

Enhancing Non-Fare Box Revenue of Light Rail Transit (LRT) in South Sumatra

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Abstract

Rail-based transportation, such as Light Rail Transit (LRT), has emerged as an essential solution to address congestion issues and enhance mobility in urban areas. In this context, Palembang has recorded the fastest growth in transportation in Indonesia. Revenue from tickets (farebox) contributes significantly. However, the financial sustainability of LRT can be explored and enhanced from the potential for non-farebox revenue, which includes advertising, rental of commercial spaces, and collaboration with the private sector. This study indicates that utilizing existing assets can develop a business model, such as additional income streams. Strategies for optimizing non-farebox revenue around LRT stations through space rentals, advertising, and partnerships with small and medium enterprises (UMKM) must be considered to maintain affordable fares while ensuring service quality. Although Palembang's LRT revenue still relies on ticket sales, developing businesses and utilizing assets around the stations are necessary steps to diversify revenue sources. Implementing e-commerce business models in the transportation sector also offers significant potential to enhance non-farebox revenue. This research is expected to provide deep insights and recommendations for LRT management and local government in optimizing revenue sources and improving.. the public transportation user experience in South Sumatra.

Keywords

Light Rail Transit, Public transportation systems, Urban areas, Revenue, E-commerce

1. Introduction

1.1. Background

Transportation based on rail, such as Light Rail Transit (LRT), has become essential in overcoming the congestion problem and increasing mobility in urban areas. Wiraguna (2020) stated that transport in Palembang City has grown fastest in Indonesia. LRT in Palembang seeks other income from tickets (farebox), such as potential non-farebox revenue, which includes various sources of income that do not originate from selling Tickets, like advertising, and rental commercial rooms. Collaboration with the private sector is very significant and should be explored further. Non-farebox revenue is key to the sustainable financial system of public transportation. Palembang's LRT can develop a business model to earn additional income from advertising, rental space, and other commercial services by utilizing the existing assets. Nurnadhifa and Latifah (2021) stated that reinforcement of non-farebox revenue through

advertising, rental space, and partnerships with UMKM is essential for financial sustainability besides ticket selling, especially remembering the challenge of maintaining affordable rates while ensuring quality service. (Fajri, 2023) At the LRT Station, there are a lot of opportunities to utilize available spaces for various commercial activities. For example, stations can function as locations for outlet retail, cafes, or places of promoted products. With the increasing number of passengers and users of LRT, potential non-farebox revenue can contribute significantly to the sustainability of the financial project. In addition, this revenue utilization strategy can strengthen cooperation between local governments and the private sector, and create new jobs for the local community.

Palembang LRT revenue is still very dependent on ticket sales (fareboxes), while the potential for non-farebox revenue has not been optimized. Business development and asset utilization around LRT stations through the concept of diversifying revenue sources besides tickets are necessary for the digestion of the public transportation system (Fajri 2023). Non-farebox revenue, which includes advertising, commercial space rental, and collaboration with the private sector, can be a significant additional source of revenue in TOD development. Optimization of this revenue is highly dependent on the utilization of available space at the station and along the line" (Gunawan et al. 2020). However, business development in the Palembang LRT station area must consider various applicable rules and regulations, such as the Palembang City Spatial Plan (RTRW), Regional Regulations related to TOD development, and Mayoral Regulations or Governor's regulations regarding the utilization and management of assets at LRT stations.

The suitability of the business potential that can be developed with existing regulations is an essential factor in optimizing non-farebox revenue and supporting the termination of Palembang LRT operations. Understanding and awareness of the importance of e-commerce business with its various models among business actors is still low, and implementation, especially in the tourism industry, is not optimal, so it cannot improve company performance. The e-commerce business model offers the potential to create significant non-farebox revenue through the development of digital-based services and products (Awa et al., 2024) The development of the Jakarta MRT shows that it does not only rely on revenue from ticket sales but also develops a business system that strengthens non-farebox revenue, which in 2020 managed to reach IDR 383 billion, exceeding the target set (Nurnadhifa & Latifah 2021).

Therefore, it is necessary to analyze deeply the potential of non-farebox revenue in Ampera station.

