

STATISTICAL ANALYSIS OF BIASED TRAIN PASSENGER SATISFACTION USING THE SERVQUAL METHOD

ANALISIS STATISTIK KEPUASAN PENUMPANG KERETA API BIAS DENGAN METODE SERVQUAL

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ABSTRACT

This study aims to analyze the level of satisfaction of train passengers using the Servqual method, which includes five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The study population was passengers of the Bias Madiun-Solo train with a sample of 100 respondents selected using bootstrap sampling techniques. Data were collected through a Likert-based questionnaire and analyzed using descriptive methods and gap analysis. The results showed the highest satisfaction score in the Assurance dimension (4.08) and the lowest in Reliability (3.90), indicating the need for improvements in the timeliness and accuracy of information. Recommendations for improvement include improving physical facilities, staff training, and optimizing information systems. This study contributes to PT Kereta Api Indonesia in improving service quality and passenger satisfaction, as well as being a reference for further research related to railway transportation.

Keywords : passenger satisfaction, Servqual method, Bias train, service quality, gap analysis

ABSTRAK

Penelitian ini bertujuan untuk menganalisis tingkat kepuasan penumpang kereta api dengan menggunakan metode Servqual, yang mencakup lima dimensi: bukti fisik (Tangibles), keandalan (Reliability), daya tanggap (Responsiveness), jaminan (Assurance), dan empati (Empathy). Populasi penelitian adalah penumpang KA Bias Madiun-Solo dengan sampel sebanyak 100 responden yang dipilih menggunakan teknik bootstrap sampling. Data dikumpulkan melalui kuesioner berbasis skala Likert dan dianalisis dengan metode deskriptif serta analisis kesenjangan (gap analysis). Hasil penelitian menunjukkan skor kepuasan tertinggi pada dimensi Assurance (4.08) dan terendah pada Reliability (3.90), mengindikasikan perlunya perbaikan dalam ketepatan waktu dan akurasi informasi. Rekomendasi perbaikan meliputi peningkatan fasilitas fisik, pelatihan staf, dan pengoptimalan sistem informasi. Penelitian ini memberikan kontribusi bagi PT Kereta Api Indonesia dalam meningkatkan kualitas layanan dan kepuasan penumpang, serta menjadi referensi bagi penelitian selanjutnya terkait transportasi kereta api.

Kata Kunci: kepuasan penumpang, metode Servqual, kereta api Bias, kualitas layanan, analisis kesenjangan

1. INTRODUCTION

Rail transport plays a crucial role in public mobility in Indonesia. As a primary mode of transportation, trains not only offer time efficiency but are also a more environmentally friendly option compared to other modes. With their extensive network and capacity to transport large numbers of passengers, trains offer an efficient and environmentally friendly alternative to other modes of transportation. According to 2022 data from the Central Statistics Agency (BPS), train usage increased by 15% between 2021 and 2022, indicating that people are increasingly relying on trains as a transportation option (BPS, 2022). In this context, passenger satisfaction is a crucial factor that can influence loyalty and frequency of train use.

Passenger satisfaction is a key factor in improving the quality of train services. Satisfied passengers are more likely to use the service repeatedly and recommend it to others. In this

context, understanding passenger satisfaction is crucial for service improvement and marketing strategies. The Servqual method, introduced by Parasuraman et al. (1988), is an effective tool for measuring customer satisfaction by comparing customer expectations with the actual service received.

Research shows that passenger satisfaction can influence their perception of service and ultimately contribute to improving a company's image (Apriyadi, 2017). Therefore, it is important to understand the factors that influence passenger satisfaction in order to improve the quality of service offered. One method frequently used to analyze passenger satisfaction is the Servqual method, which measures the gap between passengers' expectations and perceptions of the service they receive.

