# Travel Demand Models for Visitors to Pasar Baru Banggai, Banggai Laut Regency, Indonesia

Faisal Sapiun[1]
Final-year students Departement of Civil Engineering
State University of Gorontalo
Gorontalo, Indonesia

Yuliyanti Kadir[2]
Associate Professor Departement of Civil Engineering
State University of Gorontalo
Gorontalo, Indonesia

Anton Kaharu[3]
Associate Professor Departement of Civil Engineering
State University of Gorontalo
Gorontalo, Indonesia

**Abstract:- Pasar Baru Banggai in Banggai Laut Regency is a crucial economic and social center for the local community. This article aims to analyze the factors influencing the travel demand of people to this market. Various aspects such as income, travel distance, travel time, product completeness, and market area were analyzed in depth. The methodology used includes field surveys, participatory observation, and secondary data analysis from relevant sources. The research sample was conducted using stratified sampling with strata based on visit frequency (daily, weekly, and monthly visitors) and potential visitors to the market. The total sample size was set at 100 visitors, which is a combination of all samples from each stratum as the final sample in this study. The research results show that income, travel distance, travel time, completeness of goods sold, and market area are the main factors attracting people to visit Pasar Baru Banggai, following the mathematical model $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$. Additionally, this market also provides quality local products that meet the needs of the local community, further strengthening its position as the regional economic center. Based on this analysis, several recommendations are proposed to enhance the attractiveness and function of Pasar Baru Banggai, including improving supporting infrastructure, promoting local products, empowering traders through training and support, and implementing efficient market management. With these measures, it is hoped that Pasar Baru Banggai can continue to grow and provide greater benefits to the people of Banggai Laut Regency, as well as contribute to the improvement of the region's economic and social welfare.**

*Keywords:- Banggai Laut, Pasar Baru, Travel Demand Models.*

## I. INTRODUCTION

The market is one of the essential elements in community life, not only as a place for exchanging goods and services but also as a center for social interaction. Pasar Baru Banggai, located in Banggai Laut Regency, Indonesia, is a significant shopping center serving the daily needs of local residents and visitors from surrounding areas. As a newly developed market, Pasar Baru Banggai attracts various groups, including tourists, traders, and residents from different locations. Therefore, understanding the travel demand patterns of visitors to this market is crucial for effective infrastructure planning and public service management.

In the context of market development, travel demand models are essential for analyzing the factors influencing visitors' decisions to come to Pasar Baru Banggai. These factors include household income, distance from home to the market, travel time, number of family members, vehicle ownership, transportation modes used, the variety of products available at the market, and the market's area.

This study aims to identify the key patterns and factors affecting visits to the market. With this information, market managers and policymakers can develop better strategies to improve accessibility, facilitate visitor mobility, and optimize market management to meet customer needs and preferences.

Furthermore, a deep understanding of travel demand patterns can support the development of marketing strategies, transportation infrastructure planning, and public service improvements around the market area. This is important for enhancing the visitor experience, strengthening the appeal of Pasar Baru Banggai, and supporting local economic growth.

This research is expected to make a significant contribution to the development of accurate and relevant travel demand models, and assist stakeholders in making data-driven decisions for the development of Pasar Baru Banggai.

## II. RESEARCH METHOD

This research employs both quantitative and qualitative methods with a survey approach. Data were obtained through field observations, interviews with traders and visitors, as well as secondary data analysis from relevant documents and reports. Observations were conducted to understand the dynamics of activities in the market, while interviews were

used to gather in-depth information regarding the motivations and experiences of visitors to Pasar Baru Banggai.

## A. Research Location and Time

The research was conducted in the Pasar Baru Banggai Laut area, a shopping and trading center. This area is flanked and traversed by Jalan Mampaliasan, Jalan Beringin, Jalan Jend. Sudirman, Jalan Mutiara, and Jalan R. Soak, in Banggai District, Banggai Laut Regency, Central Sulawesi Province, Indonesia. The research was carried out over one week (seven days), with data collection conducted at different times of the day: morning, noon, and afternoon. Morning sessions were from 07:00 to 10:00 WITA, noon sessions from 11:00 to 14:00 WITA, and afternoon sessions from 15:00 to 18:00 WITA. The research location is shown in Figure 3.
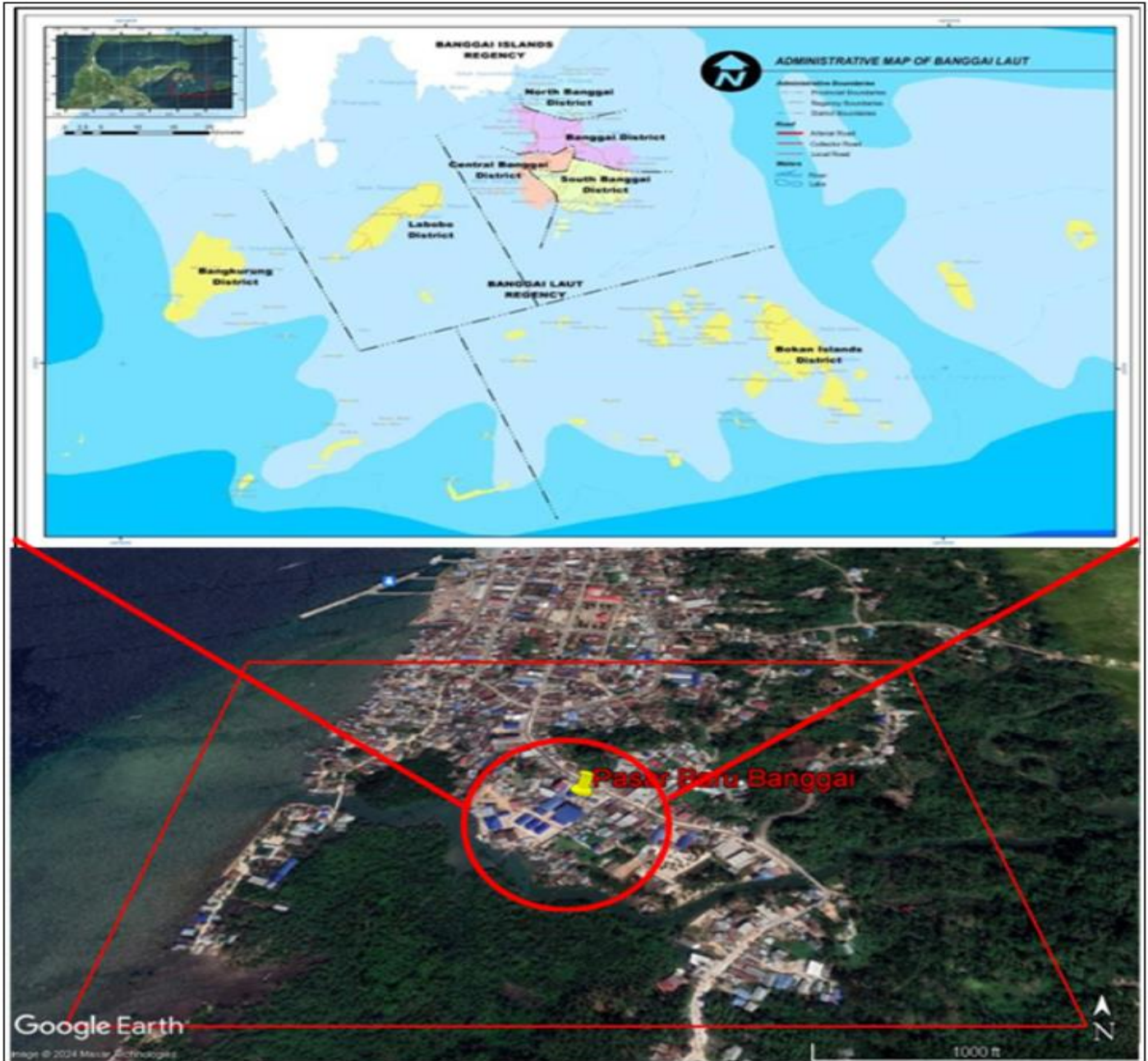


