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# Promoting Green Transportation in Ho Chi Minh City: A Study on Residents' Intention to Use the Urban Railway

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## Abstract

*This study was conducted in the context of Ho Chi Minh City, which is facing urgent issues of traffic congestion and environmental pollution. With the introduction of the urban railway system (Metro), understanding the factors influencing residents' intention to use it is crucial to ensure the effectiveness and sustainability of this public transport solution. The main objective of this research is to identify and measure the impact of key factors on the intention to use the Metro. To achieve this goal, the authors employed a quantitative method through an online survey. Data were collected from 252 residents living in Ho Chi Minh City. The analysis results indicate that all five research hypotheses were accepted. The factor "Attractiveness of personal vehicles" had the strongest negative impact ($\beta = -0.339$). The factors with a positive impact included: "Perceived ease of use" ($\beta = 0.282$), "Price" ($\beta = 0.224$), "Novelty seeking" ($\beta = 0.214$), and "Environmental awareness" ($\beta = 0.134$). Based on the analysis results, the authors proposed several managerial implications to effectively encourage residents to switch to using the Metro.*

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**Institutional Review Board Statement** The study involved minimal risk and adhered to ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the policies of University of Ho Chi Minh City, Vietnam. Informed verbal consent was obtained from all participants, and all data were anonymized to ensure participant confidentiality.
**Transparency:** The author declares that the manuscript is honest, truthful and transparent, that no important aspects of the study have been omitted and that all deviations from the planned study have been made clear. This study followed all rules of writing ethics.
**Competing Interests:** The author declares that there are no conflicts of interests regarding the publication of this paper.

## 1. Introduction

The rapid urbanization and industrialization processes in developing countries have brought significant economic advancements, but at the same time, they pose serious environmental and social infrastructure challenges. One of the most common negative consequences is air pollution and traffic congestion in mega cities (Van, 2023). According to World Health Organization (2022) 99% of the global population breathes air containing pollutants exceeding permissible limits, causing millions of premature deaths each year. Alongside that, traffic congestion not only wastes time and fuel but also causes economic losses of billions of dollars annually for economies.

Ho Chi Minh City, as Vietnam's economic hub, exemplifies these challenges (Chung, Dinh, Tran, Truong, & Nguyen, 2023). The increase in both the floating population and the number of private vehicles has created enormous pressure on the already overloaded transportation infrastructure. By the end of 2023, the city managed nearly 9 million vehicles, mostly motorbikes, leading to severe and frequent traffic jams, especially during peak hours (Lan et al., 2023). This situation not only reduces residents' quality of life but also causes an estimated economic loss of about $1.5 billion per year (Huang, 2023). Moreover, the concentration of PM2.5 fine dust in Ho Chi Minh City often exceeds WHO recommended levels, becoming a primary cause of respiratory and cardiovascular diseases, directly affecting public health (Van, 2023).

To address these urban challenges, developing large-scale public transportation systems, primarily metro rail (Metro), is considered a priority and sustainable strategy (Huong, 2023). This system is expected to restructure the city's mobility model by reducing congestion and pollution, cutting carbon emissions, and

saving time for residents (Lan et al., 2023). However, investing in modern infrastructure is only a necessary condition; the project's success depends on public acceptance and usage, which is a significant challenge given the long-standing habits of private vehicle use (Kwan, Sutan, & Hashim, 2020). Therefore, shifting people's behavior toward using the Metro is a complex process that requires the system not only to demonstrate macro-level benefits but also to meet practical user expectations regarding convenience, cost, and connectivity (Huong, 2023).

This study aims to identify and evaluate the key factors influencing people's intention to choose the Metro as their transportation mode. The results are expected to provide scientific evidence and practical management implications for the urban railway management board and relevant agencies, to develop effective policies and communication strategies, thereby maximizing system usage and contributing to building a civilized and sustainable city.