The Servqual method consists of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Using this method, companies can identify areas for improvement to enhance passenger satisfaction. In this article, we will analyze railway passenger satisfaction levels using the Servqual method and provide recommendations for improvement based on the analysis results. In this study, there are several research questions that need to be answered. First, what factors influence train passenger satisfaction? These factors can include service quality, ticket prices, and the facilities provided. Second, how can the Servqual method be used to analyze passenger satisfaction? This method will be used to measure the gap between passengers' expectations and perceptions of train service.

The purpose of this study is to analyze the level of satisfaction of train passengers using the Servqual method. Furthermore, this study also aims to identify factors contributing to passenger satisfaction. By understanding these factors, it is hoped that PT Kereta Api Indonesia can improve the quality of service provided to passengers. This research has significant benefits for various parties. First, for PT Kereta Api Indonesia, the results can be used as a basis for improving service quality and passenger satisfaction. By identifying areas for improvement, the company can take strategic steps to enhance its image and competitiveness. Second, for passengers, this research can provide information on the quality of service they receive, enabling them to make better decisions when choosing a mode of transportation. Finally, for academic research, the results of this study can serve as a reference for further studies related to passenger satisfaction and service quality.

Passenger satisfaction can be defined as a passenger's feelings or responses to their experiences while using a transportation service. According to Kotler and Keller (2016), satisfaction is the level of feeling a person experiences after comparing perceived performance with expectations. In the context of rail transportation, passenger satisfaction can be influenced by various factors, including service quality, ticket price, and available amenities.

Factors influencing passenger satisfaction include train cleanliness, punctuality of departures and arrivals, and the attitude of staff. A study by Apriyadi (2017) showed that punctuality and adequate facilities significantly influence train passenger satisfaction. This suggests that proper management of these factors is crucial for improving passenger satisfaction. Several factors influencing train passenger satisfaction include service reliability, comfort, safety, and ticket price. Research by Wiedyani and Prabowo (2019) shows that high service quality, including punctuality, can increase passenger satisfaction. Furthermore, adequate facilities, such as cleanliness and comfortable seating, also contribute to passenger satisfaction (Ispurwanto & Pricillia, 2011).

The SERVQUAL method is a tool used to measure service quality by comparing customer expectations and perceptions. Developed by Parasuraman, Zeithaml, and Berry in 1988, this method has been widely used in various customer satisfaction studies. SERVQUAL consists of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

The dimensions of Servqual include: Tangibles, which refers to the physical appearance of facilities, equipment, and staff. Passengers tend to judge service quality based on what they see and feel. Reliability, which is the ability to provide promised services promptly and

accurately. Reliability is one of the most important dimensions in determining passenger satisfaction. Responsiveness, which is the willingness and ability of staff to assist customers and provide prompt service. Assurance, which is the knowledge and courtesy of staff and their ability to instill trust and confidence in passengers. Empathy, which is the attention given to customers and the ability to understand their needs and expectations.

Several previous studies have explored factors influencing train passenger satisfaction. For example, Apriyadi (2017) found that punctuality and adequate facilities significantly influenced passenger satisfaction at Purwosari Station. Furthermore, Wiedyani and Prabowo (2019) concluded that service quality and price perception significantly impacted passenger satisfaction on the Argo Muria train. Recent research by Sabilla and Herman (2022) shows that service quality during the Covid-19 pandemic also influences passenger satisfaction, with an emphasis on health and safety aspects.

2. METHODS

Several previous studies have analyzed train passenger satisfaction in Indonesia and other countries. For example, research by Leliana and Oktaviastuti (2020) showed that good service quality positively impacted passenger satisfaction at Madiun Station. This finding aligns with research by Ispurwanto and Pricillia (2011), which found that the Assurance and Empathy dimensions significantly influence train passenger satisfaction. These studies provide a strong foundation for this study to further explore train passenger satisfaction in Indonesia.

