth (Sumardjoko, I & Akhmadi, 2019). Regionally equitable infrastructure development will support inclusive economic development. One of the massive infrastructure developments carried out by the Jokowi government is the construction of roads and bridges. The aim is to be able to connect one region to another. With connectivity between regions, it is hoped that it can spur economic growth. Apart from that, it is also to facilitate the mobility of people and goods, as well as making the prices of basic commodities more affordable. In addition, demand for road transport exceeds network capacity, creating a gap that causes Indonesia to lag behind in terms of competitiveness index compared to other countries.

Roads are land transportation infrastructure which includes all parts of the road, including complementary buildings and equipment intended for traffic, which are on the ground surface, above the ground surface, below the ground and/or water surface, and above the water surface, except railways, lorry roads and cable roads (Law Number 38 of 2004). Meanwhile, according to article 9 of Law 38 of 2004, National Roads are arterial roads and collector roads in the primary road network system that connects provincial capitals, and national strategic roads, as well as toll roads. In terms of duties and functions, National roads are managed and are the responsibility of the Ministry of Public Works and Public Housing (PUPR).

Road infrastructure is a program/activity that is budgeted every year and is growing rapidly. Opening access to connect communities to villages/districts is carried out with a fairly large budget. This development opens up access to agriculture and community plantations as well as the expansion of new residential areas. Based on data.pu.go.id, from 2014 to 2018, the central government has realized the construction of around 3,387 km of national roads and 380 km of freeways.

PUPR ministry data states that by 2022, the total length of national roads has reached 47,763.2 km and toll roads will reach 2,816.73 km. Of the total length of national roads, 92.2% of them are solid roads. Steady roads are national roads in good and moderate condition, while unstable roads are national roads in slightly damaged or heavily damaged condition. When viewed regionally, there are 4 (four) provinces that have less than 90% stable roads, namely the provinces of East Kalimantan, Central Kalimantan, West Papua and Papua.

To maintain roads in good condition requires a large budget. Road construction can use funding schemes sourced from the APBN and the private sector through government collaboration with business entities (Akhmadi, M. H. & Himawan, 2021). Development activities that require a budget allocated for for road maintenance (including routine maintenance, periodic maintenance and rehabilitation) and construction of new roads.

Routine road maintenance aims to maintain and repair damage to various road sections so that they are in stable service condition based on a calculated design life and following certain standards. Periodic road maintenance is an activity to deal with damage that is taken into account in the design so that deterioration in road conditions can be restored to a stable condition according to plan. Road rehabilitation takes the form of activities to deal with damage that is not taken into account in the design which causes a decrease in the stability condition in certain parts/places of road sections with slightly damaged conditions, so that the decrease in stability condition can be returned to a condition of stability in accordance with the plan.

This research wants to see the relationship between the budget issued by the government through the APBN and regional economic growth on the quality of national roads. Although there is previous research which states that a decline in road quality causes economic growth to be hampered (Kansil, K. K. et al. 2023), this research focuses on the impact of economic growth on road conditions in each province.

LITERATURE REVIEW

State finances and the APBN are managed in order to carry out three functions, namely stabilization, allocation and distribution. The economy could be faced with various shocks that could threaten stabilization, such as what happened in 2020 when the Covid-19 virus suddenly appeared. This is a threat to stability in the economic, health and could also be socio-political. The pandemic is said to be starting to end according to WHO, but it turns out that a new crisis has emerged, namely rising food prices, rising energy prices and increasing geopolitics which has caused global supply disruption. The shock caused food prices and energy prices to soar very high, causing inflation.

In the allocation and distribution function, the APBN has a role in making the economy more efficient and not distorted. Example of the APBN energy transition mechanism (ETM) allocation function. ETM is related to handling climate change which is currently the world's concern. If the economy and human activities all produce too much CO2 and nobody cares, it will cause market failure which will endanger the world and someone must correct it. The APBN as an allocation function corrects human behavior by including the risk of global threats. The method is to use carbon tax and subsidies, if fiscal policy supports it.

The function of the APBN as distribution is related to equal distribution of justice. This distribution is not dividing up the 3,000 trillion APBN to improve the so-called concept of justice. Justice cannot be answered by market mechanisms. The APBN corrects market failure to answer and resolve problems facing a country and economy, such as reducing poverty and stunting rates, narrowing the differences between rich and poor groups, and areas that are still lagging behind.

The concept of value for money, which consists of three main elements, namely economy, efficiency and effectiveness, is expected to become the basis for managing public sector organizations in Indonesia (Mardiasmo, 2018). In implementing spending quality measurements, the government needs to pay attention to three factors, namely: efficiency, effectiveness and public transparency. Allocative efficiency. Conformity between spending units and government strategic priorities (level of relevance of spending). Effectiveness. Program achievement/impact the extent to which government spending output achieves the objectives or expected results (Level of usefulness of spending output). Public Transparency concerns the availability of information on budget performance and expenditure.

Government Expenditure Theory

Government expenditure is the total expenditure made, namely expenditure which includes consumption and investment. Government expenditure is government expenditure (spending) on capital goods, consumer goods and on services (Sukirno, 2010).

Infrastructure Theory

Hirschman (1958) defines infrastructure as something that is needed. Without infrastructure, production activities in various sectors of economic activity (industry) cannot function.

