Understanding Travel Behavior to Among Tani Main Market in Batu City: The Role of Socio-Economic and Accessibility Variable

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Abstract: This study aims to analyze the factors influencing trip attraction to the Among Tani Main Market in Batu City and to develop a trip attraction model that can support transportation planning and market management. Primary data were collected through a questionnaire survey of 404 respondents, while secondary data were obtained from relevant agencies. Descriptive statistics were used to describe visitors' socio-economic and travel behavior, and multiple linear regression analysis was applied to identify the dominant variables affecting visit frequency. The results show that most visitors are female, aged 31–40, with senior high school education, self-employed, and earning IDR 1–2.5 million per month. The majority use motorcycles, travel an average distance of 5–10 km, and spend 15–30 minutes to reach the market. Of the 20 independent variables tested, five were significant: travel distance, travel time, shop area, parking area, and building size. Distance and time negatively affect visit frequency, while the three infrastructure-related variables have positive effects, with shop area being the most dominant factor. The study concludes that accessibility and infrastructure capacity are more influential than socio-economic factors. These findings provide practical implications for market management and transportation planning in Batu City to enhance visit attraction and support sustainable urban development.

Keywords: Accessibility; Market infrastructure; Travel behavior; Trip attraction

Introduction

Traditional and modern markets play a crucial role in the socio-economic dynamics of society, particularly in developing countries. Yanqoritha (2023) stated that a traditional market setting that is environmentally friendly, attractive, orderly, and delivers user delight for both traders and consumers. Beyond their function as distribution centers for agricultural products and daily necessities, markets also serve as spaces for social and cultural interaction, strengthening community cohesion (Shayan et al., 2022; Silalahi & Wakhidah, 2023; Stringer et al., 2020; Tao et al., 2022). Activities such as bargaining, social gatherings, and the diversity of local cuisine make markets an integral part of urban life. Along with economic growth, regional development, and the increasing needs of society, mobility towards markets has also grown significantly.

A clear example can be found in the Among Tani Main Market in Batu City, Indonesia. This market is one

of the largest in East Java, functioning as a central hub for agricultural distribution, trade of essential goods, and various economic activities. Its role extends beyond serving local residents, as it also attracts visitors from surrounding regions, including domestic tourists. As a tourist city, Batu faces dynamic mobility pressures, where traditional markets function not only as shopping centers but also as part of shopping tourism destinations. This condition has caused a high volume of trips to and from the market, leading to transportation challenges such as traffic congestion, limited parking availability, and increased travel times. These issues reduce visitor convenience, threaten operational efficiency, and may undermine the market's competitiveness in the long run.

In the context of urban transportation planning, understanding the patterns and determinants of trip attraction to markets is therefore critical. Aksa et al. (2023) stated that load of spatial functions has an effect on how transportation is implemented. Developing a trip attraction model does not only help to predict visitor volumes but also to identify the dominant factors influencing travel decisions. Such a model provides valuable insights for transportation planning and traffic management around the market area, which in turn can improve mobility efficiency, reduce congestion impacts, and enhance service quality.
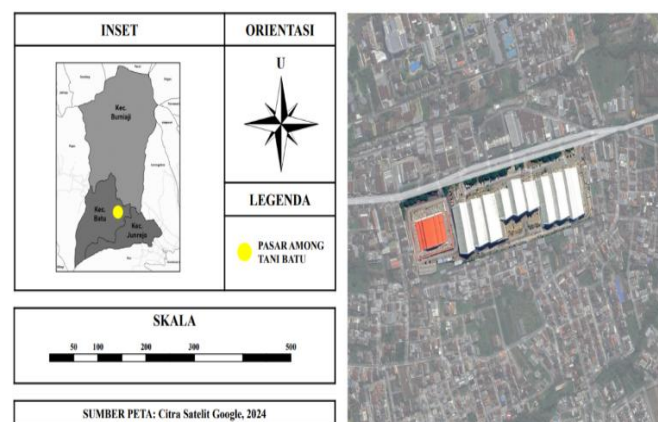
Previous studies have demonstrated that various factors affect trip attraction to markets. For instance, according to Ramos & Cuamea (2023) the attractiveness of a trip to a market takes into account both internal psychological forces (push factors) and external destination attributes (pull factors) that influence an individual's trip. Niatika et al. (2018) found that family size, vehicle ownership, product availability, and product price significantly influence market trips. Anugrah et al. (2023) identified gender, monthly income, and product availability as significant determinants of trip volumes. Pratiwi et al. (2022) in their study on Aur Kuning Market, revealed that travel time, product price, product availability, and parking area size were dominant factors in attracting visitors. Similarly, Meidiaa et al. (2018) highlighted that family size, number of vehicles, group travel, and travel time were the main determinants of trip attraction. Goet (2021) research highlights that pull factors, including the availability of recreational facilities, cultural attractions, and the overall marketed destination image, are crucial in determining visitor choices. In this regard, Soldatenko et al. (2023) emphasizes that understanding tourist preferences, motivations, and behaviors is crucial to ensuring successful destination marketing and development, as these factors directly influence tourist perceptions and expectations.