This study uses a quantitative descriptive approach, which aims to measure the level of passenger satisfaction based on data obtained from a questionnaire. Using a Likert scale, respondents were asked to provide an assessment of various aspects of service based on the Servqual dimensions. The population in this study were all passengers of the Bias Madiun-Solo train. A sample of 100 respondents was taken, obtained using the bootstrap sampling technique from the original data. This technique allows researchers to obtain a better representation of a larger population.

Data collection was conducted using a questionnaire compiled on a Likert scale (1-5) to measure satisfaction levels for each Servqual dimension. Secondary data was also collected from train schedules, operational reports, and relevant literature studies.

Data analysis was conducted using descriptive analysis to calculate the average score for each dimension. Furthermore, a gap analysis was conducted to calculate the difference between passengers' expectations and perceptions of the service provided.

The Servqual formula used is:

$$SQ = \text{Perception Score} - \text{Expectation Score}$$

Weighting and ranking are also applied to determine priority dimensions for improvement based on the analysis results.

3. RESULT AND DISCUSSION

The demographic distribution of respondents shows a fairly diverse age group. Thirty-six-thirds of respondents were under 18 years old, indicating that trains are also a popular transportation option for students who frequently travel for educational purposes. For example, many students use trains to travel to school or college in other cities, reflecting the high mobility needs of the younger generation. Furthermore, another 36.36% were aged between 18 and 25, typically an active age group with diverse activities, such as work or leisure. This age range also includes many students who frequently commute between their hometowns and their places of study.

Meanwhile, 27.27% of respondents were aged 36-45, indicating that trains are also popular among adults who may use them for business trips or family purposes. For example, parents dropping their children off at school in another city or traveling on business trips out of

town. This suggests that trains are not limited to a specific age group but appeal to a wide range of people with varying needs.

In terms of gender, respondents were 45.45% male and 54.55% female. This proportion indicates that women use trains significantly, possibly due to their increasing participation in the workforce and education. For example, many women travel for work, seminars, or visits with relatives. This indicates that trains as a mode of transportation must consider the comfort and safety of female passengers, particularly in terms of facilities and services.

The frequency of train use shows that 45.45% of respondents use the train 1-2 times a month, while the other 36.36% use the train less than once a month. This data provides a clear picture of the characteristics of the passengers who are the object of the study. High usage among respondents who use the train 1-2 times a month indicates that the train is a practical and efficient choice for those who travel regularly, both for work and personal purposes. In this context, it is important to analyze the factors that influence passenger satisfaction, such as punctuality, facilities, and ticket prices, which will contribute to their loyalty to the train service.

Additionally, by understanding these demographics and usage patterns, railway operators can develop more targeted marketing strategies. For example, they could offer special discounts for students or family travel packages that appeal to adults. Thus, this demographic analysis not only provides insight into who train passengers are but also opens up opportunities to improve services and meet diverse market needs.

Thus, analyzing these respondent profiles not only provides statistical data but also creates a deeper understanding of who uses train services and what they need. This is crucial for improving service quality and, ultimately, passenger satisfaction. In conclusion, a deeper understanding of passenger demographics and behavior can provide a solid foundation for developing better service strategies, thereby increasing passenger satisfaction and loyalty to train services.

Servqual's dimensional analysis is a very useful tool for evaluating service quality in various sectors, including transportation, especially railways. In this context, we see the analysis results showing that the average score for the Tangibles dimension is 4.08. This score indicates that the physical facilities of trains and stations, such as cleanliness, comfort, and design, are in the good category. For example, comfortable seats, clean waiting areas, and well-maintained restroom facilities provide a positive experience for passengers. The availability of clear information at stations, such as well-functioning information boards and easy-to-understand directions, are also determining factors in this dimension.

