



CABO VERDE

TECHNICAL ASSISTANCE REPORT—CONSUMER PRICE INDEX

November 2023

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CABO VERDE Consumer Price Index

JULY 2023

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AFRITAC
West 2

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Glossary

AFW2	AFRITAC West 2 Regional Technical Assistance Center
COICOP	Classification of Individual Consumption According to Purpose
CPI	Consumer Price Index
HIES	Household Income and Expenditure Survey
INECV	Instituto Nacional de Estatística Cabo Verde
INEPT	Instituto Nacional de Estatística Portugal
TA	Technical Assistance

Summary of Mission Outcome and Priority Recommendations

- 1. As part of the work program for the second Regional Technical Assistance Center for West Africa (AW2) and in response to a request from Instituto Nacional de Estatística Cabo Verde (INECV), a consumer price index (CPI) technical assistance (TA) mission visited Praia during July 17–21, 2023.**
- 2. The primary objective of the mission was to assist the INECV with improving and updating the CPI.** Key mission outcomes include: (i) review and assess CPI compilation methods; (ii) discuss the recent CPI calculation issue; and (iii) develop and agree with INECV on a work plan to guide the authorities on the way forward with updating the CPI.
- 3. Current CPI weights are based on expenditure data collected during the 2015 household income and expenditure survey (HIES).** These data are out of date and there is urgent need to update CPI weights. Data collection for a new HIES began in January 2023 and will continue through December 2023. These data will be used to update the CPI. Preliminary expenditure data for Q1 will be made available to CPI staff to begin identifying new items and classifying the data according to the CPI classification system (Classification of Individual Consumption According to Purpose (COICOP), 2018).
- 4. Overall, the methods used to compile the CPI for Cabo Verde largely reflect international standards and best practices; however, there is scope for improvement.** Many of the methods used reflect European practices, though these practices are not appropriate for Cabo Verde because INECV does not have the data to support annual updates of the CPI. Practices, such as updating the price reference period every December, should be discontinued. Updating the price reference period annually coincides with updating the weights on an annual basis (as is the case in Europe), but INECV updates CPI weights approximately every 5 years and the price reference period should be updated as part of the infrequent weight updates.
- 5. Index calculation methods should be based on the modified or short-term formula.** This index calculation formula, recommended in the 2020 CPI Manual, is more flexible and allows the outlet and variety samples to remain representative and facilitates the introduction of new items. Other recommendations for improvement include discontinuing the use of the carry-forward method (repeating the last available price) for the treatment of missing seasonal and non-seasonal items; removing variety-level weights; and improving and augmenting the rent survey.
- 6. INECV has defined the rolling 12-month average as the headline or official index.** The 12-month rolling average smooths the data. The headline index (official inflation rate) should not be adjusted or smoothed. It was recommended that INECV begin using the annual (12-month) change as the headline or official inflation rate for Cabo Verde.
- 7. INECV identified a calculation issue with the January 2023 index.** The issue resulted from a coding error related to the process of updating the price reference period each December. Because INECV does not have access to the calculation system, the data were sent to the Instituto Nacional de Estatística Portugal (INEPT) and the issue was corrected. The calculation error did not affect the disseminated data for January 2023.

8. To support progress in the above work areas, the INECV agreed to complete the following priority recommendation:

TABLE 1. Priority Recommendations

Target Date	Priority Recommendation	Responsible Institutions
December 2023	<i>Review and confirm the existing variety sample.</i>	INECV
December 2023	<i>Using preliminary HIES data at the item level, identify new items.</i>	INECV
January 2024	<i>Define headline inflation as the annual (12-month) rate of change</i>	INECV

Main Findings and Recommendations

A. CONSUMER PRICE INDEX

Weights

9. CPI weights are based on expenditure data collected during the 2015 Household Income and Expenditure Survey (HIES). These data are now outdated and should be updated. Outdated weights can introduce a bias into the index. A new HIES began in January 2023 and will continue through December 2023. These data will be used to update CPI weights. It is planned that an updated CPI can be introduced by January 2025.

10. Preliminary expenditure data at the item level should be made available to CPI staff. The primary purpose of receiving these data is not to finalize weights, but to begin identifying new items that will be included in the CPI basket and to classify the items according to the Classification of Individual Consumption According to Purpose (COICOP) 2018. As soon as new items are identified, staff can select varieties for those items and begin collecting prices. The prices will be used to compile reference prices for the new items. This will compress the time schedule for the release of the new index and ensure a timely release.

11. Currently, INECV uses COICOP 1999 for the classification of items in the CPI. With the update CPI, COICOP 2018 will be implemented. There are significant changes between the two versions of COICOP and early access to expenditure data at the item level will allow staff to begin the process of implementing the newer version of COICOP.

12. CPI staff lack experience and capacity with updating CPI weights. For the 2015 and previous CPI updates, INEPT provided support and assisted with updating index weights. Files were processed and uploaded into the index calculation system by INEPT staff in Lisbon. INECV requires technical assistance to build capacity to ensure sustainability and encourage INECV ownership of the CPI.

