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REGIONAL METHODOLOGICAL GUIDE FOR BACKCASTING ANNUAL NATIONAL ACCOUNTS IN ECOWAS MEMBER STATES

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Acronyms and Abbreviations

CPC	:	Central Product Classification
DQAFNAS	:	Data Quality Assessment Framework for National Account Statistics
DRS	:	Directorate of Research and Statistics
ECOWAS	:	Economic Community of West African States
FC	:	Final Consumption
FISIM	:	Financial Intermediation Services Indirectly Measured
GDP	:	Gross Domestic Product
GFCF	:	Gross Fixed Capital Formation
GG	:	General Government
IC	:	Intermediate Consumption
ICT	:	Intermediate Consumption Table
IEAT	:	Integrated Economic Accounts Table
IMF	:	International Monetary Fund
IOT	:	Input-Output Tables
ISIC	:	International Standard Industrial Classification
NB	:	New Base
NC	:	New Classification
NPISH	:	Non-Profit Institutions Serving Households
NSO	:	National Statistics Office
OB	:	Old Base
OBm	:	Old Base Modified
OC	:	Old Classification
OBC	:	Old Base Classification
SA	:	Sector Accounts
SNA	:	System of National Accounts
SUB	:	Supply and Use Balances
SUT	:	Supply and Use Tables
TWG	:	Technical Working Group
VA	:	Value Added
VAT	:	Value Added Tax

Summary

In national accounts, when a country changes the base year for compiling national accounts, the resulting accounts, produced using the new methods, are not directly comparable with those compiled using the previous base year. These differences arise from conceptual changes, revisions in classifications, and the introduction of new statistical data sources. To avoid breaks in statistical time series (which are essential for the quality of analysis), it is therefore necessary to recalculate the accounts for previous years using the new base year. This process is referred to as backcasting of national accounts.

Backcasting of national accounts is therefore a method that consists of reconstructing time series of economic data over a past period using a reference or base year. The base year generally corresponds to a period during which improvements to the national accounts have been implemented. These improvements typically include changes in classifications, the incorporation of new data sources, methodological and conceptual revisions, as well as the introduction of new products or the disappearance of certain products.

It is within this context that the Directorate of Research and Statistics (DRS) of the ECOWAS Commission initiated the development of a regional methodological guide on the backcasting of annual national accounts. This document, which aims to harmonise the methods applied across Member States, outlines the rationale for implementing backcasting and describes the main stages of the process. Chapters 4 and 5 address the methodologies applied, as well as issues related to archiving, documentation, and dissemination.

The guide also presents the methodologies recommended for ECOWAS Member States and includes a practical component on backcasting, with the objective of making the guide highly operational and facilitating its use by national accountants.

Introduction

Within the Economic Community of West African States (ECOWAS), all countries prepare and publish annual national accounts in accordance with international standards, notably the System of National Accounts 2008 (2008 SNA). This framework, which provides guidelines for producing annual national accounts, is revised regularly to take into account economic changes as well as the information needs of users.

Furthermore, it has been observed that the adoption of the 2008 SNA by Member States is often carried out within the framework of rebasing work. This work is undertaken to take into account: (i) the main changes in the 2008 SNA, (ii) methodological and conceptual considerations and improvements, and (iii) the broadening of the scope of national accounts by integrating new activities or activities that were poorly covered in relation to the data produced. Member States have also taken advantage of this work to review the methods for calculating and methods for estimating macroeconomic aggregates to reflect the new production structures of their economies.

The rebasing of national accounts has led to a change in the structure of time series by creating breaks compared to the old series. The arguments justifying these changes are numerous and varied. They stem from diverse factors, including the adoption of international standards, which has resulted in changes to concepts and classifications, methodological improvements, and so on. Statistical revisions such as the inclusion of new data sources, the application of new processing methods or methodological changes in the design or data collection have an impact on economic series. Thus, Countries have two set of data series that are no longer consistent and comparable among themselves.

To make the series comparable, member states used different and diverse backcasting methods. Thus, in order to improve data reliability and to have comparable macroeconomic statistics between member states, the Directorate of Research and Statistics (DRS) of the Department of Economic Affairs and Agriculture of the ECOWAS Commission deemed it useful to develop a document aimed at harmonizing methodological practices for carrying out back-projection within the ECOWAS region.

The ***regional methodological guide for backcasting annual national accounts in ECOWAS member states*** aims to describe the methodologies and approaches recommended to countries for conducting the exercise following rebasing activities. In other words, it sets out the methodological

guidelines for backcasting national accounts in ECOWAS Member States are defined. The guide highlights the importance of having the backcasted national accounts statistics, taking into account the various data-related considerations and resource requirements for the process. Furthermore, it outlines the key steps involved, including the analysis of existing databases, the compilation of new data sources, the reconciliation of old and new data sources, and communication with users.

The document **is** structured into seven (7) chapters. The first chapter examines the factors that explain the need to undertake backcasting. The second chapter focuses on the principles and methodologies of national accounts backcasting. Chapter 3 outlines the various steps involved in backcasting the accounts of a country or a region. Chapters 4 and 5 address aspects related to analysis, validation of backcasted data, documentation, and the dissemination of backcasted national accounts. Chapter 6 presents the methods specifically recommended for ECOWAS Member States, while the final chapter is devoted to a case study on backcasting.

Chapter 1: Justifications for backcasting annual national accounts?

1. Analysing the real growth of economic activity requires the availability of comparable information. To this end, national accountants prepare national accounts using a base year. This ensures that all data used are consistent and homogeneous because the concepts, definitions, and standards used are the same from year to year. This chapter presents the justification of backcasting national accounts.
2. Backcasting is defined as an approach used to reconstruct time series of economic data over a past period, using available information and adjusting it to reflect structural changes, methodological revisions or new data sources following rebasing.
3. Indeed, the national accounts are prepared according to an accounting framework dictated by a set of choices made when establishing the base year. These are:

    - a conceptual system, international reference framework (2008 SNA);
    - classification of activities and products which comply with international standards and classifications (ISIC Rev..4; CPC ver.2, etc.);
    - the scope of coverage and specific statistical sources relating to economic activities (e.g., improved coverage of research and development, inclusion of illegal activities);
    - methods of calculating accounts in accordance with international recommendations adapted to the realities of the countries;
    - a reference year.

