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# Space Utilization Policy in Payakumbuh City to Support The Public Transportation

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**ABSTRACT**

*The strategy that might be applied to increase the use of public transportation is to apply space utilization incentives and disincentives. Incentives and disincentives for space use contain elements of regulation and control that are accommodating to various actual changes that occur in cities. The stages of this research are: : 1) distribution of questionnaires, 2) ranking of Alternative Incentives and Disincentives with Likert scale. The formulation of incentives and disincentives for space utilization that are predicted to increase the use of public transportation, Alternative incentives sequentially are: 1) Policy for subsidizing public transportation fares, 2) Policy for Rejuvenating Public Transport Fleet, 3) Improving infrastructure and supporting facilities for the use of public transportation, and for Disincentives: 1) Progressive Tax Implementation Policy on vehicle ownership, 2) Mandatory garage policy for prospective owners of private vehicles. The results of this study can be used as input for the Payakumbuh City government in making decisions related to spatial planning and transportation and further research needs to be done on alternative incentives and disincentives that have been formulated.*

***Keywords:*** *Incentive; Disincentives; Public Transport.*



## INTRODUCTION

Geographically, Payakumbuh is a city that has a strategic location because it serves as a gateway to other major cities in West Sumatra Province. In addition, because it is located on a track that connects other cities such as Padang, Bukittinggi, Bangkinang, and Pekanbaru. The administrative area of the city is surrounded by the Lima Puluh Kota District. With an area of 80.43 km² or equivalent to 0.19% of the area of West Sumatra. Payakumbuh is about 30 km from Bukittinggi City or 120 km from Padang City and 188 km from Pekanbaru City.

The degradation of public transportation services is a major problem in Payakumbuh City, this is marked by transportation routes that are not according to plan, and a decrease in the number of transportation operating. In the Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 15 of 2019 article 53 paragraph 1 explains that the Central Government and / or Regional Governments guarantee the availability of road-based Mass Transportation to meet the needs of transportation of people with Public Motor Vehicles in Urban Areas [1]. A strategy from the Payakumbuh city government is needed to increase the use of public transportation. One strategy that may be applicable is the provision of incentives and disincentives for space utilization. Incentives and disincentives for space use are tools used

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to realize urban planning as stated in the Spatial Plan. Incentives and disincentives for space use contain elements of regulation and control that are accommodating to various actual changes that occur in cities. This research is based on a space utilization approach that is predicted to increase the use of city transportation and reduce the use of private vehicles in the community along the city transportation route.

## METHODS

The stages in the research are:

1. Preliminary Stage
   This preliminary stage consists of four main activities, namely the selection of study sites in accordance with the interests of researchers, the formulation of problems at the study location which begins with the study of literature and general studies. The next activity is the setting of study goals and objectives.
2. Data Collection Phase
   At this stage, data collection is carried out that supports the achievement of study targets.
3. Analysis Phase
   The analysis stage consists of three activities, namely factor analysis, type and analysis of incentive and disincentive values.

### Literature study

Literature studies are carried out by reviewing the content of the literature related to this research theme, including books, research results, spatial plan documents, final projects, and articles on the internet and mass media. The literature study is conducted by reading, summarizing and then summing up all references to incentives and disincentives for land use change control.

### Sample Determination

In this study, *purposive sampling techniques of stakeholders* were used to identify key informants in order to obtain specific knowledge possessed by these key informants [2]. Related to the purpose of the analysis, namely formulating the determinants of incentives and disincentives and the types of incentives and disincentives that can be applied so that the public transportation lines that have been planned by the Payakumbuh City Government can be implemented.

In this study, in addition to the key stakeholders sampled in the study, complementary stakeholders were also included in the research sample. This is because these stakeholders are considered to have good competence in determining incentives and disincentives for the use of public transportation.

Selected respondents are divided into key stakeholders and complementary stakeholders. a) Key Stakeholders: BAPPEDA Payakumbuh City; Payakumbuh City Public Works and Housing Office; Payakumbuh City Transportation Office; b) Complementary Stakeholders: Academics.