## 2. Methodology

The Theory of Reasoned Action (TRA), proposed by Ajzen (2016) suggests that behavioral intention is the fundamental factor leading to specific behavior, and this intention is influenced by two main factors: an individual's attitude toward the behavior and subjective norms, which refer to the influence of the social environment. However, to address the limitations of TRA when applied to behaviors that do not entirely depend on subjective will, Ajzen (1985) developed the Theory of Planned Behavior (TPB) by adding a third factor called 'perceived behavioral control.' This factor represents the individual's self-assessment of how easy or difficult it is to perform the behavior and their ability to overcome obstacles. Alongside this, the Technology Acceptance Model (TAM), developed by Davis (1989) based on the foundation of TRA, is used to predict the likelihood of accepting a new technology. TAM focuses on two core factors: 'Perceived usefulness,' which describes the extent to which users believe the system will improve their work performance, and 'Perceived ease of use,' which indicates how easy users believe it is to operate the system (Davis, 1989).

Studies by Van (2023) and Huong (2023) as well as research conducted by Lan et al. (2023) regarding public transport mode choice behavior, have generally built upon the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA). Conversely, when analyzing technology-driven transportation modes, the Technology Acceptance Model (TAM) is frequently integrated with TPB. This is evidenced in the study on metro systems by Chung et al. (2023) and in the work of Huang (2023), where TAM served as the foundational framework for examining psychological factors influencing the intention to use autonomous vehicles.

In the present study, the authors employ a combined TPB-TAM framework as the primary theoretical basis. This choice is necessitated by the fact that the Metro system represents both a behavioral travel choice and a novel technological system for urban residents. The application of TPB is essential to decode the psychological factors, social norms, and economic constraints governing users' intentions—the central dependent variable of the model (Chung et al., 2023). Simultaneously, the integration of TAM elucidates the role of technology-specific perceptions, such as perceived ease of use and perceived usefulness, which are pivotal in shaping attitudes and adoption decisions toward new technological products (Huong, 2023). Based on this integrated foundation, the authors have developed a model and hypotheses to measure the impact of variables, including perceived ease of use, environmental awareness, pricing, the attractiveness of private vehicles, and novelty seeking on the intention to use the Metro. This approach provides a comprehensive perspective tailored to the practical context of Ho Chi Minh City.

## 3. Materials and Methods

### *3.1. Hypotheses and Research Model*

Perceived Ease of Use (PEOU) is defined as the degree to which an individual believes that using a particular system would be free of effort (Davis, 1989). Consequently, for the public to adopt and utilize the Metro system, they must perceive the mode not only as accessible but also as more convenient than existing transportation alternatives (Chung et al., 2023). The degree of ease associated with using this service directly influences the user's decision-making process (Huong, 2023).

Studies on public commuting habits indicate that ecological consciousness significantly impacts the intention to choose sustainable transport modes (Chung et al., 2023). Specifically, when individuals are aware of environmental issues and believe that Metro usage contributes to mitigating air pollution and traffic congestion, they exhibit a higher inclination and predisposition toward this mode (Huong, 2023).

However, the prevalence and inherent advantages of private vehicles—such as convenience, flexibility, and habitual familiarity—present a substantial barrier to the transition toward public transit (Van, 2023). These benefits can impede the public's decision to utilize the Metro (Beirão & Cabral, 2007). Research by Chen and Chao (2011) analyzed the influence of private vehicle habits on public transport intentions in Kaohsiung, Taiwan, where motorcycle and car usage rates were 65% and 19%, respectively. Promoting a modal shift toward public transit, such as subways, faces significant obstacles as many users maintain a strong preference for private modes (Chen & Chao, 2011). Consequently, the attractiveness of private vehicles is hypothesized to have a negative impact on the intention to use the Metro (Huong, 2023).

Travel cost remains a core determinant in the public decision-making process (Chung et al., 2023). Previous literature has consistently identified travel expenditure as a fundamental factor influencing the tendency to select the Metro as a primary mode of transport (Jung & Yoo, 2014; Park & Ha, 2006). Research in China further demonstrates that passengers are highly cost-conscious when considering Metro systems, exhibiting strong sensitivity to fare adjustments (Pan, Xu, Yang, & Yu, 2017). When fares are perceived as reasonable, affordable, and commensurate with service quality, the probability of the Metro being prioritized increases (Chung et al., 2023). Conversely, prohibitive pricing may foster negative perceptions and diminish the motivation for adoption.

