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Drivers of autonomous vehicles' acceptance: examination of influential factors for intention to buy and use autonomous vehicles

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Master in Business Administration

Supervisor:
PhD Sofia Kalakou, Assistant Professor, Department of Marketing, Operations and General Management, ISCTE-IUL

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RESUMO

A implementação de veículos autônomos (VAs) pode gerar uma variedade de resultados positivos para a sociedade. No entanto, a tecnologia tem que ser primeiro aceita pela população. Portanto, o objetivo deste trabalho é explorar quais fatores influenciam a aceitação pública de VAs privados e compartilhados. Com base numa amostra de 383 inquiridos da cidade de Lisboa, pode ser documentado que os inquiridos do sexo masculino, jovens e com boa escolaridade, que vivem em áreas urbanas e suburbanas representam o grupo com maior intenção de comprar e utilizar VAs no futuro. Eles tambémrepresentam o grupo com maior intenção de pagar por VAs. A atitude positiva em relação aos serviços de mobilidade compartilhados é um indicador positivo do uso de VA compartilhado, junto com os níveis de consciência e benefícios percebidos. As preocupações percebidas, por outro lado, são preditores negativos para de utilização e comprar de VAs.

Palavras-chave: veículos autônomos; condução autônoma; aceitação de tecnologia; WTP; posse de carro

ABSTRACT

The implementation of autonomous vehicles (AVs) can generate a variety of positive outcomes to the society. However, the technology has to be accepted by the population first. Therefore, the objective of this work is to explore which factors influence public acceptance of privately owned and shared AVs. Based on a sample of 383 respondents from the city of Lisbon, it can be documented that young and well educated male respondents who live in urban and suburban areas represent the group with higher intention to buy and use AVs in the future. They also represent the group with higher WTP for AVs. Positive attitude towards shared mobility services is a positive predictor of shared AV usage, along with the levels of awareness and perceived benefits. Perceived concerns, on the other hand, are negative predictors of willingness to use, buy and pay for AVs.

Keywords: autonomous vehicles; self-driving; technology acceptance; WTP; car ownership

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1. INTRODUCTION

The United Nations (UN) estimates that 68% of the world population shall be living in cities by 2050. Despite the continuous reduction in birth rate, projections show that the world population should reach 9.8 billion by 2050, around 2.5 billion more than the current population (UN DESA, 2017).This increase in urban population not only attenuate old problems such as long traffic lanes, pollution, and lack of parking spots, but also increases the challenges and complexity of urban mobility as a whole. Urban development has improved gradually along the last two centuries due to the availability and relative low cost of energy based on fossil fuels. This trend, however, will not remain in the next decades. The finite character of fossil fuel reserves, together with global warming concerns and ambitious governmental targets to reduce CO2 emissions are pushing many sectors to invest in the development of more sustainable products (Bernardino et al., 2015; Li & Zhao, 2017).

The automotive industry is a sector highly affected by these new trends. Along with environmental criticism and a change in consumer's preference, the automotive industry is facing challenges which are somehow new to the industry. In contrast to the previous generation, Millennials are buying less cars and giving preference to alternative transportation modes (Delbosc et al., 2019). This generation is taking longer than the previous one to settle, studying longer and getting married later. For living mostly in urban areas instead of suburbs, Millennials prefer to make use of public transportation and other mobility options such as car-sharing services or Uber instead of dealing with the costs of owning a car (Klein & Smart, 2016). Along with this new consumer behavior, three big trends are reshaping the automotive sector and urban mobility structure: the emergence of Shared Mobility Services; electric cars (E-cars); and autonomous vehicles (AVs).

Although car-sharing exists in Europe since 1940, this service has been facing rapid expansion during the past few years. This trend is usually associated with a change in consumer behavior and preference due to the daily problems faced by car users such as long traffic lanes, scarce and expensive parking lots (Anderson et al., 2014; Lavieri & Bhat, 2019). As it makes transportation in urban areas more practical than using public transportation or private cars, car-

sharing services are also reducing the necessity of car ownership among people who live in busier urban areas (Nazari et al., 2018; Sprei, 2018).

Electric cars (also known as E-cars) are a response to environmental claims to reduce CO2 emissions and the usage of fossil fuels. Although the fixed cost of owning a private car remained similar along the past years, the overall cost of driving increased due the gasoline price. Together, energy-cost uncertainty and environmental concerns about CO2 emissions encouraged the development of new motor's technology and have been slowly pushing traditional fossil fuel motors into obsolescence (Sopjani et al., 2020; Anderson et al., 2014).

Autonomous vehicle, also known as self-driving vehicles, are no longer just part of a futuristic science fiction movie, they are becoming reality. The main function of automated driving is the improved response in emergency situations, which should result in better driving performance when compared to human drivers even though it cannot eliminate completely the risk of accidents. This technology can also increase accessibility for people with physical disability and provide new opportunities for land usage once fewer parking lots are required in the cities (Lavieri & Bhat, 2019; Greenblatt &Shaheen2015; Fagnant & Kockelman, 2015).

In response to these new trends, car companies have been developing new vehicles and ideas to remain competitive in the market. Many of them no longer rely on car sales but also in car-sharing services and electric autonomous vehicles. One example is a joint venture between BMW and Daimler that created a car-sharing service provider called ShareNow (BMW Group, 2016; Forbes, 2020). Other companies on the same field are also investing in the development of autonomous vehicles that should work as robot-taxis in the future. There is a common understanding about the relevance of these trends in the automotive sector and how e-cars, autonomous vehicles and carsharing can provide a more efficient service once combined (Nazari et al., 2018; Becker et al., 2018).

The German traffic accident statistics reported that over 98% of traffic accidents are at least in some degrees caused by human failure (Statistisches Bundesamt, 2020). Therefore, the introduction of automated driving could provide great social benefit by dramatically reducing car crashes. Despite increasing safety, autonomous vehicles can also turn the time people usually spent driving (or stuck in traffic) into a more productive or enjoyable activity. Also, they can

improve accessibility to elderly and disable people, which is a relevant matter to be taken into consideration in an ageing society(Pettigrew et al., 2019); Cunningham et al., 2019).

According to Greenblatt and Shaheen (2015), Autonomous Vehicles will be an accepted technology by 2030 and become a dominant part of personal transportation by 2050. Once they overcome certain limitations such as high producing costs and legal allowance to drive in public roads, autonomous vehicles could provide several social benefits by increasing accessibility and life quality, reducing traffic lanes and the necessity of several parking lots. However, technological innovations sometimes face resistance or even refusal once they reach the market place. Although public interest in autonomous cars has increased lately, it is still hard to predict whether consumers are really prepared to use this kind of technology.

1.1. Objectives and methodology

Several questions related to the implementation of electric autonomous vehicles can be raised. Can they be trusted? Will the high production cost of AVs ever make its use viable? Are people really willing to give up on driving? Will the driving experience be lost? Can it increase accessibility and bring more dynamism into people's lives? A better understanding of which factors influence people's opinions and attitudes towards this new technology is of extreme relevance to its successful implementation. Therefore, *the objective of this work is to explore the aspects that affect people´s willingness to buy and use autonomous vehicles within the next 10 years*. To achieve this objective, three research questions will be analyzed:

1. What aspects have been identified in the previous researches as influential aspects on respondents' willingness to buy, use and pay for AVs?
2. Are there other aspects that should be taken into consideration?
3. How the obtained results confirm, deny or add to the previous researches?

An online survey was designed in order to collect the necessary data related to public acceptance of autonomous vehicles, including a large range of personal related characteristics (e.g. gender and age) and respondents' current attitude towards shared mobility services. Once the data was collected, the descriptive statistics (i.e. counts, means, and standard deviations) were observed to build a first overview of the data structure. Then, in order to test the hypothesis and achieve a better understanding of which factors influence respondents' willingness to buy, use

and pay for AVs, two main tests were used: the nonparametric alternative of ANOVA (Kruskal-Walis test) and the Post Hoc test of Games-Howell. Kruskal-Wallis was used to test how social-demographic aspects influence respondents' willingness to buy, use and pay for AVs, while Games-Howell was used to identify how the remaining factors (driving history, mobility behavior, attitude towards shared mobility services, and attitude towards AVs) affects participants' willingness to buy, use and pay for AVs.

1.2. Structure of the thesis

The present work was divided into 7 chapters: The first chapter is an introduction to the theme and brief explanation of the objective of this research. The second chapter includes an extensive explanation of most relevant aspects related to autonomous vehicles' capabilities and criticism. Also, it provides a review of the most important concepts mentioned and analyzed in previous papers by relevant authors. Then, it presents the hypothesis that will be tested along this work. The third chapter explains the survey design and the bibliographic references used to shape it, followed by an explanation of the tests that will be used to analyze the data acquired in the survey and to test the proposed hypothesis. Still in this chapter, the descriptive statistics of the data collected will be presented and explained. The fourth chapter presents all hypothesis testing results and the reason why they should be confirmed or rejected. Then, in the fifth chapter a more complete analysis of the results is presented, as well as a comparison between the results of this survey and the ones achieved in previous works. The sixth chapter is constituted of a conclusion, including an explanation of the relevance of this work and its implications and well as its restrictions. Finally, in the seventh chapter the bibliography used in this work are presented.

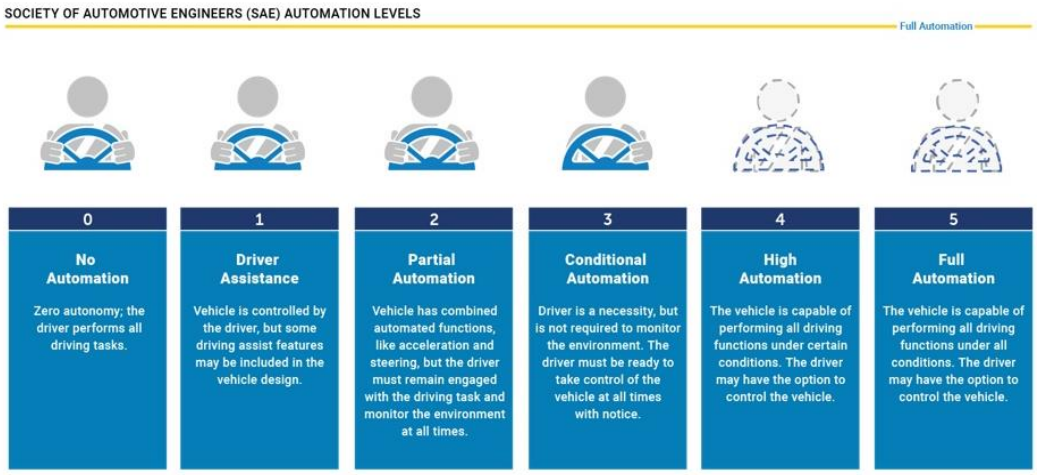
2. LITERATURE REVIEW

2.1 Autonomous vehicles

Autonomous vehicles (AVs) or self-driving vehicles are not a new concept. Previous attempts to produce AVs occurred between the 1920s and 1980s, but the extremely high cost and lack of proper infrastructure in public roads have limited the development of this type of vehicle so far (Davidson & Spinoulas, 2015). Recent developments, however, show a more positive scenario for the implementation of AVs. The progress of automated highway systems, real-time data processing, and artificial intelligence, for example, opened the way for autonomous technology (Lee et. al., 2019; Skeete, 2018).The European Union road transport sector has been developing an advanced Intelligent Transport System (ITS) which includes the implementation of connected and autonomous vehicles. Consequently, automakers have been forging alliances to grant enough investment and lead the development of this technology before their competitors (Skeete, 2018; European Commission, 2017).

According to the Society of Automotive Engineers (SAE) there are five levels of automation. As shown in the image below (see Figure 1), the scale runs from level 0 to level 5, with 0 representing no automation and the level 5 representing a full level of automation. Once the level 5 is reached, the automation function no longer represents a support to the driver because a driver is no longer required (SAE International, 2018).

Figure 2.1. Levels of automation

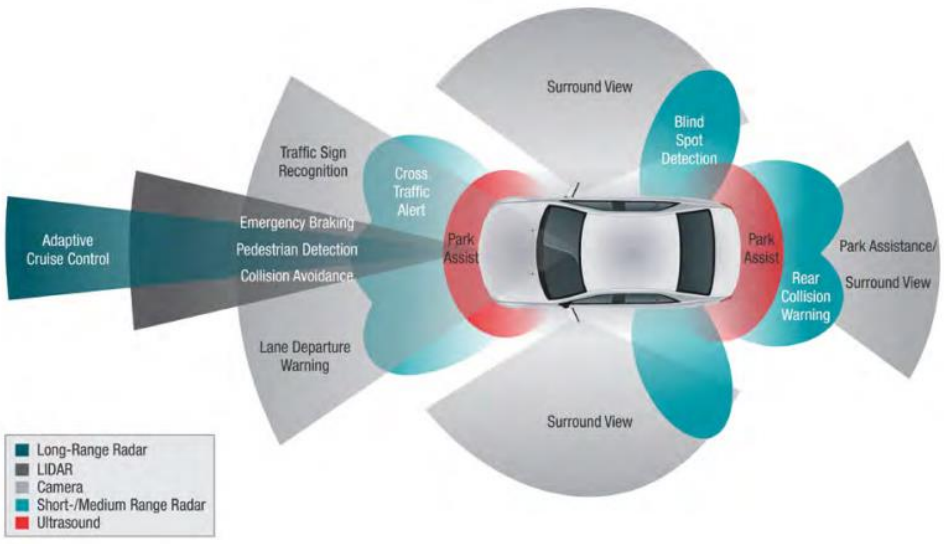


Source: SAE International (2018)

Since AVs need to be highly connected to the environment around them in order to perform properly, it is common to see traditional car manufactures joining forces with technology and telecommunication companies as well as start-ups to build their first self-driving prototypes (Basal et. al., 2016; Fagnant & Kockelman, 2015; Narayanan et. al., 2020). The technology company NVIDIA, for example, was originally specialized in graphic design for gaming but diversified its business into artificial intelligence and recently joined forces with Mercedes-Benz to build a single automation platform. With this platform, the amount of sensors and cameras required in AVs can be reduced, which consequently reduces its overall cost (Forbes, 2020). Another example is the partnership between BMW Group with Intel and Mobileye that aims to produce AVs for ride sharing services already in 2021 (BMW Group, 2016).

Fully-autonomous vehicles are expected to perform better than humans in critical safety situations and avoid crashes (NHTSA, 2013; Acheampong & Cugurullo, 2019). In order to make this possible, AVs rely on a series of sensors, cameras, algorithms, machine learning systems and radars to sense the environment around them and respond to it accordingly. These sensors allow AVs to avoid accidents, move from A to B, identify pedestrians and nearby vehicles. Video cameras installed in different parts of the vehicle detect traffic lights, while light detection sensors measure distances and identify lane marks (SAE International, 2018).

Figure 2.2. Autonomous vehicles' sensors and cameras



Source: DHL (2014)

AVs are also a milestone for delivery services. They can offer new solutions to first and last mile services, as well as improve data collection and analysis by increasing connectivity (Anderson et al., 2014; Fagnant & Kockelman, 2015). The logistics department can highly benefit for AV usage and will probably become the first ones to adopt them. There are already several existing self-driving robots operating in warehouses nowadays, however, the usage of self-driving vehicles for delivery services can become a turning point to the industry. The absence of person making the delivery of a package implies that this service will no longer be limited to the typical working hours. The packages can transit around the city "alone", avoiding high traffic hours and reaching the customers when they are at home and available to receive the package (DHL, 2014; Continental, 2019; Continental, 2020).

Although large scale production of AVs might still take a few decades to become a reality, functional prototypes are already being developed and tested by most traditional automobile manufactures. These vehicles still do not have legal permission to freely transit around cities, but as technology advances, their performance improves and more governments engage in licenses and legislations debates to allow AVs operations (Flämig, 2016).There is also a debate related to the usage mode of AVs. Traditional automakers might prefer private ownership of AVs not only because this is their current business model, but also because it allows a bigger number sales. However, in order to truly provide the main benefits associated to AVs' implementation, many authors affirm that AVs should be used for shared mobility services. The second scenario could be more realistic due to the high cost of these vehicles, especially in the first years of production and market introduction (Narayanan et. al., 2020; Pettigrew et. al., 2019).

2.1.1 Challenges and benefits of AVs adoption

While the adoption of AVs could provide dramatic transformation in urban transportation systems, both advantages and disadvantages related to the implementation of this technology should be taken into consideration. A range of benefits such as increase safety, crash reduction, less congestions, eco-friendly vehicles, value of time and land use improvements are associated to the adoption of autonomous vehicles (Bagloee et. al., 2016; Pettigrew et. al., 2019; Fagnant & Kockelman, 2015; Millard-Ball, 2018; Narayanan et. al., 2020).

Increase safety and crashes reduction are the most commented benefits that AVs can provide since human error is known to be responsible for (or at least influence) more than 90% of registered road accidents (Aria et al., 2016). AVs could not only avoid these crashes but also provide a series of new opportunities that go beyond the automotive industry. One topic which has been debated is the value of time. Since AVs do not require a human driver once they reach the levels 4 and 5, all individuals inside the vehicle can be engaged in another activity such as reading, working or watching a movie. It allows people, therefore, to optimize their time while stuck in traffic or during long distance rides (Bagloee et al., 2016).

AVs ability to reduce congestions is a more debatable topic. Some authors believe that by reducing crashes, fewer delays and congestions will happen on the road, resulting in a faster and more reliable transport system (NHTSA, 2013; DHL, 2014). Other authors, however, claim that AVs could end up increasing traffic congestions because it allows the mobility of individuals who would not normally drive by themselves such as kids and disable people (Millard-Ball, 2016; Pettigrew et. al, 2019). Therefore, a high demand of autonomous vehicles could result in even more intense traffic congestion. Millard-Ball (2016) used the 'chicken game' theory to exemplify how AVs could increase congestions. Since AVs are programmed to stop immediately upon a risk of accident, which could be caused, for example, by a pedestrian crossing the street, he believes that this could encourage pedestrians to cross a street whenever they like due to the certainty that AVs will always stop to them. If this decision is made by several pedestrians along the road, AVs will be forced to stop several times resulting in a much slower traffic flow.

Since AVs are usually designed as electric vehicles, they are considered eco-friendly and, therefore, designed to address one of the great challenges faced by modern society due to pollution and oil dependency. Although electric cars already exist, AVs can access charging stations and charge themselves without any human supervision. This function offers a solution to one of the most critical issues related to electric vehicles' adoption, which is the search and time required to re-charge the vehicles (Greenblatt & Shaheen, 2015). Another interesting opportunity that AVs can create is land usage optimization. Since around 31% of district areas are currently dedicate to parking space and AVs do not need to be parked nearby, this creates a chance of reusing several parking spaces to other activities and buildings. Therefore, the adoption of AVs

could proportionate a density reduction in metropolitan areas by directing growth and development into the suburbs (Bagloee et. al, 2016; Anderson, et al., 2014).

The adoption of AVs in public roads faces, however, a series of challenges such as legal permission, technology cost, road infrastructure, and insurance rights in case of accidents. Currently, several countries are debating the legal implications of allowing AVs in public roads. Major developments have been made in the USA, some European countries like Germany and the UK, and Asian countries like China, Japan and Singapore. The allowance of AVs in public roads requires changes in legislations and liability rules. One of the main obstacles faced by the government at this point is to decide who should take responsibility for an accident once the vehicles are driving themselves and no human driver can take charges (Hohenberger et al., 2016).

The European Union has been working on road infrastructure projects named Cooperative Intelligent Transport Systems (C-ITS) that aims to build a road that allows road users to connect with each other and the road in order to exchange information and enable the proper function of automated driving. This project should not only increase safety and traffic efficiency, but also create the ideal scenario to the introduction of AVs in the overall transport system. It is also in the scope of this project to control the C-ROADS platform (responsible for the tests and data collection of road operations among member states) and the adoption of a legal framework that allows the usage of these new technologies (European Commission, 2020).

2.1.2 Car ownership x Shared Autonomous Vehicles (SAVs)

Since urban population continuously grow worldwide, demand for transportation keeps increasing, generating more pollution and congestions in metropolitan areas. In the US, urban vehicles alone are responsible for 20% of total carbon dioxide emissions. Most privately-owned vehicles are “underutilized” as they remain parked for more than 90% of the time and usually transport only one or two people despite its capacity. Therefore, a society with increasing car ownership is not considered to be sustainable solution for the future (Pavalone, 2015). In addition to this scenario, several researches show how younger generations are less interest in car ownership and more open to car sharing services. Millennials are less dependent on car ownership than previous generations due to their different life style. While previous generations usually got married younger and moved to the suburbs to build a house and family, Millennials

are taking longer to get married and have kids, which allow them to live longer in central areas and make use of public transportation instead of buying their own car (Delbosc & Naznin, 2019; Klein & Smart, 2017).