However, while the Tangibles score showed good performance, the Reliability dimension scored lower, at 3.90. This indicates room for improvement, particularly in terms of the timeliness and accuracy of information conveyed to passengers. For example, if trains are frequently delayed, this can significantly reduce passenger satisfaction levels. Passengers who rely on trains for essential travel, such as attending meetings or family events, naturally feel stressed if schedules cannot be adhered to. Therefore, it is important for railway operators to improve their time management and communication systems, so that passengers always receive the latest information regarding train departures and arrivals.

Furthermore, the Responsiveness dimension, which reflects the staff's ability to provide service quickly and efficiently, also scored quite well. However, while this score indicates efforts to respond to passenger needs, several aspects still require attention. For example, in emergency situations or when there are technical problems, a quick and appropriate response from staff is crucial. Passengers will feel safer and more comfortable if they know that staff are ready to assist them at any time. Therefore, ongoing training for staff on how to handle emergency situations and improving their communication skills is crucial.

The Assurance dimension, which relates to the knowledge and courtesy of staff and their ability to inspire trust in passengers, also scored well. Passengers tend to feel more

comfortable and secure when they know they are being served by professional and experienced staff. For example, staff who wear neat uniforms and have a friendly demeanor can make a positive impression on passengers. However, there is still room for improvement in staff training and development to enable them to provide better service and be more responsive to passenger needs.

Finally, the Empathy dimension, which reflects attention and concern for individual passenger needs, also scored quite well. However, greater attention to the passenger experience could improve overall satisfaction. For example, providing special services for passengers with special needs, such as wheelchairs for the disabled or priority service for the elderly, can demonstrate that the railway company cares about all passengers. This will not only increase satisfaction but also build passenger loyalty to the service provided.

Overall, the Servqual dimension analysis shows that while some aspects are already good, there is still significant room for improvement in railway services. Improving punctuality, information accuracy, responsiveness, and attention to individual passenger needs are steps that can be taken to improve overall passenger satisfaction. By making improvements in these areas, railway companies will not only increase passenger satisfaction levels but also build a better reputation and increase customer loyalty in the future.

In conclusion, it is crucial to continuously monitor and evaluate service quality using tools like Servqual. This way, railway companies can better understand passenger needs and expectations and make necessary improvements to create a better travel experience. Improving service quality will not only benefit passengers but also contribute to the sustainability and growth of the railway industry as a whole.

Passenger satisfaction is a key indicator in assessing the quality of service provided by transportation providers, particularly railways. In this context, the analysis shows that the dimension with the lowest score is Reliability, which refers to the timeliness and accuracy of information. This indicates that significant issues remain in the service provided to passengers. These gaps in service not only impact the passenger experience but can also affect the image and reputation of the railway company itself.

One factor contributing to low passenger satisfaction related to the Reliability dimension is a lack of coordination in train operations. Good coordination between various operational aspects, including departure schedules, crew arrangements, and train maintenance, is crucial to ensuring smooth service. For example, if departure schedules are not followed properly, passengers can experience significant delays, which will undoubtedly disrupt their travel plans. These delays are often caused by unforeseen technical issues, but can also be caused by a lack of communication between those responsible for train management.

Furthermore, a suboptimal information system is also a major factor in reducing passenger satisfaction levels. In today's digital age, fast and accurate access to information is crucial. Passengers need clear information about train departure and arrival schedules, as well as information regarding potential changes. Inaccurate or delayed information delivery can lead to confusion and frustration among passengers. For example, if passengers don't receive accurate information about schedule changes, they may arrive at the station at the wrong time, ultimately causing them to miss their train.

Findings by Wiedyani and Prabowo (2019) also indicate that punctuality is a key factor in passenger satisfaction. Passengers want to feel confident that they can rely on train services to arrive on time. Uncertainty in this regard can make passengers feel uncomfortable and reduce their trust in the service provided. In the long run, this can cause passengers to switch to other modes of transportation perceived as more reliable.

