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Public Transport Satisfaction as a Catalyst for Civic Engagement: Evidence from Almaty

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Abstract:

This study investigates the relationship between satisfaction with the quality of public transport in Almaty and passengers' willingness of passengers to participate in collective forms of representation, including the establishment of a Passenger Union. Using data from an online survey of 250 urban transport users, an analysis showed that a decrease in the overall satisfaction is positively associated with the intention to join the Passenger Union. These findings affirm the applicability of the Exit-Voice-Loyalty model in an urban context and expand its empirical foundation. Survey participants demonstrated interest in engaging with the future Union's activities, including financial support, contingent upon transparency, accessible information, and a well-defined governance structure. The study offers evidence-based recommendations for municipal transport authorities, highlighting the importance of institutionalized feedback mechanisms between passengers, operators, and policymakers. It is anticipated that future research employs longitudinal designs and qualitative interviews to gain deeper insights into the factors influencing passenger participation.

Keywords:
Almaty, civic engagement, passenger satisfaction, public transport governance, transport policy

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1. Introduction

In the past two decades, debates around public transport quality have shifted from performance indicators to a focus on citizen engagement in mobility governance. Research confirms that the subjective perception of trip regularity, comfort, and safety of trips affects not only the choice of mode of transport, but also citizens' support of citizens for specific network development policies (Friman & Gärling, 2001; De Oña & De Oña, 2015). However, most existing studies concentrate on individual behaviors such as loyalty, continued use, or switching to alternative modes. It is much less understood how accumulated discontent is transformed into collective forms of participation that can influence the decisions of operators and authorities through unions or passenger associations.

For cities with economies in transition, this gap becomes particularly acute. Almaty is the largest metropolis in Central Asia. It has several BRT lines and one metro line, but continues to face overcrowded buses, inconsistent service, and limited suburban accessibility. Although a large share of the population uses public transport daily, there is no institutionalized channel for passenger representation in the city. International experience illustrates the impact of formal passenger unions, ranging from Los Angeles' Bus Riders Union to the European Passengers' Federation, which advocate resource reallocation, improved schedules, and higher service standards.

Previous studies document instances in which low levels of satisfaction spurred citizens to form coalitions and stage protests (Golan-Nadir & Christensen, 2023; Summers et al., 2020). However, these works are primarily qualitative and rarely cover Central Asian cities, so it is unclear to what extent a subjective assessments of transport services reflect passengers' willingness of passengers to participate in formal associations. This gap limits both the development of Exit-Voice-Loyalty theory and the formation of an evidence base for transport policy in fast-growing megacities.

This study seeks to fill this gap by addressing the following research question:

> *To what extent does passenger satisfaction with public transport services in Almaty influence the willingness to engage in collective civic participation, particularly through joining a Passenger Union?*

For this purpose, an online survey of 250 users was conducted in November–December 2024, including 13 attributes of satisfaction attributes and indicators of expected participation. The use of the Kruskal-Wallis test and multinomial logistic regression helps to quantify the relationship between the integrated assessment of the satisfaction and the intention to participate.

This study provides a twofold contribution. Theoretically, it extends the application of Exit-Voice-Loyalty framework to the context of a post-Soviet city. In practice, it provides evidence-based recommendations to municipal authorities and operators, demonstrating which aspects of the service enhance or, conversely, reduce the demand

for an institutionalized "voice" of passengers.

Further, the article is organized as follows: Section 2 provides an overview of the Almaty context; Section 3 reviews the literature and the theoretical framework; Section 4 describes the methodology and data; Section 5 presents the results; and Section 6 discusses them in the context of the world literature and research limitations.

2. Almaty context

Almaty, Kazakhstan's former capital and largest metropolis in Central Asia, is home to over 2.3 million people (Bureau of National Statistics, 2025a). About 23% of the national GDP is generated here (Bureau of National Statistics, 2025b). The city is served by an extensive public transport network, primarily of buses (including trolleybuses), and a single metro line that opened in 2011. However, Almaty's transit system still struggles to meet demand. The bus fleet – though sizable – faces chronic overcrowding, and schedule adherence is inconsistent, partly due to traffic congestion and aging vehicles. Outlying districts and newly developed suburbs remain only partially served, reflecting "limited suburban accessibility" in the network. In effect, despite recent expansions, many commuters from peripheral neighborhoods endure long waits and multiple transfers, highlighting the gap between the well-served city core and its fringes.

Almaty's public transport system is extensive but strained. Buses and trolleybuses account for a large share of daily commuting, nearly matching the reliance on private cars, while the metro plays a comparatively minor role. This modal split reflects both heavy reliance on public transit and the growing prevalence of cars. Notably, buses lack dedicated lanes on most corridors, forcing them to sit in the same traffic as cars, thereby eroding the time advantage of public transport and reducing its attractiveness (Kosherbay et al., 2022). Some improvements have begun, such as bus rapid transit (BRT) pilots and a few dedicated bus lanes, but coverage remains limited. As a result, many who can afford to do so purchase cars for comfort and speed, while those with fewer resources must endure slower public transport out of necessity (Kosherbay et al., 2022).

In this regard, institutional challenges in transport governance are still evident. Almaty's public transport is operated by a patchwork of 20 or more private and municipal companies, which are coordinated under the city's Transport Holding. Riders have little formal voice in decision-making, a deficit which local civil society has noted.

Almaty's urban form and socio-economic landscape accentuate transportation challenges. As Kazakhstan's economic hub, the city attracts migrants seeking jobs, driving rapid peripheral growth. High inner-city housing costs push lower-income residents into far-flung suburbs. Housing prices quadrupled in Almaty between 2001 and 2015, creating a stark spatial divide (Seitz, 2020). Many working-class families live outside the city proper - in settlements like Kaskelen or Talgar - and face lengthy daily

commutes into Almaty's center. These residents are particularly dependent on public transport but often encounter limited service coverage and longer travel times. Wealthier Almaty residents, in contrast, enjoy more central locations or personal vehicles, illustrating how mobility inequalities mirror socio-economic divides. Limited access to efficient transport can restrict access to jobs and urban services for peripheral communities, reinforcing feelings of marginalization. In this context, grievances over public transportation acquire a social justice dimension, symbolizing broader disparities in urban opportunity.

The cultural and political context in Almaty influences how citizens channel their transport frustrations. Kazakhstan's civic culture has traditionally been described as "subject"- characterized by deference to authority and low direct participation—leading to historically low trust in public institutions (Abbott et al., 2010). Many citizens express skepticism that official channels will address their concerns, dampening political efficacy. However, recent trends point to a shift, especially in urban centers like Almaty. Younger and educated groups are increasingly engaging in civic life through informal and digital avenues (Baizhumakyzy et al., 2025). Social media and online platforms have become crucial outlets for public voice, enabling "networked activism" via online petitions and local issue campaigns that bypass traditional gatekeepers. Nevertheless, this evolving participatory environment also underscores the perils of excluding citizens from decision-making. Utepov et al. (2022) demonstrate that insufficient communication and transparency by local authorities on urban landscaping projects precipitate escalating environmental protest movements, highlighting the urgent need for robust public participation and social partnership mechanisms.

