Transportation Affected on Binjai City Development

Achmad Haryansyah Siregar*, Badaruddin, Tarmizi, Agus Purwoko

Regional Planning Doctoral Program of University of Sumatera Utara, Medan, Indonesia

A B S T R A C T (10 PT)

This research is a questionnaire survey research. This research was conducted with the aim of knowing the effect of transportation on regional development in Binjai City. The population in this study are transportation stakeholders in Binjai City. The number of samples in this study was determined using the Monte Carlo sample method with a sample size of 100 respondents. The data in this study were analyzed using descriptive statistical analysis and simple linear regression analysis. The hypothesis was tested using the t test. Based on the results of the analysis conducted, it is revealed that empirically transportation has a significant positive effect on regional development in Binjai City. By improving good transportation, regional development will also be better.

Keywords :
Transportation, Regional Development, JEL Classification : R42, R58

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Corresponding Author:

Achmad Haryansyah Siregar
Regional Planning Doctoral Program of University of Sumatera Utara, Medan, Indonesia
Email: achmadhariansyah301883.siregar@gmail.com

1.   INTRODUCTION

Development is a conscious effort from humans to take advantage of the environment in an effort to meet their daily needs. Development is not only carried out in long-term and short-term development planning, with macro and micro dimensions, but also includes development planning with a regional dimension. In this regard, regional development planning will not be separated from national development, considering that national development essentially rests on regional development[1,2].

Friedman and Allonso argued that regional development is a strategy to utilize and combine existing internal and external factors as potentials and opportunities that can be utilized to increase regional production of goods and services which are a function of both internal and external needs in the region. These internal factors are in the form of natural resources, human resources and technological resources, while external factors can be in the form of opportunities and threats that arise along with their interactions with other areas.Regional development involves the economic, social and environment phenomenon. The measures of this development are effects like, for example, improving the competitiveness of businesses and the level of life, the potential of regional economic growth, the improvement of their availability[3].

The comparison of regional development indicators of Binjai City, North Sumatra Province and the Indonesian National is shown in Table 1.

Table 1. Regional development indicators of Binjai City, North Sumatra Province and Indonesian National at years of 2018

No.	Regional Development Indicators	Binjai City	North Sumatera Province	Indonesia
1	Open Unemployment Rate	7,40%	5,56%	5,28%
2	Percentage of poor population	5,88%	8,63%	9,22%
3	Human Development Index	75,21	71,74	71,92
4	Economic Growth	5,46%	5,18%	5,17%

Table 1 above shows the social aspects of the development of the Binjai City area in 2018, namely the open unemployment rate of 7.40%, greater than the unemployment rate at the provincial level which was only 5.56% and nationally of 5.28%. Meanwhile, the percentage of poor people, the human development index and economic growth in Binjai City in 2018 was better than the economic growth at the provincial level in North Sumatra and nationally. The factors of regional development can be: demographic resources, the regional ecosystem, infrastructure, regional economy, the space region, exogenous factors (globalization, integration, macroeconomic conditions), the factors determining the region's ability to respond to changes in the macro-surrounding (flexibility of the region's economy, internal equity options, activity and the openness of the region). The important factors in the development of the region should also include transport.

Transportation is an effort to move, move, transport or divert an object from one place to another, where in this other place the object is more useful or can be useful for certain purposes. Transportation has very varied types.) distinguishes transportation into 3 (three) groups, namely land, sea and air transportation. Land transportation is divided into 2 (two) groups, namely road transportation and rail road transportation. Road transportation is differentiated into mass transportation of passenger types, in the form of buses and minibuses, mass transportation of goods, in the form of carts and trucks, and private vehicles in the form of bicycles, motorbikes and private cars. From the various types of transportation above, then this research will only focus on research studies on types of passenger transportation, in the form of buses and minibuses[4,5].