13. An elementary index is defined as the lowest level with an expenditure weight. This generally coincides with the item level. INECV has included weights for airline routes. Each airline route is considered a variety. Varieties define the price collected. Airline routes should not be weighted. Fixing weights for airline routes makes it impossible to replace routes that disappear and to include new routes that may be introduced.

Item and Variety Samples

14. When an item disappears, the data collector should confirm whether it is missing permanently or temporarily. If a variety is temporarily missing, it should be imputed. Seasonal varieties that are temporarily missing should be imputed in each month that the variety is missing. For example, if mangos collected in a given market are missing due to seasonal availability, the price should be imputed in each month until the mango returns to the market. If the mango is missing for eight months and available for pricing in four months, prices are collected for four months and imputed for eight months.

15. For those varieties not subject to seasonal availability, it is expected that these non-seasonal varieties should be available for price collection each month. Varieties are often missing due to a number of factors, such as stock shortages, etc. For non-seasonal varieties, INECV should define and adhere to a maximum number of months the variety can be considered as temporarily

missing. If the variety continues to be missing at the end of the threshold period, data collectors are instructed to identify a replacement variety. INECV currently has a three-month threshold; however, this is not followed because it does not reflect reality in Cabo Verde. It is considered normal for items to be missing up to six months. INECV should allow items to be missing up to six months.

16. INECV uses seasonal windows for the collection of seasonal items. Seasonal windows define the periods that the items are considered “in season.” Prices are accepted in the system only during the defined periods. Seasonal patterns continue to vary from one year to the next. INECV should eliminate these seasonal windows and collect prices for seasonal items as soon as they become available in sampled outlets.

Index Calculation

17. The 2020 CPI Manual gives preference to the Young index. Many countries describe their index calculation formula as Laspeyres; however, in practice, no country compiles a Laspeyres index. Countries either compile a Lowe or a Young index. When expenditure data are updated for the relative change in price between the price and weight reference periods, this results in a Lowe index. When the expenditure shares are fixed in the weight reference period, this results in a Young index. The Young is preferred because the process of price updating weights can lead to a distortion of the weights, especially during periods when relative changes in price between items is high. Taking chicken and beef as an example, if the price of beef increases 100 percent, if the expenditure values are price updated, the weight for beef doubles. Price updating fixes the implicit quantities. The assumption is that the same quantity of an item, such as beef, is consumed regardless of how much the price has increased. This is not a realistic assumption as consumers will switch to those items that are relatively less expensive such as chicken. The Lowe index does not account for substitution between the price and weight reference periods; whereas the Young index assumes that there has been substitution between these two periods. CPI staff were not aware if expenditure values were price updated or not. Going forward, the Young index should be used to calculate the CPI.

18. The modified version of the Young index is recommended and reflects best practice. With the modified Young formula, long term price change is calculated by chaining together short-term price changes. Mathematically the Young (direct, or long-term formula) and the modified Young are identical and yield the same results. The modified Young is recommended because it is more flexible and allows for the replacement of varieties, outlets, and even items. The modified Young also more easily facilitates the treatment of missing prices and quality adjustment.

Temporarily Missing Prices

19. For the most part, INECV uses recommended imputation methods when prices are temporarily missing; however, the practice of carrying forward, or repeating, the last available price is used. The carry forward method introduces a downward bias in the index and should be discontinued. Only controlled or regulated prices should be carried forward because the government announces in advance when a controlled price will be changed. All temporarily missing prices, including seasonal prices, should be imputed.

Price Reference Period

20. The index calculation system updates the price reference period each December. Each year, the price reference is updated and the rates of change in January are linked onto the December index. Generally, the price reference period is updated when the weights are updated. INECV does not

have the data to update weights annually. Weights are updated infrequently. This practice of updating the price reference period annually began with the last CPI update and should be discontinued.

21. The implementation of the Modified Young index eliminates the need for frequent updates of the price reference period. INECV plans to implement the Modified Young formula for the calculation of the updated CPI and the going forward the price reference should only be updated when the weights are updated.

Rent Survey

22. INECV collects rent paid directly from a sample of rental units. Areas for improvement were discussed and there is need for additional TA to support improving the rent index. The recommended approach to collecting rent is a panel survey that is rotated on an annual basis. With a panel survey, a representative sample of rental units is sub-divided into panels. Each panel is broadly representative of the whole. While the number of panels does vary, it is most common to have six panels. Prices are collected from one panel each month. For example, prices are collected from panel 1 in January and July of each year; panel 2 in February and August, etc. With annual rotation a defined percentage (20 or 25 percent) of the total sample is rotated each year.

23. The panel approach has a few advantages. First, in general rent changes once per year, although in Cabo Verde it is normal for rent to remain the same for several years. Because of this, it is not necessary to collect rent from all sampled units each month. The panel approach reduces the burden on respondents. Second, when combined with annual rotations, the panel approach better captures rent increases that occur when tenants change. Finally, sample rotation allows the sample of rental units to incorporate new rental units in a timely manner. There is significant construction of apartment buildings in Praia and other areas. Annual rotation allows these new units to be incorporated into the sample more quickly.