While the context shows why transport dissatisfaction matters in Almaty, the following section reviews existing studies and theories to place this case within the broader academic debate.

3. Literature review

3.1 The concept and measurement of passenger satisfaction with public transport

Passenger satisfaction with public transport is considered a key indicator of service quality of services provided and is the subject of close attention in the field of transport planning and management. In the literature, satisfaction is defined as a passenger's subjective sense of conformity between the expected and the actual level of service (Friman & Gärling, 2001; Eboli & Mazzulla, 2011). In particular, passenger satisfaction with public transport is defined as a subjective assessment of the quality of service by a passenger based on a comparison of expectations with the actual travel experience (Pei et al., 2006; Zhang et al., 2020). Concisely, it is a psychological state of contentment or frustration experienced by the user after comparing the expected level of transport

service with the actual perception of the service. When the service meets or exceeds expectations, passengers report satisfaction. Conversely, unmet expectations result in dissatisfaction.

Passenger satisfaction is inherently emotional and subjective, and is often considered a "response to fulfilling consumer expectations." At the same time, the quality of service is more related to the cognitive assessment of services. Oliver (2014) notes that quality assessment is a rational judgment of a service's properties. In contrast, satisfaction is an affective judgment expressing the degree of pleasure from the service experience, that is, the feeling of fulfillment (or non-fulfillment) of customer expectations. Even though in many studies the concepts of service quality and satisfaction are used interchangeably, they differ in theory. Hence, passenger satisfaction with public transport can be understood as an integral indicator reflecting the degree to which the provided transport service meets the user's expectations and needs.

This approach builds on the Expectation-Confirmation Theory, which posits that a positive discrepancy between expectations and perceptions leads to satisfaction. In contrast, a negative discrepancy leads to disappointment and decreased loyalty (Oliver, 1980).

Research shows that satisfaction is a multifaceted construct. It includes both the objective characteristics of the service and passengers' subjective feelings. Eboli and Mazzulla (2007, 2011) proposed a classification of factors affecting satisfaction into three main groups:

1) Functional factors: the regularity and adherence to the schedule, the frequency of movement, the speed and predictability of the trip.
2) Comfort and safety: availability of seats, cleanliness of the interior, crowding, driver behavior, and safety on the way.
3) Information and service components: availability of information about the service (schedules, scoreboards, applications), visual and audio support, navigation.

Each of these factors has a different effect on the overall assessment of the service. For example, reliability and schedule compliance were recognized as the most significant predictors of satisfaction in a comparative Eurobarometer study (2014) covering more than 25 EU countries. Similar conclusions were drawn in a meta-analysis by Tyrinopoulos & Antoniou (2008), which emphasized regularity, safety, and comfort as key factors generating sustained loyalty.

It should also be noted that the degree of significance of the factors can vary depending on the context: the type of transport, the length of routes, and the demographic characteristics of users. For example, Friman et al. (2020) showed that older passengers are more likely to focus on ease of boarding and a sense of safety, while younger passengers are more likely to focus on speed and information support.

The literature consistently defines passenger satisfaction with public transport as a

complex construct (De Oña & De Oña, 2015). The overall feeling of satisfaction is influenced by various aspects of the quality of the transport service's quality, and it cannot be reduced to a single factor. Usually, a set of service attributes is considered, each contributing to users' satisfaction. There is no strict universal list of such factors for all cases, but most studies emphasize similar key dimensions of the quality of public transport service. Key attributes that shape satisfaction typically include schedule reliability, service frequency, travel comfort (e.g., crowding and seat quality), vehicle cleanliness, perceived safety, information availability, (routes, schedules, delays), staff courtesy, and competence, and fare level. For instance, De Oña and De Oña (2015) note that in almost any context of public transport context, indicators such as service frequency and punctuality of movement, comfort and cleanliness, safety, accessibility of information, staff attitude, and fares are considered.

The multidimensional satisfaction model allows for a comprehensive assessment of the quality of the transport system. Several studies have attempted to group related attributes into aggregated factors. Thus, in the study by Kökalan and Tutan (2020), based on a factor analysis identified four key components of satisfaction. These include technical performance, perceived service quality, comfort, and cleanliness. The indicators reflect the complex nature of satisfaction and confirm that, to assess it, several dimensions of the quality of transport service quality should be considered simultaneously.

While these studies clarify how passengers perceive service quality, they leave open the question of how such perceptions interact with broader social and political theories. To address this gap, the following subsection outlines the theoretical frameworks that guide our analysis of dissatisfaction and civic engagement.

3.2 Theoretical framework

Theories of consumer behavior regard satisfaction with a service as a key factor influencing customer behavior. In the context of public transport, satisfaction with the quality of service (such aspects as reliability, comfort, safety, fare, etc.) forms the overall attitude of the passenger to the system. High satisfaction is usually associated with loyalty, i.e., continued use of the service and a willingness to recommend it to others (Li, 2018). Thus, the literature shows that the quality of service and positive travel experiences enhance passengers' commitment to public transport (Van Lierop et al., 2017). On the other hand, accumulated dissatisfaction can manifest as complaints or the refusal of a service, according to the classical concept of "Exit, Voice, and Loyalty" by Hirschman (1970). In this model, when the quality deteriorates, the consumer has several response options: exit (refusal to use, e.g., switching to an alternative mode of transport), voice (active expression of dissatisfaction in order to improve the situation), or passive loyalty (restraint from drastic actions). Among urban passengers, loyalty to the system (such as the lack of a car, dependence on transport, or trust in the operator) may increase the likelihood that, if they are dissatisfied with the quality, they will choose

the "voice" strategy. They will complain, contact official authorities, or unite with other users, rather than simply stop driving (Hirschman, 1970; Maute & Forrester, 1993). Research on transport behavior confirms that strong dissatisfaction with the service (e.g., frequent schedule disruptions) prompts some passengers to seek alternatives or complain to the carrier (Papangelis et al., 2016). However, not all dissatisfied people take active action: Edvardsson (1998) noted that, even if dissatisfied with the service, many passengers do not file official complaints or refuse to travel, especially if they do not have available alternatives. Therefore, an individual's response to satisfaction or dissatisfaction ranges from passive patience to active participation (e.g., complaints, organization) and depends on many factors. These include the availability of alternatives, the degree of attachment to the service, previous experience, and personal beliefs.

