DATA COHERENCE TEST — OCTOBER 2026

ACSI Processed Food

Do synthetic respondents' answers hang together the way real buyers' answers do?

Our validation studies compare answer totals question by question. This test goes inside each respondent: whether a person's twelve ratings of a food brand relate to each other the way real customers' do. Live data: the publicly released American Customer Satisfaction Index 2015 sample of processed-food buyers.

0.89

Pattern match of 66 question-to-question links

Two halves of the live sample: 0.97

54 / 66

Question pairs within 0.10 of the live correlation

Shuffled answers: 0 / 66

6 of 9

ACSI model links within or at the edge of the live range

Expectations → quality → value → satisfaction → loyalty

Respondent-level live and Simsurveys data files are available on request: **request the data files**

Study overview

The American Customer Satisfaction Index (ACSI) interviews customers of specific companies about their expectations, perceived quality, value, satisfaction, complaints and loyalty. A 2015 sample of its respondent-level data is public. We simulated the processed-food portion with the same questions and compared every respondent's pattern of answers.

PUBLISHED STUDY

ACSI 2015, processed food

Audience	U.S. adults who bought and ate a brand-name packaged food in the past month
Sample	1,968 respondents (1,717 answered all 12 ratings)
Fieldwork	2015, online panels balanced to U.S. census
Source data	Respondent-level answers, Morgeson et al. (2023), CC BY 4.0

SIMSURVEYS SIMULATION

Research Studio, consumer model

Sample	1,968 synthetic respondents, U.S. census age and gender
Screener	Bought and ate a brand-name packaged food in the past month
Questions	12 ten-point ratings plus a complaint question, ACSI questionnaire wording
Comparison	Each respondent's full set of answers against the live respondent file

How we measure coherence

Totals can match while the answers inside each respondent are unrelated. We test the relationships directly, at four levels, and read every result between two reference points.

BENCHMARK

Live vs live

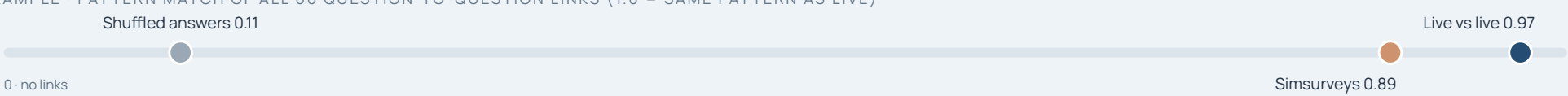
The live sample split at random into two halves and compared with each other, 20 times. This is the closest a second live sample of the same size would come.

FLOOR

Shuffled answers

Our answers with each question shuffled across respondents. Every total is unchanged and every link between questions is gone: what incoherent data scores.

EXAMPLE · PATTERN MATCH OF ALL 66 QUESTION-TO-QUESTION LINKS (1.0 = SAME PATTERN AS LIVE)



1

Question-to-question links

Correlations between all 66 pairs of the 12 ratings.

2

The ACSI model

The chain of drivers from expectations to loyalty.

3

Satisfaction and repurchase

Buying again and complaints by level of satisfaction.