Car ownership reduction creates the ideal scenario for car sharing services' expansion. Although existing since the 90's, shared mobility has been facing an exponential growth due to different factors such as high cost of car ownership, growing population in urban areas, concerns related to environment destruction and sustainability. Shared mobility can reduce congestions in metropolitan areas while providing a personalized service not covered by public transportation. Car sharing is also considered by many as a cheaper and more convenient mode of transportation than private car ownership (Becker et al., 2018). Shared mobility services can also pave the way for autonomous vehicles implementation for making it financially viable (Fagnant & Kockelman, 2015).

Many authors defend that the combination of autonomous vehicles with car-sharing services will be mutually beneficial and generate a greater amount of societal benefits than the ownership of private AVs (Fagnant & Kockelman, 2015; Basal et al., 2016; Narayanan et al., 2020; Greenblatt & Shaheen2015). According to them, this combination can accelerate the spread of AVs, reduce car ownership, increase accessibility of elderly and disable people, reduce pollution, eliminate the search for parking lots and the overall need of parking areas in the city, offer a solution for electric vehicles charging, and provide efficient door-to door service where public transportation is lacking. A system combining AVs and car-sharing services in urban areas has been under debate in Europe since the early 1990's and has been already implemented at Schiphol airport (The Netherlands) in 1977 (Narayanan et al., 2020).

Despite having private car sales as main business plan, automakers are already planning the introduction of their new AVs prototypes for car-sharing services. Ford, Volkswagen Group, Hyundai and Daimler plan to begin shared AVs operations by 2021 (LeBeau, 2018).The implementation of private and shared AVs, however, will highly depend on public acceptance of this technology. Therefore, in order to assure a successful market penetration strategy, it is important to understand which factors are considered critical by the future consumers and which could motivate them to use or/and buy AVs.

2.2 Acceptance of autonomous vehicles

Individuals' intention to use AVs and the way they choose to use it in their daily trips will determine whether all the benefits autonomous vehicles can provide will indeed take place. Therefore, opinions related to the benefits provided by this technology and awareness of their capabilities are very relevant to understand people's intention to use and pay for autonomous vehicles. Another important factor is the level of trust people have in this technology. Perceived risks and concerns can limit the acceptance of autonomous vehicles and reduce the benefits of its implementation (Fagnant & Kockelman, 2015; Bansal & Kockelman, 2018).

Various academic and professional researchers such as, consulting and automotive companies conducted surveys to understand public opinion about autonomous vehicles prospects and acceptance. Most results showed that despite the great potential of autonomous technology, people still seem very cautious about the safety potential of driverless vehicles (Nazari et al., 2018; Bansal & Kockelman, 2018). Therefore, in order to access a more comprehensive and complete picture of which factors influence public acceptance of AVs, I based my analysis on a combination of eight major scientific papers that provide different insights and perspectives regarding AVs' acceptance (see Table 1). Inspired by these authors' categorizations and concepts, I divided my research into four main categories (level of awareness; perceived concerns; perceived benefits; and willingness to pay and use AVs) in order to acquire a deeper understanding of which factors influence the perception of prospective users of AVs.

Table1. Summary of selected surveys on autonomous vehicles' acceptance.

Authors	Sample size	Methodology	Research focus and conclusions
Acheampong and Cugurullo (2019)	507 participants in Dublin	7-point likert scale; and confirmatory factor analysis (CFA)	57% of the respondents think AVs are a good idea and 72% were excited about the prospects of fully AVs. Pro-technology attitudes are higher among well-educated individuals. Perceived benefits are lower among females.
Bansal and Kockelman (2018)	1088 Texans respondents	Ordered probit (OP) and interval regression (IR) models	AVs implementation can reduce crashes; Older and more experienced drivers expressed lower WTP; 41% of Texans do not feel ready to use shared AVs.
Cunningham et al.(2019)	5000 Australian and 1000 New Zealand respondents	Hierarchical binary logistic regression analysis; exploratory factor analysis (EFA) paradigm	Higher awareness increases WTP; AVs considered safer than traditional vehicles; Expected benefits increases intention to use AVs; drivers' trust in AVs plays a big role in adoption and WTP; Perceived benefits are a better predictor of WTP.

Hohenberger et al.(2016)	1603 participants from Germany	Regression-based analyses; Ordinary least square (OLS); and logistic regression estimation	Research focused on emotional attitudes; How pleasure and anxiety influence the acceptance of AVs. Pleasure increases acceptance while anxiety limits acceptance.
Lee et al (2019)	313 Korean respondents	Structural equation model	Awareness increases trust and reduces perceived risk of AVs; Perceived risk influences intention to use AVs.
Liu et al. (2019)	1355 participants from two cities in China (Tianjin and Xi'an)	Partial least squares (PLS); Tobit model; and ordinary least square (OLS)	Trust and perceived benefit are positive predictors of WTP; Awareness increases WTP, trust and perceived benefits while reducing perceived risks. Younger and highly educated individuals with higher-income show higher WTP.
Nazari et al.(2018)	Two samples of 2726 and 1755 participants	Latent variable structural; Measurement equation models; and the multivariate ordered probit model	Safety concerns reduces acceptance of AVs; Eco-friendly patterns promote interest in shared AVs.
Pettigrew et al.(2019)	1345 Australians respondents	Latent profile analysis (LPA)	Perceived concern should be the main criteria to define first adopters of AVs; Higher concern levels result in lower acceptance.

2.2.1 Level of awareness

Research to date indicates that more awareness about autonomous vehicles capabilities and functions can increase public acceptance of this technology. By evaluating a sample of 313 Korean respondents who were asked to read about autonomous vehicles before answering the questionnaire, Lee et al. (2019) could conclude that providing information about autonomous technology positively influenced participants' opinion about these vehicles. In order to investigate how comparative and psychological perspectives can affect public acceptance of autonomous vehicles, the authors based their research on the technology acceptance model (TAM) (Davis, 1989) and other additional factors such as perceived risk and relative advantage. Their results show that although perceived risk reduced public acceptance of autonomous vehicles, awareness increased perceived trust and reduced perceived risk among respondents.

Cunningham et al. (2019) and Liu et al. (2019) defend that along with perceived risk reduction, more awareness also increases willingness to pay for autonomous technology. Although Cunningham et al. (2019) used a sample of 5000 Australian and 1000 New Zealand respondents while Liu et al. (2019) used a sample of 1355 participants from two cities in China, both articles reached the same conclusion about the positive influence of awareness. Their results show that individuals with higher awareness of autonomous functions such as their capability of keeping a safe distance from other vehicles were more likely to adopt and pay for AVs. These

individuals also expressed higher trust and perceived benefits than the individuals who never heard about AVs before.

2.2.2 Perceived concern

Most authors debated the influence of perceived concerns over public acceptance of autonomous vehicles. In some cases, concerns were associated to the lack of awareness about autonomous vehicles' capabilities, which reinforces the importance of emphasizing the advantages of AVS over traditional vehicles as mentioned previously (Lee et al., 2019). Other authors, however, related perceived risks to a lack of trust on the technology. Some respondents of previous surveys seemed skeptical about AVs ability to perform safely without any human supervision (Cunningham et al., 2019; Acheampong & Cugurullo, 2019; Bansal & Kockelman, 2018; Nazari et al., 2018). The main concerns stated by the respondents were related to equipment without causing any harm. Some respondents also seemed concerned about work loss once drivers are replaced by autonomous driving and insurance in case of serious accidents. Since it is a self-driving vehicle, there are several debates about who should take the responsibility if an accident happens.

Pettigrew et al. (2019) considered perceived concerns as the main criteria to identify which individuals will potentially be the first adopters of self-driving technology. After evaluating answers from 1345 survey participants, the authors divided these individuals into five classes according to their concern levels. The individuals from Class 1 were classified as "non-adopters" because they showed the highest level of concern among all respondents. The main characteristics noticed among individuals from this class was lower income, longer driving history, less car accidents and higher age. Class 2 represents the individuals with low intention to become early adopters of AVs but also very low level of concern related to the technology. Since they demonstrated the highest intention to use autonomous vehicles among all respondents, this group was named "Ride-sharing preference". The Class 3 was named "AV ambivalent" because they presented an average score in almost every criteria. The Class 4 represents the group of individuals who were seen as "Likely adopters" as they presented low level of concern and great potential to become early adopters. Class 5 represents "the individuals with most favorable towards private and shared AVs. Therefore, this Class was named "First movers". Among the

main characteristics of this group the authors could notice individuals with shorter driving history, higher educational level and responsibility to transport elderly/disable people.

The conclusions reached by Pettigrew et al. (2019) were similar to other authors in several criteria. According to Bansal and Kockelman (2018), more experienced drivers (and older individuals) tend to trusts their own driving skills more than autonomous vehicles and usually question the reliability of this technology. Liu et al. (2019) also noticed that women tend to express higher levels of concern than men. Although not big, this gender difference seems to be systematic as it appeared repeatedly in most researches. According to Hohenberger et al. (2016), the effect of gender on emotional reactions such as anxiety depends on the age of the individual. Younger women showed lower levels of anxiety in comparison to older women, but still higher than the anxiety level showed by men in the same age range. This happened because women associate anxiety rather than pleasure to the use of autonomous vehicles while men thought this technology could be also a pleasant experience.

2.2.3 Perceived benefit

Cunningham et al. (2019) suggests, however, that perceived benefits have more impact over peoples' willingness to pay for autonomous vehicles than perceived concerns. Once people perceive the utility and safety of autonomous vehicles, their level of concern reduce and no longer impose an obstacle to the adherence of this technology. According to their results, most respondents believe that AVs will be safer than traditional vehicles and also increase mobility of individuals with driving restrictions such as elderly and disabled people.

Acheampong and Cugurullo (2019) results show a same pattern. 57% of the survey respondents showed a positive attitude towards AVs and 72% of all participants affirmed to be excited about fully autonomous vehicles prospects. Among the benefits acknowledge by most respondents, car crashing reduction, reliability, traffic reduction and reduction of environmental pollution were the most relevant ones. More than half of the respondents also agree that AVs would allow them to use the travel time for both productive and recreational activities. These perceived benefits, however, were lower among women. Females showed a stronger skepticism about AVs' capabilities and benefits to society, which also leads them to show lower levels of trust and acceptance of this technology.

2.2.4 Willingness to pay and use AVs

Willingness to pay (WTP) and willingness to use are very relevant aspects to evaluate when exploring public acceptance of AVs as it influences market penetration strategies and prospect prices. Understanding what types of functions are considered relevant to future customers and the perceived value of these new functions can dictate the success of failure of AVs' implementation. Previous researches suggest that speed adaptation, reliable navigation and capability of staying within its lane by itself were the main functions pointed by future customers and positively influenced their willingness to pay extra for this technology (Cunningham et al., 2019).

Cunningham et al. (2019) concluded after analysis the answers of 6133 respondents on their survey that individuals with higher levels of awareness related to AVs' capabilities and functions were more likely to pay more for AVs. The same trend was observed by Liu et al. (2019) who concluded that respondents who were aware of AV technology reported lower levels of perceived risk and higher levels of perceived benefits and WTP. Perceived benefits were also considered as the strongest predictor of WTP and willingness to use AVs (Acheampong & Cugurullo, 2019; Bansal & Kockelman, 2018; Nazari et al., 2018).

As expected, all researches show that perceived concerns have a negative effect on WTP and overall acceptance of AVs. According to Bansal and Kockelman (2018) results, older and more experienced drivers express lower WTP, while individuals with higher income levels express higher WTP. Acheampong and Cugurullo (2019) observed that higher educational level and pro-technology attitudes positively affect willingness to use AVs. Age is also a consistent predictor of WTP, since WTP is higher among younger individuals and lower among older ones (Liu et al.,2019; Cunningham et al., 2019).

2.3. Literature review summary and hypotheses presentation

In order to identify which factors influence AV acceptance, I divided my hypotheses into three groups: (1) willingness to buy AVs;(2) willingness to use shared AVs; and (3) willingness to pay for AVs. This division was created to allow a better understanding of which factors motivate potential buyers and users of AVs. First, socio-demographic characteristics such as income, gender, age, educational level and residential area will be analyzed for each group

separately. Then, experience with shared mobility and intention to buy and use AVs will be evaluated taking into consideration the respondents' attitude towards AVs (awareness, concerns, benefits).

(1) Hypotheses considered for willingness to buy AVs:

- H1.1: People with higher income are more willing to buy an AV.
- H1.2: Men are more willing to buy an AV.
- H1.3: Older people are less willing to buy an AV.
- H1.4: Individuals with higher level of education are more willing to buy an AV.
- H1.5: Urban and suburban residents are more willing to buy an AV.
- H1.6: Awareness positively affects willingness to buy AVs.
- H1.7: Benefits positively affects willingness to buy AVs.
- H1.8: Concerns negatively affects willingness to buy AVs.
- H1.9: People who enjoy driving are less willing to buy AVs.
- H1.10: People who face traffic congestions in their daily routine are more willing to buy AVs.

(2) Hypotheses considered for willingness to use shared AVs:

- H2.1: People with higher income are more willing to use shared AVs.
- H2.2: Men are more willing to use shared AVs.
- H2.3: Older people are less willing to use shared AVs.
- H2.4: Individuals with higher level of education are more willing to use shared AVs.
- H2.5: Urban and suburban residents are more willing to use shared AVs.
- H2.6: Awareness positively affects willingness to use shared AVs.
- H2.7: Benefits positively affects wiliness to use shared AVs.
- H2.8: Concerns negatively affects willingness to use shared AVs
- H2.9: Willingness to use shared AVs is higher among current users of shared mobility.
- H2.10: Willingness to use shared AVs is higher among earlier adopters of shared mobility services.
- H2.11: Individuals who intent to use only shared mobility in the future are more willingness to use shared AVs.
- H2.12: People who are currently unsatisfied with the shared mobility services available in their city are rather willing to use shared AVs.

(3) Hypotheses considered for willingness to pay more for AVs:

- H3.1: People with higher income are willing to pay more for AVs.
- H3.2: Men are willing to pay more for AVs.
- H3.3: Younger people are willing to pay more for AVs.
- H3.4: Individuals with higher level of education are willing to pay more for AVs.
- H3.5: Awareness positively affects WTP more for AVs.
- H3.6: Benefits positively affects WTP more for AVs.
- H3.7: Concerns negatively affect WTP more for AVS.

Several articles analyze willingness to buy or use AVs based on socio-demographic characteristics. Bansal and Kockelman (2018) claim that older individuals express lower WTP for automation technology, while Nazari et al. (2018) observed that young men who are used to owning a private car show more interest on buying an AV than sharing it. Liu et al. (2019) concluded that participants' who are younger, highly educated and with high incomes are willing to pay more for AVs. Since age, gender, educational level and income are often considered relevant elements on AV acceptance, the hypothesis H1.1, H1.2, H1.3, H1.4, H1.5, H2.1, H2.2, H2.3, H2.4, H2.5, H3.1, H3.2, H3.3 and H3.4were proposed in order to access whether the respondents of this survey follow the same trends.

Pettigrew et al. (2019), on the other hand, did not take socio-demographic characteristics into consideration in his research. The author considered participants' level of concern about AVs as the critical factor to determine whether or not they would be future adopter of the technology. According to his results, acceptance of AVs is lower among individuals with higher levels of concern. Liu et al. (2019) claims that perceived risk and perceived dread are negative predictors of WTP, while Cunningham et al. (2019) associates high concerns with lack of trust in AV's safety and reliability. To test this concept, H1.8, H2.8 and H3.7 were created.

Cunningham et al. (2019) and Liu et al. (2019) propose in their research that perceived benefits has the highest influence on respondents willingness to pay for AVs. Among the main benefits reported by their respondents, the ones with higher impact were AVs ability to increase the safety of drivers and to improve accessibility of individuals with driving impairments or restrictions. In order to confirm whether the influence of perceived benefits on respondents' willingness to pay for AVs and willingness to use shared AVs is significant, H1.7, H2.7 and H3.6 were created.

Authors such as Lee et al. (2019), Liu et al. (2019) and Cunningham et al. (2019) also claimed the relevance of awareness to public acceptance of AVs. According to them, respondents who have previously heard about AVs reported higher intention to pay for them than individuals who never heard about this technology. Higher levels of awareness also influenced individual's perception of the benefits AVs implementation can provide. The H1.6, H2.6 and H3.5 were proposed in order to assess whether or not awareness has an influence on respondents willingness to buy and use AVs.

Another interesting aspect that can be taken into consideration to understand AVs' usage and ownership is the mobility behavior of participants and their current usage of shared mobility services. Affinity and current use of shared mobility services could be a relevant aspect to predict shared AVs adoption. At first, it can be evaluated whether current users of shared mobility would also use shared AVs, if the they price driven, and if non current users of AVs would consider using these services once shared AVs are available. Then, it can also be observed if intention to use shared AVs is higher than intention to buy private AVs. Since these elements have not been deeply explored in any previous research, the hypothesis H2.9, H2.10, H2.11, and H2.12 were proposed.

According to Nazari et al. (2018), individuals with longer commute times are willing to embrace shared AVs and individuals who travel longer distances per day are less interested on using shared AVs. While riding long distances in shared mobility services could result in higher costs and, therefore, reducing intention to use, private AVs could provide a much more productive and entertaining ride for individuals who need to drive long distances and spend hours in traffic congestions daily. In order to assess whether or not respondents who spend more time moving from A to B in their daily routine (e.g. due to traffic congestions) are willing to buy AVs, H1.10 was selected.

3. METHODOLOGY

3.1. Survey design

The online survey contained 56 questions divided into 5 groups (socio-demographics; driving behavior and experience; mobility behavior; attitude towards shared mobility; and attitude towards autonomous vehicles). The group 'attitude towards autonomous vehicles' was subdivided into 4 other categories (level of awareness; perceived concerns; perceived benefits; and willingness to pay/use AVs). An overall description of the survey design including all groups and subgroups can be seen below. For a complete version of the survey with all questions and answer options, please see Annex A.

- *Socio-demographics*: respondents were asked to inform their age, gender, educational background, monthly income, employment status and residential location. They were also asked whether they have kids living with them and if they are responsible for the daily mobility of other individuals such as kids, disabled or elderly people.
- *Driving behavior and experience*: in this part respondents were asked if they have a driving license, how many cars they own and if they have been involved in any car accident. Respondents with a driver's license also rated how satisfied they are with their car as a mean of transportation (very satisfied to very dissatisfied).
- *Mobility behavior*: here respondents were asked about their transportation choices for their daily routine and free-time. Questions included the distance travelled by day, which transportation modes are mostly used and how satisfied they are with them. Respondents were also asked whether they often face congestions and if they consider owning a car important.
- *Attitude towards shared mobility*: in this part, respondents were asked to rate on 5-point scales ranging from 1 (Disagree) to 5 (Agree) how often they use shared mobility services, whether they mind sharing their ride with strangers, and if they see themselves using only shared mobility services in the future instead of owning a private car.
- *Attitude towards autonomous vehicles*: this part contained a longer set of questions divided into 4 subgroups that aimed to acquire a better understanding of how much people

know about autonomous vehicles, how open and interest they are in this technology and what might be the main motivations and fears related to the adoption of these vehicles.

- *Awareness*: the first subgroup focused on questions related to AV awareness to identify how many of the respondents have heard of this technology before and if they know what these vehicles is capable of doing (Cunningham et al., 2019; Liu et al., 2019).
- *Perceived concerns*: The second group focused on people's main concerns related to AVs such as equipment failure. I also asked whether respondents trust these vehicles (Liu et al., 2019; Acheampong & Cugurullo, 2019).
- *Perceived benefits*: The third subgroup is a complement of the first and highlights the main benefits associated to the implementation of AVs. Respondents were asked to rate on 5-point scales ranging from 1 (Disagree) to 5 (Agree) if they believe AVs can improve their safety, increase productivity and reduce traffic (Bansal et al., 2016; Fagnant & Kockelman, 2015).
- *Willingness to pay/use:* The last subgroup accessed respondent's willingness to pay and use AVs. They were also requested to inform how much they were willing to pay for this technology and whether they consider using and buying an AV in the next 10 years (Pettigrew et al., 2019).

Table 2. Summary of survey questions and references.

