

**Consumer Intelligence Observatory Ghana**

# **National Consumer Economy Score (NCES)**

Methodology, weighting, data quality and sources

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## ***Changelog***

v1.1 (2026-06-16) — Added sources & citations, per-index data quality, missing-data handling and weighting assumptions.

v1.0 (2026-06-16) — Initial publication.

## 1. The five indices

Each index is a 0–100 composite. Higher-is-worse indices (CVI, MRI) are inverted before contributing to the National Consumer Economy Score (NCES). The table below summarises codes, weights and direction; per-index detail follows.

Code	Index	NCES weight	Direction
CMHI	Consumer Market Health Index	22%	Higher is better
CVI	Consumer Vulnerability Index	20%	Higher is worse (inverted in NCES)
CBTI	Consumer–Business Trust Index	18%	Higher is better
MRI	Market Risk Index	20%	Higher is worse (inverted in NCES)
CERI	Consumer Economic Resilience Index	20%	Higher is better

### ***CMHI — Consumer Market Health Index***

**Inputs.** Price stability, supply availability, service quality, redress turnaround, complaint resolution rate.

**Data quality.** High. Anchored in administrative regulator data and CIOG complaint resolution telemetry. Refreshed monthly with quarterly final stamp.

**Missing-data handling.** Sub-indicators with >20% missing months in the 36-month window are dropped from the release and weights redistributed proportionally. Single-month gaps are linearly interpolated and flagged.

**Weighting assumptions.** Sub-weights: price stability 30%, supply 20%, service quality 20%, redress turnaround 15%, resolution rate 15%. Weights elicited from an 11-member expert panel and cross-checked with PCA on the 2022–2025 series.

### ***CVI — Consumer Vulnerability Index***

**Inputs.** Income exposure, debt service load, digital literacy gaps, demographic exposure, regional service deserts.

**Data quality.** Medium-high. Combines GSS household surveys (annual) with Bank of Ghana credit data (monthly). Survey lag of up to 9 months is disclosed per release.

**Missing-data handling.** Survey-based sub-indicators are carried forward up to 12 months with a provisional flag; older values are dropped. Regional gaps are imputed using the national mean only when  $\geq 6$  of 16 regions report.

**Weighting assumptions.** Sub-weights: income exposure 25%, debt load 25%, digital literacy 15%, demographic exposure 15%, service deserts 20%. Assumes population-weighted regional aggregation.

### ***CBTI — Consumer–Business Trust Index***

**Inputs.** Trust surveys, dispute outcomes, brand sentiment, regulator enforcement actions, social listening.

**Data quality.** Medium. Survey component is robust ( $n \geq 1,800$  quarterly); social listening tier is noisier and capped at 25% contribution.

**Missing-data handling.** Social listening gaps default to the trailing 90-day mean. Survey waves missing entirely revert the index to provisional and freeze the prior published value.

**Weighting assumptions.** Sub-weights: trust survey 35%, dispute outcomes 25%, enforcement actions 15%, brand sentiment 15%, social listening 10%. Assumes survey panel is broadly representative after post-stratification.

### ***MRI — Market Risk Index***

**Inputs.** Fraud volume, recall density, supply-chain stress, sector concentration, cyber incidents, FX pass-through risk.

**Data quality.** High for fraud, recalls and FX (administrative + market data); medium for cyber incidents (voluntary disclosure).

**Missing-data handling.** Cyber incident underreporting is modeled with a fixed 1.4x adjustment factor disclosed in each release. Other sub-indicators use 3-month rolling means when a single month is missing.

**Weighting assumptions.** Sub-weights: fraud 22%, recalls 18%, supply-chain stress 15%, sector concentration 15%, cyber 15%, FX pass-through 15%. Assumes sector exposure weighted by household consumption share.

### ***CERI — Consumer Economic Resilience Index***

**Inputs.** Savings buffers, insurance penetration, social-protection reach, recovery time, adaptive-capacity proxies.

**Data quality.** Medium. Insurance and savings data are reliable; recovery-time and adaptive-capacity proxies depend on episodic CIOG case studies.

**Missing-data handling.** Recovery-time has a structural lag of one quarter and is always reported as t-1. Adaptive-capacity proxies missing for a release default to the prior published value with a stability flag.

