Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 95 (2026) 896–903

Transportation Research Procedia

www.elsevier.com/locate/procedia

Euro Working Group on Transportation Annual Meeting 2025 - EWGT2025

Exploring the Willingness to Embrace Automated Vehicles: A Survey-Based Study for the Portuguese context

Mónica Rodrigues[a,b,*], Maria Conceição Costa[c], Steve O'Hern[d], Jorge M. Bandeira[a,b]

[a]*Department Mechanical Engineering / Centre for Mechanical Technology and Automation (TEMA), University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal*
[b]*LASI - Intelligent Systems Associate Laboratory, Guimarães, Portugal*
[c]*Center for Research & Development in Mathematics and Applications (CIDMA), Department of Mathematics, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro Portugal*
[d]*Institute for Transport Studies, University of Leeds, Leeds, England, United Kingdom*

Abstract

This study assesses the willingness of the Portuguese population to adopt automated vehicles (AVs) in public and private transport. Key factors influencing AV acceptance were considered including knowledge and awareness, trust and perception, willingness to use, usage preferences, and environmental concerns. A structured survey of 425 participants was conducted, analysing sociodemographic variables, transport habits, and attitudes toward AVs. Analysis identified five key themes: a) optimism and AV adoption, b) environmental awareness, c) knowledge of AVs, d) geographical location, and e) concerns and discomfort. Results highlight critical factors influencing public acceptance of AVs in Portugal, including issues concerning safety, economic feasibility, and trust as significant barriers. The relatively low adoption of public transport in rural areas presents an additional challenge for AV implementation in these regions. The study indicates potential for AV adoption in Portugal, as almost 70% of respondents expressed willingness to use a partially or fully automated vehicle, with technological optimism and positive environmental perceptions emerging as significant positive predictors of willingness. Yet, achieving widespread acceptance requires addressing safety concerns, lack of trust, and infrastructure concerns through targeted policy interventions and public engagement initiatives.

Peer-review under responsibility of the scientific committee of the Euro Working Group on Transportation Annual Meeting 2025 - EWGT2025.

Keywords: automated vehicles; regression modelling; adoption decision; survey; Portuguese context

* Corresponding author.
E-mail address: monica.joana@ua.pt

Peer-review under responsibility of the scientific committee of the Euro Working Group on Transportation Annual Meeting 2025 - EWGT2025.
10.1016/j.trpro.2026.02.113

1. Introduction

Urban and regional mobility is facing numerous challenges related to increasing population, the growing pressure to reduce polluting emissions, and the urgent need for sustainable solutions. In this context, automated vehicles (AVs) have been widely discussed as a promising technological solution to transform the transport system, offering benefits in terms of road safety, energy efficiency, and accessibility (Gkartzonikas & Gkritza, 2019; Litman, 2017; Yuen et al., 2020). The integration of AVs in public transport systems could help reduce reliance on private cars, promote more sustainable modes of mobility, and improve access to transport in underserved areas. However, despite significant technological advances, public acceptance remains a barrier to the widespread adoption (Lee et al., 2017; Pettigrew et al., 2019).

Citizens' willingness to use AVs depends on multiple factors, including perceptions of safety, trust in the technology, prior knowledge, and the perceived impact on their daily lives. Portugal is at an early stage in the adoption of AVs, with only a few pilot projects underway and a regulatory framework still in its infancy. At the same time, the country's geographical and demographic characteristics — with dense urban centres and extensive rural areas — raise important questions about the feasibility and acceptance of this technology in different contexts. Recent studies, such as those by Rebelo et al. (2023) and Rodrigues et al. (2021), have already indicated positive views among the Portuguese population to use AVs, both in public and private settings, although acknowledging limitations in terms of infrastructure and information about the topic.

This study aims to deepen understanding of AV acceptance in Portugal through a structured survey and predictive modelling approach. Unlike previous national studies, it integrates sociodemographic and perceptual variables and includes rural living experience as a contextual factor. By addressing both private and public use cases, it offers empirical insights to inform inclusive and effective AV adoption strategies tailored to the Portuguese context.

