

CONSUMER INTELLIGENCE OBSERVATORY GHANA

Methodology of the National Consumer Economy Score (NCES) and the Five National Indices

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This document specifies the construction, weighting, validation and revision policy of the five national indices published by the Consumer Intelligence Observatory Ghana (CIOG), and the composite National Consumer Economy Score (NCES) derived from them. It is the authoritative methodological reference for all CIOG releases.

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1. Scope and Purpose

CIOG measures the state of Ghana's consumer economy on a continuous basis. Its measurement system consists of five sub-indices — covering market health, consumer vulnerability, consumer-business trust, market risk, and consumer economic resilience — and a single composite, the NCES.

Each index is designed to be: (i) policy-relevant, with a clear interpretation for regulators and central-bank counterparts; (ii) reproducible, from published inputs and weights; (iii) revision-disciplined, with provisional and final stamps; and (iv) ethically sourced, with personal data minimized at source.

2. The Five Indices

2.1 Consumer Market Health Index (CMHI)

Direction: Higher = healthier · **NCES weight:** 22%

Primary inputs: Price stability, supply availability, service quality, redress turnaround, complaint resolution rate.

2.2 Consumer Vulnerability Index (CVI)

Direction: Higher = more vulnerable · **NCES weight:** 20%

Primary inputs: Income exposure, debt service load, digital literacy gaps, demographic exposure, regional service deserts.

2.3 Consumer-Business Trust Index (CBTI)

Direction: Higher = more trust · **NCES weight:** 18%

Primary inputs: Trust surveys, dispute outcomes, brand sentiment, regulator enforcement actions, social listening.

2.4 Market Risk Index (MRI)

Direction: Higher = more risk · **NCES weight:** 20%

Primary inputs: Fraud volume, recall density, supply-chain stress, sector concentration, cyber incidents, FX pass-through risk.

2.5 Consumer Economic Resilience Index (CERI)

Direction: Higher = more resilient · **NCES weight:** 20%

Primary inputs: Savings buffers, insurance penetration, social-protection reach, recovery time, adaptive-capacity proxies.

3. Index Construction

3.1 Inputs and source tiers

Inputs are drawn from three source tiers: (T1) regulator and administrative data; (T2) accredited media and survey data; (T3) social and digital signals. Tier affects the weight an input receives within its sub-indicator, not whether it is included. T3 inputs are always corroborated against T1/T2 before contributing to a final value.

3.2 Normalization

Raw inputs are min-max normalized to a 0-100 scale against rolling 36-month national reference ranges. Values above the 99th percentile are winsorized rather than dropped, preserving directional signal while limiting the influence of single extreme observations.

3.3 Sub-indicator weighting

Within each index, sub-indicator weights are derived from a structured expert elicitation panel and then cross-validated against principal components extracted from the historical series. Where the two methods disagree by more than 5 percentage points, the discrepancy is documented and the elicitation weight is retained.

3.4 Index value

Each index value is the weighted sum of its normalized sub-indicators, rounded to one decimal place. Index values are bounded to [0, 100].

4. The Composite Score (NCES)

The National Consumer Economy Score combines the five indices using fixed weights. Higher-is-worse indices (CVI, MRI) are inverted before contribution so that, in every case, a higher contribution corresponds to a stronger consumer economy.

Formula: $NCES = 0.22 \cdot CMHI + 0.18 \cdot CBTI + 0.20 \cdot CERI + 0.20 \cdot (100 - CVI) + 0.20 \cdot (100 - MRI)$

Index	Code	Direction	Weight	Contribution rule
Consumer Market Health Index	CMHI	Higher = healthier	22%	value
Consumer Vulnerability Index	CVI	Higher = more vulnerable	20%	100 - value
Consumer-Business Trust Index	CBTI	Higher = more trust	18%	value
Market Risk Index	MRI	Higher = more risk	20%	100 - value
Consumer Economic Resilience Index	CERI	Higher = more resilient	20%	value

4.1 Interpretive bands

75 - 100: Strong **60 - 74:** Stable **45 - 59:** Fragile **0 - 44:** Stressed

5. Validation

Each release is back-tested against a documented set of known consumer-harm episodes (product recalls, fraud waves, FX shocks, supply disruptions). A release is considered valid if (i) the relevant sub-index moves in the expected direction within two reporting periods of the episode, and (ii) the magnitude falls within the historical sensitivity envelope.

Sensitivity is additionally tested by leave-one-out reconstruction: every sub-indicator is removed in turn and the index recomputed. A release fails stability checks if any single sub-indicator removal shifts the index by more than 4 points; in that case the release is held and reviewed by the Methodology Council before publication.

6. Revisions

Real-time releases are stamped *provisional*. Final values are stamped at the following quarterly bulletin. Any restatement of a previously published final value is logged with reason, magnitude and effective date in the public revision log.

Methodological changes — to inputs, normalization, weights or the NCES formula — are pre-announced no fewer than 90 days before the first affected release, with a parallel series published for at least two quarters so users can reconcile the old and new bases.

7. Ethics and Data Protection

Personal data is minimized at source. Inputs are aggregated before analysis. No CIOG release contains data at a level of granularity that could re-identify an individual consumer or a single business. Researcher access to microdata is governed by a binding data-use agreement.

8. Governance of this Document

This methodology is version-controlled. Material changes require approval by the Methodology Council and are reflected in a numbered version with a public changelog. The current version is referenced on every CIOG release.