A study of Public Acceptance of Autonomous Cars

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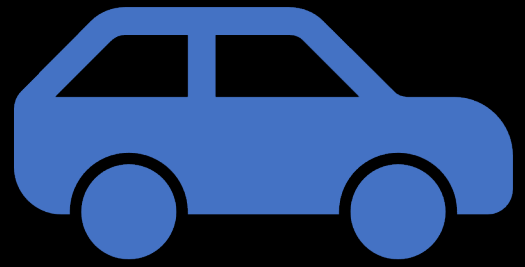
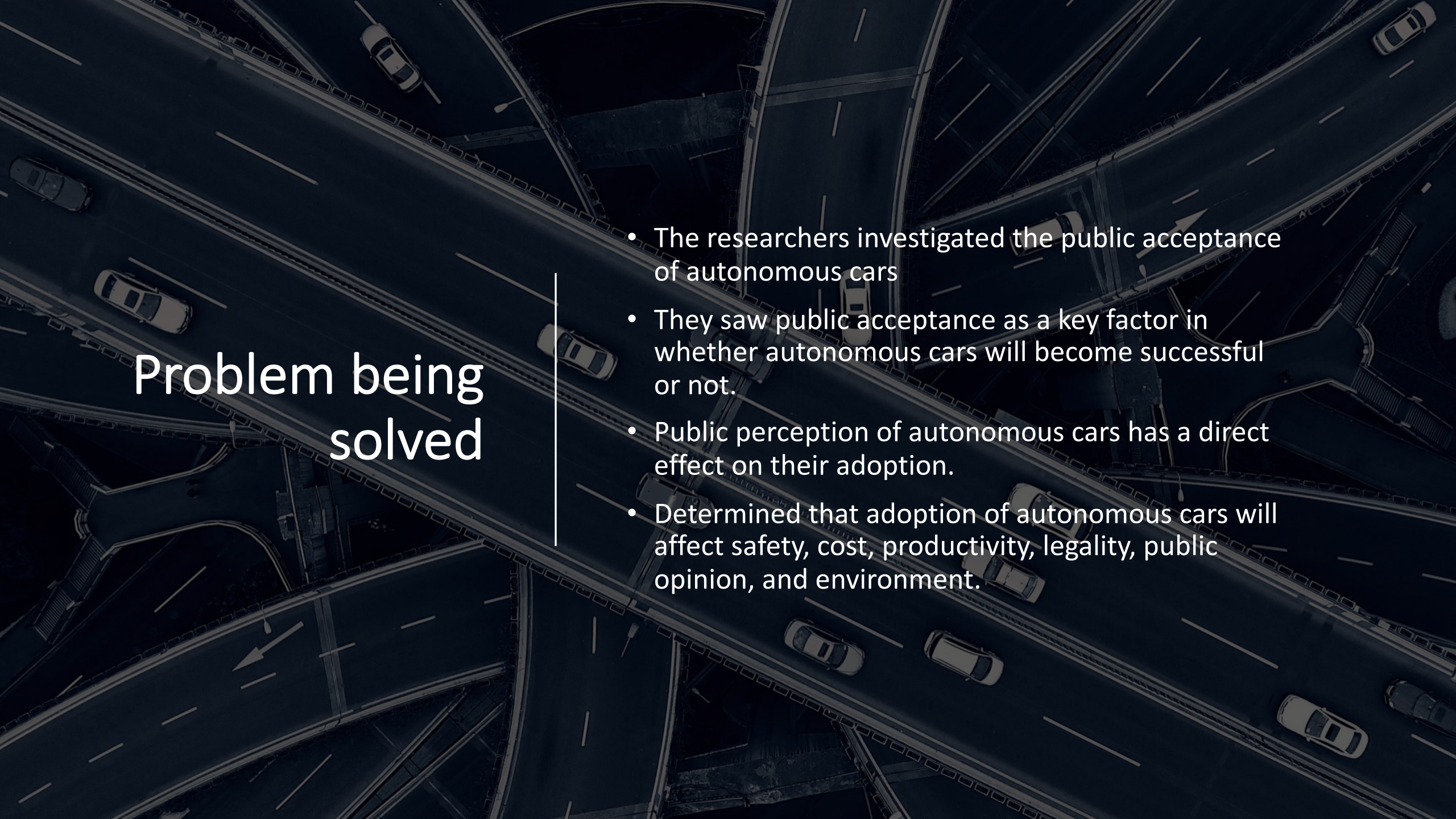


Introduction

- Autonomous car technology is taking shape
- Researchers wanted to evaluate the acceptance of these technology among the public.
- Many companies such as Google, Ford, Toyota, and General Motors are researching and implementing this technology
- Key issues around autonomous cars include:
  - Safety
  - Personal freedom
  - Technology dependence
  - Legal framework



Problem being solved

- The researchers investigated the public acceptance of autonomous cars
- They saw public acceptance as a key factor in whether autonomous cars will become successful or not.
- Public perception of autonomous cars has a direct effect on their adoption.
- Determined that adoption of autonomous cars will affect safety, cost, productivity, legality, public opinion, and environment.