2. Literature Review

AVs adoption is an increasingly prominent topic, particularly as efforts intensify to create safer, more efficient, and more sustainable transport systems. Public acceptance of AVs is one of the most significant challenges. Literature identifies key factors that influence individuals' willingness to adopt AVs, including perceived safety, trust in the technology, knowledge of AVs, perceived environmental benefits, and geographical location (Becker & Axhausen, 2017; Gkartzonikas & Gkritza, 2019; Yuen et al., 2020; Shiwakoti et al., 2020). Many consumers hesitate to adopt AVs due to fears of technological failure and the absence of human intervention in emergency situations. Lee et al. (2017) highlighted that, for acceptance to materialise, users must be confident that AVs can operate with safety levels comparable to- or greater than conventional vehicles. Concerns regarding emergency response systems and the ethical implications of algorithmic decision-making in critical scenarios are central to safety-related apprehensions (Kyriakidis et al., 2015; Zhu et al., 2024). This concern is especially pertinent in the Portuguese context, where road safety remains a leading public concern (Rodrigues et al., 2021).

Trust in AVs is closely linked to individuals' familiarity with technological innovation. Those who are more exposed to new technologies—particularly AVs and intelligent mobility systems—tend to show greater willingness to adopt AVs (Yuen et al., 2020; Zhang et al., 2020). Additionally, demographic factors affect levels of acceptance, since younger and more educated populations are generally more open to adopting technological innovations (Litman, 2017). Geographical location also plays a crucial role. In urban areas, where access to smart mobility solutions and technological infrastructure is greater, acceptance is typically higher. In contrast, rural areas may face additional challenges due to limited infrastructure, reduced technological exposure, and doubts regarding AV feasibility (Rebelo et al., 2023). Correia & van Arem (2017) and Shiwakoti et al. (2020) point out that AV acceptance is higher among individuals who demonstrate a preference for green and sustainable technologies. This is due to the perception that electric AVs can resolve pollution and energy efficiency problems associated with transport. In Portugal, where sustainability has increasingly entered public discourse, AVs may integrate effectively into a more eco-friendly and efficient public transport model, particularly if implemented through vehicle-sharing systems (Martinez & Crist, 2015). yet, infrastructure remains a critical barrier to AV adoption, particularly in rural areas (Haboucha et al., 2017; Prioleau et al., 2020). The country is still in the early stages of developing the adequate infrastructure to support AV operations. The lack of suitable roads, vehicle-to-infrastructure communication systems, and electric vehicle charging

networks may delay adoption. Rebelo et al. (2023) emphasises that while acceptance is growing in urban centres, rural areas still face substantial challenges - both at infrastructural and social levels. Rodrigues et al. (2021) examined the willingness of private vehicle users to pay extra for an automated vehicle, whereas their findings suggested a positive trend, it also revealed significant concerns regarding safety and vehicle reliability. In parallel, the acceptance of AVs as a public transport solution, especially in non-urban settings is brought out by Rebelo et al. (2023), whose study notes perceived advantages, such as improved mobility and reduced congestion - although the lack of suitable infrastructure and trust in the technology continues to pose significant barriers.

In a nutshell, literature highlights a range of interrelated factors influencing AV acceptance, including perceptions of safety, technological trust, environmental awareness, and regional infrastructure challenges. As for the Portuguese context, although public sentiment towards AVs has generally been positive, concerns about infrastructure and safety remain the major obstacles.

3. Methodology

The methodology followed five stages (Fig. 1): survey design, sample composition, data collection, analysis, and interpretation. Explanatory variables included both composite indicators and individual attributes, grouped into four themes: technological optimism, environmental perceptions, knowledge/experience, and concerns. Sociodemographic and contextual factors (e.g., age, gender, transport habits, rural living) were also included. Regression models were developed to explain willingness to use AVs in both private and public contexts.

