

QUALITY UNDER PRESSURE: Maintaining the Quality of Official Statistics in Lebanon During Economic Crisis and War

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Abstract

Official statistics play a critical role in supporting evidence-based decision making, particularly during severe crises characterized by high uncertainty and intensified user needs.

In recent years, Lebanon has faced multiple overlapping shocks, notably a prolonged economic and financial crisis and the war during 2023–2024. These exceptional conditions posed major challenges to the continuity, credibility, and quality of official statistical production.

This paper presents the experience of the Central Administration of Statistics of Lebanon in maintaining quality standards across two key statistical domains: the compilation of National Accounts under extreme economic instability and the implementation of the Multiple Indicator Cluster Survey (MICS) under severe security constraints. The analysis is framed by the Code of Practice principles most relevant in crisis contexts relevance, accuracy, reliability, coherence, comparability, and transparency and examines how these principles were upheld despite disrupted data sources and operational limitations.

Under the combined effects of economic crisis and war-related disruptions, National Accounts compilation was challenged by high inflation, sharp currency depreciation, and the coexistence of multiple official and market exchange rates. Addressing these issues required consistent application of valuation methods, careful treatment of price and exchange rate effects, and explicit handling of depreciation. Delays and gaps in administrative data availability necessitated the use of well-documented estimation techniques and coherent assumptions. These were accompanied by transparent communication on methodologies, exchange rate choices, and data revisions to preserve user confidence in an environment of extreme uncertainty.

For the MICS survey, security constraints prevented the completion of fieldwork in three governorates. To ensure quality and transparency, results were published separately for each completed governorate, and national-level estimates were not produced to avoid bias from incomplete coverage. Sampling weights were recalculated for the completed strata, and all methodological limitations were clearly documented to maintain analytical validity and trust.

Overall, the paper highlights key challenges, solutions, and lessons learned, demonstrating that adherence to quality principles, transparency, and institutional resilience is essential for sustaining trust in official statistics during severe crises.

Keywords: Quality management; Crisis situations; Exchange rate; National Accounts; MICS Survey

1. Introduction

Official statistics play a critical role in supporting evidence-based decision-making, particularly during periods of crisis characterized by high uncertainty and rapidly evolving information needs.

In such contexts, the demand for timely, reliable, and transparent data increases significantly, while the conditions for producing these data deteriorate.

Lebanon has faced multiple overlapping shocks in recent years, including a prolonged economic and financial crisis since 2019 and the war during 2023–2024. These crises have severely affected economic structures, institutional capacity, and data availability. As a result, the production of official statistics has been subject to unprecedented challenges.

This paper examines how the Central Administration of Statistics maintained the quality of official statistics under these extreme conditions. It focuses on two key statistical domains:

- National Accounts, affected by exchange rate fragmentation and macroeconomic instability
- The Multiple Indicator Cluster Survey (MICS), implemented under severe security constraints

The analysis is guided by the principles of the Statistics Code of Practice (European Neighbourhood South), with particular emphasis on relevance, accuracy, reliability, coherence, comparability, and transparency.

1.1. Quality Framework in Crisis Contexts

Maintaining quality in official statistics during crises requires adherence to internationally recognized principles while allowing for methodological flexibility. The Statistics Code of Practice provides a comprehensive framework for ensuring that statistical outputs remain credible and useful even under adverse conditions.

Key dimensions of quality particularly relevant in crisis contexts include:

- **Relevance:** Ensuring statistics reflect actual economic and social conditions
- **Accuracy and Reliability:** Minimizing errors despite data limitations
- **Coherence and Consistency:** Maintaining internal alignment across datasets
- **Comparability:** Preserving usability across time and space
- **Transparency:** Clearly communicating methods, assumptions, and limitations

In crisis environments, trade-offs between these dimensions often arise. For example, improving timeliness may reduce accuracy, while incomplete data may affect comparability. In such situations, transparency becomes a central mechanism for maintaining user trust.

1.2. Methodological Approach

This paper adopts a case study approach based on the experience of Lebanon's national statistical system. Two statistical domains are analyzed:

1. National Accounts under exchange rate fragmentation
2. MICS survey under security constraints

The analysis evaluates how methodological adaptations were implemented while maintaining alignment with:

- The System of National Accounts 2008 and 1993
- Statistics code of practice for the European Neighbourhood South countries (based on the European Statistics Code of Practice).

2. National Accounts Under Extreme Economic Instability

2.1. Challenges in Exchange Rate Application

During periods of economic crisis, exchange rate systems often become fragmented. Instead of a single stable official rate, several exchange rates may exist at the same time, such as an official rate, a parallel market rate, and different rates used for specific transactions. These rates usually reflect underlying economic imbalances and can differ significantly from one another.

