



EUROPE
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EXPLORING DATA • INSPIRING INNOVATION

Case Studies on Designing and Analysing Discrete Choice Experiments using JMP®



Dr. Roselinde Kessels
University of Antwerp

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Universiteit Antwerpen



Outline

- Packaging choice study
- Choice study on healthcare systems
- Aggregate multinomial logit model
- Individual-level multinomial logit model



Packaging study

- To help define the brand packaging strategy for P&G laundry liquids in Latin America
 - By identifying the key liquid packaging attributes that drive trial
- The experiment was virtual and executed in Mexico



Respondent selection

- Two respondent groups:
 - Leg 1: Women Seeking Perfection (WSP) 
 - Leg 2: Practical & Experiential (P&E) 
- We designed for 150 respondents per leg, but eventually we had 160 respondents per leg
 - We assigned one of the generated surveys to the 10 additional respondents
- We used the same design for WSP and P&E, but different brands were shown to them (cfr. next slide)



Attributes and attribute levels

Attributes	Levels					
Material	Transparent	Semi transparent	Opaque			
Shape	Mas color 	Pure 	Isis 	Goldie 	Pure shrink 	Cooper
Cap functionality	Roller ball 	Dosing ball 	Double wall cap 	Spout + cap 		
Brand	Mas Color 	Ariel – Leg 1 	Ariel – Leg 2 			

There are $3 \times 6 \times 4 \times 2 = 144$ different bottles



Design setup

- Design set up for 150 respondents in leg 1 and replicated for another 150 respondents in leg 2 
- The design consists of 5 different surveys randomly assigned to 5 groups of 30 respondents each
- Each survey consists of 12 choice sets of 3 profiles



Sample choice set

A1-1

Todos estos detergentes líquidos están disponibles a **29 pesos**. ¿Cuál de ellos estaría más interesada en comprar?

1	2	3
		



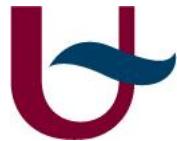
Design problem

- In total, there are 144 different bottles
- The number of possible choice sets of size 3 is

$$\binom{144}{3} = \frac{144!}{3!141!} = 487,344$$



- JMP will select the choice sets that provide most information, i.e. result in estimates that are precise



Bayesian approach: prior mean

“Opaque Cooper bottle with Spout+Cap could be the winner...”

Conversion into prior mean parameter or part-worth values:

Attribute	Level	Prior mean	
Material	FullTrans	-0.5	$\sum = -1$
	SemiTrans	-0.5	
Shape	MasColor	-0.2	$\sum = -1$
	Pure	-0.2	
	ISIS	-0.2	
	Goldie	-0.2	
	PureShrink	-0.2	
CapFunct	RollerBall	-0.34	$\sum = -1$
	CurrentDosing	-0.33	
	DoubleCap	-0.33	
Brand	MasColor	0	No guess



Bayesian approach: prior variance

- We allow for a great deal of *uncertainty* around the prior mean part-worths by specifying prior variances of 1
- For an attribute with more than 2 levels, say L levels, we also specify negative covariances between the (first $L - 1$) part-worths of that attribute using a correlation coefficient of $-1/(L - 1)$
- This ensures equal prior variances for all (L) part-worths of the attribute



Statistical remarks

- We start from the estimation of the 11 part-worths
→ Then we need 11 df
- 1 choice set of 3 profiles accounts for $3 - 1 = 2$ df
- 1 survey of 12 choice sets accounts for $12 \times 2 = 24$ df
- **$24 \text{ df} > 11 \text{ df}$ so that it is possible to estimate part-worths for each individual**



JMP Choice Design Platform

The screenshot shows the JMP Choice Design Platform interface. On the left, the 'DOE - Choice Design - JMP' window is open, displaying the 'Attributes' section. It includes a table for defining attributes, with columns for Name, Role, and Attribute Levels. A button labeled 'Add Factor' is visible. Below the table, a 'Specify Attributes' box contains instructions: 'Add an attribute by clicking the Add Factor button.' and 'Double-click an attribute name or level to edit it.' A 'Continue' button is at the bottom of this box. The top menu bar includes File, Edit, Tables, Rows, Cols, DOE, Analyze, Graph, Tools, Add-Ins, View, Window, and Help. On the right, a 'Journal: BottleExample - J...' window is open, showing the 'Bottle Choice Experiment' section with links to various design files: AttributesBottles, DesignBottles12CS, DesignBottles12CSWithResponsesWSP, and DesignBottles12CSWithResponsesPE. The bottom status bar indicates 'evaluations done'.



Attributes

The screenshot shows the JMP software interface with the title bar "DOE - Choice Design - JMP". The menu bar includes File, Edit, Tables, Rows, Cols, DOE, Analyze, Graph, Tools, Add-Ins, View, Window, Help. The left sidebar shows "Choice Design" expanded, with "Attributes" selected. Below it, there are buttons for "Add Factor", "Remove", "Add N Factors" (set to 1), and a yellow message icon. The main area displays a table titled "Attribute Levels" with four columns: "Name", "Role", "FullTrans", "SemiTrans", and "Opaque". The "Name" column lists "Material", "Shape", "CapFunct", and "Brand" as Categorical factors. The "Role" column also lists them as Categorical. The "Attribute Levels" grid contains the following data:

Name	Role	FullTrans	SemiTrans	Opaque
Material	Categorical	MasColor	Pure	ISIS
Shape	Categorical	RollerBall	CurrentDosing	Goldie
CapFunct	Categorical		DoubleCap	PureShrink
Brand	Categorical	MasColor	Ariel	Cooper
				SpoutCap

Below the table, a box labeled "Specify Attributes" contains the text: "Add an attribute by clicking the Add Factor button. Double-click an attribute name or level to edit it." A "Continue" button is at the bottom of this box. A red arrow points from the text "The most likely preferred attribute levels appear last" to the "Opaque" column header.

The most likely preferred attribute levels appear last





Main-effects model

The screenshot shows the JMP software interface with the title bar "DOE - Choice Design - JMP". The menu bar includes File, Edit, Tables, Rows, Cols, DOE, Analyze, Graph, Tools, Add-Ins, View, Window, and Help. The left sidebar has a tree view with "Choice Design" expanded, showing "Attributes" and "Model". "Model" is expanded to show "DOE Model Controls" with three buttons: "Main Effects", "Interactions", and "Remove Term". Below these controls is a table with a red border. The table has one column labeled "Name" and five rows: "Material", "Shape", "CapFunct", "Brand", and "optional item". An arrow points from the bottom of this table to the explanatory text below.