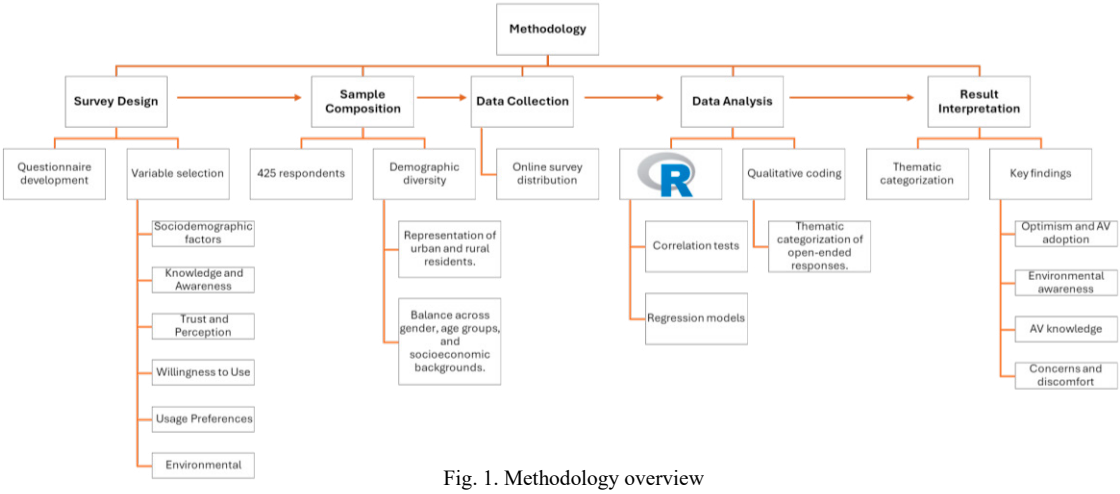

Fig. 1. Methodology overview

3.1. Survey Design, Sample and Data Analysis

The survey assessed a willingness to adopt AVs for private and public transport, using an online questionnaire with closed and open-ended questions covering awareness, trust, safety perceptions, environmental attitudes, and usage preferences. Sociodemographic variables were included to ensure diversity across key population groups. A total of 425 participants were recruited via a professional online panel. Proportional representation by age, gender, education level, region, and employment status was requested to reflect the Portuguese population. However, due to limitations in the provider's database, full representativeness could not be achieved—especially among older age groups and individuals with lower educational levels.

Latent constructs (e.g., trust in technology, safety perception, environmental awareness) were operationalized using sets of items inspired by prior international studies (e.g., Gkartzonikas & Gkritza, 2019; Yuen et al., 2020), rated on 7-point Likert scales. Cronbach's alpha was used to assess internal consistency. Constructs with acceptable reliability ($\alpha > 0.70$) were aggregated into composite indicators. Although validated international scales were not applied, item design followed definitions and thematic frameworks from the literature.

Data analysis was performed in R. Correlation tests identified significant associations, and a Robust Linear Model (RLM) with MM estimators was used to account for outliers and assumption violations. Open-ended responses were thematically coded into categories such as safety concerns, infrastructure limitations, and environmental benefits. Results were interpreted across five key themes: optimism and adoption, environmental perception, knowledge, geographical context, and concerns. Fig. 1 summarises the analytical framework.

4. Results and Discussion

This analysis is presented in two sections. Section 4.1 provides descriptive results on participant profiles, mobility, and attitudes towards AVs, highlighting key patterns. Section 4.2 reports regression model findings, identifying how perceptions, experience, and sociodemographic context influence the willingness to use AVs.

4.1. Key descriptive results: sociodemographic and territorial characterisation

The study participants were predominantly female (55.1%), middle-aged (mostly 40-59), highly educated (nearly half with university/postgrad degrees), and largely employed full-time (68.2%). Self-perceived rural experience (43.8%) was noted more often than factual rural residence history (16.9%) and prioritized in the analysis.