The Organization for Economic Co-operation and Development-OECD that developed countries that are members of the European Economic Community carry out cooperation between countries in the field of transportation to produce a well-organized transportation network system, connecting various centers of activity in various regions with quality. relatively uniform. The cooperation that has been carried out has yielded results in the form of high economic growth and stability in various regions and in all development areas of countries that are members of the European economic community. prove that transportation management has a significant effect on city planning and transportation management on regional development is also significant. The effect of urban planning on regional development is significant. The novelty in this research is that regional development is influenced by transportation management through city planning[6].

Based on the description above, the problems that will be studied in this study are formulated into quantitative questions as follows: How does transportation affect the regional development of Binjai City? The purpose of this research is to determine the effect of transportation on regional development in Binjai City.

Regional development involves the economic, social and spatial phenomenon. The measures of this development are effects like, for example, improving the competitiveness of businesses and the level of life, the potential of regional economic growth, the improvement of their availability[7]. The factors of regional development can be: demographic resources, the regional ecosystem, infrastructure, regional economy, the space region, exogenous factors (globalization, integration, macroeconomic conditions), the factors determining the region's ability to respond to changes in the macro-surrounding (flexibility of the region's economy, internal equity options, activity and the openness of the region). The important factors in the development of the region should also include transport, which allows the achievement of the economic, social and environmental objectives. There is extensive empirical evidence that proves the existing relations between transport and positive economic and social regional effects.[8]

For many years works of various kinds, both about the practical and theoretical impact of transport on economic and social development in general have been published. The methods used to assess the economic impact of transport projects have evolved over the years – mainly from the concentration on the economic benefits of saving time and travel costs for direct users to including a broader relationship with the environment. From a methodological point of view the classification into the direct and indirect is very important At present a wider range of factors is being included, such as the availability of transportation, the availability of the labor market, the impact on property values, changes in traffic flows, and the social and environmental effects (human life and health, social cohesion, noise, landscape). The conducted analyses show the complexity of the relationships, not just the effects and factors, but also the various effects on each other and the multidimensional

nature of these effects. For example, transport, the factor of economic development, has an impact on the quality of the landscape, which is the effect of an environmental nature, and also has an impact on the economic development (the tourist attractions of the region).[9]

In addition to the comprehensive analyses and models specific issues were analyzed, such as the value of travel time for passengers, the cost of congestion in cities borne by the company. As an alternative to the micro, macro and regional econometric models, the CGE model (computable general equilibrium) was proposed, which allows the meso-scale analyzes, taking into account the mechanisms of tracking the effects of adding infrastructure capacity .

In Poland it can be observed that interest in this field is increasing. A very interesting example is the work of which is an attempt to examine this issue. As the authors state, transport infrastructure is not the only and not the most important factor of economic development – more important may be taxes, education and innovation. One can even argue that it is not the development of transport that affects economic development, but that richer countries or regions can afford to invest in transportation. After that, investments in transportation are needed to sustain this growth. The impact of the transport development on the development of the region depends on various factors, including the nature of the region and the level of socio-economic development.

Such thesis have long been posed by authors from other countries. A contribution to the development of the research on the issue assigned space transportation systems with different creation power of influence into regions, followed by the distinguishing of three types of regions: growth regions, underutilized regions and indifferent regions.

The earliest studies of a theoretical and empirical character showed that, depending on the industry, the improvement of the functioning of transport in varying degrees impacts on business costs (including transport costs) and the size of the labor market. First of all, it is noted that infrastructure investments can have a direct, as well as a complementary, impact on economic production. A growing economy needs additional investment to meet the transport needs]. In order that accessibility of transport could bring the expected results other conditions should also exist. Nowadays, at the beginning of the new century, the thesis of the importance of transport infrastructure to the economy and society is rarely called into question. Rather, it gives new features, such as the impact on the development and prioritization of territories, the impact on living standards, impact on the value of the property, creation of mobility.