Operational Definition and Measurement of Variables

a. The Road Infrastructure Budget (X3) is the capital expenditure budget in the APBN of the Ministry of PUPR, especially the Directorate General of Highways, which is measured in rupiah. (violation).
b. The condition of road stability with the definition of steady road condition is the total number of road lengths in good and moderate condition, while unstable road condition is the total number of road lengths in slightly damaged and heavily damaged condition.
c. Activity Performance Indicators (IKK) measure the amount of resources such as budget (funds), human resources, equipment, materials and other inputs used to carry out activities.

By reviewing the distribution of resources, it can be analyzed whether the resource allocation is in accordance with the established Strategic Plan (likk).

d. Real GDP/constant prices is a measure of a country's economic growth that has been adjusted for inflation. Using constant prices, changes in real GDP from year to year reflect changes in the quantity of output. If the number of goods and services produced increases, the value of real GDP will increase (lpdrbhk).
e. National roads are in good condition (good and fair) in the provinces of Java and Bali (Djabal).

METHODS

The method used in this research is descriptive and verification. The analysis technique used is descriptive quantitative analysis and inductive quantitative analysis. Descriptive quantitative techniques use table, ratio or percentage approaches, while to test infrastructure factors influencing economic growth, regression analysis techniques using panel data (panel data regression model) with a fixed effects approach are used. Thus, the data used is panel data or (pooled data).

Statistical Methods

What we use to test the relationship between the dependent variable and the independent variable is simple and multiple linear regression tests. The dependent variable in this report is steady road conditions, and several independent variables determined are: budget, pdrbhk, ikk, djbal. Model one uses a simple linear regression test to see the correlation and significance between good road conditions and the infrastructure budget, and model two uses a multiple linear regression test with the Ordinary Least Square (OLS) method to see the correlation and significance between good road conditions and the infrastructure budget, pdrbhk , and djabal.

Writing Action Learning will use statistical descriptive analysis, namely statistics that function to describe or provide an overview of the object being studied through sample or population data as it is without carrying out analysis and making conclusions that apply generally. Apart from that, Multiple Linear Regression Analysis is also used to find out how much influence the Independent variable has on the infrastructure budget allocation at the Ministry of PUPR on the Dependent variable (Stable Road Condition). The multiple linear regression analysis method will be used.

The equations for the model are as follows:

$Y= a+\beta1X1+\beta2X2+\beta3X3+\beta4X4+e$

Where:

Y = Road Stability Condition
β = Regression Coefficient
X1 = Budget allocation for road infrastructure spending at the PUPR Ministry
X2 = Gross Regional Domestic Product at Constant Prices
X3 = Activity Performance Indicator
X4 = Length of steady roads on the islands of Java and Bali
α = Constant
e = Standard Error

Steps

The collected data is then processed using MS Excel and Stata applications. In the MS Excel application, the Writing Team, assisted by resource persons, carried out the data cleaning process which consisted of:

1. Match the text data format and column titles for each variable in the two data, such as the name of the province.

2. Correction of missing or empty data in both data, such as deleting DKI Jakarta Province which does not have National Road Surface Condition data, and correcting data for provinces which do not have one of the Road Surface Conditions, such as West Papua Province. After the data cleaning process is complete,
3. Next, add independent variables which are useful in strengthening the explanation of the influence between the dependent variable and other independent variables. The addition of these independent variables is also useful in formulating the model. The writing team, assisted by resource persons, added variables: ikk, pdrbkap, population, pdrbhk, and djbal. Data that has gone through the data cleaning process is input into the Stata application.

Data collection

The data in the research is secondary data downloaded from the One Budget Application by the Directorate General of Budget (DJA). The first data is National Road Budget data for 2020 to 2020. 2021, and the second data is National Road Surface Conditions in 2020 to 2020. 2021. The data collection method used in this research is to collect data by visiting the relevant agencies and collecting secondary data at these agencies. Conduct literature studies to obtain literature/theory and even several previous empirical studies related to infrastructure and poverty.

Data was obtained by library research and internet search. Data sources from the Directorate General of Financial Balance and BPS per province. Consists of the dependent variable, namely economic growth, which is proxied using Gross Regional Domestic Product (GRDP) for the 2020-2021 period. The independent variables consist of government spending on the agricultural, tourism, road infrastructure and Regional Original Income (PAD) sectors for the 2020-2021 period, all variables in millions.

Expenditures by the government contained in the APBN (State Revenue and Expenditure Budget) are a tool in the form of government fiscal policy. Road stability status data in Action Learning is used from 2020 to 2021. It can be seen in Table 1 below:

Table 1. (2409) – Capital Expenditure Budget for Implementation Activities for Preservation and Capacity Improvement of National Roads of *Ministry of Public Works and Public Housing* for 2020 and 2021

	Revised/Daily DIPA Ceiling (Rupiah)	
Location Of Activities	2020	2021
01 DKI Jakarta	174,577,712,000	11,154,450,000
02 Jawa Barat	2,731,912,060,000	3,608,580,021,000
03 Jawa Tengah	1,845,560,763,000	3,395,207,252,000
04 DI Yogyakarta	346,094,297,000	735,591,179,000
05 Jawa Timur	1,688,190,016,000	2,624,676,292,000
06 Aceh	883,555,680,000	1,013,062,296,000
07 Sumatera Utara	1,487,974,226,000	1,844,078,856,000
08 Sumatera Barat	726,807,058,000	624,038,261,000
09 Riau	448,754,708,000	884,340,113,000
10 Jambi	629,414,517,000	924,606,276,000
11 Sumatera Selatan	1,233,358,637,000	1,506,214,145,000
12 Lampung	416,882,447,000	778,389,873,000
13 Kalimantan Barat	867,458,847,000	2,237,773,374,000
14 Kalimantan Tengah	1,015,397,210,000	1,693,640,683,000