Mobility patterns showed high car dependency: 91.5% held driving licenses, most drove daily, average household car ownership was 1.66, and public transport usage was generally low (over 64% used it less than monthly or never), particularly among self-perceived rural residents. Typical annual gross personal income ranged from €11,623 to €21,321. Overall, the sample skews towards higher education, full-time employment, middle-age brackets, and greater car dependency compared to the general Portuguese population, while significantly under-representing older adults. Although the sample broadly reflects national trends in terms of age, gender and car dependency, it is important to note some deviations when compared to Census 2021 data from Statistics Portugal (INE, 2021). In particular, the sample over-represents individuals with higher education and full-time employment, and under-represents older adults (65+). This should be considered when interpreting the generalisability of the findings.

4.1.1. Knowledge and Perceptions of AVs

Awareness of AVs was high (72%), but deeper knowledge and personal exposure were limited (Fig. 2a). Most participants rated their own knowledge as low (69% levels 1-3) and did not know anyone who used AVs (84%). Key information sources were TV, internet, and scientific articles (20-25% each), with event attendance negligible. Conducting a Spearman correlation analysis between the indicators of local awareness, social exposure, self-assessed knowledge, and participation in events about AVs revealed mostly weak relationships. Notably, there was a moderate positive correlation ($\rho = 0.22$, $p < 0.001$) between having heard about AVs operating in the local area and having attended related events - suggesting that local visibility may influence engagement. The evaluation of the potential benefits of AVs to the community revealed generally positive perceptions. The most highly rated aspects included improvements in mobility for older adults and people with disabilities, as well as environmental benefits and lower transport costs. To better capture these perceptions, a composite variable was created by aggregating responses to several positively framed benefit items, which demonstrated excellent internal consistency (Cronbach's alpha = 0.92), confirming that the items measured a shared underlying construct, with the average score indicating an overall favourable view of the potential community-level value of AVs. The highest levels of concern regarding AVs were related to safety and available infrastructure, with average scores above 5 on a 1 to 7 scale.

4.1.2. Trust, Challenges, and Perceptions of Adoption

Participants were asked to rate their level of trust in the safety of AVs on a scale from 1 (no trust) to 7 (high trust) (Fig 2b). The respondents revealed a moderate overall level of confidence, with a mean, median, and mode of 4. Yet, it is worth noting that nearly 35% chose values between 1 and 3, indicating a considerable share of scepticism. These results suggest that although the average perception is neutral, hesitations about AV safety remain present among many participants. The main specific concerns reported by participants included safety for users and pedestrians

(26%), technological failures (21.5%), and infrastructure preparedness and maintenance (13.4%). The corresponding mean and standard deviation values confirm that these were consistent and relevant concerns across the sample. Regarding the perception of AVs as a mobility solution, the results revealed a slight optimism, with a mean of 4.4 and 31.9% of participants rating the solution as fairly or very positive (scores of 6 or 7). Results also showed moderate levels of comfort with AVs operating in their area compared to traditional vehicles. The need for clear information about AVs and their local benefits was strongly acknowledged: over 45% of respondents rated it as "extremely important". The average rating was 5.65, the mode was 7, and the median was 6 — underlining the central role of accessible information in shaping public acceptance. When asked to evaluate the possibility of having part of their public transport journey (up to 25%) operated by AVs participants indicated a moderately positive perception, with nearly 30% of respondents rating this scenario with a 6 or 7, which may suggest a reasonable openness to the gradual integration of such technology in public transport systems.