Items	References
Driving behavior and experience	
Do you have a driving license?	Nazari et al. (2018)
How many cars do you own?	Bansal and Kockelman (2016)
How satisfied are you with your car as a mean of transportation?	Self-developed
Are you responsible for the daily mobility of other people? (e.g. kids, elderly)	Self-developed
How many car accidents have you been involved in?	Acheampong and Cugurullo (2019)
[I enjoy driving.]	Self-developed
[I usually find parking lots easily.]	Nazari et al. (2018)
[I consider myself an early adopter of new technologies.]	Leicht et al. (2018)
Mobility behavior	
How long do you usually spend per day on your daily trips? (e.g. from / to work or university)	Bansal and Kockelman (2016)
Does your company / university provide you any sort of transportation? (e.g. by public transport, company car, school bus)	Self-developed Nazari et al. (2018)
What type of transportation do you use the most in your daily routine?	Bansal and Kockelman (2016)

How satisfied are you with this mean of transportation for your daily routine?	Self-developed
What type of transportation do you use in your free-time?	Nazari et al. (2018)
How satisfied are you with this mean of transportation for your free-time?	Self-developed
[I often face congestion in my daily routine.]	Self-developed
[I don't consider owning a car in the next few years.]	Self-developed
[Owning a car is very important to me.]	Self-developed
Attitude towards shared mobility services	
[I often use ridesharing services (eg.BlaBlaCar, Uber, etc.).]	Bansal and Kockelman (2016); Nazari et al. (2018)
[I often use carsharing services (eg.DriveNow, car2go, etc.).]	Nazari et al. (2018)
[I consider using shared mobility services overall cheaper than owning a car.]	Self-developed
[I consider more convenient to use a private car on my daily routine.]	Lavieri and Bhat (2019)
[I don't mind sharing my ride with strangers.]	Self-developed
[I am satisfied with the shared mobility services available in my city.]	Self-developed
[I consider myself an earlier adopter of new mobility services (e.g., DriveNow, Uber, BlaBlaCar).]	Self-developed
[I see myself fully using shared mobility services in the future.]	Self-developed
[I will continue using shared mobility services as I did before the Covid-crisis.]	Self-developed
Attitude towards autonomous vehicles - Level of Awareness	
[I have heard/read about autonomous vehicles before (self-driving vehicles that require no human driver).]	Bansal and Kockelman (2018); Xu and Fan (2019)
[I know autonomous vehicles can reduce the necessity of parking lots and improve space utilization in cities once parking areas can be replaced by other buildings.]	Webb et al. (2019)
[I know autonomous vehicles can park themselves alone.]	Cunningham et al. (2019)
[I know autonomous vehicles react faster than humans in critical, unpredictable situations (e.g. a human randomly steps from the sidewalk on the street).]	Cunningham et al. (2019)
[I know that autonomous vehicles can automatically adapt their own speed to the required speed limit in each road.]	Cunningham et al. (2019)
[I am interested in topics related to automation and new technologies.]	Acheampong and Cugurullo (2019)
Attitude towards autonomous vehicles - Perceived concern	
[I feel that I can trust autonomous vehicles.]	Liu et al. (2019); Xu and Fan (2019)
[I feel concerned about kids/disabled people riding alone in an autonomous vehicle.]	Cunningham et al. (2019); Liu et al. (2019)
[I feel concerned about equipment and system failures in autonomous vehicles.]	Acheampong and Cugurullo (2019); Bansal and Kockelman (2018); Liu et al. (2019)
[I feel concerned about autonomous vehicles sharing roads with conventional vehicles.]	Acheampong and Cugurullo (2019); Bansal and Kockelman (2018)
[I believe autonomous vehicles would negatively impact my	Self-developed

driving ability.]	
[I feel concerned about job losses (e.g. truck and taxi drivers).]	Acheampong and Cugurullo (2019); Pettigrew et al. (2019)
Attitude towards autonomous vehicles - Perceived benefits	
[Driving in an autonomous vehicle could be a fun experience.]	Hohenberger et al. (2016); Pettigrew et al. (2019)
[Autonomous vehicles can improve the safety of my ride during bad weather conditions, long distance travels and night time driving.]	Nazari et al. (2018); Acheampong and Cugurullo (2019)
[Autonomous vehicles will help me increase my productivity by allowing me to invest the driving time into other activities (e.g. working, reading, watching a movie).]	Pettigrew et al. (2019); Lee et al. (2019); Cunningham et al. (2019); Pettigrew et al. (2019)
[Autonomous vehicles can reduce traffic congestions.]	Bansal and Kockelman (2018); Liu et al. (2019)
[Autonomous vehicles can increase accessibility of disable and elderly people due to their interior space that fits wheelchairs.]	Pettigrew et al. (2019); Cunningham et al. (2019)
[I would advise my grandparents/disabled relatives to use autonomous vehicles.]	Self-developed
Autonomous vehicles are eco -friendly. Due to their electric motor CO2 emissions can be reduced. Would you use an autonomous vehicle to contribute to the environment?	Self-developed
Attitude towards autonomous vehicles - Willingness to pay (WTP)	
If the price were the same, would you prefer using a self-driving taxi or a traditional taxi with a human driver?	Self-developed
If the self-driving taxi were cheaper than the traditional one, what would you prefer?	Self-developed
How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle).	Self-developed
[I would consider buying an autonomous vehicle within the next 10 years.]	Nazari et al. (2018); Pettigrew et al. (2019); Leicht et al. (2018)
[I would consider using a shared autonomous vehicle within the next 10 years.]	Pettigrew et al. (2019); Hohenberger et al. (2016); Lee et al. (2019)
[Owning an autonomous vehicle will be seen as a sign of prestige (luxury).]	Acheampong and Cugurullo (2019);

The platform used for the survey was the website LimeSurvey[1], and was distributed via e-mail, personal request and social media pages like Facebook and LinkedIn.

3.2. Research design

The analysis of the data consist of four steps: first, a pre-test was run on the survey; secondly, a reliability test was conducted to assess the validity and consistency of the questions

[1]Available at: https://inqueritos.iscte-iul.pt/limesurvey/index.php?sid=17623&lang=en

present in the survey; then, the statistics of all data collected was presented; finally, ANOVA and a Post Hoc test were applied in order to test the hypothesis.

3.2.1. Pre-test and reliability test

Any research study based on measurement must take into consideration the reliability of its data. A measure is considered to have high reliability if it can produce similar results under consistent conditions. For example, if a survey has reliable questions, the same results would be obtained even if answered by a different group of respondents. Since Cronbach's Alpha is the most widely used objective measure of reliability, it was the method chosen to measure the questions and question groups present in the underlying survey (Tavakol & Dennick, 2011).

Cronbach's alpha (α) measures internal consistency to identify if multiple-question Likert scale surveys are reliable. Internal consistency presents the extent to which the items in a survey measure the same concept, as well as its inter-relation with other items within the same group. It shows how reliable are the items and estimates the amount of error in a test. Therefore, the internal consistency should be consulted before a survey is wildly spread in order to ensure its validity (Tavakol & Dennick, 2011; Lavrakas, 2008).

According to Nunnally (1978), 0.7 is the universally recommended alpha for early stages of a study, while published researches should present an alpha value above 0.8.If a low alpha appears, it means that the assumptions were not met. Low alphas can be a consequence of lower number of questions or poor interrelatedness among them. In this case, the items should be revised or even discarded. A higher value of alpha, in the other hand, suggests that the statements are consistent and precise. In this case, there is high reliability.

3.2.2. One-way ANOVA

One-way analysis of variance (one-way ANOVA) is a statistical procedure that compares the group means within a sample while considering only one independent factor. The independent factor is organized in categorical groups (e.g. independent factor: "age", categorical groups: "11-20 years", "21-30 years", "31-40 years", etc.). The mean of the dependent variable is computed for each of the categorical groups and compared among them in order to assess whether there are significant differences (Howell, 2012).

Since one-way AVOVA is a hypothesis-based test, it evaluates mutually exclusive theories. The null hypothesis (H0) states that the distribution among the categorical groups is the same and the difference between the means is zero. Whereas the alternative hypothesis (H1) states the opposite, meaning that the distribution among the categorical groups is different and the difference between the means is not zero. If the difference between the categorical group means is significantly different from zero (e.g. on a significance level of 5%), the null hypothesis can be rejected (Ruppert & Matteson, 2015).

One-way ANOVA can be performed once 3 main conditions are met:

(1) Sample independence
(2) Normality
(3) Variance equality

Condition 1 refers to samples that are not related in any way. Condition 2 refers to a normally distributed sample population. This condition has to be tested by applying either the Kolmogorov–Smirnov test or the Shapiro–Wilk test. Condition 3 implies that the variances in the different categorical groups are the same. This can be tested using Levene test. If any of the previously mentioned conditions are not met, ANOVA's parametric solution cannot be applied and nonparametric tests are required(Howell, 2012).

In the underlying survey, respondents were picked randomly and conducted their answers independently. Therefore, condition 1 is met. For all the cases in which conditions 2 or/and 3 are violated, nonparametric tests such as Mann–Whitney U test (for two samples) and Kruskal–Wallis test (for k samples) were used to test the null hypothesis. For all the other cases parametric ANOVA test were applied.

3.2.3. Post Hoc test

Since ANOVA only present an overall difference between groups without presenting which specific group differ from the other, post hoc tests will be also considered to test the hypotheses in the present research. Although there are several different types of post hoc tests available, Games Howell Post-hoc test was the one selected to test the hypotheses due to its capacity to compare samples in which the equivalence of variance is violated (Lee & Lee, 2018).

Post hoc tests are applied when there is a statistically significant difference in group means. Games Howell test, therefore, compares all possible combinations of group differences and provides confidence intervals for the differences between group means in order to proof whether or not they are statistically significant (Lee & Lee, 2018).

3.3. Data collection and descriptive analysis

The collection of data for this research involved two different steps. First of all, an online pilot survey was created and shared with 30 adult individuals who took the survey and made comments related to the clarity of the questions and overall size of the questionnaire. Once these 30 answers were collected, the overall scale of consistency and the reliability of all questions and question groups were tested using Cronbach's Alpha reliability coefficient (see Annex B – Tables 8; 9; 10; and 11). After analysis the respondents' comments and Cronbach's Alpha results, minor changes and adaptations were made for the final survey. Since all questions achieved a reliability level above 0,7, no content changes were required. The amount of questions was reduced to 56 in order to focus on the most relevant aspects and avoid repetition (previously there were 66 questions),but no structural or conceptual change took place.

The final survey was available online between May-September 2020 and collected answers from 426 participants from different age groups, educational background and income levels. The participants selected for this questionnaire have lived or currently live in the city of Lisbon. Since 43 individuals did not complete the survey, their answers were excluded from the analysis and only complete answers were taken into consideration, resulting on sample of 383 valid answers representative of the city´s population according to the gender and age data. Table 3 presents the socio-demographic profile of all valid participants, as well as additional information about their mobility behavior.

Table 3. Respondent's background and socio-demographic characteristics.

	N	%		N	%
Gender			**Diver license**		
Female	184	48%	Yes	299	78%
Male	199	52%	No	84	22%
Age group			**Number of cars owned**		
< 20 years	26	7%	None	76	25%

20-29 years	134	35%
30-39 years	87	23%
40-49 years	67	17%
50-59 years	30	8%
> 60 years	39	10%
Educational level		
Primary or secondary school	35	9%
High school	26	6%
Technical school	37	10%
Bachelor's degree	118	31%
Master's degree	152	40%
PhD	15	4%
Income level		
Under €1.500	116	30%
€1.500 - €3.000	129	33%
€3.001 - €5.000	87	23%
€5.001 - €7.000	22	6%
€7.001 - €10.000	22	6%
more than €10.000	7	2%
Employment status		
Employed - full time	186	49%
Employed - part time	31	7%
Self-employed	34	9%
Intern / trainee	19	5%
Student	60	16%
Currently unemployed	10	3%
Temporary leave	1	0.5%
Housewife / husband	11	3%
Retired	30	7%
Other	1	0.5%
Residential location		
Downtown or central area	189	49%
Suburb	136	36%
Small town	38	10%
Countryside	20	5%
Responsible for mobility of others		
Yes	93	24%
No	290	76%
One	200	67%
Two	17	6%
Three or more	6	2%
Involvement in car accidents		
None	175	46%
One	98	26%
Two	66	17%
Three or more	44	11%
Time spent in daily trips		
less than 15 minutes	41	11%
15 - 30 minutes	70	18%
30 - 45 minutes	110	29%
45 - 60 minutes	113	29%
More than 1 hour	49	13%
Most used type of transportation (daily routine)		
Car	182	47%
Bus	101	26%
Train	67	17%
Motorcycle	9	2%
Bicycle	27	7%
Tram	26	7%
Metro	113	29%
Taxi	5	1%
Shared car	7	2%
Shared bicycle	10	3%
Walking	50	13%
Other	7	2%
Most used type of transportation (free time)		
Car	229	60%
Bus	96	25%
Taxi	15	4%
Shared car	79	21%
Bicycle	40	10%
Shared bicycle	10	3%
Motorcycle	7	2%
Shared motorcycle	1	0.3%
Metro	121	31%
Tram	27	7%
Other	21	5%

As demonstrated on Table 3, the number of male and female respondents was equilibrated (52 % male and 48% female). The age group of most respondents, however, was concentrated between 20 and 39 years old, representing together almost 58% of the total answers. This scenario was already expected due to the distribution method of the survey, which was mostly

made through online platforms and among ISCTE students. This factor also explains why 75% of the participants have an university degree, being it either a Bachelor, Master or PhD. Nearly half of the participants are employed full-time (49%) and 16% of them are still students, which also clarifies why almost 30% of the income presented is below 1.500,00 Euros despite the high educational level registered. Almost 50% of the participants live in Lisbon central area, while a bit more than 35% of them live in suburban areas.

In relation to the mobility behavior of the respondents, more than half considered car ownership relevant (59%); 78% of them reported to have a driving license and 67% own a private car. Private cars are also the most used mode of transportation chosen by respondents both in their daily routine (47%) and free time (60%). Half of the respondents reported to enjoy driving (50%), while 48% of them consider private car as the most convenient mode of transportation for their daily routine. The second mode of transportation most used by the participants on their daily routine is the metro (29%), followed by buses (26%). Most respondents spent between 30 to 45 minutes (29%) and 45 to 60 minutes (29%) on their daily journeys.

The data related to participants' attitude towards shared mobility service shows that nearly half of the respondents often use ridesharing services like Uber (48%), while only 16% often use car-sharing services like DriveNow. Share mobility was more expressive among respondents as a transportation mode for free time activities (21%) than for daily routine use (2%). Despite being considered cheaper than car ownership by 48% of the respondents, only 38% of them reported to be satisfied with the shared mobility services available in Lisbon. Half of the participants consider themselves early adopter of shared mobility services, while 38% of them see themselves using only shared mobility in the future. Despite de sanitary crises created by the spread of covid-19, 71% of the survey participants affirm that they will continue using shared mobility services as they used to before the pandemic.

Table 4. Summary of participants' answers

Questions	Scale[1]					M[2]	SD[3]
	5	4	3	2	1		
Mobility behavior and driving experience							
I enjoy driving.	32%	29%	20%	9%	10%	3,62	1,29
I usually find parking lots easily.	7%	13%	31%	25%	24%	2,53	1,19
I consider myself an early adopter of new technologies.	32%	28%	9%	13%	18%	3,46	1,48

I often face congestion in my daily routine.	28%	25%	8%	25%	14%	3,29	1,45
I consider owning a car in the next few years.	36%	23%	10%	16%	15%	3,48	1,48
Owning a car is very important to me.	37%	22%	9%	15%	17%	3,48	1,52
Attitude towards shared mobility services							
I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.).	25%	23%	4%	13%	35%	2,92	1,66
I often use carsharing services (e.g. DriveNow, car2go, etc.).	7%	9%	4%	14%	66%	1,75	1,26
I consider using shared mobility services overall cheaper than owning a car.	20%	28%	21%	17%	14%	3,25	1,33
I consider more convenient to use a private car on my daily routine.	38%	20%	13%	16%	13%	3,52	1,47
I don't mind sharing my ride with strangers.	18%	13%	10%	26%	33%	2,58	1,50
I am satisfied with the shared mobility services available in my city.	12%	28%	44%	8%	8%	3,26	1,05
I consider myself an earlier adopter of new mobility services (e.g., DriveNow, Uber, BlaBlaCar).	28%	22%	9%	13%	28%	3,09	1,59
I see myself fully using shared mobility services in the future.	9%	29%	17%	15%	30%	2,74	1,39
I will continue using shared mobility services as I did before the Covid-crisis.	44%	27%	16%	6%	7%	3,95	1,21
Level of Awareness ($\alpha = 0.938$)							
I have heard/read about AVs before starting this survey.	55%	21%	2%	7%	15%	3,94	1,48
I know AVs can reduce the necessity of parking lots and improve space utilization in cities.	31%	25%	9%	14%	21%	3,31	1,55
I know AVs can park themselves alone.	45%	23%	7%	9%	16%	3,71	1,50
I know AVs react faster than humans in critical, unpredictable situations.	36%	26%	12%	10%	16%	3,54	1,47
I know that AVs can automatically adapt their own speed to the required speed limit in each road.	43%	19%	8%	12%	18%	3,58	1,56
I am interested in topics related to automation and new technologies.	42%	21%	11%	11%	15%	3,63	1,48
Perceived concerns ($\alpha = 0.844$)							
I feel that I can trust AVs.	18%	31%	16%	21%	14%	3,18	1,332
I feel concerned about kids/disabled people riding alone in an AV.	30%	38%	9%	16%	7%	2,32	1,246
I feel concerned about equipment and system failures in AVs.	34%	38%	5%	14%	9%	2,26	1,301
I feel concerned about autonomous vehicles sharing roads with conventional vehicles.	27%	32%	12%	19%	10%	2,55	1,343
I believe autonomous vehicles would negatively impact my driving ability.	11%	22%	18%	28%	21%	3,26	1,306
I feel concerned about job losses (e.g. truck and taxi drivers).	22%	33%	13%	19%	13%	2,69	1,357
Perceived benefits ($\alpha = 0.913$)							
Driving in an AV could be a fun experience.	48%	19%	13%	10%	10%	3,85	1,369
AVs can improve the safety of my ride during bad weather conditions, long distance travels and night time driving.	43%	27%	12%	13%	5%	3,89	1,240
AVs can help me increase my productivity by allowing me to invest the driving time into other activities.	40%	22%	10%	18%	10%	3,63	1,408
AVs can reduce traffic congestion.	34%	16%	18%	16%	16%	3,35	1,480
AVs can increase accessibility of disabled and elderly people due to their interior space that fits wheelchairs.	47%	35%	13%	4%	1%	4,24	0,877

I would advise my grandparents/disabled relatives to use AVs.	28%	29%	15%	14%	14%	3,42	1,400

Notes α = Cronbach's Alpha reliability coefficient. Overall scale reliability of responses (α) = 0.953.
[1]Answers presented on a five point Likert scale labeled as: 5 = Agree; 4 = Somewhat agree; 3 = Neither agree nor disagree; 2 = Somewhat disagree; 1 = Disagree.
[2] (M): Mean
[3] (SD): Standard deviation

Table 4 also presents the collected data related to attitude towards AVs (awareness, concerns and benefits). According to the results, 76% of the respondents have read or heard about autonomous vehicles before answering the survey. Most of them also reported a good understanding of AVs capabilities such as their ability to park alone (68%), faster reaction in critical situations when compared to human drivers (62%), automatic adaption of speed limits (62%) and the possibility to reduce the necessity of parking spots in central areas (56%).Fear of equipment failure was the main concern related to AVs usage reported by the respondents (72%), followed by fear of kids and disable people riding AVs alone (68%) and fear of AVs sharing the road with conventional vehicles (59%). Despite all concerns, nearly half of the participants (49%) declare to trust AVs and only 33% of them believe that AVs would negatively impact their driving ability. Most participants believe that driving in AVs could be a fun experience (67%), while 70% of them agree that AVs can improve the safety of their ride during bad weather conditions, long distances and night drives. Also, 42% believe that AVs could help them to increase their productivity, while 50% think that AVs implementation can help reducing traffic congestions. Results also show that 82% of the participants agree that AVs can increase accessibility of elderly and disable people. And that 57% of them would advise their elderly and disable relatives to use AVs in the future.

The final aspect asked to respondents is related to their willingness to buy and use AVs, as well as how much they are willing to pay for this technology. According to the results presented at Table 5, 50% of the respondents showed interest on buying AVs within the next 10 years, while 56% would consider using shared AVs within the same period time. Since these questions were not exclusive, a positive answer towards private AVs does not mean that the same person would not consider using shared AVs as well. It only shows that the majority of individuals interviewed were open to shared AVs.