From the point of view of collective action theories (Olson, 1965), organizing consumers into groups to achieve common goals faces the problem of a "free rider": rational individuals may prefer not to waste time and effort, hoping that others will achieve improvements that everyone can take advantage of. Therefore, stable formal passenger organizations often arise when there are selective incentives or high motivation that go beyond the narrow economic calculation. For example, the theory of public participation implies that people are more actively involved in collective initiatives when they feel injustice and a strong personal interest, and when they believe in the effectiveness of joint actions (Van Zomeren et al., 2007). Social identity plays an important role: according to the model of collective action based on social identity, people are more likely to join movements when they identify with a particular group and share a sense of common purpose and solidarity (Allert & Reese, 2023).

Other theories of civic engagement also offer important insights into collective action in transport. Social capital theory (Putnam, 2000) argues that trust, social norms, and networks of relationships facilitate cooperation easier. In the transport sector, this means that passengers who feel connected to their community and trust other people are more likely to cooperate, for example, by joining a passenger union, signing petitions, or taking part in campaigns for better service. Without social trust, passengers may remain isolated in their dissatisfaction, believing that individual action cannot bring change. Theories of public participation (Habermas, 1984; Arnstein, 1969) highlight that engagement depends not only on citizens' motivation but also on the institutional channels available. Arnstein's "ladder of participation" shows different levels of involvement: from basic information-sharing, to consultation, and finally to real decision-making power. Applied to transport, this means that inviting passengers to public hearings or participatory budgeting on transport projects can increase their sense of influence. Habermas further emphasizes the role of dialogue and communication. If authorities create open forums where passengers can express concerns and discuss solutions, this strengthens civic trust and the legitimacy of decisions. The Advocacy Coalition Framework (ACF) (Sabatier & Jenkins-Smith, 1993) explains how long-term policy change often occurs through coalitions of actors who share the same beliefs. In the field of transport, such coalitions may include passenger associations, environmental

NGOs, urban planners, and policymakers who all support public transport improvements. Over time, these coalitions can influence agendas, push for reforms such as new bus lanes or metro expansion, and challenge policies that prioritize private car use. The ACF also shows that civic engagement is not limited to short-term protests or complaints, but can form part of a broader struggle for sustainable mobility and urban justice.

Theories of mobility justice further elaborate on civic engagement in transport, positing that uneven access to mobility resources can spur collective mobilization as a form of social justice advocacy, transforming individual grievances into community-driven demands for equitable urban planning (Verlinghieri & Schwanen, 2020). Similarly, Sampson's (2012) work on collective civic events underscores how repeated urban challenges, like inadequate transport, build durable networks of engagement, shifting from sporadic protests to sustained organizational efforts. Drawing on Arnstein's (1969) ladder of citizen participation, collective action in transport can escalate from tokenism to empowered citizenship, as seen in cases where communities organize to influence policy beyond formal consultations (McAndrews & Marcus, 2015).

3.3 Formal and informal passenger organizations: international experience

In many countries, there are officially registered organizations and unions representing the interests of public transport users. One example is the Bus Riders Union in Los Angeles (USA). It is a well-known organization of bus passengers, established between 1992 and 1994 in response to rising fares and deteriorating bus services in poor areas of the city. This union united up to 20,000 members by the mid-1990s and successfully lobbied for investments in the bus fleet while preventing fare increases through protest campaigns and legal action (Impact Fund, 2018). There are similar passenger advocacy groups in other US cities, such as the Transit Riders Union in Seattle and the Riders Alliance in New York. These organizations advocate for passenger rights, engage in policy discussions, and promote greater investment in public transportation. In Europe, the practice of uniting passengers is also common. The European Passengers' Federation (European Passengers' Federation IVZW (EPF), n.d.) is a network that unites 39 national and regional passenger organizations from 21 European countries, representing users' interests of users at the supranational level. EPF members include associations such as British Bus Users UK (lobbies for improved bus services and handles passenger complaints), as well as German and French associations of rail and urban transport passengers. The goals of such formal organizations include: promoting high standards of service, upholding passenger rights, participating in the development of transport policy, monitoring the work of operators, and providing user feedback from users. Formal structures often interact institutionally with authorities and carriers. They collaborate through advisory boards, public discussions, official reports, and recommendations. For example, London Travel Watch has a council in London that protects the interests of passengers at the mayor's office that protects passengers'

interests against the transport operators. In India, the Bangalore Metro and Commuter Passengers Association regularly sends appeals to the city's leadership, demanding improvements to improve the metro's accessibility and tariff policy of the metro (The Hindu Bureau, 2025). These organizations provide passengers with an official channel to influence service quality and decision-making. Particularly for those who, while generally satisfied, wish to advocate for further improvements or safeguard existing standards.

In addition to formal structures, there are numerous informal forms of passenger self-organization that arise spontaneously or temporarily in response to acute problems. The reason is often sharply increased discontent, e.g., mass protests against rising public transport costs. In Santiago, Chile, in the fall of 2019, the government announced a 30-peso (about 4 US cents) increase in subway fares, which served as a "trigger" for widespread protests (Callahan, 2019). Starting with a spontaneous student action, the movement quickly developed into nationwide demonstrations expressing accumulated dissatisfaction with the quality of life and inequality. Similarly, in Brazil in 2013, an increase in the price of a 20-centavo increase in bus ticket prices sparked protests in major cities, leading to demands to improve transport and social conditions. These cases show that informal passenger mobilization can occur spontaneously, without a pre-existing organization, when the level of dissatisfaction reaches a critical level. Such protests rarely develop into permanent alliances but can lead to the emergence of new movements. The 'fare' protests in São Paulo led to the emergence of Movimento Passe Livre, a coalition campaigning for fare-free or heavily subsidised public transport for socially vulnerable populations (G1 São Paulo, 2013). In other cases, passengers form initiative groups or online communities: modern communication tools (social networks, instant messengers) allow users to unite to share information about disruptions, form collective petitions, and more. Moreover, Informal associations may subsequently be institutionalized. For instance, the civil initiative in Israel, which began organizing alternative bus routes on Saturdays (when public transport is officially closed), was originally an informal volunteer group formed out of dissatisfaction with restrictions. Over time, with the support of local municipalities, this initiative has evolved into a more formalized model of cooperation, including joint financing of additional services (Golan-Nadir & Christensen, 2023). Such a transition from informal protest to partnership with the authorities is described as an example of the co-production of public services. Dissatisfied citizens spurred the creation of a third sector (NPOs) and prompted local authorities to jointly address the problem, thereby making up for the lack of transport services. Thus, informal passenger initiatives can range from short-term actions (rallies, fare boycotts) to long-term social movements that either continue to operate outside institutions or integrate into formal decision-making processes.

3.4 Analysis of recent empirical studies

Over the past five years, several empirical papers have appeared that directly or indirectly address the issue of the impact of transport satisfaction on passenger civic engagement.