### Ranking of types of incentives and disincentives

Variable measurements carried out in this study used the Likert scale. Likert scale is a model that is widely used by researchers in measuring attitudes, opinions, perceptions or other social phenomena [3]

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## RESULTS AND DISCUSSION

From the results of the literature study, researchers found several alternative incentives and disincentives for space utilization to support the use of public transportation in Payakumbuh City, namely:

1. Incentive Alternatives
   - Public transport fare subsidy policy (I1)
   - Public Transport Rejuvenation Policy (I2)
   - Improving infrastructure and supporting facilities for the use of public transportation (I3)
2. Disincentive Alternatives
   - Progressive Tax Implementation Policy for vehicle ownership (D1)
   - Mandatory garage policy for prospective owners of private vehicles (D2)

**Ranking of types of incentives and disincentives with a Likert scale**

In this study researchers used five categories of Likert scale positively where the scale 5 = strongly agree, 4 = agree, 3 = disagree, 5 = disagree and 1 = strongly disagree

Tabel 1 : Answers to Alternative Incentive and Disincentive questions by Stakeholders

| NO | Types of Incentives and Disincentives | R1 | R2 | R3 | R4 | R5 |
|---|---|---|---|---|---|---|
| | **Incentive** | | | | | |
| 1 | Public transport fare subsidy policy | Very Agree | Agree | Very Agree | Very Agree | Agree |
| 2 | Public Transport Rejuvenation Policy | Agree | Agree | Agree | Agree | Very Agree |
| 3 | Improving infrastructure and supporting facilities for the use of public transportation | Agree | Agree | Agree | Neutral | Neutral |
| | **Disincentive** | | | | | |
| 4 | Progressive Tax Implementation Policy for vehicle ownership | Agree | Agree | Very Agree | Agree | Disagree |
| 5 | Mandatory garage policy for prospective owners of private vehicles | Agree | Neutral | Very Agree | Neutral | Disagree |

R1 : BAPPEDA Payakumbuh City
R2 : Payakumbuh City Transportation Office
R3 : Payakumbuh City Public Works and Housing Office
R4 : Academics
R5 : Academics

Table 2 : Questionnaire Indicator Criteria

| No | Percentage (%) | Criterion |
|---|---|---|
| 1 | 0-20 | Very weak |
| 2 | 21-40 | Weak |
| 3 | 41-60 | Enough |
| 4 | 61-80 | Strong |

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Based on the recapitulation of respondents' answers to questions about alternative incentives and disincentives, the results of the analysis were obtained as follows :

Table 3 : Likert Scale Analysis Results

| Alternative Incentives/Disincentives | Jawaban | | | | | | | | | Number of Scores | Percentage | Criterion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SS | % | S | % | N | % | TS | % | STS | | | |
| I1 | 3 | 60 % | 2 | 40 % | 0 | 0% | 0 | 0% | 0 | 23 | 92% | Very Powerful |
| I2 | 1 | 20 % | 4 | 80 % | 0 | 0% | 0 | 0% | 0 | 21 | 84% | Very Powerful |
| I3 | 0 | 0% | 3 | 60 % | 2 | 40 % | 0 | 0% | 0 | 18 | 72% | Very Powerful |
| D1 | 1 | 20 % | 3 | 60 % | 0 | 0% | 1 | 20 % | 0 | 19 | 76% | Kuat |
| D2 | 1 | 20 % | 1 | 20 % | 2 | 40 % | 1 | 20 % | 0 | 17 | 68% | Strong |