While these findings suggest that trip attraction to markets is influenced by a wide range of socio-economic and travel-related factors, research gaps remain. Most previous studies were conducted in traditional markets with limited scale and facilities. In contrast, central markets have more complex characteristics, functioning as large-scale distribution centers equipped with supporting facilities such as warehouses, market information centers, offices, loading and unloading areas, and large parking spaces (Darajad, 2011). These attributes create a more complex pattern of visitor movement compared to traditional markets. Furthermore, the geographical context of Batu City as a tourist destination adds another layer of complexity, where trips to the market are often influenced not only by shopping needs but also by tourism motivations.

This research lies in integrating visitors' socio-economic characteristics with market attributes and transportation accessibility into a single trip attraction model. This integrated approach provides a more comprehensive perspective compared to previous studies that typically focused on only one dimension, such as market facilities or visitor profiles. Moreover, this study contributes to the literature by addressing main markets in the context of medium-sized tourist cities, which remain underexplored.

Method

The research was conducted at the Among Tani Main Market, Batu City, on Jl. Dewi Sartika, Temas, Batu District, Batu City, East Java 65315. As illustrated in Fig. 1, the spatial distribution and layout of the Among Tani Main Market are shown using a satellite-based map. This figure includes an inset, legend, and orientation that allow for a clearer understanding of the market's physical context within the larger region.

Figure 1. Location Map of Among Tani Main Market

Data Collection and Sampling

Primary data were collected through a structured questionnaire survey distributed to market visitors for 12 days in February 2024. A total of 404 valid responses were obtained, consisting of 317 on-site interviews and 87 online submissions through Google Forms. According to Asmael & Kadhim (2020) and El-Sayed et al., 2023), selecting a representative sample can increase the accuracy and reliability of research results, as well as provide better insight into the phenomenon being studied. To ensure representation, respondents were selected using a simple random sampling considering key factors such as trip origin, transportation mode, and visit frequency. Where this method ensures that every member of the population has an equal chance of being selected (Winter et al., 2016). The number of samples obtained is by using the Slovin formula. Where the Slovin formula shows the effectiveness of its use in obtaining representative samples that can produce generalizable results (Hermanto et al., 2023; Suparta et al., 2019; Suryaningrum et al., 2023).

In addition to the primary data, secondary data were collected from relevant government agencies and market management authorities to support the analysis and provide contextual information about the market's facilities and operations.

Research Variable

Table 1 presents the list of variables employed in the travel demand model. The dependent variable (Y1) represents the frequency of visits, while the independent variables (X1–X20) include factors such as age, income, transportation, market facilities, and visitor satisfaction.

For that, the following variables have been determined.

Table 1. Research variable

Variable	Information
Y1	Number of visits in a month
X1	Gender
X2	Age
X3	Last education
X4	Monthly income
X5	Work
X6	Origin of the Journey
X7	Type of transportation
X8	Mileage
X9	Traveling time
X10	Transportation costs
X11	Access conditions
X12	Shop area
X13	Parking area
X14	Building area
X15	Facilities (toilet/chair/etc.)
X16	Comfort and Cleanliness
X17	Completeness of Goods

Variable	Information
X18	Price of goods
X19	The Desire to Come Back
X20	Experience Satisfaction in the Market (Asmael & Kadhim, 2020; El-Sayed et al., 2023)

Variables X1 to X5 represent the socio-economic characteristics of visitors, while variables X6 to X20 pertain to their travel-related characteristics. Within the framework of travel demand modeling in transportation, socio-economic factors-such as gender, age, education level, occupation, and monthly income-play a significant role in shaping travel behavior and preferences. Furthermore, the travel characteristics presented in the table above also contribute to understanding the patterns of visitor travel behavior to the market. Analyzing these factors is essential for informing the development of transportation services and policies that address the needs of diverse visitor profiles. This, in turn, can enhance both accessibility and user satisfaction within the transportation system.

