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Bridging Behavioral Survey Data through SDMX: A Case of Consumer Confidence and Inflation Expectations Surveys in Armenia

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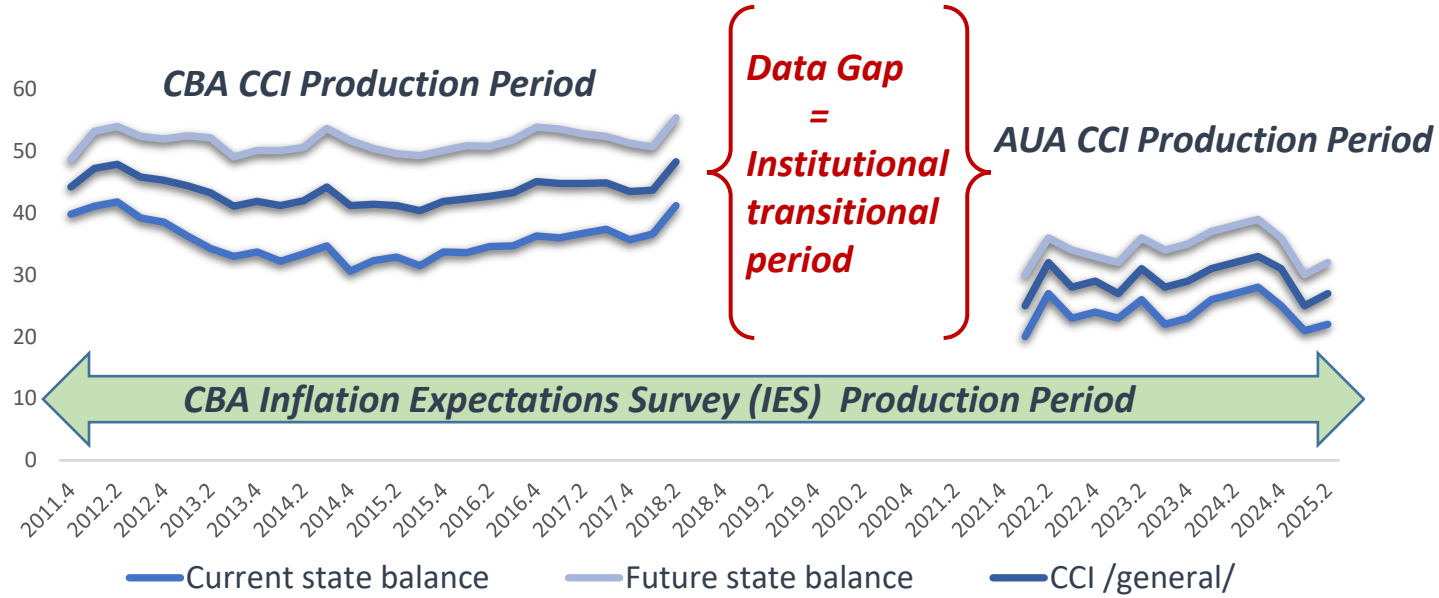
The Consumer Confidence Index (CCI) Discontinuity Challenge:
Bridging the CCI Blackout



Key Challenge:

- ✓ 3-year gap breaks time series
- ✓ Policy analysis continuity lost
- ✓ Historical comparisons impossible
- ✓ Fragmented Behavioral Statistics

How to maintain behavioral insights?

IES as CCI Proxy: Methodological Bridge

Proxy accuracy: 52-78% directional consistency

Problem: Data Gap, Separate datasets, different formats, limited cross-analysis capability

IES as CCI Proxy: Methodological Bridge

Top Section - Conceptual Mapping:

CCI Components
Purchase Intentions Financial Situation Economic Outlook

maps to ⇨

IES Questions
Financing Gap Income vs Inflation Price Expectations

CCI Component	IES Questions	Proxy Logic
Economic outlook (Q1-Q3)	Past/future price expectations (Q11-11a)	Inflation expectations correlate with economic pessimism
Household finances (Q7-Q8)	Income sufficiency (Q17-Q18)	Direct overlap on financial situation
Employment (Q4, Q9)	Employment-related coping strategies (Q19 Q20)	Labor market confidence indicators

Core Survey Components Maintained Across Institutions

Survey Component	CBA Question	AUA Question	Continuity Status	SDMX Benefit
Economic Situation	"Evaluate country's economic condition"	"Please evaluate current state of economy"	Identical	Perfect comparability
Past 12M Assessment	"How did it change over last 12 months?"	"How do you think it changed vs last 12 months?"	Identical	Time series integrity
Future 12M Expectations	"How will it change over next 12 months?"	"How will it change over next 12 months?"	Identical	Forecast consistency
Household Finances	"Financial situation change Apr-Jun vs Jan-Mar"	"Financial situation change last 3M vs previous 3M"	Enhanced	Flexible timing
Employment Outlook	"Employment change Jul-Sep vs Apr-Jun"	"Household employment change next 3M vs previous 3M"	Enhanced	Clearer language
Major Purchases	"Will you make major purchases Jul-Sep?"	"Planning large purchases next 3 months?"	Enhanced	Consistent concept

How SDMX principles enabled integration of two complementary behavioral datasets for enhanced monetary policy insights?