15 Kalimantan Selatan	537,397,346,000	1,279,754,559,000
16 Kalimantan Timur	1,415,899,116,000	1,870,042,481,000
17 Sulawesi Utara	751,487,502,000	751,923,885,000
18 Sulawesi Tengah	752,679,091,000	977,348,223,000
19 Sulawesi Selatan	603,819,260,000	740,844,316,000
20 Sulawesi Tenggara	595,675,594,000	837,959,097,000
21 Maluku	663,888,737,000	1,012,014,409,000
22 Bali	144,075,015,000	390,880,633,000
23 Nusa Tenggara Barat	640,387,382,000	991,008,095,000
24 Nusa Tenggara Timur	1,309,977,628,000	1,907,806,604,000
25 Papua	2,276,222,730,000	3,972,956,122,000
26 Bengkulu	321,670,748,000	495,331,485,000
28 Maluku Utara	577,934,854,000	762,433,206,000
29 Banten	446,586,687,000	614,485,432,000
30 Kepulauan Bangka Belitung	117,762,757,000	232,700,670,000
31 Gorontalo	218,406,954,000	363,009,835,000
32 Kepulauan Riau	208,980,826,000	444,073,986,000
33 Papua Barat	1,063,753,362,000	2,498,314,252,000
34 Sulawesi Barat	255,842,834,000	531,965,385,000
35 Kalimantan Utara	583,996,371,000	1,183,222,166,000
Source: Ministry of Public Works and Public Housing		

Table 2. National Road Surface Conditions In 2020

	Road Conditions - km				
Location Of Activities	Good	Medium	Light Damage	Heavy Damage	Total
01 DKI Jakarta					
02 Jawa Barat	571.40	1,122.95	91.00	3.85	1,789.20
03 Jawa Tengah	689.93	796.48	30.19	1.49	1,518.09
04 DI Yogyakarta	166.50	80.70	0.71	-	247.91
05 Jawa Timur	1,182.10	1,032.06	126.72	20.35	2,361.23
06 Aceh	1,000.11	1,029.73	55.24	16.98	2,102.07
07 Sumatera Utara	1,386.98	1,145.65	83.44	16.17	2,632.22
08 Sumatera Barat	541.51	766.98	103.30	37.02	1,448.81
09 Riau	284.12	848.19	129.34	74.97	1,336.61
10 Jambi	548.71	676.60	47.91	44.70	1,317.93
11 Sumatera Selatan	540.77	872.72	164.01	22.66	1,600.16
12 Lampung	512.27	721.78	22.51	35.65	1,292.21
13 Kalimantan Barat	913.90	1,002.81	132.25	68.61	2,117.57
14 Kalimantan Tengah	611.26	1,035.01	109.22	246.59	2,002.08
15 Kalimantan Selatan	509.90	637.50	35.95	20.95	1,204.30

16 Kalimantan Timur	127.40	1,175.03	268.76	139.71	1,710.90
17 Sulawesi Utara	672.36	921.55	67.59	2.41	1,663.92
18 Sulawesi Tengah	960.43	1,360.02	36.24	16.72	2,373.40
19 Sulawesi Selatan	706.26	949.51	55.80	34.34	1,745.92
20 Sulawesi Tenggara	595.69	770.73	112.34	19.05	1,497.81
21 Maluku	944.51	662.71	72.90	91.55	1,771.67
22 Bali	190.69	427.86	10.84	-	629.39
23 Nusa Tenggara Barat	329.49	593.09	11.68	0.30	934.55
24 Nusa Tenggara Timur	636.12	1,121.82	76.55	23.43	1,857.91
25 Papua	1,281.70	788.90	445.48	120.65	2,636.73
26 Bengkulu	356.41	410.10	24.80	1.30	792.61
28 Maluku Utara	801.09	322.98	27.37	51.90	1,203.34
29 Banten	148.98	373.27	42.03	0.61	564.89
30 Kepulauan Bangka Belitung	437.25	159.35	3.80	-	600.40
31 Gorontalo	374.03	358.75	15.61	0.22	748.60
32 Kepulauan Riau	344.07	228.02	7.56	7.17	586.83
33 Papua Barat	420.90	498.67	154.39	252.42	1,326.38
34 Sulawesi Barat	146.29	541.50	71.93	3.45	763.17
35 Kalimantan Utara	70.51	426.61	69.91	18.14	585.16
INDONESIA	19,003.64	16,753.92	26,362.70	2,646.43	12,964.78
Source: Ministry of Public Works and Public Housing					