Most satisfaction studies focus on the consequences for individual behavior, such as the choice of mode of transportation choice, loyalty, and the likelihood of continued use of the service. For example, Van Lierop et al. (2017) conducted a literature review. They found that satisfaction with the quality of public transport is positively associated with the intention to continue using it and to recommend it to others (i.e., loyalty). However, the problems of participation in organizations within the framework of transport research organizations are usually not directly addressed. At the same time, related fields such as urban governance, transportation planning, and public health have begun to feature in works that link satisfaction with services is linked to the collective actions of citizens.

One example is a study conducted by Golan-Nadir and Christensen (2023) that analyzes the successful case of transportation service co-production. Based on surveys and interviews, the authors showed that strong dissatisfaction with politics (the lack of buses on weekends) motivated citizens to unite through NGOs and achieve change: a non-governmental organization was created to organize transportation on Saturdays, and a dialogue was established with municipalities. Interestingly, such a result required certain conditions – the activity of the "third sector" and the authorities' openness of the authorities to cooperation - meaning that dissatisfaction itself became a trigger for collective action, but its success depended on institutional support.

Several papers consider passenger engagement through partnership and dialogue. For example, Summers et al. (2020) describe a case in the USA (Winston-Salem, North Carolina), where a coalition of local non-profit organizations and passengers themselves joined together to improve bus service in the evenings and on weekends. This initiative arose against the background of a social demand: the insufficient bus service in the evening caused discontent among residents who depend on them (mostly low-income), who missed trips to hospitals, to work, etc. The coalition successfully campaigned and persuaded the city council to allocate funds for extended bus operating hours. The study shows the following results: after expanding services, residents' satisfaction of residents has increased, and the coalition continues to operate, setting a new goal to make travel free for specific categories. Although in this case the initial incentive to unite was the unavailability of the service (schedule shortage) rather than the overall quality per se, the methodology shows the effectiveness of the collective action of passengers: joining with other groups (in this case, organizations in the field of health and poverty reduction) and pressure through public policy led to an improvement in the service and, potentially, increased user satisfaction.

Several studies (Wang & Zhong, 2019; Wang et al., 2020) note that dissatisfaction with safety and comfort in public transport encourages citizens to participate in civic initiatives such as online petitions for improved infrastructure. Thus, empirical data from recent years confirm that there is a link between transport satisfaction and passengers' collective actions of passengers, but this link is complex and contextually mediated. Strong dissatisfaction with service quality of services is a frequent "push" toward unification – whether through protest or the creation of a union; however,

favorable conditions (social cohesion, leaders, support from the authorities or the media) are needed for the transition to a sustainable organization.

3.5 Research gap

An analysis of the literature shows that although the aspect of satisfaction with the quality of public transport has been well studied in relation to individual passenger behavior (loyalty, choice of transport, complaints), its impact on collective behavior, in particular, the willingness of passengers to organize into unions and associations, has not been sufficiently studied. Current research provides a limited understanding: there are descriptions of individual cases (successful protests, civil initiatives) and general theoretical explanations, but no systematic empirical study of this relationship has been conducted. In particular, there is a lack of quantitative research. There are no comparative surveys or models that directly measure whether the level of satisfaction with transport affects the likelihood of joining a passenger organization or supporting a collective initiative. Most of the data is qualitative or case study, which makes it difficult to generalize. Thus, the research gap lies in the lack of a focused study linking satisfaction with the quality of public transport to passengers' willingness of passengers to take collective action. To empirically address this gap in the Almaty context, the following section outlines the methodological approach, drawing on the theoretical frameworks discussed to operationalize satisfaction and civic engagement.

4. Methods

The present study aims to identify the relationship between satisfaction with the quality of public transport in Almaty and passengers' willingness of passengers to participate in collective forms of interest representation of interests, such as a potential Passenger Union. The research design is a cross-sectional descriptive study. The study employs a quantitative approach using statistical analysis of survey responses.

4.1 Data collection

Data collection was conducted over five weeks, from November 18 to December 26, 2024. The questionnaire was posted on the public page of @adilqala.kz on the social network Instagram, allowing it to reach an urban audience using public transport. The distribution of the questionnaire was accompanied by the use of targeted advertising aimed at residents of Almaty aged 18 and over. Thus, the target audience was reached in digital format, mainly through mobile devices. This approach has enabled reaching real users of urban transport who are active in the digital space. The study involved 250 respondents who completed an online survey. The questionnaire was anonymous and voluntary.

The questionnaire comprised 22 questions, grouped into several thematic blocks.

The first block contained questions about transport behavior, including the frequency of use of public transport use and preferred modes of transport. The second block covered socio-demographic characteristics, in particular respondents' age and gender. The third block included thirteen variables describing satisfaction with various aspects of the transport service: driving safety, cabin occupancy, waiting time, total travel time, sense of personal safety, temperature comfort in transport, cleanliness of the cabin, behavior and politeness of drivers, physical condition of stops, schedule compliance, fare, availability of audio and video visual announcements, as well as the availability of information resources such as electronic scoreboards, mobile applications, and official websites. All these indicators were evaluated on a Likert scale from 1 to 5, where 1 meant complete dissatisfaction and 5 meant complete satisfaction. The fourth survey module captured respondents' views on three issues: the importance of passenger involvement in transport-related decision-making; their readiness to join the newly established Passenger Union; and their preferred modes of engagement, ranging from completing online questionnaires to serving on monitoring teams and working groups. In addition, respondents indicated which problems, in their opinion, the Union should address first (e.g., security, tariff policy, comfort, or schedule), and expressed their willingness to provide financial support to the Union through voluntary contributions. At the end of the questionnaire, an open-ended question was included, inviting participants were invited to share their suggestions and comments on the passenger association's goals, objectives, and proposed activities of the passenger association.

4.2 Data analysis

For the purposes of the analysis, two key dependent variables were identified: willingness to join a passenger union (membership intent) and willingness to support it financially (donation intent). 13 satisfaction scales were used as the main independent variables, as well as the aggregated variable "overall satisfaction", calculated as the average value on all scales. In addition, a variable was included reflecting the opinion of the importance of passenger participation in the management of the transport system (importance of participation). To refine the model, control variables were also added to the analysis: age, gender, and frequency of use of public transport use.

The 13 satisfaction dimensions were derived from established attributes in public transport literature (e.g., Eboli & Mazzulla, 2011; De Oña & De Oña, 2015; Tyrinopoulos & Antoniou, 2008). No exploratory factor analysis was conducted due to the study's exploratory scope and sample size. However, internal consistency was assessed using Cronbach's alpha, yielding an acceptable value ($\alpha = 0.863$), suggesting the items reliably measure the underlying construct. The composite overall satisfaction score was computed as the unweighted mean of the 13 items. The use of an averaged score yielded a simple, interpretable index suitable for nonparametric tests and regression analysis.