Is the problem significant?

Yes, it is significant

The perception of autonomous cars drives the development of the technology

It helps the companies understand how the public feel about the technology and their key concerns.

The companies then improve the technology to fit the needs of the public

Authors assumption

- Public perception is a driver of adoption of autonomous cars
- The appeal of autonomous cars is determined by safety, cost, legislation, productivity, fuel efficiency, and environmental impact
- Most influential aspect of autonomous car is safety.
- Second most influential aspect is cost
- Third is legality
- Younger, high income, and highly educated participants would be more accepting of autonomous cars

Are the assumptions realistic?

Yes

The assumptions are realistic and testable

Using a survey to collect data, the researchers can test whether there is significant evidence for these assumptions

Safety, cost, and legality are realistic influences

Education, income, and age are also realistic

Missing gaps

The gap evaluated is the public acceptance of autonomous cars

The work is well compiled and follows the research process:

Conducting preliminary research/observations

Developing a hypothesis

Performing background research

Designing an experiment

Conducting the experiment

Analyzing the results

Forming a conclusion based on the analysis

Evaluation setup, experiments, results

- A survey was developed.
  - Allows a large sample size
  - Obtain opinions without need to have used autonomous cars
  - Less time consuming
- Questions specified to each area of interest-safety, cost, legality, productivity, fuel efficiency, and environmental impact.
- Survey distributed using several media such as SurveyMonkey and physical forms to avoid bias.
- Data converted to excel and then SPSS

