The Development of Economic Infrastructure in Western and Eastern Indonesia to Support People's Welfare Improvement

By
Wahyu Hidayati[*)], Yudistira Hendra Permana
Department of Economics and Business SV, Universitas Gadjah Mada
[*)]Corresponding Author: whdayati@ugm.ac.id

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ABSTRACT

Economic infrastructure development remains a strategic choice to accelerate economic growth and ensure equitable welfare. While those goals demand an ever-increasing budget, the infrastructure development budget allocation has been limited due to the COVID-19 outbreak. This research aims to analyze: (1) the impacts of Length of Roads, Number of Motor Vehicles, Electricity Distributed, and Percentage of Households with Internet Access on GRDP per Capita at Constant Prices and (2) the annual trend in infrastructure expenditure budget. GRDP per Capita at Constant Prices is used herein to measure welfare. This research employs Statistical Method, Pooled Data Regression Model, and Least Square Trend Method, and uses secondary data series throughout 2015-2019 from 10 provinces across Central and Eastern Indonesia. The results show that the Number of Motor Vehicles has a negative and significant impact on welfare improvement, while the Percentage of Households with Internet Access makes a positive and significant impact. The impacts of Length of Roads and Electricity Distributed, however, are not significant. The projected infrastructure expenditure budget in 2024 amounts to Rp453.5 trillion with an average annual increase of Rp18.6 trillion, much lower than the expenditure needs. In light of these findings, support from the government is needed to improve domestic connectivity, develop public transport in urban areas, and accelerate digital transformation while training available human resources. The government also needs to involve the public and encourage them to make an investment while collaborating with business entities to overcome the substantial financing gap.

Keywords: Development, Economic Infrastructure, Welfare, Pooled-data

ABSTRAK

Pembangunan infrastruktur ekonomi masih merupakan salah satu pilihan strategis dalam rangka percepatan pertumbuhan ekonomi dan pemerataan kesejahteraan. Namum demikian, untuk mewujudkan capaian tersebut diperlukan anggaran yang semakin meningkat. Di sisi lain, selama pandemi covid 19 anggaran pembangunan infrastruktur sangat terbatas. Penelitian ini bertujuan untuk menganalisis: (1) pengaruh Panjang Jalan, Jumlah Kendaraan Bermotor, Listrik yang Didistribusikan, dan Persentase Rumah Tangga yang Mengakses Internet, terhadap PDRB per Kapita atas Dasar Harga Konstan; (2) tren anggaran belanja infrastruktur per tahun. Dalam penelitian ini kesejahteraan rakyat diproxy menggunakan PDRB per Kapita atas Dasar Harga Konstan. Analisisnya menggunakan Metode Statistik, Model Regresi Data Panel, dan Tren Metode Least Square, sedangkan data yang digunakan berupa data sekunder series 2015-2019 dan 10 provinsi di Indonesia Tengah dan Timur. Hasilnya menunjukkan bahwa Jumlah Kendaraan Bermotor berpenganguh negatif dan signifikan, Persentase Rumah Tangga yang Mengakses Internet berpengaruh positif dan signifikan terhadap peningkatan kesejahteraan rakyat, sedangkan Panjang Jalan, dan Listrik yang Didistribusikan tidak

berpengaruh secara signifikan. Taksiran anggaran belanja infrastruktur pada tahun 2024 sebesar Rp453,5 triliun, dengan rata-rata kenaikan per tahunnya Rp18,6 triliun yang jauh lebih kecil dari kebutuhan belanjanya. Oleh karena itu, diperlukan dukungan pemerintah untuk peningkatan konektivitas nasional dan pengembangan angkutan umum massal di perkotaan, percepatan transformasi digital beserta SDMnya, dan peran serta investasi masyarakat dan kerjasama dengan Badan Usaha untuk mengatasi gap pendanaan yang signifikan.