*I = Incentive Alternative D= Disincentive Alternative*

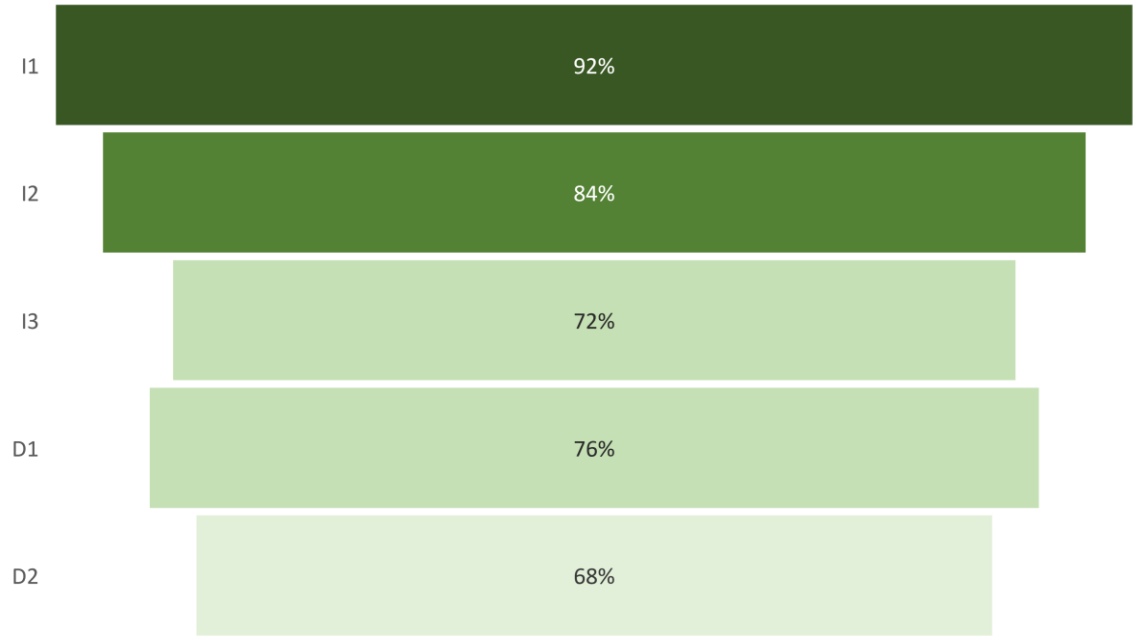


Figure 1. Likert Scale Analysis Results

The table shows that Alternative Incentive I1, which is about providing fare subsidies, has the highest percentage of 92%, then the 2nd place is I2, Public transportation Rejuvenation, and the 3rd Incentive Alternative is Infrastructure Improvement. Meanwhile, for the first disincentive alternative with a percentage of 76% is the D1 Code, which is the application of a progressive tax on vehicle ownership, followed by the 2nd disincentive alternative with a percentage of 68%, namely a mandatory garage policy for prospective owners of private vehicles

## CONCLUSION

The conclusions of this study according to the initial objectives of the study are as follows:
After carrying out various stages starting from literature review, Likert ranking, and alternative ranking with simple weighting, researchers obtained the final conclusion of Alternative

Incentives and Disincentives for space utilization that can be applied in Payakumbuh City so that the public transportation routes that have been planned at the 2018-2038 Payakumbuh City RDTR can be implemented are as follows :

1. Incentive
    1) Policy on providing public transportation tariff subsidies that will be applied to people along public transportation routes in accordance with the RDTR of Payakumbuh City Year 2018-2038
    2) Public Transportation Fleet Rejuvenation Policy and age restriction of vehicles that will operate along public transportation routes according to the Payakumbuh City RDTR Year 2018-2038
    3) Improving infrastructure and supporting facilities for the use of public transportation along public transportation routes in accordance with the RDTR of Payakumbuh City in 2018-2038
2. Disincentives
    1) The policy imposes a progressive tax on vehicle ownership to people who live along public transportation routes in accordance with the 2018-2038 Payakumbuh City RDTR
    **2)** Implementation of mandatory garage policy for prospective owners of private vehicles who live along public transportation routes according to the RDTR of Payakumbuh City Year 2018-2038

## REFERENCE

[1] Minister of Transportation, "Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 15 of 2019 concerning the Implementation of Transportation of People by Public Motor Vehicles on Routes," Jakarta, 2019.

[2] Sugiyono, *Qualitative Quantitative Research Methods and R&D*. Bandung: PT Alfabet, 2016.

[3] S. Riyanto and H. A. Andhita., *Research Methods Quantitative Research Research in the Field of Management*. Yogyakarta: Deepublish, 2020.