

An Evolutionary Algorithm for Optimal Fuel-Type Configurations in Car Lines

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Abstract : Although environmental concern is on the rise across Europe, current market data indicate that adoption rates of environmentally friendly vehicles remain extremely low. Against this background, the aim of this paper is to a) assess preferences of European consumers for clean-fuel cars and their characteristics and b) design car lines that optimize the combination of fuel types among models in the line-up. In this direction, the authors introduce a new evolutionary mechanism and implement it to stated-preference data derived from a large-scale choice-based conjoint experiment that measures consumer preferences for various factors affecting clean-fuel vehicle (CFV) adoption. The proposed two-step methodology provides interesting insights into how new and existing fuel-types can be combined in a car line that maximizes customer satisfaction.

Keywords : clean-fuel vehicles, product line design, conjoint analysis, choice experiment, differential evolution

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