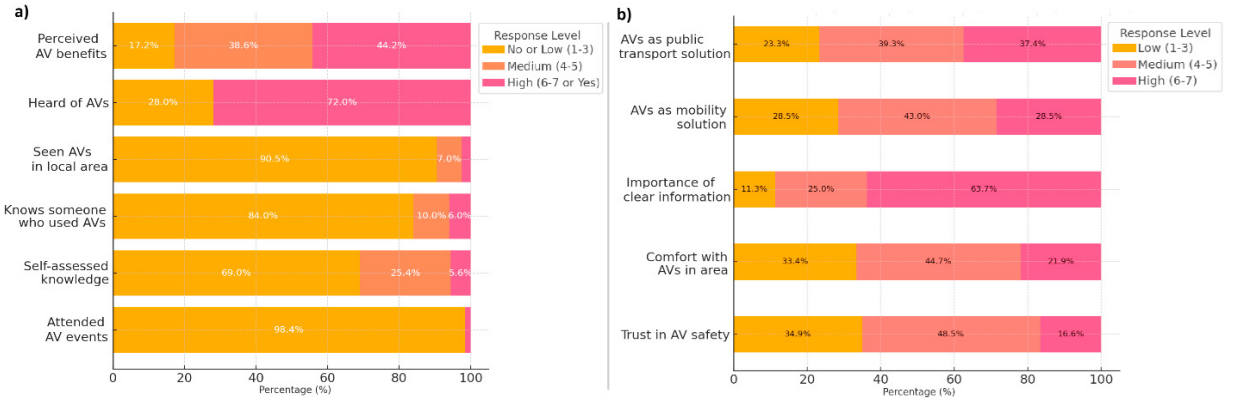

Fig. 2. a) Awareness, exposure, and perceived benefits of AVs, b) Trust, Perceived Challenges, and Openness to AV Adoption

4.1.3. Willingness to Use Automated Vehicles

Participants expressed moderate willingness to use AVs, for both private and public transport applications. As illustrated in Fig. 3.b), the distribution of willingness scores is broadly similar between private and public AV use, although slightly higher acceptance levels (scores 6 and 7) were observed for public transport AVs (31.3%) than for private ones (30.1%). A strong preference emerged for partially AVs allowing manual control (approx. 60%), while only about 10% favoured full automation without override capabilities, and 30% rejected AVs altogether (Fig.3. a) and b)).

Key factors for considering AVs were safety assurance and lower costs. Factors significantly boosting comfort and trust—rated highly by over half of respondents—included reliable emergency assistance, transparent communication, and enhanced safety features, highlighting the importance of safety, cost, and information for acceptance. Family-related and healthcare transport were identified as high-likelihood usage contexts. Acceptance in one context generally correlated positively with acceptance in others. The perception that AVs could address local transport challenges—such as limited access to public transport—was strongly and significantly correlated ($\rho = 0.76$, $p < 0.0001$) with agreement that AVs may help mitigate issues related to travel distances and limited mobility options, reinforcing an optimistic perspective on their potential to improve accessibility. Additionally, current multi-mode public transport (e.g. bus, metro, train, and taxi) related with willingness to adopt similar AV options, with consistent price sensitivity noted across transport types.

4.1.4. Usage Contexts and General Interest in AVs

Participants most frequently preferred using AVs for emergencies, daily commuting, and occasional trips. Preferences for different uses were linked (e.g., commuting with work/school travel, emergencies with healthcare), indicating consistent views on AVs utility. This suggests willingness in one context aligns with acceptance in others,

revealing an integrated and consistent view of AVs' benefits. Interest in different models of AVs use revealed modest but relatively consistent levels across options. Exclusive private ownership of AVs received the lowest average rating (mean = 3.09), with nearly 39% expressing no interest at all. These results may suggest a slightly stronger openness to public or shared models over individual ownership, although the overall interest remains moderate. Correlations between the various use types were moderate to strong and statistically significant, particularly among shared and public transport-related options, suggesting that individuals who show interest in one usage model are generally receptive to others as well. Regarding travel context preferences, most participants would consider AVs for both local and intercity travel (35.1%), followed by local travel only (26.6%). A quarter indicated they would not use AVs at all. These preferences were strongly associated with how participants evaluated AV usefulness in various settings, suggesting attitudes towards travel distance influence perceived applicability. In parallel, respondents generally agreed that AVs could help address mobility challenges in their area, particularly by improving accessibility and providing alternatives to limited transport options. This belief was strongly and significantly associated ($\rho = 0.76$, $p < 0.0001$) with the perception that AVs can address local mobility challenges, suggesting an integrated and optimistic view of their potential.