Change of base year

4. The change of base year is an operation that allows a country to introduce conceptual innovations, new accounting principles, adapt classifications, improve the processing and estimation methods of economic aggregates and add new data sources to have national accounts series that best reflect the situation and changes of the country's economy. The determination of the base year adheres to certain criteria, which are as follows.
5. **The first criterion** for selecting a base year for national accounts is of an economic nature. Indeed, the base year must reflect the new structure of the economy. Therefore, it is important that it be a sufficiently stable year to allow the country to better measure real changes in economic activity.
6. **The second criterion** focuses on the analysis of available data sources. At this level, the reference years of the main data sources, in particular national surveys or censuses, are studied.

The production of the base year estimates requires very detailed data and such operations are not conducted regularly in ECOWAS Member States. This is the case for surveys on household consumption expenditure (or household living conditions), the informal sector survey, business, agricultural or population censuses, etc. In addition to the availability of these important sources, the country may be required to carry out retrospective data collections (specific surveys).

7. **The third important criterion** concerns the degree of data updating. Indeed, the choice of base year will result in a gap between the production system for old accounts and the updated ones. Thus, if the year is too far in the past, the country will have to catch up on many years of accounts to be up to date.
8. Other criteria can be put forward to justify the base year of the accounts (possibility of comparison with the old base year, the country's economic policy benchmark, etc.). However, those relating to economic stability and the availability of data sources are of great importance. Furthermore, the international best practice is changing the base year of the national accounts every five (5) years.

Why do we backcast national accounts?

9. The change of base year leads to the consideration of new data sources, as well as the establishment of a new structure of the economy notably the classifications, the scope and new concepts. These changes cause a break in the series. The new series is no longer comparable with the old one due to the introduction of new choices that will impact the old levels. Thus, to resolve this distortion, it is necessary to carry out an activity to ensure the consistency of the time series. This is to help users and decision-makers to have long and consistent time series data to have a better knowledge of economic history. To carry out modelling and forecasting, as well as the analysis of investment and productivity cycles, backcasting is therefore required.

1.1. The Guiding Principles of backcasting

10. Backcasting aims to provide users with long time series and consistent national accounts. This series must be of sufficient quality so that the data can be interpreted to describe the economic history of the country or region. To determine the length of the series to be backcasted, it is crucial to have guidelines to achieve objectives that are determined.
11. The Data Quality Assessment Framework for National Accounts Statistics (DQAFNAS)[1]developed by the International Monetary Fund (IMF) to provide guidance on the qualitative assessment of national accounts statistics helps in the selection of series to be

[1] See dimension 4 of Annex on the different dimensions of the IMF qualify framework

backcasted. Thus, consistent statistics over a period of at least 5 years are required. The 5-year period is often used so that the country can produce quarterly accounts that take into account seasonal adjustments.

12. Furthermore, national accounts are used for historical analysis and modelling. Statistically, it is often assumed that at least 30 observations are required to obtain a robust estimate. Analytically, the data must cover multiple economic cycles to be useful and to describe the country's economic history.
13. The consistency of time series depends on the methodology used. It must be identical from one year to the next. In national accounting, significant changes are introduced during the work of changing the base year of the national accounts. The comparability criterion of the two base years proves the relevance of reconciling the accounts up to the old base.
14. The period covered by annual national accounts can be relatively long, making it unlikely that all the data needed to recompile the accounts, from basic variables to balanced accounts compatible with the new base year. To overcome this constraint, practitioners often use indicators that cover the period to reconcile the old series with the new ones. These indicators must reflect the changes of the variable (aggregates) over time within a given economic context.
15. In summary, the determination of the series to be backcasted is linked to the potential quality of the results. It takes into account: (i) the available data sources; (ii) the choice of variables to be backcasted; (iii) the appropriate integration approach to the available data and their quality. The length of the backcasted series will be determined by the number of years of the annual national accounts (under the old base), by the availability of data to reconcile the estimates, by the time and quality of the human resources required to carry out the work, by the needs of users, particularly those of the quarterly national accounts, and by the process of validating the results and their plausibility.

Table 1.1: Business process model for backcasting

Overarching Principles of Backcasting: Over Arching Quality guidance for re-estimation			
1.0 Assess and Specify	**2.0 Build, collect, process and integrate**	**3.0 Analyse and verify**	**4.0 Document and Disseminate**

Overarching Principles of Backcasting: Over Arching Quality guidance for re-estimation			
1.0 Assess and Specify	**2.0 Build, collect, process and integrate**	**3.0 Analyse and verify**	**4.0 Document and Disseminate**
1.1 Review the old and new databases and identify consistency issues and sort into revision taxonomy for backcasting purposes. Create archiving system for all historical data including unpublished detail useful for backcasting purposes.	2.1 Map data from old to new accounts for variables requiring no revision or backcasting.	3.1 Run a set of revision analyses by comparing new to old estimates. Set some parameters to identify outliers or problems based on standard revision analysis and expected outcomes of consistency corrections. Update variables that require corrections.	4.1 Prepare detailed explicit descriptions of each revision type including methodological notes, impact analysis and source data descriptions
1.2 Assess source data availability for remediation of consistency issues in terms of data quality and potential backward	2.2 Prepare estimates for specific consistency issues, testing methods and assumptions.	3.2 Verify overall account consistency by using standard analyses on key balancing entries (GDP, final	4.2 Prepare analysis of overall impact of the revisions on key balancing entries

Overarching Principles of Backcasting: Over Arching Quality guidance for re-estimation			
1.0 Assess and Specify	**2.0 Build, collect, process and integrate**	**3.0 Analyse and verify**	**4.0 Document and Disseminate**
estimation timeframe	Check for reasonableness of results for the individual issues	expenditure aggregates, incomes, savings, investment, net lending and wealth accumulation for plausibility and consistency. Verify shift points due to key economic events	
1.3 Enumerate methodological options for backcasting the specific consistency issues including articulation of underlying assumptions and excepted outcomes.	2.3. Document results in terms of final sources and methods and overall impact for backcasted variables	3.3 Analyse the revisions to the trend and cycle attributes of the overall economic history. Make sure that any changes are backed by an economic explanation	4.3 Disseminate results and publish revision analysis documentation mentioned in the two previous steps.
1.4 Specify the scope	2.4 Integrate data	3.4 Correct any	