Evaluation setup, experiment, results

- Received 467 responses
- Grouped the responses using SPSS factor analysis

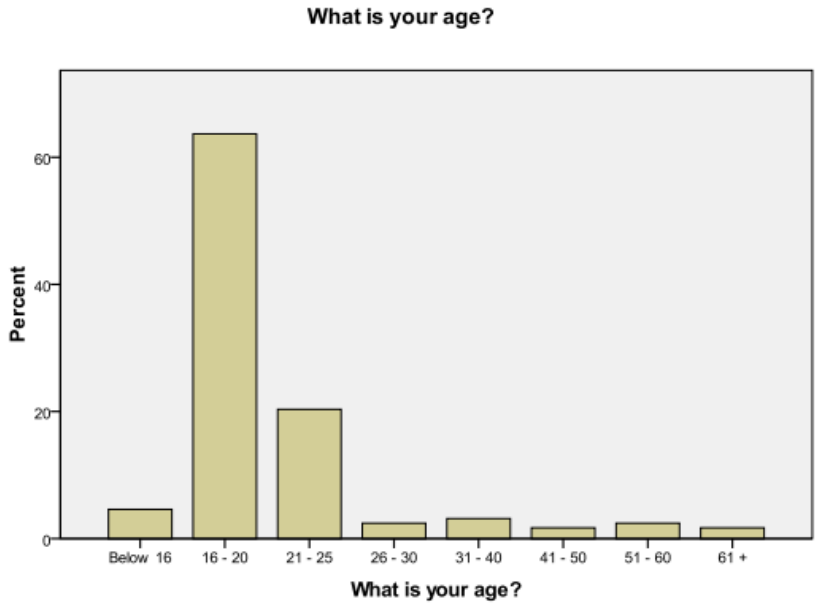


Figure 4-2: Age Distribution

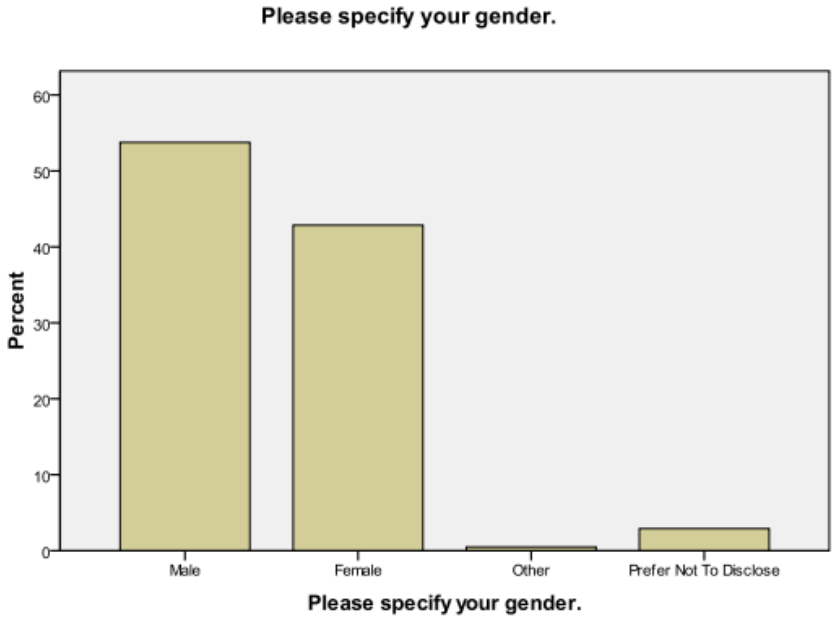


Figure 4-1: Gender Distribution

Results

- Most influential aspects of autonomous cars in order are safety, law, and cost.

Influence	% of participants that ranked as most influential	% of participants that ranked as second most influential	% of participants that ranked as the least influential	Average ranking
Safety	82.41%	11.81%	5.78%	1.2337
Law	11.72%	63.28%	25%	2.1328
Cost	6.89%	25%	68.11%	2.6122

Table 5-1: Percentage Rankings of Safety, Law, and Cost

Results

- Safety had an overall negative impact on desirability of autonomous cars
- Attain the required license endorsements to operate an autonomous car.
- They did not want to be liable for the accidents.

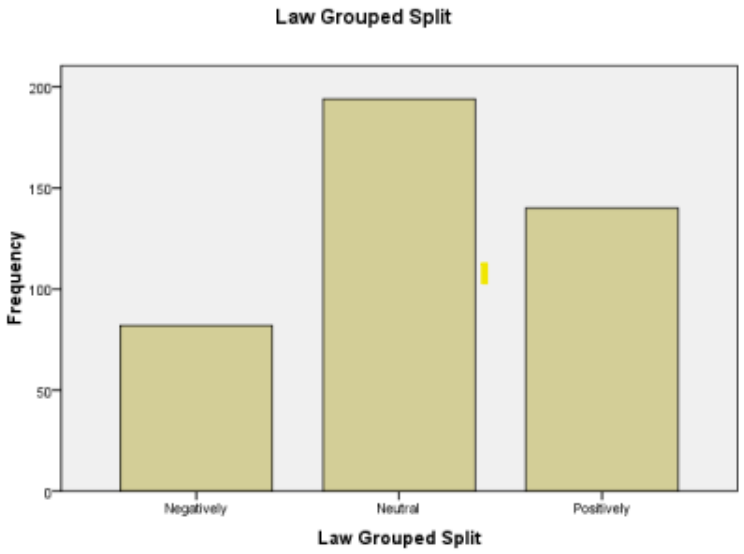


Figure 5-2: Distribution of Opinions on Laws of Autonomous Cars Grouped

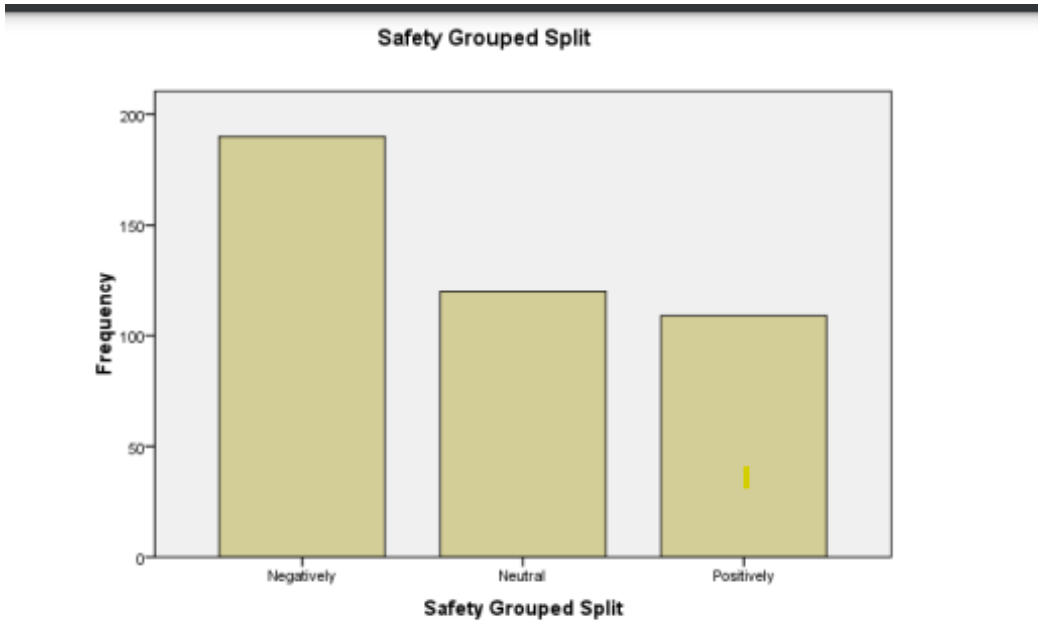


Figure 5-1: Distribution of Opinions on Safety of Autonomous Cars Grouped

Result: Secondary influences

- Fuel efficiency was the main influential aspect for the respondents.
- This was followed by environmental impact and productivity.