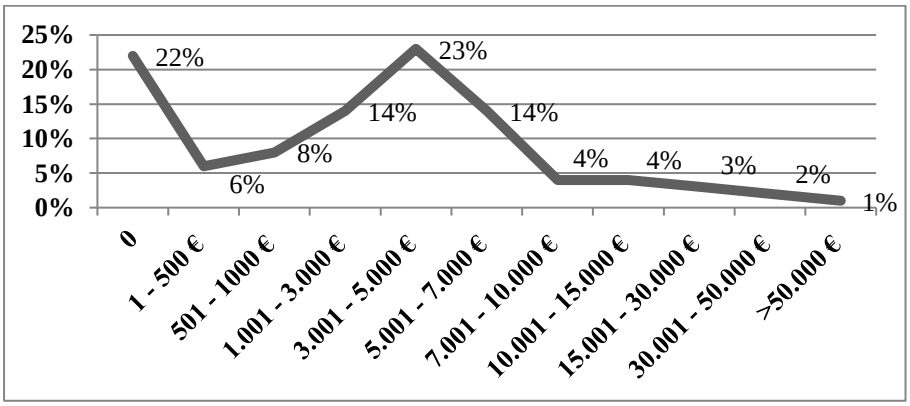
Table 5. Respondent's willingness to buy and use AVs.

Question	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Total
Buy	17%	33%	11%	14%	24%	383
Use	33%	23%	13%	12%	20%	

Results related to WTP for AVs show that respondents are, to some extent, price sensitive. When the same price was considered for both conventional taxis and self-driving taxis, only 12% of respondents shoed interest on using self-driving taxis, while 37 % preferred the conventional one, 48% of them considered both options and 3% choose none of the alternatives. When, however, a lower price for self-driving taxis was considered, 61% of the respondents reported intention to use self-driving taxis, while 25% of them would continue using conventional taxis and 10% would consider using both. In relation to the level of prestige that AVs could represent to their owners, 70% of the respondents agreed that owning an AV will be seen as a sign of luxury.

Finally, respondents were asked about how much in Euros they were willing to pay for AV technology implemented in their next vehicle (considering the amount proposed on top of the current price of a conventional car). According to the answers received, 22% of the participants reported no intention to pay any extra amount to have automated technology installed in their next vehicle (see Figure3.1). Among the respondents who were considering to pay extra for this technology, 23% of them were willing to pay between 3.001 and 5.000 Euros, followed by 14% considering to pay between 1.001- 3.000 and 5.001 – 7.000 (also 14%). Very few respondents demonstrated intention to pay more than 7.000 Euros.

Figure 3.1. Participant's willingness to pay for AVs.



4. RESULTS

4.1.Variance of willingness to buy AVs among socio-demographic groups

A normality test was run for the data of willingness to buy, use and pay to address the type of tests that could be applied. The results are presented in Annex D and indicate that the error terms do not follow a normal distribution, hence the Kruskal Wallis and Mann-Whitney tests were employed to all socio-demographic aspects.

Figure 4.1 (see Annex D) reports the test result for **H 1.1 "People with higher income are more willing to buy an AV"**. Based on the results of the Kruskal-Wallis Test it can be concluded that the null hypothesis of equal variance is rejected at a significance level of 5%, meaning that the willingness to buy an AV varies across population groups with different incomes (p=0).Higher incomes positively affect willingness to buy. The same test was run for **H2.1 "People with higher income are more willing to use shared AVs"**. At a significance level of 5% the null hypothesis of equal variance can be rejected, meaning that willingness to use shared AVs varies among population groups with different income levels (p=0). Figure 8 illustrates this variation, showing that willingness to use shared AVs is higher among individuals with higher income levels. For **H3.1 "People with higher income are willing to pay more for AVs", Kruskal-Wallis** results also lead to the rejection of the null hypothesis of equal variance at a significance level of 5%. As reported in Figure 4.11, willingness to pay for AVs is higher among individuals with higher income levels than among individuals with lower income levels. Therefore, H1.1, H2.1 and H3.1 can be confirmed.

According to the results of the Mann-Whitney U Test for **H1.2 "Men are more willing to buy an AV"**, the null hypothesis of equal variance is rejected at a significance level of 5%.As shown in Figure 4.2,the mean rank of the male participants' answers (=208,97) is higher than the one registered for female participants (=173,65). A higher mean rank can be achieved when relatively more respondents tend to agree buying an AV in the future. Therefore, H1.2 can be confirmed. The same test was applied to test **H2.2 "Men are more willing to use shared AVs"**. At a significance level of 5%, the null hypothesis of equal variance is also rejected, meaning that willingness to use shared AVs varies between population groups of males and females. Since the mean rank of male participants' answers (=203,40) is higher than the mean rank of female

participants' answers (=179,67), hypothesis H2.2 can be sustained. Figure 4.12 report the test results for **H3.2 "Men are willing to pay more for AVs"**. At a significance level of 5%, the null hypothesis of equal variance was also rejected, meaning that WTP for AVs varies between men and women. Since male responses (= 210,62) obtained a higher mean rank than female responses (=171,87), H3.1 can be confirmed.

Kruskal-Wallis' results for **H1.3 "Older people are less willing to buy an AV"** show that at a significance level of 5% the null hypothesis of equal variance is rejected (p=0), meaning that willingness to buy AVs varies across age groups (see Figure 4.3). Since younger respondents reported higher willingness to buy AVs in comparison to older respondents, H1.3 can be confirmed. Willingness to buy AVs is especially higher among two population groups (20-29 and 30-39 years old). The same trend was observed between age and willingness to use shared AVs. Based on Kruskal-Wallis' results, the null hypothesis of equal variance can be rejected at a significance level of 5%, meaning that willingness to use shared AVs varies among different age groups. Since younger respondents (specially the population groups >20 and between 30-39 years old) accused higher interest on using shared AVs than older respondents, **H2.3 "Older people are less willing to use shared AVs"** can be sustained. Figure 4.8 presents the results for **H3.3 "Younger people are willing to pay more for AVs"**. At a significance level of 5% the null hypothesis of equal variance was also rejected, meaning that WTP for AVs varies among age groups. Since younger individuals (between >20 and 39 years old) reported higher willingness to pay for AVs, H3.3 can be confirmed.

According to Kruskal-Wallis' test results, **H1.4 "Individuals with higher level of education are more willing to buy an AV"** can be sustained. Ata significance level of 5% the null hypothesis of equal variance is rejected (p=0), meaning that willingness to buy AVs varies across population groups with different educational background. Higher educational level positively affects willingness to buy AVs. As shown in Figure 4.4, individuals with higher degrees (PhD, Master and Bachelor) were more willing to purchase an AV than individuals with lower levels of education. The same test was performed for **H2.4 "Individuals with higher level of education are more willing to use shared AVs"**. Based on the test results, the null hypothesis of equal variation can also be rejected at a significance level of 5%, meaning that willingness to use shared AVs varies across population groups of different educational levels. Higher

educational level positively affects willingness to use shared AVs (see Figure 4.9). Therefore, H2.4 can be sustained. Based on Kruskal-Wallis' results for **H3.4 "individuals with higher level of education are willing to pay more for AVs"**, the null hypothesis of equal variance can be rejected at a significance level of 5%. This outcome means that WTP for AVs varies among population groups with different educational level. Since highly educated people reported higher intention to pay for AVs than individuals with lower education level, H3.4 can be sustained.

Kruskal-Wallis' test results for **H1.5 "Urban and Suburban residents are more willing to buy AVs"** reports that at a significance level of 5% the null hypothesis of equal variance can be rejected, meaning that willingness to buy AVs varies among population groups with different residential locations. Figure 4.5 shows that both urban and suburban residents are more willing to buy AVs in comparison to small city and countryside residents. Therefore, H1.5 can be confirmed. Based on Kurskal-Wallis' test results for **H2.5 "Urban and suburban residents are more willing to use shared AVs"**, the null hypothesis of equal variance can be rejected at a significance level of 5%, meaning that willingness to used shared AVs varies among population groups of different residential locations(see Figure 4.10).Since both urban and suburban respondents reported higher willingness to use shared AVs than small town and countryside residents, H2.5 can be confirmed.

4.2. Variance of willingness to buy and use among behavioral factors

In order to test the following hypotheses, multiple Games-Howell tests were performed to compare the answers of all behavioral categories on willingness to buy, use and pay for AVs (see Annex D). In contrast to Kruskal-Wallis' test, Games-Howell tests and compares group of questions belonging to the categories "awareness", "benefits" and "concerns" at once. It also provides a new measure (mean difference of the dependent variable), which reflects the degree of difference in the answers of the compared groups, and whether or not these differences are statistically significant.

To test **H1.6 "Awareness positively affects willingness to buy AVs"**, Games-Howell was performed in all questions present on the subgroup "awareness". Table 14 (see Annex D) shows the summary results of each of the awareness questions (6 in total) and the mean differences of the dependent variable of the respondent groups who answered Disagree (I) versus

Agree (J). Since all mean differences are negative (scale of willingness to buy AVs: Agree = 5 to Disagree = 1) and statistically significant on a 5% significance level, [(1) MD = -2,264*; (2) MD = -2,353*; (3) MD = -2,142*; (4) MD = -2,444*; (5) MD = -2,250*; (6) MD= -2,685*]it can be concluded that respondents who presented higher levels of awareness are more willing to buy AVs. Therefore, H1.6 can be sustained.

Results for **H1.7 "Benefits positively affects willingness to buy AVs"** show that on average, respondents who perceive a higher degree of benefits related to AVs capabilities, are also more willing to buy them than respondents who perceive a lower degree of benefit (see Table 15). This outcome is statistically significant on a 5% significance level and expressed by the mean differences in all questions from the subgroup "benefits" (5 in total) [(1) MD = -2,832*; (2) MD = -2,980*; (3) MD = -2,612*; (4) MD = -2,256*; (5) MD = -2,807*]. Since all the mean differences are negative and statistically significant, H1.7 can also be sustained.

Table 16 presents the results for **H1.8 "Concerns negatively affects willingness to buy AVs"**. At a significance level of 5%, on average respondents who perceived a higher level of concern related to AVs were also less willing to buy this type of vehicle [(1) MD = -2,830*; (2) MD = -2,151*; (3) MD = -2,195*; (4) MD = -2,241*; (5) MD = -2,110*; (6) MD= -1,807*]. Therefore, H1.7 can be confirmed.

The test result for **H1.9 "People who enjoy driving are less willing to buy AVs"**, shows a negative tendency (MD = -0,496), meaning that people who enjoy driving are still willing to buy AVs, which would lead to the rejection of H1.9. However, the negative mean difference is not significant, therefore, it cannot be confirmed (see Table 17).

A similar situation was observed with **H1.10 "People who face traffic congestions in their daily routine are more willing to buy AVs"**. Despite the negative tendency (MD = -0,475), the mean difference of the dependent variable of the respondent groups who answered (I) Disagree versus (J) Agree is not significant (p = 0.257). Although the mean difference between "Somewhat disagree" (I) and "Agree" (J) is negative and statistically significant (MD = -0.668*; p = 0.009), the overall picture remains unclear. Therefore, H1.10 cannot be confirmed.

Table 6. Games Howell results for hypothesis 1.10.

Dependent Variable: I would consider buying an autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I often face congestion in my daily routine.]	**(J) [I often face congestion in my daily routine.]**			
Disagree	Somewhat disagree	0,193	0,248	0,937
	Neither agree nor disagree	-0,338	0,334	0,848
	Somewhat agree	-0,374	0,245	0,549
	Agree	-0,475	0,233	0,257
Somewhat disagree	Disagree	-0,193	0,248	0,937
	Neither agree nor disagree	-0,531	0,312	0,440
	Somewhat agree	-0,567	0,214	0,066
	Agree	-,668*	0,200	0,009

*. The mean difference is significant at the 0.05 level.

Table 18 (see Annex D) shows the test results for **H 2.6 "Awareness positively affects willingness to use shared AVs"**. Since the mean differences of all questions from the group "awareness" are negative (scale of willingness to use shared AVs: Agree = 5 to Disagree = 1) and statistically significant on a 5% level, [(1) MD = -2,533*; (2) MD = -2,285*; (3) MD = -2,402*; (4) MD = -2,571*; (5) MD = -2,289*; (6) MD= -2,969*] it can be concluded that respondents who present higher levels of awareness related to AVs are more willing to use shared AVs. Therefore, H2.6 can be sustained.

Results for **H2.7 "Benefits positively affects willingness to use shared AVs"** reports that on average, respondents who perceive a higher degree of benefits related to AVs are also more willing to use shared AVs than respondents who perceive a lower degree of benefits (see Table 19). This outcome is statistically significant on a 5% significance level and expressed by the mean differences in all questions from the subgroup "benefits" (5 in total) [(1) MD = -3,159*; (2) MD = -3,077*; (3) MD = -2,495*; (4) MD = -1,978*; (5) MD = -2,805*]. Since all mean differences are negative and significant, H2.7 can also be sustained.

Test result for **H2.8 "Concerns negatively affects willingness to use shared AVs"** shows that on average, respondents who perceived higher levels of concerns related to AV, demonstrated a lower level of intention to use shared AVs. Since the mean difference in all questions present in the group "concerns" are negative and statistically significant on a 5% significance level [(1) MD = -3,104*; (2) MD = -2,294*; (3) MD = -1,844*; (4) MD = -2,084*; (5) MD = -2,623*; (6) MD= -2,228*], H2.8 can be confirmed (see Table 20).

Results for **H2.9 "Willingness to use shared AVs is higher among current users of shared mobility"** show that on average, respondents who often use shared mobility services reported a higher intention to use shared AVs than respondents who currently do not use shared mobility services often (see Table 21). This outcome is statistically significant on a 5% significance level and expressed by the negative mean difference (MD = -2,438*; p = 0). Therefore, H2.9 can be confirmed.

Table 22 reports the results for **H2.10 "Willingness to use shared AVs is higher among earlier adopters of shared mobility services"**. At a significance level of 5% and represented by the negative mean difference (MD = -2.840*; p = 0), it can be concluded that respondents who considered themselves early adopters of new mobility services showed a higher level of interest in using shared AVs in the future than respondents who are not early adopters. Therefore, H2.10 can be confirmed.

Results for **H2.11 "Individuals who intent using only shared mobility in the future are more willing to use shared AVs"** reveal that on average respondents who intent to use only shared mobility in the future have also a higher interest on using shared AVs (see Table 23). At a significance level of 5% and represented by the negative mean difference (MD = -2.345*; p = 0), H2.11 can be confirmed.

Regarding **H2.12 "People who are currently unsatisfied with the shared mobility services available in their city are rather willing to use shared AVs"**, results show that individuals who on average are satisfied with the shared mobility services available in their city have higher intention to use shared AVs (see Table 24). This outcome is statistically significant at a 5% significance level and represented by the negative mean difference (MD = -1,795*; p = 0). Therefore, H2.12 can be rejected. The goal of this hypothesis was to assess whether shared AVs could provide solutions or become an alternative to the respondents who are currently dissatisfied with the shared mobility services available in their city. However, it seems that people who are currently unsatisfied with shared mobility services, do not believe that shared AVs would improve this service.

Table 25 (see Annex D) shows the summary results for **H3.5 "Awareness positively affects WTP more for AVs".** Since all mean differences are negative [(1) MD = -3,005*; (2) MD = -2,895*; (3) MD = -3,230*; (4) MD = -2,803*; (5) MD = -3,011*; (6) MD= -3,593*] and

statistically significant on a 5% significance level (scale of WTP: €0 = 1 to > €50k = 11), it can be concluded that respondents who presented higher levels of awareness are willing to pay more for AVs. Therefore, H3.5 can be sustained.

Results for **H3.6 "Benefits positively affects WTP more for AVs"** show that on average, respondents who perceive a higher degree of benefits related to AVs capabilities and implementation, are also willing to pay more for this type of vehicles than respondents who perceive a lower degree of benefit (see Table 26). This outcome is statistically significant on a 5% significance level and expressed by the mean differences in all questions from the subgroup "benefits" (5 in total) [(1) MD = -3,932*; (2) MD = -2,932*; (3) MD = -2,283*; (4) MD = -2,197*; (5) MD = -4,028*]. Since all the mean differences are negative and statistically significant, H3.6 can also be sustained.

Table 27 presents the results for **H3.7 "Concerns negatively affect WTP more for AVs"**. At a significance level of 5%, on average respondents who perceived a higher level of concerns related to AVs, are willing to pay less for them [(1) MD = -3,237*; (2) MD = -1,904*; (3) MD = -1,558*; (4) MD = -1,862*; (5) MD = -2,918*; (6) MD= -2,127*], which leads to the conclusion that concerns negatively influences how much people are willing to pay AVs. Therefore, H3.7 can be confirmed.

Table 7. Summary of hypotheses' results

	Hypothesis	Status
H1.1	People with higher income are more willing to buy an AV.	Confirmed
H1.2	Men are more willing to buy an AV.	Confirmed
H1.3	Older people are less willing to buy an AV.	Confirmed
H1.4	Individuals with higher level of education are more willing to buy an AV.	Confirmed
H1.5	Urban and suburban residents are more willing to buy an AV.	Confirmed
H1.6	Awareness positively affects willingness to buy AVs.	Confirmed
H1.7	Benefits positively affect willingness to buy AVs.	Confirmed
H1.8	Concerns negatively affect willingness to buy AVs.	Confirmed
H1.9	People who enjoy driving are less willing to buy AVs.	Not confirmed
H1.10	People who face traffic congestions in their daily routine are more willing to buy AVs.	Not confirmed
H2.1	People with higher income are more willing to use shared AVs.	Confirmed
H2.2	Men are more willing to use shared AVs.	Confirmed
H2.3	Older people are less willing to use shared AVs.	Confirmed
H2.4	Individuals with higher level of education are more willing to use shared AVs.	Confirmed
H2.5	Urban and suburban residents are more willing to use shared AVs.	Confirmed
H2.6	Awareness positively affects willingness to use shared AVs.	Confirmed
H2.7	Benefits positively affect wiliness to use shared AVs.	Confirmed
H2.8	Concerns negatively affect willingness to use shared AVs	Confirmed
H2.9	Willingness to use shared AVs is higher among current users of shared mobility.	Confirmed
H2.10	Willingness to use shared AVs is higher among earlier adopters of shared mobility services.	Confirmed

H2.11	Individuals who intent to use only shared mobility in the future are more willingness to use shared AVs.	Confirmed
H2.12	People who are currently unsatisfied with the shared mobility services available in their city are rather willing to use shared AVs.	Rejected
H3.1	People with higher income are willing to pay more for AVs	Confirmed
H3.2	Men are willing to pay more for AVs	Confirmed
H3.3	Younger people are willing to pay more for AVs	Confirmed
H3.4	Individuals with higher levels of education are willing to pay more for AVs	Confirmed
H3.5	Awareness positively affects WTP more for AVs.	Confirmed
H3.6	Benefits positively affect WTP more for AVs.	Confirmed
H3.7	Concerns negatively affect WTP more for AVs.	Confirmed

5. DISCUSSION

Based on the collection of results achieved in the hypothesis testing, a few conclusions can be made. First of all, socio-demographic characteristics remain relevant aspects in the identification of potential users and buyers of AVs. In agreement with the conclusions obtained in previous researches, younger individuals reported higher intention to buy, use and pay for AVs than older ones (Liu et al., 2019; Bansal & Kockelman, 2018; Nazari et al., 2018). Test results show that intention to buy is especially high among individuals between 20 and 39 years old, while intention to use shared AVs is higher among individuals below 20 and between 30 and 39 years old. Respondents between 20 and 39 years old reported as well the highest intention to pay for AVs (the average amount selected by this age group was between €3.000 and €5.000).

Gender also plays a role on acceptance. As previously observed by Hohenberger et al. (2016), acceptance of AVs is lower among women than among men. The results of this ongoing research reported that intention to buy and to use AVs is higher among men than among women, although women also reported high intention to use and buy AVs. In relation to price, male respondents also reported higher intention to pay for AVs than women. While Bansal and Kockelman (2018) reported that higher income positively affect willingness to pay for AVs, the results of the current research showed a similar trend on both intention to use and buy AVs. According to the test results, the higher the income level of the respondent, the higher is his intention to buy AVs. Intention to use shared AVs was, however, more equilibrated among different income groups. Respondents who earn between €5.001 and €10.000 per month reported the highest intention to use shared AVs. Respondents who earn between €3.000 and €7.000 were willing to pay on average between €3.000 and €5.000 for AVs, while respondents who earn more than €7.000 per month considered to pay above €5.000 to have automated technology installed in their next vehicle.

Educational level and residential location also play a relevant role on AV acceptance. As Acheampong and Cugurullo (2019) and Liu at al. (2019) previously reported, education and pro-technology attitudes are positively related. The current research results show that intention to buy and use AVs is significantly higher among individuals with academic education (PhD, Master and Bachelor) than among individuals who reported a lower level of educational background.

The same scenario was observed for willingness to pay and to use shared AVs. Participants with academic degrees reported on average willingness to pay between €3.000 and €7.000. When it comes to residential location, both urban and suburban residents showed higher intention to buy and use AVs than small town and countryside residents. This behavior was expected for shared AVs due to the expected high costs of riding long distances in shared mobility services, but private AVs could provide even higher benefits to individuals who reside further away from the city center and have to spend a longer period of time on the road and traffic congestions to reach the center.