Fig 1 Administrative Map of Banggai Laut

## B. Research Sample

The study of visitor travel demand at Pasar Baru Banggai Laut was conducted using stratified sampling techniques with strata based on visit frequency (daily, weekly, and monthly visitors). From each stratum, random sampling was then conducted to ensure representation from all types of market visitors (Halim et. al. 2024).

➤ As for the sampling steps, they are as follows:
➤ Population identification: all market visitors for a week.
➤ Formation of strata:

- Daily: 40% of the population
- Weekly: 35% of population
- Monthly: 25% of population

International Journal of Innovative Science and Research Technology

> *Sample Size Determination:*

- Dayly: 40% from 100 population = 40 visitors
- Weekly: 35% from 100 populations = 35 visitors
- Monthly: 25% from 100 people = 25 visitsors

> *Sampling in Strata*

- Select 40 daily visitors randomly
- Select 35 random weekly visitors
- Select 25 random monthly visitors at random

> *Final Sampling*

Combining all samples from each layer to obtain 100 indicators is set as the final sample in this study.

## III.          RESULTS AND DISCUSSION

Pasar Baru Banggai, located in Banggai District, is the only shopping center that provides necessities for the community, both those from Banggai Laut Regency and from outside Banggai Laut Regency.

### A. *Research Objects and Locations*

The object of this research is the travel demand occurring at Pasar Baru Banggai, Banggai District, Banggai Laut Regency. Banggai Laut Regency consists of 7 districts, 3 sub-districts, and 63 villages, with an area of 725,67 km². The population of Banggai Laut Regency, according to the Central Statistics Agency, is 71,802 people in 2023. Field observations were conducted by randomly distributing questionnaires to visitors of Pasar Baru Banggai in Banggai Laut Regency. A total of 100 questionnaires were distributed to 100 samples out of the 71,802 population.



Fig 2 Appearance of Objects and Research Location at Pasar Baru Banggai

### B. *Social Demographic Characteristics of Travel Respondents*
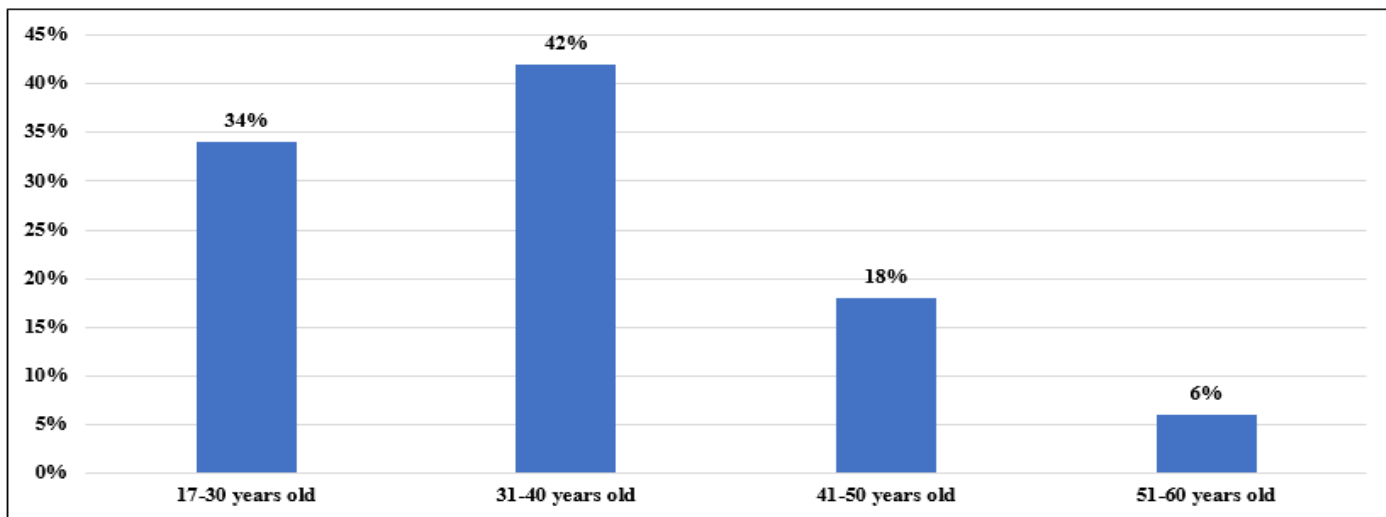
> *Based on Age*