Main-effects model of $(3-1)+(6-1)+(4-1)+(2-1)$
= 11 part-worths



Prior mean

DOE - Choice Design - JMP

File Edit Tables Rows Cols DOE Analyze Graph Tools Add-Ins View Window Help

Choice Design

Model

Prior Specification

Ignore prior specifications. Generate the Utility Neutral design.

Prior Mean

Effect	Prior Mean
Material 1	-0.50
Material 2	-0.50
Shape 1	-0.20
Shape 2	-0.20
Shape 3	-0.20
Shape 4	-0.20
Shape 5	-0.20
CapFunct 1	-0.34
CapFunct 2	-0.33
CapFunct 3	-0.33
Brand	0.000



Prior variance matrix

DOE - Choice Design - JMP

File Edit Tables Rows Cols DOE Analyze Graph Tools Add-Ins View Window Help

Choice Design

Model

Prior Specification

Ignore prior variance. Generate the local design for the prior mean.

Prior Variance Matrix

Effect	Material 1	Material 2	Shape 1	Shape 2	Shape 3	Shape 4	Shape 5	CapFunct 1	CapFunct 2	CapFunct 3	Brand
Material 1	1.000	-0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Material 2		1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Shape 1			1.000	-0.20	-0.20	-0.20	-0.20	0.000	0.000	0.000	0.000
Shape 2				1.000	-0.20	-0.20	-0.20	0.000	0.000	0.000	0.000
Shape 3					1.000	-0.20	-0.20	0.000	0.000	0.000	0.000
Shape 4						1.000	-0.20	0.000	0.000	0.000	0.000
Shape 5							1.000	0.000	0.000	0.000	0.000
CapFunct 1								1.000	-0.33	-0.33	0.000
CapFunct 2									1.000	-0.33	0.000
CapFunct 3										1.000	0.000
Brand											1.000



Design generation

The screenshot shows the JMP software interface with the title bar "DOE - Choice Design - JMP". The menu bar includes File, Edit, Tables, Rows, Cols, DOE, Analyze, Graph, Tools, Add-Ins, View, Window, and Help. A sidebar on the left shows "Choice Design" expanded, with "Attributes" and "Model" collapsed. The main panel is titled "Design Generation" and contains the following parameters:

- 4 Number of attributes that can change within a choice set
- 3 Number of profiles per choice set
- 12 Number of choice sets per survey
- 5 Number of surveys
- 30 Expected number of respondents per survey

Below these parameters are two buttons: "Make Design" and "Back". A red arrow points from the text "Also, don't forget to increase the number of random starts!" to the "Make Design" button.

Also, don't forget to increase the number of random starts!





Design

DesignBottles12CS - JMP

File Edit Tables Rows Cols DOE Analyze Graph Tools Add-Ins View Window Help

Design Bottles12CS
Design Discrete Choice
Choice
Columns (8/0)
Respondent
Survey
Choice Set
Response Indicator
Material
Shape
CapFunct
Brand

150 x 36

All rows 5,400
Selected 0

	Respondent	Survey	Choice Set	Response Indicator	Material	Shape	CapFunct	Brand
1	1	1	1	• FullTrans	Pure	SpoutCap	Ariel	
2	1	1	1	• FullTrans	Goldie	RollerBall	MasColor	
3	1	1	1	• SemiTrans	ISIS	CurrentDosing	Ariel	
4	1	1	2	• SemiTrans	MasColor	DoubleCap	MasColor	
5	1	1	2	• FullTrans	ISIS	RollerBall	Ariel	
6	1	1	2	• FullTrans	Pure	CurrentDosing	Ariel	
7	1	1	3	• FullTrans	Pure	SpoutCap	Ariel	
8	1	1	3	• SemiTrans	ISIS	CurrentDosing	MasColor	
9	1	1	3	• Opaque	PureShrink	DoubleCap	Ariel	
10	1	1	4	• SemiTrans	ISIS	SpoutCap	Ariel	
11	1	1	4	• FullTrans	MasColor	CurrentDosing	Ariel	
12	1	1	4	• Opaque	Pure	DoubleCap	Ariel	
13	1	1	5	• Opaque	Pure	DoubleCap	MasColor	
14	1	1	5	• SemiTrans	MasColor	RollerBall	MasColor	
15	1	1	5	• FullTrans	Goldie	SpoutCap	MasColor	
16	1	1	6	• Opaque	Goldie	DoubleCap	Ariel	



- Based on the random utility model

$$U_{js} = \mathbf{x}'_{js} \boldsymbol{\beta} + \varepsilon_{js}$$

- U_{js} is the utility that a respondent attaches to alternative j in choice set s
- \mathbf{x}_{js} is a $k \times 1$ vector containing the attribute levels of alternative j in choice set s
- $\boldsymbol{\beta}$ is a $k \times 1$ vector of parameter values (or *part-worths* in case of main effects only)
- ε_{js} is the IID Gumbel error term



Multinomial logit model

- Multinomial / conditional logit probability that a respondent chooses alternative j in choice set s :

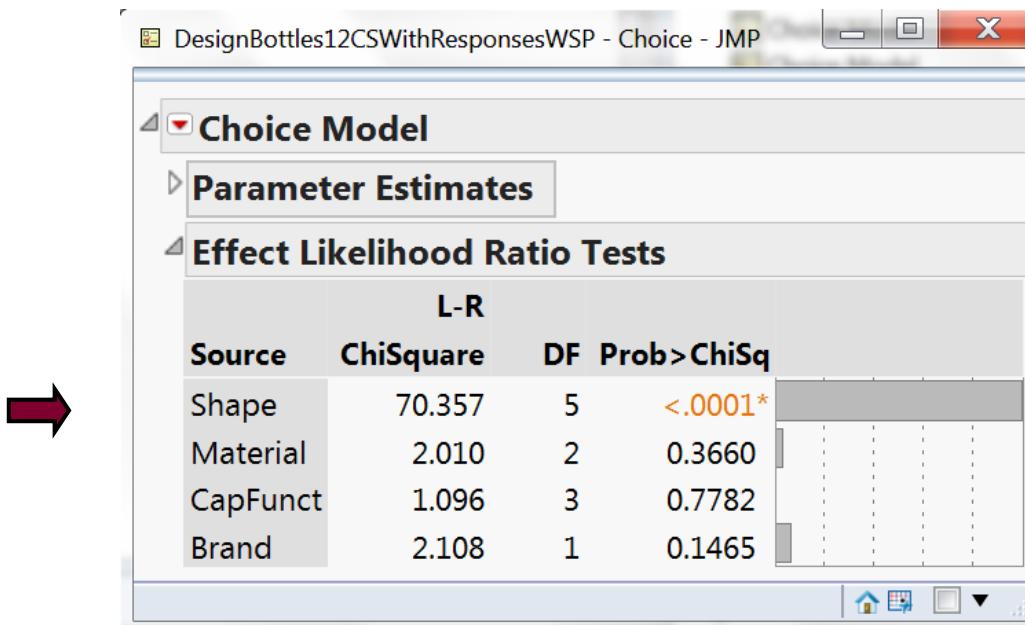
$$p_{js} \left(\begin{array}{l} \text{option } j \text{ chosen} \\ \text{in choice set } s \end{array} \right) = \frac{e^{x'_{js}\beta}}{\sum_{t=1}^J e^{x'_{ts}\beta}}$$