Overarching Principles of Backcasting: Over Arching Quality guidance for re-estimation			
1.0 Assess and Specify	**2.0 Build, collect, process and integrate**	**3.0 Analyse and verify**	**4.0 Document and Disseminate**
of the backcasting exercises in terms of accounts, based on an analysis of the assessment of all of the consistency issues	into new set of accounts using the pre-specified integration approach	issues or problems and re-run aggregations	
1.5 Specify the integration approach for the backcasting exercise considering objectives of preserving economic history	2.5 Prepare databases of old and new data for comparison purposes and verification. Document significant economic events which should be reflected in both databases		

Source: Handbook on Backcasting, 12th meeting of the Advisor Expert Group on National Accounts, 27-29 November 2018, Luxembourg

Chapter 2: Principles and Methodology of Backcasting National Accounts

16. The rebasing of the national accounts creates a break in the series and requires a reconciliation of data between the new base and the old (or the existing) series. This consists of extending the new series into the past while maintaining the concepts, classifications, and methodologies used during the work on the rebasing of the national accounts.
17. Two approaches can be considered for retrospectively compiling these accounts. The first approach consists of reconstructing the final annual national accounts for previous years, relying directly on the most detailed source data available and using the methodology of the new base year. This approach ensures greater accuracy and methodological consistency in the preparation of the accounts. The second approach involves applying the new concepts and methodologies to results already compiled under the previous base year. It relies on mathematical techniques that allow the old series to be recalculated according to the framework of the new database.

2.1. Principle of backcasting

18. The principle of backcasting is to analyse series by series in terms of growth rate. In this regard, it is important to have data for at least one year common to both series. This makes it possible to establish a link between the old and new series[2]. Thus, the changes of the corresponding series of the old base (OB) suitably modified are retained as changes in the series of the new base (NB).

2.2 Backcasting methodology

19. Backcasting relies on methods that can be used to link or transition between heterogeneous time series to create coherence so that variables are interpretable from an economic point of view over the entire period.
20. The purpose of backcasting national accounts is to identify approaches to linking or bridging heterogeneous time series. This process allows to create a coherent data set so that the variables make economic sense over the period under consideration. This means that GDP and other major aggregates are measured using the same concepts and definitions over time, even if the basic data may be obtained by different methods (survey, administrative collection, etc.).

[2] It is advisable to carry out the backcasting after 5 years of production of the new series

Backcasting is generally carried out when major changes occur in the methodology or statistical sources. It thus becomes necessary as a result of the following:

- a large-scale revision or transformation is carried out in the annual national accounts (rebasing) resulting in a new existing set of estimates and the availability of a new series with a specific set of changes or updates;
- a wide consultation which made it possible to collect more exhaustive information for the compilation of annual national accounts and the taking into account of these improvements lead to a break in the series;
- an improvement in the compilation of annual national accounts by producing additional aggregates which will be integrated into the current production system, etc.

These sub-sections provide an overview of the various methodologies that can be used for backcasting annual national accounts data.

2.2.1. The bottom-up method

21. The bottom-up or direct method consists of making new estimates by compiling them from the detailed source data. Its implementation assumes the availability of all the basic data over the period covered by the backcasting. In addition, it is useful to carry out additional data collection (in the event of improved coverage) over the period. It may also involve transforming the previous data sources to adapt them to the new base using bridge tables or additional information and compiling the data using the new method. In some cases, this could involve the use of micro data and a complete re-estimation process from statistical units to aggregates.
22. In terms of quality, bottom-up approaches generally produce the most robust results. The method is often used for periods that are not too distant in time for which the source data are exhaustive and available in electronic format or easily transformable into electronic format and whose quality is high.
23. Often this approach is used when national accountants have access to an administrative dataset from which national accounts variables can be recompiled using detailed data sources.
24. Furthermore, the implementation of a new methodology causing discrepancies between old and new results justifies the use of the bottom-up method. This latter case is often referred to by national accounts as backcasting of exogenous factors (treatment of arms expenditure, research and development, non-life insurance, etc.). It may happen that the detailed information necessary to implement this method is not available. Faced with this constraint, estimation at aggregate levels or the use of fixed parameters based on the comparison of new and old statistics

can be applied. A discrepancy may still exist at the new reference points, but it is probably less significant, and a mechanical linking process can be used to reconcile (balance) the old and new series without causing distortion to the economic significance of the data.

25. The application of the direct method often faces several challenges, including the availability of high-quality, detailed microdata to recompile old accounts. In addition, due to time constraints, financial resources, and other factors, national accountants cannot implement this approach and rather use other statistical techniques to reconstruct the old and new series. The application of these techniques relies on knowing the source of the discrepancy between the new and old estimates. It is therefore important to specify that there must be at least one year or a certain number of years of overlap in the current estimation period compared to the previous estimates.

2.2.2. Interpolation

26. Interpolation consists of linking data from the new base year with those of another reference year in the past and thereby reconstructing the values for the intermediate years. It assumes that the discrepancy was generated over the period covered by the time series. Its usefulness lies in the fact that the data from the reference years describes the correct structure of the economy and is worth preserving. In addition, emerging economic activities tend to grow over time. Its application modifies the growth rate of the initial series by a constant factor. This approach is suitable when the initial year of the time series is estimated through a robust statistical procedure, with the level for that year (e.g., the previous base year) serving as the reference point.

2.2.3. Retrapolation

27. Retrapolation refers to estimating backward by applying the growth rates of the old series to the new level in the link year. It changes the level of the historical series in a constant proportion over time. This approach is done by calculating a simple ratio between the new and old series at an overlapping period and using this ratio to extend the new series to the last year to be backcasted. Thus, the growth level of the old series is maintained. However, the levels are increased or decreased according to the integrated change.
28. The application of retrapolation assumes that the phenomenon causing the divergence is maintained over the entire duration of the historical data series in a stable proportion to the old one.

2.2.4. The mixed method (interpolation and retrapolation)

29. The mixed approach offers an alternative between interpolation and retrapolation. It allows the use of additional information to supplement the backward estimate. Where the phenomenon under consideration is likely to exist but is not adequately captured in the historical period, or is captured to varying degrees, a method based on the use of auxiliary information may be applied to estimate either the share of the phenomenon in the total over time or its value in the reference year, and possibly at other intermediate points. Interpolation can then be used to complete the series.
30. However, in the absence of auxiliary information, a simple method is to establish a weighted average of both approaches over time.