The data were processed using Jamovi software. Initially, procedures were carried out to clean up the data and recode categorical variables into a numeric values. No

missing data were identified in the dataset, so all 250 responses were included in the analysis. After that, various analytical methods of analysis were used. First, the Kruskal–Wallis test was used to assess differences in satisfaction levels across groups that differ in their willingness to join a passenger union. Next, a model of multinomial logistic regression model was built, allowing identification of statistically significant predictors of willingness to participate while accounting for differences in satisfaction levels.

Before building the multinomial logistic regression model, assumptions were checked. Multicollinearity was tested using Variance Inflation Factors (VIF) and tolerance values. All VIF values were close to 1 (ranging from 1.01 to 1.06), and tolerance values were above 0.94. These indicate that there was no evidence of problematic multicollinearity among the independent variables.

With these methodological foundations established, the paper proceeds to the empirical results. The following section reports descriptive statistics, satisfaction ratings, and regression outcomes that test the proposed relationships.

5. Results

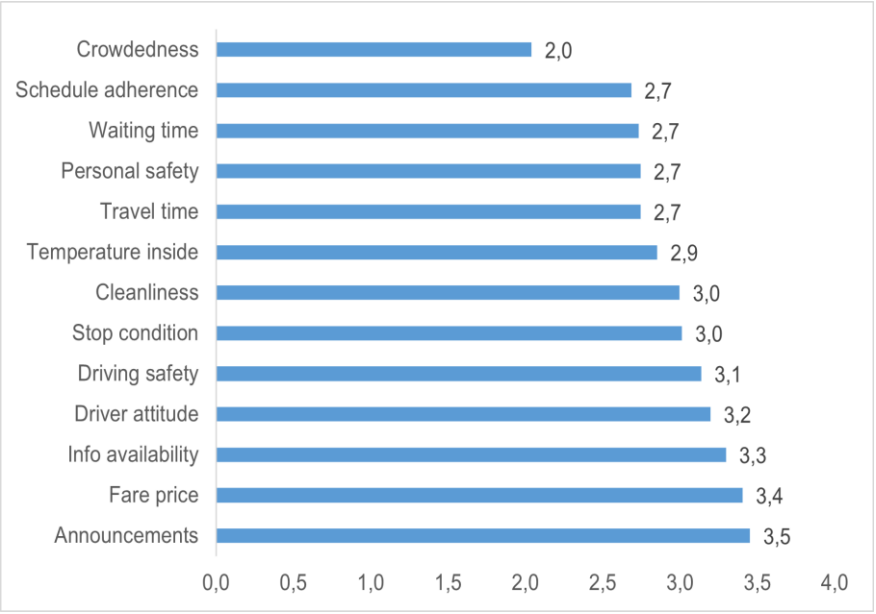
The study involved 250 respondents living in Almaty and regularly using public transport services. The majority of respondents were women (63%), 35% were men, and 2% of participants preferred not to specify their gender. The majority of the survey participants (71%) were young people aged 18-30. 24% of respondents were in the 31-45 age group of 31-45 years, and 5% were over 46 years old.

60% of participants use public transport daily, and another 22% use it several times a week. The remaining respondents used transport less frequently: 14% reported using it less than once a week, and 4% reported using it once a week. The data shows that transportation services play an important role in the daily lives of the majority of respondents. Buses and the metro are the most popular modes of transport, as they offer high accessibility and extensive route coverage.

The respondents evaluated public transport against several key criteria using a scale from 1 (absolutely not at all satisfied) up to 5 (fully satisfied). The average ratings showed that passenger satisfaction varies across parameters, and some aspects of public transport operations require significant improvement. Figure 1 presents the average scores for each criterion.

Figure 1:

Average ratings for public transport service attributes



Source: Author's own, 2026

The highest-rated aspects include Announcements during the trip (3.5), Fare price (3.4), and Information availability (3.3), indicating relatively high user satisfaction with communication and pricing. Conversely, the lowest-rated dimension was Crowdedness (2.0), suggesting widespread dissatisfaction with vehicle occupancy levels. Intermediate ratings were given to aspects such as Temperature inside (2.9), Schedule adherence (2.7), and Cleanliness (3.0), emphasizing areas for potential service improvement.

Additionally, participants were asked whether they considered it important to include passenger representatives in decision-making processes for public transport. The vast majority (91%) indicated that such inclusion is vital. Only 1% stated that it is not consider it important, while 8% expressed uncertainty and indicated a need for more information. When asked about their willingness to join a public transport passenger union, respondents expressed varied positions. A notable 30% stated they would be willing to become members, while 24% were not interested in such participation. The largest group, 45%, remained undecided.

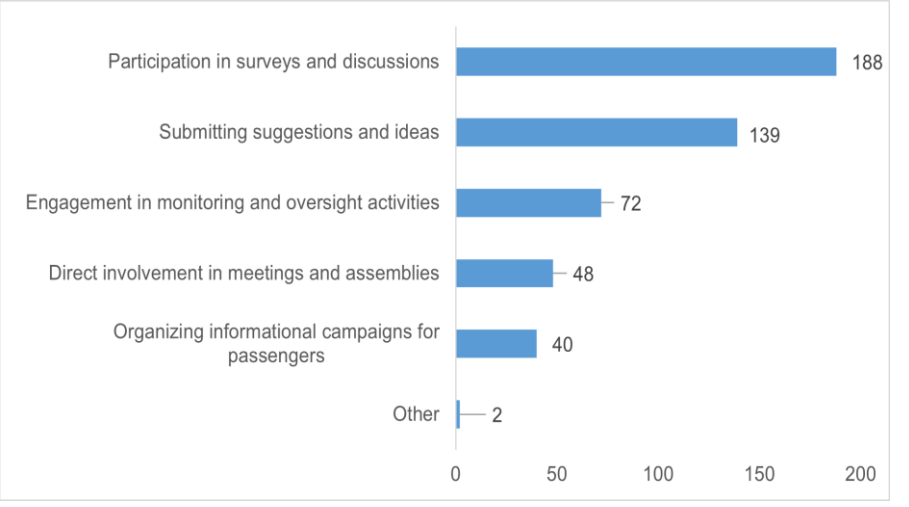
To assess the sustainability of potential resources, respondents were asked about their readiness to financially support the Passenger Union through contributions, such as membership fees or donations. The most significant proportion (52%) answered "Maybe", suggesting a conditional willingness dependent on further clarity regarding

the Union's structure and activities. A smaller segment (39 respondents, 16%) expressed definite willingness to contribute, while 82 participants (33%) indicated that they were not willing to provide financial support.