Research Hypotheses

The hypotheses of this study are formulated in a measurable and testable form, as follows:

- H1: Travel distance has a negative and significant effect on visit frequency.
- H2: Travel time has a negative and significant effect on visit frequency.
- H3: Shop area has a positive and significant effect on visit frequency.
- H4: Parking area has a positive and significant effect on visit frequency.
- H5: Building size has a positive and significant effect on visit frequency.

Data Analysis

The analysis was conducted in two main stages: Descriptive statistics were used to describe the socio-economic and travel behavior characteristics of the respondents, including gender, age, income, trip origin, mode of transport, distance, and satisfaction levels; and Multiple linear regression analysis was applied to identify the significant factors influencing trip attraction. The regression model was estimated using the ordinary least squares (OLS) method, with the dependent variable being visit frequency.

This methodological framework ensures that the results not only describe visitor characteristics but also establish statistically valid relationships between socio-economic, accessibility, and market attributes in determining travel demand to the Among Tani main market.

Result and Discussion

Characteristic of Visitors to Among Tani Main Market

The survey of 404 respondents indicates that the Among Tani main market is primarily visited by women (61%), aged 31–40 years (37%), and dominated by high school graduates (49%). Most are self-employed (30%) with monthly incomes ranging from IDR 1–2.5 million (34%). As illustrated in Figure 2, the bar chart shows the distribution of respondent according to their socio-economic characteristic.
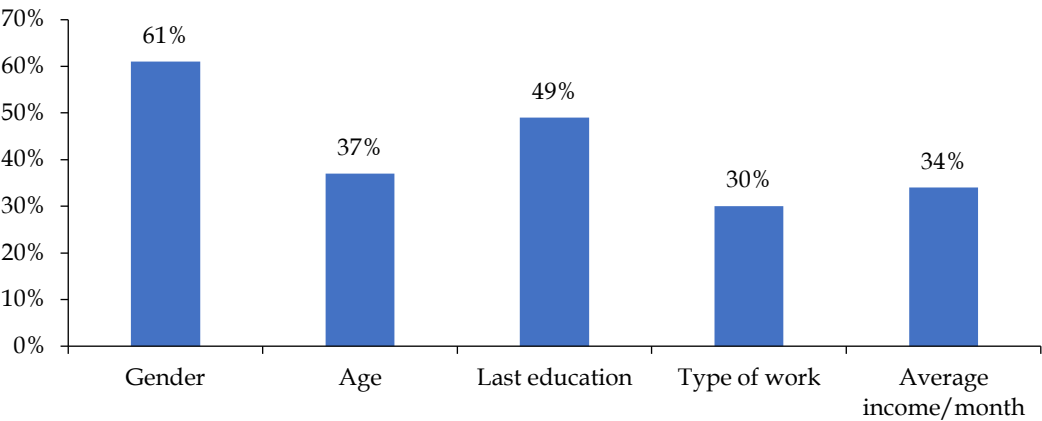