***Kata kunci**: Pengembangan, Infrastruktur Ekonomi, Kesejahteraan, Data-panel*

INTRODUCTION

While Indonesian economy managed to grow by 5.02% in 2019, the COVID-19 outbreak has hit the economy hard with negative growth of -2.07% in 2020. That being said, Indonesia has seen economic recovery in 2021 across its regions with an estimated growth of 4.8–5.8%, and 5.4–6.1% for 2020-2024. The easing of Large-Scale Social Restrictions (PSBB) in various regions is expected to drive economic development in the near future. Furthermore, the acceleration of Transfer to Regions and Village Funds (TKDD) by the government through simplified transfer requirements supports the realization of regional expenditures in order to drive regional economic development. China and the US' economic recovery has become an external factor driving the improvement in the export performance of industrial products in Java, Sulawesi-Maluku-Papua (Sulampua), and Sumatra (Bank Indonesia, 2020: 80).

Several economic studies posit that infrastructure plays a significant role in increasing investment and extending community involvement, as well as equitable distribution of development outcomes. Infrastructure is also vital for development and has a profound impact on people's quality of life and welfare improvement, including improvement in consumption values, workforce productivity and employment access, as well as real prosperity (Statistics Indonesia, 2019: 3). Infrastructure development in 2020-2024 will focus on three main frameworks (Basic Service Infrastructure, Economic Infrastructure, and Urban Infrastructure) supported by energy and electricity development and the implementation of digital transformation. Infrastructure development for economic growth will revolve around the development of transportation, electricity and energy, as well as large-capacity, high-speed information technology for the application of Big Data, Internet of Things (IoT), and Artificial Intelligence (AI).

To achieve the medium-term Gross Domestic Product (GDP) growth target in 2020-2024 National Medium-Term Development Plan (RPJMN), the infrastructure expenditure needs are projected to reach Rp6,421 trillion (6.08% of the GDP on average) so the infrastructure capital stock will reach 50% of the GDP in 2024. However, only 3.46% of the GDP may be provided from the current provision capacity, showing a substantial gap in infrastructure funding. Thus, creative efforts are needed to drive the public's and business entities' involvement and investment through the Government and Business Entity Partnership (KPBU) and Non-Government Budget Investment Financing (PINA). Moreover, the government will also make various efforts to improve infrastructure funding capacity, such as reviewing tariff policy, building stronger fiscal capacity, and reallocating government spending. The study conducted by (Berawi et al, 2020), finds that the government has striven to accelerate social infrastructure construction such as health services, education, public facilities, and transportation in the hope of facilitating rapid recovery from the outbreak and maintaining public services. It's a matter of fact that infrastructure has the potential to improve economic growth (Khurriah, and Istifadah, 2019). Public and private investment in infrastructure has a positive and significant impact on economic growth. By comparison with public investment, private investment has a better capability to drive economic growth (Unnikrishnan, and Kattookaran, 2020)

In terms of economic development in Indonesia, the provinces in Java play the most essential role out of 34 provinces. Within the observed period of 2015-2019, they contributed an annual average

of 58.54% to the economy. Sumatra came next with 21.77%, while other islands contributed less than 10% to the GDP. This research uses 10 provinces in Central and Eastern Indonesia regions as samples. The decision was made given these two regions' relatively smaller contribution towards the economy as compared to that of the Western Region, with the respective GRDP at 8.1% for Kalimantan, 6.12% for Sulawesi, and 2.38% for Maluku/Papua (based on BPS, Indonesia Statistics 2020: 21). Apart from that, the infrastructure development in these two regions has not been massively done as much as that in the other region, hence, there is a need for improvement in the people's welfare in order for the development to be distributed more evenly not only in Western Region, but across Indonesia. A research by Bado et al in 2018 finds that there are disparities between regions in Indonesia with different levels. Factors related to natural resources, per capita income, infrastructure, education, wealth, and population have a positive and significant impact on said disparities.

The problem this research wants to discuss is related to the fact that economic infrastructure development remains a strategic choice to accelerate economic growth and ensure equitable welfare. While those goals demand an ever-increasing budget, the infrastructure development budget allocation has been limited due to the COVID-19 outbreak. Therefore, it is necessary to analyze the impact of economic infrastructure development on the improvement of people's welfare, as well as the effective and appropriate policies to overcome the infrastructure budget gap. The economy may be back to pre-pandemic level and it may even be accelerated if the public is actively involved in complying with the government policies to overcome the outbreak, in accordance with their own respective roles. The expenditure budget for health and economic recovery has increased significantly, but as a consequence, the infrastructure expenditure budget has become very limited. This research aims to analyze: (1) the impacts of Length of Roads, Number of Motor Vehicles, Electricity Distributed, and Percentage of Households with Internet Access on real GRDP per capita and (2) the annual trend in infrastructure expenditure budget. The expected benefits of this research are: (1) for policy makers in the field of infrastructure development, as an economic driver to improve people's welfare; (2) for the general public, indirectly as a means of improving inter-regional connectivity and saving operational costs; (3) for other parties, as a reference to conduct further research in the same or related fields.