Figure 2 illustrates the forms of engagement respondents would find most appealing if a public transport passenger union were established. The most frequently selected option was Participation in surveys and discussions, chosen by 188 respondents. Submitting suggestions and ideas was also popular, with 139 mentions. More active forms of participation, such as Monitoring and oversight activities (72), Direct involvement in meetings and assemblies (48), and Organizing informational campaigns (40), were less frequently selected. Only 2 respondents chose the "Other" option.

Figure 2:

Preferred forms of participation in a Passenger Union

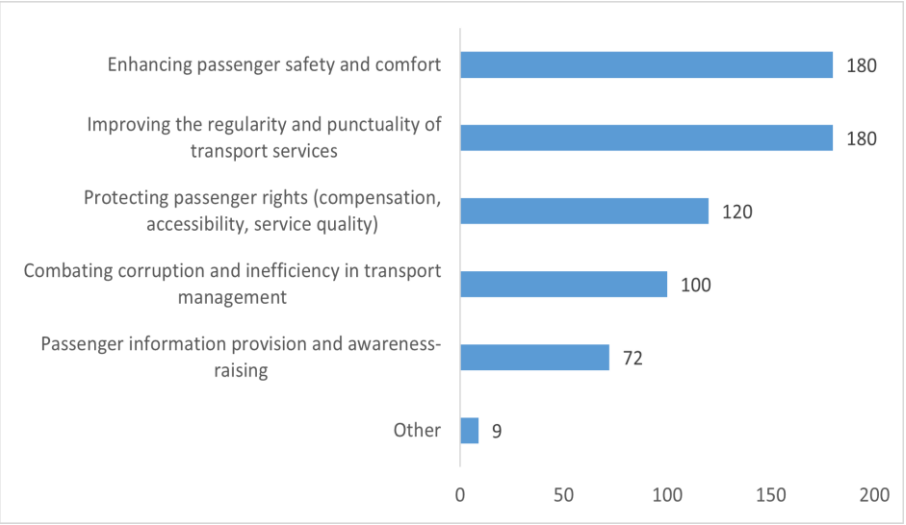


Source: Author's own, 2026

Figure 3 displays the issues respondents believe the Passenger Union should prioritize. Two areas received the highest support, each selected by 180 participants: Enhancing passenger safety and comfort and Improving the regularity and punctuality of transport services. Other frequently cited priorities include Protecting passenger rights (e.g., compensation, accessibility, and service quality), chosen by 120 respondents, and Combating corruption and inefficiency in transport management (100 responses). 72 participants endorsed the provision of passenger information provision and awareness-raising. 9 respondents selected the "Other" option.

Figure 3:

Priority issues for the Passenger Union to address



Source: Author's own, 2026

In the open-ended section of the survey, respondents (N=32) provided a range of suggestions and concerns regarding the potential role of the Passenger Union. A significant number emphasized the need to improve infrastructure, particularly by increasing bus service, expanding metro lines, and introducing dedicated bus lanes to reduce congestion and overcrowding. Many participants stressed the importance of greater transparency and public oversight, including access to transport operators' financial data and the development of real-time information platforms for users. Safety concerns were also prominent, with particular attention to preventing harassment of women and children, as well as calls for stricter monitoring of driver behavior. Several respondents advocated for including drivers in discussions, highlighting the importance of addressing their working conditions to improve service quality. Others suggested involving university students through internships and using the Union as a platform to promote passenger rights and influence public policy. While many expressed strong support for the initiative, a few voiced skepticism about financial contributions, citing a lack of trust in current transport management and questioning the need for additional user funding beyond taxes.

The first stage of the statistical analysis was aimed to identify differences in overall satisfaction across groups of respondents based on their willingness to join the Passenger Union. The nonparametric Kruskal–Wallis test was used for this purpose. The analysis results showed statistically significant differences ($\chi 2 = 15.1$, $df = 2$, $p < 0.001$), while the effect size ($\varepsilon^2 = 0.0605$) indicates a moderate strength of the bond

(Table 1). This effect size suggests practical significance, as it implies that about 6% of the variance in satisfaction is explained by group differences in participation intent, highlighting a meaningful link in real-world terms.

Table 1:

Kruskal-Wallis test

Kruskal-Wallis				
	χ^2	**df**	**p**	**ε^2**
Overall Satisfaction	15.1	2	<.001	0.0605

Source: Author's own, 2026

To clarify the differences between the groups, pairwise comparisons were conducted using the Dwass–Steel–Critchlow–Fligner criterion. The differences between the "No, not interested" and "Yes, ready" groups turned out to be statistically significant ($W = -5.45$, $p < 0.001$), as well as between "I don't know" and "Yes, ready" ($W = -3.69$, $p = 0.025$), which indicates a lower level of satisfaction among those who expressed willingness to participate in the Union. The differences between "No" and "I don't know" turned out to be statistically insignificant ($W = -2.25$, $p = 0.251$) (Table 2).

Table 2:

Pairwise comparisons

Pairwise comparisons – Overall Satisfaction			
		W	**p**
No, it does not interest me	Not sure, more information is needed	-2.25	0.251
No, it does not interest me	Yes, I am ready	-5.45	<.001
Not sure, more information is needed	Yes, I am ready	-3.69	0.025

Source: Author's own, 2026

At the second stage, a multimodal logistic regression analysis was conducted to assess the impact of various factors on respondents' willingness to become members of the passenger Union. The analysis focused on respondents' willingness to join the Union, categorized into three levels: 'No', 'I don't know', and 'Yes, I'm ready'. The overall model demonstrated a reasonable fit (AIC = 512; McFadden's Pseudo R2 = 0.143) (Table 3). The Pseudo R2 value indicates that the model explains approximately 14% of the variance in participation intent, a moderate effect in social science contexts, underscoring the practical relevance of satisfaction as a predictor.

Table 3:

Model fit measures

Model	Deviance	AIC	R^2_{McF}
1	456	512	0.143

Source: Author's own, 2026

The regression results showed that the overall satisfaction level has a significant negative impact on the likelihood of joining a Union. In particular, for the "Yes, ready" group, compared with the basic "No" category, the regression coefficient was B = -0.9146 (SE = 0.276, Z = -3.31, $p < 0.001$), indicating that lower satisfaction increases the likelihood of participation. The negative sign of the coefficient indicates that lower satisfaction is associated with higher motivation for collective participation. Exponentiating the coefficient (exp(B) = 0.40) reveals that for each unit decrease in overall satisfaction, the odds of being willing to join (vs. not) increase by a factor of 2.5, demonstrating substantial practical significance beyond statistical importance.

When switching from "No" to "I don't know", the effect on overall satisfaction was negative but did not reach statistical significance (B = -0.3465, p = 0.151). A significant relationship was found between infrequent public transport use and a reduced likelihood of willingness to participate. For respondents who rarely use public transport, the coefficient was B = -2.1669 (p = 0.001).