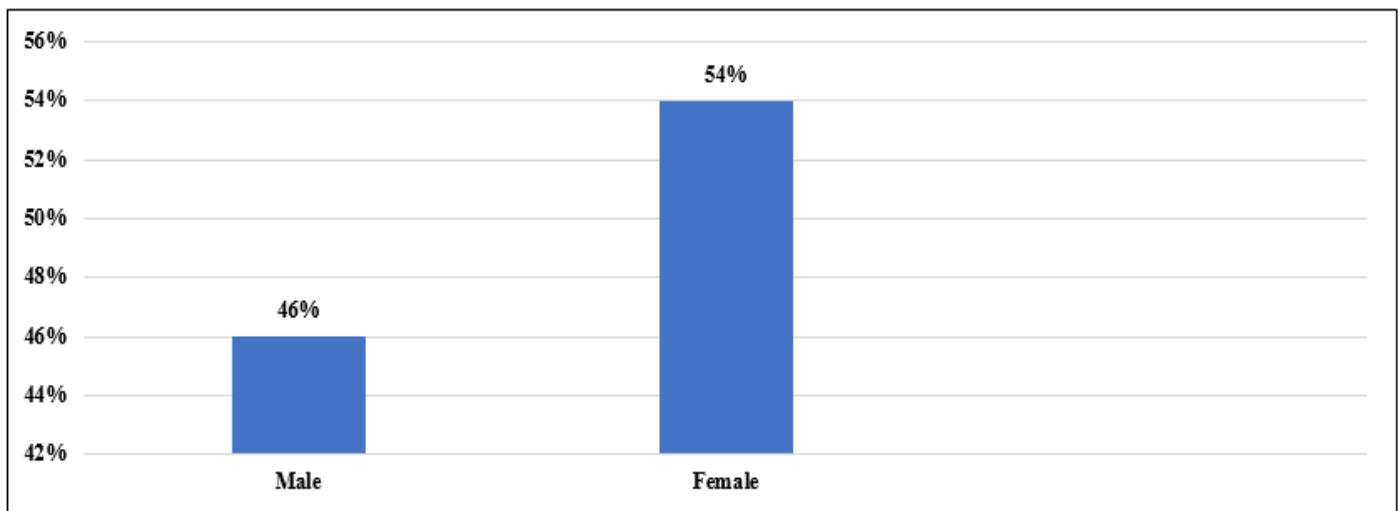Fig 3 Based on Age

➢ *Based on Gender*



Fig 4 Based on Gender

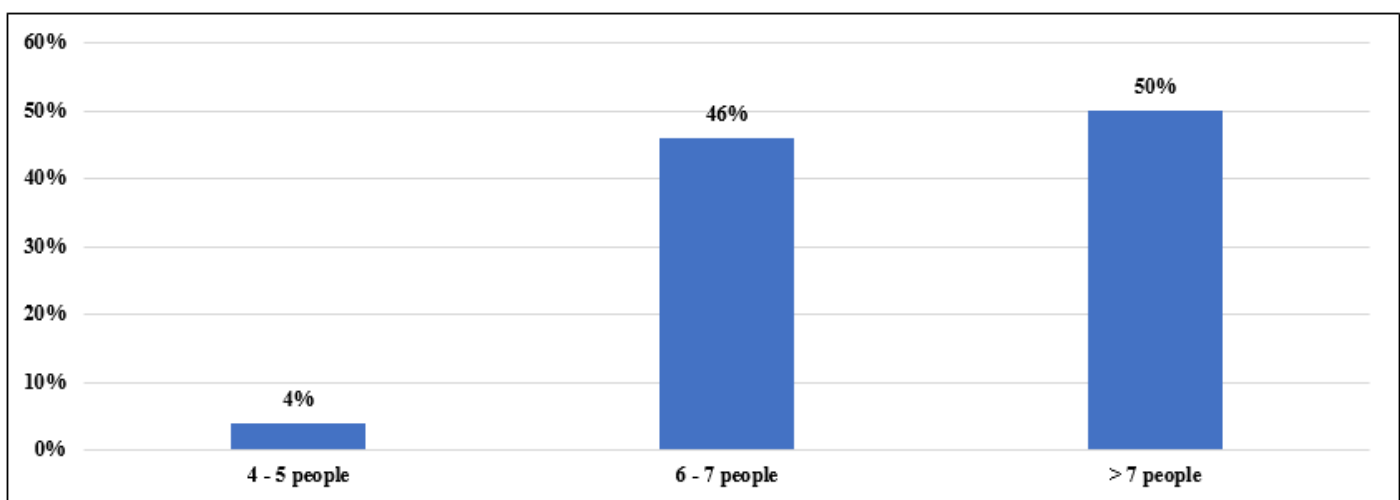➢ *Based on the Number of Family Members*



Fig 5 Based on the Number of Family Members
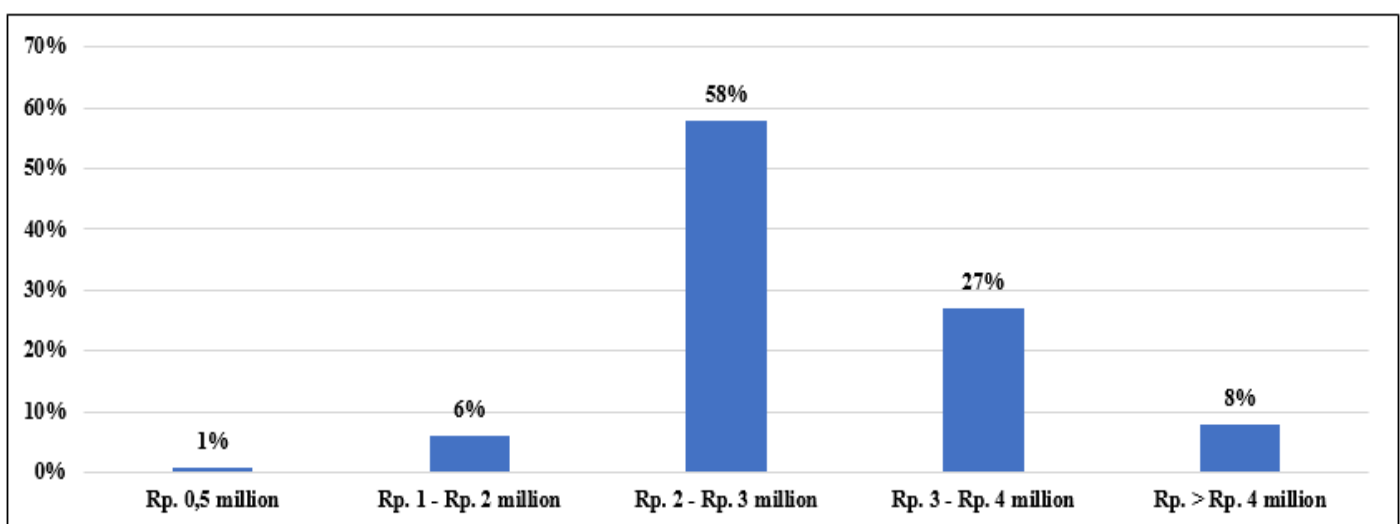
➢ *Based on Family Income*



Fig 6 Based on Family Income

### C. Characteristics of Respondent's Journey to the Market
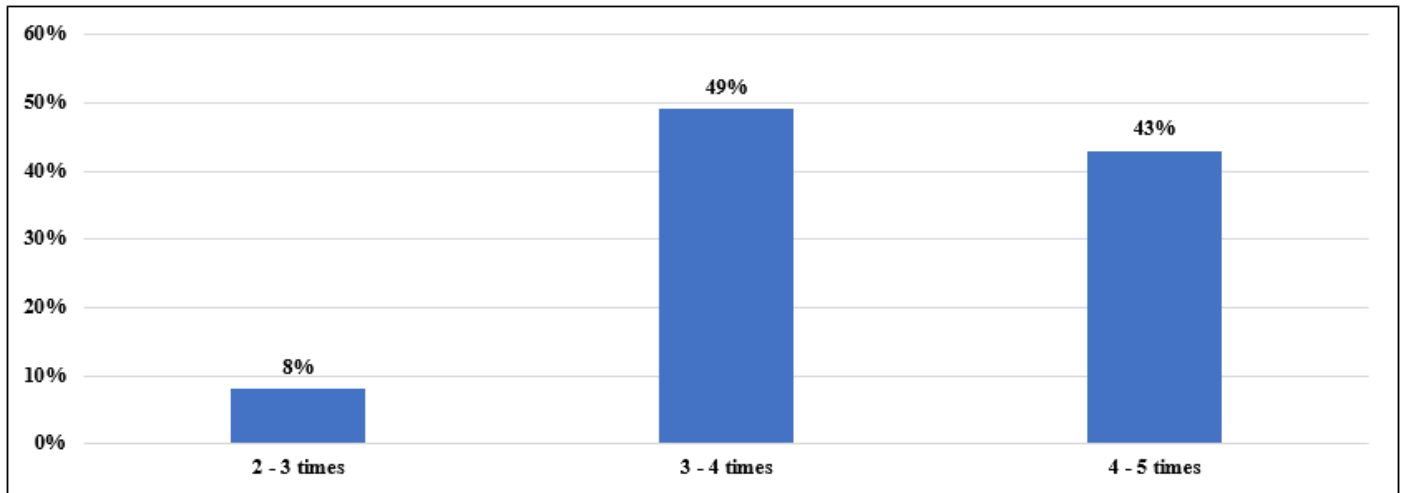
➢ *Visitor Arrival Frequency per Week*