Analysis of the WSP data



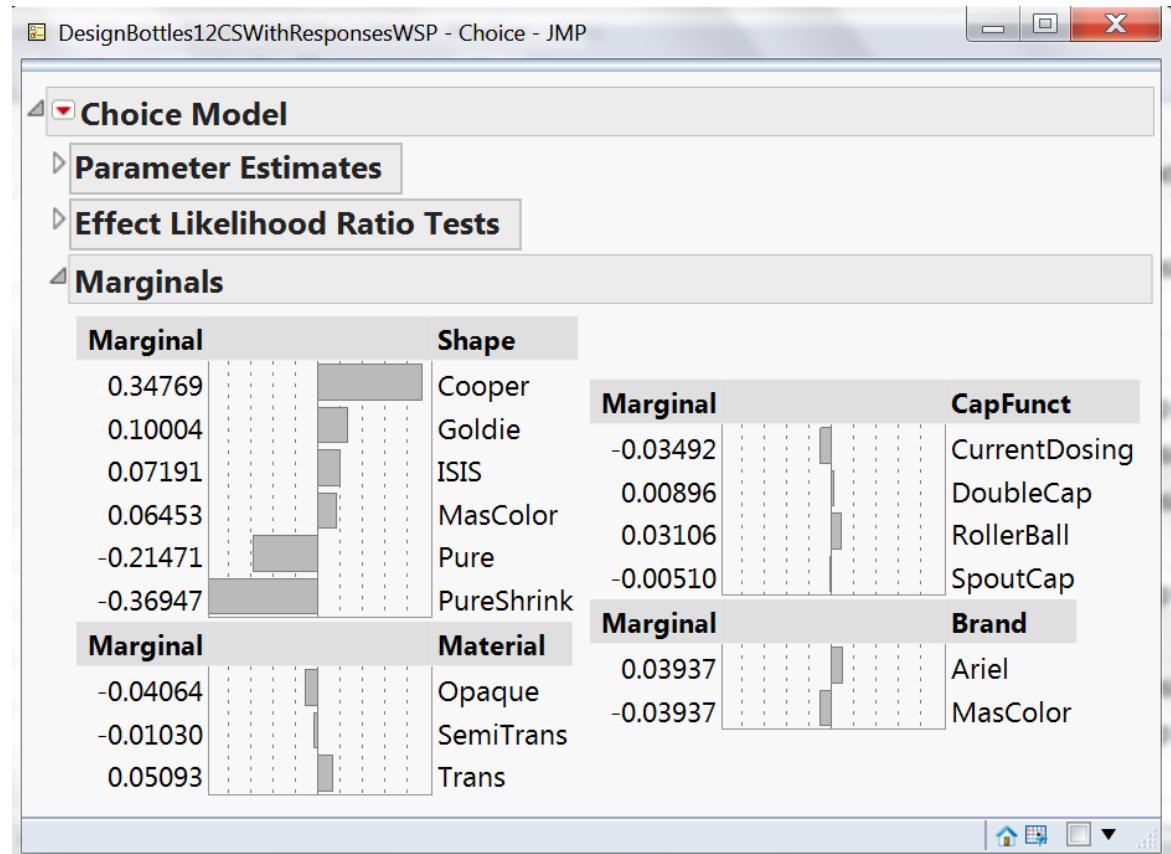
- Only “Shape Design” has a significant impact on bottle choice





Part-worth estimates

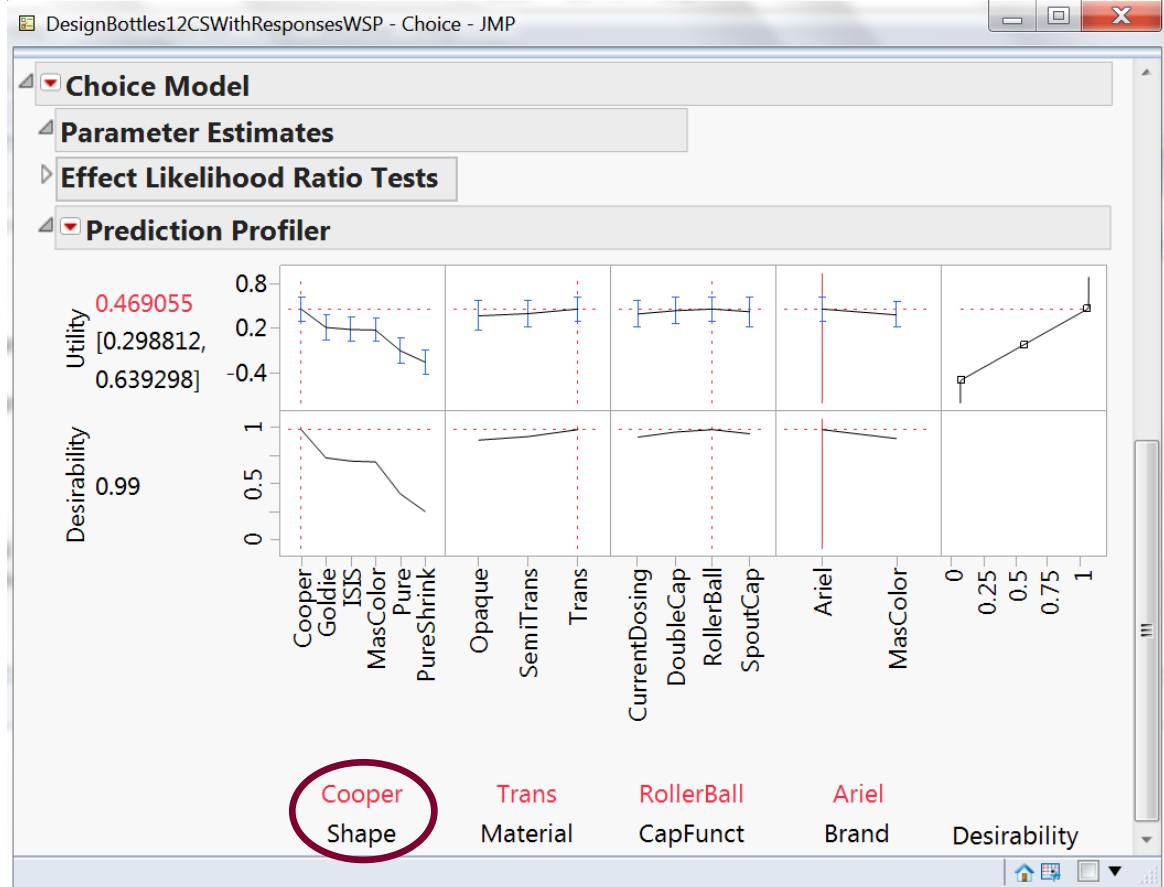
Cooper design is
the key driver of
bottle choice