2.2.5. The econometric method

31. When the backcasting period extends over a long timeframe, directly observed data may be unavailable. Nevertheless, linked datasets or those suitable to modelling framework to produce estimates, may be available. In this case, the backcasting is carried out using econometric methods of which the most widely used is the Chow and Lin model, especially in the quarterly national accounts' compilation.
32. Chow and Lin modelling involves using econometric techniques to establish a parametric relationship between the indicator and the reference data to make an estimation. Its application requires the availability of reference data for the estimation period and related indicator data available for part or all of the backcasted period. The model is estimated for the current period, and the estimated coefficients are used to create estimates for the backcast period. It is based on the assumption that the relationship between the indicators and the estimate is stable over time. This may be a strong assumption, but if the reference data exist for a sufficiently long period, the assumptions can be tested to determine whether the method produces plausible results or whether there is a trend in the coefficients that can be incorporated into the backcasting estimation process.

2.3. Approaches to backcasting

33. Depending on the data, human and financial resources, and the objectives, different approaches can be used. There are three approaches, namely: the micro, the macro, and the mixed.

2.3.1. Micro approach

34. Regarding the micro approach, it consists of achieving the work at the most detailed level of the classification. The approach enables allows to start from the most disaggregated level. By way of illustration, in the case of national accounts, the process involves recording all products from the old base according to the classification of the new base. Which implies the achievement of the supply and use balances at the level of individual products, as well as industry accounts, by applying the new methodology to the old series in accordance with the adopted framework. These can then be aggregated to obtain the backcasted accounts. A make matrix can be established to recalculate the weights used in the re-estimation.
35. This approach is very robust in that the results do not depend on any underlying assumptions about products or activities, other than the statistical ones used to process the data. However, it is data-intensive because it requires access to all microdata for the period in question. This is the main limitation for this approach.

2.3.2. Macro approach

36. Regarding the macro approach, it involves converting the data at an aggregated level of the classification using a bridge table and a set of conversion coefficients.
37. The first step is to create the backcasting classification, that is, a file that lists all the components of the new classes in relation to the old ones and determines the one-to-one, many-to-one, one-to-many or many-to-many relationships.
38. The second step involves creating the conversion coefficients to be applied to the old data (make matrix). To do this, it is necessary to construct a bridge table with a doubly overlap period according to the chosen classification.
39. The accuracy of the conversion factor depends on the level chosen for the backcasting. The less aggregated the classification, the better the quality of the factors. The coefficients are then used to convert the data from previous years according to the new methodology and connect the two series.
40. This approach relies on the assumption that the estimated ratios and distributions are stable over the period to which the factors are applied. This is a strong assumption that can only be used over a short period or for updates to classification systems that do not differ radically from the old to the new.

2.3.3. Mixed approach (micro-macro)

41. The mixed micro-macro approach aims to combine micro and macro approaches to better reflect economic reality and link the two series. It involves the use of double coding. If the overlap of dual coding shows a tendency for coefficients to change over time, then using a single set of factors for the series is not reasonable. Searching for data for intermittent points in earlier years is useful for improving backcasting exercise. For classification changes based on industries or products, existing input-output tables (IOTs) or supply and use tables (SUTs). These tables help estimate factors at multiple points in time and establish a form of reference conversion for those specific years. Make matrix will then be required to interpolate between reference years.

2.4. Strategy for integrating the sequence of backcasted accounts

42. In choosing the scope and method for backcasting the selected variables, it is necessary to examine consistency and consider the best approach for integrating the backcasted variables into the new series of accounts. This analysis allows to form the chronology. The choice of approach depends on the scope, the level of detail, and the accounts selected in the backcasted period. In the paragraphs below, some generic approaches for integrating the backcasted sequence are discussed.

2.4.1. Complete balance from bottom to top and from top to bottom

43. When backcasting is carried out at the most disaggregated level, any identified problems are addressed by using new sources, classification and backcasting methods. The accounts are recompiled from the finest level. For example, if the balancing carried out for a reference year in the current period consisted of using detailed supply tables as a production integration tool, then backcasting would be carried out for all years of supply and use tables at the detailed level, and the rebalancing would be carried out in the same way as for the current period.
44. This approach, while rigorous, is data-intensive and may be time-consuming. It may only be feasible over a short period of time. It may be desirable to maintain a fully rebalanced and consistent set of accounts for as long as possible. For example, it is essential to have a fully balanced system for five years to understand the full implications of consistency issues.

2.4.2. Macro approach - prior integration maintained

45. The new estimates resulting from the adjustment of consistency issues are superimposed on the previously published balanced set of accounts. This maintains the integration decisions made in the past. They require that consistency issues be addressed in a balanced manner. If, for

example, exploration expenditures are added to fixed capital investment, output and value added must also be re-estimated consistently. As a result, growth rates and first differences for balancing items such as GDP are adjusted to reflect the corrected consistency issues.

2.4.3. Macro approach - maintaining growth and trends

46. This is an approach in which the integration of corrections into the accounts is limited in order to minimize revisions to past period trends and growth rates. Integration adjustments are re-estimated to achieve this result.
47. This method is best when the treatment of past consistency problems has been done largely using mechanical approaches, without adding much new or additional information in the process. This has the effect of correcting level inconsistencies without changing the economic history of the past period. It is a practical approach based on the assumption that consistency problems have proportional effects over the entire backcast period. Rebalancing is thus designed to maintain growth patterns, which mitigates the impact of consistency adjustments on the interpretation of past economic developments.

2.4.4. Intermittent reference

48. This mixed approach combines a bottom-up estimation technique to create reference years and interpolation over the interim period using previously published estimates as a basis. This approach is appropriate in cases where the information is based on comprehensive periodic data collection systems such as economic surveys or censuses. It is equivalent to rebalancing at periodic intervals, maintaining, as far as possible, trends or growth rates in the interim period. It is less data-intensive compared to the bottom-up approach but has the advantage of having fully specified estimates of reference points for intermittent points in the backcast period.

Chapter 3: The stages of Backcasting of National Accounts

49. Work organization is an essential step in backcasting. It allows for the research and assessment of the quality of the data needed for its realization. It is a time of the specification of methodologies for reconstructing individual variables, and the definition of approaches for balancing data within a set of accounts. This facilitates the backcasting process and will minimize problems related to missing variables or integration issues at a later stage.

