Conjoint & Choice Modeling for Damages and Apportionment — A Practical Guide for Attorneys

By: Jonathan Z. Zhang, Ph.D. | Dr. Ajay Menon Professor of Marketing, Colorado State University

Email: jonathan.zhang@colostate.edu | Phone: 646.750.2773

This primer discusses how to structure a reliable conjoint/choice study to value a disputed feature or claim and translate results into damages. It covers design choices, calibration, analysis, and common challenges, with a focus on clarity and courtroom usability.

1) When to use conjoint (and when not to)

- Use conjoint when you need to isolate the value of a specific attribute or representation (e.g., a feature, a claim, a design element) from other drivers of demand.
- Good fits: apportionment, price premium estimation, share shift from misleading claims, willingness-to-pay (WTP) for a design element.
- Avoid or rethink if the attribute cannot be described realistically in discrete levels, or if market behavior is dominated by non-modeled constraints.

2) Choosing the right approach

- CBC/DCE (discrete choice) is standard for litigation; ACBC can help with complex, configuration-heavy products.
- Keep attributes and levels realistic and evidence-based (marketing materials, product catalogs, price histories).
- Design: efficient or near-orthogonal designs with level balance and minimal overlap; include holdout tasks for validity.

3) Sample, fieldwork, and comprehension

- Universe mirrors likely purchasers/influencers; document incidence and screening logic.
- Prioritize comprehension: tutorial screens, examples, comprehension checks; exclude respondents who fail them.
- Target n≈300–600 for stable individual-level estimates (depends on design size and heterogeneity).

4) Estimation & WTP (without math dumps)

- Estimate part-worth utilities via HB or mixed logit; present results as attribute importance and WTP where appropriate.
- For price-related WTP, ensure the price range matches the real market; document sources and provide sensitivity analyses.
- Provide intuitive visuals: contribution of the disputed attribute to choice shares and to implied value.

5) From study results to damages

- Two common pathways: (a) price premium (overcharge) and (b) share shift (units diverted).
- Price premium: compute the incremental value (WTP) of the disputed attribute and apply it to affected sales during the damages period.
- Share shift: simulate a but-for scenario without the attribute/claim; the difference in predicted units times margin yields lost profits/benefit to defendant.
- Always show sensitivity to key assumptions (elasticities, baseline shares, time period).

6) Calibration & external validity

- Calibrate the model to observed market data (prices, shares, or margins) so simulated outcomes align with reality.
- Use anchor tasks or real-world stimuli (screenshots, packaging) to reduce hypothetical bias.
- Report goodness-of-fit (hit rates, holdout prediction) and any cross-checks with sales data.

7) Common pitfalls (and how we avoid them)

- Unrealistic attributes/levels → Base them on documents and market norms; pre-test with target consumers.
- Price ranges that bias WTP → Use documented ranges; run range and functional-form sensitivity checks.
- Ignoring competition → Include key competing features/brands or calibrate to observed shares.
- Opaque analysis → Pre-register the analysis plan; provide codebooks and model specs in the report.

8) Reporting that courts can follow

- Explain the business question in plain English, then show how the design answers it.
- Provide step-by-step exhibits: attributes/levels table, sample choice task, estimation approach, and damages translation.
- Deliver a clean appendix set: instrument, stimuli, field logs, dataset (de-identified), codebook, and model outputs.

9) Timeline & deliverables (typical)

- Scoping & document review: 3–5 days.
- Design & pre-test: 10–14 days.
- Fielding: 5–10 days (depending on incidence).
- Analysis & expert report: 14–21 days post-field, with sensitivity analyses.

10) Quick checklist for Rule 702

- Accepted methods, tied to case facts; transparent, reproducible analysis.
- Realistic stimuli and attributes; documented data sources; calibration to market where feasible.
- Sensitivity testing; full preservation of work-product; clear explanation of limitations.