Fig 7 Visitor Arrival Frequency per Week

➢ *Distance from Home to New Market Banggai*
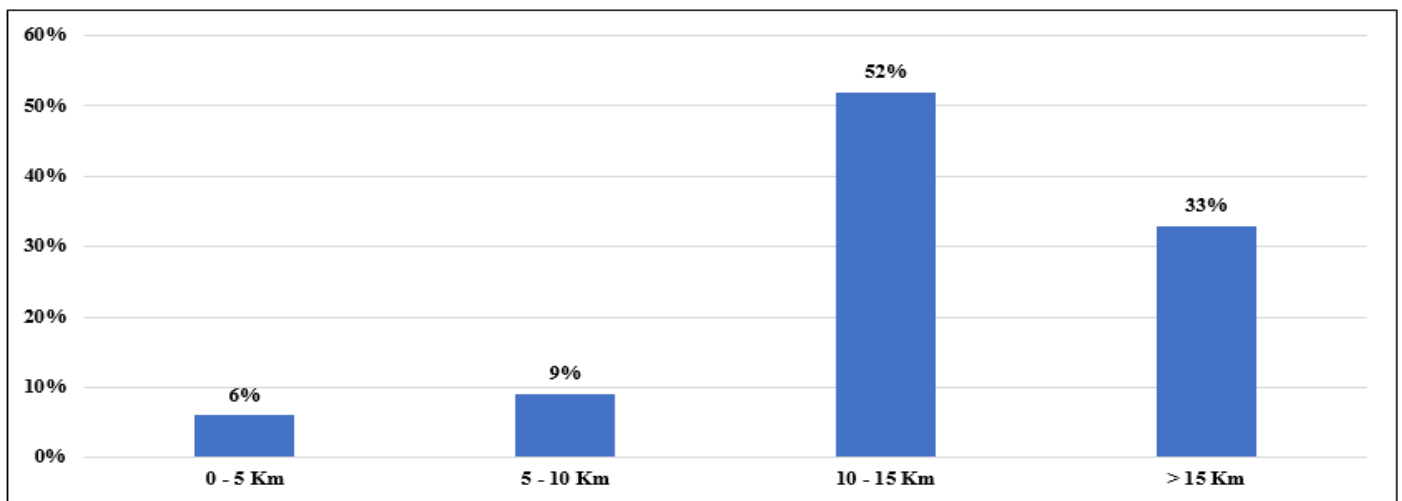


Fig 8 Distance from Home to New Market Banggai
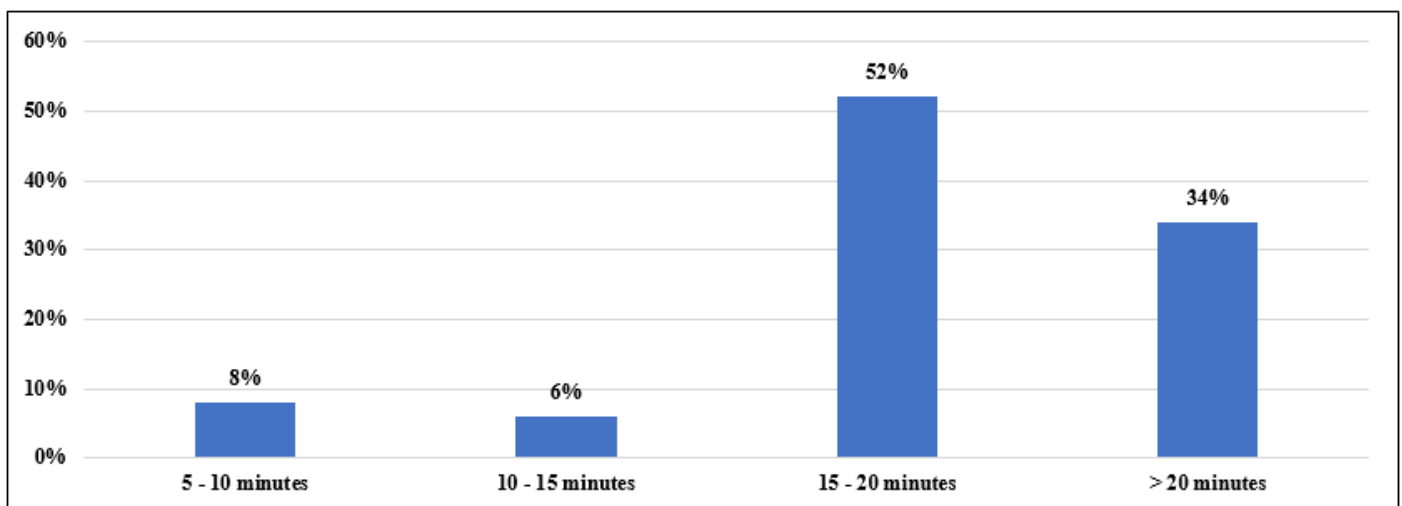
➢ *Travel Time*



Fig 9 Travel Time

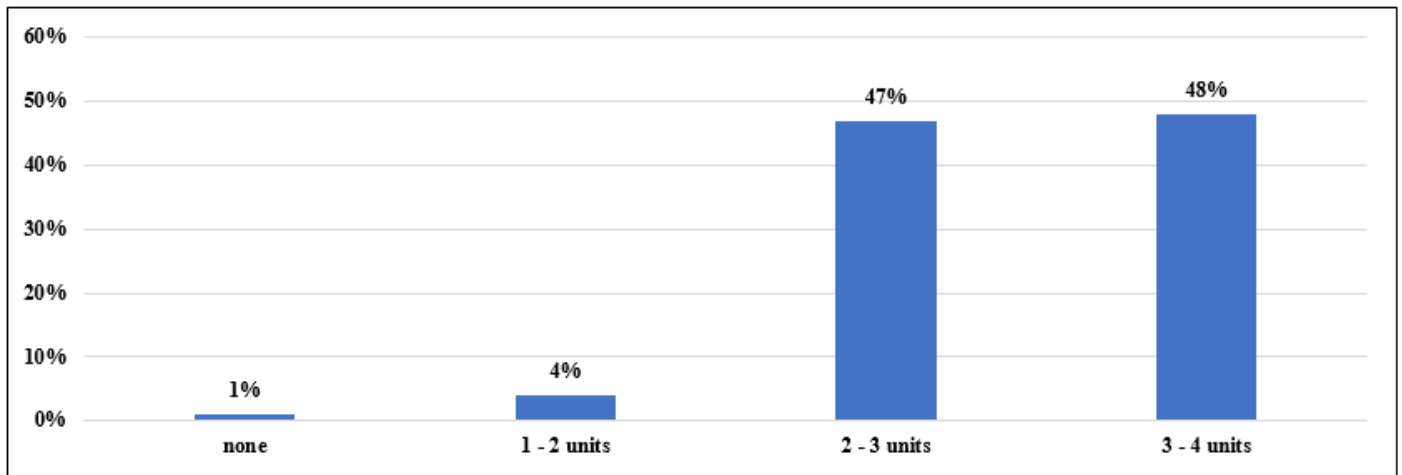➢ *Number of Motor Vehicle Ownership in a Family Member*