After analyzing the socio-demographic aspects, respondents' attitudes towards AVs (awareness, concern and benefit) were evaluated. Awareness proved to be a very relevant aspect on AVs acceptance. Individuals who reported higher levels of awareness reported higher intention to buy, use and pay for AVs. This conclusion shows the importance of increasing the level of awareness among the population before implementing AVs in public roads. A few previous researchers like Cunningham et al. (2019) and Liu et al. (2019) also observed the relevance of awareness to AV' acceptance and WTP. Lee et al. (2019) complemented this observation by affirming that providing information about AVs can reduce perceived risk and increase perceived trust in the technology.

The second aspect analyzed in the subgroup of attitude towards AVs was perceived concerns. Cunningham et al. (2019) and Liu et al. (2019) associated perceived concerns and perceived risks with lower WTP for AVs. Bansal and Kockelman (2018) claimed that affordability and equipment failure were the main concerns perceived by the respondents, while Acheampong and Cugurullo (2019) respondents considered AVs interaction with other road users, equipment failure and job losses as the main risks and concerns associated to AV implementation. Results on the current research show that intention to use, buy and pay for AVs was consistently lower among individuals who reported higher levels of concerns. Also, respondents who reported higher trust levels on AVs reported as well higher intention to buy, use and pay for AVs in comparison to the respondents who do not trust this technology.

The third aspect of the subgroup attitude towards AVs is perceived benefits. Liu et al. (2019) and Cunningham et al. (2019) concluded that perceived benefits were positive predictors of WTP. Cunningham et al. (2019) also noted that the strongest predictor reported by the

respondents was the level of agreement with AVs being safer than traditional vehicles. AVs ability to increase mobility of individuals with impairments or restrictions was also considered to be a strong predictor of WTP. According to the results of the current research, all perceived benefits positively influenced willingness to buy, use and pay for AVs. In relation to privately owned AVs, the respondents who agreed that AVs can increase accessibility of disable and elderly people and the ones who believe that driving in an AV could be a fun experience reported the highest intention to buy AVs. For shared AVs, respondents who agreed that driving in an AV could be a fun experience and the ones who believe that AV can improve the safety of their ride in bad weather condition and long rides reported the highest intention to use. The highest predictors for WTP were perceived fun on driving in AVs and the increasing accessibility for elderly and disable people.

In order to complement the conclusions of previous researches, the ongoing research also considered a few other factors that can influence AVs acceptance and have been overlooked by all existing researches so far. The first factor is attitude towards shared mobility services. Respondents were asked several questions related to their current usage of shared mobility and their intention to continue using in the future. According to the results, respondents who are current users and early adopters of shared mobility reported high intention to use shared AVs in the future. Respondents who intent to use only shared mobility in the future and the ones who are satisfied with the mobility services currently available in Lisbon, also reported higher willingness to use shared AVs within the next 10 years.

The general opinion that AVs take away the fun of driving, and therefore lowering public intention to buy AVs, could not be confirmed by the underlying sample of respondents. Also, the extent of traffic congestion faced by people on their daily routine as a factor to motivate willingness to purchase AVs could not be proven.

6. CONCLUSION

Autonomous vehicles' implementation might become a reality in the near future and, in order to guarantee a successful market penetration, it is of high relevance to understand which

sectors of the society can become the first adopters and what can influence public acceptance of this technology. Therefore, the objective of this research was to identify which factors can positively or negatively influence public interest on buy private AVs and using shared AVs. To assess each factor's relevance, an extensive survey was designed including socio-demographic aspects, as well as a large amount of questions related to respondents driving history, mobility behavior, attitude towards shared mobility services, and attitude towards AVs.

A survey was built for this purpose and shared online via social media and collected data of 383 respondents (considering only the complete answers). Once all answers were collected and tested, a brief explanation of all results was presented, followed by a comparison between conclusions obtained in this research and the ones obtained by previous researches. In sum, it can be concluded that future potential buyers of AVs should be, on average, male individuals between 20 and 39 years old, well educated, with monthly gross income above €3.000, who resides either in urban or suburban areas. Potential buyers of this defined group intent to pay on average between€3.000 and €5.000 extra to have autonomous technology implemented in their next vehicle.

Future potential users of shared AVs should be, on average, male individuals who currently use shared mobility services. As for potential buyers, these male individuals should reside in urban and suburban areas, be well educated and have a monthly gross income above €3.000.Although many respondents reported intention to use shared AVs if the ride cost is the same as the one currently paid for a taxi or Uber ride, the number of potential adopters increases if shared AVs can offer a lower price than the current services available.

Intention to buy, use and pay for AVs was significantly higher among individuals who have heard about this technology before answering the survey and the ones who are interested in new technologies. Perceived benefits can also be considered positive predictors of willingness to buy, pay and use AVs. Although the acknowledgment of increase safety and accessibility were considered relevant for AVs adoption, the perception of fun on riding AVs also played a major role. Therefore, the "fun factor" should be taken into consideration by car producers while designing AVs functions and on the publicity of these vehicles. As expected, concerns related to AVs' functionality and system failures are negative predictor of acceptance, while higher levels of perceived trust increases AVs' acceptance.

6.1 Theoretical contributions

The contribution of this work involves three main aspects: (1) a more comprehensive and detailed survey basis; (2) consideration of elements related to mobility behavior and attitude towards shared mobility services that have been overlooked by previous researches; (3) intention to used shared AVs and intention to buy and pay for private AVs are explored together in this work.

Although the categories “awareness”, “perceived concerns” “perceived benefits” and “WTP” have been previously mentioned in other researches, the present work combines and complements different aspects used in several different works into one bigger and more comprehensive research. Only two authors have used so far all the categories related to attitude towards AVs presented in this research: Cunningham et al. (2019) and Liu et al. (2019). However, both authors focus their research only on respondents’ WTP for private AVs while this current work expand the analysis by considering the influence of these factors on respondents willingness to use shared AVs as well.

The second contribution of this work is related to the usage of elements related to mobility behavior and attitude towards shared mobility to understand intention to use and buy AVs. Although Bansal and Kockelman (2018) consider in their overall research respondents’ understanding and participation in currently available shared mobility services, they do not apply this concept to understand if this behavior could influence AVs adoption in the future.

Finally, the current work is the only one that applies all these categories together on intention to buy and pay for private AVs as well as intention to use shared AVs. Most researches available to date consider either AVs ownership or shared AVs usage. Since the same group of people were surveyed for different question categories (buy, use and pay),sampling bias is avoided.

6.2. Limitations and future research suggestions

Despite the extensive amount of data collected about each respondent of the survey, some limitations should be taken into consideration. First, the amount of respondents evaluated in this research is relatively low in comparison to other scientific papers that have more resources to

collect a higher amount of answers. Also, due to the method used to distribute the survey, there was a higher concentration of respondents who are young, well-educated and with higher income levels. Therefore, the sample of respondents analyzed in this work cannot fully represent the population of Lisbon. My suggestion is to conduct a survey of similar content with a larger population sample, in order to acquire a more complete interpretation of public opinion on AVs adoption in Lisbon (or Portugal as a whole).

6.3. Practical implications

Although most car manufactures (and selected technology companies) already possess a prototype of AV that can be introduced to the market as soon as legal permission is given, an extensive comprehension of which factors increase or decline public acceptance of AVs is of extreme relevance to grant a successful business plan and market penetration strategy. The comprehension of factors that influence AVs' acceptance can help companies to identify the main barriers to AV implementation and their target group. Also, if companies understand how people perceive this technology, they can provide solutions to the problems (or perceived concerns) that limit AVs' adoption and increase public interest by focusing on the factors that increase their acceptance level, such as perceived trust and perceived fun of AVs.

Due to the level of interest on AVs reported by young and well educated residents of Lisbon, the city could represent a relevant market for sale and usage of shared AVs in the future.

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Annex A – Questionnaire

Autonomous vehicles survey

Dear participant,

My name is Carolina Mendes and I would like to invite you to participate in a survey about car ownership and **fully autonomous vehicles** designed for my master thesis in Business Administration at ISCTE University in Lisbon.

This questionnaire has 29 questions and should take around 15 minutes to complete. All instructions on how to answer each part is written in the beginning of the question. Please note that this questionnaire is anonymous and all data will be used only for academic research and statistical tests, assuring a total confidentiality.

In case of any concerns, please do not hesitate to contact me via email: cmrss2@iscte-iul.pt

Thank you in advance for your time and contribution!

Part 1 - Driving behavior and experience

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1. Do you have a driving license?
- ○ Yes
- ○ No

2. How many cars do you own?
- ○ None
- ○ 1
- ○ 2
- ○ 3 or more

3. How satisfied are you with your car as a mean of transportation?
- ○ Very satisfied
- ○ Satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

4. Are you responsible for the daily mobility of other people? (eg. kids, elderly)
- ○ Yes
- ○ No

5. In how many car accidents have you been involved to?
- ○ None
- ○ 1
- ○ 2
- ○ 3 or more

6. How much do you agree with the following statements?

I enjoy driving.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I usually find parking lots easily.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I consider myself an earlier adopter of new technologies.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 2 – Mobility behavior

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*Please consider your mobility habits before March 2020 when restrictions arose because of the **COVID-19** pandemic.*

7. How long do you usually spend per day on your daily trips? (e.g. from / to work or university)
- ○ less than 15 minutes
- ○ 15 - 30 minutes
- ○ 30 - 45 minutes
- ○ 45 - 60 minutes
- ○ More than 1 hour

8. Does your company / university provide you any sort of transportation? (e.g. by public transport, company car, school bus)
- ○ Yes
- ○ No
- ○ Not applicable

9. What type of transportation do you use the most in your daily routine?
Please choose all that apply
- ☐ Car
- ☐ Bus
- ☐ Train
- ☐ Motorcycle
- ☐ Bicycle
- ☐ Tram
- ☐ Metro
- ☐ Taxi
- ☐ Shared car
- ☐ Shared bicycle
- ☐ Walking
- ☐ Other

10. How satisfied are you with this mean of transportation for your daily routine?
- ○ Very satisfied
- ○ Satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

11. What type of transportation do you use the most in your free time?
Please choose all that apply
- ☐ Car
- ☐ Bus
- ☐ Taxi

☐ Shared car
☐ Bicycle
☐ Shared bicycle
☐ Motorcycle
☐ Shared motorcycle
☐ Metro
☐ Tram
☐ Other

12. How satisfied are you with this mean of transportation for your free time?
○ Very satisfied
○ Satisfied
○ Neither satisfied nor dissatisfied
○ Dissatisfied
○ Very dissatisfied

13. How much do you agree with the following statements?

I often face congestion in my daily routine.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I consider owning a car in the next few years.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Owning a car is very important to me.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 3 – Attitude towards shared mobility

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*Please consider your mobility habits before March 2020 when restrictions arose because of the **COVID-19** pandemic.*

14. How much do you agree with the following statements?

I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I often use carsharing services (e.g. DriveNow, car2go, etc.).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○Agree

I consider using shared mobility services overall cheaper than owning a car.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I consider more convenient to use a private car on my daily routine.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I don't mind sharing my ride with strangers.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I am satisfied with the shared mobility services available in my city.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I consider myself an earlier adopter of new mobility services (e.g. DriveNow, Uber, BlaBlaCar).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I see myself fully using shared mobility services in the future. I will continue using shared mobility services as I did before the Covid-crisis.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 4 – Attitude towards autonomous vehicles

Level of Awareness

15. How much do you agree with the following statements?

I have heard/read about autonomous vehicles before starting this survey (self-driving vehicles that require no human driver).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I know autonomous vehicles can reduce the necessity of parking lots and improve space utilization in cities once parking areas can be replaced by other buildings.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I know autonomous vehicles can park themselves alone.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I know autonomous vehicles react faster than humans in critical, unpredictable situations (e.g. a human randomly steps from the sidewalk on the street).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I know that autonomous vehicles can automatically adapt their own speed to the required speed limit in each road.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I am interested in topics related to automation and new technologies.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 4 – Attitude towards autonomous vehicles

Perceived concerns

16. How much do you agree with the following statements?

I feel that I can trust autonomous vehicles.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I feel concerned about kids/disabled people riding alone in an autonomous vehicle.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I feel concerned about equipment and system failures in autonomous vehicles.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I feel concerned about autonomous vehicles sharing roads with conventional vehicles.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I believe autonomous vehicles would negatively impact my driving ability.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I feel concerned about job losses (e.g. truck and taxi drivers).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 4 – Attitude towards autonomous vehicles

Perceived benefits

17. How much do you agree with the following statements?

Driving in an autonomous vehicle could be a fun experience.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Autonomous vehicles can improve the safety of my ride during bad weather conditions, long distance travels and night time driving.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities (e.g. working, reading, watching a movie).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Autonomous vehicles can reduce traffic congestion.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Autonomous vehicles can increase accessibility of disabled and elderly people due to their interior space that fits wheelchairs.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I would advise my grandparents/disabled relatives to use autonomous vehicles.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

18. Autonomous vehicles are eco-friendly. Due to their electric motor CO2 emissions can be reduced. Would you use an autonomous vehicle to contribute to the environment?
○ Yes
○ Maybe
○ No

Part 4 – Attitude towards autonomous vehicles

Willingness to pay / use

19. If the price were the same, would you prefer using a self-driving taxi or a traditional taxi with a human driver?
○ Self-driving taxi
○ Traditional taxi
○ Both
○ None

20. If the self-driving taxi were cheaper than the traditional one, what would you prefer?
○ Self-driving taxi
○ Traditional taxi
○ Both
○ None

21. How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle)
○ > 50.000 €
○ 30.001 – 50.000 €
○ 15.001 – 30.000 €
○ 10.001 – 15.000 €
○ 7.001 – 10.000 €
○ 5.001 – 7.000 €
○ 3.001 – 5.000 €
○ 1.001 – 3.000 €

○ 501 – 1.000 €
○ 1 – 500 €
○ 0 €

22. How much do you agree with the following statements?

I would consider buying an autonomous vehicle within the next 10 years.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

I would consider using a shared autonomous vehicle within the next 10 years.
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Owning an autonomous vehicle will be seen as a sign of prestige (luxury).
○ Disagree ○ Somewhat disagree ○ Neither agree nor disagree ○ Somewhat agree ○ Agree

Part 5 – Socio-demographic

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23. How old are you?
○ < 20 years
○ 20-29 years
○ 30-39 years
○ 40-49 years
○ 50-59 years
○ > 60 years

24. Please select your gender.
○ Female
○ Male
○ Prefer not to say

25. How many kids do you have living with you?
○ None
○ 1
○ 2
○ 3 or more

26. What is your educational background (including ongoing education)?
- ○ Primary or secondary school
- ○ High school
- ○ Technical school
- ○ Bachelor's degree (or equivalent)
- ○ Master's degree (or equivalent)
- ○ PhD

27. What is your current employment situation?
- ○ Employed - full time
- ○ Employed - part time
- ○ Self-employed
- ○ Intern / trainee
- ○ Student
- ○ Currently unemployed
- ○ Temporary leave (e.g. maternity)
- ○ Housewife / husband
- ○ Retired
- ○ Other

28. What is your gross monthly income (in Euros)?
- ○ Under €1500
- ○ €1.500 - €3.000
- ○ €3.001 - €5.000
- ○ €5.001 - €7.000
- ○ €7.001 - €10.000
- ○ more than €10.000

29. What is your residential location?
- ○ Downtown or central area
- ○ Suburb
- ○ Small town
- ○ Countryside

Annex B – Reliability tests

Table 8. Reliability Statistics of pilot survey.

		N	%	Cronbach's Alpha	N of questions
Cases	Valid	30	100,0	0,728	66
	Excluded[a]	0	0,0		
	Total	30	100,0		

a. Listwise deletion based on all variables in the procedure.

Table 9. Reliability test results of pilot test.

N	Question	Mean	SE	Cronbach's Alpha if Item Deleted
Driving behavior and experience				
1	Do you have a driving license?	1,17	0,379	0,727
2	How many cars do you own?	2,40	1,303	0,737
3	How satisfied are you with your car as a means of transportation?	2,90	1,788	0,719
4	Are you responsible for the daily mobility of 1 people? (e.g. kids, elderly)	1,80	0,407	0,725
5	In how many car accidents have you been involved to?	1,97	1,159	0,736
6	How much do you agree with the following statements? [I enjoy driving.]	4,30	0,952	0,732
7	[I usually find parking lots easily.]	2,70	1,236	0,744
8	[I consider myself an early adopter of new technologies.]	2,93	1,507	0,722
Mobility behavior				
9	What type of transportation do you use in your daily trips from / to work or university?	2,67	1,953	0,739
11	How long do you usually spend per day on your daily trips from / to work or university?	3,23	1,223	0,734
12	Does your company / university provide you any sort of transportation? (e.g. by public transport, company car, school bus)	1,87	0,346	0,731
13	What type of transportation do you usually use in your free-time?	1,33	0,479	0,725
23	How much do you agree with the following statements? [I often face congestion in my daily routine.]	3,33	1,647	0,719
24	[I don't consider owning a car in the next few years.]	2,10	1,470	0,724
25	[Owning a car is very important to me.]	3,83	1,289	0,739

Attitude towards shared mobility services				
26	How much do you agree with the following statements? [I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.).]	2,87	1,814	0,704
27	[I often use carsharing services (eg.DriveNow, car2go, etc.).]	1,50	1,167	0,729
28	[I consider using shared mobility services overall cheaper than owning a car.]	2,73	1,413	0,713
29	[I consider more convenient to use a private car on my daily routine.]	3,90	1,322	0,739
30	[I don't mind sharing my ride with strangers.]	2,13	1,279	0,729
31	[I am satisfied with the shared mobility services available in my city.]	2,90	1,185	0,728
32	[I consider myself an earlier adopter of new mobility services (e.g. DriveNow, Uber, BlaBlaCar).]	2,17	1,315	0,707
33	[I see myself fully using shared mobility services in the future.]	2,17	1,234	0,711
34	[I will continue using shared mobility services as I did before the Covid-crisis.]	3,50	1,592	0,723
Attitude towards Autonomous Vehicles - Awareness				
35	How much do you agree with the following statements? [I have heard/read about autonomous vehicles before starting this survey (self-driving vehicles that require no human driver).]	4,07	1,461	0,719
36	[I know autonomous vehicles can reduce the necessity of parking lots and improve space utilization in cities once parking areas can be replaced by other buildings.]	3,17	1,599	0,712
37	[I know autonomous vehicles can park themselves alone.]	3,70	1,535	0,706
38	[I know autonomous vehicles react faster than humans in critical, unpredictable situations (e.g. a human randomly steps from the sidewalk on the street).]	3,30	1,466	0,708
39	[I know that autonomous vehicles can automatically adapt their own speed to the required speed limit in each road.]	3,50	1,614	0,707
40	[I am interested in topics related to automation and new technologies.]	3,20	1,648	0,702
Attitude towards Autonomous Vehicles - Concerns				
41	How much do you agree with the following statements? [I feel that I can trust autonomous vehicles.]	2,83	1,177	0,710
42	[I feel concerned about letting my kids ride alone in an autonomous vehicle.]	2,07	1,258	0,721
43	[I feel concerned about equipment and system failures in autonomous vehicles.]	2,10	1,185	0,727

44	[I feel concerned about autonomous vehicles sharing roads with conventional vehicles.]	2,03	1,033	0,725
45	[I believe autonomous vehicles would negatively impact my driving ability.]	2,40	1,276	0,710
46	[I would feel unsafe using an autonomous vehicle.]	2,27	1,081	0,712
Attitude towards Autonomous Vehicles - Benefits				
47	How much do you agree with the following statements? [Driving in an autonomous vehicle could be a fun experience.]	3,77	1,135	0,707
48	[Autonomous vehicles can improve the safety of my ride during bad weather conditions, long distance travels and night time driving.]	3,47	1,306	0,709
49	[Autonomous vehicles will help me increase my productivity by allowing me to invest the driving time into other activities (e.g. working, reading, watching a movie).]	3,53	1,570	0,714
50	[Autonomous vehicles can reduce traffic congestions.]	3,17	1,262	0,702
51	[Autonomous vehicles can increase accessibility of disable and elderly people due to their interior space that fits wheelchairs.]	4,27	0,868	0,718
52	[I would advise my grandparents/disable relatives to use autonomous vehicles.]	3,77	1,165	0,720
53	Autonomous vehicles are eco-friendly. Due to their electric motor CO2 emissions can be reduced. Would you use an Autonomous Vehicle to contribute to the environment?	1,77	0,858	0,742
Attitude towards Autonomous Vehicles - WTP				
54	If the price were the same, would you prefer using a self-driving taxi or a traditional taxi with a human driver?	2,17	0,950	0,740
55	If the self-driving taxi were cheaper than the traditional one, what would you prefer?	2,20	0,761	0,738
56	How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle)	4,40	2,673	0,723
57	How much do you agree with the following statements? [I would consider buying an autonomous vehicle within the next 10 years.]	2,80	1,472	0,708
58	[I would consider using a shared autonomous vehicle within the next 10 years.]	2,63	1,426	0,705
59	[Owning an autonomous vehicle will be seen as a sign of prestige.]	3,70	1,208	0,725
Socio-demographic				
60	How old are you?	3,43	1,612	0,756
61	Please select your gender.	1,50	0,509	0,726

62	How many kids do you have living with you?	1,47	0,776	0,734
63	What is your educational background (including ongoing education)?	2,77	1,073	0,747
64	What is your current employment situation?	2,90	2,310	0,737
65	What is your gross monthly income (in Euros)?	2,43	1,357	0,744
66	How would you describe your residential location?	1,97	0,809	0,727

Table 10. Reliability Statistics of final survey.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,860	0,806	56

Table 11. Reliability test results of final survey.

