



Non-compensatory Consumer Behavior in Vehicles Purchases

Michael Erickson, Masters Student (2016)

Non-compensatory Behavior

- Consumer evaluation of products can be grouped into two main methods: compensatory and non-compensatory
- Compensatory screening assumes that an excellent product attribute can compensate for a poor attribute
- Non-compensatory rules require that strict rules be met for a product to be a candidate

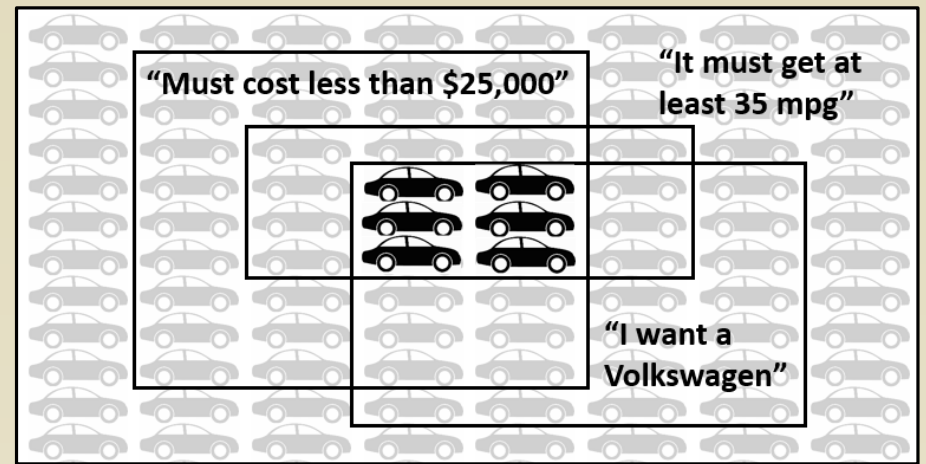


Figure 1. A non-compensatory rule applied to vehicles

Modeling Consumer Reaction to Volkswagen's Defeat Device

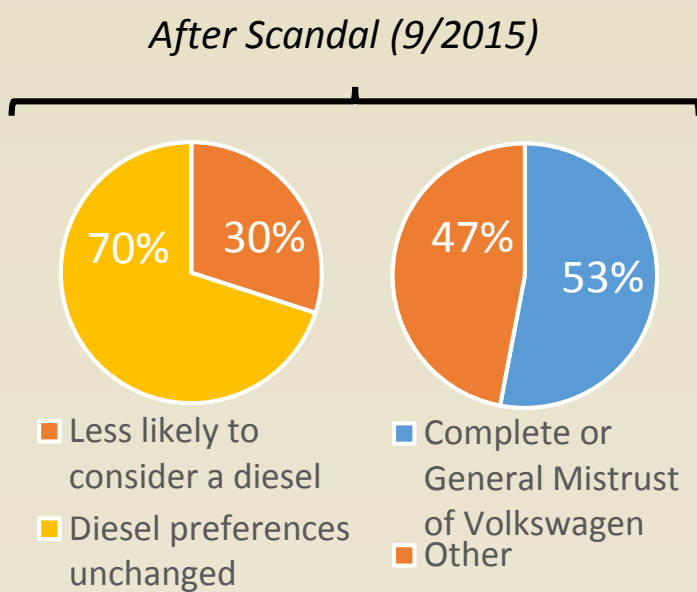


Figure 2. Affects of VW Defeat Device Publicity [1]