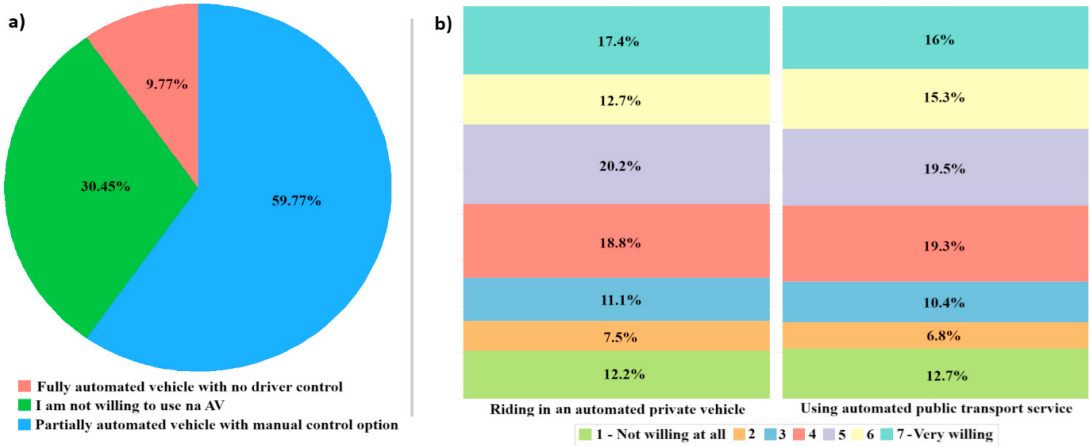

Fig. 3. a) Willingness to use AVs by level, b) Willingness to use AVs (as a private vehicle vs. as public transport)

4.1.5. Environmental Perceptions

Exploring on how environmental factors influence the potential adoption of AVs, respondents rated their likelihood of choosing AVs if these were to be environmentally friendly (*i.e.* low emissions, clean energy use) or promoted sustainability (*i.e.* energy efficiency, inclusivity, and support for sustainable practices), as well as their willingness to use AVs powered by renewable energy sources like electricity or hydrogen. All three items received favourable evaluations, (mean scores ranging from 4.42 to 4.58; modal responses at top scale (7)). These results could reflect a generally positive environmental perception and openness to AV adoption when tied to sustainability and clean energy. The correlations between the three environmental perception items were all strong and statistically significant ($p < 0.001$), putting the likelihood of choosing AVs for being environmentally friendly almost perfectly aligned with the likelihood of choosing them for promoting sustainability ($\rho = 0.94$). Additionally, both these aspects showed strong positive associations with the willingness to use AVs integrated with renewable energy sources ($\rho = 0.83$ and $\rho = 0.82$, respectively), suggesting coherent perceptions among participants, where sustainability, environmental friendliness, and clean energy integration are closely linked factors that reinforce a positive view of AVs. The association between environmentally driven motivations and the willingness to adopt AVs was strong across both private and public use scenarios, with all correlations above 0.69 and highly significant ($p < 0.001$). These findings suggest that the perception of sustainability plays a key role in shaping attitudes toward adoption. G test results reinforced this conclusion, revealing statistically significant relationships ($p < 2.2e\text{-}16$). Furthermore, the correlation between environmental perceptions and the belief that AVs can serve as a viable mobility solution was also moderate to strong

($\rho \approx 0.64–0.66$), indicating that individuals who value ecological benefits are also more likely to see AVs as a practical and effective transport option.

4.2. Construction of Variables and Statistical Modelling

To identify the factors that influence individuals' willingness to use AVs, statistical models were developed using the survey data. The explanatory variables were structured into conceptually coherent groups, based on thematic content and scale compatibility. Four main groups of explanatory variables were defined, each summarised under a composite index:

- X_{OA} (Optimism and Adoption): captures attitudes towards AVs in terms of perceived safety, comfort, familiarity, and intention to use.
- X_{EP} (Environmental Perception): reflects the perceived sustainability and ecological value of AVs.
- X_{KE} (Knowledge and Experience): includes indicators of familiarity with AV technology and transport habits.
- X_{CD} (Concerns and Discomfort): aggregates concerns regarding technological failures, data privacy, and possible social disruptions.