N	Question	Mean	Std. Deviation	Cronbach's Alpha if Item Deleted
Driving behavior and experience				
1	Do you have a driving license?	1,22	0,415	0,860
2	How many cars do you own?	2,54	1,415	0,864
3	How satisfied are you with your car as a mean of transportation?	4,93	1,086	0,860
4	Are you responsible for the daily mobility of other people? (e.g. kids, elderly)	1,76	0,430	0,859
5	How many car accidents have you been involved in?	1,95	1,044	0,864
6	[I enjoy driving.] How much do you 5 with the following statements?	3,62	1,292	0,862
7	[I usually find parking lots easily.] How much do you agree with the following statements?	2,53	1,189	0,863
8	[I consider myself an early adopter of new technologies.] How much do you 5 with the following statements?	3,46	1,482	0,850
Mobility behavior				
9	How long do you usually spend per day on your daily trips? (e.g. from / to work or university)	3,15	1,184	0,866
10	Does your company / university provide you any sort of transportation? (e.g. by public transport, company car, school bus)	1,94	0,539	0,862
11	How satisfied are you with this mean of transportation for your daily routine?	3,79	0,986	0,861
12	How satisfied are you with this mean of transportation for your free time?	4,01	0,837	0,860

13	How much do you agree with the following statements? [I often face congestion in my daily routine.]	3,29	1,451	0,862
14	[I consider owning a car in the next few years.]	3,48	1,484	0,862
15	[Owning a car is very important to me.]	3,48	1,521	0,865
Attitude towards shared mobility services				
16	How much do you agree with the following statements? [I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.).]	2,92	1,658	0,854
17	[I often use carsharing services (e.g. DriveNow, car2go, etc.).]	1,75	1,265	0,857
18	[I consider using shared mobility services overall cheaper than owning a car.]	3,25	1,327	0,856
19	[I consider more convenient to use a private car on my daily routine.]	3,52	1,466	0,866
20	[I don't mind sharing my ride with strangers.]	2,58	1,498	0,854
21	[I am satisfied with the shared mobility services available in my city.]	3,26	1,045	0,858
22	[I consider myself an earlier adopter of new mobility services (eg, DriveNow, Uber, BlaBlaCar).]	3,09	1,595	0,848
23	[I see myself fully using shared mobility services in the future.]	2,74	1,389	0,853
24	[I will continue using shared mobility services as I did before the Covid-crisis.]	3,95	1,211	0,859
Attitude towards Autonomous Vehicles - Awareness				
25	How much do you agree with the following statements? [I have heard/read about autonomous vehicles before starting this survey (self-driving vehicles that require no human driver).]	3,95	1,476	0,850
26	[I know autonomous vehicles can reduce the necessity of parking lots and improve space utilization in cities once parking areas can be replaced by other buildings.]	3,31	1,547	0,849
27	[I know autonomous vehicles can park themselves alone.]	3,71	1,499	0,850
28	[I know autonomous vehicles react faster than humans in critical, unpredictable situations (e.g. a human randomly steps from the sidewalk on the street).]	3,54	1,471	0,849
29	[I know that autonomous vehicles can automatically adapt their own speed to the required speed limit in each road.]	3,58	1,556	0,849
30	[I am interested in topics related to automation and new technologies.]	3,63	1,482	0,848

Attitude towards Autonomous Vehicles - Concerns				
31	How much do you agree with the following statements? [I feel that I can trust autonomous vehicles.]	3,18	1,333	0,849
32	[I feel concerned about kids/disabled people riding alone in an autonomous vehicle.]	2,32	1,246	0,855
33	[I feel concerned about equipment and system failures in autonomous vehicles.]	2,26	1,303	0,853
34	[I feel concerned about autonomous vehicles sharing roads with conventional vehicles.]	2,55	1,344	0,852
35	[I believe autonomous vehicles would negatively impact my driving ability.]	3,26	1,306	0,856
36	[I feel concerned about job losses (e.g. truck and taxi drivers).]	2,69	1,359	0,855
Attitude towards Autonomous Vehicles - Benefits				
37	How much do you agree with the following statements? [Driving in an autonomous vehicle could be a fun experience.]	3,86	1,37	0,849
38	[Autonomous vehicles can improve the safety of my ride during bad weather conditions, long distance travels and night time driving.]	3,89	1,237	0,850
39	[Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities (e.g. working, reading, watching a movie).]	3,64	1,407	0,850
40	[Autonomous vehicles can reduce traffic congestion.]	3,35	1,477	0,850
41	[Autonomous vehicles can increase accessibility of disabled and elderly people due to their interior space that fits wheelchairs.].	4,25	0,871	0,855
42	[I would advise my grandparents/disabled relatives to use autonomous vehicles.]	3,42	1,397	0,849
43	Autonomous vehicles are eco-friendly. Due to their electric motor CO2 emissions can be reduced. Would you use an auto3mous vehicle to contribute to the environment?	1,72	0,863	0,866
Attitude towards Autonomous Vehicles - WTP				
44	If the price were the same, would you prefer using a self-driving taxi or a traditional taxi with a human driver?	1,95	0,985	0,869
45	If the self-driving taxi were cheaper than the traditional one, what would you prefer?	2,24	0,678	0,865
46	How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle).	4,2	2,354	0,852
47	How much do you agree with the following statements? [I would consider buying an autonomous vehicle within the next 10 years.]	3,06	1,451	0,849

48	[I would consider using a shared autonomous vehicle within the next 10 years]	3,38	1,516	0,849
49	[Owning an autonomous vehicle will be seen as a sign of prestige.]	3,93	1,149	0,859
Socio-demographic				
50	How old are you?	3,15	1,416	0,870
51	Please select your gender.	1,48	0,500	0,862
52	How many kids do you have living with you?	1,48	0,802	0,865
53	What is your educational background (including ongoing education)?	3,03	1,324	0,873
54	What is your current employment situation?	2,94	2,377	0,876
55	What is your gross monthly income (in Euros)?	2,28	1,223	0,857
56	What is your residential location?	1,71	0,849	0,865

Annex C – Normality test and descriptive tables

Table 12. Tests of normality - dependent variables

Dependent variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
[I would consider buying an autonomous vehicle within the next 10 years.] How much do you 5 with the following statements?	0,246	383	0,000	0,856	383	0,000
[I would consider using a shared autonomous vehicle within the next 10 years] How much do you 5 with the following statements?	0,215	383	0,000	0,836	383	0,000
How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle)	0,132	383	0,000	0,928	383	0,000

a. Lilliefors Significance Correction

Table 13. Descriptive summary - dependent variables

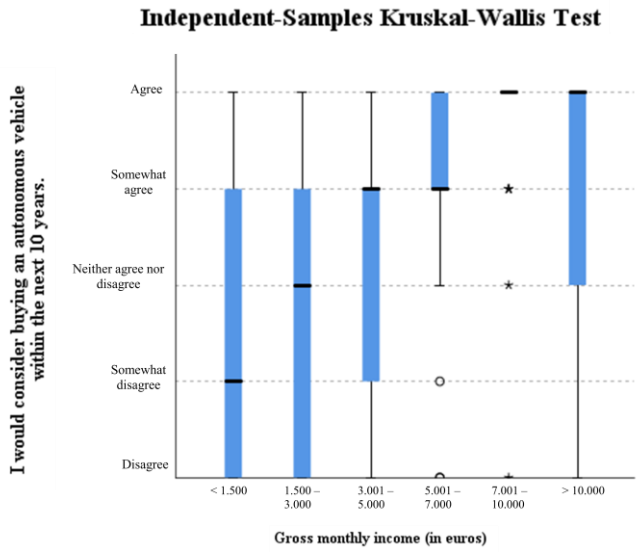
			Statistic	SE
[I would consider buying an autonomous vehicle within the next 10 years.]	Mean		3,05	0,074
	95% Confidence Interval for Mean	Lower Bound	2,91	
		Upper Bound	3,20	
	5% Trimmed Mean		3,06	
	Median		4,00	
	Variance		2,110	
	Std. Deviation		1,452	
	Minimum		1	
	Maximum		5	
[I would consider using a shared autonomous vehicle within the next 10 years.]	Mean		3,38	0,078
	95% Confidence Interval for Mean	Lower Bound	3,22	
		Upper Bound	3,53	
	5% Trimmed Mean		3,42	
	Median		4,00	
	Variance		2,309	
	Std. Deviation		1,519	
	Minimum		1	
	Maximum		5	
How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle? (Please consider this value on top of the base price of that vehicle)	Mean		4,19	0,120
	95% Confidence Interval for Mean	Lower Bound	3,96	
		Upper Bound	4,43	
	5% Trimmed Mean		4,07	
	Median		4,00	
	Variance		5,554	
	Std. Deviation		2,357	
	Minimum		1	
	Maximum		11	

(SE): Standard error

Annex D – Hypothesis testing results

Panel 1. Willingness to buy AVs

Figure 4.1. Willingness to buy among income levels (H1.1)

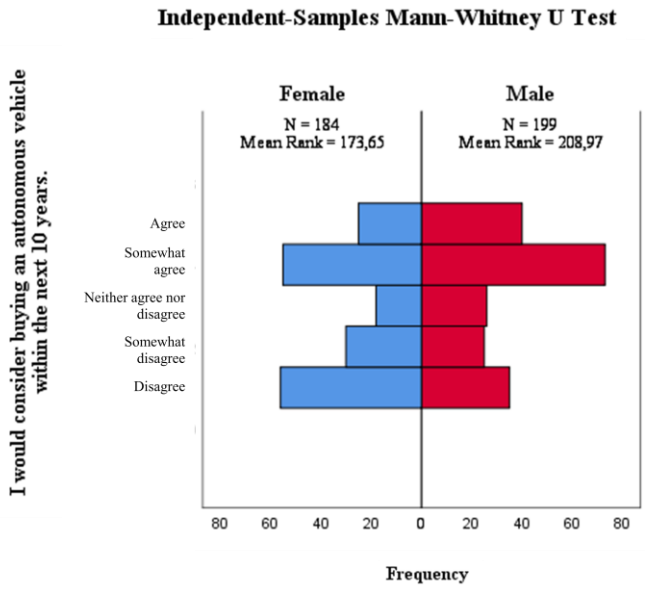


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	53,884[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

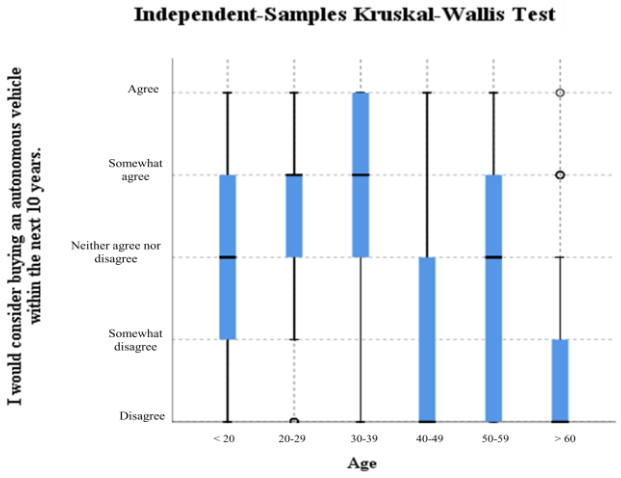
Figure 4.2. Willingness to buy among gender groups (H1.2)



Independent-Samples Mann-Whitney U Test Summary

Total N	383
Mann-Whitney U	14931,500
Wilcoxon W	31951,500
Test Statistic	14931,500
Standard Error	1049,425
Standardized Test Statistic	-3,217
Asymptotic Sig.(2-sided test)	0,001

Figure 4.3. Willingness to buy among different age groups (H1.3)

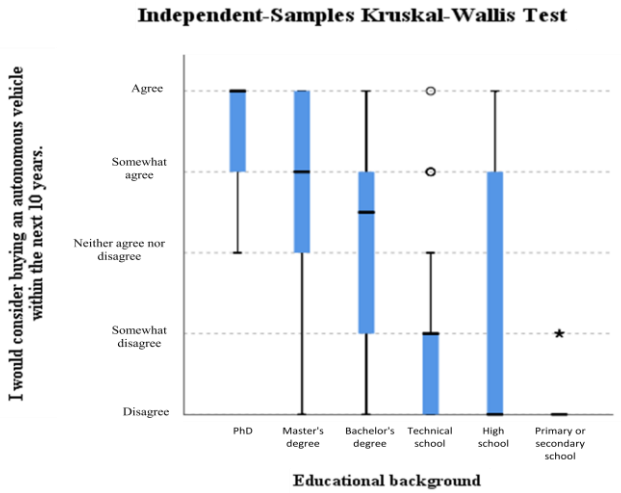


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	79,126[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Figure 4.4. Willingness to buy among different educational levels (H1.4)

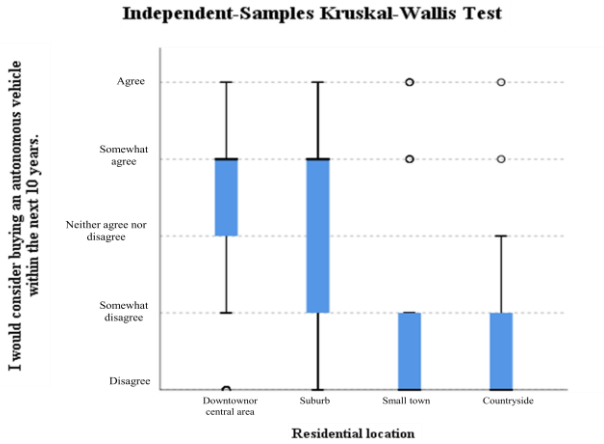


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	137,495[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Figure 4.5. Willingness to buy among different residential locations (H1.5)



Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	53,697[a]
Degree Of Freedom	3
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Table 14. Games-Howell results for H 1.6.

Dependent Variable: I would consider buying an autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I have heard/read about autonomous vehicles before starting this survey.]	**(J) [I have heard/read about autonomous vehicles before starting this survey.]**			
Disagree	Somewhat disagree	-0,397	0,307	0,698
	Neither agree nor disagree	-1,517	0,463	0,053
	Somewhat agree	-1,286*	0,198	0,000
	Agree	-2,264*	0,162	0,000
Somewhat disagree	Disagree	0,397	0,307	0,698
	Neither agree nor disagree	-1,120	0,519	0,248
	Somewhat agree	-,888*	0,306	0,046
	Agree	-1,866*	0,284	0,000
(I) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]	**(J) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]**			
Disagree	Somewhat disagree	-,747*	0,213	0,006
	Neither agree nor disagree	-1,062*	0,245	0,001
	Somewhat agree	-2,083*	0,164	0,000
	Agree	-2,353*	0,147	0,000
Somewhat disagree	Disagree	,747*	0,213	0,006
	Neither agree nor disagree	-0,315	0,281	0,795
	Somewhat agree	-1,336*	0,214	0,000
	Agree	-1,606*	0,201	0,000
(I) [I know AVs can park themselves alone.]	**(J) [I know AVs can park themselves alone.]**			
Disagree	Somewhat disagree	-0,665	0,283	0,145
	Neither agree nor disagree	-1,050*	0,265	0,002
	Somewhat agree	-1,461*	0,207	0,000
	Agree	-2,142*	0,174	0,000
Somewhat disagree	Disagree	0,665	0,283	0,145
	Neither agree nor disagree	-0,384	0,325	0,761
	Somewhat agree	-,796*	0,280	0,047
	Agree	-1,476*	0,256	0,000
(I) [I know AVs react faster than humans in critical, unpredictable situations.]	**(J) [I know AVs react faster than humans in critical, unpredictable situations.]**			
Disagree	Somewhat disagree	-,701*	0,250	0,050
	Neither agree nor disagree	-,988*	0,225	0,000
	Somewhat agree	-1,700*	0,184	0,000
	Agree	-2,444*	0,169	0,000
Somewhat disagree	Disagree	,701*	0,250	0,050
	Neither agree nor disagree	-0,287	0,271	0,827
	Somewhat agree	-,999*	0,238	0,001
	Agree	-1,744*	0,227	0,000
(I) [I know AVs can automatically adapt the speed to the speed limit in each road.]	**(J) [I know AVs can automatically adapt the speed to the speed limit in each road.]**			
Disagree	Somewhat disagree	-0,523	0,238	0,188
	Neither agree nor disagree	-1,043*	0,244	0,001
	Somewhat agree	-1,529*	0,207	0,000
	Agree	-2,250*	0,164	0,000
Somewhat disagree	Disagree	0,523	0,238	0,188
	Neither agree nor disagree	-0,519	0,276	0,336
	Somewhat agree	-1,005*	0,243	0,001
	Agree	-1,727*	0,208	0,000
(I) [I am interested in topics related to automation and new technologies.]	**(J) [I am interested in topics related to automation and new technologies.]**			
Disagree	Somewhat disagree	-0,371	0,185	0,273
	Neither agree nor disagree	-1,155*	0,207	0,000
	Somewhat agree	-2,072*	0,167	0,000
	Agree	-2,685*	0,131	0,000

Somewhat disagree	Disagree	0,371	0,185	0,273
	Neither agree nor disagree	-,784*	0,233	0,010
	Somewhat agree	-1,701*	0,198	0,000
	Agree	-2,314*	0,169	0,000

*. The mean difference is significant at the 0.05 level.

Table 15. Games-Howell results for H 1.7

Dependent Variable: I would consider buying an autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [Driving in an autonomous vehicle could be a fun experience.]	**(J) [Driving in an autonomous vehicle could be a fun experience.]**			
Disagree	Somewhat disagree	-0,094	0,126	0,944
	Neither agree nor disagree	-,916*	0,176	0,000
	Somewhat agree	-2,130*	0,145	0,000
	Agree	-2,832*	0,109	0,000
Somewhat disagree	Disagree	0,094	0,126	0,944
	Neither agree nor disagree	-,822*	0,182	0,000
	Somewhat agree	-2,035*	0,153	0,000
	Agree	-2,738*	0,119	0,000
(I) [Autonomous vehicles can improve the safety of my ride.]	**(J) [Autonomous vehicles can improve the safety of my ride.]**			
Disagree	Somewhat disagree	-0,178	0,139	0,706
	Neither agree nor disagree	-1,161*	0,209	0,000
	Somewhat agree	-1,924*	0,157	0,000
	Agree	-2,980*	0,127	0,000
Somewhat disagree	Disagree	0,178	0,139	0,706
	Neither agree nor disagree	-,984*	0,202	0,000
	Somewhat agree	-1,746*	0,147	0,000
	Agree	-2,802*	0,115	0,000
(I) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]	**(J) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]**			
Disagree	Somewhat disagree	-0,352	0,215	0,476
	Neither agree nor disagree	-,876*	0,260	0,010
	Somewhat agree	-1,785*	0,210	0,000
	Agree	-2,612*	0,189	0,000
Somewhat disagree	Disagree	0,352	0,215	0,476
	Neither agree nor disagree	-0,524	0,233	0,175
	Somewhat agree	-1,433*	0,177	0,000
	Agree	-2,260*	0,151	0,000
(I) [Autonomous vehicles can reduce traffic congestion.]	**(J) [Autonomous vehicles can reduce traffic congestion.]**			
Disagree	Somewhat disagree	0,003	0,206	1,000
	Neither agree nor disagree	-1,049*	0,218	0,000
	Somewhat agree	-1,774*	0,207	0,000
	Agree	-2,256*	0,173	0,000
Somewhat disagree	Disagree	-0,003	0,206	1,000
	Neither agree nor disagree	-1,052*	0,209	0,000
	Somewhat agree	-1,777*	0,198	0,000
	Agree	-2,258*	0,162	0,000
(I) [Autonomous vehicles can increase accessibility of disabled and elderly people.]	**(J) [Autonomous vehicles can increase accessibility of disabled and elderly people.]**			
Disagree	Somewhat disagree	-0,500	0,203	0,159
	Neither agree nor disagree	-1,250*	0,200	0,000
	Somewhat agree	-1,556*	0,117	0,000
	Agree	-2,807*	0,085	0,000

Somewhat disagree	Disagree	0,500	0,203	0,159
	Neither agree nor disagree	-0,750	0,285	0,083
	Somewhat agree	-1,056*	0,234	0,001
	Agree	-2,307*	0,220	0,000

*. The mean difference is significant at the 0.05 level.