Of particular importance was the perception of the importance of passenger participation. For those who considered such participation important, the likelihood of readiness to join the Union increased significantly. For example, in comparison with the "Not important" category, the coefficient for the answer "Yes, it's important" was B = 16.49($p < 0.001$) when compared between the "Don't know" and "No" groups (Table 4).

Table 4:

Model coefficients

Model Coefficients - Willing To Join Union					
Willing To Join Union	**Predictor**	**Estimate**	**SE**	**Z**	**P**
Not sure, more information is needed - No, it does not interest me	**Intercept**	-14.4056	0.563	-25.5976	<.001
	Overall Satisfaction	-0.3465	0.242	-1.4345	0.151
	Gender:				
	Male – Female	0.2161	0.377	0.5733	0.566
	Age:				
	31-45 – 18-30	0.6369	0.433	1.4697	0.142
	46-60 – 18-30	20.8956	0.429	48.6954	<.001
	61 or above – 18-30	14.1858	0.607	23.3725	<.001
	Passenger Participation Importance:				
	Not sure, more information is needed – No, it is not important	15.5652	0.462	33.7153	<.001
	Yes, it is important – No, it is not important	16.4908	0.316	52.1853	<.001
	Willing To Support Financially:				
	No – Maybe	-0.7342	0.383	-1.9181	0.055
	Yes – Maybe	-0.0957	0.594	-0.1611	0.872
	Frequency:				
	Once a week – Daily	0.6280	1.286	0.4885	0.625
	Rarely – Daily	-1.5440	0.497	-3.1054	0.002
	Several times per week – Daily	-0.2812	0.457	-0.6153	0.538
Yes, I am ready - No, it does not interest me	**Intercept**	1.6628	1.726	0.9633	0.335
	Overall Satisfaction	-0.9264	0.275	-3.3632	<.001

	Gender:				
	Male – Female	0.7935	0.418	1.8984	0.058
	Age:				
	31-45 – 18-30	0.0387	0.507	0.0763	0.939
	46-60 – 18-30	20.4120	0.429	47.5684	<.001
	61 or above – 18-30	12.7376	0.607	20.9866	<.001
	Passenger Participation Importance:				
	Not sure, more information is needed – No, it is not important	-0.7508	1.753	-0.4283	0.668
	Yes, it is important – No, it is not important	1.0629	1.559	0.6819	0.495
	Willing To Support Financially:				
	No – Maybe	-0.0331	0.442	-0.0748	0.940
	Yes – Maybe	1.2137	0.610	1.9887	0.047
	Frequency:				
	Once a week – Daily	1.8647	1.260	1.4794	0.139
	Rarely – Daily	-2.1669	0.671	-3.2302	0.001
	Several times per week – Daily	0.2327	0.501	0.4648	0.642

Source: Author's own, 2026

Additionally, a significant relationship was found between financial support for the willingness to support the Union financially and the intention to join it. Respondents who had already expressed a willingness to support the initiative financially were more likely to join (B = 1.2137, p = 0.047).

Thus, the results confirm that reduced satisfaction with the quality of public transport — in particular, its reliability, comfort, and safety — is positively associated with passengers' willingness of passengers to engage in institutionalized forms of participation. This conclusion is supported by both a nonparametric difference test and regression modeling that account for additional factors.

These findings provide quantitative evidence that dissatisfaction with service

quality is associated with a willingness to join a Passenger Union. To interpret the significance of these results, the following section discusses them in light of the theoretical frameworks and international literature.

6. Discussion

The study's results of the study show that the idea of creating a Passenger Union is supported by the majority of public transport users support the idea of creating a Passenger Union. Many are ready to participate, at least through surveys and discussions. One in three respondents expressed a willingness to become a member of the Union member. At the same time, half of the respondents said they might provide financial support if the Union's activities are transparent and clearly communicated, underscoring the importance of trust and clear communication. Passengers identify safety, comfort, and service regularity as key issues that the Union should prioritize. The protection of passengers' rights and advocacy for sufficient management were also important topics, confirming that users seek not only improved service quality but also a fair and accountable transport policy. The open-ended answers showed that respondents expect specific improvements: more buses, dedicated lanes, transparent information about schedules and costs, driver participation, and protection of vulnerable groups. Some of the respondents also proposed new ideas, such as internships for students and the inclusion of passenger representation in parliamentary debates. Therefore, the Passenger Union might become an important feedback channel between residents and city authorities, provided that it is accessible, transparent, and genuinely able to influence decision-making.

The statistical analysis was checked for quality. There were no missing data, and tests for multicollinearity showed no problems, as all VIF values were close to 1. The model also had an acceptable fit (Deviance = 456; AIC = 512; McFadden's pseudo R^2 = 0.143), indicating it explained a moderate portion of the variation. The effect sizes show that the results are important in practice, not only significant in numbers. The Kruskal–Wallis test indicated a moderate effect ($\varepsilon^2 = 0.0605$), suggesting that the differences in satisfaction between groups were clear and meaningful. In the regression, the odds ratio for overall satisfaction (Exp(B) = 0.40) showed that each one-point drop in satisfaction almost doubled the chance of being willing to join the Passenger Union.

The multinomial logistic regression model revealed a negative relationship between the service's overall assessment of the service and the intention to join the Union ($B = -0.91$; $p < 0.001$). Thus, in this context, dissatisfaction serves not only as a driver for individual withdrawal to alternative transport modes but also as a catalyst for collective expression, which echoes the classical concept of "Exit–Voice–Loyalty" (Hirschman, 1970).

The regression analysis showed that lower satisfaction makes people more willing

to join a Passenger Union, which reflects the "voice" option when leaving the system is difficult, since not everyone in Almaty owns a private car. At the same time, the large group of undecided passengers (45%) shows Olson's (1965) "free rider" problem: many passengers see the benefits of a union but prefer not to join themselves, waiting for others to act, which helps to explain why some people decide to mobilize, while others stay passive.

The results can be interpreted through several theoretical perspectives. First, the negative relationship between satisfaction and willingness to join a Passenger Union is consistent with Hirschman's Exit–Voice–Loyalty model. Since many passengers in Almaty do not have the option to exit by using private cars, they are more likely to choose "voice" when service quality declines. The statistical evidence confirms this: lower satisfaction scores were associated with greater readiness to participate in a Union, which shows that dissatisfaction does not always lead to withdrawal but can also drive organized civic action.

Second, the large undecided group (45%) highlights challenges described by collective action theory (Olson, 1965). Many passengers recognize the benefits of collective representation but hesitate to join, hoping that others will take the first step, a phenomenon known as the "free rider" problem. Still, the regression shows that those with the most substantial dissatisfaction were more likely to commit, suggesting that acute problems can reduce free-rider behavior and motivate action.