In addition to these thematic constructs, other explanatory variables were included in the modelling, such as age (X_A), gender (X_G, recoded as binary), driving frequency (X_{DF}), public transport use (X_{PT}), and rural living experience (X_{RA}). The dependent variable (Y) represents the general willingness to adopt AVs, combining responses regarding both private and public use scenarios. This continuous outcome captures overall acceptance and openness towards adopting AVs. Initially, a multiple linear regression model including all explanatory variables was tested, however, diagnostic tests revealed violations of several assumptions - the residues were not normally distributed (Shapiro-Wilk and Anderson-Darling tests), heteroscedasticity was detected (Breusch-Pagan test, $p < 0.001$), and outliers with standardised residuals greater than ±3 were identified. Despite these issues, no problems of multicollinearity were found (all VIFs < 5). Given this scenario, alternative models were explored, including automatic variable selection using the stepAIC method, aiming to identify a more parsimonious model. The final solution adopted a robust linear regression model (RLM) with MM estimators, suitable for real-world data where assumptions may be violated, and outliers may be present. Hence, the final model resulting from the selection process and supported by statistical robustness, includes the following explanatory variables: X_{OA}, X_{EP}, X_{RA}, and X_A. The regression equation is expressed as follows:

$$Y = -2.1243 + 0.0659 \cdot X_{OA} + 0.2695 \cdot X_{EP} - 0.2841 \cdot X_{RA} + 0.0121 \cdot X_A + \epsilon \quad (1)$$

The coefficients show that technological optimism and environmental perceptions are the most influential positive predictors of willingness to use AVs, both being statistically significant ($p < 0.001$). The effect of X_{RA} is negative and marginally significant ($p < 0.1$), suggesting that individuals with rural backgrounds are generally less willing to adopt AVs. Age also has a small (but positive) effect, marginally significant ($p \approx 0.087$). These findings suggest that AV acceptance is more closely linked to attitudinal and environmental factors than to strictly demographic or transport-use variables. In sum, the use of a robust model ensured greater reliability and validity of the results by addressing the statistical limitations identified in the initial diagnostics.

5. Conclusions

This study provides exploratory insights and a predictive model on AV acceptance in Portugal, highlighting the role of perceptual and contextual variables. Technological optimism, environmental concerns, and transport experience emerged as key positive predictors, while rural living experience was negatively associated with willingness to adopt AVs—underscoring challenges in lower-density areas.

The inclusion of both private and public AV contexts, and of rural background as a predictor, marks a novel contribution to national research.

One limitation concerns sampling: although proportional representation was requested, the online panel led to some overrepresentation of middle-aged, highly educated individuals, and underrepresentation of older adults—introducing potential self-selection bias. Another limitation is methodological: Robust Linear Regression (RLM) was chosen due

to its robustness to outliers and violations of classical assumptions, but it does not account for measurement error or latent constructs. Future work should consider Structural Equation Modelling (SEM) to address these aspects and validate the composite indicators used.

Next steps include separate models for private and public AV use, deeper qualitative analysis, and extended data collection—contributing to more targeted, inclusive, and context-sensitive transport policy design.

Acknowledgements

This research was supported by the projects https://doi.org/10.54499/UIDB/00481/2020 and https://doi.org/10.54499/UIDP/00481/2020 - FCT - Portuguese Foundation for Science and Technology; CENTRO-01-0145- FEDER-022083 - Centro Portugal Regional Operational Program (Centro2020), under the PORTUGAL 2020 Partnership Agreement, through the ERDF. This work was supported by FCT scholarship 2022.13303.BD and INTERREG EUROPE PROJECTS EMBRACER and SMARTAUTO. The authors acknowledge the support of CIDMA (Center for Research and Development in Mathematics and Applications) under the FCT - Portuguese Foundation for Science and Technology - Multi-Annual Financing Program for R&D Units.