The primary aim of this study is to analyze the potential for non-farebox revenue generation from Light Rail Transit (LRT) in Palembang and to develop strategies for optimizing these revenue streams. While Palembang's LRT system currently relies heavily on ticket sales (farebox revenue), the research seeks to explore alternative sources of income such as advertising, rental of commercial spaces, and partnerships with small and medium enterprises (UMKM).

1.2. Literature Review

Non-farebox revenue refers to all revenue sources, that did not come from public transportation ticket sales. According to some studies, this revenue can include advertising, space rental, and collaboration with the private sector. This is important for the financial sustainability of the transportation system, especially in developing countries like Indonesia. Several studies have shown that dependence on farebox revenue can limit the ability of a transportation system to operate efficiently. Non-farebox revenue can provide greater financial flexibility and reduce the risk of revenue instability due to fluctuations in passenger numbers. Non-farebox revenue is an essential strategy to reduce the dependence of transportation companies on revenue from passenger and freight transport services. One alternative to non-farebox revenue by optimizing the use of company assets can increase revenue value and strengthen its financial position in a competitive market (Darmawan et al. 2024)

Transit Oriented Development (TOD) is an integrated approach that physically and functionally connects transit systems with surrounding development, to create dense, vibrant, sustainable, and walkable areas. TOD developments can provide opportunities to increase non-farebox revenues through the use of commercial space around stations" (Mlysha, n.d.). Benefits of TOD include increased ridership and fare revenues, neighborhood revitalization, and improved access to transportation options (Cappellano & Spisto 2014). TOD can increase land values around stations and create significant non-farebox revenue potential through commercial property development.

Before implementing a non-farebox revenue strategy, it is essential to consider existing regulations. According to the implementing Regional Regulation, land development and use of public assets must be in accordance with the Regional Spatial Plan (RTRW) (Palembang City Government, 2021). This provides a framework to ensure that development efforts do not conflict with the public interests.

2. Methods

This study uses a literature-based qualitative approach, focusing on secondary data analysis. This approach aims to explore the potential for non-farebox revenue from the LRT in South Sumatra by using the existing data.

The study was carried out as the following flow chart in Figure 1.

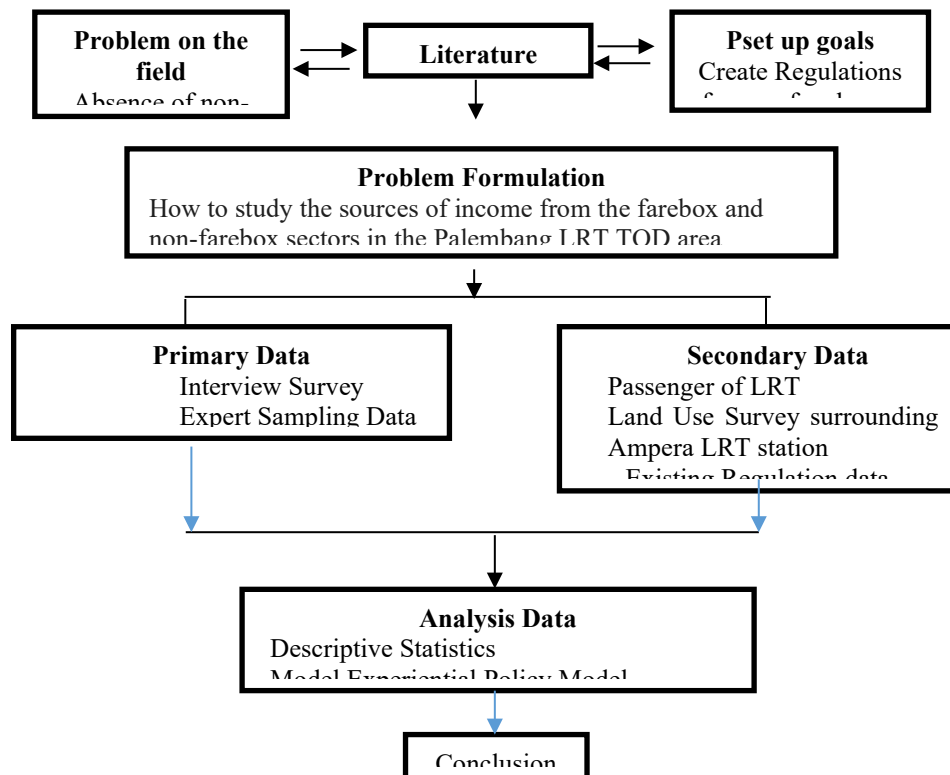


Figure 1. Flow chart of research

3. Results and Discussion

3.1 Better understanding of how Palembang LRT can adapt to best practices from other transportation systems.

LRT Palembang can learn from other transportation systems by implementing some best practices that have proven effective. Here are some ways in which LRT Palembang can adapt:

- a. Non-Farebox Revenue Model: Examples from Japan and Singapore:
Transportation systems in Japan and Singapore rely on significant non-farebox revenue from advertising, commercial space rentals, and partnerships with MSMEs. Palembang LRT could adopt this model by providing space for advertising and commercial areas at stations.
- b. Transportation Integration
Lessons from Europe: Many European cities integrate various modes of transportation (bus, train, bicycle) to provide easy access for users. Palembang LRT can collaborate with other transportation service providers to create an integrated ticketing system.
- c. Use of Technology
Digital Innovation: Adopting technologies such as mobile apps to make it easier for users to purchase tickets, get travel information, and monitor schedules in real-time. This can also increase user engagement.

- d. **Effective Marketing Strategy**
Example from Singapore's Rail System: Aggressive and educational marketing about the benefits of using public transport can increase ridership. Palembang LRT needs to conduct a campaign that emphasizes the financial and environmental benefits of using public transport.
- e. **Public Participation**
Community Initiatives: Inviting the community to participate in decision-making regarding LRT development, such as Community Based Development (CBD forums or surveys. This can increase ownership and support for the project.
- f. **Focus on Service Quality**
High Service Standards: Implementing high standards in customer service, including cleanliness, punctuality, and comfort, which are implemented by many advanced transportation systems. Regular staff training is also important.
- g. **Sustainable Practices**
Examples of Eco-Cities: Adopting sustainable practices such as renewable energy and waste reduction can attract the attention of an increasingly environmentally conscious community.

3.2 SWOT analysis of non-farebox revenue development at South Sumatra LRT Station

Conduct a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to evaluate the strengths and weaknesses of the Palembang LRT system as well as the opportunities and threats in developing non-farebox revenue.

a. Strengths

The modern and efficient infrastructure owned by LRT Stations attracts users who prioritize comfort, supported by strong support from local and central governments in the development of public transportation, including funding and policies. LRT connectivity that connects various important areas in Palembang facilitates access for users and increases potential revenue from advertisers. In addition, increasing public awareness of the importance of using environmentally friendly public transportation provides an opportunity to attract more users.

b. Weaknesses

The weaknesses of LRT for non-farebox business development include dependence on ticket revenue which can reduce financial stability. In addition, there are limitations in the development of commercial areas, where space for businesses in and around the station may be limited, reducing the potential for non-farebox revenue. Lack of brand awareness is also a challenge, because the public may still be less familiar with LRT services and benefits, which can affect the number of users. Finally, varying service quality between stations can affect the user experience, creating dissatisfaction that has the potential to harm users and revenue.

c. Opportunities

The opportunities for non-farebox revenue for Palembang LRT are wide open, especially through several strategies that can be implemented. First, increasing cooperation with MSMEs to open outlets and kiosks at stations can create significant new sources of income. In addition, revenue diversification is also key by developing various non-farebox sources, such as digital advertising, space rentals, and sponsorships. Cooperation with other modes of transportation to create an integrated ticketing system can attract more users, thereby increasing accessibility and comfort for passengers. Finally, the development of digital technology can be utilized to improve marketing and provide easy access to information for users, which in turn can encourage the growth of non-farebox revenue for the Palembang LRT.

d. Threats

Threats to non-farebox revenue for the Palembang LRT include several factors that can affect its performance. First, competition from other modes of transportation, such as buses, online motorcycle taxis, and private vehicles, can reduce the number of LRT users, which has a direct impact on potential income. In addition, economic fluctuations that occur, such as changes in economic conditions that affect people's purchasing power, can also have a negative impact on the use of public transportation. Inconsistent changes in government policies or new regulations that are implemented can hinder the development and operation of the LRT, thereby affecting non-farebox revenue. Finally, health and environmental crises, such as pandemics or natural disasters, can reduce public confidence in using public transportation, potentially reducing the number of riders and revenue generated from non-farebox services.