Prediction profiler

Optimal settings
for Ariel bottle:
Cooper





Bottle rankings

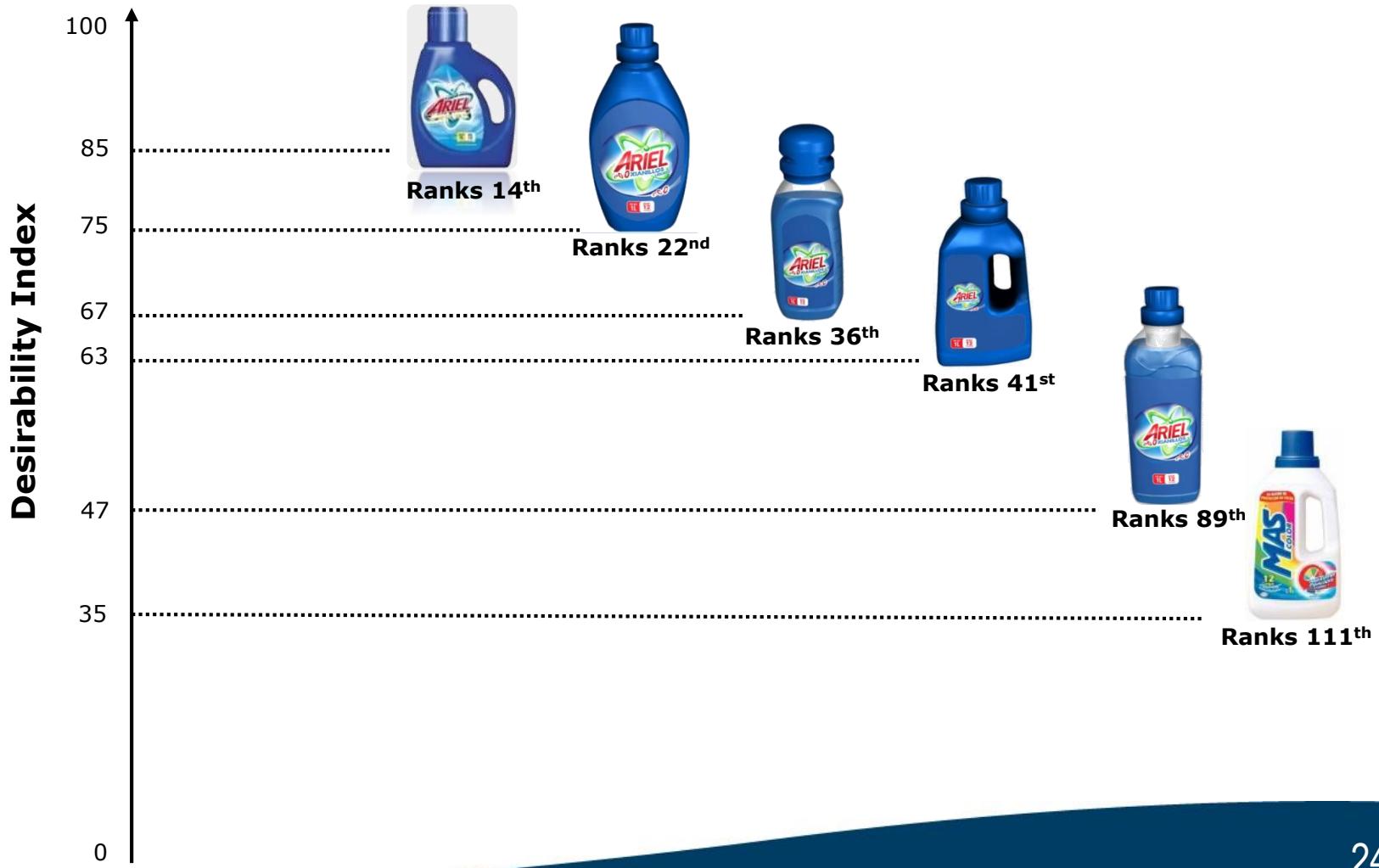
- Preference ranking of the 144 bottle profiles



	Shape	Material	CapFunct	Brand	Utility	Desirability
1	Cooper	Trans	RollerBall	Ariel	0.4690546367	0.9899996266
2	Cooper	Trans	DoubleCap	Ariel	0.4469530659	0.9672826048
3	Cooper	Trans	SpoutCap	Ariel	0.432889118	0.9528270204
4	Cooper	SemiTrans	RollerBall	Ariel	0.4078261102	0.9270660787
5	Cooper	Trans	CurrentDosing	Ariel	0.4030671924	0.9221746375
6	Cooper	Trans	RollerBall	MasColor	0.3903162183	0.9090685806
7	Cooper	SemiTrans	DoubleCap	Ariel	0.3857245393	0.9043490343
8	Cooper	Opaque	RollerBall	Ariel	0.377483784	0.8958787931
9	Cooper	SemiTrans	SpoutCap	Ariel	0.3716605915	0.8898934378
10	Cooper	Trans	DoubleCap	MasColor	0.3682146475	0.8863515319
11	Cooper	Opaque	DoubleCap	Ariel	0.3553822131	0.8731617419
12	Cooper	Trans	SpoutCap	MasColor	0.3541506996	0.8718959333
13	Cooper	SemiTrans	CurrentDosing	Ariel	0.3418386659	0.8592410348
14	Cooper	Opaque	SpoutCap	Ariel	0.3413182653	0.8587061421
15	Cooper	SemiTrans	RollerBall	MasColor	0.3290876918	0.8461349717



Bottle rankings





Analysis of the P&E data



- “Shape Design”, “Material” and “Brand” have a significant impact on bottle choice
- “Shape Design” is about 7 times more important than “Material” and “Brand”