The SDMX Opportunity: Standardized microdata exchange: CBA → AUA → CBA quarterly data transfer

Data Flow Architecture

AUA CCI Survey →	Standardized Variables →	CBA Integration
Quarterly Data	Metadata Coding (Source, Method)	Policy Analysis (Joint Dashboards)
CSV Format	SDMX Principles	Enhanced Insights

Metadata harmonization: Common variable codes and documentation

Data Source	Variables	SDMX Codes	Metadata
AUA CCI	Total / Current / Future Balances	CCI_TOTAL CCI_PRESENT CCI_FUTURE	Source: AUA Method: 2022 v1
CBA Inflation Expectations Survey	Mean, Dispersion Values, Shares	EXP_MEAN12M EXP_DISP PERSIVED_INF	Source: CBA Method: 2011 v1
Reference Data	Official Statistics	CPI_YOY	Source: ARMSTAT

Enhanced policy insights:
Combined analysis for Research and Monetary Policy Departments

Key Innovation:
SDMX as bridge between academic and policy institutions

Data Exchange Process:

- ✓ AUA provides anonymized microdata with standardized coding
- ✓ CBA validates and integrates with inflation expectations data

Data Sources & Timing:
AUA CCI: mixed surveys, 2 000 nationally representative panel,
CBA Inflation Expectations: phone interviews 1 200 nationally representative panel, quarterly
Harmonized scheduling: Both surveys conducted same period for comparability: Quarterly- 2nd month of each Q

DSD Development Progress

Core Structure:

Dimension	Values	Purpose
TIME_PERIOD	2022Q1-2025Q2	Quarterly alignment
INDICATOR	CCI_TOTAL, EXP_MEAN_12M, etc.	Behavioral measures
REF_AREA	AM (Armenia)	Geographic scope
SOURCE_INSTITUTION	AUA, CBA	Institutional provenance
METHODOLOGY	2011v1, 2022v2	Version control

Key Attributes:	**Development Timeline**:
UNIT_MEASURE: % balance, index values **SAMPLE_SIZE**: ~1200, ~2000 **COLLECTION_MODE**: CATI, WAVE **CONF_STATUS**: Public, Internal use	**2022-2024**: Practical integration operational **2025 Q3**: Formal DSD specification complete → **2025 Q4**: SDMX-ML export capability → **2026 Q1**: Full technical deployment

DSD will show that before 2018.2 → CBA, 2022 onward → AUA, and 2018–2022 gap filled with proxy from IES.

Sources: CBA Sample Surveys Division Development Plan; SDMX 3.0 Guidelines

Policy Integration Success

Macroeconomic Department Use: **Quarterly policy briefs**: Combined CCI-inflation expectations analysis **Forecasting models**: Behavioral indicators improve prediction accuracy **Cross-validation**: Survey consistency checks enhance data confidence	**Monetary Policy Integration**: **2024 Annual Report**: "Household expectations inform monetary policy objectives" **2025 Q2 Policy Report**: Dedicated behavioral analysis section with charts **Decision support**: Behavioral dashboard accessible to Monetary Policy Committee
Enhanced Analytical Value: **Leading indicators**: Consumer confidence signals inflation expectations shifts **Crisis detection**: Behavioral divergence provides early warning system **Policy transmission**: Household sentiment affects monetary policy effectiveness	**Quantified Benefits**: 32% improvement in expectation forecast accuracy 2-quarter advance warning for sentiment shifts Enhanced policy communication through behavioral insights

Sources: CBA Annual Report 2024; Monetary Policy Reports 2023-2025; Internal Policy Analysis

International Compatibility:

Alignment with Global Standards

International Framework Compatibility:	**Technical Contributions**:	**Value for SDMX Community**:
ECB Consumer Expectations Survey: Similar indicator structure and methodology **OECD Consumer Confidence Standards**: Harmonized calculation approaches **BIS Behavioral Statistics Initiative**: Compatible metadata framework	**Institutional provenance tracking**: New SDMX attribute for multi-source data **Academic-policy integration**: Replicable collaboration framework **Behavioral statistics DSD**: Template for central bank applications	Real-world implementation lessons Multi-institutional data governance model Behavioral statistics harmonization template

Cross-Country Applications:

Country/Organization	**Similar Challenge**	**Armenia Framework Application**
Regional central banks in EECA (for ex. **Georgia NBG)**	Behavioral statistics coordination	Institutional integration model
Transition economies (for ex. **Moldova NBM**	Survey modernization needs	SDMX development approach
World Bank EECA	Regional harmonization	Standardization template

Sources: ECB Consumer Expectations Survey Methodology; OECD Consumer Confidence Guidelines; World Bank EECA Program Documentation

Future Development Roadmap:
Next Phase Development

Short Term (2025-2026)

Automated workflows: Eliminate manual data processing steps
Extended integration: Try to add quarterly business confidence survey
Dashboard enhancement: Real-time behavioral statistics visualization
Complete DSD formalization: Full SDMX 3.0 compliance

Midterm (2026-2027)

API development: SDMX-JSON endpoints for external users
Research platform: Academic access to harmonized behavioral data
International reporting: Contribution to BIS behavioral statistics database

Framework Contributions to SDMX Community:

Quality assurance protocols for cross-survey integration
Multi-institutional data governance model
Academic-policy collaboration template
Behavioral statistics DSD design

Technical Vision:
Fully automated SDMX pipeline from survey collection → policy analysis → international reporting

Summary

- ✓ SDMX enables harmonization and fills behavioral data gaps for more robust monetary policy.
- ✓ Proxy methodology connects inflation expectations and consumer confidence, maintaining analytic continuity.
- ✓ Combined CCI-IES data improves forecast accuracy and early detection of sentiment shifts.
- ✓ Cross-institutional integration enhances decision support and policy transmission.
- ✓ Armenia’s framework is replicable for other countries facing similar challenges.

Thank you!

Research Collaboration Interests:
Academic Partnerships: Cross-country behavioral statistics studies
Policy Applications: Central bank behavioral indicator frameworks
Technical Development: Advanced SDMX implementation solutions
Comparative Analysis: Multi-country behavioral data harmonization

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