Furthermore, it's crucial to conduct an in-depth analysis of the factors that influence the timeliness and accuracy of information. One step that can be taken is to audit existing operational procedures. By identifying weak points in operational processes, companies can take appropriate action to correct existing deficiencies. For example, if delays are frequently

occurring on a particular route, the company can evaluate the contributing factors, such as track conditions, maintenance schedules, or even weather.

Furthermore, the implementation of more sophisticated information technology can also help improve the accuracy of information delivered to passengers. Using a mobile app that provides real-time information on train schedules, delays, and other changes can be extremely helpful for passengers in planning their trips. These apps can also include notification features that will notify passengers immediately of any changes, eliminating the worry of missing important information.

In this context, it's also important to involve passengers in the service evaluation process. Gathering feedback from passengers can provide valuable insights into their experiences and areas for improvement. Methods such as passenger satisfaction surveys or discussion forums can be used to solicit constructive feedback. By involving passengers in this process, companies not only demonstrate their concern for the customer experience but can also identify issues that might otherwise go unnoticed by management.

In conclusion, identifying service gaps in the reliability dimension is a crucial first step in improving rail passenger satisfaction. By understanding the factors contributing to low satisfaction, such as lack of operational coordination and suboptimal information systems, companies can take appropriate steps to improve service. Implementing better information technology, conducting in-depth operational audits, and gathering passenger feedback are some strategies that can be implemented to address these issues. In this way, railway companies can not only improve passenger satisfaction but also build long-term customer trust and loyalty.

Based on the analysis of train passenger satisfaction, several recommendations for improvement can be proposed to enhance service quality. These recommendations aim not only to improve the passenger experience but also to create a more efficient and responsive transportation system to the public's needs. In this discussion, we will explore each dimension that needs improvement: Tangibles, Reliability, and Empathy, providing descriptive details, examples, and in-depth analysis for each aspect.

First, to improve the Tangibles dimension, which encompasses the physical aspects of service, improvements to station and train facilities are necessary. This includes cleanliness and seating comfort. For example, at Purwosari Station, many passengers complained about the poorly maintained and unclean toilets. Improving hygiene facilities, such as having cleaning staff regularly clean public areas, can improve passenger perceptions of service quality. Furthermore, seating comfort also needs to be addressed. Passengers often find cramped and less ergonomic seats uncomfortable. Replacing seats with more comfortable designs and providing sufficient space can increase passenger satisfaction. For example, trains in developed countries are often equipped with adjustable seats and more legroom, making the journey more enjoyable.

Second, for the Reliability dimension, it is recommended that train operators improve the punctuality of arrivals and departures. Punctuality is one of the main factors affecting passenger satisfaction. Passengers on the Argo Muria train, for example, often experience unpredictable delays. To address this issue, operators need to improve their schedule management system and ensure that all trains operate according to the scheduled times. Furthermore, improving the schedule information system to be more accurate and real-time is also crucial. Passengers need to receive accurate information regarding departure and arrival schedules through mobile applications or digital information boards at stations. With clear and accurate information, passengers can better plan their trips, which ultimately increases their satisfaction.

Third, to improve the Empathy dimension, training staff to understand passenger needs is essential. Friendly and responsive staff can make passengers feel more valued and cared for. For example, staff at stations and trains need to be trained on how to communicate

effectively with passengers, including how to handle complaints effectively. In many cases, passengers feel dissatisfied when their complaints are not taken seriously. Therefore, it is important to create a service culture oriented towards customer satisfaction. Good examples can be seen in several airlines that prioritize customer service training, where they prioritize passenger satisfaction as part of their company mission.

From the analysis above, it is clear that improvements in the Tangibles, Reliability, and Empathy dimensions will have a significant impact on passenger satisfaction. By addressing these aspects, train operators will not only improve the quality of their services but also foster loyalty among passengers. Satisfied passengers are more likely to recommend the service to others, thereby helping to increase the number of train users. Furthermore, these improvements will also create a positive image for train operators in the eyes of the public.

