

## Background

The objective of this research is to investigate Greek drivers' willingness to pay for innovative vehicle insurance schemes Pay-as-you-drive (PAYD) and Pay-how-you-drive (PHYD) schemes.

Current technological advances, enable to collect high resolution driver behavior data easier and more accurately using technologies such as Smartphones, On-Board Diagnostics (OBD) systems etc. and use them to monitor, analyze and evaluate each individual driver's behavior. PAYD scheme is based on assessing driver's level of exposure to traffic risk while PHYD is based on driver behavior indicators such as speeding, acceleration etc. The implementation of this policy has shown a significant impact on driver's behavior and as a result, this measurement is a matter of great importance for traffic safety.



The main concept of Usage Based Insurance (UBI) is:  
 · It is not fair for drivers with similar characteristics such as age, gender, location, accident record etc. pay approximately the same premiums  
 · Instead of a fixed price, drivers have to pay a premium based on their:  
 · Driving behavior  
 · Degree of exposure

For the estimation of insurance premiums, the "Willingness to Pay" (WtP) methodology is examined, which is in fact the reflection of the individual estimate on how much money an individual is willing to pay (or sacrifice) to obtain certain benefits or avoid costs.



## Methodology

A stated-preference survey is designed and administered in a questionnaire form both paper-based and online. The questionnaire is comprised of four sections including:

- a general driving information
- a driving behavior information
- a new innovative insurance policy scenario and
- a demographic characteristics section.

At the third section, respondents are given several scenarios to choose between the standard and the new insurance policy to measure the sensitivity of their choice based on some factors such as:

- the variation of mileage
- the average speed
- the annual insurance cost



Subsequently, a discrete choice model was developed to analyze data collected during this experiment.

## Results

PAYD- Utility function					
	B	SE	Wald	Df	Sig.
Mileage reduction	0,126	0,020	39,900	1	0,000
Insurance premium cost reduction	-0,109	0,018	36,307	1	0,000
Occupation(freelancer)	-1,845	0,577	10,239	1	0,001
Constant	-0,475	0,303	2,459	1	0,117

WtP for PAYD is mainly influenced by:

- 1) Mileage change
- 2) Insurance premium cost change
- 3) Occupation (=freelancer)

PAYD- Utility function					
	B	SE	Wald	Df	Sig.
Mileage reduction	0,073	0,009	60,447	1	0,000
Speed reduction	0,064	0,013	24,906	1	0,000
Insurance premium cost reduction	-0,116	0,014	72,353	1	0,000
Gender	0,623	0,170	130426	1	0,000
Age(25-30)	1,323	0,317	17,426	1	0,000
Smartphone possession	0,520	0,201	6,660	1	0,010
Occupation(freelancer)	-0,599	0,318	3,538	1	0,060
Constant	-1,471	0,264	30,921	1	0,000

WtP for PHYD is mainly influenced by:

- 1) Mileage change
- 2) Speed change
- 3) Insurance premium cost change
- 4) Gender
- 5) Age (25-30)
- 6) Occupation (=freelancer)
- 7) Smartphone possession

## Conclusions

The influence of mileage, insurance premium cost and occupation on willingness to switch to a new innovative policy was found statistically significant both for PAYD and PHYD.

Results indicated that:

- Kilometers and cost reduction were also found to affect similarly the choice for both Usage-Based-Motor Insurance.
- The higher the speed reduction imposed to the user, the lower the probability of the UBI scheme to choose it.
- People over 40 years old are less likely to choose PHYD insurance.
- Women are more likely to choose an innovative insurance scheme.
- Smartphone owners are more likely to choose a new insurance schemes which is probably explained by the fact that they are generally more receptive to new technology.
- People with lower education are more likely to choose PAYD insurance.