3.1. The extent of backcasting

50. Backcasting exercise is marked by a review of the published data series. It highlights the main changes or revisions that need to be made to have a consistent database for the entire period before and after the rebasing. This phase will help classify the identified problems and facilitate the search for additional source data to carry out the work. Two aspects are of paramount importance: the search for potential data sources and the assessment of the data quality of the potential source.

3.1.1. Search for potential data sources

51. This step involves searching for data that can be used to address known inconsistency issues or errors. It is important to examine the quality and time periods of the available data in relation to the period of the pre-existing set of accounts. Quality data may be available for the entire period or for a few years. All information about the data should be evaluated and documented to specify the period, methodology, and backcasting process.

3.1.2. Assessment of the quality of data from the potential source

52. This step allows the existing data, and the new data collected to be evaluated against the description of accuracy and reliability in accordance with the DQAFNAS. It contributes significantly to the determination of the backcasting method.
53. High-quality data are those that comply with the definitions, scope, classifications, valuation and date of recording, in accordance with the recommendations of the SNA. These include, in particular, those from surveys, censuses and comprehensive administrative records. Data can be classified into three (3) categories:

i. **high-quality** source data that approximate the definition, scope, classifications, valuation and date of registration in accordance with the SNA requirements.

ii. **medium-quality** data that may come from surveys or administrative records for which significant transformation is necessary in order to meet the data requirement of SNA;

iii. **low quality** data which are made up of related indicators or only modelled, backcasted and interpolated without using auxiliary variables.

54. Analysing all available data requires sorting the data and highlighting the period covered by each one. This will help in evaluating methodological options to resolve problems of consistency, known errors, etc.

3.2 Structuring of the Backcasting Project

55. After analysing the main areas of improvement and changes in methodology or reference, the backcasting project must take into account both economic and statistical consistency. This allows defining an overall plan to carry out the backcasting project. Since the project is complex, several experts (national accountants, stakeholders, etc.) must come together to examine all the problems in order to finalize the scope and define a project schedule.
56. The quality of the backcasted data relies on the quality of the source data used and on the validity of the backcasting techniques employed. One of the methodological quality criteria in the IMF's Data Quality Assessment Framework (DQAF) stipulates that the use of fixed ratios should be controlled. Examining the various consistency issues will help national accountants determine the quality of the estimates.
57. In addition to the problems of consistency and quality, the analysis of the main information makes it possible to decide on the number of years sufficient to properly describe the changes of the economy and of the different sectors and activities according to the objectives.

- If there is an easily identifiable period where the quality of the source data and the quality indicators of methodological quality are predominantly in the **medium to high range**, this is a good indication of success for the backcasted product.
- On the other hand, if the backcasted data for a specific period is predominantly based on low-quality methods with little or no supporting source data, it serves as a warning sign. Although the exercise may appear to ensure consistency in terms of levels or definitions, it risks distorting the economic history of that period by relying excessively on fixed ratios to establish simple links.

- If the prospective period is sufficiently long, it is likely that there will be distinct periods that fall into the high, medium, and low-quality classifications. It will be up to the compilers to assess the risk associated with each period and decide how far back the exercise will produce reasonable and reliable results.

In addition to human and financial resource considerations, it is important to analyse the following dimensions which constitute the main stages of backcasting.

3.2.1. Concepts, definitions and methods

58. The first step is to compare the concepts and definitions used for the development of national accounts in the old and new databases.
59. Changes in concepts, definitions, or methodological improvements made when establishing the base year create a need for additional information on the backcast period. In addition, national account teams seek to improve the system for collecting and compiling national accounts data by drawing on administrative sources, business statistics and surveys and by working with other relevant institutions to improve the quality of data used in estimating macroeconomic aggregates. These additional sources, as well as their periods of availability, have implications for the choice of backcasting classifications.
60. The best way to account for these types of changes is to use overlap periods between the two series to establish a detailed reconciliation between the old and new estimates. Once the relationships are established, backcasting techniques can be applied to smooth out the breaks and establish consistent estimates.

3.2.2. Scope of application

61. The objectives of the backcasting must be clearly established. Therefore, it is important that the backcasted series comply with the newly established rules (concepts, definitions, methods, etc.). In this regard, the national accounting approaches and the main tables to be backcasted (often the SUT) are decided by the team, taking into account the other dimensions mentioned above.
62. In addition to the approaches and tables to be backcasted, the scope also covers the classifications used. Depending on certain elements, particularly methodological and technical, the backcast classification is chosen. It can be the new or the old one or a combination of the two classifications. In addition, the definition of the scope must take into account the reliability of the new data, the additional sources and the robustness of the application of the methods.

3.2.3. Creation of an IT structure

63. Once the work plan has been defined, the consistency issues examined and the best approach to integrating the backcasted variables into the sequence of national accounts identified, it becomes essential to put in place an IT infrastructure to effectively conduct the backcasting exercise.
64. The backcasting of national accounts generally requires the creation of bridges between an old classification and a new one. These bridges are created using make matrices.
65. The make matrices are constructed after validating the scope and the main changes noted in the new accounts. In this regard, based on the data of the year of overlap between the two series of accounts, it is possible to find a correspondence between the two series. In most cases, the new classification takes into account areas of improvement and changes made at the international level to better reflect reality and better monitor economic activity. Thus, it regularly happens that national accountants develop bridge tables between the classification. However, backcasting is done taking into consideration certain aspects and specificities that are announced in the sections above. As a result, it is common for the old classification to be modified (OCm). The sector-by-sector review of National Accounts is very important and is recommended at the most detailed level possible. This approach makes it possible to identify the changes to be made to the old base, whether they are known errors, failure to take into account certain aspects, etc.
66. In addition, the types of tables (mostly the SUT) and the sectors to be backcasted are already selected. Similarly, the additional data sources and the level of detail required for processing and backcasting are validated in order to guarantee the consistency and reliability of the results.
67. Computer application involves implementing make matrices using software such as Excel to automate certain tasks in the design of the summary table.

3.2.4. Calculation of the old base modified (OBm)

68. It is crucial to examine the changes to be made to the old database series activity by activity. This specifically involves, depending on the level of detail chosen, taking into account known errors unaccounted for in the old series, changes in the classification of activities or products, economic transactions (e.g., in the case of taxes on goods and services, etc.), concepts, methodologies, etc.
69. Such changes lead to recalculating the series. For example, if the activity classification system changes, a make matrix will calculate the data from the old modified series according to the classification system of the new series. The same approach can be used for products, economic transactions, etc.