3.3 Potential Non-Farebox Revenue for South Sumatra LRT

Revenue generated by a transportation system, such as LRT (Light Rail Transit), from sources other than ticket sales or travel fares. This includes various forms of revenue that can support the financial sustainability of the transportation system.

Table 1. Data on the number of LRT passengers in 2019-2024

No	Station	Passenger in 2023	Passenger in 2024
1	Bandara	347.237	315.543
2	Asrama Haji	740.531	824.988
3	Punti Kayu	169.484	188.478
4	RSUD	143.500	155.287
5	Garuda Dempo	130.693	136.556
6	Demang	208.630	229.889
7	Bumi Sriwijaya	462.762	478.316
8	Dishub	73.245	75.637
9	Cinde	184.596	193.416
10	Ampera	583.515	665.929
11	Polresta	302.241	328.608
12	Jakabaring	159.586	150.391
13	DJKA	576.682	607.179
	Total	4.082.702	4.350.217

The table above shows significant passenger potential, with the number of passengers expected to increase from 4,082,702 in 2023 to 4,350,217 in 2024. This increase creates opportunities to develop various non-farebox businesses. With increasing passenger numbers at busier stations, there is a potential opportunity for more tenants, increasing advertising rents, and business space.

a. Retail and Commercial

Manage commercial space within the station for retail stores, cafes, and restaurants. With high passenger numbers, the station can be a strategic location for various food and beverage outlets. A variety of food offerings can attract the attention of waiting passengers.



Figure 2. Non-farebox tenant revenue

Non-farebox revenue through tenants shows a positive trend from year to year. The surge in 2021 to 2023 shows great potential, and if managed well, this can be a sustainable source of income for LRT South Sumatra. Focus on further development and strategic partnerships will be essential to sustain this growth.

b. Rental Space

Space at the station can be rented out for business purposes, such as kiosks or meeting rooms. This can increase stable non-farebox revenue.



Figure 2 (a). Non-farebox income from rental photography room

Non-farebox revenue through photography room rental in 2021 was very low, in the following year the revenue remained low, possibly due to lack of promotion or facilities available for rental. The revenue trend from photography room rental shows significant growth, especially in 2023. This shows that there is great potential in utilizing these facilities. To maintain and increase this revenue, a more aggressive promotional strategy and facility improvement will be essential.

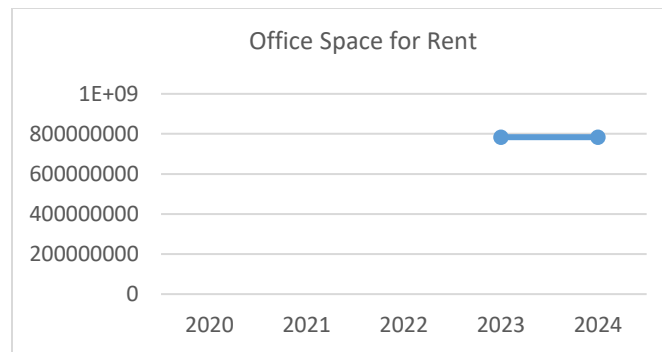


Figure 3 Non-farebox income from photography room rental

Revenue from office space rental shows consistency in 2023-2024. To increase this revenue, LRT needs to consider a more aggressive marketing strategy or improve the facilities and services offered to tenants.

a. Advertising and marketing

Ampera Station can provide advertising space in and around the station, including on trains, billboards, and digital screens, to attract companies looking to promote their products. With a high number of passengers, this is a good opportunity for advertisers to reach a wide audience.