This situation creates important challenges for the quality of National Accounts statistics. The choice of exchange rate directly affects key outputs such as GDP in current prices, sectoral value added, external accounts, and the comparability of statistics across countries. From a statistical quality perspective, this situation raises concerns related to relevance, accuracy, consistency, and comparability. If the official exchange rate does not reflect actual economic conditions, it may reduce the accuracy and analytical usefulness of the estimates. Inconsistent use of different exchange rates across datasets can also weaken internal coherence, which is a core principle of high-quality statistics.

Statistical offices operating in such environments face additional quality constraints. Data may be incomplete or delayed, economic conditions may change rapidly, and measurement uncertainty is higher than in normal situations. These factors directly affect accuracy, timeliness, and reliability. In response, compilers often need to apply estimation methods and make transparent methodological decisions. These decisions should be guided by statistical quality principles, ensuring that despite data limitations, the resulting National Accounts remain consistent, well-documented, and as close as possible to economic reality.

These challenges are not only technical but directly affect the credibility and usability of official statistics.

2.2. Methodological Approach

This section presents a methodological framework for addressing exchange rate challenges in the compilation of National Accounts. The framework is grounded in the recommendations of the

System of National Accounts 2008 (SNA 2008) and informed by the more detailed treatment of multiple exchange rate regimes in SNA 1993, particularly Annex A to Chapter 19. It also aligns with key statistical quality principles, including relevance, accuracy, consistency, coherence, reliability, and transparency. In accordance with *SNA 2008 (paras. 26.112–26.113)*, transactions with the rest of the world should, in principle, be valued at the actual exchange rates applicable to each transaction, and a unitary exchange rate, defined as a weighted average of the rates used in external transactions, should be applied for aggregation purposes, particularly in the expenditure-based estimation of GDP. In practice, however, transaction-specific exchange rates are not directly observed, and available data on imports and exports are available in US dollars. Therefore, an operational approach is adopted whereby the parallel market exchange rate is used as a proxy for most transactions, while subsidized exchange rates are applied to the proportion of imports benefiting from official foreign exchange allocation, thereby approximating actual economic behavior. On this basis, the unitary exchange rate is calculated as the ratio of the estimated total value of imports in domestic currency to their value in US dollars, reflecting a weighted average of the underlying exchange rates and consistent with the dominant role of imports in foreign currency demand. The empirical application of this approach is illustrated by the following estimates: the parallel market exchange rate averaged 5,513 and 16,848 Lebanese pounds per US dollar in 2020 and 2021, respectively, while the average subsidized exchange rate was 1,902 and 6,367; with 37% and 35% of imports subsidized in these years, the resulting weighted average exchange rates were 4,181 and 13,165 when weighted by imports, compared with 3,880 and 12,414 when weighted by GDP (Table 1).

Table 1. Exchange Rates and Weights (LBP/USD)

Exchange Rates (LBP/USD)		2020	2021
Parallel market exchange rate		5,513	16,848
Average subsidized exchange rate		1,902	6,367
Proportion of imports subsidized		37%	35%
Average exchange rate	Weighted by imports	4,181	13,165
	Weighted by GDP	3,880	12,414

The use of a unitary exchange rate ensures internal consistency within the accounts, notably by preserving the equivalence between the external balance expressed in domestic and foreign currency terms. Deviations between values calculated using actual transaction rates and those derived using the unitary rate are recorded as implicit taxes and subsidies in accordance with

SNA guidance. These adjustments capture the economic effects of exchange rate differentials without distorting core aggregates. The magnitude and composition of these adjustments are shown in Table 2, where net implicit subsidies amounted to -9,659 and -22,818 billion Lebanese pounds in 2020 and 2021, respectively, with total implicit subsidies of -21,416 and -55,886, including subsidies on imported goods (-11,758 and -33,068), exported goods (-6,124 and -13,552), and exported services (-3,535 and -9,266), offset by implicit taxes on imports totaling 11,758 and 33,068.

Table 2. Implicit Taxes and Subsidies (LBP billions)

Implicit Taxes and Subsidies (LBP billions)	2020	2021
Net implicit subsidies	-9,659	-22,818
Total implicit subsidies	-21,416	-55,886
Subsidy on exported goods	-6,124	-13,552
Subsidy on exported services	-3,535	-9,266
Subsidy on imported goods	-11,758	-33,068
Total implicit taxes	11,758	33,068
Tax on imported goods	7,960	23,824
Tax on imported services	3,798	9,244

Given the absence of comprehensive data on all foreign exchange transactions, the methodology adopts imports as a proxy for weighting exchange rates, consistent with the interpretation in SNA 1993 that the unitary rate should reflect all external transactions; in the Lebanese context, where imports represent the primary source of foreign currency demand and are financed through a combination of subsidized official allocations and parallel market transactions, this assumption provides a practical and conceptually consistent approximation of the overall exchange rate structure. Overall, the approach ensures that exchange rate treatment reflects economic reality (relevance, accuracy), maintains internal alignment across aggregates (consistency, coherence), produces stable and credible time series despite structural disruptions (reliability), and is fully documented in terms of assumptions and methods (transparency), thereby aligning both with SNA standards and with international best practices for high-quality official statistics.