70. Another important aspect is the emergence of new taxes (Value-Added Tax (VAT)) or changes in methodologies (Financial Intermediation Services Indirectly Measured (FISIM) and its distribution). Those new features are taken into account within the framework of backcasting of exogenous factors, i.e., a recalculation of the different indicators based on the new methodology.
71. This stage, which constitutes the core of the backcasting, must result in the establishment of an old series according to the new classification at the chosen level of detail. It is advisable to carry out a graphical check on the changes in the old series, the modified one and the new one over their overlapping period.

3.2.5. Calculation of series-by-series backcasting

72. The calculation of the old base modified (OBm) makes it possible to have for each activity of the new base (NB) it's equivalent in the old base modified (OBm).

Subsequently, the calculation of backcasting series by series consists of adopting the principle of identical change of OBm on the NB using the following formula:

$$NB_{t-1} = NB_t \, X\left(\frac{OBm_{t-1}}{OBm_t}\right)$$

73. This methodology enables backward estimation starting from the initial reference point of the new base. Ultimately, the various series are calculated based on the new base. However, the analysis of overall consistency, particularly the development of the SUT, will reveal imbalances that need to be resolved.
74. The implementation of the methodology of backcasting is also done on the various identified activities, products, economic transactions etc. Therefore, the analysis of consistency, in particular by comparing supply and use, generally makes it possible to identify gaps which must be resolved by carrying out balancing.

3.2.6. Balancing process

75. Since the different series are backcasted independently of each other, it is important to carry out balancing to ensure equality between **supply (S)** and **use (U).** This balancing exercise is preceded by a verification of the gap. In the event of a strong equality, it is necessary to return to the step of calculating the backcasted series and improve the calculations. Balancing can be carried out manually by developing the Supply and Use Balance (SUB). However, countries use a semi-automatic or automatic method, the best known of which is the RAS method. It consists of proportionally distributing the gap between the different items according to the following methodology:

Assume that:Σ S > ΣU.

We will look for k > 0 such that: S' = (1 - k) * S and U' = (1 + k) * U, with ΣS' = ΣU'

$$let\ k = \frac{\sum S - \sum U}{\sum S + \sum U}$$

- **This calculation assumes that all S and U are positive**, but in fact, some supply can be negative (margins, subsidies) and in employment, stock variations do not always have the same sign. The above calculation needs to be modified slightly.

We replace S ' = (1 - k) * S by

$$S' = \left(1 - k' \times sign(S)\right) \times S = \left(1 - k' \times \frac{abs(S)}{S}\right) \times S = S - k' abs(S)$$

And symmetrically for U' = U + k '* absU.

From which: k' = $k' = \frac{\sum S - \sum U}{\sum abs(S) + \sum abs(U)}$ and therefore |k'| < |k|.

- **We do not have to rebalance all accounts or activities**:

We can decide, for example, not to modify the accounts of the Public Admin (PA), or foreign trade, or household final consumption...

In this case, the accounting balance:

S' = U' Σmust be replaced Σby ΣS' = ΣU' + Z, where Z is the balance of the "non- balancing " variables.

And k' becomes:

$$k' = \frac{\sum S - \sum U - Z}{\sum abs(S) + \sum abs(U)}$$

Note:

76. Steps 3.2.4 and 3.2.5 above can be carried out in two different ways. Either all series are backcasted independently and balanced simultaneously over the entire backcasted period (which is much faster), or they are backcasted and balanced year by year (which is perhaps more correct).

In the first case, you need to use the backcasting formula by explicitly replacing NB by unbalanced NB (NBunbal):

$$NBunbal_{t-1} = NBunbal_t \; X(\frac{OBm_{t-1}}{OBm_t})$$

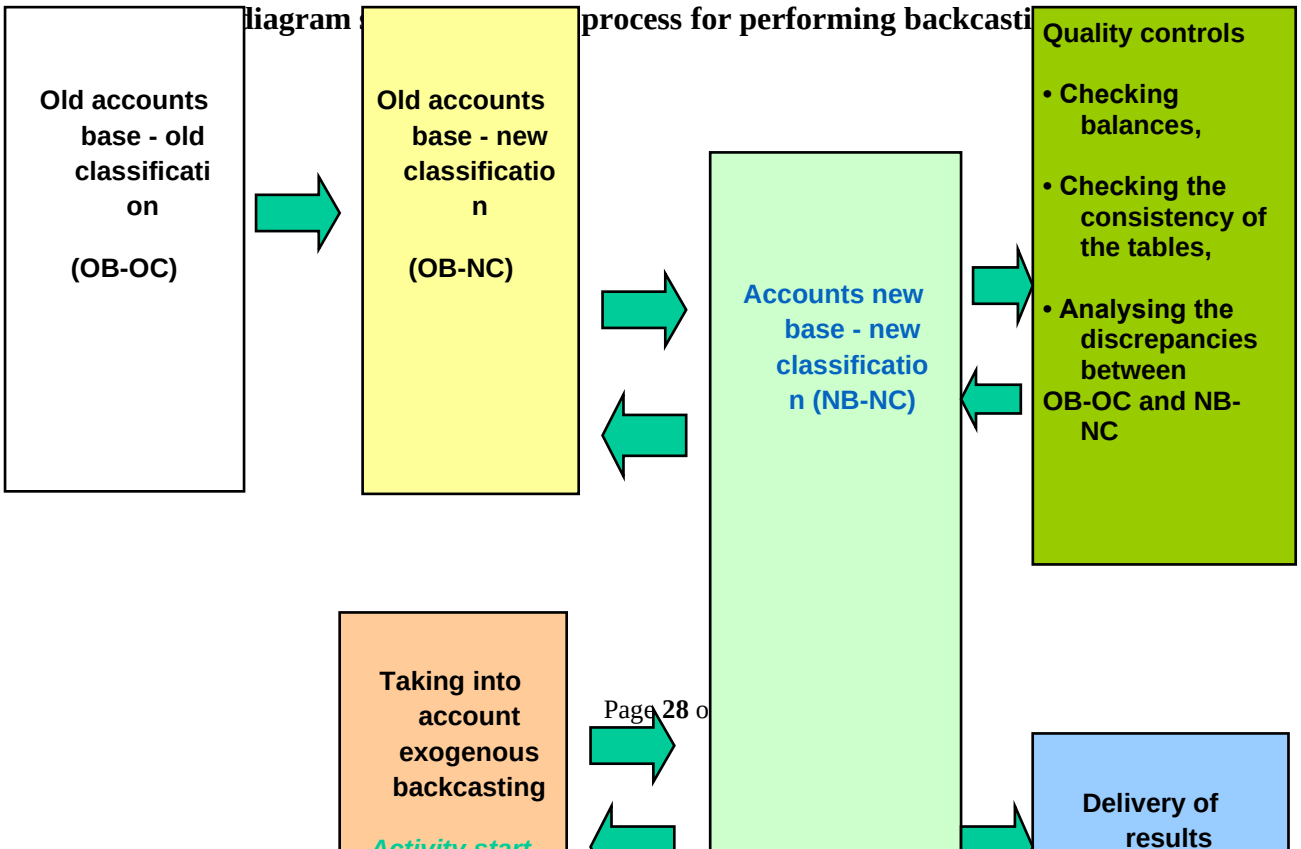
In the second case, you must use the step-by-step formula:

$$NBunbal_{t-1} = NBbal_t \; X(\frac{OBm_{t-1}}{OBm_t})$$

3.2.7. Aggregation

77. The result of the balancing exercise is achieved by the availability of coherent series and the reconciliation of the differences. Therefore, the next step is to aggregate the data to have the main macroeconomic indicators that reflect the structure of the newly established accounts. This process is carried out by making a summation of the backcasted accounts. For volume data, it should be noted that the chaining is performed by using the usual methodology of compiling volume accounts.
78. For the backcasting of the SUT (goods and services accounts), it is important to ensure the consistency of the overall data on goods and services that appear in the two tables, i.e. supply and use. The backcasting of the Integrated Economic Account Tables (IEAT) requires adjustment to the data of the backcasted SUT.
79. Overall data validation is done using quality controls by checking balances, economic consistency and gap analysis.

liagram s process for performing backcasti



OB: old base

OC: old classification

NC: new classification

NB: new base

Chapter 4: Analysis and validation of backcasted national accounts data

80. Analysing individual and aggregate consistency issues helps ensure balanced backcasted accounts. Consequently, it is important to conduct statistical, economic plausibility, and consistency analyses of the national accounts. Statistical analysis aims to identify outliers or document the impact of a significant change. Economic analysis aims to justify or challenge revision results and test the credibility of revisions based on knowledge of past economic

events. Examining the consistency of the national accounts involves verifying all accounting identities and consistencies across the sequence of accounts. At the end of the analysis and validation stage, the database must be consistent over time and accurately reflect macroeconomic developments.

4.1. Statistical analysis of the backcasted data

81. Statistical analysis involves comparing the old and new series and assessing the significance of the differences between them. In this regard, statistical significance tests can be used.
82. This exercise allows us to check whether the new series maintain the trends, especially the growth rates, or whether a deviation from the old series is observed. This enables us to identify aberrations and correct them if a particular fact does not explain the situation. Setting threshold[3] values facilitate the analysis of a typical data.
83. In practice, any revision of the growth level must be justified by economic facts and not for purely statistical technical purposes. Statistical validation therefore provides consistent series. Some errors noted may be the result of an unintended misapplication of a statistical technique or the detection of issues of consistency between the series explained by the methodology used.
84. It should be noted that the old series were developed based on a good understanding of the economic situation, events and institutional factors existing at the time the estimates were established. Ex post modifications that have a significant impact on key aggregates must have a specific effect due to a new source of information or the discovery of errors or problems in previous estimates or be based on a set of reasonably verifiable assumptions. For example, if the scope of assets has been modified, the statistical analysis will focus on revisions to Gross Fixed Capital Formation (GFCF) and the effects of this revision on balancing entries such as GDP).
85. If classification systems have been changed, statistical analysis of affected components and balancing entries should show very little revision in trend or level. The best approach at this stage is to perform a statistical analysis of revisions to the main balances, identify outliers, and delve deeper into individual consistency issues to explain the change. This exercise also allows for better linkage of the data with those already published.
86. This statistical analysis simply aims to compare the growth properties and trends of the main economic variables before and after the implementation of backcasting.

4.2. Economic analysis of backcasted data

87. Regarding the economic analysis of the results, the validation techniques that apply to the regular production of national accounts data are applied to the backcasted data. This consists of

[3] As an indication, when the discrepancy exceeds 5%, it is advisable for the national accountant to review the treatment.

using economic relationships and ratios to reinforce the credibility. For illustration purposes, the document presents some types of control.

4.2.1. Use of analytical ratios

88. Analytical ratios allow us to assess the credibility of the results of backcasting. The most used ones are:

- final consumption expenditure in relation to GDP (household FCE/GDP, government FCE/GDP, and NPISH FCE/GDP);
- ratios between taxes and their tax bases (income tax relative to GDP, VAT relative to tax revenue, etc.);
- household savings rates and national savings rates;
- investment rates (public and private);
- value added to output ratio.

89. In most cases, the ratios should show some stability over time. Some of them could be modified due to policy changes (to be specified), such as the introduction of VAT.

4.2.2. Taking into account economic events

90. In addition to ratio analysis, it is important to verify known economic events to ensure that the backcasted accounts accurately reflect these events. For example, a change in tax policy or the completion of major public works project must be dated and the impacts on the backcasted data visible.
91. Business cycles are an important part of macroeconomic analysis. However, cycles can be amplified or reduced due to the choice of backcasting methods when there is less data then simple linking methods are used.
92. Cycle analysis can be done using the percentage of expansions, contractions, accelerations and decelerations to assess whether economic cycles have been modified. If cycles have been expanded or contracted, there is need to determine to what extent this is due to mechanical revision practices or to new information and whether this result is credible.
93. Verification and/or validation is an iterative process. Once potential issues or discrepancies have been resolved, a new set of statistics must be calculated for use in the project documentation phase.

Chapter 5: Documentation, Communication and Dissemination of Backcasted National Accounts

94. This chapter describes some documentation models that can be used by national accountants in their communication strategy of backcasted results. The objective of the communication strategy for the backcasting project is to document the source data, the methods for dealing with consistency issues and to present an analysis of the revisions to the series in order to help users understand the impact of the changes.
95. Backcasting is generally done by mobilising many data sources and statistical techniques. As a result, important information has been collected and documented throughout the process. For this purpose, two types of documentation are necessary: (i) documentation of consistency issues for future use by compilers in any revision exercise and (ii) an overall report on the backcasting project that summarises the methods, especially balancing methods, and analyses the impact of revisions and validation techniques.