Table 3. Percentage Of National Road Surface Conditions In 2020

Location Of Activities		Road Conditions - km				
		Good	Medium	Light Damage	Heavy Damage	Total
11	Aceh	47.58	48.99	2.63	0.81	96,57
12	Sumatera Utara	52.69	43.52	3.17	0.61	96,21
13	Sumatera Barat	37.38	52.94	7.13	2.56	90,32
14	Riau	21.26	63.46	9.68	5.61	84,72
15	Jambi	41.63	51.34	3.64	3.39	92,97
16	Sumatera Selatan	33.79	54.54	10.25	1.42	88,33
17	Bengkulu	44.97	51.74	3.13	0.16	96,71
18	Lampung	39.64	55.86	1.74	2.76	95,5
19	Kepulauan Bangka Belitung	72.83	26.54	0.63	-	99,37
21	Kepulauan Riau	58.63	38.86	1.29	1.22	97,49
31	DKI Jakarta	-	-	-	-	-
32	Jawa Barat	31.94	62.76	5.09	0.21	97,92
33	Jawa Tengah	45.45	52.47	1.99	0.10	99,71
34	D.I. Yogyakarta	67.16	32.55	0.29	-	93,77
35	Jawa Timur	50.06	43.71	5.37	0.86	92,45

36	Banten	26.37	66.08	7.44	0.11	98,28
51	Bali	30.30	67.98	1.72	-	98,72
52	Nusa Tenggara Barat	35.26	63.46	1.25	0.03	94,62
53	Nusa Tenggara Timur	34.24	60.38	4.12	1.26	90,52
61	Kalimantan Barat	43.16	47.36	6.25	3.24	82,23
62	Kalimantan Tengah	30.53	51.70	5.46	12.32	95,28
63	Kalimantan Selatan	42.34	52.94	2.98	1.74	76,13
64	Kalimantan Timur	7.45	68.68	15.71	8.17	95,79
65	Kalimantan Utara	12.05	72.90	11.95	3.10	97,77
71	Sulawesi Utara	40.41	55.38	4.06	0.14	94,83
72	Sulawesi Tengah	40.47	57.30	1.53	0.70	91,23
73	Sulawesi Selatan	40.45	54.38	3.20	1.97	97,88
74	Sulawesi Tenggara	39.77	51.46	7.50	1.27	90,12
75	Gorontalo	49.96	47.92	2.08	0.03	90,72
76	Sulawesi Barat	19.17	70.95	9.43	0.45	93,41
81	Maluku	53.31	37.41	4.11	5.17	69,33
82	Maluku Utara	66.57	26.84	2.27	4.31	78,53
91	Papua Barat	31.73	37.60	11.64	1.326.38	96,57
94	Papua	48.61	29.92	16.90	4.58	96,21
	Indonesia	40.46	50.80	5.76	2.97	

Source: Ministry of Public Works and Public Housing

Table 4. Steady Road Conditions Per Province In 2020

Province		TOTAL	Steady Road	%
11	Aceh	2102,07	2029,84	96,57
12	Sumatera Utara	2632,22	2532,63	96,21
13	Sumatera Barat	1448,81	1308,49	90,32
14	Riau	1336,61	1132,31	84,72
15	Jambi	1317,93	1225,31	92,97
16	Sumatera Selatan	1600,16	1413,49	88,33
17	Bengkulu	792,61	766,51	96,71
18	Lampung	1292,21	1234,05	95,5
19	Kepulauan Bangka Belitung	600,4	596,6	99,37
21	Kepulauan Riau	586,83	572,09	97,49
31	DKI Jakarta	1789,2	1694,35	94,7
32	Jawa Barat	1518,09	1486,41	97,92
33	Jawa Tengah	247,91	247,2	99,71
34	D.I. Yogyakarta	2361,23	2214,16	93,77
35	Jawa Timur	564,89	522,25	92,45
36	Banten	629,39	618,55	98,28
51	Bali	934,55	922,58	98,72

52	Nusa Tenggara Barat	1857,91	1757,94	94,62
53	Nusa Tenggara Timur	2117,57	1916,71	90,52
61	Kalimantan Barat	2002,08	1646,27	82,23
62	Kalimantan Tengah	1204,3	1147,4	95,28
63	Kalimantan Selatan	1710,9	1302,43	76,13
64	Kalimantan Timur	1663,92	1593,91	95,79
65	Kalimantan Utara	2373,4	2320,45	97,77
71	Sulawesi Utara	1745,92	1655,77	94,83
72	Sulawesi Tengah	1497,81	1366,42	91,23
73	Sulawesi Selatan	748,6	732,78	97,88
74	Sulawesi Tenggara	763,17	687,79	90,12
75	Gorontalo	1771,67	1607,22	90,72
76	Sulawesi Barat	1203,34	1124,07	93,41
81	Maluku	1326,38	919,57	69,33
82	Maluku Utara	2636,73	2070,6	78,53
91	Papua Barat	2102,07	2029,84	96,57
94	Papua	2632,22	2532,63	96,21
	Indonesia			

Source: Ministry of Public Works and Public Housing

Table 5 IKK, GRDP Per Capita, Population, HK GRDP, Length of Roads in Java & Bali 2020