Third, the strong agreement on the importance of participation (91%) points to the role of social identity. Social identity theory argues that people are more willing to act together when they feel part of a group with shared goals (Van Zomeren et al., 2007). In this study, everyday experiences—such as overcrowding and poor schedule reliability—created a sense of shared identity among passengers, as evidenced in open-ended responses, in which respondents described the Union as a community platform for fairness, safety, and the protection of vulnerable groups.

Fourth, the findings also connect to broader frameworks of mobility justice and civic participation. Passengers often linked transport dissatisfaction to broader issues of inequality, such as poor service in suburban areas, supporting the idea that transport grievances are not only technical but also about social-justice-related (Verlinghieri & Schwanen, 2020). In addition, many respondents supported institutionalized participation, which echoes Arnstein's (1969) ladder of citizen participation. They expected the Union to go beyond symbolic consultation and to become a real channel of influence. Finally, the willingness of passengers to create a lasting organization shows the importance of civic networks, as described by Sampson (2012). Repeated dissatisfaction can help build stable groups that continue to engage even after immediate problems are addressed. Social capital theory (Putnam, 2000) shows that trust and shared norms are important for cooperation, as evidenced by passengers' willingness to provide financial support when the Union is transparent, which also connects to public participation theories (Arnstein, 1969; Habermas, 1984), because passengers want more

than symbolic consultation – they want real influence and open dialogue with authorities. The idea that the Union could become a long-term actor aligns with the Advocacy Coalition Framework (Sabatier & Jenkins-Smith, 1993), as it could work together with NGOs, activists, and policymakers to achieve lasting reforms. Complaints about poor service in suburban areas link to mobility justice theory (Verlinghieri & Schwanen, 2020), showing that transport is not only about technical issues but also about fairness and equal access. Finally, repeated requests for stable representation support Sampson's (2012) idea of civic networks, suggesting that ongoing problems in transport can push passengers from one-time protests to continuous, organized action.

These results confirm that dissatisfaction is an important starting point, but the transformation into civic engagement depends on identity, fairness concerns, and the ability to overcome collective action barriers. The Passenger Union, if supported by transparent structures and selective incentives, could serve as the institutional form that links individual discontent with sustained civic participation in Almaty.

A comparison of the findings with international studies reveals a consistent pattern. The Israeli case of co-production of transport services (Golan-Nadir & Christensen, 2023) and the initiative to expand bus service in Winston-Salem, USA (Summers et al., 2020) also show a shift from dissatisfaction with quality to organized pressure on the authorities. Thus, the present study expands the geography of empirical evidence, offering quantitative data for the first time for a post-Soviet megacity.

Specific findings deviated from initial expectations. The overall satisfaction index proved a stronger predictor than individual parameters, suggesting that passengers perceive the service holistically. In addition, the willingness to support the Union financially was significant only at the threshold level ($p \approx 0.05$), indicating the need for further study of the factors underlying trust in the new structures.

For the Passenger Union to function effectively, it is important to establish a clear legal status (e.g., as an association), ensure a transparent financing system (including membership fees, grants, and crowdfunding), and maintain regular communication with public authorities, transport operators, and the media. Priority areas may include monitoring transport service quality, protecting passenger rights, engaging in transport policy development, and raising public awareness. Utilizing digital platforms, ensuring transparency through public reporting, and incorporating international best practices will help it become a sustainable and respected civil society institution in Almaty. Specific policy implications include mandating passenger representation on transport advisory boards, implementing real-time feedback apps integrated with operator systems, and prioritizing investments in dedicated lanes and fleet expansion to preempt dissatisfaction-driven mobilization.

The study is limited by its non-random online sampling strategy targeting primarily young Instagram users, its cross-sectional design, which precludes causal inference, its relatively small sample size, and the inherent subjectivity of self-reported measures. The Instagram platform likely skewed the sample toward younger, digitally

engaged individuals, potentially underrepresenting older adults, offline users, or less tech-savvy groups who may experience different satisfaction levels and engagement barriers. Civic engagement was measured through stated intentions rather than observed behavior, which may limit robustness since expressed willingness does not always translate into actual participation, thereby limiting generalizability to Almaty's broader population. These factors should be taken into account when interpreting the results.

Future research should adopt a longitudinal design to examine how changes in service quality influence actual union membership in the Union, and supplement the quantitative data with in-depth interviews to identify barriers and motivations for participation. To enhance representativeness, future studies could incorporate mixed-mode surveys, including offline methods like intercept interviews at bus stops or targeted outreach to seniors via community centers. A practical recommendation for transport authorities is to proactively involve passengers through advisory boards and digital feedback platforms. Increasing reliability, safety and transparency of the service can improve satisfaction and reduce protest potential, turning criticism into a resource for the sustainable development of the urban transport system.

Taken together, these interpretations highlight both the theoretical and practical importance of dissatisfaction as a catalyst for civic engagement. The conclusion synthesizes these insights and outlines implications for policy and future research.

7. Conclusion

The results of the study demonstrate that dissatisfaction with the quality of public transport in Almaty can serve not only as a reason for individuals to stop using the service (exit), but also as a stimulus for collective civic mobilization (voice). The lower the subjective assessment of parameters such as regularity, comfort and safety, the higher the willingness of passengers to unite and participate in the activities of a potential Union. Thus, the Exit–Voice–Loyalty model is applicable in a post-Soviet city and contributes to expanding its empirical evidence base. While this link aligns with intuitive expectations from collective action theories, it underscores the role of shared social identity in transforming dissatisfaction into organized engagement, as seen in the survey's group-based priorities.

The creation of the Passenger Union is seen as an urgent step towards institutionalizing users' "voice" of users and establishing a stable feedback channel between citizens, operators, and authorities. The survey participants expressed both interest in the initiative itself and willingness to participate in its activities, including financial support, provided that transparency, accessible information, and a clear management structure are ensured. The respondents emphasize the importance of developing infrastructure, improving working conditions for drivers, protecting

vulnerable groups, and creating digital platforms for information and feedback.

For the sustainable functioning of the Union, it is important to ensure: legitimate legal form (for example, registration as an association); transparent financing system (membership fees, grants, crowdfunding); systematic interaction with the local government, operators and the media; monitoring the quality of services and representing the interests of citizens at the decision-making stage.

This study has certain limitations: non-representative sampling, a cross-sectional design, and the subjective nature of self-reported data. Future studies could build on this research by employing longitudinal designs to track participation trends over time, conducting qualitative interviews with prospective Union members, and undertaking comparative analyses with similar initiatives in other urban contexts across the region.

Finally, such unions not only serve as a platform for protecting passengers' rights of passengers, but also play an important role in shaping a more sustainable, fair and human-oriented transport policy.

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