Fig 10 Number of Motor Vehicle Ownership in a Family Member

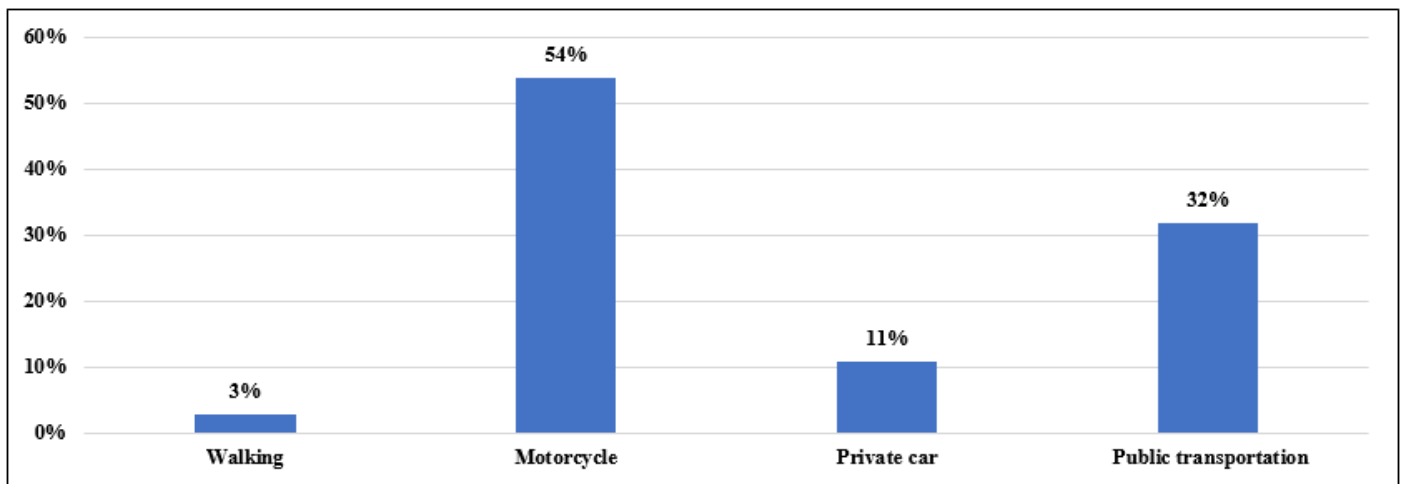➢ *Transportation Fashion used to Market*



Fig 11 Transportation Fashion used to Market

D. *Characteristics of Market Facilities and Products*

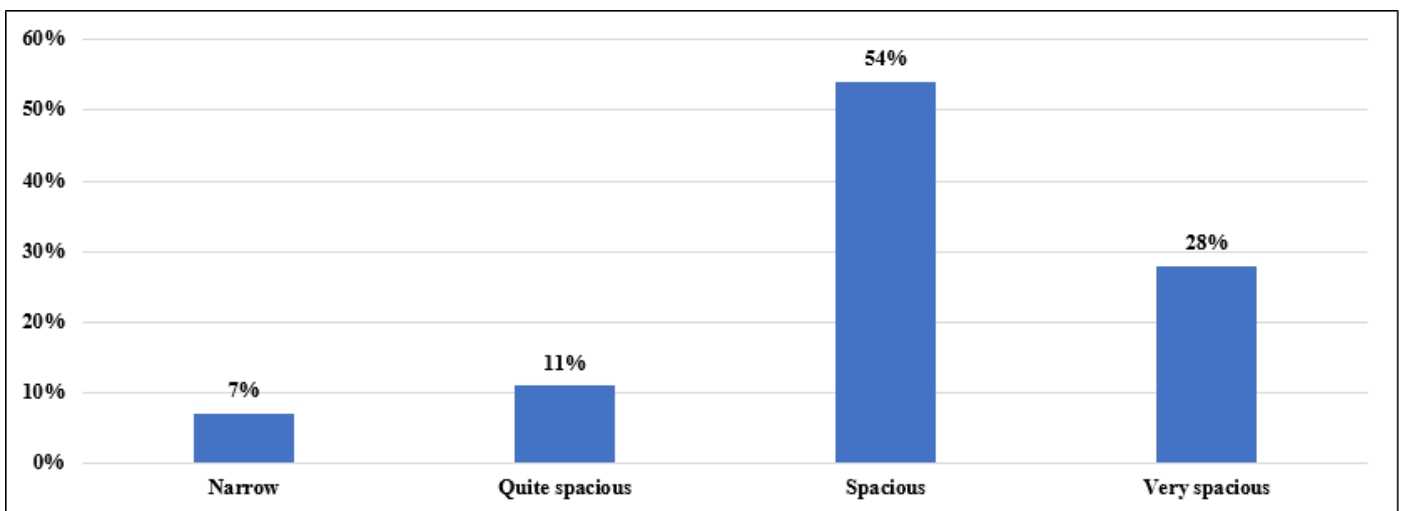➢ *Extensive Market Land Facilities*



Fig 12 Extensive Market Land Facilities
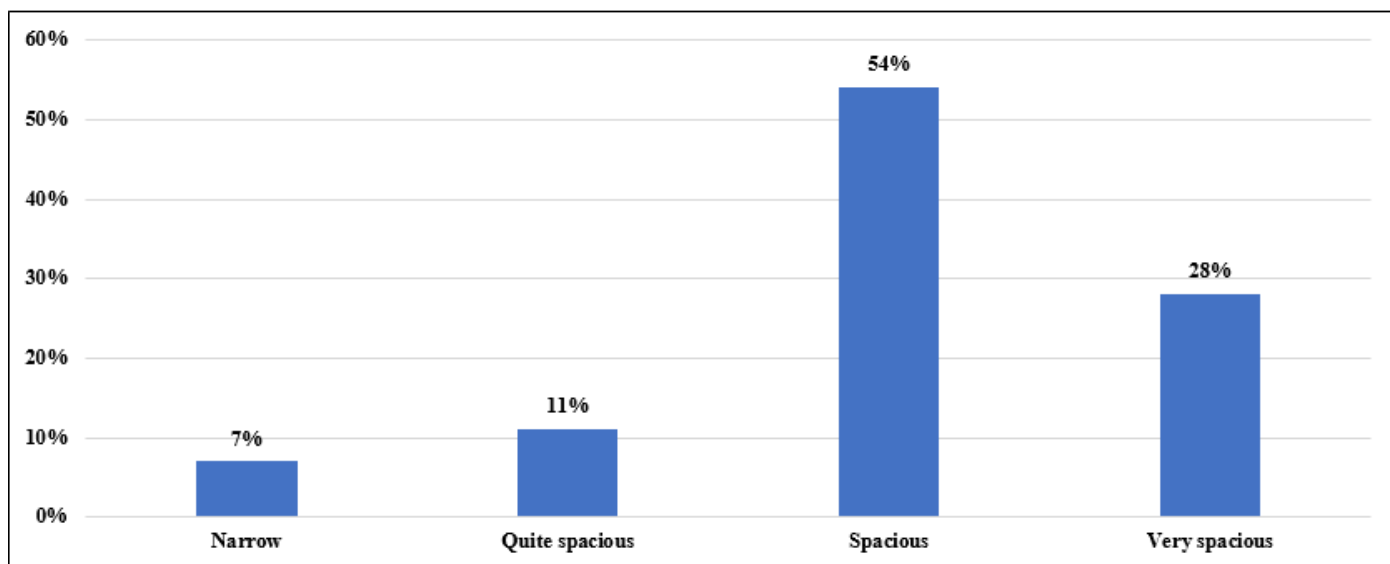
➢ *Accessories Products Sold*