Finally, novelty seeking is a psychological driver that encourages consumers to experience newly launched products or services, particularly those integrated with modern technology (Van, 2023). The Metro system, characterized by its technological innovation, modern design, and advanced utilities, is likely to capture public attention, encourage trial usage, and generate a positive initial impression (Chung et al., 2023). Based on these theoretical foundations, the following hypotheses are proposed.

*$H_1$: Perceived ease of use has a positive impact on residents' intention to use urban rail transit.*

*$H_2$: Environmental awareness is positively associated with residents' intention to use urban rail transit.*

*$H_3$: The attractiveness of private vehicles has a negative impact on residents' intention to use urban rail transit.*

*$H_4$: Price exerts a positive influence on residents' intention to use urban rail transit.*

*$H_5$: Novelty seeking is positively correlated with residents' intention to use urban rail transit.*

The proposed research model and its corresponding hypotheses are illustrated in Figure 1.

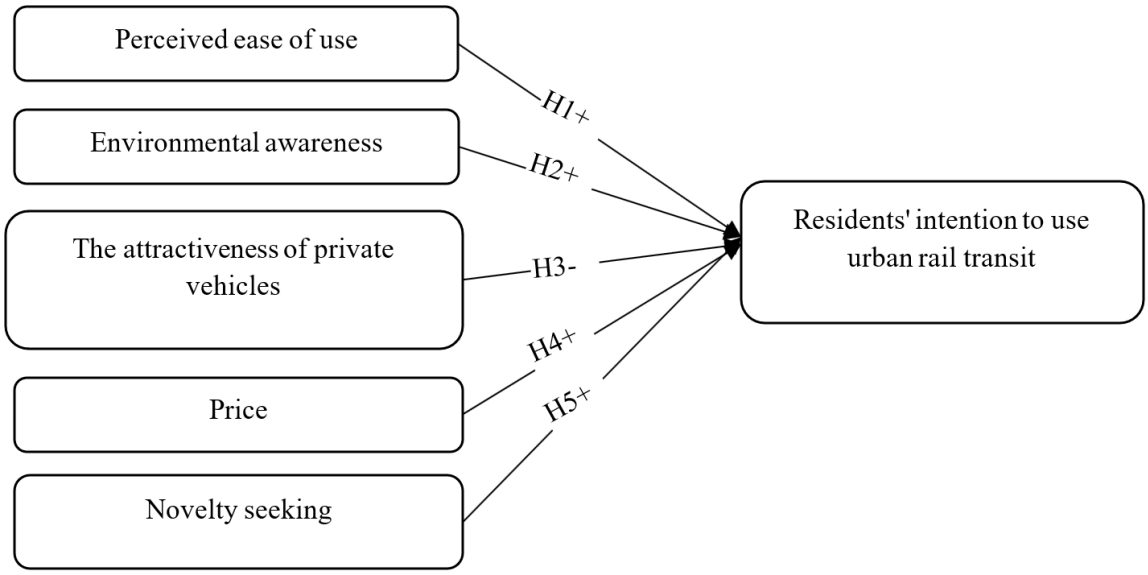


**Figure 1.** Proposed research model.

### *3.2. Measurement Scale*

The research team developed and coded the scale for the factors in the research model through a process of synthesis, inheritance, and adjustment from scientific documents and related published articles (Table 1).