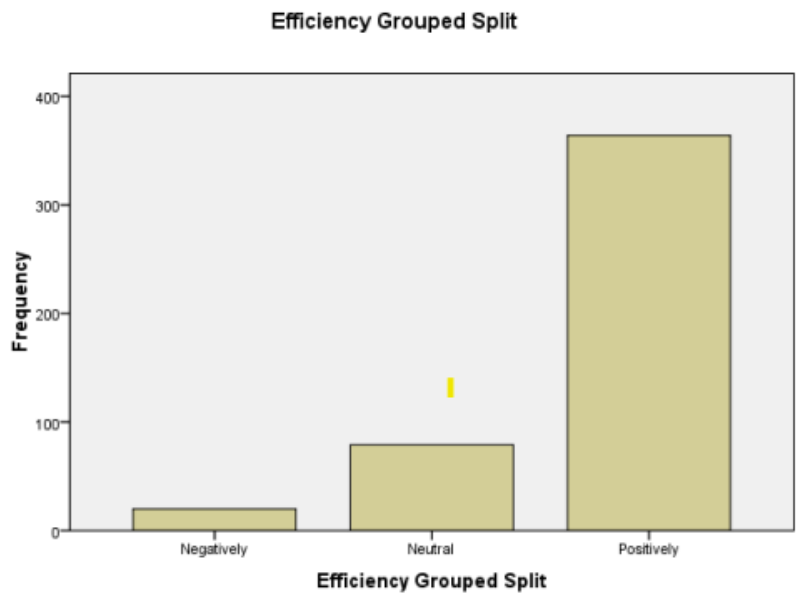


Figure 5-7: Distributions of opinions on the efficiency of autonomous cars

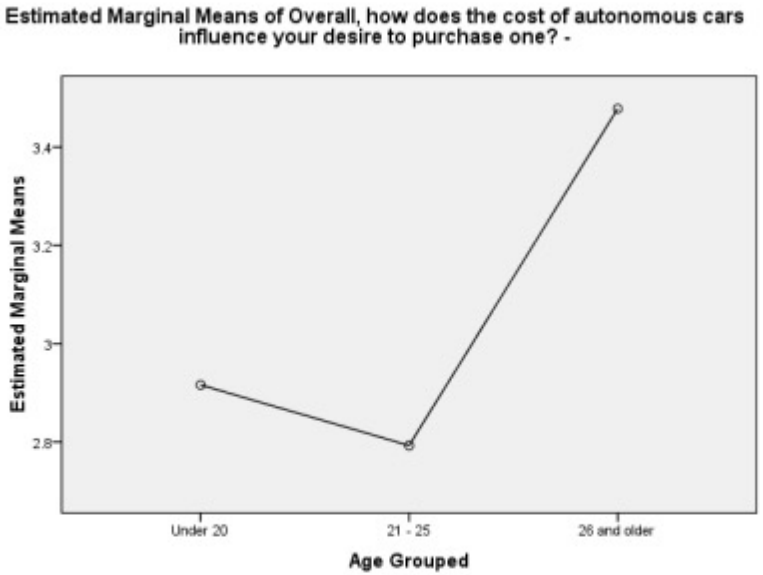


Figure 5-10: Relationship between age and influence of cost on autonomous cars

Proposed solution

- The current safety, legal, and costs for autonomous care were unacceptable from the results
- Reasonable and well-structure legal framework should be developed
- Companies should prove that operating an autonomous car is not dangerous.
- People will judge the affordability of cars when they are safe and there are reasonable laws
- Manufacturers need to prove that the time off the wheel is beneficial

Conclusion

- The paper is well-structured and follows the research process
- The problem identified is significant and the assumptions made are realistic.
- The methodology and analysis of the data are also efficient
- The results are well-presented
- Limitations
  - Number of questions for each area of interest
  - Number of respondents

Discussion points

What do you generally feel about autonomous car technology?

What is your experience with autonomous cars?

What are the major concerns for you regarding autonomous cars- safety, cost, laws?

THANK YOU ALL

Reference

- Jardim, A.S., Quartulli, A.M., & Casley, S.V. (2013). A Study of Public Acceptance of Autonomous Cars. Retrieved from https://digitalcommons.wpi.edu/iqp-all/2596