Fig 13 Accessories Products Sold

*E. Analysis of the Model and Factors Influencing the Attraction of Visitor Movement at Pasar Baru Banggai*

The purpose of analyzing the travel demand model of visitors to Pasar Baru Banggai is to generate a regression equation model between the dependent variable (Y) and the independent variables (X). The results of the travel demand study for visitors to Pasar Baru Banggai are functions of X and Y, with variations in one random variable as a function of the values of the other variable being analyzed through regression analysis. Two events that are most frequently related can be said to have a correlation. The purpose of correlation analysis is to determine the strength of the relationship between X and Y, while regression analysis aims to quantify the influence of changes in X on Y to estimate the value of Y if the value of X is known. The strength of the relationship between X and Y can be seen from the value of the correlation coefficient (r), with the value of r ranging between -1<r<1 (Kaharu, 2020).

The dependent variable used is the travel demand of people to Pasar Baru Banggai. Meanwhile, the independent variables suspected to influence the travel demand of visitors to Pasar Baru Banggai are monthly household income ($X_1$), distance from home to Pasar Baru Banggai ($X_2$), travel time ($X_3$), number of family members in a household ($X_4$), number of motor vehicles owned in the household ($X_5$), mode of transportation used to visit Pasar Baru Banggai (X6), product completeness at Pasar Baru Banggai ($X_7$), and the area of Pasar Baru Banggai ($X_8$).

➢ *Testing of Dependent and Indenpendent Correlation Coefficients*

The correlation coefficient and the coefficient of determination are two statistical measures used to analyze the relationship between two variables. The magnitude of the correlation can be determined using formula 1.1 (Kaharu, 2020):

$$r_{xy} = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{n(\sum X^2) - (\sum X)^2} - \sqrt{n(\sum Y^2) - (\sum Y)^2}} \tag{1}$$

➢ *A Pair of Data Conclusions for Two Variables X and Y where Relationships can Occur as follows:*

- The relationship between X and Y is positive, if a decrease in the value of X is also followed by an increase in the decreased value of Y, the probability that the price of r is close to or equal to 1 (r=1). The linear regression shape moves regularly from the bottom left to the top right.
- The relationship between X and Y is negative, if an increase in value X is followed by a decrease in value Y or, on the contrary, a decreased value of X is following a r increase, the value of r will be close to or equal to -1 (r=-1). The regression line will move from the top left to the bottom.

The relationship between X and Y does not have a relationship where the increase and decrease of the value of X does not affect the rise and decline of Y. The value of Y is equal to 0 (zero).

Based on the results of the correlation coefficient analysis between household incomes per month ($X_1$), home distance to Pasar Baru Banggai ($X_2$), travel time ($X_3$), number of family members in a household ($X_4$), number of motor vehicle ownership in the households ($X_5$), the mode of transport used to visit the Pasar Baru Banggai ($X_6$), the assortment of products sold in the New Market Bungalows ($X_7$), and the land area of the Pasar Baru Banggai ($X_8$) are shown in table 2.

Table 1 Results of Testing Variable Dependent and Indenpendent Correlation Coefficients

| Variabel | (X1) | (X2) | (X3) | (X4) | (X5) | (X6) | (X7) | (X8) | (Y) |
|---|---|---|---|---|---|---|---|---|---|
| (X1) | 1 | 0.195 | 0.171 | 0.044 | 0.178 | -0.073 | -0.042 | 0.048 | 0.293 |
| (X2) | | 1 | 0.097 | 0.141 | 0.059 | 0.057 | 0.344 | 0.284 | 0.416 |
| (X3) | | | 1 | 0.093 | -0.001 | 0.017 | 0.158 | 0.213 | 0.283 |
| (X4) | | | | 1 | 0.047 | 0.145 | -0.070 | -0.008 | 0.081 |
| (X5) | | | | | 1 | -0.14 | -0.171 | -0.005 | 0.112 |
| (X6) | | | | | | 1 | 0.176 | 0.088 | 0.047 |
| (X7) | | | | | | | 1 | 0.069 | 0.307 |
| (X8) | | | | | | | | 1 | 0.313 |
| (Y) | | | | | | | | | 1 |

From table 1 above it can be seen that the non-free variable Y has a positive relationship with 5 (five) free variables with significant relationship strength, in sequence are X2 (home distance to Pasar Baru Banggai) 0.416 (41.6%), X8 (wide Pasar Baru Banggai) 0.313 (31.3%), X7 (completeness of Pasar Baru Banggai product) 0.307 (30.7%), X1 (household income per month Pasar Baru Banggai visitors) 0.293 (29.3%) and X3 (time of travel to Pasar Baru Banggai) 0.283 (28.3%). Whereas for the other three free variable X4 (number of family members) 0.081 (8.1%), X5 (sum of ownership of motor vehicles in one household) 0.112 (11.2%), and X6 (mode of transport used for shopping) 0.047 (4.7%), which has a very weak relationship with the number of movements occurring in Pasar Baru Banggai.

➤ *Model Formation and Testing*

Correlation testing of research variables that have been carried out in table 1 above produces one free variable that can be used to form a model of growth of visitors to the Pasar Baru Banggai: X2 (home distance to the new Bangkai market), X8 (wide area of Pasar Baru Banggai), X7 (completeness of products of Pasar Baru Banggai), X1 (income of households per month visitors of the Pasar Baru Banggai) and X3 (travel time to Pasar Baru Banggai).

To explain that the measure of association with interpretive significance shows us how the proportion of the total squared deviation of the independent variable is explained or associated with the regression equation, it is referred to as the coefficient of determination ($R^2$). If $R^2 = 0$, it indicates that the independent variable is an insignificant predictor, while $R^2 = 1$ indicates that the independent variable is a perfect predictor. The coefficient of determination ($R^2$) ranges from 0 to 1 ($0 \leq R^2 \leq 1$). The larger the $R^2$ (closer to 1), the better the regression model. Conversely, the closer $R^2$ is to 0, the less the independent variables as a whole can explain the variability of the dependent variable. The general formula to obtain $R^2$ is (Kaharu, 2020):

$$R^2 = \frac{\sum(Y^* - \bar{Y})^2/k}{\sum(Y - Y^*)^2/k} = \frac{\text{Sum of Squares}_{regresi}}{\text{Sum of Squares}_{total}} \qquad (2)$$

With:

Y = observed value;

Y* = estimated Y value using the regression model;

$\bar{Y}$ = mean of observed values;

k = number of independent variables.