In conclusion, the improvement recommendations outlined above are crucial to implement. Improving physical facilities, punctuality, and service quality through staff training are strategic steps that can be taken to increase passenger satisfaction. By focusing on passenger needs and expectations, train operators can create a better travel experience, which will ultimately contribute to the growth and sustainability of the rail transportation industry in Indonesia.

4. CONCLUSION

The overall passenger satisfaction rating for the Bias Madiun-Solo train showed a score of 4.01, which is in the good category. This reflects that while the service provided by the train operator is adequate, there is still room for significant improvement. The Assurance dimension, which received the highest score, indicates that passengers feel safe and confident in the service provided. This is a positive indicator, as this trust can increase passenger loyalty and attract more service users in the future. However, it is important not to neglect other dimensions, especially Reliability and Empathy, which require special attention to improve service quality.

Reliability is a key factor in the transportation industry. Passengers expect trains to operate on schedule and provide consistent service. Uncertainty about punctuality can lead to significant dissatisfaction. For example, if a train is late, passengers not only experience inconvenience but can also miss important opportunities, such as meetings or connecting trips. Therefore, it is crucial for train operators to identify the causes of delays and implement effective solutions, such as improved schedule management and infrastructure maintenance.

Empathy, or caring, is also a crucial aspect of creating a positive passenger experience. Passengers want to feel cared for and appreciated, especially in uncomfortable situations. For example, when issues such as delays or facility damage occur, a quick and empathetic response from staff can make a significant difference in passengers' perceptions of the service. Staff training in communication and customer service can help improve this dimension, making passengers feel more valued and understood.

SUGGESTION

Given the importance of improving these two dimensions, train operators are advised to conduct regular surveys and gather passenger feedback. This way, they can identify areas requiring further attention and make appropriate improvements. Furthermore, developing an effective complaint management system can help passengers feel more comfortable reporting their issues, which in turn can improve their satisfaction.

For future researchers, it is recommended to develop the method with additional variables that can influence passenger satisfaction, such as price and comfort factors. Competitive and transparent ticket prices are crucial in attracting passengers, especially in an era where many transportation alternatives are available. Researchers can explore how pricing structures can influence ticket purchasing decisions and overall passenger satisfaction.

Comfort is also a crucial factor. Adequate amenities, such as comfortable seating, clean carriages, and accessibility for passengers with disabilities, can enhance the overall travel experience. Further research could explore how improving these amenities can contribute to passenger satisfaction and loyalty to train services.

In conclusion, although the passenger satisfaction level for the Madiun-Solo Bias train is in the good category, it is important for operators to continue to pay attention to and improve the Reliability and Empathy dimensions. By implementing the suggestions outlined, it is hoped that a better travel experience for passengers will be created, which will ultimately increase loyalty and usage of train services. Further research focusing on additional variables could also provide valuable insights for developing better services in the future.