2.3. Alignment with the Statistics Code of Practice

The proposed framework is aligned with the principles of the Statistics Code of Practice (European Neighbourhood South) as follows:

- **Principle 4 – Commitment to Quality:** The methodology adopted during the period of economic crisis prioritized the preservation of statistical quality under highly unstable conditions. Decisions regarding exchange rate selection, the construction of a unitary exchange rate, and the treatment of implicit taxes and subsidies were taken to ensure the credibility, validity, consistency, and reliability of National Accounts estimates.
- **Principle 6 – Impartiality and Objectivity:** Exchange rate choices are determined by statistical criteria reflecting actual economic transactions rather than administrative or policy-driven rates. The use of parallel and subsidized exchange rates ensures that the valuation of external transactions reflects observed market behavior in a neutral and unbiased manner.
- **Principle 7 – Sound Methodology:** The approach is consistent with the System of National Accounts 2008 and informed by the analytical guidance of System of National Accounts 1993. It applies internationally accepted concepts such as unitary exchange rates, weighted averages, and the treatment of implicit taxes and subsidies, adapted to the specific context of multiple exchange rates.
- **Principle 8 – Appropriate Statistical Procedures:** The methodology applies systematic estimation and reconciliation techniques. Transaction values are constructed using a combination of parallel and subsidized exchange rates, while a unitary exchange rate is derived using import-based weights. These procedures ensure internal consistency and preserve accounting identities across the National Accounts.
- **Principle 11 – Relevance:** By using exchange rates that approximate actual transaction conditions, the resulting estimates better reflect underlying economic activity. This improves the analytical usefulness of GDP and external sector aggregates for policy and research purposes.
- **Principle 12 – Accuracy and Reliability:** The use of weighted exchange rates and consistent valuation methods reduces distortions arising from unrealistic or purely administrative rates. This enhances the reliability of estimates and supports stable and comparable time series despite structural changes in exchange rate regimes.
- **Principle 15 – Accessibility and Clarity:** Methods, assumptions, and limitations are clearly explained in a structured and user-oriented manner. This ensures that users can easily understand how the results are produced and correctly interpret the indicators. In addition, provisions are made to ensure the availability of statisticians to respond to users' questions and inquiries in a timely manner, further enhancing clarity, usability, and trust in the statistical outputs.

Overall, the framework demonstrates that methodological flexibility, when grounded in international standards and implemented with full transparency, is fully consistent with the requirements of the Statistics Code of Practice (European Neighbourhood South).

2.4. Interim Conclusion

The Lebanese experience demonstrates that even under extreme economic instability, it is possible to maintain the integrity of National Accounts through methodologically sound and transparent approaches. Exchange rate fragmentation, while a major challenge, can be addressed through practical solutions that preserve both analytical relevance and statistical credibility.

The findings support three main conclusions. First, reliance on official exchange rates in environments of exchange rate fragmentation can significantly bias National Accounts aggregates and weaken analytical relevance. Second, methodological adjustments are necessary in such contexts but must remain fully consistent with the conceptual framework of the System of National Accounts 2008 and the treatment of multiple exchange rates outlined in System of National Accounts 1993. Third, transparency in assumptions, data sources, and estimation procedures is essential for ensuring statistical credibility and user confidence.

The approach is generalizable to other economies experiencing exchange rate instability or parallel market structures. It demonstrates that, even under severe data and institutional constraints, it is possible to preserve the integrity of National Accounts through the application of representative exchange rates, consistent valuation principles, and systematic reconciliation procedures.

In conclusion, exchange rate fragmentation represents a major measurement challenge for macroeconomic statistics, directly affecting GDP and external sector indicators. The methodology presented provides a practical and conceptually consistent solution that ensures internal consistency, improves accuracy, and maintains transparency. It is fully aligned with the principles of the Statistics Code of Practice (European Neighbourhood South). Future work may focus on formalizing these procedures within international statistical guidance and improving cross-country comparability in similar exchange rate environments.