**Table 1.** Scale description.

| Scale | Encryption | Observation variable | References |
|---|---|---|---|
| Perceived ease of use | PEU1 | I can easily buy a Metro train ticket if station staff assist passengers with purchasing tickets. | Huong (2023) |
| | PEU2 | I can easily access information about the train schedule through the Metro website. | |
| | PEU3 | Clear signs and instructions at the stations help me navigate to the correct train line I need to take. | |
| | PEU4 | I can easily buy train tickets when there is an easy-to-use automated ticket counter. | |
| | PEU5 | I can easily find the necessary information on the train when staff are ready to assist and provide information. | |
| Environmental awareness | EA1 | I realize that Metro helps reduce air pollution in urban areas. | Huong (2023) |
| | EA2 | I enjoy the presence of green areas near the Metro stations. | |
| | EA3 | Reduce congestion and traffic accidents by using the | |

| | | | |
|---|---|---|---|
| | | Metro | |
| | EA4 | I am always worried about increasingly dangerous and serious environmental issues. | |

**Table 1.** Continue..

| | | | |
|---|---|---|---|
| The attractiveness of private vehicles | APV1 | I think using private vehicles is more convenient than Metro. | Van (2023) |
| | APV2 | I think traveling by private vehicles is faster than the Metro. | |
| | APV3 | I think using private vehicles is more comfortable and convenient than the Metro. | |
| | APV4 | I am used to using daily private vehicles. | |
| Price | PRC1 | I think the metro train ticket is cheap. | Chung et al. (2023) |
| | PRC2 | I think it will save maintenance and repair costs for APV compared to the Metro ticket price. | |
| | PRC3 | I think the metro train ticket price is affordable for my budget. | |
| | PRC4 | I am satisfied with the price. | |
| Novelty seeking | NV1 | I want to experience something new and exciting. | Chung et al. (2023) |
| | NV2 | I think using technology apps to look up and book tickets creates a modern feeling. | |
| | NV3 | I enjoy experiencing the difference of Metro compared to using traditional transportation. | |
| | NV4 | I have the opportunity to meet and connect with others in a new space. | |
| | NV5 | I notice the way I move and the feeling of changing my daily habits. | |
| Intention to use | INT1 | I will recommend to friends and family to use Metro. | Chung et al. (2023) |
| | INT2 | I will consider choosing the Metro as my daily transportation. | |
| | INT3 | I will prioritize traveling by metro instead of other means. | |

### *3.3. Samples and Data*

The study used a convenience sampling method and collected data through an online survey form built on Google Forms. The survey was distributed and responses were gathered via popular social media platforms such as Facebook and Zalo. The survey participants were residents living in Ho Chi Minh City who have used or have a need to travel by urban railway, including age groups from under 18 to 45 years old and diverse professions such as students, office workers, and manual laborers. A total of 270 survey responses were collected; after screening, 252 valid responses were used as the main data source for analysis. A 5-point Likert scale, ranging from (1) Strongly Disagree to (5) Strongly Agree, was applied to evaluate the factors in the model. The data were processed using SPSS 22.0 software through the following steps: descriptive statistics, reliability testing of the scale, exploratory factor analysis, Pearson correlation analysis, regression analysis, T-test, and ANOVA.

## 4. Results and Discussion

### *4.1. Descriptive Statistical Results*

The descriptive statistical analysis results from 252 valid survey responses show that the study sample has a significant gender difference, with females accounting for the majority (188 people, 74.6%) compared to males (64 people, 25.4%). Regarding age, most respondents are in the 18 to 25 age group (123 people, 48.8%) and the 25 to 45 age group (95 people, 37.75%), indicating that the survey mainly targets students and workers with high mobility needs. The sample also reflects diversity in occupations, with a relatively even distribution among manual laborers (84 people, 33.3%), students (77 people, 30.6%), and office workers (75 people, 29.8%), representing perspectives from various social groups. As for the level of urban railway usage, the results show that most people use it quite frequently (31%) and occasionally (25.4%), while the percentage of those who use it very frequently is quite low (7.14%). This analysis indicates that urban trains are known by the public but are not yet the primary daily transportation mode, implying significant potential to convert infrequent users into loyal passengers.