References

Becker, F., & Axhausen, K. W. (2017). Literature review on surveys investigating the acceptance of automated vehicles. *Transportation*, *44*(6), 1293-1306. https://doi.org/10.1007/s11116-017-9808-9

Correia, G. H. de A., & van Arem, B. (2017). Estimating Urban Mobility Patterns Under a Scenario of Automated Driving: Results from a Model Application to Delft, the Netherlands. In Compendium of the Transportation Research Board 96th Annual Meeting. Washington D.C.

Gkartzonikas, C., & Gkritza, K. (2019). What have we learned? A review of stated preference and choice studies on automated vehicles. Transportation Research Part C: Emerging Technologies, 98, 323-337.

Haboucha, C. J., Ishaq, R., & Shiftan, Y. (2017). User preferences regarding autonomous vehicles. *Transportation research part C: emerging technologies*, *78*, 37-49. https://doi.org/10.1016/j.trc.2017.01.010

INE. (2021). *Censos 2021 – Resultados definitivos*. Instituto Nacional de Estatística (INE). https://censos.ine.pt/xportal/xmain?xpgid=censos21_main&xpid=CENSOS21&xlang=pt.

Kyriakidis, M., Happee, R., & De Winter, J. C. (2015). Public opinion on automated driving: Results of an international questionnaire among 5000 respondents. *Transportation research part F: traffic psychology and behaviour*, *32*, 127-140. https://doi.org/10.1016/j.trf.2015.04.014

Lee, C., Ward, C., Raue, M., D'Ambrosio, L., & Coughlin, J. F. (2017). Age differences in acceptance of self-driving cars: A survey of perceptions and attitudes. In Human Aspects of IT for the Aged Population. Aging, Design and User Experience: Third International Conference, ITAP 2017, Held as Part of HCI International 2017, Vancouver, BC, Canada, July 9-14, 2017, Proceedings, Part I 3 (pp. 3-13). Springer International Publishing.

Litman, T. (2017). Autonomous vehicle implementation predictions. Victoria, BC, Canada: Victoria Transport Policy Institute.

Martinez, L., & Crist, P. (2015). Urban Mobility System Upgrade–How shared self-driving cars could change city traffic. In *International transport forum, paris* (Vol. 14).

Pettigrew, S., Worrall, C., Talati, Z., Fritschi, L., & Norman, R. (2019). Dimensions of attitudes to automated vehicles. Urban, Planning and Transport Research.

Prioleau, D., Dames, P., Alikhademi, K., & Gilbert, J. E. (2020). Barriers to the adoption of autonomous vehicles in rural communities. In *2020 IEEE International Symposium on Technology and Society (ISTAS)* (pp. 91-98). IEEE. https://doi.org/10.1109/ISTAS50296.2020.9462192

Rebelo, F., Faria, A., Costa, J., Dias, R., Vilar, E., & Noriega, P. (2023, July). Acceptance of Automated Electric Vehicles as a Collective Passenger Transport: The Case of Portugal. In International Conference on Human-Computer Interaction (pp. 304-316). Cham: Springer Nature Switzerland.

Rodrigues, R., Moura, F., Silva, A. B., & Seco, Á. (2021). The determinants of Portuguese preference for vehicle automation: A descriptive and explanatory study. Transportation research part F: traffic psychology and behaviour, 76, 121-138.

Shiwakoti, N., Stasinopoulos, P., & Fedele, F. (2020). Investigating the state of connected and automated vehicles: A literature Review. Transportation Research Procedia, 48, 870-882.

Yuen, K. F., Huyen, D. T. K., Wang, X., & Qi, G. (2020). Factors influencing the adoption of shared automated vehicles. International journal of environmental research and public health, 17(13), 4868.

Zhang, T., Tao, D., Qu, X., Zhang, X., Zeng, J., Zhu, H., & Zhu, H. (2020). Automated vehicle acceptance in China: Social influence and initial trust are key determinants. *Transportation research part C: emerging technologies*, *112*, 220-233. https://doi.org/10.1016/j.trc.2020.01.027

Zhu, G., Chen, Y., & Zheng, J. (2024). Partially automated vehicles (PAVs) vs. fully automated vehicles (FAVs): A comparative study with adoption models. Technology in Society, 79, 102698.