Table 16. Games-Howell results for H 1.8.

Dependent Variable: I would consider buying an autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I feel that I can trust AVs.]	**(J) [I feel that I can trust AVs.]**			
Disagree	Somewhat disagree	-,753*	0,171	0,000
	Neither agree nor disagree	-1,856*	0,167	0,000
	Somewhat agree	-2,636*	0,125	0,000
	Agree	-2,830*	0,158	0,000
Somewhat disagree	Disagree	,753*	0,171	0,000
	Neither agree nor disagree	-1,103*	0,198	0,000
	Somewhat agree	-1,883*	0,164	0,000
	Agree	-2,077*	0,190	0,000
(I) [I feel concerned about kids/disabled people riding alone in an AV.]	**(J) [I feel concerned about kids/disabled people riding alone in an AV.]**			
Agree	Somewhat agree	-1,017*	0,177	0,000
	Neither agree nor disagree	-1,427*	0,224	0,000
	Somewhat disagree	-1,456*	0,191	0,000
	Disagree	-2,151*	0,219	0,000
Somewhat agree	Agree	1,017*	0,177	0,000
	Neither agree nor disagree	-0,410	0,214	0,319
	Somewhat disagree	-0,439	0,179	0,107
	Disagree	-1,134*	0,208	0,000
(I) [I feel concerned about equipment and system failures in autonomous vehicles.]	**(J) [I feel concerned about equipment and system failures in autonomous vehicles.]**			
Agree	Somewhat agree	-,973*	0,161	0,000
	Neither agree nor disagree	-1,349*	0,262	0,000
	Somewhat disagree	-1,746*	0,187	0,000
	Disagree	-2,195*	0,203	0,000
Somewhat agree	Agree	,973*	0,161	0,000
	Neither agree nor disagree	-0,377	0,259	0,598
	Somewhat disagree	-,773*	0,182	0,000
	Disagree	-1,222*	0,198	0,000
(I) [I feel concerned about AVs sharing roads with conventional vehicles.]	**(J) [I feel concerned about AVs sharing roads with conventional vehicles.]**			
Agree	Somewhat agree	-,602*	0,187	0,013
	Neither agree nor disagree	-1,043*	0,248	0,001
	Somewhat disagree	-1,680*	0,175	0,000
	Disagree	-2,241*	0,180	0,000
Somewhat agree	Agree	,602*	0,187	0,013
	Neither agree nor disagree	-0,440	0,240	0,362
	Somewhat disagree	-1,078*	0,163	0,000
	Disagree	-1,638*	0,168	0,000
(I) [I believe AVs would negatively impact my driving ability.]	**(J) [I believe AVs would negatively impact my driving ability.]**			
Agree	Somewhat agree	-1,153*	0,262	0,000
	Neither agree nor disagree	-,704*	0,251	0,047
	Somewhat disagree	-1,945*	0,225	0,000
	Disagree	-2,110*	0,231	0,000
Somewhat agree	Agree	1,153*	0,262	0,000
	Neither agree nor disagree	0,449	0,232	0,303
	Somewhat disagree	-,792*	0,203	0,001
	Disagree	-,957*	0,211	0,000

(I) [I feel concerned about job losses (e.g. truck and taxi drivers).]	(J) [I feel concerned about job losses (e.g. truck and taxi drivers).]			
Agree	Somewhat agree	-0,465	0,215	0,201
	Neither agree nor disagree	-0,614	0,251	0,110
	Somewhat disagree	-1,017*	0,225	0,000
	Disagree	-1,807*	0,209	0,000
Somewhat agree	Agree	0,465	0,215	0,201
	Neither agree nor disagree	-0,150	0,223	0,962
	Somewhat disagree	-,552*	0,193	0,037
	Disagree	-1,342*	0,174	0,000

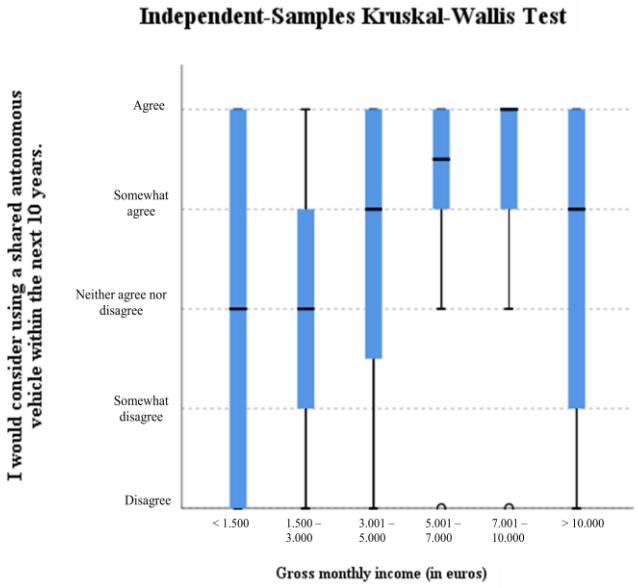
*. The mean difference is significant at the 0.05 level.

Table 17. Games-Howell results for H 1.9

Dependent Variable: I would consider buying an autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I enjoy driving.]	**(J) [I enjoy driving.]**			
Disagree	Somewhat disagree	-0,201	0,335	0,975
	Neither agree nor disagree	-0,088	0,293	0,998
	Somewhat agree	-0,411	0,263	0,527
	Agree	-0,496	0,268	0,354
Somewhat disagree	Disagree	0,201	0,335	0,975
	Neither agree nor disagree	0,113	0,302	0,996
	Somewhat agree	-0,210	0,272	0,938
	Agree	-0,295	0,277	0,823

Panel 2. Willingness to use shared AVs

Figure 4.6. Willingness to use among income levels (H2.1)

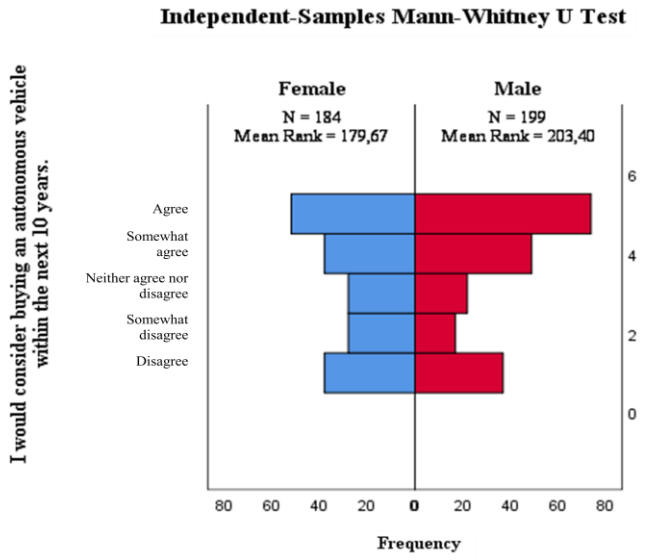


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	28,148[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

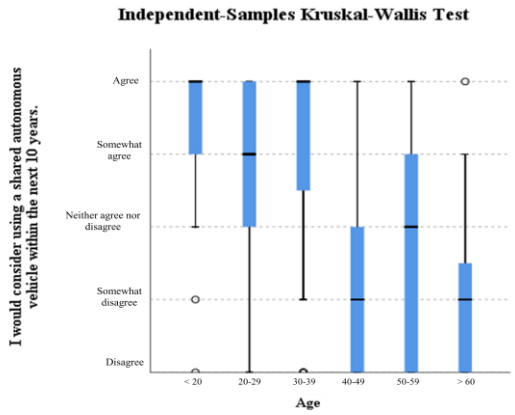
Figure 4.7. Willingness to use among gender groups (H2.2)



Independent-Samples Mann-Whitney U Test Summary

Total N	383
Mann-Whitney U	16040,000
Wilcoxon W	33060,000
Test Statistic	16040,000
Standard Error	1050,219
Standardized Test Statistic	-2,160
Asymptotic Sig.(2-sided test)	0,031

Figure 4.8. Willingness to use among different age groups (H2.3)

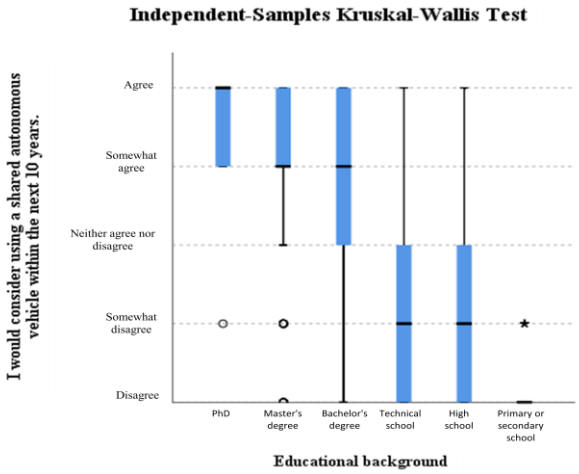


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	117,041705
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Figure 4.9. Willingness to use among different educational levels (H2.4)

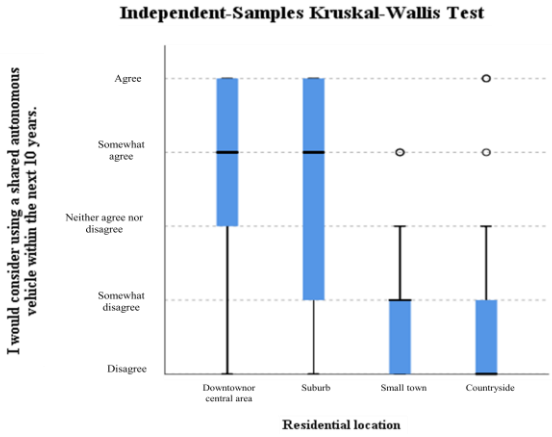


Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	136,472[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Figure 4.10. Willingness to use among different residential locations (H2.5)



Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	77,326[a]
Degree Of Freedom	3
Asymptotic Sig.(2-sided test)	0,000

a. The test statistic is adjusted for ties.

Table 18. Games-Howell results for H2.6

Dependent Variable: I would consider using shared autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I have heard/read about autonomous vehicles before starting this survey.]	**(J) [I have heard/read about autonomous vehicles before starting this survey.]**			
Disagree	Somewhat disagree	-0,214	0,228	0,880
	Neither agree nor disagree	-0,747	0,392	0,375
	Somewhat agree	-1,755*	0,189	0,000
	Agree	-2,533*	0,148	0,000
Somewhat disagree	Disagree	0,214	0,228	0,880
	Neither agree nor disagree	-0,533	0,419	0,711
	Somewhat agree	-1,541*	0,239	0,000
	Agree	-2,320*	0,208	0,000
(I) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]	**(J) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]**			
Disagree	Somewhat disagree	-,932*	0,246	0,002
	Neither agree nor disagree	-,843*	0,264	0,018
	Somewhat agree	-1,941*	0,192	0,000
	Agree	-2,285*	0,176	0,000
Somewhat disagree	Disagree	,932*	0,246	0,002
	Neither agree nor disagree	0,089	0,296	0,998
	Somewhat agree	-1,009*	0,234	0,000
	Agree	-1,353*	0,222	0,000
(I) [I know AVs can park themselves alone.]	**(J) [I know AVs can park themselves alone.]**			
Disagree	Somewhat disagree	-0,843	0,306	0,059
	Neither agree nor disagree	-1,190*	0,278	0,001
	Somewhat agree	-1,608*	0,203	0,000
	Agree	-2,402*	0,168	0,000
Somewhat disagree	Disagree	0,843	0,306	0,059
	Neither agree nor disagree	-0,347	0,360	0,871
	Somewhat agree	-0,764	0,306	0,107
	Agree	-1,559*	0,284	0,000
(I) [I know AVs react faster than humans in critical, unpredictable situations.]	**(J) [I know AVs react faster than humans in critical, unpredictable situations.]**			
Disagree	Somewhat disagree	-0,642	0,260	0,109
	Neither agree nor disagree	-,924*	0,236	0,002
	Somewhat agree	-1,900*	0,193	0,000
	Agree	-2,571*	0,175	0,000
Somewhat disagree	Disagree	0,642	0,260	0,109
	Neither agree nor disagree	-0,281	0,281	0,854
	Somewhat agree	-1,258*	0,247	0,000
	Agree	-1,929*	0,233	0,000
(I) [I know AVs can automatically adapt the speed to the speed limit in each road.]	**(J) [I know AVs can automatically adapt the speed to the speed limit in each road.]**			
Disagree	Somewhat disagree	-0,591	0,267	0,185
	Neither agree nor disagree	-1,093*	0,274	0,002
	Somewhat agree	-1,518*	0,215	0,000
	Agree	-2,289*	0,173	0,000
Somewhat disagree	Disagree	0,591	0,267	0,185
	Neither agree nor disagree	-0,503	0,319	0,518
	Somewhat agree	-,928*	0,270	0,008
	Agree	-1,698*	0,238	0,000
(I) [I am interested in topics related to automation and new technologies.]	**(J) [I am interested in topics related to automation and new technologies.]**			
Disagree	Somewhat disagree	-,632*	0,164	0,002
	Neither agree nor disagree	-1,632*	0,226	0,000
	Somewhat agree	-2,480*	0,164	0,000
	Agree	-2,969*	0,132	0,000

Somewhat disagree	Disagree	,632*	0,164	0,002
	Neither agree nor disagree	-1,000*	0,236	0,001
	Somewhat agree	-1,848*	0,178	0,000
	Agree	-2,338*	0,149	0,000

*. The mean difference is significant at the 0.05 level.

Table 19. Games-Howell results for H 2.7

Dependent Variable: I would consider using shared autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [Driving in an autonomous vehicle could be a fun experience.]	**(J) [Driving in an autonomous vehicle could be a fun experience.]**			
Disagree	Somewhat disagree	-,604*	0,179	0,011
	Neither agree nor disagree	-1,078*	0,186	0,000
	Somewhat agree	-2,325*	0,175	0,000
	Agree	-3,159*	0,124	0,000
Somewhat disagree	Disagree	,604*	0,179	0,011
	Neither agree nor disagree	-0,474	0,213	0,179
	Somewhat agree	-1,721*	0,203	0,000
	Agree	-2,554*	0,162	0,000
(I) [Autonomous vehicles can improve the safety of my ride.]	**(J) [Autonomous vehicles can improve the safety of my ride.]**			
Disagree	Somewhat disagree	-0,179	0,280	0,967
	Neither agree nor disagree	-,965*	0,300	0,023
	Somewhat agree	-2,073*	0,283	0,000
	Agree	-3,077*	0,266	0,000
Somewhat disagree	Disagree	0,179	0,280	0,967
	Neither agree nor disagree	-,786*	0,192	0,001
	Somewhat agree	-1,894*	0,166	0,000
	Agree	-2,898*	0,133	0,000
(I) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]	**(J) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]**			
Disagree	Somewhat disagree	-0,329	0,275	0,753
	Neither agree nor disagree	-,934*	0,307	0,026
	Somewhat agree	-1,890*	0,260	0,000
	Agree	-2,495*	0,245	0,000
Somewhat disagree	Disagree	0,329	0,275	0,753
	Neither agree nor disagree	-0,605	0,255	0,134
	Somewhat agree	-1,561*	0,196	0,000
	Agree	-2,166*	0,175	0,000
(I) [Autonomous vehicles can reduce traffic congestion.]	**(J) [Autonomous vehicles can reduce traffic congestion.]**			
Disagree	Somewhat disagree	0,044	0,268	1,000
	Neither agree nor disagree	-,790*	0,264	0,027
	Somewhat agree	-1,565*	0,254	0,000
	Agree	-1,935*	0,225	0,000
Somewhat disagree	Disagree	-0,044	0,268	1,000
	Neither agree nor disagree	-,833*	0,239	0,006
	Somewhat agree	-1,608*	0,227	0,000
	Agree	-1,978*	0,195	0,000
(I) [Autonomous vehicles can increase accessibility of disabled and elderly people.]	**(J) [Autonomous vehicles can increase accessibility of disabled and elderly people.]**			
Disagree	Somewhat disagree	-0,310	0,429	0,943
	Neither agree nor disagree	-1,378	0,382	0,114
	Somewhat agree	-1,494	0,357	0,110
	Agree	-2,805*	0,345	0,032

Somewhat disagree	Disagree	0,310	0,429	0,943
	Neither agree nor disagree	-1,069*	0,328	0,023
	Somewhat agree	-1,184*	0,298	0,006
	Agree	-2,495*	0,284	0,000

*. The mean difference is significant at the 0.05 level.

Table 20. Games-Howell results for H 2.8

Dependent Variable: I would consider using shared autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I feel that I can trust AVs.]	**(J) [I feel that I can trust AVs.]**			
Disagree	Somewhat disagree	-,904*	0,192	0,000
	Neither agree nor disagree	-1,820*	0,191	0,000
	Somewhat agree	-2,845*	0,158	0,000
	Agree	-3,104*	0,159	0,000
Somewhat disagree	Disagree	,904*	0,192	0,000
	Neither agree nor disagree	-,915*	0,199	0,000
	Somewhat agree	-1,941*	0,168	0,000
	Agree	-2,200*	0,169	0,000
(I) [I feel concerned about kids/disabled people riding alone in an AV.]	**(J) [I feel concerned about kids/disabled people riding alone in an AV.]**			
Agree	Somewhat agree	-1,137*	0,180	0,000
	Neither agree nor disagree	-1,706*	0,226	0,000
	Somewhat disagree	-1,920*	0,206	0,000
	Disagree	-2,294*	0,205	0,000
Somewhat agree	Agree	1,137*	0,180	0,000
	Neither agree nor disagree	-0,569	0,208	0,058
	Somewhat disagree	-,784*	0,185	0,000
	Disagree	-1,157*	0,184	0,000
(I) [I feel concerned about equipment and system failures in autonomous vehicles.]	**(J) [I feel concerned about equipment and system failures in autonomous vehicles.]**			
Agree	Somewhat agree	-,810*	0,176	0,000
	Neither agree nor disagree	-1,205*	0,293	0,003
	Somewhat disagree	-1,858*	0,197	0,000
	Disagree	-1,844*	0,232	0,000
Somewhat agree	Agree	,810*	0,176	0,000
	Neither agree nor disagree	-0,395	0,284	0,638
	Somewhat disagree	-1,048*	0,183	0,000
	Disagree	-1,034*	0,220	0,000
(I) [I feel concerned about AVs sharing roads with conventional vehicles.]	**(J) [I feel concerned about AVs sharing roads with conventional vehicles.]**			
Agree	Somewhat agree	-,567*	0,193	0,030
	Neither agree nor disagree	-1,125*	0,256	0,000
	Somewhat disagree	-1,980*	0,187	0,000
	Disagree	-2,084*	0,199	0,000
Somewhat agree	Agree	,567*	0,193	0,030
	Neither agree nor disagree	-0,558	0,243	0,159
	Somewhat disagree	-1,413*	0,170	0,000
	Disagree	-1,517*	0,183	0,000
(I) [I believe AVs would negatively impact my driving ability.]	**(J) [I believe AVs would negatively impact my driving ability.]**			
Agree	Somewhat agree	-1,310*	0,270	0,000
	Neither agree nor disagree	-,990*	0,259	0,002
	Somewhat disagree	-2,314*	0,222	0,000
	Disagree	-2,623*	0,236	0,000
Somewhat agree	Agree	1,310*	0,270	0,000
	Neither agree nor disagree	0,320	0,241	0,674
	Somewhat disagree	-1,004*	0,200	0,000
	Disagree	-1,313*	0,215	0,000

(I) [I feel concerned about job losses (e.g. truck and taxi drivers).]	(J) [I feel concerned about job losses (e.g. truck and taxi drivers).]			
Agree	Somewhat agree	-,832*	0,205	0,001
	Neither agree nor disagree	-,977*	0,270	0,004
	Somewhat disagree	-1,720*	0,209	0,000
	Disagree	-2,228*	0,193	0,000
Somewhat agree	Agree	,832*	0,205	0,001
	Neither agree nor disagree	-0,145	0,254	0,979
	Somewhat disagree	-,888*	0,188	0,000
	Disagree	-1,396*	0,171	0,000

*. The mean difference is significant at the 0.05 level.