Literature Review

Per capita income is one of the important variables in macroeconomic discussion. Economic development also needs to be regarded as an increase in per capita income because it reflects additional income and an improvement in people's economic welfare. The economic growth rate of a nation is typically defined by the growth rate of Gross Domestic Product (GDP) or Gross National Product (GNP). Meanwhile, economic growth is only defined as an increase in GDP or GNP, regardless of whether the increase is greater or less than the population growth rate and whether there is a change in the economic structure or an improvement in the institutional system. On top of being an indicator of the level of people's welfare in a country, per capita income may also be used to measure the economic performance of a country from time to time, find out the economic structure of a country, and compare the economic performance of one country with other countries (Arsyad, 2015: 32).

Annual real GRDP per capita is used herein to measure people's welfare. A change in real GRDP per capita indicates a change in people's welfare. Well-being includes intangible aspects that cannot be traded in a market, such as happiness, trust, and different views of life; while economic welfare is the part of well-being related to broadly-defined current and future consumption and the resources enabling the consumption (income, comprehensive wealth, and households' time endowment). Definitions of economic welfare based on current consumption and sustainable consumption are both relevant (International Monetary Fund, 2020:8). Rostow opines that during the transition to take-off stage, a large part of investment funds are used for infrastructure development (social overhead capital). There are three characteristics of investment in this infrastructure sector: (1) there is a fairly long gestation period between infrastructure development and the pay-off and sometimes this period

lasts incredibly long; (2) the costs for infrastructure development are very high; and (3) the general public, without exception, may enjoy the benefits of infrastructure development. Given these characteristics, infrastructure development shall primarily be carried out by the government (Arsyad, 2015: 65).

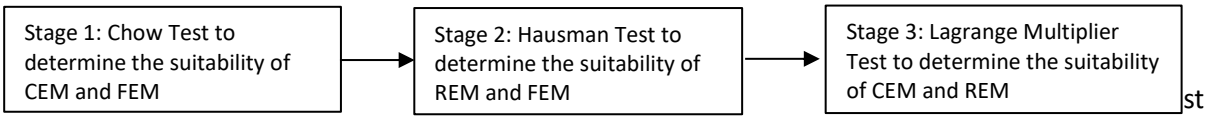
METHODS

The operational definitions for the variables in the research are: (1) Gross Regional Domestic Product (GRDP) and Gross Domestic Product (GDP) are economic indicators that represent the total value added of final goods and services produced by all activities/production units in a region or nation's economy within a certain period of time (usually one year); (2) GRDP per capita is calculated by dividing the GRDP value by the total population in a region during a certain period. It is used to determine the level of welfare among people in a region in general. The higher the GRDP per capita, the more prosperous the population in a region is. Therefore, people's welfare is measured using real GRDP per capita (at constant prices); (3) Length of Roads is the length of roads by province and level of government, including the total length of national roads, provincial roads, and district/municipality roads (km); (4) Motor Vehicle is any vehicles propelled by mechanical equipment, usually used for the transportation of people or cargo on the highway, excluding those operating on rails; (5) Total Electricity Distributed is the amount of power distributed to customers; (6) Percentage of Households with Internet Access is the percentage of households accessing the Internet within the last three months by province; (7) Economic Infrastructure Development is infrastructure development for economic growth which will focus on the development of transportation, electricity and energy, as well as large-capacity, high-speed information technology for the application of Big Data, Internet of Things (IoT), and Artificial Intelligence (AI); (8) Infrastructure Expenditure Budget is the amount of budget allocated for infrastructure in the State Budget.