Figure 4. Advertisement Installation Outside Ampera LRT Station

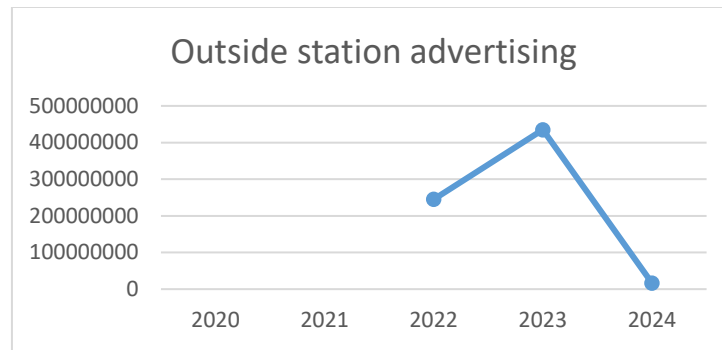


Figure 5. Non-farebox income from outside station advertising rentals

Revenue from off-station advertising rentals shows significant fluctuations, with a spike in 2023 followed by a decline in 2024. To address this decline, it is important for LRT to evaluate advertising promotion strategies, offer more attractive packages to advertisers, and identify the reasons behind the decline in interest.



Figure 6 Non-farebox income from advertising rentals in stations

In-station advertising revenue shows great potential after a significant surge in 2022. To maintain and grow this revenue, continuous marketing strategies and innovative offers to advertisers will be essential. Improving advertising facilities and spaces can also help attract more interest from advertisers.

3.4 Community Events and Activities:

Hosting events at the station or surrounding area that can attract visitors and generate revenue from sponsorships or participation.

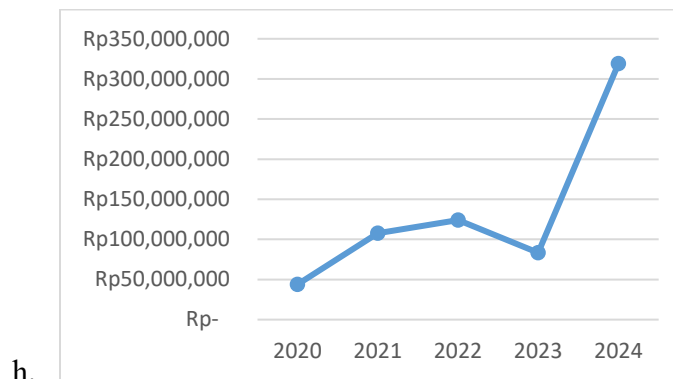


Figure 7. Current account interest income

Current account interest income shows a positive trend with a significant spike in 2024. To maintain this growth, it is important to continue to manage funds wisely and seek more profitable investment opportunities. Optimizing current account balances will also help increase overall non-farebox income.

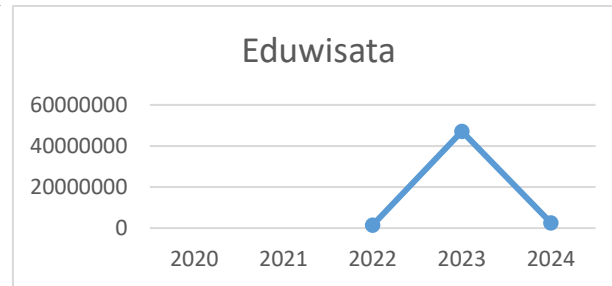


Figure 8. Income from nonfarebox edutourism

Revenue from educational tourism shows significant fluctuations, with a spike in 2023 followed by a decline in 2024. To overcome this decline, it is important to evaluate and update educational tourism programs, increase promotions, and consider collaboration with schools or educational institutions to attract more participants.

3.5 Recommended Strategy to increase non-farebox revenue.

In an effort to maximize the potential of non-farebox revenue, it is important to formulate effective and innovative strategies. Strategy recommendations are designed to increase non-farebox revenue. By considering existing data analysis and market trends.

a. Situation and Needs Analysis

- Conduct an in-depth study of market needs and potential non-farebox revenue.
- Identify types of non-farebox revenue that can be implemented, such as advertising, space rental, and partnerships with MSMEs.

b. Strategic Plan Development

- Prepare a strategic plan for non-farebox revenue, including goals, objectives, and success indicators.
- Integrate input from stakeholders, including local governments, MRT managers, and industry players.

c. Infrastructure Improvement

- Build or renovate commercial areas at stations to attract tenants and advertisers.
- Provide supporting facilities, such as free Wi-Fi access and comfortable spaces for visitors.

d. Partnerships and Cooperation

- Identify and establish partnerships with companies for sponsorship, advertising, and space rental.
- Collaborate with MSMEs to provide products and services in MRT commercial areas.

e. Marketing and Promotion

- Develop marketing strategies to promote available advertising space and partnerships.
- Increase transparency of information regarding services offered through websites and social media.