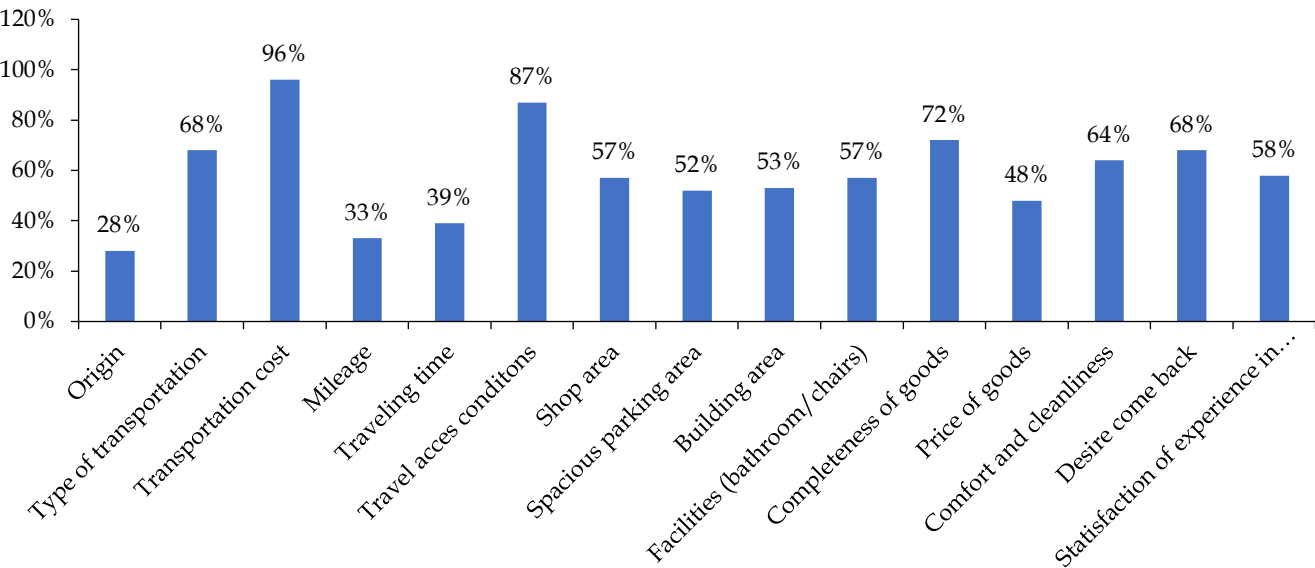**Figure 2.** Respondent socio-economic characteristic

Figure 3. Travel Characteristic

Table 2. Respondent Characteristic

Socio-economic characteristics (variable)	Dominant	Percentage (%)
Gender	Woman	61
Age	31–40	37
Last education	Senior high school	49
Type of work	Self-employed	30
Average income/month	1–2.5 million IDR	34

From the result of the surveys completed by the respondents, the following data was obtained. The travel characteristic of the visitors to Among Tani main market are shown in Table 3. As shown in Figure 3, the following bar charts illustrated the distribution of travel characteristics of visitors to the Among Tani main

market, as obtained from the survey data. The charts provide insight into the percentages of responses for different travel attributes, such as transportation type, distance, cost, and satisfaction levels.

Table 3. Travel characteristic

Travel characteristic (variable)	Dominant	Percentage (%)
Origin	Batu District	28
Type of transportation	Motorcycle	68
Transportation cost	< Rp. 100.000 thousand IDR	96
Mileage	5–10 kilometers	33
Traveling time	15–30 minute	39
Travel access conditions	Good	87

Travel characteristic (variable)	Dominant	Percentage (%)
Shop area	Wide	57
Spacious parking area	Wide	52
Building area	Wide	53
Facilities (bathroom/chairs)	Good	57
Completeness of goods	Complete	72
Price of goods	Cheap	48
Comfort and cleanliness	Comfortable and clean	64
Desire comes back	Want to go back	68
Satisfaction of experience in the market	Satisfied	58

Regression Model Trip of Attraction

In this study, data were collected on respondents' preferences through completed questionnaires. The analysis of the responses identified the key factors influencing trip attraction to the market. Table 4 displays the results of the multiple linear regression analysis used to assess the significance of each explanatory variable in influencing the frequency of market visits. It provides key statistical measures, including standardized and unstandardized coefficients and significance values.

Table 4. Multiple linear regression analysis

Model	Unstandardized coefficients B	Std. Error	Standardized coefficients Beta	t	Sig.
(Constant)	2.074	0.479	-	4.330	0.000
X1	0.050	0.059	0.044	0.847	0.398
X2	-0.049	0.043	-0.081	-1.135	0.257
X3	-0.124	0.073	-0.130	-1.695	0.091
X4	0.104	0.048	0.171	2.173	0.130
X5	0.050	0.035	0.091	1.436	0.152
X6	0.013	0.062	0.018	0.214	0.831
X7	0.257	0.072	0.227	3.553	0.267
X8	-0.240	0.068	-0.390	-3.552	0.000
X9	-0.062	0.126	-0.065	-0.492	0.001
X10	-0.028	0.128	-0.014	-0.219	0.827
X11	-0.191	0.080	-0.132	-2.395	0.067
X12	0.422	0.086	0.427	4.924	0.000
X13	0.061	0.091	0.063	0.673	0.033
X14	0.022	0.082	-0.020	-0.263	0.043
X15	0.151	0.089	0.151	1.694	0.091
X16	-0.192	0.121	-0.187	-1.577	0.116
X17	-0.043	0.067	-0.041	-0.646	0.519
X18	0.069	0.071	0.067	0.978	0.329
X19	0.004	0.077	0.004	0.052	0.959
X20	0.067	0.084	0.066	0.797	0.426