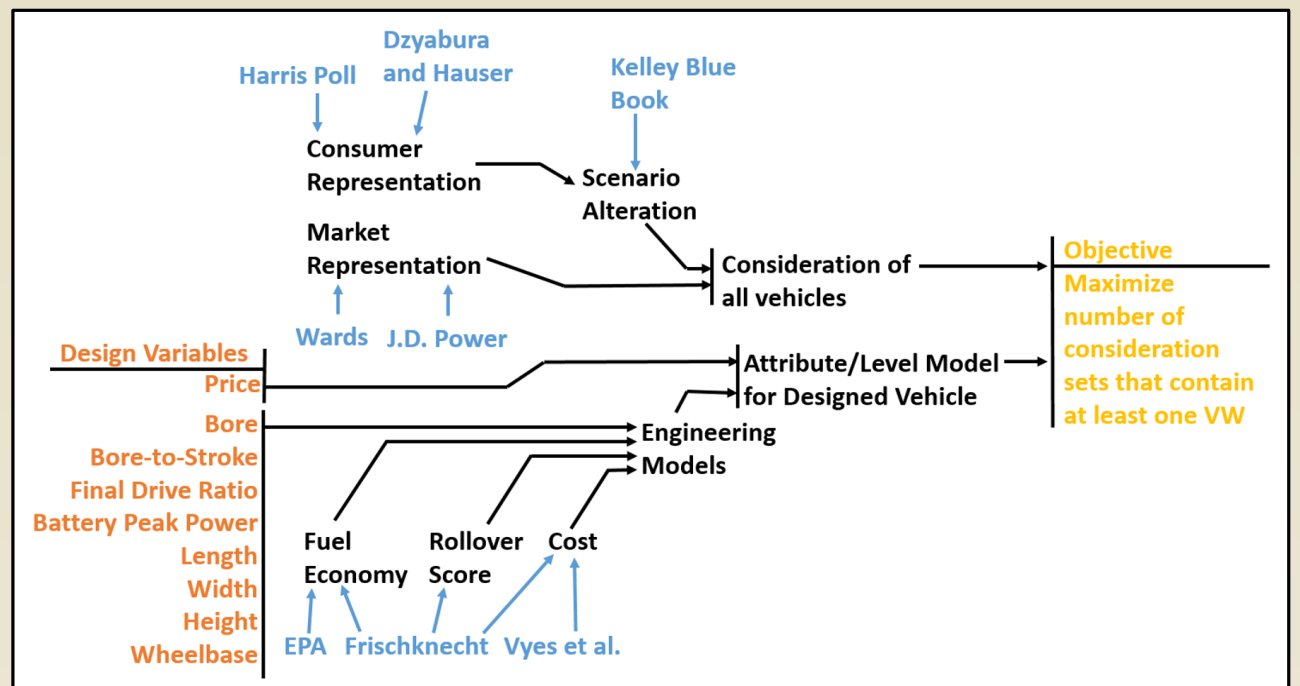


Figure 3. High Level Overview of Simulation

Method

- Overall objective: assess consumer reaction by (1) evaluating consumer reaction to the scandal, and (2) introducing an optimal VW vehicle into the marketplace and have consumers reassess VW
- Surveys of consumer sentiment and previously published empirical findings formed the basis of consumer models
- Engineering models [2] translate engineering characteristics (e.g. engine bore, etc.) into vehicle features (mpg, etc.)

Results

- Non-compensatory screening on brand reduces consideration of VW vehicles more than screening on diesel powertrain
- Optimal vehicles in Scenarios 5-7 were similar:

Table 2. Optimal Resulting Vehicles

Scen.	Pop.	Cost (\$k)	Price (\$k)	MPG	Class
5	A	26.4	27	43	Standard Sedan
	B	26.0	27	43	Compact Sedan
	C	26.2	27	43	Compact Sedan
6	A	36.7	37	43	Standard Sedan
	B	31.8	32	39	Standard Sedan
	C	35.0	37	41	Compact Sedan
7	A	36.7	37	41	Standard Sedan
	B	29.9	32	43	Compact Sedan
	C	44.4	45	41	Standard Sedan

References

- [1] Frischnecht, B., 2009, "Market Systems Modeling for Public Versus Price Tradeoff Analysis in Optimal Vehicle Design."
 [2] Kelley Blue Book, 2015, "More Than 70 Percent Of Car Shoppers Believe Emissions Crisis Could Spread Beyond Volkswagen And Mistrust Of The Brand Rides"

Table 1. Several screening scenarios are considered

Scenario	Affect
1	No change (status quo)
2	Diesel screening rules affected
3	Brand screening rules affected
4	Both diesel and brand rules affected
5	Scenario 2 with an optimal vehicle
6	Scenario 3 with an optimal vehicle
7	Scenario 4 with an optimal vehicle

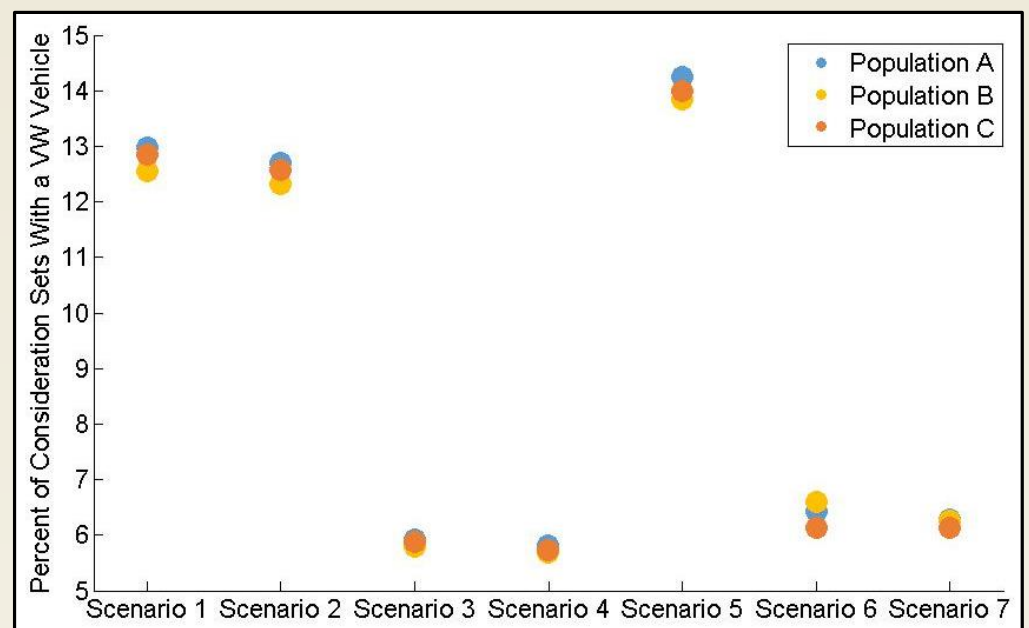


Figure 4. Diesel screening affects VW stronger than brand screening