Table 21. Games-Howell results for H 2.9

Dependent Variable: I would consider using shared autonomous vehicle within the next 10 years.		**MD (I-J)**	**SE**	**Sig.**
(I) [I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.)]	**(J) [I often use ridesharing services (e.g. BlaBlaCar, Uber, etc.)]**			
Disagree	Somewhat disagree	-1,341*	0,215	0,000
	Neither agree nor disagree	-2,048*	0,242	0,000
	Somewhat agree	-1,598*	0,172	0,000
	Agree	-2,438*	0,145	0,000
Somewhat disagree	Disagree	1,341*	0,215	0,000
	Neither agree nor disagree	-0,707	0,281	0,107
	Somewhat agree	-0,258	0,224	0,779
	Agree	-1,098*	0,203	0,000

*. The mean difference is significant at the 0.05 level.

Table 22. Games-Howell results for H 2.10

Dependent Variable: I would consider using a shared autonomous vehicle within the next 10 years		**MD (I-J)**	**SE**	**Sig.**
(I) [I consider myself an earlier adopter of new mobility services (eg, DriveNow, Uber, BlaBlaCar).]	**(J) [I consider myself an earlier adopter of new mobility services (eg, DriveNow, Uber, BlaBlaCar).]**			
Disagree	Somewhat disagree	-1,450*	0,181	0,000
	Neither agree nor disagree	-1,898*	0,243	0,000
	Somewhat agree	-2,505*	0,133	0,000
	Agree	-2,840*	0,131	0,000
Somewhat disagree	Disagree	1,450*	0,181	0,000
	Neither agree nor disagree	-0,448	0,273	0,478
	Somewhat agree	-1,054*	0,182	0,000
	Agree	-1,390*	0,181	0,000

*. The mean difference is significant at the 0.05 level.

Table 23. Games-Howell results for H 2.11

Dependent Variable: I would consider using a shared autonomous vehicle within the next 10 years		**MD (I-J)**	**SE**	**Sig.**
(I) [I see myself fully using shared mobility services in the future.]	**(J) [I see myself fully using shared mobility services in the future.]**			
Disagree	Somewhat disagree	-1,530*	0,201	0,000
	Neither agree nor disagree	-2,058*	0,180	0,000
	Somewhat agree	-2,502*	0,138	0,000
	Agree	-2,345*	0,238	0,000
Somewhat disagree	Disagree	1,530*	0,201	0,000
	Neither agree nor disagree	-0,528	0,219	0,118
	Somewhat agree	-,972*	0,185	0,000
	Agree	-,815*	0,268	0,026

*. The mean difference is significant at the 0.05 level.

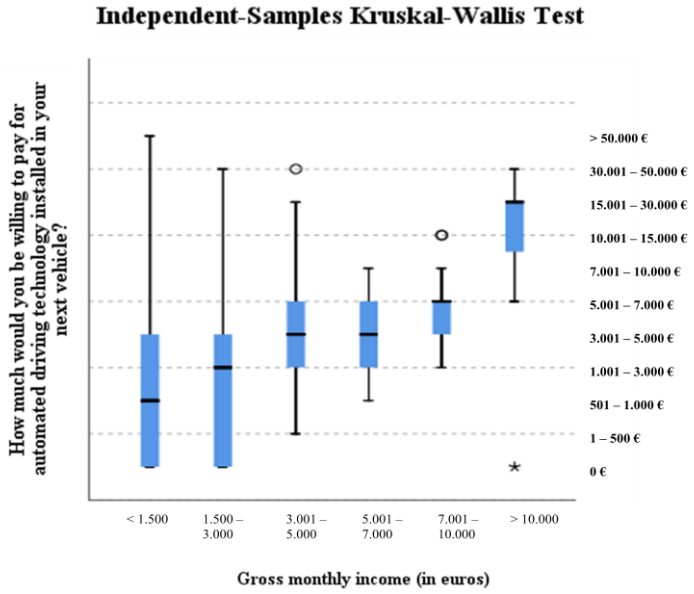
Table 24. Games-Howell results for H 2.12

Dependent Variable: I would consider using a shared autonomous vehicle within the next 10 years		**MD (I-J)**	**SE**	**Sig.**
(I) [I am satisfied with the shared mobility services available in my city.]	**(J) [I am satisfied with the shared mobility services available in my city.]**			
Disagree	Somewhat disagree	-1,393*	0,339	0,001
	Neither agree nor disagree	-0,061	0,286	1,000
	Somewhat agree	-1,814*	0,285	0,000
	Agree	-1,795*	0,318	0,000
Somewhat disagree	Disagree	1,393*	0,339	0,001
	Neither agree nor disagree	1,332*	0,236	0,000
	Somewhat agree	-0,421	0,234	0,385
	Agree	-0,402	0,273	0,583

*. The mean difference is significant at the 0.05 level.

Panel 3. Willingness to pay for AVs

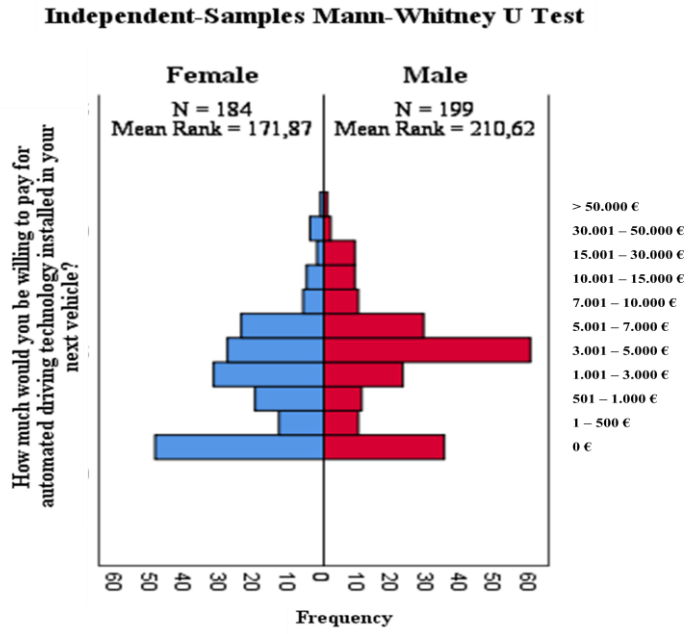
Figure 4.11. WTP among income levels (H3.1)



Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	56,785[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

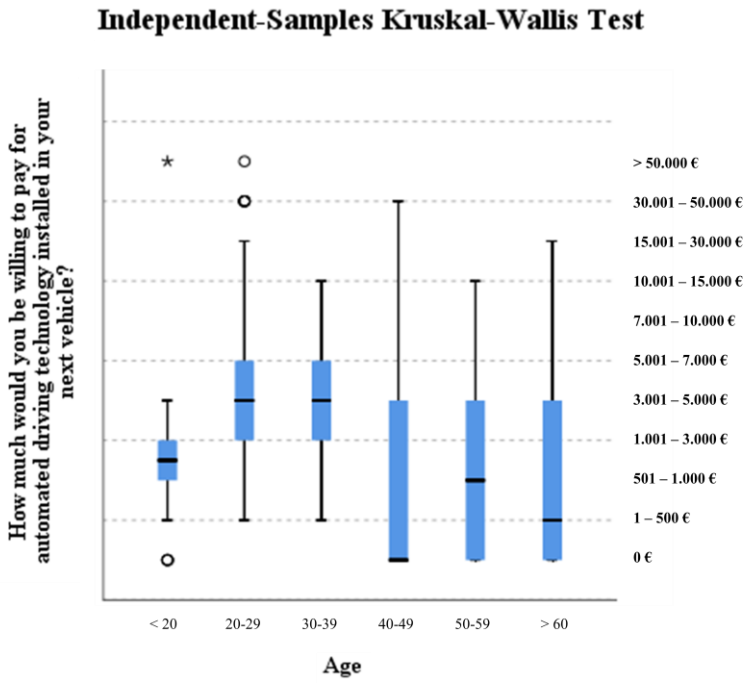
Figure 4.12. WTP among gender (H3.2)



Independent-Samples Mann-Whitney U Test Summary

Total N	383
Mann-Whitney U	14603,500
Wilcoxon W	31623,500
Test Statistic	14603,500
Standard Error	1066,546
Standardized Test Statistic	-3,473
Asymptotic Sig.(2-sided test)	0,001

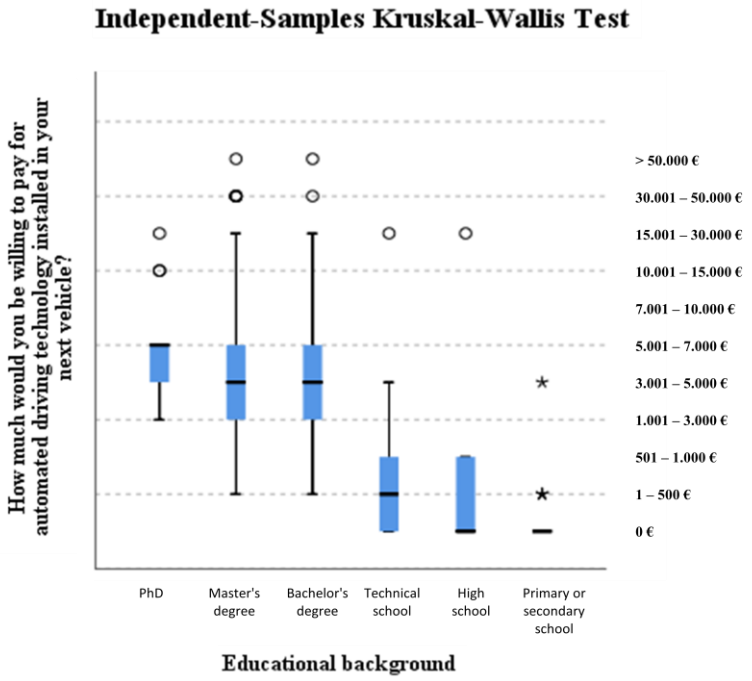
Figure 4.13. WTP among age (H3.3)



Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	61,559[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

Figure 4.14. WTP among educational levels (H3.4)



Independent-Samples Kruskal-Wallis Test Summary

Total N	383
Test Statistic	159,075[a]
Degree Of Freedom	5
Asymptotic Sig.(2-sided test)	0,000

Table 25. Games-Howell results for H 3.5

Dependent Variable: How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle?		**MD (I-J)**	**SE**	**Sig.**
(I) [I have heard/read about autonomous vehicles before starting this survey.]	**(J) [I have heard/read about autonomous vehicles before starting this survey.]**			
Disagree	Somewhat disagree	-0,554	0,534	0,837
	Neither agree nor disagree	-1,803	0,945	0,375
	Somewhat agree	-1,816*	0,363	0,000
	Agree	-3,005*	0,308	0,000
Somewhat disagree	Disagree	0,554	0,534	0,837
	Neither agree nor disagree	-1,249	1,014	0,734
	Somewhat agree	-1,262	0,515	0,124
	Agree	-2,451*	0,478	0,000
(I) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]	**(J) [I know AVs can reduce the necessity of parking lots and improve space utilization in cities.]**			
Disagree	Somewhat disagree	-1,481*	0,380	0,002
	Neither agree nor disagree	-1,778*	0,512	0,009
	Somewhat agree	-2,830*	0,325	0,000
	Agree	-2,895*	0,291	0,000
Somewhat disagree	Disagree	1,481*	0,380	0,002
	Neither agree nor disagree	-0,296	0,536	0,981
	Somewhat agree	-1,348*	0,362	0,003
	Agree	-1,414*	0,332	0,000
(I) [I know AVs can park themselves alone.]	**(J) [I know AVs can park themselves alone.]**			
Disagree	Somewhat disagree	-0,818	0,444	0,360
	Neither agree nor disagree	-1,900*	0,507	0,005
	Somewhat agree	-2,082*	0,325	0,000
	Agree	-3,230*	0,279	0,000
Somewhat disagree	Disagree	0,818	0,444	0,360
	Neither agree nor disagree	-1,082	0,587	0,360
	Somewhat agree	-1,264*	0,439	0,043
	Agree	-2,412*	0,406	0,000
(I) [I know AVs react faster than humans in critical, unpredictable situations.]	**(J) [I know AVs react faster than humans in critical, unpredictable situations.]**			
Disagree	Somewhat disagree	-0,781	0,480	0,483
	Neither agree nor disagree	-1,948*	0,493	0,001
	Somewhat agree	-2,373*	0,363	0,000
	Agree	-2,803*	0,336	0,000
Somewhat disagree	Disagree	0,781	0,480	0,483
	Neither agree nor disagree	-1,166	0,542	0,209
	Somewhat agree	-1,592*	0,427	0,004
	Agree	-2,022*	0,405	0,000
(I) [I know AVs can automatically adapt the speed to the speed limit in each road.]	**(J) [I know AVs can automatically adapt the speed to the speed limit in each road.]**			
Disagree	Somewhat disagree	-1,100	0,404	0,058
	Neither agree nor disagree	-2,237*	0,507	0,001
	Somewhat agree	-2,148*	0,352	0,000
	Agree	-3,011*	0,288	0,000
Somewhat disagree	Disagree	1,100	0,404	0,058
	Neither agree nor disagree	-1,137	0,550	0,249
	Somewhat agree	-1,048	0,411	0,088
	Agree	-1,911*	0,357	0,000
(I) [I am interested in topics related to automation and new technologies.]	**(J) [I am interested in topics related to automation and new technologies.]**			
Disagree	Somewhat disagree	-0,602	0,421	0,611
	Neither agree nor disagree	-2,146*	0,448	0,000
	Somewhat agree	-2,788*	0,365	0,000
	Agree	-3,593*	0,313	0,000

Somewhat disagree	Disagree	0,602	0,421	0,611
	Neither agree nor disagree	-1,544*	0,465	0,011
	Somewhat agree	-2,186*	0,386	0,000
	Agree	-2,991*	0,337	0,000

*. The mean difference is significant at the 0.05 level.

Table 26. Games-Howell results for H3.6

Dependent Variable: How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle?		**MD (I-J)**	**SE**	**Sig.**
(I) [Driving in an autonomous vehicle could be a fun experience.]	**(J) [Driving in an autonomous vehicle could be a fun experience.]**			
Disagree	Somewhat disagree	-0,286	0,386	0,946
	Neither agree nor disagree	-1,685*	0,422	0,001
	Somewhat agree	-3,290*	0,346	0,000
	Agree	-3,932*	0,305	0,000
Somewhat disagree	Disagree	0,286	0,386	0,946
	Neither agree nor disagree	-1,400*	0,419	0,010
	Somewhat agree	-3,004*	0,341	0,000
	Agree	-3,646*	0,300	0,000
(I) [Autonomous vehicles can improve the safety of my ride.]	**(J) [Autonomous vehicles can improve the safety of my ride.]**			
Disagree	Somewhat disagree	0,565	0,732	0,936
	Neither agree nor disagree	-1,092	0,811	0,665
	Somewhat agree	-2,345*	0,726	0,030
	Agree	-2,932*	0,713	0,005
Somewhat disagree	Disagree	-0,565	0,732	0,936
	Neither agree nor disagree	-1,657*	0,463	0,006
	Somewhat agree	-2,910*	0,289	0,000
	Agree	-3,497*	0,254	0,000
(I) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]	**(J) [Autonomous vehicles can help me increase my productivity by allowing me to invest the driving time into other activities.]**			
Disagree	Somewhat disagree	0,473	0,549	0,909
	Neither agree nor disagree	-0,837	0,634	0,680
	Somewhat agree	-2,202*	0,541	0,002
	Agree	-2,383*	0,521	0,000
Somewhat disagree	Disagree	-0,473	0,549	0,909
	Neither agree nor disagree	-1,310*	0,448	0,037
	Somewhat agree	-2,675*	0,303	0,000
	Agree	-2,856*	0,266	0,000
(I) [Autonomous vehicles can reduce traffic congestion.]	**(J) [Autonomous vehicles can reduce traffic congestion.]**			
Disagree	Somewhat disagree	0,526	0,403	0,689
	Neither agree nor disagree	-1,322*	0,433	0,023
	Somewhat agree	-2,258*	0,400	0,000
	Agree	-2,197*	0,353	0,000
Somewhat disagree	Disagree	-0,526	0,403	0,689
	Neither agree nor disagree	-1,847*	0,387	0,000
	Somewhat agree	-2,784*	0,350	0,000
	Agree	-2,723*	0,295	0,000
(I) [Autonomous vehicles can increase accessibility of disabled and elderly people.]	**(J) [Autonomous vehicles can increase accessibility of disabled and elderly people.]**			
Disagree	Somewhat disagree	-1,500	0,685	0,243
	Neither agree nor disagree	-2,462*	0,344	0,000
	Somewhat agree	-2,594*	0,209	0,000
	Agree	-4,028*	0,145	0,000

Somewhat disagree	Disagree	1,500	0,685	0,243
	Neither agree nor disagree	-0,962	0,767	0,721
	Somewhat agree	-1,094	0,717	0,562
	Agree	-2,528*	0,700	0,020

*. The mean difference is significant at the 0.05 level.

Table 27. Games-Howell results for H3.7

Dependent Variable: How much (in Euros) would you be willing to pay for automated driving technology installed in your next vehicle?		**MD (I-J)**	**SE**	**Sig.**
(I) [I feel that I can trust AVs.]	**(J) [I feel that I can trust AVs.]**			
Disagree	Somewhat disagree	-1,087*	0,391	0,048
	Neither agree nor disagree	-2,938*	0,395	0,000
	Somewhat agree	-3,464*	0,327	0,000
	Agree	-3,237*	0,365	0,000
Somewhat disagree	Disagree	1,087*	0,391	0,048
	Neither agree nor disagree	-1,851*	0,373	0,000
	Somewhat agree	-2,377*	0,301	0,000
	Agree	-2,150*	0,341	0,000
(I) [I feel concerned about kids/disabled people riding alone in an AV.]	**(J) [I feel concerned about kids/disabled people riding alone in an AV.]**			
Agree	Somewhat agree	-1,404*	0,307	0,000
	Neither agree nor disagree	-2,293*	0,444	0,000
	Somewhat disagree	-1,388*	0,309	0,000
	Disagree	-1,904*	0,462	0,001
Somewhat agree	Agree	1,404*	0,307	0,000
	Neither agree nor disagree	-0,889	0,414	0,215
	Somewhat disagree	0,016	0,264	1,000
	Disagree	-0,500	0,434	0,777
(I) [I feel concerned about equipment and system failures in autonomous vehicles.]	**(J) [I feel concerned about equipment and system failures in autonomous vehicles.]**			
Agree	Somewhat agree	-1,024*	0,291	0,005
	Neither agree nor disagree	-1,984	0,684	0,056
	Somewhat disagree	-1,288*	0,331	0,001
	Disagree	-1,558*	0,424	0,004
Somewhat agree	Agree	1,024*	0,291	0,005
	Neither agree nor disagree	-0,960	0,662	0,604
	Somewhat disagree	-0,265	0,283	0,882
	Disagree	-0,535	0,387	0,643
(I) [I feel concerned about AVs sharing roads with conventional vehicles.]	**(J) [I feel concerned about AVs sharing roads with conventional vehicles.]**			
Agree	Somewhat agree	-0,661	0,334	0,280
	Neither agree nor disagree	-1,112	0,446	0,101
	Somewhat disagree	-1,409*	0,334	0,000
	Disagree	-1,862*	0,447	0,001
Somewhat agree	Agree	0,661	0,334	0,280
	Neither agree nor disagree	-0,451	0,404	0,798
	Somewhat disagree	-0,748	0,277	0,058
	Disagree	-1,201*	0,406	0,034
(I) [I believe AVs would negatively impact my driving ability.]	**(J) [I believe AVs would negatively impact my driving ability.]**			
Agree	Somewhat agree	-1,727*	0,467	0,003
	Neither agree nor disagree	-1,009	0,459	0,190
	Somewhat disagree	-2,381*	0,404	0,000
	Disagree	-2,918*	0,427	0,000
Somewhat agree	Agree	1,727*	0,467	0,003
	Neither agree nor disagree	0,718	0,399	0,379
	Somewhat disagree	-0,654	0,335	0,295
	Disagree	-1,191*	0,363	0,011

(I) [I feel concerned about job losses (e.g. truck and taxi drivers).]	(J) [I feel concerned about job losses (e.g. truck and taxi drivers).]			
Agree	Somewhat agree	-0,817	0,349	0,137
	Neither agree nor disagree	-0,886	0,417	0,216
	Somewhat disagree	-1,292*	0,358	0,004
	Disagree	-2,127*	0,395	0,000
Somewhat agree	Agree	0,817	0,349	0,137
	Neither agree nor disagree	-0,069	0,380	1,000
	Somewhat disagree	-0,475	0,314	0,555
	Disagree	-1,309*	0,355	0,003

*. The mean difference is significant at the 0.05 level.