Analyses of the impact of regional development, generated by the transport, on the development of the country can be very cognitive. The economic development of the region does not have to contribute to the development of the whole country. A region may be more attractive than others and attract investment and human resources. In this case, we are dealing with the effect of redistribution between regions rather than economic growth in the whole country. Increasing transport accessibility for weaker regions can lead to the draining of resources by taking employees and exposing them to stronger competition prove that transportation management has a significant effect on city planning and transportation management on regional development is also significant. The effect of urban planning on regional development is significant. The novelty in this research is that regional development is influenced by transportation management through city planning[10].

2. RESEARCH METHODOLOGY

Based on the information given earlier, the authors have attempted to synthesize the effects of transport on the development of the region. This model is presented graphically in Figure 1.
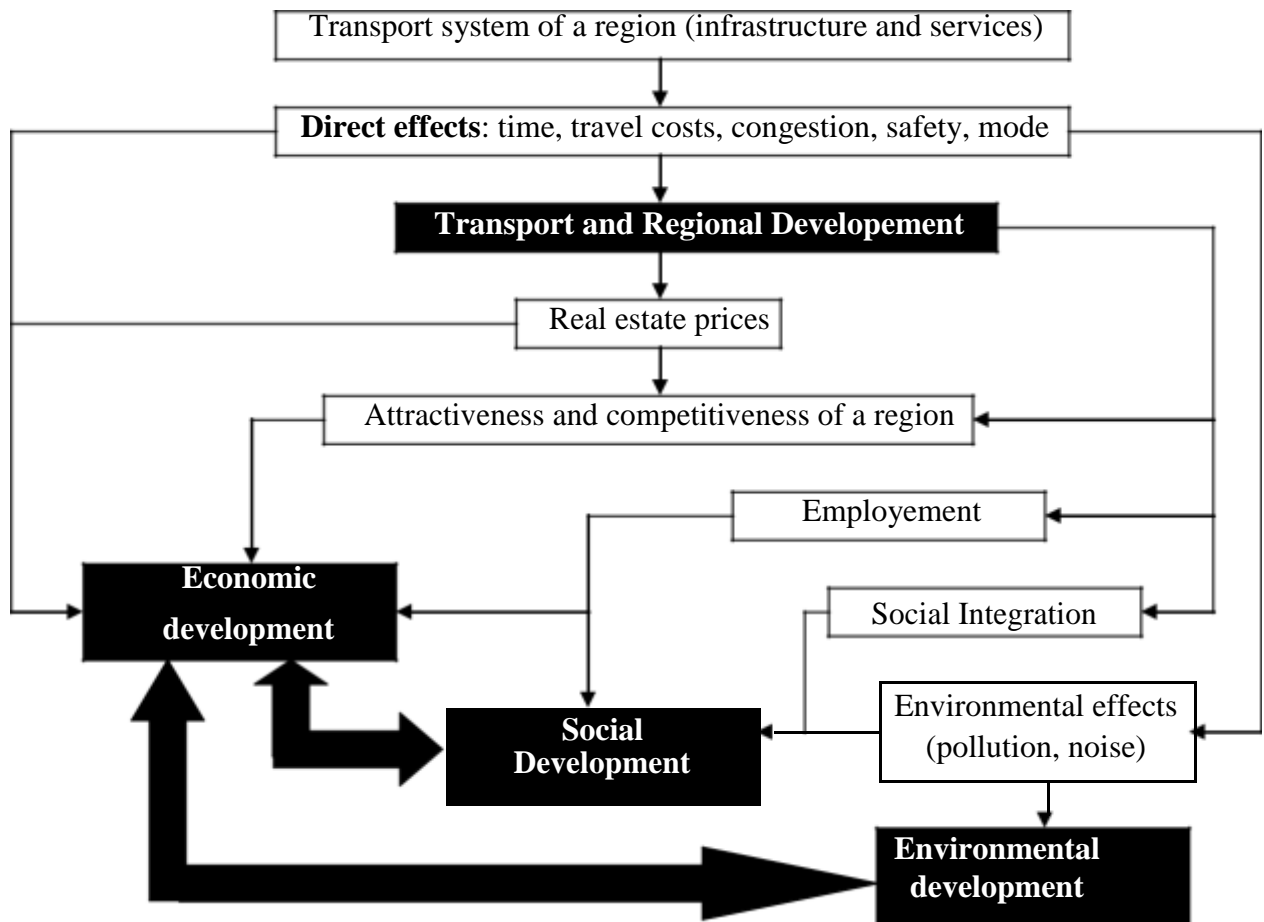
Figure 1. Systemic transport affected on regional development