This research will analyze secondary data which include GRDP per capita at constant prices, Length of Roads, Number of Motor Vehicles, Electricity Distributed, Percentage of Households with Internet Access, Infrastructure Expenditure Budget, and other data related to the problem. The sampling method used herein is Purposive Sampling. The data sources are from the Statistics Indonesia's provincial statistics of 10 provinces in Central and Eastern Indonesia (East Nusa Tenggara, West Nusa Tenggara, West Kalimantan, North Sulawesi, Central Sulawesi, Southeast Sulawesi, Gorontalo, Maluku, North Maluku, and Papua), Department of Public Works and Public Housing, Province in Figures, journals, statements from competent authorities, and other related articles. There are 50 panel data observations used, consisting of time series data throughout 2015-2019 and cross-section data from 10 provinces. The data are collected through observation and literature review (Sugiyono, 2014: 137, 145). For the analysis, this research employs Descriptive Statistics Method and Pooled Data Regression Model. To analyze the objective, i.e. the effect of an independent variable on a dependent variable, this research uses Linear-Linear Regression Model estimated using Fixed Effect and Random Effect Models. In order to analyze the development of infrastructure expenditure budget, Least Square Method Linear Trend is used. Linear-Linear Regression Model variable coefficient represents one unit change in the independent variable relative to one unit change in the dependent variable, ceteris paribus.

RESULTS AND DISCUSSION

To determine the most suitable estimation model, it is necessary to conduct a selection test among CEM, FEM, and REM as shown in diagram 1 below:



H_0: CEM is suitable
H_a: FEM is suitable

H_0: REM is suitable
H_a: FEM is suitable

H_0: CEM is suitable
H_a: REM is suitable

Diagram 1. Selection of the Most Suitable Model

As shown in diagram 1, F-statistic test, i.e. a test of the residual sum of squares of each method (Chow Test), was conducted to determine the suitability of Common Effect/Pooled Square and Fixed Effect Models. In such test, if calculated F-value is larger than F-table at a certain confidence level (α), H_0 must be rejected and Fixed Effect Model should be selected for estimation, and vice versa. The Hausman test was used to select between Random Effect Model (REM) and Fixed Effect Model (FEM). In such test, if calculated F-value is larger than F-table at a certain confidence level (α), H_0 must be rejected and Fixed Effect Model should be selected for estimation, and vice versa. The Lagrange Multiplier test was used to decide between Common Effect Model (CEM) and Random Effect Model (REM). In this test, if the Breusch-Pagan cross-section value is below a certain confidence level (α), H_0 will be rejected and REM should be used for estimation, and vice versa. The estimation results using linear-linear model regression noting the impacts of Length of Roads, Number of Motor Vehicles, Electricity Distributed, and Percentage of Households with Internet Access on real GRDP per capita are stated in table 1 below.

Table 1. The Estimation Results Using Common Effect, Fixed Effect, and Random Effect Models

Dependent Variable	PDRBPK		
Independent Variables	Common Effect	Fixxed Effect	Random Effect
C	16072.57	23941.47	21765.48
PJ	0.498865	0.1612287	0.281210
JKB	0.003175	0.002651*	0.002541*
LDIS	4.477165	2.628367	1.710861
PRTI	44.81609	118.8906*	108.2057*

Source: Processed Output Data
Note: *) significant at α = 0.05

Table 2. Chow Test

Effects Test	Statistic	d.f.	P. Value
Cross-section F	147.886562	(9.36)	0.0000
Cross-section Chi-square	181.841979	9	0.0000

Source: Processed Output Data

Table 2 shows the results of Chow Test in which the F probability value is 0.0000, below the degree of error (α = 0.05). It leads to rejection of H_0 or acceptance of H_a, meaning Fixed Effect Model is more suitable to use than Common Effect Model (PLS). The next table displays the results of Hausman Test, used in the next stage to choose between Fixed Effect Model and Random Effect Model.

Table 3. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	P. Value
Cross-section random	1.173867	4	0.8824

Source: Processed Output Data

As shown in table 3, the probability value of random cross-section of 0.1190 is above the degree of error (α = 0.05), resulting in acceptance of H_0. This means Random Effect is the more suitable model than Fixed Effect. The last stage is Lagrange Multiplier Test, the results of which are shown in table 4 below.