Province		IKK	GRDP Per Capita (pdrbkap)	Population (Juta)	HK GRDP (pdrbhk)	Jawa Bali Steady Road (jbal)
11	Aceh	96,38	24100,3	5388,1	131585,0172	0
12	Sumatera Utara	99,84	36300,55	14798,4	533746,3583	0
13	Sumatera Barat	92,96	30817,56	5545,7	169458,1143	0
14	Riau	95,72	68743,48	6951,2	490024,4725	0
15	Jambi	90,35	40362,74	3604,2	148449,873	0
16	Sumatera Selatan	92,69	36781,73	8600,8	315143,0073	0
17	Bengkulu	91,78	22941,55	1994,3	46338,43583	0
18	Lampung	88,67	28201,05	8534,8	240306,8574	0
19	Kepulauan Bangka	101,9	34727,73	1469,8	52702,45785	0
21	Kepulauan Riau	121,5	78038,02	2309,5	174976,7031	0
31	DKI Jakarta	103,93	29142,09	49565,2	1455235,14	1
32	Jawa Barat	97,31	27636,72	34738,2	965629,0851	1
33	Jawa Tengah	102,29	26190,64	3919,2	101679,6002	1
34	D.I. Yogyakarta	102,44	40375,27	39955,9	1610419,647	1
35	Jawa Timur	97,05	33531,85	12895,3	441295,7986	1
36	Banten	115,04	33680,83	4414,4	147549,7981	1

51	Bali	99,13	18196,65	5225,9	93269,13391	0
52	Nusa Tenggara Barat	97,95	12416,85	5513,4	68806,66528	0
53	Nusa Tenggara Timur	110,92	26241,42	5104,9	134743,3811	0
61	Kalimantan Barat	99,55	35735,33	2686,3	98956,71664	0
62	Kalimantan Tengah	100,32	30405,72	4268,6	130865,595	0
63	Kalimantan Selatan	109,69	124662,8	3664,7	472864,8863	0
64	Kalimantan Timur	104,11	34849,17	2512,9	88126,37399	0
65	Kalimantan Utara	90,74	43317,32	3081,7	134152,6948	0
71	Sulawesi Utara	95,11	36759,93	8888,8	328192,8249	0
72	Sulawesi Tengah	101,09	33911,7	2703,5	93446,71748	0
73	Sulawesi Selatan	94,12	23305,06	1186,3	28422,29458	0
74	Sulawesi Tenggara	89,48	22834,3	1378,1	32082,44924	0
75	Gorontalo	124,38	16794,24	1787,1	30765,02495	0
76	Sulawesi Barat	120,52	21793,29	1252,3	27868,47268	0
81	Maluku	129,66	62732,74	986	61592,38657	0
82	Maluku Utara	208,9	40075,79	3393,1	137677,5713	0
91	Papua Barat	96,38	24100,3	5388,1	131585,0172	0
94	Papua	99,84	36300,55	14798,4	533746,3583	0
	Indonesia					

Source: Central Statistics Agency

Table 6. National Road Surface Conditions In 2021

Code	Province	Good	Medium	Light Damage	Heavy Damage	Total
11	Aceh	954.85	1,109.10	33.24	4.88	2,102.07
12	Sumatera Utara	1267.24	1,240.36	103.3	21.32	2,632.22
13	Sumatera Barat	454.7	884.90	82.68	27.33	1,449.62
14	Riau	336.28	823.18	135.59	41.56	1,336.61
15	Jambi	582.78	648.83	41.93	44.38	1,317.93
16	Sumatera Selatan	751.35	740.83	92.75	15.24	1,600.16
17	Bengkulu	495.3	262.47	31.82	3.02	792.61
18	Lampung	430.06	783.20	56.58	22.37	1,292.21
19	Kepulauan Bangka Belitung	483.78	113.25	3.17	0.2	600.40
21	Kepulauan Riau	416.81	160.52	5.51	3.99	586.83
31	DKI Jakarta					
32	Jawa Barat	351.44	1,372.01	64.01	1.74	1,789.20
33	Jawa Tengah	603.7	794.28	111.28	8.82	1,518.09
34	D.I. Yogyakarta	174.03	71.48	2.3	0.1	247.91
35	Jawa Timur	785.46	1,400.31	163.07	12.38	2,361.23
36	Banten	71.27	453.34	33.84	6.43	564.89
51	Bali	251.59	369.97	7.52	0.31	629.39

65	Kalimantan Utara	75.1	428.14	63.94	17.99	585.16
71	Sulawesi Utara	567.24	991.10	103.07	2.51	1,663.92
72	Sulawesi Tengah	847.64	1,487.64	25.87	12.25	2,373.40
73	Sulawesi Selatan	232.35	1,426.65	55.22	31.7	1,745.92
74	Sulawesi Tenggara	460.48	866.97	146.91	23.46	1,497.81
75	Gorontalo	320.29	390.47	34.82	3.03	748.60
76	Sulawesi Barat	121.36	566.37	69.81	5.63	763.17
81	Maluku	689.47	942.76	84.75	54.69	1,771.67
82	Maluku Utara	494.1	617.43	61.77	30.04	1,203.34
91	Papua Barat	471.62	530.52	181.32	142.92	1,326.38
94	Papua	929	1,147.25	282.51	277.97	2,636.73
	Indonesia	16753.92	26,362.70	2646.43	1201.72	46,964.78