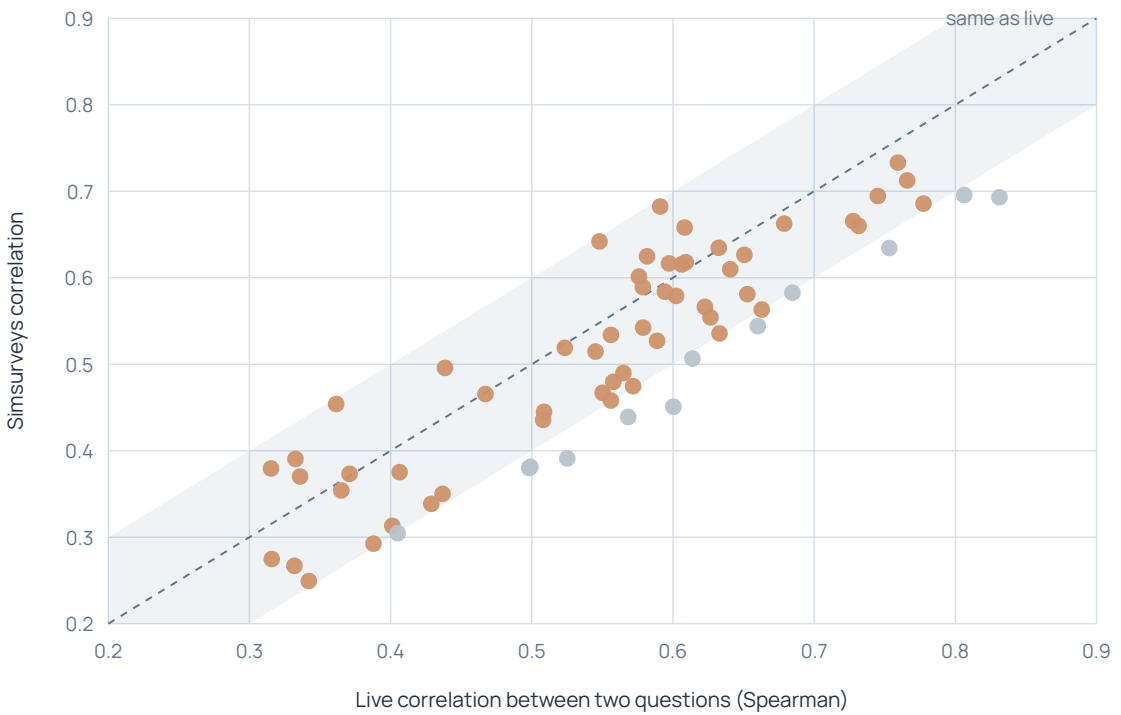
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Within each person

How consistent each respondent's own answers are.