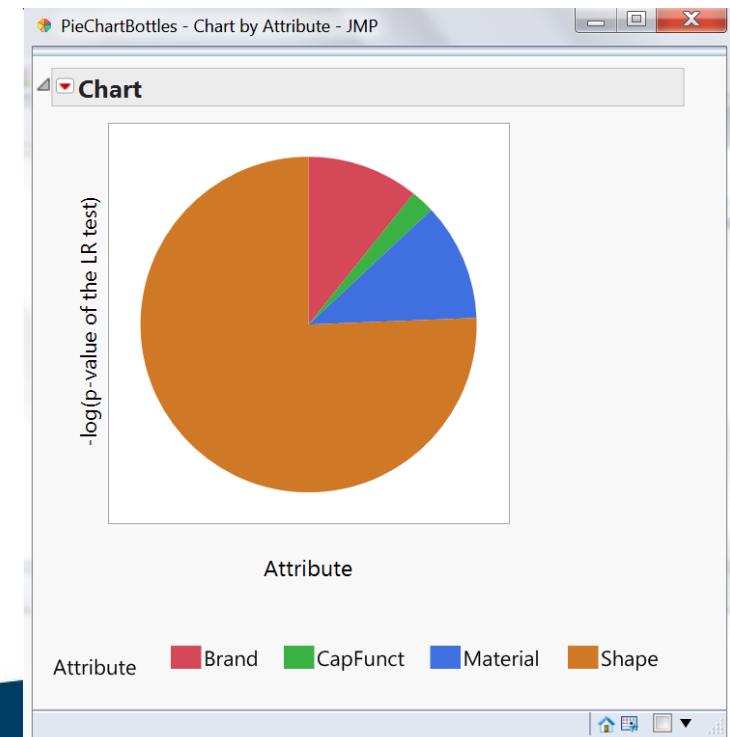
DesignBottles12CSWithResponsesPE - Choice - JMP

Choice Model

Parameter Estimates

Effect Likelihood Ratio Tests

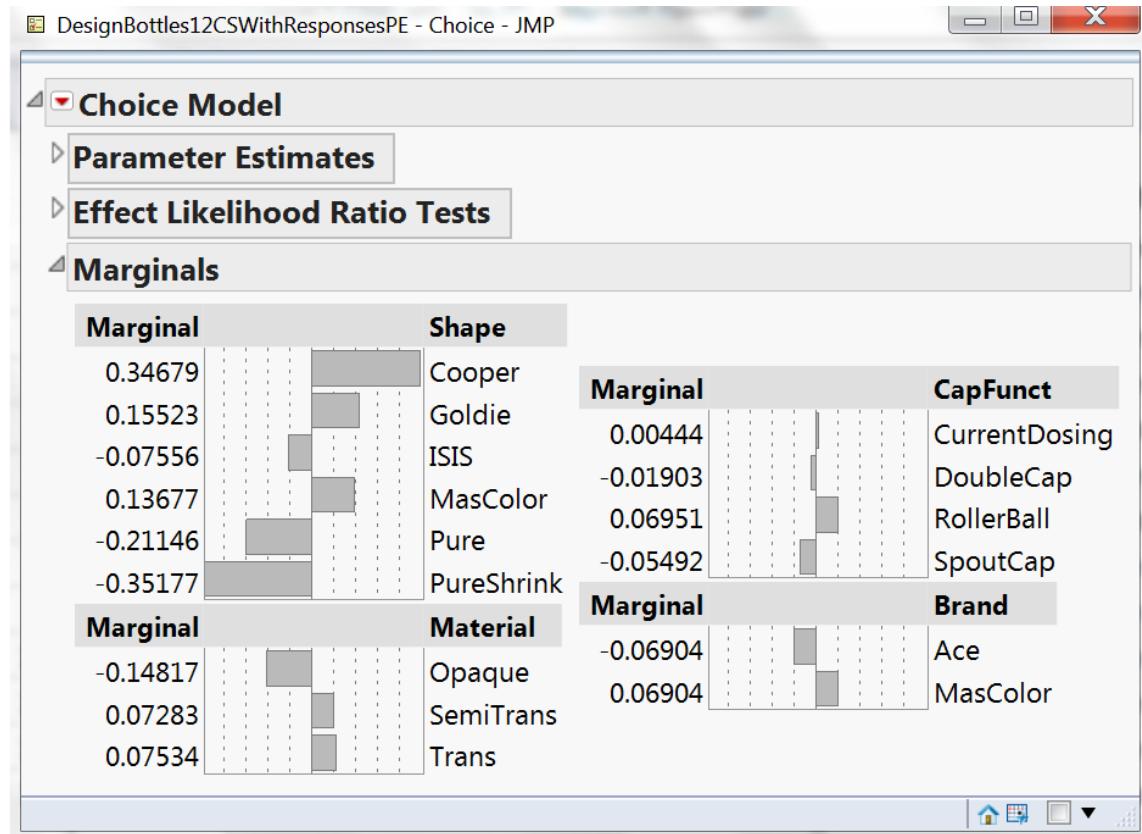
L-R			
Source	ChiSquare	DF	Prob>ChiSq
Shape	74.255	5	<.0001*
Material	9.568	2	0.0084*
Brand	6.520	1	0.0107*
CapFunct	3.075	3	0.3803