Source: Ministry of Public Works and Public Housing

Table 5 - Percentage Of National Road Surface Conditions in 2021

Code	Province	Good %	Medium %	Light Damage %	Heavy Damage %	Long-km
11	Aceh	45.42	52.76	1.58	0.23	2,102.07
12	Sumatera Utara	48.14	47.12	3.92	0.81	2,632.22
13	Sumatera Barat	31.37	61.04	5.7	1.89	1,449.62
14	Riau	25.16	61.59	10.14	3.11	1,336.61
15	Jambi	44.22	49.23	3.18	3.37	1,317.93
16	Sumatera Selatan	46.95	46.3	5.8	0.95	1,600.16
17	Bengkulu	62.49	33.11	4.01	0.38	792.61
18	Lampung	33.28	60.61	4.38	1.73	1,292.21
19	Kepulauan Bangka Belitung	80.58	18.86	0.53	0.03	600.40
21	Kepulauan Riau	71.03	27.35	0.94	0.68	586.83
31	DKI Jakarta					
32	Jawa Barat	19.64	76.68	3.58	0.1	1,789.20
33	Jawa Tengah	39.77	52.32	7.33	0.58	1,518.09
34	D.I. Yogyakarta	70.2	28.83	0.93	0.04	247.91
35	Jawa Timur	33.26	59.3	6.91	0.52	2,361.23
36	Banten	12.62	80.25	5.99	1.14	564.89
51	Bali	39.97	58.78	1.2	0.05	629.39
52	Nusa Tenggara Barat	32.64	65.58	1.74	0.04	934.55
53	Nusa Tenggara Timur	37.47	57.22	4.79	0.52	1,857.91
61	Kalimantan Barat	35	58.85	4.14	2.01	2,117.57
62	Kalimantan Tengah	28.48	53.83	5.52	12.17	2,002.08
63	Kalimantan Selatan	42.86	52.76	3.36	1.01	1,204.30
64	Kalimantan Timur	17.87	64.53	13.08	4.51	1,710.90

65	Kalimantan Utara	12.83	73.17	10.93	3.07	585.16
71	Sulawesi Utara	34.09	59.56	6.19	0.15	1,663.92
72	Sulawesi Tengah	35.71	62.68	1.09	0.52	2,373.40
73	Sulawesi Selatan	13.31	81.71	3.16	1.82	1,745.92
74	Sulawesi Tenggara	30.74	57.88	9.81	1.57	1,497.81
75	Gorontalo	42.78	52.16	4.65	0.4	748.60
76	Sulawesi Barat	15.9	74.21	9.15	0.74	763.17
82	Maluku Utara	41.06	51.31	5.13	2.5	1,203.34
91	Papua Barat	35.56	40	13.67	10.77	1,326.38
94	Papua	35.23	43.51	10.71	10.54	2,636.73
	Indonesia	35.67	56.13	5.63	2.56	46,964.78

Source: Ministry of Public Works and Public Housing

Table 6. Steady Road Conditions Per Province In 2021

Province		TOTAL	Steady Road	%
11	Aceh	2102,07	2063,95	98,18
12	Sumatera Utara	2632,22	2507,6	95,26
13	Sumatera Barat	1449,62	1339,6	92,41
14	Riau	1336,61	1159,46	86,75
15	Jambi	1317,93	1231,61	93,45
16	Sumatera Selatan	1600,16	1492,18	93,25
17	Bengkulu	792,61	757,77	95,6
18	Lampung	1292,21	1213,26	93,89
19	Kepulauan Bangka Belitung	600,4	597,03	99,44
21	Kepulauan Riau	586,83	577,33	98,38
31	DKI Jakarta	1789,2	1723,45	96,32
32	Jawa Barat	1518,09	1397,98	92,09
33	Jawa Tengah	247,91	245,51	99,03
34	D.I. Yogyakarta	2361,23	2185,77	92,56
35	Jawa Timur	564,89	524,61	92,87
36	Banten	629,39	621,56	98,75
51	Bali	934,55	917,9	98,22
52	Nusa Tenggara Barat	1857,91	1759,27	94,69
53	Nusa Tenggara Timur	2117,57	1987,34	93,85
61	Kalimantan Barat	2002,08	1647,95	82,31
62	Kalimantan Tengah	1204,3	1151,63	95,62
63	Kalimantan Selatan	1710,9	1409,91	82,4
64	Kalimantan Timur	1663,92	1558,34	93,65
65	Kalimantan Utara	2373,4	2335,28	98,39
71	Sulawesi Utara	1745,92	1659	95,02
72	Sulawesi Tengah	1497,81	1327,45	88,62

73	Sulawesi Selatan	748,6	710,76	94,94
74	Sulawesi Tenggara	763,17	687,73	90,11
75	Gorontalo	1771,67	1632,23	92,13
76	Sulawesi Barat	1203,34	1111,53	92,37
81	Maluku	1326,38	1002,14	75,56
82	Maluku Utara	2636,73	2076,25	78,74
91	Papua Barat	2102,07	2063,95	98,18
94	Papua	2632,22	2507,6	95,26
	Indonesia			

Source: Ministry of Public Works and Public Housing

Table 7 IKK, GRDP Per Capita, Population, HK GRDP, Length of Roads in Java & Bali 2021

