Willingness to Pay for Energy Efficient Cars: Hedonic Pricing and Contingent Valuation Method Approach

BANGKOK UNIVERSITY
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Climate Change ← **CO2**

Electricity	90.79 Million Tonnes
Industry Sector	53.96 Million Tonnes
Transportation Sector	57.07 Million Tonnes Oil 53.22 Million Tonnes
Other Sectors	18.82 Million Tonnes

Institutional setting

Research that can lead to policy implications in order to estimate the willingness to pay for energy efficient cars

Hedonic Pricing

Collect data on price and characteristics of small passenger cars that have been advertised during the 2nd quarter of 2015

Contingent Valuation

Collect data from questionnaire surveys of 600 respondents

(Age > 18, living in Bangkok Metropolitan and willing to purchase new car within few years)

Approach

In order to estimate the willingness to pay for energy efficient car, hedonic pricing model and contingent valuation model are used.

Hedonic Pricing Model:

$$Car\ Price = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \ldots + \varepsilon$$

Z is characteristics of car

Ln ($PRICE_i$) = f (Z_i (BRAND, PASS, CID, HP, HEGHT, WIDTH, LENGTH, WT, BAG, TIRESIZE, TIREDWIDTH, KPL, CAMERA, CVT; G_i (ALFUEL)

Contingent Valuation Model:

$$WTP_i = \alpha_i + \beta_1 Bid + \beta_2 Sex + \beta_3 Education + \beta_4 Status + \beta_5 Age + \beta_6 Income + \beta_7 Number + \beta_8 Main + \beta_9 Fuel + \beta_{10} Attitude + \varepsilon_i$$

Outputs

Hedonic Pricing Model		
Characteristics	**Beta**	**Premium (%)**
ALTFUEL	0.195***	21.53

Characteristics that create positive value for car

horsepower, cylinder bore, car height, rim diameter and rear view camera

Characteristics	Premium (Baht)
Hybrid Car	274,943.39
E-85 Car	53,933.12
CNG Car	25,719.38

Characteristics that create higher willingness to pay

monthly income, fuel cost per month and environmental attitudes

Variables	Beta	Premium (%)
BRAND	0.120**	12.75
CID (Cylinder)	0.289***	33.51
HP (Horse Power)	0.611***	84.23
HEIGHT	0.226***	25.36
TIRESIZE	0.104*	10.96
AIR BAG	0.037	3.77
KPL (KM per Litre)	0.083	8.65
REAR CAMERA	0.134***	14.34
CVT (Continuous Variable Transmission)	-0.064	-6.20
ALTERNATIVE FUEL	0.195***	21.53

Transfer

Characteristics	Premium (Baht)	Subsidies (Baht)
Hybrid Car	274,943.39	85,000
E-85 Car	53,933.12	-
CNG Car	25,719.38	24,000

Government Policies that support

environmental attitudes/awarness

Analyze impacts of economic cost on willingness to pay

monthly income , fuel cost per month