Part-worth estimates

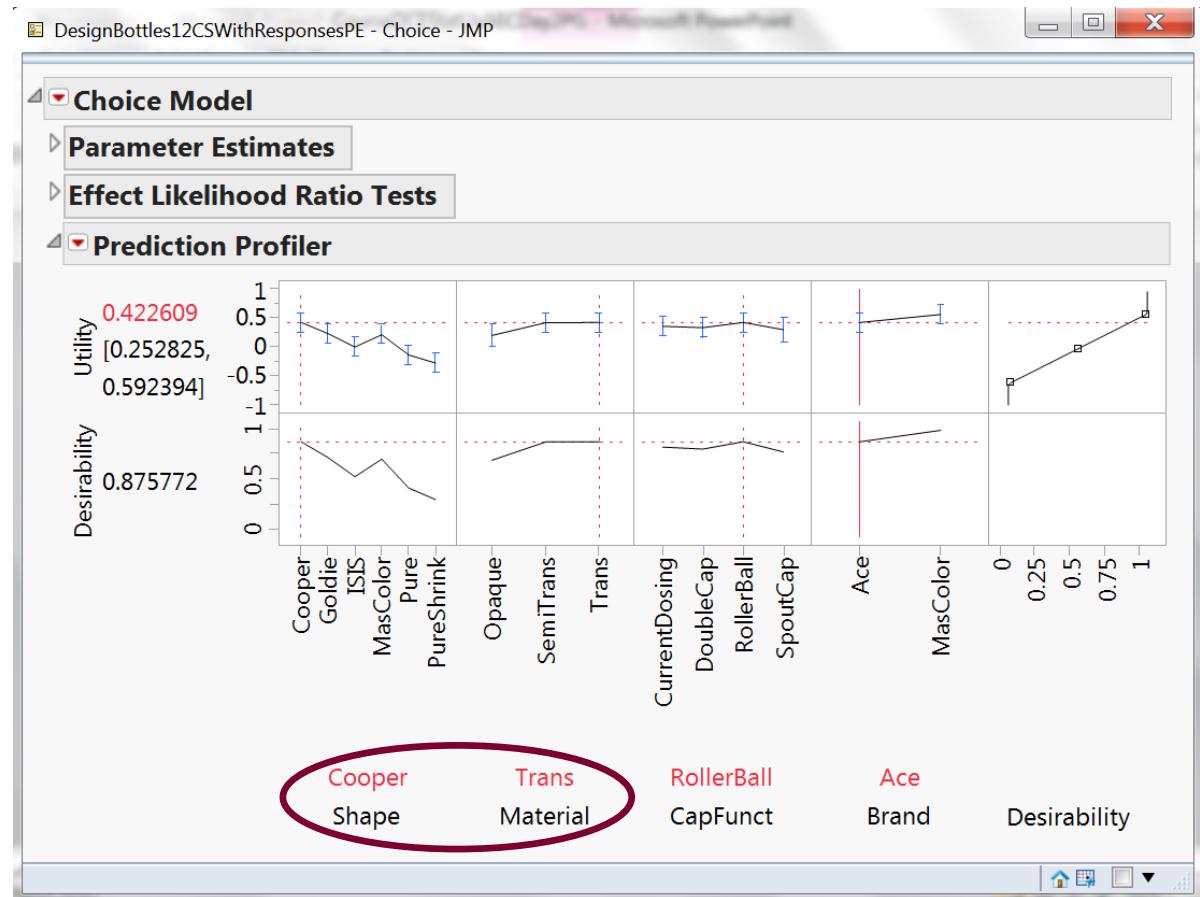
Cooper design,
transparency
and MAS Color
brand are the
key bottle
drivers





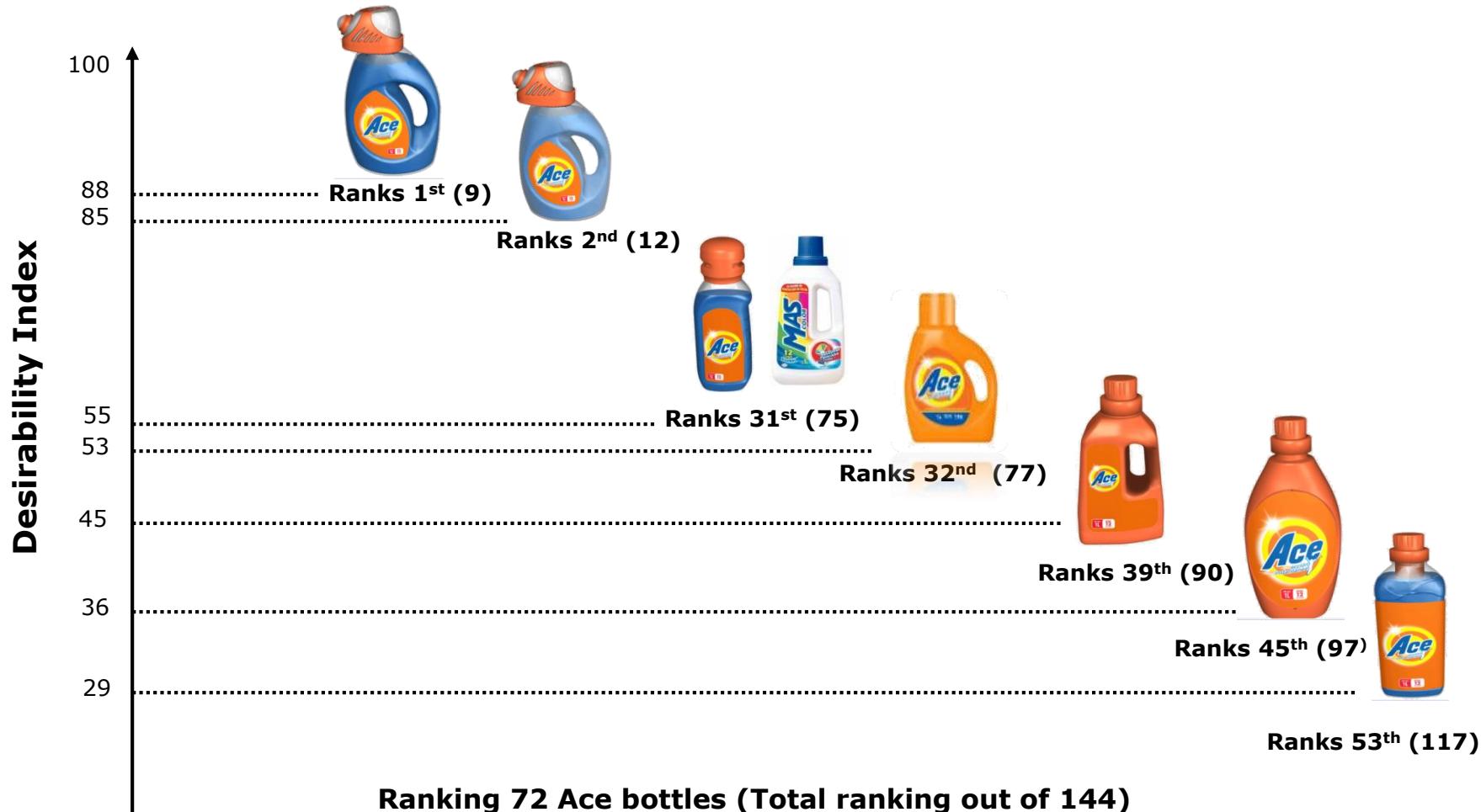
Prediction profiler

Optimal settings
for Ace bottle:
**Cooper –
Transparent**





Bottle rankings





Individual-level preference estimates

- Make sure the option “Firth Bias-adjusted Estimates” is checked
- Use a JSL script to speed up the individual-level analysis
- Look at the distributions of the individual-level estimates in the Distribution Platform
- Firth individual-level estimates prove useful for market segmentation in the Clustering Platform