01 · ALL 66 QUESTION PAIRS

Questions link to each other as they do live

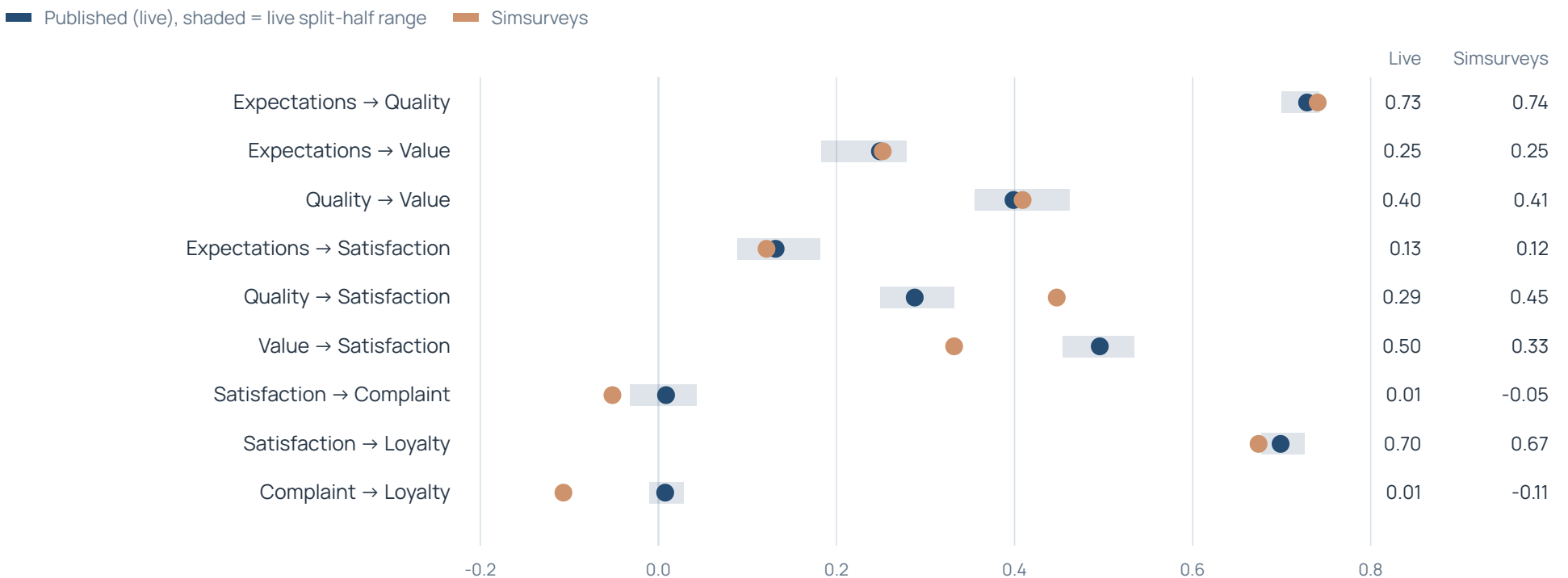


	Live vs live	Simsurveys vs live	Shuffled
Pattern match	0.97	**0.89**	0.11
Average link (live 0.56)	0.56	**0.51**	0.00
Average gap per pair	0.030	**0.065**	0.55
Pairs within 0.10	—	**54**	0

Orange dots are pairs within ±0.10 of live (shaded band). Where Simsurveys differs, the link is weaker, never stronger: all 12 pairs outside the band sit below it.

02 · THE ACSI MODEL

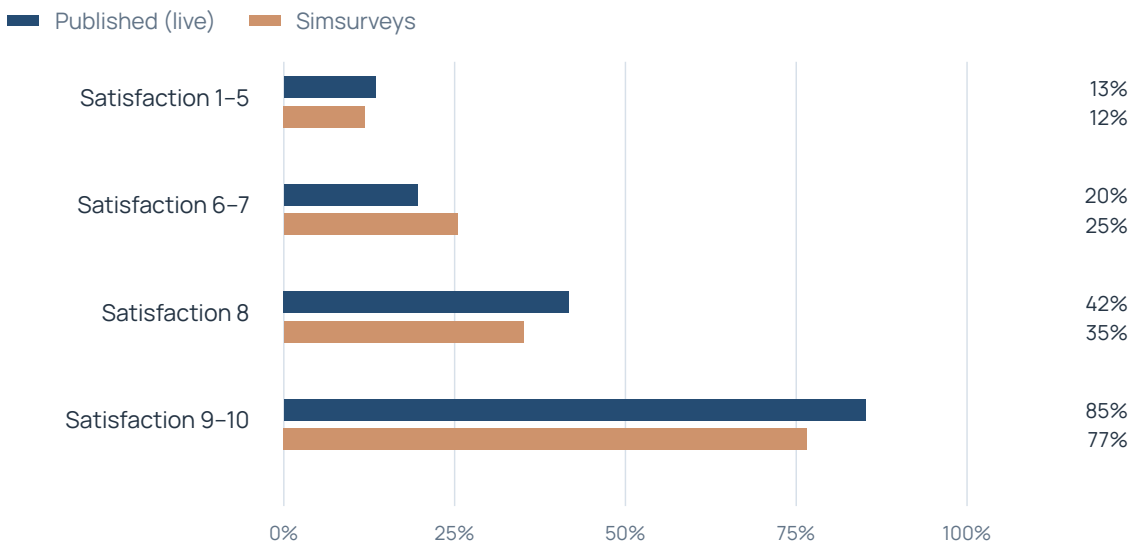
Six of nine driver links fall within or at the edge of the live range



Standardized regression coefficients on construct averages: expectations (Q1–Q3), quality (Q4–Q6), value (Q7–Q8), satisfaction (Q9–Q11), loyalty (Q13). Shaded bar = range across two halves of the live sample (5th–95th percentile). In Simsurveys, satisfaction leans more on quality and less on value, and complainers are less loyal than live.