Table 4. Lagrange Multiplier Test

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	92.19101	2.621715	94.81272
	(0.0000)	(0.1054)	(0.0000)
Honda	9.601615	-1.619171	5.64444
	(0.0000)	--	(0.0000)
King-Wu	9.601615	-1.619171	3.978786
	(0.0000)	--	(0.0000)
GHM	--	--	92.19101
	--	--	(<0.01)

Source: Processed Output Data

The results of Lagrange Multiplier Test in table 4 indicate that H_0 is rejected as Breusch-Pagan statistic for cross-sectional value is 0.0000 which is below the degree of error ($\alpha = 0.05$). It means that Random Effect is the more suitable model than Common Effect.

The impacts of Length of Roads, Number of Motor Vehicles, Electricity Distributed, and Percentage of Households with Internet Access on Real GRDP per Capita

To analyze factors influencing the improvement of people's welfare, Random Effect model (the most suitable for this research) is used with the following Linear-Linear Regression Model estimation.

$$\hat{}PDRBPK_{it} = 21765.48 + 0.28121PJ_{it} - 0.00254JKB_{it}^{*} - 1.71086LDIS_{it} + 108.2057PRTI_{it}^{*} + e_{it}$$

$R^2 = 0.506858$; Adj $R^2 = 0.463023$; P. Value (F-statistic) = 0.00000

Note: *) significant at $\alpha = 0.05$

Based on the above regression equation, the independent variable that has a negative and significant impact on real GRDP per capita is the Number of Motor Vehicles, while the Percentage of Households with Internet Access has a positive and significant impact. The impacts of Length of Roads by Province and Electricity Distributed, however, are not significant. In this research, people's welfare is measured using real GRDP per capita (at constant prices). Therefore, if there is an increase in real GRDP per capita during an observed period, it means there is an increase in people's welfare, and conversely, if there is a decrease in real GRDP per capita, it shows there is a decrease in people's welfare. The R^2 value of 0.506858 indicates that 51% of the variation of the independent variables can be used to explain the variation in the dependent variable, while the remaining 49% is influenced by other variables outside the model used herein such as infrastructure expenditure budget, investment, education, health, employment opportunities, etc.

The coefficient of JKB of -0.00254 has a ceteris paribus interpretation. If the Number of Motor Vehicles increases by 100 units, the real GRDP per capita will decrease by Rp254.00, and conversely, if there is a decrease in the Number of Motor Vehicles by 100 units, there will be an increase in the real GRDP per capita by Rp254.00. The number of motor vehicles has a negative and significant impact on people's welfare. This situation may occur when the public has a tendency to own more vehicles than needed. The average number of motor vehicles per province during the observed period (2015-2019) was 1,454,970 units, 81% of which were motorcycles, 10% of which were passenger cars, 5% of which were trucks, and 4% of which were buses. The increase in the number of motor vehicles each year will accumulate and the number may exceed the road capacity. It will inevitably lead to traffic congestion during peak hours, increasing stress for drivers and passengers alike as well as air pollution which in turn will reduce economic and social productivity.

The effectiveness of road performance may be determined by satisfaction level using money and time values, convenience, safety, ease, and road facilities as indicators (Santoso et al. 2017). According to Khurriah and Istifadah (2019), all infrastructure observation variables (telecommunication and water), excluding road infrastructure, have a positive and significant impact. Their findings show

that not all infrastructure may be good as excessive development of infrastructure will lead to poor growth. Therefore, it is necessary to take an approach and determine the right priority level in infrastructure development to ensure that growth is accompanied by equity. A study by Awandari and Indrajaya (2016) indicates that infrastructure, economic growth, and employment opportunities have a positive and significant impact on people's welfare, while the impact of investment is not significant.