Healthcare system preference study

- To measure people's preferences for changes in the healthcare system due to care payment system effects
- Four types of respondents:
 1. Individual care providers
 2. Provider organizations' executives
 3. Policy makers
 4. Healthcare experts
- In Europe, US, Canada, Australia and New Zealand
- Led by the Center for Health Services and Nursing Research of the Catholic University of Leuven



11 healthcare system performance domains

1. Clinical effectiveness and patient safety
2. Best practice of service use
3. Care equity
4. Care coordination, teamwork and continuity
5. Patient centeredness
6. Timeliness
7. ST cost containment and budget safety
8. LT cost containment and budget safety
9. Provider wellness
10. Innovation
11. Gaming the system



Choice set with partial profiles

Change to your current healthcare system performance due to payment system effects	
Situation A	Situation B
Improved level of care equity (avoiding care variation between patients with equal needs)	Current level of care equity (avoiding care variation between patients with equal needs)
Current level of care coordination, teamwork and continuity	Deteriorated level of care coordination, teamwork and continuity
Improved level of timeliness (avoiding waiting and delays)	Deteriorated level of timeliness (avoiding waiting and delays)
Deteriorated level of patient centeredness (respecting preferences and values)	Improved level of patient centeredness (respecting preferences and values)
Deteriorated level of short term cost containment and budget safety	Current level of short term cost containment and budget safety



Partial profiles

- The levels of some attributes remain constant in every choice set
- This reduces the cognitive burden on the respondents when “many” attributes are used
- It may also avoid the use of lexicographic choice behavior, i.e., when respondents make choices based on only one attribute or a small subset of the attributes, which violates the assumption of non-compensatory decision-making



Partial profiles in JMP

The screenshot shows the JMP software interface with the title bar "DOE - Choice Design - JMP Pro". The menu bar includes File, Edit, Tables, Rows, Cols, DOE, Analyze, Graph, Tools, View, Window, and Help. A navigation pane on the left lists "Choice Design", "Attributes", "Model", and "Design Generation". The "Design Generation" section is expanded, showing the following parameters:

- 5 Number of attributes that can change within a choice set
- 2 Number of profiles per choice set
- 18 Number of choice sets per survey
- 3 Number of surveys
- 200 Expected number of respondents per survey

Below these parameters are two buttons: "Make Design" and "Back".



Prior beliefs about attributes

RANK	PERFORMANCE DOMAIN
1	Clinical effectiveness and patient safety
2	Best practice of service use LT cost containment and budget safety
3	Gaming the system Care equity Care coordination, teamwork and continuity
4	Timeliness Patient centeredness Innovation Provider wellness ST cost containment and budget safety



Prior beliefs about attribute levels

RANK	OUTCOME IN A PERFORMANCE DOMAIN
1	Positive
	∨
2	No change or neutral
	∨
	∨
3	Negative

People are loss averse!



Reflection on the prior mean

RANK	PERFORMANCE DOMAIN	-
1	Clinical effectiveness and patient safety	-0.6
2	Best practice of service use	-0.4
	LT cost containment and budget safety	-0.4
3	Gaming the system	-0.35
	Care equity	-0.35
	Care coordination, teamwork and continuity	-0.35
4	Timeliness	-0.3
	Patient centeredness	-0.3
	Innovation	-0.3
	Provider wellness	-0.3
	ST cost containment and budget safety	-0.3



Reflection on the prior mean

RANK	PERFORMANCE DOMAIN	-	N	+
1	Clinical effectiveness and patient safety	-0.6	0.1	0.5
2	Best practice of service use	-0.4	0.05	0.35
	LT cost containment and budget safety	-0.4	0.05	0.35
3	Gaming the system	-0.35	0.05	0.3
	Care equity	-0.35	0.05	0.3
	Care coordination, teamwork and continuity	-0.35	0.05	0.3
4	Timeliness	-0.3	0.05	0.25
	Patient centeredness	-0.3	0.05	0.25
	Innovation	-0.3	0.05	0.25
	Provider wellness	-0.3	0.05	0.25
	ST cost containment and budget safety	-0.3	0.05	0.25



Prior mean

$$\beta_0 = [-0.6, 0.1, -0.4, 0.05, -0.4, 0.05, -0.35, 0.05, -0.35, 0.05, -0.35, 0.05, \\ -0.3, 0.05, -0.3, 0.05, -0.3, 0.05, -0.3, 0.05, -0.3, 0.05]'$$

The diagram illustrates the prior mean vector β_0 as a sequence of 12 elements. Double-headed arrows are placed below the vector to indicate the range of each element. The first five elements are bounded by green arrows, the next three by yellow arrows, and the last four by orange arrows.



Reflection on the prior variance

RANK	PERFORMANCE DOMAIN	N	+
1	Clinical effectiveness and patient safety	0.1	0.5
2	Best practice of service use	0.05	0.35
	LT cost containment and budget safety	0.05	0.35
3	Gaming the system	0.05	0.3
	Care equity	0.05	0.3
	Care coordination, teamwork and continuity	0.05	0.3
4	Timeliness	0.05	0.25
	Patient centeredness	0.05	0.25
	Innovation	0.05	0.25
	Provider wellness	0.05	0.25
	ST cost containment and budget safety	0.05	0.25



Reflection on the prior variance

RANK	PERFORMANCE DOMAIN	N	+	Std.
1	Clinical effectiveness and patient safety	0.1	0.5	0.3
2	Best practice of service use	0.05	0.35	0.25
	LT cost containment and budget safety	0.05	0.35	0.25
3	Gaming the system	0.05	0.3	0.2
	Care equity	0.05	0.3	0.2
	Care coordination, teamwork and continuity	0.05	0.3	0.2
4	Timeliness	0.05	0.25	0.15
	Patient centeredness	0.05	0.25	0.15
	Innovation	0.05	0.25	0.15
	Provider wellness	0.05	0.25	0.15
	ST cost containment and budget safety	0.05	0.25	0.15



