CENTRO STUDI
DI ECONOMIA E TECNICA DELL'ENERGIA
"GIORGIO LEVI CASES"

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Le ricerche del Levi Cases
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UNIVERSITÀ DEGLI STUDI DI PADOVA

Title: EXPLORing the market for thermochemical Energy storage systems in building applications. (EXPLORE)

Linked project: Sustainable AddiTive ManufactuRing of Low-temperAture Thermochemical Energy StoraGe Systems for BuildIng AppliCations (STRATEGIC)

Research team:

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Background and aim of the project

- Thermochemical energy storage systems are receiving an increasing attention due to their performance
- Components of such systems can be produced with additive manufacturing, which can use natural and waste materials for the fabrication of structures, thus increasing the sustainability of production
- Despite the potential advantages of such technology, the economic analysis of its use for building applications has yet to receive serious attention

The project aims at investigating the potential market for thermochemical energy storage systems with components obtained from sustainable additive manufacturing

Methods

- Choice Experiment to explore consumers' preferences and willingness to pay for building applications of thermochemical energy storage systems with components obtained from sustainable additive manufacturing
- Survey with questions related to respondents' attitudinal/psychological aspects, with focus on propensity to adopt innovative products/solutions (e.g. Diffusion of Innovation Theory)
- Econometric analysis: Discrete Choice Models

$$P(U_{ig} > U_{ij}) = \frac{\exp(\mu V_{ig})}{\sum_{j=1}^{J} \exp(\mu V_{ij})}$$

$$P_{ig} = \frac{\exp(\beta_i' X_g)}{\sum_{j=1}^{J} \exp(\beta_i' X_j)}$$

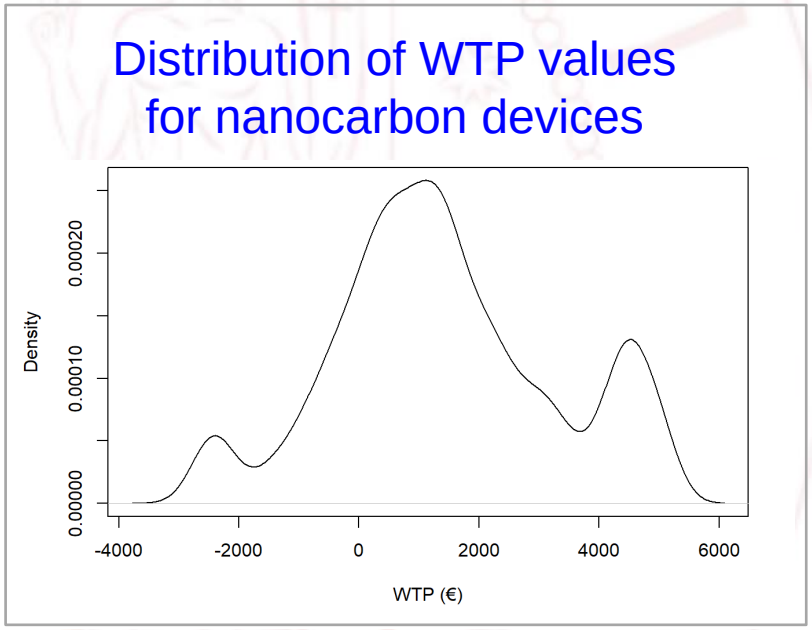
β_i' = vector of attributes' coefficients

$X_{g/j}$ = vector of attributes of alternative g/j

μ = scale parameter

Expected results

- Estimation of willingness to pay (WTP) values and of their distribution across the population
- Market segmentation (latent class models) according to end-users' profile
- Forecasting of market shares



Such information is crucial to involve industries/investors in the production of devices using the material, thus promoting its diffusion