After determining the decisive independent variables and establishing the model to be created, the next step is to conduct regression analysis to determine the form of the resulting model.

In this study, multiple linear regression analysis and linear Stepwise regression were used because there is an influence of more than one independent variable on the dependent variable. This is essential in reality, showing that several changes in land use simultaneously affect community travel demand.

The multiple linear regression equation is a mathematical equation that states the relationship between a dependent variable and independent variables. The general form of the multiple linear regression equation to reflect the travel demand of visitors to Pasar Baru Banggai is Equation 1.3 (Kaharu, 2020)

$$Y = \alpha + b_1X_1 + b_2X_2 + \ldots + b_nX_n \qquad (3)$$

Dengan:

Y = dependent variable,

$X_1, X_2, \ldots X_n$ = independent variable,

$b_1, b_2, \ldots b_n$ = regression coefficient,

$\alpha$ = constant.

Stepwise regression involves two types of processes: forward selection and backward elimination. At each stage, a decision is made regarding which variable is the best predictor to include in the model. This is determined based on the partial F-test. If the partial F-value of the included variable is smaller than the set F-table value, the variable is removed. This process is repeated until no more variables meet the criteria for addition or removal (Kaharu, 2020).

The results of the formation of the multiple linear and Stepwise linear models, as well as the results of their statistical indicator values using the SPSS program, can be seen in Table 2.

Tabel 2 Results of Model Formation and Statistical Value Testing of Travel Demand for Visitors to Pasar Baru Banggai

| Regression equation | Linear Model | R | $R^2$ | Sig. F | Sig. t | Level of Sig. (α) | Best Model |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | (-1< R<1) | -1< $R^2$<1 | <Sig.α | >Sig.α | | |
| $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$ | Multiple | 0.571 | 0.326 | 0.000 | 0.797 | 0.05 | I |
| $Y = 1.467 + 0.278(X_2) + 0.160(X_3) + 0.154(X_1)$ | Stepwise | 0.515 | 0.265 | 0.047 | 0.645 | 0.05 | II |
| $Y = 1.836 + 0,304(X_2) + 0.182(X_3)$ | Stepwise | 0.482 | 0.232 | 0.007 | 0.870 | 0.05 | III |
| $Y = 2.345 + 0.322(X_2)$ | Stepwise | 0.416 | 0.173 | 0.000 | 0.742 | 0.05 | IV |

Based on the results of the model formation and the testing of the statistical values of the travel demand of visitors to Pasar Baru Banggai in Table 2 above, four models that are statistically appropriate for the travel demand of visitors to Pasar Baru Banggai in Banggai Laut Regency, Central Sulawesi Province, were obtained as follows:

- $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$, from this model, it can be seen that the magnitude of the travel demand is influenced by $X_2$ (distance from home to Pasar Baru Banggai), $X_8$ (area of Pasar Baru Banggai), $X_7$ (product completeness at Pasar Baru Banggai), $X_1$ (monthly household income of Pasar Baru visitors), and $X_3$ (travel time to Pasar Baru Banggai) with an R value of 0.571 (57.1%), $R^2$ value of 0.326 (32.6%), Sig. F value of 0, and Sig. t value of 0.797 at a significance level of 0.05 (α=0.05). Based on this model, it turns out that the variables $X_2$ (distance from home to Pasar Baru Banggai), $X_8$ (area of Pasar Baru Banggai), $X_7$ (product completeness at Pasar Baru Banggai), $X_1$ (monthly household income of Pasar Baru visitors), and $X_3$ (travel time to Pasar Baru Banggai) have roughly the same average influence on the amount of travel demand occurring at Pasar Baru Banggai.
- $Y = 1.467 + 0.278(X_2) + 0.160(X_3) + 0.154(X_1)$, From this model, it can be seen that the magnitude of the travel demand is influenced by $X_2$ (distance from home to Pasar Baru Banggai), $X_3$ (travel time to Pasar Baru Banggai), and $X_1$ (monthly household income of Pasar Baru visitors) with an R value of 0.515 (51.1%), $R^2$ value of 0.265 (26.5%), Sig. F value of 0.047, and Sig. t value of 0.645 at a significance level of 0.05 (α=0.05). Based on this model, it turns out that the influence of variable $X_2$ (distance from home to Pasar Baru Banggai) is twice as large as that of variable $X_3$ (travel time to Pasar Baru Banggai) and X1 (monthly household income of Pasar Baru visitors) on the amount of travel demand occurring at Pasar Baru Banggai.
- $Y = 1.836 + 0.304(X_2) + 0.182(X_3)$, from this model, it can be seen that the magnitude of the travel demand is influenced by $X_2$ (distance from home to Pasar Baru Banggai) and $X_3$ (travel time to Pasar Baru Banggai) with an R value of 0.482 (48.2%), $R^2$ value of 0.232 (23.2%), Sig. F value of 0.007, and Sig. t value of 0.870 at a significance level of 0.05 (α=0.05). Based on this model, it turns out that the influence of variable $X_2$ (distance from home to Pasar Baru Banggai) is three times greater than that of variable $X_3$ (travel time to Pasar Baru Banggai) on the amount of travel demand occurring at Pasar Baru Banggai.

- $Y = 2.345 + 0.322(X_2)$, from this model, it can be seen that the magnitude of the travel demand is only influenced by $X_2$ (distance from home to Pasar Baru Banggai) with an R value of 0.416 (41.6%), $R^2$ value of 0.173 (17.3%), Sig. F value of 0, and Sig. t value of 0.742 at a significance level of 0.05 (α=0.05).

Based on the analysis results of the four models above, the best model for formation can be chosen considering the ease of prediction or forecasting and the results of statistical testing, namely the magnitude of the coefficient of determination, by considering the Sig. F and Sig. t tests. Therefore, the best model is $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$.

## IV. CONCLUSION

Based on the survey results, facts, and analysis of the travel demand model for visitors to Pasar Baru Banggai in Banggai Laut Regency, Central Sulawesi Province, the conclusions are as follows:

- Pasar Baru Banggai has a strong attraction for the people of Banggai Laut Regency, supported by the social demographic factors of the population, good accessibility, availability of goods, diversity and quality of products, and affordable prices. However, improvements are still needed in some road infrastructures and the enhancement of transportation facilities to further support visitor comfort.
- Based on the model formation results through a combination of multiple linear regression and Stepwise regression models, with the measurement of the coefficient of determination and statistical testing, four selected models were obtained that have the greatest influence on the travel demand of visitors to Pasar Baru Banggai:

- ✓ $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$
- ✓ $Y = 1.467 + 0.278(X_2) + 0.160(X_3) + 0.154(X_1)$
- ✓ $Y = 1.836 + 0.304(X_2) + 0.182(X_3)$
- ✓ $Y = 2.345 + 0.322(X_2)$

From the four selected models above, one best model is chosen to be used in calculating the travel demand, which is $Y = 0.858 + 0.182(X_1) + 0.183(X_2) + 0.112(X_3) + 0.162(X_7) + 0.145(X_8)$