### *4.2. Reliability Assessment Results*

According to Hair, Black, Babin, and Anderson (2010) Cronbach's Alpha coefficient is a commonly used tool to assess the reliability of measurement scales with multiple observed variables in social research. The

value of this coefficient ranges from 0 to 1, and the higher the value, the greater the reliability of the scale. A scale is considered reliable when it meets two important criteria: the overall Cronbach's Alpha coefficient must be greater than 0.6, and the total correlation coefficient must be greater than 0.3. Based on the analysis of official research data, the Cronbach's Alpha values for the 6 scales (including 5 independent factors and 1 dependent factor) are all greater than 0.6, ranging from 0.737 to 0.946. Specifically: Perceived ease of use: 0.897; Environmental awareness: 0.737; The attractiveness of private vehicles: 0.946; Price: 0.796; Novelty seeking: 0.838; Intention to use: 0.842

The correlation coefficients between the total variables of all observed variables within each scale are all greater than 0.3, ranging from 0.474 to 0.887. This result indicates that all observed variables are closely related to the overall scale. Therefore, the scales are reliable and suitable for conducting further analyses in the study.

### *4.3. Exploratory Factor Analysis Results*

According to Hair et al. (2010) important thresholds are also indicated: a coefficient of 0.5 or higher is considered practically significant, 0.4 is important, and 0.3 is viewed as the minimum acceptable threshold. The KMO index should fall within the range of 0.5 to 1 (Anderson & Gerbing, 1988). At the same time, the model is only considered meaningful when the extracted factors meet two conditions: the Eigenvalue must be greater than or equal to 1, and the total extracted variance must explain at least 50% of the data variability (Anderson & Gerbing, 1988).

**Table 2.** Results of EFA analysis.

| No | Concepts | Observation variable | Factors | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 |
| 1 | The attractiveness of private vehicles | APV3 | 0.875 | | | | |
| | | APV2 | 0.867 | | | | |
| | | APV4 | 0.852 | | | | |
| | | APV1 | 0.847 | | | | |
| 2 | Perceived ease of use | PEU5 | | 0.799 | | | |
| | | PEU3 | | 0.784 | | | |
| | | PEU1 | | 0.764 | | | |
| | | PEU4 | | 0.736 | | | |
| | | PEU2 | | 0.672 | | | |
| 3 | Novelty seeking | NV1 | | | 0.829 | | |
| | | NV4 | | | 0.774 | | |
| | | NV3 | | | 0.752 | | |
| | | NV5 | | | 0.670 | | |
| | | NV2 | | | 0.648 | | |
| 4 | Price | PRC1 | | | | 0.787 | |
| | | PRC3 | | | | 0.780 | |
| | | PRC2 | | | | 0.760 | |
| | | PRC4 | | | | 0.729 | |
| 5 | Environmental awareness | EA1 | | | | | 0.796 |
| | | EA2 | | | | | 0.743 |
| | | EA3 | | | | | 0.696 |
| | | EA4 | | | | | 0.671 |
| Total variance extracted | | | | | | 69.650% | |
| Kaiser-Meyer-Olkin | | | | | | 0.832 | |
| Bartlett's Test of Sphericity | | | | | | 0.000 | |
| Eigenvalues | | | | | | 1.387 | |

Table 2 shows that the factor loadings (FL) of the observed variables are all greater than 0.5, meeting the necessary condition for exploratory factor analysis of independent variables. This indicates that these factors are sufficient to ensure proper regression analysis. The KMO coefficient is 0.832, within the range of $0.5 \leq \text{KMO} \leq 1$, indicating that the analysis is suitable for the data. The results of Bartlett's Test have a Sig. value of $0.000 < 0.05$, meeting the criteria and demonstrating that the observed variables are closely correlated with each other in the population. The Total Variance Explained is 69.650%, exceeding the 50% threshold, which shows that these five factors explain 69.650% of the data variability. The Eigenvalues are $1.387 > 1$, satisfying the condition that this factor effectively summarizes the information.

### 4.4. Correlation Analysis Results

Pearson correlation analysis results show that all independent variables have a Sig. value of 0.000. The dependent variable, Intention to Use the Vehicle (INT), is correlated with five independent variables as follows: Perceived ease of use (PEU = 0.709), Environmental awareness (EA = 0.409), Attractiveness of Personal Vehicles (APV = 0.703), Price (PRC = 0.502), and Novelty seeking (NV = 0.589) (Table 3).