Based on the literature review above, the hypothesis is formulated in this study: H1 : Transportation has a significant positive effect on regional development of Binjai City **Data and Model specification**

This research is a questionnaire survey research. The data in this study were collected from public transportation stakeholders in Binjai City, whose numbers were determined by the formula n = 10 x (number of latent variables + number of indicator variables) = 10 x (2 + 8) = 100 respondents (Ferdinand, 2002). The data in this study were analyzed using simple regression analysis generated from the SPSS program. In Mathematically, the regression analysis model in this study is formulated as follows:

Y = βX + e
Where :
Y = Regional development
X = Transportation

β = Coeficiet of Estimation e = Error

3.   RESEARCH RESULT

Validity and Reliability Test

        The dependent variable in this study is regional development which is described using 3 (three) dimensions, namely economic development, social development and environmental development. The three dimensions of these variables are each measured using 3 (three) indicators of research statement instruments. Meanwhile, the independent variable in this study is transportation which is described using 5 (five) dimensions, namely time, travel costs, congestion, safety and mode. Each of these five dimensions is measured using 3 (three) indicators in the form of a questionnaire statement instrument. The results of the validity and reliability tests of all questionnaire statement instruments used in measuring each indicator of the variables studied in this study are shown in Table 2. below.

Tabel 2. The Result of Validity and Reliability Test

Variables	Dimensions	Indicators	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Regional Development (Y)	Economic Development	Eco_Dev1	,524	,919
		Eco_Dev2	,488	,920
		Eco_Dev3	,498	,919
	Social Development	Soc_Dev1	,488	,920
		Soc_Dev2	,401	,921
		Soc_Dev3	,372	,922
	Environment Development	Evi_Dev1	,477	,920
		Evi_Dev2	,513	,919
		Evi_Dev3	,338	,923
Transportation (X)	Time	Time1	,608	,918
		Time2	,629	,917
		Time3	,721	,916
	Travel Cost	Travel_Cost1	,615	,918
		Travel_Cost2	,658	,917
		Travel_Cost3	,649	,917
	Congestion	Congestion1	,567	,918
		Congestion2	,638	,917
		Congestion3	,591	,918
	Safety	Safety1	,605	,918
		Safety2	,602	,918
		Safety3	,574	,918
	Moda	Mode1	,571	,918
		Mode2	,654	,917
		Mode3	,592	,918

        Table 2 above explains that all value of Corrected Item-Total Correlation > r count n 100 100 α5% = 0,195 and value of Cronbach's Alpha if Item Deleted > 0,6. Thus it can be concluded that all questionnaire statement instruments used in measuring the indicators of each variable studied in this study were declared valid and reliable.

Descriptive Statistic Analysis

The results of descriptive statistical analysis in this study are shown in Table 3.