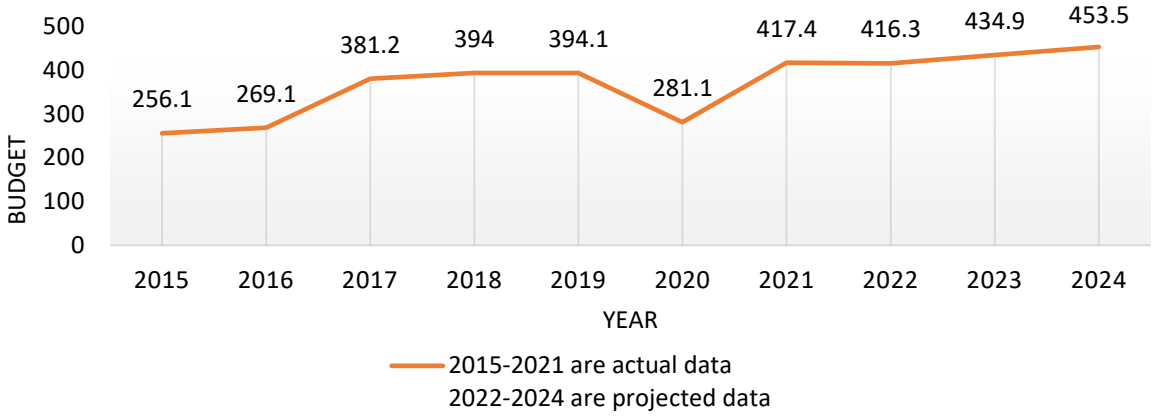
The ceteris paribus interpretation of the coefficient of PRTI, which is 108.2057, is that if there is an increase by 1% in the percentage of households with Internet access, the real GRDP per capita will increase by Rp108,205.00. Conversely, if the percentage of households with Internet access decreases by 1%, the real GRDP per capita will decrease by Rp108,205.00. This trend is aligned with Widagdo B. and Rofik M.'s research in 2019 which notes that Indonesia is one of the countries that strives to optimize the use of the Internet of Things (IoT) for its economic growth. Retail and tourism industries are the two main sectors that have seen a major impact from IoT. This IoT optimization is not without any issues, however, particularly those relative to Internet connection quality and distribution, including financial ability and access to infrastructure. A research by Hidayat et al in 2021 shows that Internet accessibility has a profound impact on reducing poverty in Java. Further, the research also finds that the poverty level in a certain region in Java is influenced by the types of job the household heads have in the same area and the poverty level in the surrounding area (spatial spillover effects). Except for landlines, information and communication technologies such as mobile phones, Internet usage, and broadband usage played an essential role in the economic growth of developing countries in the Middle East and North Africa and the Sub-Saharan Africa during 2007-2016 (Bahrini and Qaffas, 2019). Thus, Internet accessibility has a positive and significant impact on the improvement of people's welfare, which is closely aligned with the post-pandemic government policies through digital infrastructure development and better logistics and connectivity efficiency.

The length of roads and electricity distributed have no impact on real GRDP per capita. Several economic studies find that the impacts of length of roads and electricity distributed may vary according to each region's condition, but there is a tendency for these variables to have a long-term impact on real GRDP per capita. Tarigan H et al in their research in 2021 state that road transport infrastructure variables have a positive and significant impact on freight mobility. In terms of the quality of road design and construction, however, road transport infrastructure partially does not have a direct impact on regional economy, but has a positive and significant impact on freight mobility. (Seprillina et al, 2021) argue that the impacts of road infrastructure development may be seen from changes in income level and increased expenditure after the construction of toll exits. However, increased expenditure or consumption by local community does not have a significant impact on welfare, particularly in terms of consumption of household necessities and asset ownership. A research conducted by Hardianti et al (2020) indicates that road, electricity, and health infrastructures have a positive and significant impact, while education infrastructure makes no significant impact on Indonesia's economic growth. (Jayanthi, 2021) in their research argues that electrification has a positive impact on economic growth. On the flip side, economic growth has a negative impact on poverty rate. Nevertheless, increased electrification is noticeably indicated by an increase in income inequality. A research by Ardiansyah et al (2020) notes that electricity, water, school, and health care infrastructures as well as capital expenditures have a positive and significant impact on economic growth, whereas length of roads does not.

***Annual Trend in Infrastructure Expenditure Budge*t**

The infrastructure budget has been allocated for basic service provision, connectivity improvement, and economic recovery (2021 State Budget). Those goals, however, demand an ever-increasing infrastructure expenditure budget each year but at the same time the allocation is insufficient. Graph 1. below indicates the infrastructure expenditure budget trends throughout 2015-2021.