Province		IKK	GRDP Per Capita (pdrbkap)	Population (Juta)	HK GRDP (pdrbhk)	Jawa Bali Steady Road (jbal)
11	Aceh	99,03	25357,7	5333,7	135251,19	0
12	Sumatera Utara	101,63	36666,2	14936,2	547651,82	0
13	Sumatera Barat	94,77	31360,79	5580,2	175000,5	0
14	Riau	94,85	77995,51	6493,6	506471,91	0
15	Jambi	92,76	42906,66	2118,2	153825,49	0
16	Sumatera Selatan	91,58	38172,97	3585,1	326411,27	0
17	Bengkulu	94,42	23539,17	8550,9	47853,78	0
18	Lampung	92,57	27193,59	1473,2	246966,49	0
19	Kepulauan Bangka Belitung	101,21	37585,5	2032,9	55369,65	0
21	Kepulauan Riau	116,8	85425,89	9081,8	180952,44	0
31	DKI Jakarta	102,6	30907,59	48782,4	1507746,39	1
32	Jawa Barat	97,65	27144,18	12061,5	997345,05	1
33	Jawa Tengah	100,31	28918,82	36742,5	107372,56	1
34	D.I. Yogyakarta	100,8	40821,89	3712,9	1668749,44	1
35	Jawa Timur	97,64	38217,8	40878,8	460963,02	1
36	Banten	103,17	32975,85	5470,8	143864,97	1
51	Bali	101,93	17706,47	2702,2	95437,86	0
52	Nusa Tenggara Barat	93,58	13092,81	4122,6	70540,66	0
53	Nusa Tenggara Timur	111,45	25811,97	3808,2	141212,04	0
61	Kalimantan Barat	101,47	37925,62	2638,6	102481,47	0
62	Kalimantan Tengah	99,25	32849,02	1181	135422,59	0
63	Kalimantan Selatan	109,81	127208,24	3021,9	484438,88	0
64	Kalimantan Timur	104,43	34787,33	9139,5	91790,93	0
65	Kalimantan Utara	90,5	49587,96	1436,8	149848,82	0
71	Sulawesi Utara	96,84	37572,54	2659,2	343395,41	0

72	Sulawesi Tengah	99,38	36581,67	4362,7	97276,36	0
73	Sulawesi Selatan	95,07	24649,73	5390	29110,05	0
74	Sulawesi Tenggara	90,72	22896,2	5387,7	32898,23	0
75	Gorontalo	124,61	17020,46	1862,6	31702,75	0
76	Sulawesi Barat	112,31	25199,92	1299,2	32739,16	0
81	Maluku	130,59	52980,01	1156,8	61289,4	0
82	Maluku Utara	207,11	36431,25	4355,5	158674,3	0
91	Papua Barat	99,03	25357,7	5333,7	135251,19	0
94	Papua	101,63	36666,2	14936,2	547651,82	0
	Indonesia					

Source: Central Statistics Agency

Data processing

The collected data is then processed using MS Excel and Stata applications. In the MS Excel application, the Writing Team, assisted by resource persons, carried out the data cleaning process which consisted of:

1. Match the text data format and column titles for each variable in the two data, such as the name of the province.
2. Correction of missing or empty data in both data, such as deleting DKI Jakarta Province which does not have National Road Surface Condition data, and correcting data for provinces which do not have one of the Road Surface Conditions, such as West Papua Province. After the data cleaning process is complete,
3. Next, add independent variables which are useful in strengthening the explanation of the influence between the dependent variable and other independent variables. The addition of these independent variables is also useful in formulating the model. The writing team, assisted by resource persons, added variables: ikk, pdrbkap, population, pdrbhk, and djbal. Data that has gone through the data cleaning process is input into the Stata application.

RESULTS AND DISCUSSION

The research carried out was to determine the influence of the road infrastructure budget at the Ministry of PUPR on the condition of national roads according to provinces in 2020-2021. If the budget for road infrastructure is allocated to the PUPR Ministry, the provinces will be able to handle road sections in unstable conditions so that there will be additional road stability in various provinces. Data obtained from the details of allocation per region per sector (in rupiah) issued by the Ministry of Finance, while Road Conditions (percentage of good road conditions) were obtained from the Ministry of Public Works and Public Housing. PDRB data at current prices, activity performance indicators and solid road length data on the islands of Java and Bali come from the Central Statistics Agency.

Model 1:

- The infrastructure budget variable at the PUPR Ministry (X1) shows a significant positive influence on the road stability condition variable (Y). This means that as the PUPR Ministry's infrastructure budget increases, the length of national roads in steady condition (good and fair) will increase. If the PUPR Ministry's infrastructure budget increases by 1%, then the length of national roads in steady condition (good and fair) will increase by 0.443%.
- Deterministic Coefficient: r2
  42.5% of the variation in the variable value of the length of national roads in steady condition (good and fair) can be explained by variations in the value of the PUPR Ministry's infrastructure budget.

Tabel 8 Influence of Ministry of Public Works and Public Housing Infrastructure Spending and National Road Conditions by Province in 2020-2021

	(1)	(2)
VARIABLES	Model 1	Model 2
langgaran	0.443***	0.391***
	(0.0497)	(0.0743)
lpdrbhk		0.153**
		(0.0642)
likk		-0.159
		(0.251)
djabal		-0.702***
		(0.183)
Constant	1.040	0.798
	(0.687)	(1.050)
Observations	64	64
R-squared	0.434	0.635
r2	0.434	0.635
r2_a	0.425	0.610

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Model 2:

- The infrastructure budget variable at the PUPR Ministry (X1) shows a significant positive influence on the road stability condition variable (Y). This means that as the PUPR Ministry's infrastructure budget increases, the length of national roads in steady condition (good and fair) will increase. If the PUPR Ministry's infrastructure budget increases by 1%, other assumptions remain constant (ceteris paribus), then the length of national roads in steady condition (good and fair) will increase by 0.391%.
- The Constant Price GRDP variable (X2) shows a significant positive influence on the road stability condition variable (Y). This means that as GRDP at Constant Prices increases, the length of national roads in steady condition (good and fair) will increase. If GRDP at Constant Prices increases by 1%, other assumptions remain constant (ceteris paribus), then the length of national roads in steady condition (good and fair) will increase by 0.153%.
- The Activity Performance Indicator variable (X3) shows a significant negative influence on the road stability condition variable (Y).
- The steady road length variable in Java and Bali (X4) shows a significant negative influence on the road stability condition variable (Y). This means that for the provinces on the islands of Java and Bali, the average length of national roads in steady condition (good and fair) is significantly lower by 70.2% compared to provinces outside the islands of Java and Bali.

Deterministic Coefficient: r2_a

61.0% of the variation in the variable value of the length of national roads in steady condition (good and fair) can be explained by the variation in the infrastructure budget values of the Ministry of Public Works and Public Housing, PDRBHK, IKK, and the Java and Bali island dummy.

Implications

A country's logistics performance is generally measured through the Logistics Performance Index (LPI). LPI is an instrument used to evaluate the efficiency and sustainability

of a country or region's logistics system. This method was published by the World Bank. In its preparation, many companies and logistics experts were involved in measuring important aspects of logistics such as transportation infrastructure, logistics services, regulations and business process efficiency. The assessment has a scale of 1 to 5.

The World Bank introduced the Logistics Performance Index in 2007 and publishes it periodically every few years, with the latest edition in 2023. Changes to the data and methodology as well as scores and rankings are determined based on the weight of relevant indicators and are continuously improved in each edition. Information from this index helps identify the strengths and weaknesses of logistics systems and encourages improvements and increased efficiency.

In the 2023 LPI, Indonesia has a total score of 3.0 or is ranked 61st. This score is slightly lower than the 2018 LPI (score 3.15 or 46th), but is still better than the 2016 LPI (score 2.98 or 63rd).). When compared with upper-middle income countries which are only in the range of 2.54, Indonesia is still classified as above average.

However, when compared with partner countries that have relatively high growth in Asia, such as China (score 3.7 or rank 19) and India (score 3.4 or rank 47), as well as ASEAN countries such as Singapore (score 4.14 or rank 1), Malaysia (score 3.43 or rank 32), and Thailand (score 3.26 or rank 45), so Indonesia still has a lot of homework to do in terms of logistics performance.

In more detail, let's examine the main components of LPI one by one. In general, the LPI components can be classified into two groups, namely (1) the input group which consists of customs, infrastructure and service quality, and (2) the outcomes group or delivery service performance which consists of delivery time, international delivery and tracking and tracing.

From the input side, logistics indicators show positive performance. In terms of customs components, Indonesia obtained a score of 2.80, an increase compared to the 2018 LPI (score 2.67). In other words, there is an increase in customs efficiency, transparency of customs policies, ease of customs processes, and customs cooperation. Meanwhile, in terms of infrastructure, Indonesia got a score of 2.90 or was able to maintain the same achievement in 2018 and increase compared to the 2016 LPI (score 2.65).

The measurement of this component is related to the quality, speed and availability of infrastructure in a country such as road networks, ports, airports, trains and other logistics infrastructure. On the other hand, the quality and logistics competency components actually decreased to a score of 2.90 or lower than the 2018 LPI (score 3.10). This shows that there are things that need to be considered regarding logistics quality and competence, measured through indicators such as customer satisfaction, workforce expertise, innovation and cost efficiency.

On the other hand, the Government is also continuing to develop infrastructure for connectivity such as the construction of a modern and efficient toll road, port, railway and airport network. The government's steps in issuing Presidential Instruction Number 3 of 2023 concerning the Acceleration of Increasing Regional Road Connectivity need to be appreciated and implemented, and possibly expanded by taking into account the state's financial conditions.

CONCLUSION

Based on the results of the analysis described in the previous chapter, conclusions can be drawn as answers to the problem formulation as follows: Government expenditure in the form of infrastructure capital expenditure of the Ministry of PUPR has a positive and significant influence on the Logistic Performance Index (LPI), which is mostly represented by variables in the form of construction of national roads in good condition (good and moderate). These results are in accordance with the initial hypothesis that was developed, where according to the hypothesis it was assumed that government spending had a positive influence on LPI. Gross

Regional Domestic Product (GRDP), which is the total gross value added arising from all economic sectors in the region, has a positive relationship with LPI. In the robust regression model above, it can be concluded that the Infrastructure budget or LPI do not have a positive influence on Key Performance Indicators or also known as IKK which describes the success of implementing government affairs.

Recommendation

By considering the conclusions drawn and some discussion of the research results, the following suggestions can be given:

1. The government may consider increasing spending in the infrastructure sector in the form of capital expenditure for road construction to increase the Logistic Performance Index (LPI).
2. Infrastructure spending allocations can be more focused on building national roads in good condition so that they can have a better effect on GDP per capita and the LPI index.
3. Infrastructure capital expenditure does not have a direct effect on IKK, so it is necessary to carry out regular monitoring and evaluation and sharpen the allocations issued so that they can have a direct impact on society.

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