03 · SATISFACTION → REPURCHASE

As with real buyers, buying again climbs steeply with satisfaction



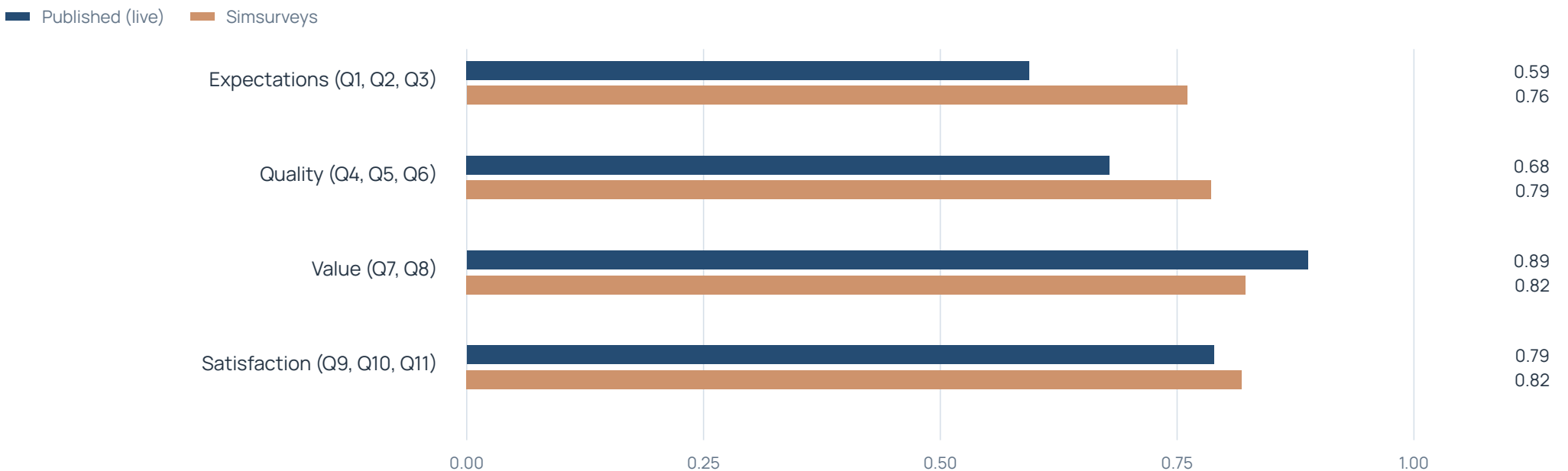
Complaints	Live	Simsurveys
Complained in past month	4.0%	3.6%
Satisfaction: complainers	8.2	7.5
Satisfaction: others	8.6	8.4
Buy again: complainers	8.8	6.5
Buy again: others	8.7	8.2

Complainers are less satisfied in both. Live complainers stay as loyal as everyone else; Simsurveys complainers are less likely to buy again.

Share saying 9–10 on "likely to buy the same brand again", by overall satisfaction, among respondents who answered it.