## REFERENCES

[1]. Basuki, Y., Rahayu, S. & Gusanti, D. K. (2020). Model Tarikan Perjalanan pada Pusat Perbelanjaan Berkonsep Multi Activity Commercial di Pusat Kota Semarang [Travel Attraction Model in Multi Activity Commercial Concept Shopping Centers in Semarang City Center]. Jurnal Pengembangan Kota, VIII(2), pp. 212-220. DOI: https://doi.org/10.14710/jpk.8.2.212-219

[2]. Daagustani, M. & Murtedjo, T. (2020). Study Of Generation And Attraction Of Trips In The Bogor District. ASTONJADRO: Jurnal Rekayasa Sipil, IX(2), pp. 54-68. DOI: https://doi.org/10.32832/astonjadro.v9i2.2631

[3]. Damayanti, A. & Inayati , T. (2024). Pengaruh Celebrity Endorser, Kualitas Produk, dan Word Of Mouth Terhadap Keputusan Pembelian Produk Body Lotion Scarlett Whitening [The Influence of Celebrity Endorser, Product Quality, and Word of Mouth on Purchasing Decisions for Scarlett Whitening Body Lotion Products]. Bisma: Jurnal Bisnis dan Manajemen, pp.2 7-38. DOI: https://doi.org/10.19184/bisma.v18i.46565

[4]. Halim, H., Saing, Z., Yusuf, H., Hamkah & Kaharu, A. (2024). Effective Model of Vehicle Parking Distance at Signalized Intersections Using Cumulative Method Analysis. Civil Engineering and Architecture Vol. 12(4): 2922-2933, 2024, pp. 2922 – 2933, DOI: https://doi.org/10.13189/cea.2024.120431

[5]. Intari, D. E. (2015). Karakteristik dan Bangkitan Perjalanan Terhadap Pusat Perbelanjaan (Studi Kasus: Mall Of Serang di Kota Serang) [Characteristics and Trip Generation for Shopping Centers]. Jurnal Fondasi, IV(2), pp. 159-165. DOI: https://doi.org/10.13189/cea.2024. 120431

[6]. Kaharu, A. (2020). Benefit Analysis on Speed, Distance, Time, and Fare of Becak Motor as Main Paratransit in Gorontalo Province, Indonesia, International Journal of Advanced Science and Technology (IJAST), Vol. 29, No. 5, (2020), pp. 2687 – 2699, ISSN: 2207-6360 (Online), 2005-4238 (print)

[7]. Kaharu, A. (2020). Transportasi Dan Karakteristik Operasi Becak Bermotor Sebagai Angkutan Paratransit Di Gorontalo-Teori, Analisis dan Aksi [Transportation and Operational Characteristics of Motorized Rickshaws as Paratransit Transport in Gorontalo-Theory, Analysis and Action], April 2020, Ideas Publishing, ISBN: 9786232340565

[8]. Kurniawan, J. A. (202). Pemodelan Tarikan Perjalanan Pada Wilyah Car Free Night Kota Baru Jambi [Modeling Travel Attractions in the Car Free Night Area of Jambi New City]. Skripsi. Fakultas Sains dan Teknologi Universitas Jambi, Indonesia.

[9]. Latif, F., Kaharu., A., & Tuloli. M.Y. (202). Perencanaan Jaringan Trayek Angkutan Umum Perkotaan Dan Perdesaan Kabupaten Boalemo (Studi Kasus Di Zona Bagian Barat) (Urban and Rural Public Transport Route Network Planning for Boalemo Regency (Case Study in the Western Zone), Composite Journal Vol.1, No. 2 (2021), pp. 66-72, 2021, E-ISSN: 2807-5919, DOI: https://doi.org/10.37905/cj.v1i2.18

[10]. Majeed , N. H. & Qasim, G. J. (2021). Trip attraction model of selected zones in Baghdad. Journal of Physics: Conference Series, X(1088), pp. 1742-6596. DOI: https://doi.org/ 10.1088/1742-6596/1973/ 1/012235

[11]. Niatika, U. (2018). Analisis Model Tarikan Perjalanan Masyarakat ke Kawasan Perdagangan/Perbelanjaan Kota Bandar Lampung [Analysis of the Attraction Model for Community Travel to the Trade/Shopping Area of Bandar Lampung City]. Skripsi. Universitas Lampung, Indonesia

[12]. Parinduri, F. H. M. (2020). Analisis Model Tarikan Perjalanan Masyarakat ke Kawasan Perdagangan/Perbelanjaan Pada Kecamatan Panyabungan Kota (Studi Kasus) [Analysis of the Attraction Model for Community Travel to Trade/Shopping Areas in Panyabungan Kota District (Case Study)]. Tugas Akhir. Universitas Muhammadiyah Sumatera Utara, Indonesia

[13]. Pidor, M. S., Karels, D. W. & Bolla, M. E. (20180. Bangkitan Perjalanan dan Pola Pergerakan Penduduk Pada Kecamatan Kelapa Lima [Travel Generation and Population Movement Patterns in Kelapa Lima District]. Jurnal Teknik Sipil, VII(2), pp. 120-123. DOI: https://doi.org/10.35508/jts.7.2.119-132

[14]. Ramadhan, A. S. & Herman. (2022). Pemodelan Tarikan Pergerakan Pengunjung Pasar Tradisional di Kecamatan Pemalang [Modeling the Attraction Movement of Traditional Market Visitors in Pemalang District]. RekaRacana: Jurnal Teknik Sipil, Vol. 08. No. 01, pp. 52-59. DOI: https://doi.org/ 10.26760/rekaracana.v8i1.52

[15]. Sapkal, M. G. . R. (2022). Ttrip Attraction Rates Of Shopping Centres In Bengaluru City. International Journal of Engineering Applied Sciences and Technology, VII(1), pp. 166-168. DOI: https://doi.org/10.33564/IJEAST.2022. v07i01.024

[16]. Sri Dwipa, Z. & Hisyam, E. S. (2017). Analisis Tarikan Perjalanan Kawasan Pendidikan (Studi Kasus Jalan Pemuda Sungailiat) [Analysis of Travel Attractions in Educational Areas (Case Study of Sungailiat Youth Road)]. Jurnal Fropil, V(2), pp. 124-131. DOI: https://doi.org/10.33019/fropil.v5i2.1258

[17]. Tamin, O. Z. (2000). Perencanaan dan Pemodelan Transportasi [Transportation Planning and Modeling]. Edisi kedua. Bandung: Jurusan Teknik Sipil Institut Teknologi Bandung. Indonesia.

[18]. Windasari, P., Kaharu. A., Kadir, Y. (2024). Analysis of Operation Performance of Leading Provinial City Transport Routes (AKDP) in Gorontalo Province. International Journal of Innovative Science and Research Technology (IJISRT), Volume 9, Issue 6, June – 2024. https://doi.org/10.38124/ijisrt/IJISRT24JUN1493

[19]. Yusuf, Rianti Aisyah A., Tuloli, M.Y., & Kaharu. A. (2021), Evaluasi Jaringan Trayek Eksisting Angkutan Umum Di Zona Bagian Timur Kabupaten Boalemo Provinsi Gorontalo (Evaluation of the Existing Public Transport Route Network in the Eastern Zone of Boalemo Regency, Gorontalo Province), Composite Journal Vol. 1, No. 2 (2021), pp. 58-65, 2021, E-ISSN: 2807-5919, DOI: https://doi.org/10.37905/cj.v1i2.12