**Table 3.** Correlation analysis results.

| Correlation | | | | | | |
|---|---|---|---|---|---|---|
| **Factors** | | **INT** | **PEU** | **EA** | **APV** | **PRC** | **NV** |
| | Correlation coefficient | 1 | 0.709** | 0.409** | -0.703** | 0.502 | 0.589 |
| | Sig.(2-tailed) | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| INT | N | | 252 | 252 | 252 | 252 | 252 |

**Note:** **. Correlation is significant at the 0,01 level (2-tailed).

### 4.5. Regression Analysis

The results of the multivariate regression analysis show that the research model has a high fit and clear statistical significance. Specifically, the adjusted R-squared coefficient is 0.726, indicating that the five independent variables in the model explain 72.6% of the variance in the dependent variable, which is 'Intention to use urban railway transportation." The model is statistically significant with an F-test result of 133.977 and a Sig. value of 0.000 < 0.05. The assumptions of the regression model are also met: there is no multicollinearity issue as all Variance Inflation Factor (VIF) coefficients are below 10 (ranging from 1.163 to 1.908), and there is no autocorrelation issue as the Durbin-Watson statistic is 2.024, within the acceptable range of 1.5 to 2.5.

**Table 4.** Regression analysis results.

| | | | | |
|---|---|---|---|---|
| R | 0.855[a] | | | |
| $R^2$ | 0.731 | | | |
| Adjusted $R^2$ | 0.726 | | | |
| Sig. (F=133,977) | 0.000 | | | |
| Durbin-Waston | 2.024 | | | |
| **Model** | **Unstandardized coefficient** | **Unstandardized coefficient** | **Sig.** | |
| | **B** | **Beta** | | **VIF** |
| Constant | 0.780 | | 0.006 | |
| PEU | 0.228 | 0.282 | 0.000 | 1.908 |
| EA | 0.167 | 0.134 | 0.000 | 1.171 |
| APV | -0.205 | -0.339 | 0.000 | 1.742 |
| PRC | 0.232 | 0.224 | 0.000 | 1.163 |
| NV | 0.193 | 0.214 | 0.000 | 1.422 |

Based on the results in Table 4 the analysis shows that all five independent factors have a significant impact on usage intention (Sig. < 0.05), thereby accepting all hypotheses from H1 to H5. The standardized regression equation is determined as: INT = 0.282*PEU + 0.134*EA − 0.339*APV + 0.224*PRC + 0.214*NV. Among these, 'Attractiveness of personal transportation' (β = -0.339) has the strongest inverse effect, followed by the positive effects of 'Perceived ease of use' (β = 0.282), 'Price' (β = 0.224), 'Seeking novelty' (β = 0.214), and finally 'Environmental awareness' (β = 0.134).

### 4.6. Average Value Analysis Results

The study identified five main factors influencing people's intention to use urban rail transportation. The Environmental Awareness factor (Mean = 4.56) was rated the highest, with people strongly agreeing that the Metro helps to 'Reduce congestion and traffic accidents' (Mean = 4.65), indicating a significant concern for social benefits. Price (Mean = 4.21) is also a decisive factor, with the statement 'Ticket prices are affordable' (Mean = 4.25) rated the highest, while 'Saving on maintenance costs of personal vehicles' (Mean = 4.19) is also recognized as a benefit. The Perceived ease of use factor (Mean = 3.88) has a notable impact, with 'Clear signage and instructions' (Mean = 4.00) considered most helpful, though 'Purchasing tickets at automated booths' (Mean = 3.79) received a lower rating, indicating an area for improvement. The Novelty seeking (Mean = 3.80) is also an important motivator, as people desire 'New and exciting experiences' (Mean = 4.04), but 'Changing daily habits' (Mean = 3.63) presents a challenge. Lastly, the Attractiveness of personal vehicles (Mean = 2.21) acts as a barrier, even though people still believe that 'Personal vehicles are more convenient' (Mean = 2.30). However, the lowest agreement was with the statement 'Accustomed to using personal vehicles' (Mean = 1.92), suggesting that this habit may be potentially changeable.