Prior variance

Table 4 Survey 1 of the Bayesian D-optimal partial profile design

Choice set	Attributes										
1	*	*	*	*	+	N	+	-	*	*	-
1	*	*	*	*	N	-	-	+	*	*	N
2	*	*	-	*	*	-	*	+	-	N	*
2	*	*	+	*	*	N	*	N	N	-	*
3	*	*	-	*	*	+	N	+	N	*	*
3	*	*	+	*	*	N	+	-	-	*	*
4	*	*	N	+	*	-	*	-	*	+	*
4	*	*	-	N	*	+	*	N	*	-	*
5	*	-	*	*	S	S	*	*	*	N	+
5	*	N	*	*	S	S	*	*	*	+	-
6	*	N	*	S	-	*	N	+	*	*	*
6	*	-	*	S	N	*	-	-	*	*	*
7	*	-	*	*	N	+	*	*	*	-	-
7	*	N	*	*	-	N	*	*	*	N	+
8	*	N	S	-	-	*	*	*	N	*	*
8	*	-	S	N	N	*	*	*	-	*	*
9	*	+	N	*	+	*	N	*	*	+	*
9	*	N	+	*	N	*	-	*	*	-	*
10	N	*	*	S	*	*	+	+	S	*	*
10	-	*	*	S	*	*	-	N	S	*	*
11	N	*	*	*	*	+	-	-	-	*	*
11	+	*	*	*	*	-	+	N	+	*	*
12	+	*	*	*	N	*	*	N	N	*	-
12	-	*	*	*	+	*	*	-	+	*	N
13	N	*	*	*	+	-	*	*	*	N	-
13	+	*	*	*	N	N	*	*	*	+	N
14	+	*	*	N	*	+	*	*	-	*	N
14	-	*	*	-	*	N	*	*	+	*	+
15	+	*	*	-	*	*	N	-	*	+	*
15	-	*	*	+	*	*	-	+	*	-	*
16	-	*	-	*	N	*	+	*	*	*	N
16	+	*	+	*	-	*	-	*	*	*	+
17	-	+	-	*	*	*	-	*	*	*	+
17	+	N	+	*	*	*	N	*	*	*	N
18	N	-	+	N	*	*	N	*	*	*	*
18	-	N	N	-	*	*	+	*	*	*	*

Table 5 Survey 2 of the Bayesian D-optimal partial profile design

Choice set	Attributes										
1	*	*	*	*	+	S	-	*	-	*	N
19	*	*	*	*	+	S	-	*	-	*	N
19	*	*	*	*	N	S	N	*	N	*	-
20	*	*	*	*	-	N	S	N	S	*	*
20	*	*	*	*	N	-	S	+	S	*	*
21	*	*	*	+	-	S	*	*	+	*	-
21	*	*	*	-	N	S	*	*	N	*	+
22	*	*	*	N	N	*	*	N	*	N	N
22	*	*	*	+	+	*	*	+	*	-	-
23	*	*	-	N	*	*	*	*	N	+	-
23	*	*	+	-	*	*	*	*	+	-	N
24	*	*	+	+	*	*	N	*	*	-	N
24	*	*	N	N	*	*	-	*	*	+	-
25	*	N	*	*	+	*	*	N	+	-	*
25	*	-	*	*	-	*	*	+	-	N	*
26	*	-	*	*	-	+	+	*	*	*	N
26	*	+	*	*	N	-	N	*	*	*	-
27	*	-	*	+	*	*	*	-	N	*	+
27	*	+	*	-	*	*	*	+	+	*	-
28	*	N	S	+	S	*	-	*	*	*	*
28	*	-	S	-	S	*	+	*	*	*	*
29	*	N	N	*	*	+	*	*	*	-	+
29	*	-	-	*	*	N	*	*	*	+	-
30	*	-	N	*	*	N	*	+	*	*	+
30	*	+	-	*	*	-	*	-	*	*	N
31	+	*	S	S	*	*	-	*	*	N	*
31	N	*	S	S	*	*	+	*	*	+	*
32	N	*	*	*	N	N	-	N	*	*	*
32	+	*	*	*	-	+	-	*	*	*	*
33	N	N	*	*	*	*	N	*	-	+	*
33	+	-	*	*	*	*	+	*	+	N	*
34	-	+	*	N	*	*	*	*	-	*	*
34	N	N	*	-	*	*	*	*	+	N	*
35	N	+	-	S	*	N	*	*	*	*	*
35	+	N	N	S	*	+	*	*	*	*	*
36	+	-	-	*	-	*	*	*	*	+	*
36	-	+	+	*	N	*	*	*	*	-	*

Table 6 Survey 3 of the Bayesian D-optimal partial profile design

Choice set	Attributes										
1	*	*	+	*	*	S	+	S	*	S	*
37	*	*	N	*	*	S	-	S	*	S	*
37	*	*	+	*	*	*	*	-	N	-	+
38	*	*	N	*	*	*	*	+	-	N	-
38	*	*	+	*	*	*	*	+	-	N	-
39	*	*	+	S	*	*	+	*	*	S	+
39	*	*	-	S	*	*	-	*	*	S	N
40	*	*	-	*	N	*	+	*	N	*	+
40	*	*	+	*	+	*	N	*	-	*	-
41	*	-	*	*	*	N	+	*	N	-	*
41	*	N	*	*	*	+	N	*	-	+	*
42	*	+	*	+	*	+	*	N	*	*	-
42	*	-	*	N	*	-	*	+	*	*	N
43	*	N	*	-	-	*	+	N	*	*	*
43	*	-	*	+	N	*	N	+	*	*	*
44	*	N	N	*	N	*	*	+	-	*	*
44	*	+	+	*	+	*	*	N	N	*	*
45	-	*	*	*	*	*	*	*	+	N	N
45	+	*	*	*	*	*	*	*	N	+	-
46	-	*	*	S	*	*	-	+	*	*	*
46	+	*	*	S	*	*	+	-	*	*	N
47	-	*	S	N	N	*	*	*	N	*	*
47	+	*	S	+	+	*	*	*	+	*	*
48	-	*	*	N	+	*	*	N	*	N	*
48	+	*	*	-	N	*	*	+	*	+	*
49	+	*	*	+	-	N	*	*	*	-	*
49	N	*	*	N	N	-	*	*	*	+	*
50	-	*	+	-	*	+	*	*	*	*	+
50	+	*	N	+	*	-	*	*	*	*	N
51	+	-	*	*	*	*	*	*	N	*	-
51	N	+	*	*	*	*	*	*	-	*	+
52	N	-	*	+	*	+	*	*	N	*	*
52	-	N	*	N	*	N	*	*	+	*	*
53	-	+	+	*	*	*	*	*	N	*	*
53	N	-	N	*	*	*	*	*	-	*	+
54	-	-	N	*	+	*	*	*	N	*	*
54	N	+	+	N	*	*	*	*	-	*	*



Experiment Yourself!

Experiment!
Make it your motto day and night.
Experiment!
And it will lead you to the light.

The apple on top of the tree
Is never too high to achieve,
So take an example from Eve ...
Experiment!

Be curious,
Though interfering friends may frown.
Get furious
At each attempt to hold you down.

If this advice you only employ,
The future can offer you infinite joy
And merriment ...

Experiment!
And you'll see!

-- Cole Porter, in "Nymph Errant" (1933)



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Contact: roselinde.kessels@uantwerpen.be