Table 3. The Result of Descriptive Statistic Analysis

Variable	Dimensions	Indicators	Min	Max	Mod	Mean	St Dev
					Descriptive Statistic		
Regional	Economic	Eco_Dev1	1	5	2	2,690	1,361
Develpement	Development	Eco_Dev2	1	5	3	2,870	1,346
		Eco_Dev3	1	5	3	3,020	1,385
	Social	Soc_Dev1	1	5	1	2,770	1,392
	Development	Soc_Dev2	1	5	1	2,670	1,392
		Soc_Dev3	1	5	1	2,730	1,556
	Environment	Env_Dev1	1	5	1	2,740	1,528
	Development	Env_Dev2	1	5	1	2,760	1,609
		Env_Dev3	1	5	1	2,730	1,490
Transportation	Time	Time1	1	5	2	2,160	1,080
		Time2	1	5	1	2,280	1,240
		Time3	1	5	1	2,270	1,262
	Travel Cost	Travel_Cost1	1	5	2	2,400	1,206
		Travel_Cost2	1	5	1	2,420	1,357
		Travel_Cost3	1	5	1	2,390	1,294
	Congestion	Congestion1	1	5	1	2,460	1,366
		Congestion2	1	5	1	2,400	1,356
		Congestion3	1	5	1	2,470	1,374
	Safety	Safety1	1	5	2	2,400	1,287
		Safety2	1	5	1	2,440	1,388
		Safety3	1	5	1	2,360	1,194
	Mode	Mode1	1	5	2	2,410	1,264
		Mode2	1	5	1	2,490	1,382
		Mode3	1	5	2	2,590	1,288

Source : Author processing

Table 3 above explains that the responses of respondents to the three dimensions of regional development are very varied, namely in the range of answers between 1 (very bad) and (very good) with a mode value between 1 and 3. This indicator illustrates that regional development in Binjai City is still not doing well. Likewise, the condition of transportation in Binjai City also shows a very varied response from respondents, which is in the range of answers between 1 (very bad) and (very good) with a mode value of 1 and 2. This indicator also illustrates that transportation in Binjai City is also still not good.

Simple Regression Analysis

The results of the regression analysis in this study are shown in Table 4.

Table 4. The Results of Simple Linear Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,259ᵃ	,067	,057	9,39787

a. Predictors: (Constant), Transportation

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18,705	2,505		7,468	,000
	Transportation	,171	,065	,259	2,651	,009

a. Dependent Variable: Regional Development

Source : Author processing

Based on Table 1 above, the estimation model in this study is formulated mathematically into the form of an equation:

$$Y = 18{,}705 + 0{,}171X + 9{,}398$$

The equation above interprets that the dependent variable for regional development in Binjai City has a constant value of 18.705 without being influenced by transportation variance. The transportation variable itself has a positive regression coefficient value of 0.171. This means that transportation is estimated to have a positive effect of 0.171 on regional development in Binjai City. For every 1 addition of good transportation, the regional development increases by 0.171. The error in the transportation estimation model built in this study in estimating the regional development in Binjai City is 9,398.

Analysis of the coefficient of determination in this study resulted in an adjusted R square value of 0.057. This indicator shows that the ability of transportation in driving regional development in Binjai City is only 5.70%, while the remaining is 94.30%, regional development in Binjai City is influenced by variants of other variables that are not disclosed in this study.

Hypothesis Testing

The hypothesis in this study was tested using the t test. The results of hypothesis testing conducted in the study resulted in a t value of 2.651 greater than t count n100α 5% = 1.660, and a probability of 0.009> 0.05. Thus it can be justified that the hypothesis of this study which states that Transportation has a significant positive effect on the regional development of Binjai City, was received.

4. CONCLUSION

Based on the results of the analysis and discussion conducted in this study, it is concluded that transportation has a significant positive effect on regional development in Binjai City. With better transportation, then the better regional development in Binjai City. Even though the existing conditions of transportation and regional development in Binjai City are still not good, the results of this study prove that transportation has a significant positive effect on regional development in Binjai City. For this reason, it is suggested to the Binjai City Government to pay more attention to transportation in Binjai City, especially Binjai City is a strategic transit city that connects the province of Nanggroe Aceh Darussalam with the Province of North Sumatra. Concrete steps that need to be taken are improving between improving time, travel costs, congestion, safety, mode.

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