24. INECV loosely follows a quarterly panel approach; however, it is not strictly followed. A more formal approach to the panel survey should be followed and annual rotation should be introduced. Given the nature of rent in Cabo Verde, the sample should be divided into 6 panels as it is not necessary to collect rent from sampled units 4 times per year which would be the case if a quarterly panel is used.

25. When using the panel approach, the rent collected from one panel is compared to the rent price reported by that same panel six months earlier. This ensures like is compared with like; however, it results in a six-month change. The CPI requires a one-month change, not a six-month change. To convert the six-month change into a one-month change, the sixth root of the change is calculated and then multiplied by the previous period index level. INECV was not sure how the current system calculates the rent index. The authorities will confirm this when they visit INEPT in September 2023. Changes will be made to ensure the panel approach is correctly implemented.

26. Currently, only market rents are collected. While market rents represent most of the rent paid, the government does subsidize rent for those households that meet certain criteria. Subsidized rent should be included in rent survey. Ideally, there should be weights for subsidized versus market rent, but these data are currently not available. Alternatively, the prices collected would reflect the proportion of market versus subsidized rent. For example, if 85 percent of rent paid is market rent, then 85 percent of the prices collected would be market rent prices and 15 percent would be subsidized rent.

Headline Inflation Rate

27. The headline, or official, inflation rate for Cabo Verde is defined as the change in the 12-month rolling average index. Under this practice, each month a rolling average of the last 12 months is calculated and compared to the average across the same period in the previous year. This rolling average smooths the data. A headline index should not be smoothed or adjusted. It is not appropriate or recommended to use the 12-month rolling average as the headline inflation measure. The 12-month rolling average index is considered an analytical index, not an official measure of inflation.

28. Headline inflation should be based on the 12-month change (comparing the current month with the same month in the previous year). The headline inflation rate should fully reflect the price changes across the 12-month period and not be smoothed. Monetary policy decisions, indexation, and the official measure of inflation should be based on the 12-month change. The practice of using the 12-month rolling average should be discontinued as soon as possible.

Technical Assistance Needs

29. INECV has relied heavily on the support and assistance of INEPT. This support and assistance will end in 2024. Senior management and staff noted the need to build capacity and assist with updating the CPI. INECV requested a follow-up mission once final expenditure data are available to begin developing the weights.

Recommended Actions:

- Lowest level of weight should be the item (elementary index level). Varieties should not have weights.
- Define the annual (12-month) change as the headline or official inflation rate for Cabo Verde.
- Return to using a fixed reference period and discontinue the practice of updating the price reference each December (annual chaining).
- Implement the Modified Young index calculation formula.
- Discontinue the practice of repeating the last collected price (carry-forward) for the treatment of seasonal and non-seasonal missing prices.
- Adjust the threshold for missing non-seasonal items.
- Seasonal products – discontinue the use of seasonal windows.
- Augment the sample of rental units – including both market and subsidized rent.
- Review how rent is calculated by the index calculation system.
- Implement the panel approach, with annual rotation, for the rent survey (more formalized than current practice).

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Annex II. Detailed Work Plan

A. PROJECT OBJECTIVES

Description	Verifiable Indicators	Assumptions/Risk
Compile and disseminate a CPI consistent with international methodological guidelines.	A CPI that meets international standards is compiled and disseminated.	Adequate resources are made available to compile and disseminate the CPI.

B. PROJECT OUTCOMES

Priority	Outcomes	Verifiable Indicators	Completion	Verifiable Indicators
H	Review and confirm existing variety sample	Variety sample updated and augmented	December 2023	
H	Using preliminary HIES data at item level, identify new items	New items identified	December 2023	
H	Define headline inflation as the annual (12-month) rate of change	Annual rate of change defined as headline inflation rate	January 2024	
H	Begin collecting prices for new items identified	Prices collected for new items	January 2024	
H	Begin classifying items into COICOP 2018	Items classified according to COICOP 2018	January 2024	
H	Review and adapt the index calculation system to reflect recommended index calculation methods	Index calculation system updated	January 2024	
H	Finalize classification of items according to COICOP 2018		July 2024	
H	Preliminary national and regional weights and baskets	Preliminary weights available	September 2024	
H	Review and augment, as needed, the outlet sample	Outlet sample updated and augmented as needed	September 2024	
H	Finalize the variety sample	Variety sample selected	October 2024	

Priority	Outcomes	Verifiable Indicators	Completion	Verifiable Indicators
H	Finalize national and regional weights and baskets		November 2024	
H	Calculate reference prices (2024)	Reference prices calculated and entered into index calculation system	December 2024	
H	Begin calculation of new index		January 2025	
H	Disseminate updated CPI	Index disseminated	February 2025	
H	Update and disseminated detailed CPI compilation methods	Detailed methodology updated and posted on the INECV website	February 2025	
H	Linking the old and the new CPI data series (2024=100)	Old and new data series linked	February 2025	