### 4.7. Discussion

The factors identified in the research model all show statistically significant effects on people's intention to use urban rail transit and are consistent with theoretical frameworks as well as previous empirical studies. The differences in the level of impact of each factor may stem from disparities in context, timing, and the scale of the research sample.

Regression analysis results show that the factor "Attractiveness of personal vehicles" (β = -0.339) has the strongest inverse effect on the intention to use urban rail. This finding aligns completely with the studies of Huong (2023) and Van (2023) which also indicate that convenience and habitual use of personal vehicles are major barriers to switching to public transportation. This suggests that when owning and using personal vehicles remains easy, the intention to choose public transportation, such as Metro, decreases. The factor "Perceived ease of use" (β = 0.282) is identified as having a significant positive influence on the intention to use, consistent with the research results of Chung et al. (2023). When people perceive the metro system as accessible, with clear information and simple procedures, they are more likely to choose this mode of transportation. Conversely, any barriers in accessing and using the service can reduce people's intention. Similarly, the factor "Price" (β = 0.224) also shows a positive relationship with the intention to use. This result reinforces the findings of Huong (2023) and Chung et al. (2023) confirming that reasonable ticket pricing, aligned with the affordability of most people, is a key factor in attracting passengers. Cost differences compared to other transportation modes are an important consideration in people's travel decisions. The factor "Seeking novelty" (β = 0.214) also has a positive impact on the intention to use, which is consistent with the study by Chung et al. (2023). The urban rail system, with modern technology, innovative design, and advanced utilities, attracts curiosity and interest, especially among the younger population. Finally, "Environmental awareness" (β = 0.134) shows a positive relationship with the intention to use, although it has the weakest impact among the five factors. This result continues to support previous studies by Dung (2012); Huong (2023) and Chung et al. (2023). As people's awareness of issues such as air pollution and climate change increases, they tend to prioritize sustainable transportation solutions, and urban rail is an attractive option.

## 5. Conclusion

This study aims to evaluate the factors influencing the intention to use urban rail, including: Perceived ease of use, Environmental awareness, Attractiveness of personal vehicles, Price, and Novelty seeking. Through a quantitative research method with 252 valid survey samples, the study confirmed that all five factors have an impact on the intention to use. Regression analysis results show that the model is statistically significant, with an adjusted $R^2$ of 0.726, indicating that the independent variables explain 72.6% of the variance in the intention to use. All five hypotheses were accepted. Among them, "Attractiveness of personal vehicles" is the most strongly negative factor (β = -0.339). The positive influencing factors in order from strongest to weakest are: "Perceived ease of use" (β = 0.282), 'Price' (β = 0.224), 'Novelty seeking' (β = 0.214), and 'Environmental awareness' (β = 0.134).

Based on the research findings, to enhance the intention to use urban rail, management implications need to be implemented in a synchronized manner, starting with addressing the biggest barrier: the "Attractiveness of private vehicles" (β = -0.339). To achieve this, the metro system must build a superior value chain to directly compete with the convenience of private transportation. First, focus should be placed on the core foundation of 'Perceived ease of use' (β = 0.282) by ensuring that information systems, signage, and ticketing processes are intuitive and accessible to all citizens. Simultaneously, a reasonable, transparent, and income-appropriate "Price" policy (β = 0.224) will create a practical competitive advantage, encouraging residents to consider switching modes of transportation. On this convenient and economical foundation, managers should further cultivate emotional values by leveraging the "Novelty seeking" factor (β = 0.214) through designing modern, creative spaces and integrating technology to create unique experiences. Finally, efforts should be made to promote awareness of the 'Environmental awareness' (β = 0.134), emphasizing the role of the metro in reducing congestion and pollution, thereby building an image of a civilized, sustainable transportation option.

However, this study still has some limitations. The sample size and scope are not large enough or diverse enough to fully reflect travel habits across the entire city. Additionally, the analysis scope does not comprehensively cover external factors that have a profound impact, such as the city's transportation development policies, socio-economic fluctuations, or sustainable development trends. The research also lacks an in-depth understanding of the process of perception formation and the influence of social culture on community transportation choices, creating a gap for more detailed studies in the future.

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