04 · INTERNAL CONSISTENCY

Each ACSI construct holds together as well as live



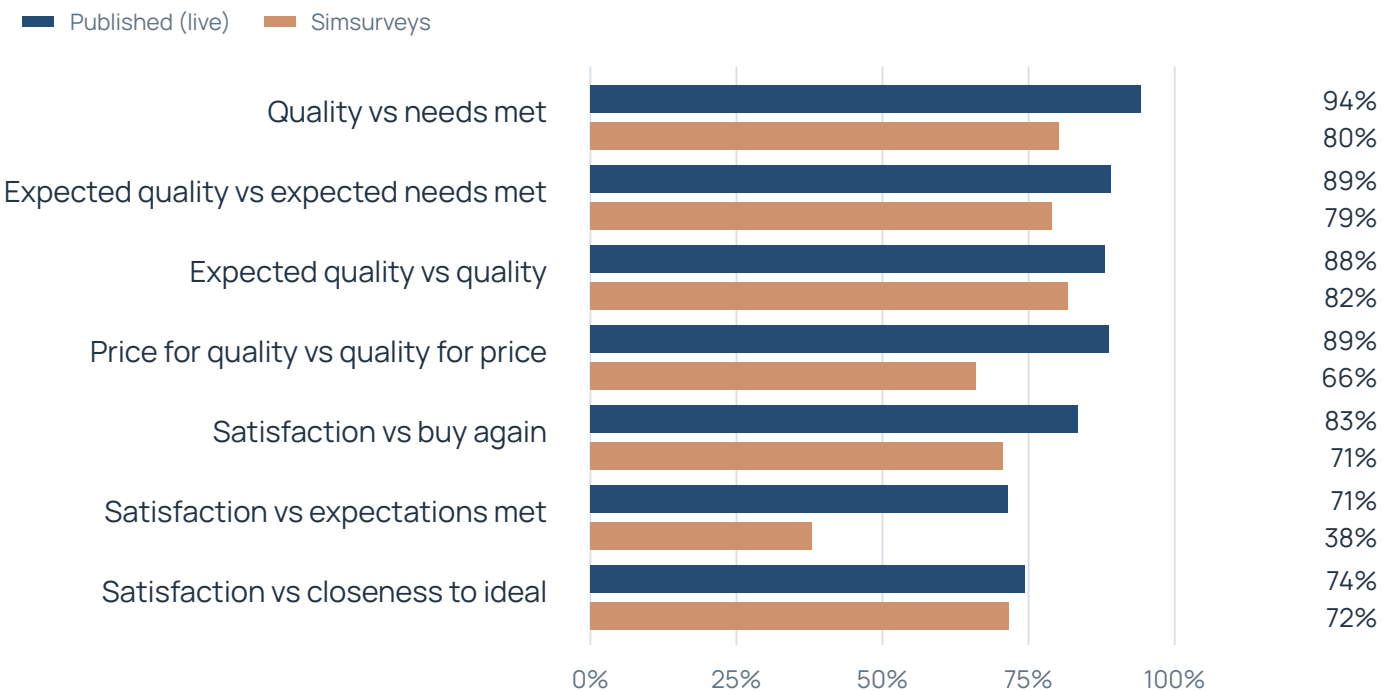
Cronbach's alpha for the questions that make up each ACSI construct. Shuffled answers score 0.01–0.09. Live expectations and quality are lower because their "how often do things go wrong" questions link only weakly to the others.

05 · ANSWER PATTERNS WITHIN EACH PERSON

Live respondents repeat the same number far more often

Across 12 ratings	Live	Simsurveys
Same answer to all 12	8.4%	0.7%
Only 1–2 different answers	25%	5%
Distinct answers used	3.4	4.6
Spread of answers (SD)	1.1	1.4

Straight-lining in live panels is partly genuine (a loyal buyer rating everything 10) and partly inattentive respondents; this dataset cannot separate the two. Simsurveys does not add it.



Share of respondents whose two related answers are within 1 point of each other.

06 · DIFFERENCES FROM LIVE

Four differences, none reversing a live relationship

1

Satisfaction weighs quality over value

Quality → satisfaction

0.45 Simsurveys

0.29 Live

Value → satisfaction is 0.33 in Simsurveys against 0.50 live. Both still drive satisfaction.

2

Complainers are less loyal

Buy-again rating among complainers

6.5 Simsurveys

8.8 Live

Simsurveys complainers rate buying again below others (8.2); live complainers are as loyal as anyone (8.7). Complainers are 4% of the sample.

3

Links slightly weaker overall

Average correlation between two questions

0.51 Simsurveys

0.56 Live

Every pair outside the ±0.10 band is weaker than live, none stronger.