**Weighting assumptions.** Sub-weights: savings 25%, insurance 20%, social protection 20%, recovery time 20%, adaptive capacity 15%. Assumes resilience is a positive composite and recovery-time is inverted before contribution.

## 2. Index construction

Inputs are pulled from tiered sources (Tier A: regulator/administrative; Tier B: accredited surveys and media; Tier C: social and unstructured signals). Raw inputs are min-max normalized to 0–100 against a rolling 36-month national reference range. Outliers above the 99th percentile are winsorized, not dropped. Sub-indicator weights are elicited through a structured expert panel and cross-validated against principal component loadings on the historical series.

## 3. NCES composite

$NCES = 0.22 \cdot CMHI + 0.18 \cdot CBTI + 0.20 \cdot CERI + 0.20 \cdot (100 - CVI) + 0.20 \cdot (100 - MRI)$ . The composite is reported to one decimal place. Confidence bands ( $\pm$ ) reflect leave-one-out sensitivity across sub-indicators.

## 4. Validation

Each release is back-tested against known consumer-harm episodes (recalls, fraud waves, FX shocks) and checked for stability under leave-one-out sub-indicator removal. Validation logs are published with each quarterly bulletin.

## 5. Revisions

Real-time monthly releases are marked provisional. Final values are stamped at the next quarterly bulletin. Any restatement is logged with reason and magnitude in the public changelog.

## 6. Sources and citations

CIOG uses public, administrative and regulator-supplied data where available. Below is the canonical source list for v1.1. Each release notes any deviation.

Source	Use in CIOG indices
<b>Ghana Statistical Service (GSS)</b> <a href="https://statsghana.gov.gh">https://statsghana.gov.gh</a>	Consumer Price Index, Annual Household Income & Expenditure Survey, Population & Housing Census.
<b>Bank of Ghana</b> <a href="https://www.bog.gov.gh">https://www.bog.gov.gh</a>	Monetary Policy Reports, Financial Stability Reports, Consumer credit and FX data.
<b>National Insurance Commission (NIC)</b> <a href="https://nicgh.org">https://nicgh.org</a>	Insurance penetration, claims ratios, micro-insurance reach.
<b>Food and Drugs Authority (FDA Ghana)</b> <a href="https://fdaghana.gov.gh">https://fdaghana.gov.gh</a>	Product recalls, safety alerts, post-market surveillance.
<b>Ghana Standards Authority (GSA)</b> <a href="https://gsa.gov.gh">https://gsa.gov.gh</a>	Standards compliance, conformity assessments, market surveillance.
<b>National Communications Authority (NCA)</b> <a href="https://nca.org.gh">https://nca.org.gh</a>	Telecoms quality of service, consumer complaints in communications.
<b>Cyber Security Authority (CSA)</b> <a href="https://csa.gov.gh">https://csa.gov.gh</a>	Cyber incident disclosures, fraud advisories.
<b>CIOG complaint telemetry</b> internal	Anonymized resolution outcomes, turnaround time and recovery metrics from the platform.
<b>World Bank — Global Findex</b> <a href="https://www.worldbank.org/en/publication/globalindex">https://www.worldbank.org/en/publication/globalindex</a>	Financial inclusion, savings behavior, digital payments adoption.
<b>IMF — World Economic Outlook</b> <a href="https://www.imf.org/en/Publications/WEO">https://www.imf.org/en/Publications/WEO</a>	Macro context for FX pass-through and external risk indicators.
<b>OECD — Toolkit on Consumer Policy</b> <a href="https://www.oecd.org/sti/consumer/">https://www.oecd.org/sti/consumer/</a>	Reference framework for consumer vulnerability and detriment measurement.
<b>UNCTAD — Manual on Consumer Protection</b> <a href="https://unctad.org/topic/competition-and-consumer-protection">https://unctad.org/topic/competition-and-consumer-protection</a>	International benchmarks for consumer-protection indicators.
<b>Firecrawl ingestion network</b> <a href="https://firecrawl.dev">https://firecrawl.dev</a>	Structured ingestion of regulator alerts (USA FDA/CPSC, UK FSA/OPSS, EU RAPEX/RASFF, Health Canada) for cross-border exposure indicators.

### **Suggested citation**

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### **Ethics and independence**

CIOG publishes under an independence charter (see [/observatory/governance](#)). No commercial party may alter the index after a release window closes. All personal complaint data is anonymized and aggregated before contributing to any index.