5. REFERENCES

- Apriyadi, D. (2017). Analisis pengaruh ketepatan waktu, fasilitas dan harga tiket terhadap kepuasan penumpang kereta api di stasiun Purwosari. *Magistra*, 29(99), 73–77.
- Budiarto, B. W. (2021). Analisis kualitas pelayanan PT Kereta Api Indonesia terhadap tingkat kepuasan pengguna jasa pada stasiun Cepu [Doctoral dissertation, Universitas Gadjah Mada].
- Chalermsep, L., & Rojniruttikul, N. (2023). Factors affecting state railway of Thailand (SRT) passenger train service use decision: A structural equation model. *Heliyon*, 9(5). <https://doi.org/10.1016/j.heliyon.2023.e15534>
- Darus, M. D., & Mahalli, K. (2015). Analisis tingkat kepuasan penumpang terhadap kualitas pelayanan di Bandar Udara Internasional Kualanamu. *Jurnal Ekonomi dan Keuangan*, 3(6), 14857.
- Hanifa, N. (2012). Analisis kepuasan publik terhadap fasilitas pelayanan tiket di stasiun kereta api Medan [Doctoral dissertation, Universitas Sumatera Utara].
- Isa, M., Lubis, H. A., & Chaniago, M. (2019). Pengaruh kualitas pelayanan terhadap kepuasan penumpang menggunakan jasa angkutan penyeberangan PT. ASDP Indonesia Ferry (Persero) Cabang Sibolga. *Jesya (Jurnal Ekonomi dan Ekonomi Syariah)*, 2(2), 164–181.
- Ispurwanto, W., & Pricillia, V. W. (2011). Analisis kepuasan penumpang gerbong kereta api khusus wanita menggunakan model SERVQUAL. *Humaniora*, 2(1), 544–557.
- Khairunnisa, K., Yoeliastuti, Y., & Wibowo, E. W. (2019). Analisis harga tiket dan fasilitas transaksi terhadap kepuasan penumpang kereta api Bandara Soekarno Hatta. *Jurnal Lentera Bisnis*, 8(2), 59–75.
- Leliana, A., & Oktaviastuti, B. (2020). Analisis kepuasan penumpang kereta api terhadap angkutan umum di stasiun Madiun. *Rekayasa: Jurnal Teknik Sipil*, 5(1), 1–6.
- Mulatsih, R. (2016). Studi kepuasan penumpang kereta api Kamandaka jurusan Semarang-Purwokerto. *Jurnal Dinamika Ekonomi dan Bisnis*, 13(2).
- Ruswinda, E., Arifin, R., & Priyono, A. A. (2019). Pengaruh faktor harga, keamanan, kenyamanan dan ketepatan waktu terhadap pembelian tiket kereta api ekonomi Ac Penataran jurusan Surabaya-Malang-Blitar (Studi kasus pada penumpang kereta api ekonomi Penataran di stasiun Kota Baru Malang). **E-JRM: Elektronik Jurnal Riset Manajemen*, 8*(07).
- Sabilla, R. A. B., & Herman, H. (2022). Kepuasan penumpang terhadap kualitas pelayanan jasa kereta api di stasiun Bandung selama pandemi Covid-19 dengan metode IPA dan CSI. *Journal of Sustainable Construction*, 2(1), 1–12.
- Tian, Z., Zhang, R., Sun, G., & Cheng, D. (2020). Coordinated optimization of departure time domains of multiple trains at a station based on passenger satisfaction. *Journal of Control Science and Engineering*, 2020. <https://doi.org/10.1155/2020/1868724>
- Triantoro, K., Hadi, S. P., & Suryoko, S. (2015). Pengaruh kualitas pelayanan dan harga terhadap kepuasan pelanggan pengguna jasa kereta api Menoreh kelas ekonomi studi kasus pada PT. Kereta Api Indonesia DAOP IV Semarang. *Jurnal Ilmu Administrasi Bisnis*, 4(2),

274–283.

- Widjaja, E. L., & Harianto, A. (2017). Analisa pengaruh kualitas layanan terhadap kepuasan penumpang maskapai penerbangan Batik Air [Doctoral dissertation, Petra Christian University].
- Widodo, T., & Nugroho, A. J. (2019). Analisis kualitas pelayanan terhadap kepuasan penumpang kereta api Prameks di stasiun Klaten. *Jurnal Disprotek*, 10(2), 73–85.
- Wiedyani, A. H., & Prabowo, R. E. (2019). Pengaruh kualitas layanan, persepsi harga, dan kepercayaan terhadap kepuasan penumpang kereta api Argo Muria jurusan Semarang Tawang-Jakarta Gambir.
- Zhen, F., Cao, J., & Tang, J. (2018). Exploring correlates of passenger satisfaction and service improvement priorities of the Shanghai-Nanjing High Speed Rail. *Journal of Transport and Land Use*, 11(1). <https://doi.org/10.5198/jtlu.2018.958>