Graph 1. Calculation of Indonesia's 2015-2021 Infrastructure Expenditure Budget Trends with Least Square Method (trillion Rp)



According to the trend calculation result in graph 1., the average increase in the annual infrastructure expenditure budget is Rp18.6 trillion. The projected budget allocation in 2024 is Rp453.5 trillion. In 2020-2024 National Medium-Term Development Plan (RPJMN), the infrastructure expenditure needs are projected to reach Rp6,421 trillion or 6.08% of the Gross Domestic Product (GDP) on average so the infrastructure capital stock will reach 50% of the GDP in 2024. In spite of that, only 3.46% of the GDP may be provided from the current budget provision capacity, showing a substantial gap in infrastructure funding. Thus, efforts are needed to drive the public's and business entities' involvement and investment through the Government and Business Entity Partnership (KPBU) and Non-Government Budget Investment Financing (PINA). Moreover, the government will also make various efforts to improve infrastructure funding capacity, such as reviewing tariff policy, building stronger fiscal capacity, and reallocating government spending (Ministry of National Development Planning/National Development Planning Agency, 2019). Higher investment in infrastructure development will translate to higher economic growth and private investment in infrastructure may reduce the outstanding debt. In addition to its positive impact on Indonesia's economic growth, infrastructure development acceleration may also become a solution to national debt problems (Mubin, 2019). Theoretical findings and concept that public sector finance on valuable public goods such as social and economic infrastructure through increased government expenditure can boost economic growth and employment opportunities (Ojo, 2020). Ramadhan (2019) in their research finds that the development of economic and educational infrastructures significantly contributes to GDP per capita. As a result, there is a need for budget planning in order to bolster public infrastructure development for the improvement of economic welfare.

CONCLUSIONS

The results and discussion of this research led to the following conclusions: (1) Random Effect Model with Linear-Linear regression model estimation is the most suitable for analyzing the factors impacting the improvement of people's welfare. The independent variable that has a negative and significant impact on the improvement of people's welfare is the Number of Motor Vehicles, while the Percentage of Households with Internet Access has a positive and significant impact. The independent variables that have no significance on welfare improvement are the Length of Roads and the Electricity Distributed. In this research, people's welfare is measured using real GRDP per capita (at constant prices). Therefore, if there is an increase in real GRDP per capita during an observed period, it means there is an increase in people's welfare, and conversely, if there is a decrease in real GRDP per capita, it shows there is a decrease in people's welfare; (2) The coefficient of JKB of -0.00254 has a ceteris paribus interpretation. If the Number of Motor Vehicles increases by 100 units, the real GRDP per capita will decrease by Rp254.00, and conversely, if there is a decrease in the Number of Motor Vehicles by 100 units, there will be an increase in the real GRDP per capita by Rp254.00; (3) The ceteris paribus interpretation of the coefficient of PRTI, which is 108.2057, is that if there is an increase by 1%

in the percentage of households with Internet access, the real GRDP per capita will increase by Rp108,205.00. Conversely, if the percentage of households with Internet access decreases by 1%, the real GRDP per capita will decrease by Rp108,205.00. Thus, Internet accessibility has a positive and significant impact on the improvement of people's welfare; (4) the trend calculation using Least Square Method shows that the average increase in the annual infrastructure expenditure budget is Rp18.6 trillion. The projected budget allocation in 2024 is Rp453.5 trillion. In 2020-2024 National Medium-Term Development Plan (RPJMN), the infrastructure expenditure needs are projected to reach Rp6,421 trillion or 6.08% of the GDP on average so the infrastructure capital stock will reach 50% of the GDP in 2024. In spite of that, only 3.46% of the GDP may be provided from the current budget provision capacity, showing a substantial gap in infrastructure funding.

Limitations of This Study

The data on the national infrastructure expenditure budget set out in the State Budget were presented in general, consisting of Basic Service Infrastructure, Economic Infrastructure, and Urban Infrastructure budgets. This research did not analyze the economic infrastructure expenditure budget in a more comprehensive manner as there were no detailed data for the observed variables.

The Policy Implications in This Study

1) Support from the government is needed for the improvement in domestic connectivity and the development of public transport in urban areas that is safe, secure, convenient, and punctual. The government should also give their support for toll road construction in main economic corridors that are integrated with transport nodes;
2) There is a need for digital transformation acceleration and corresponding training for the available human resources through information and communication technology infrastructure development acceleration, especially in non-commercial regions for public service provision;
3) The government needs to involve the public and encourage them to make investments while collaborating with business entities to overcome the substantial infrastructure funding gap.

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