3. MICS Survey Under Security Constraints During the 2023 War

3.1. Challenges of Incomplete Geographic Coverage

Household surveys conducted during periods of conflict often face operational and security challenges that affect statistical quality. In the case of the Multiple Indicator Cluster Survey (MICS), the 2023 war prevented the completion of fieldwork in three governorates. As a result, the planned national sample could not be fully implemented. This disruption mainly affected the “Collect” phase of the statistical production process as defined by the Generic Statistical Business Process Model (GSBPM).

This situation created important methodological challenges. In particular, incomplete geographic coverage affected representativeness, accuracy, reliability, and comparability. Producing national estimates despite missing data from entire governorates could have introduced significant bias and reduced the validity of the results.

The main challenge was therefore to preserve the quality and credibility of the survey under incomplete coverage conditions caused by the war.

3.2. Methodological Approach

To address these challenges, a transparent and quality-oriented methodological approach was adopted. Instead of producing potentially biased national estimates, survey results were published only for the governorates where fieldwork was successfully completed. This ensured that the published estimates remained statistically valid for the covered populations. In this context, the survey was rebranded as the “Sub-national Lebanon Multiple Indicator Cluster Survey” to reflect the sub-national scope of the results, as national coverage could not be achieved due to security constraints.

Sampling weights were recalculated for the completed strata to preserve consistency within the survey design and maintain representativeness at the governorate level.

In addition, all methodological limitations were clearly documented, including incomplete geographic coverage, the absence of national estimates, and the implications for data interpretation. The approach therefore prioritized transparency, analytical validity, and user trust.

This experience demonstrates that, during periods of conflict, protecting statistical quality may require accepting reduced coverage rather than producing potentially misleading statistics.

3.3. Alignment with the Statistics Code of Practice

The approach adopted in the MICS survey is fully consistent with the Statistics Code of Practice (European Neighbourhood South). The decision to limit publication to completed governorates, recalculate sampling weights, and fully document all limitations reflects key principles, particularly Commitment to Quality, Impartiality and Objectivity, Sound Methodology, Appropriate Statistical Procedures, and Accuracy and Reliability. In addition, transparency and clarity were ensured through detailed methodological documentation, allowing users to correctly interpret the scope and limitations of the results. Overall, the approach demonstrates that statistical quality can be maintained in conflict situations when methodological decisions are guided by international standards and a clear focus on data integrity and user trust.

3.4. Interim Conclusion

The MICS experience during the 2023 war shows that conflict-related security constraints can create major challenges for official statistics. In such situations, producing national estimates may reduce the quality and credibility of the results.

The adopted approach preserved statistical quality by limiting publication to completed governorates, recalculating sampling weights, and fully documenting all limitations. This helped maintain analytical validity and user confidence in the survey results.

More generally, the case demonstrates that under exceptional conditions, maintaining quality and transparency is more important than producing complete but potentially misleading statistics.

4. Discussion

The two case studies presented in this paper illustrate common statistical challenges in crisis conditions and the corresponding methodological responses.

The main findings show that data disruptions are unavoidable during severe crises. However, appropriate methodological adjustments can help maintain the quality of official statistics. In both cases, methodological adaptation was used to respond to data gaps, while preserving statistical coherence and analytical value.

A key finding is that transparency plays a central role in maintaining trust when uncertainty is high. Clear documentation of methods, assumptions, and limitations is essential for ensuring the credibility of statistical outputs. In this context, quality is not reduced by methodological adaptation itself, but rather by insufficient clarity and communication.

The analysis also highlights an important trade-off between completeness and accuracy, and timeliness and robustness.

In both the National Accounts and MICS cases, the Lebanese statistical system prioritized credibility and analytical validity. This approach is particularly important in crisis environments, where producing complete but unreliable statistics may lead to misleading conclusions.

The Lebanese experience may also provide useful insights for other national statistical systems operating under conditions of economic fragility, conflict, high inflation, or exchange rate fragmentation, where maintaining statistical quality becomes particularly challenging.

5. Conclusions and Lessons Learned

This paper shows that maintaining the quality of official statistics under crisis conditions is both challenging and achievable when appropriate methodological frameworks are applied.

The main conclusions are as follows:

1. Severe crises can significantly disrupt statistical production systems, affecting data availability, coverage, and reliability.
2. Methodological flexibility is necessary in such contexts, but it must remain fully aligned with international statistical standards.
3. Transparency in methods, assumptions, and limitations is essential for maintaining user trust and ensuring proper interpretation of results.

The paper also provides several lessons for other statistical systems facing similar conditions:

- Representative proxies should be used when direct data collection is not possible.
- The production of misleading or incomplete aggregates should be avoided, even if there is strong demand for national-level indicators.
- All methodological choices, including assumptions and limitations, should be clearly documented and communicated to users.

Overall, the experience shows that institutional resilience, adherence to statistical quality principles, and transparent communication are key factors for maintaining trust in official statistics during periods of extreme uncertainty.

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