

Commercial Space Travel for the Masses but Will People Ride? A Preliminary Analysis

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Introduction

The first space tourist was a billionaire businessman who spent nearly 8 days on the International Space Station in 2001, reportedly paying \$20 million to be shuttled both ways on a Russian Soyuz spacecraft¹. The company that facilitated the excursion, Space Adventures, sent an additional six paying customers to space over the next 10 years. Another milestone towards civilian space travel came in 2004 with SpaceShipOne, a private spacecraft, earning the \$10 million Ansari XPRIZE, a private space travel competition, “to usher in a new era of private space travel”². As the dream of space tourism becomes a reality, companies like SpaceX, Blue Origin, and Virgin Galactic are investing billions of dollars in the race to be the first private company to offer routinely scheduled and affordable commercial spaceflights.

Understanding future customers is vital to the economic viability of this new industry. However, customer opinions have not been widely published exposing a need for additional research.

Results

A Cronbach’s Alpha was performed on all four scales with internal consistency values ranging from .895 to .936 indicating a high level of internal consistency. Guttman split-half coefficients ranged from .823 to .920 indicating a high level of reliability.

A multiple regression was run to predict willingness to fly in commercial spacecraft using the backward stepwise method. The initial model included the following predictors: country of residence, familiarity, fun factor, wariness of new technology,

Table 1
Summary of Multiple Regression Analysis

Variable	B	SE _B	β
Intercept	-0.182	0.051	
Fun Factor	0.709	0.037	0.667*
Country of Residence	0.426	0.069	0.230*
Familiarity	0.068	0.038	0.074

Note. * $p < .001$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient. Cutoff value, $p < .10$

Methods

The purpose of this study was to determine predictors of future space travelers using a quantitative (non-experimental) methodology based on a correlational approach. Data was collected using an online questionnaire.

The study comprised 409 individuals (136 female) with a mean age of 32.25 ($SD = 10.47$). Participants were recruited through Amazon’s® Mechanical Turk® (MTurk), an online platform for conducting human intelligence tasks in exchange for compensation.

The research volunteers were given a scenario and asked to rate their perceptions using four previously validated scales: Familiarity Scale, Fun Factor Scale, Wariness of New Technology Scale³, and Willingness to Fly Scale⁴. Each scale ranged from five to seven closed-ended questions using a 5-step Likert scale rated from Strongly Disagree to Strongly Agree. Additional predictors included country of residence, age, education, income, and participation in high adventure activities.

Scenario

“Imagine you have the opportunity to purchase travel into space on a commercial spacecraft. The spacecraft is autonomously controlled, in other words, there is no human-pilot (astronaut) inside the spacecraft or controlling spacecraft from the ground.”

Discussion

Initial predictors included country of residence, familiarity, fun factor, wariness of new technology, gender, age, education, income, and high adventure activity participation. The most parsimonious model included fun factor, country of residence, and familiarity. As a prediction tool, the model suggests companies should focus on promoting aspects relating to fun and familiarity to build the pool of participants willing to fly.

As in other studies, the data indicates individuals from collectivist and individualist countries differ. The current study found residents of India more likely to be willing to fly perhaps explained by cultural norms of trust in automation⁵. Unexpectedly, age, gender⁶, and wariness of new technology did not significantly predict willingness to fly.

A limitation in the study is the difference between attitudes and actions. The gap in understanding of who would actually expend funds to travel still remains unexplored. Future studies could examine issues of trust in technology as commercial space vehicles are as yet unproven. Studies using participants from other countries could yield valuable comparisons.

References

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Abstract

Through nearly 60 years of space travel there have been approximately 530 individuals who have attempted space flight. The vast majority of these individuals were government sponsored astronauts. Since the advent of commercial space travel, less than ten private citizens have gone into space. Several companies are banking on regular space tourism appealing to consumers. As the dream of space tourism becomes a reality, companies like SpaceX, Blue Origin, and Virgin Galactic are investing billions of dollars in the race to be the first private company to offer routinely scheduled and affordable commercial spaceflights. However, no prior research that we are aware of has focused on identifying variables to predict a consumer’s willingness to fly on a commercial spacecraft. Therefore, the purpose of this study is to assess what variables significantly predict willingness to fly in commercial spacecraft using a quantitative methodology and correlational design with multiple linear regression for statistical analysis. The study will employ several predictor variables including subject familiarity, wariness of new technology, fun factor, country of residence, gender, age, education, income and experience in high adventure activities. Participants will base their willingness to fly on a spacecraft controlled autonomously using a previously validated scale. Data captured in this study can assist manufacturers and researchers by providing clues to ensure commercial spaceflight viability. The study provides a discussion of these key variables, identifies practical applications, and provides recommendations for future research.

Can willingness to ride be predicted?