4. Conclusion

Potential for developing non-farebox revenues on the South Sumatra LRT, which is an important aspect for the financial sustainability of the public transportation system. Although farebox revenues are still the main source, there are significant opportunities for revenue diversification through advertising, commercial space rentals, and collaboration with the private sector, including MSMEs.

Utilization of space at stations and infrastructure improvements can attract more tenants and advertisers. In addition, cooperation with various parties and the implementation of aggressive marketing strategies are essential to increase public awareness of LRT services.

Implementing best practices from other transportation systems, as well as considering applicable regulations, the Palembang LRT can optimize non-farebox revenues.

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Biographies

Muhamad Firman Ridho, was born in Palembang on March 13, 1973. He is a Muslim who is active in various organizations and has a strong commitment to politics and social affairs. Ridho completed his elementary education at SD Negeri 167 Palembang and then continued to SMP Santo Louis and SMA Negeri 3 Palembang. After finishing his secondary education, he pursued his studies at Tridianti University Palembang to earn a Bachelor of Engineering (S1). His ambition to deepen his knowledge and skills encouraged him to continue his education at the master's level at the Bandung Institute of Technology (S2). Muhamad F. Ridho also has extensive work experience. He served as a Member of the South Sumatra Provincial DPRD from (2009-2014, 2014-2019, 2019-2024 and 2024-2029). Before entering politics from democrat party, he had a career as a director in several companies, including PT. RADIO RIDHO FM and PT. MUSI ASLI ADI PERKASA and DPD KNPI (KOMITE NASIONAL PEMUDA INDONESIA) SUMSEL 2013-2018, which honed his managerial and leadership skills.

Erika Buchari was born in Palembang on October 30th, 1960. She received her Master Degree in Highway and Transport from City University, London, UK, in 1990. She got her PhD in Multimodal Transportation from Liege University, Liege, Belgium, in 2008. Since 2011 up until now she has been a full Professor at Sriwijaya University, South Sumatera Province, Indonesia. Her research interests are in Highway, Port Management, Public Transport, and Multimodal Transport.

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Melawaty Agustien is a faculty member in the Department of Civil Engineering, Faculty of Engineering, Sriwijaya University, Indralaya, Indonesia. She holds a Ph.D. in Civil Engineering with a specialization in transportation and infrastructure planning from ITB (Institut Teknologi Bandung). Her research focuses on the development of sustainable transportation systems, road network planning. She is involved in consulting projects with government agencies and private sectors to develop more efficient and environmentally friendly transportation infrastructure. She is an active member of professional organizations in civil engineering and transportation

Kiagus Muhammad Aminuddin was an academic and professional in the field of civil engineering who was born in Palembang on March 14, 1972. He obtained his Doctoral degree in Engineering from Sriwijaya University in 2019, after completing his Master's degree at the Bandung Institute of Technology in 1998 and his Bachelor's degree at Tridianti University in Palembang in 1995. Currently, Dr. Aminuddin serves as the Head of Building and Environmental Planning at the South Sumatra Housing and Settlement Service. Previously, he gained diverse experience in key positions across various development projects, including infrastructure development for the XVIII

Asian Games in Palembang, where he served as the Deputy Director of Infrastructure. As an academic, Dr. Aminuddin actively teaches at the Faculty of Engineering at Sriwijaya University and is involved in numerous research activities and scientific publications, covering various aspects of civil engineering, particularly in steel structures and project management. He is also a member of various professional organizations, including the Indonesian Engineers Association and the American Concrete Institute. Dr. Aminuddin has received recognition for his contributions to his field, including the Satyalancana Karya Sapta X award from the President of the Republic of Indonesia in 2017 and a Certificate of Appreciation from the Olympic Council of Asia in 2018. With his expertise and dedication, he remains committed to advancing science and technology in Indonesia while contributing to sustainable infrastructure development.