4

Fewer repeated answers

Same answer to all 12 ratings

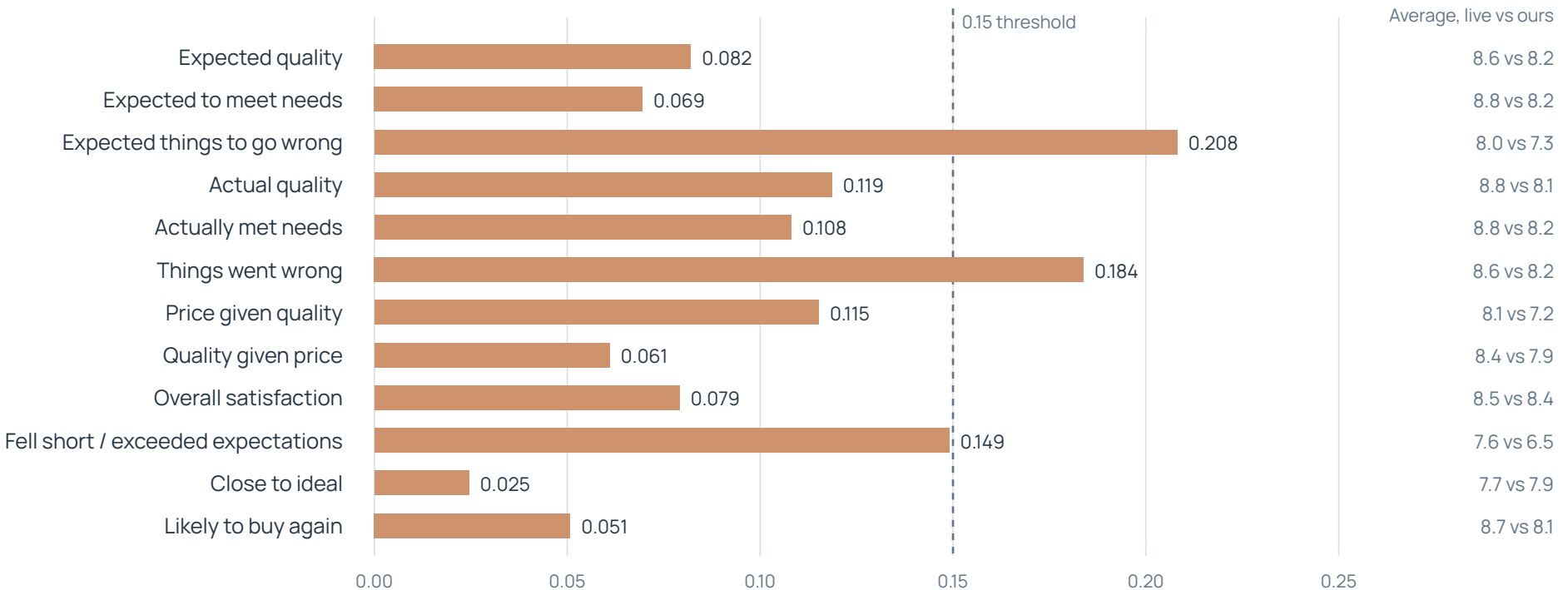
0.7% Simsurveys

8.4% Live

Live straight-lining is not reproduced, so two related answers match exactly less often in Simsurveys.

07 · ANSWER TOTALS FOR CONTEXT

Totals: median KL divergence 0.095, 10 of 12 ratings below 0.15



KL divergence of each 10-point distribution, live vs Simsurveys (Laplace smoothing 0.005). Right column: live vs Simsurveys average on the 1–10 scale. The complaint question (yes/no) matches at KL 0.000.

Method and sources

- **Simulation:** Simsurveys Research Studio, production engine and consumer model, October 2026. 1,968 respondents, U.S. census age and gender.
- **Questions:** ACSI private-sector questionnaire wording and scale ends, each point of the 1–10 scales labeled; "how often do things go wrong" asked from 1 = very often to 10 = not very often, as ACSI asks and stores it.
- **Not reproduced:** the live survey named each respondent's own brand and its product attributes; the simulation refers to "the brand-name packaged food you bought most recently" and to taste, freshness and quality.
- **Research context:** written from the ACSI screener and its published list of measured food companies; no live results were used.
- **Correlations:** Spearman, pairwise. Agreement and answer patterns use respondents who answered all 12 ratings.

- Morgeson, F.V., Hult, G.T.M., Sharma, U., Fornell, C. (2023). The American Customer Satisfaction Index (ACSI): A sample dataset and description. *Data in Brief*. doi:10.1016/j.dib.2023.109123
- Dataset: Mendeley Data, doi:10.17632/64xkbj2ry5.2, CC BY 4.0. Processed-food respondents (industry 1001).
- American Customer Satisfaction Index, Methodology Report (June 2008), Appendices B and D.

ACSI and American Customer Satisfaction Index are trademarks of American Customer Satisfaction Index LLC. This comparison uses the publicly released sample dataset and is not affiliated with or endorsed by ACSI.

DATA FILES

Run the analysis yourself

The respondent-level live and Simsurveys files, with a codebook, are available on request.

Request the data files