a. Dependent variable: Y

Based on the results of the analysis above, if the Sig value. < 0.05 concludes that there is a significant influence. From the analysis above, only 5 variables are significant, and 15 others are insignificant. Therefore, the linear regression calculation is obtained as follows:

$$Y = 2.074 - 0.240X_8 - 0.062X_9 + 0.422X_{12} + 0.061X_{13} + 0.043X_{14} \tag{1}$$

The interpretation of the model coefficients indicates that travel distance (X_8) has a negative effect on visit frequency, with a coefficient of -0.240. This means that for every additional 1 kilometer of travel distance, the number of visits to the market decreases by 0.24 times per month. Similarly, travel time (X_9) also negatively affects visit frequency, with a coefficient of -0.062, indicating that each additional minute of travel time reduces visits by 0.062 times per month. In contrast, kiosk area (X_{12}) has a positive influence, where an increase of 1 square meter in kiosk area leads to an increase of 0.422 visits per month. Parking lot area (X_{13}) also shows a positive relationship, with each additional square meter contributing to a rise of 0.061 visits per month. Lastly, building area (X_{14}) has a coefficient of 0.043, indicating that every 1 square meter increase in total building area results in an increase of 0.043 visits per month.

Discussion

The regression analysis demonstrates that five factors significantly influence trip attraction to the Among Tani Central Market: travel distance, travel time, shop area, parking availability, and building size. Distance and time have negative effects, while the three infrastructure-related variables positively influence visit frequency. These findings highlight the dominance of accessibility and infrastructure over socio-economic characteristics in explaining market visitation.

The negative effect of distance and time confirms that accessibility barriers discourage repeat visits. Jara-Díaz et al. (2017) showed that congestion and longer trip lengths reduce travel demand and service frequency, a finding echoed by Zhu et al. (2022), who noted that travelers adapt to avoid longer travel times, especially during peak periods. These studies reinforce the conclusion that improving travel efficiency is essential to sustain visitor demand for the market.

By contrast, infrastructure variables such as shop area, parking, and building size significantly enhance visit frequency. Zhao et al. (2020) demonstrated that land-use and retail capacity strongly shape travel demand, while Tan et al. (2019) emphasized that physical upgrading and knowledge integration in market redevelopment projects enhance urban attractiveness. The consistency of these findings with the current study highlights the critical role of market infrastructure in sustaining demand.

The importance of infrastructure also resonates with broader perspectives on entrepreneurship and urban development. Escandón-Barbosa et al. (2019) argued that institutional and infrastructural conditions create enabling environments for urban economic activity, while Reichenbach & Puhe (2018) showed that new mobility solutions only succeed when integrated into accessible and well-structured systems. For Among Tani Market, this suggests that adequate facilities and connectivity are not only operational needs but also strategic elements for long-term competitiveness.

Finally, the results align with behavioral perspectives on destination attractiveness. Li et al. (2023) demonstrated that attractiveness is shaped by infrastructure and environmentally responsible behavior, while research in Tao et al. (2022) highlighted the role of consumer perceptions in reinforcing mobility choices. Together, these studies confirm that markets such as Among Tani must integrate physical capacity with perceived accessibility to maintain their function as both wholesale hubs and shopping destinations in a tourist city.

Conclusion

This study developed a trip attraction model for the Among Tani Central Market in Batu City using data from 404 respondents. The analysis revealed that only five variables significantly influence visit frequency: travel distance and travel time with negative effects, and shop area, parking area, and building size with positive effects. Among these, shop area was identified as the most dominant factor. The findings highlight that accessibility and infrastructure play a more decisive role than socio-economic characteristics in shaping travel demand to the market. This distinguishes the Among Tani Central Market from smaller traditional markets and reflects its dual role as a wholesale hub and shopping destination in a medium-sized tourist city. From a policy perspective, the study suggests prioritizing improvements in road connectivity, parking facilities, and retail capacity to reduce congestion and enhance the attractiveness of the market. Future research should extend this approach to other central markets and incorporate trader mobility, transport mode choice, and environmental aspects to provide a more comprehensive understanding of market-related travel demand.

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