5.1. Documentation of consistency issues

96. Documentation involves gathering information about each consistency issue encountered at each step of the process and writing a summary document of all the specific changes made to correct them.
97. All working documents developed during the various phases of the project or as part of the broader process of updating the national accounts could be revised. This revision is carried out to include a section dedicated to backcasting in preparation for the public release of the backcasted series. In addition, documentation on specific procedure such as a change in classifications which explains the purpose of the new classification and the method(s) used to convert the old series into the new ones are shared.
98. These can be very useful for users of detailed national accounts (forecasters, quarterly national accountants, etc.) who need to adapt their own systems (databases, models or analytical products) due to the update of the SNA. Adding the details of the backcasting exercise also allows for the documentation of segments of the entire time series. Thus, a comprehensive document that explains the methodological approaches and analyse the results, sometimes relating to the quality of the source data is developed. The publication of the document is very useful to the community of National Account practitioners and constitutes an excellent professional opportunity for new national accountants.

Box 5.1: Documentation model for backcasting consistency problems

Documentation of backcasting revision issues, sources, methods and results
Description of the reason for revision
Revision issue such as adoption of the capitalization of Research and Development or implementation of new source data (e.g., business census, etc) should be documented. Any notes on background to the issue should be provided here.
Data Sources, times periods and quality
This section should document the attributes of the previously published data as well as the proposed backcasted data including time series length, source data, breakdowns available, quality assessment rankings (these attributes may need to be documented into time series segments)
Backcasting Method (s)
This section presents the method or methods of backcasting used for a specific consistency issue, including all underlying assumptions, whether implicit or explicit, in the implementation of the method.
Validation of results
Presentation of results including both qualitative interpretative analyses. For example, in the case of R&D capitalization this could include analysis of the impact on GDP. It could also include discussion of economic trends such as a cycle of mineral exploration or high technology, observed over in the historical period.
Results
This section focuses on the presentation of backcasted series with comparison to old series or aggregates. A graphical presentation is strongly recommended.

Source: Handbook on Backcasting, 12th meeting of the Advisor Expert Group on National Accounts, 27-29 November 2018, Luxembourg

99. This exercise allows for the documentation of individual data and useful information used to update public document on national accounts, such as sources and methods. If the document is not shared with the public, it will serve as a reference for national accountants in future years as part of their day-to-day activities and when changing the base year. Therefore, it is recommended that the document be carefully archived.

5.2. Documentation of the backcasted project

100. The purpose of the overall report on the backcasting project is to summarise the project and document the transition from the previously published set of accounts to the new set of consistent accounts. Best practice would be to prepare such a document for publication on the National Office Statistics Offices (NSOs) website to provide users with access to information on the methods used to re-estimate data to achieve consistency.

Table 5.2: Final report template for the backcasting project

Objectives of backcasting exercise
This section highlights the reasons that motivated the backcasting exercise and the expected results, particularly the creation of consistent time series of accounts over a given period. It specifies the accounts or set of time series targeted by the backcasting exercise, the reference period, and explains the basis for the choices made in terms of coverage, series, and timeline.
Overall approach to backwards estimation and integration

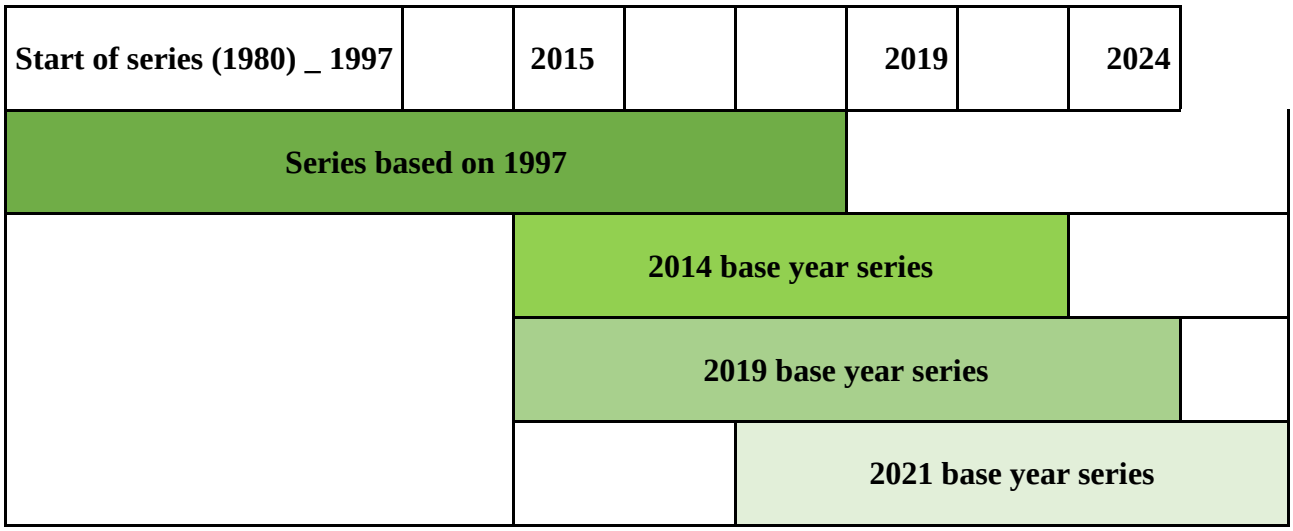
This section outlines the overall approach chosen in terms of backcasting and integration methods. For example, this section presents the methodology applied to produce the new estimates, from detailed data to aggregates. The choice made (growth preservation or full re-estimation) is also discussed in this section.
Analysis of results of the backcasting process
This section presents the analysis of backcasted data from both statistical and economic perspectives. It helps determine whether there are changes in the structure of the economy, in the distribution of income across sectors, or in wealth accumulation. All observed economic changes should be documented. Revisions to previous economic cycles and trends must be clearly explained from an economic standpoint. For example, capitalising R&D expenditure may result in a net increase in economic growth and wealth over a specific period, particularly during times of intensive investment in industries such as manufacturing, aerospace, or information technology. This analysis provides a summary of the information derived from the validation exercise carried out to confirm the overall results.
Discussion of consistency issues and results
This section should summarize the individual consistency issues addressed or at least the major consistency issues. For each issue it would include a brief description of the issues and an overview of the sources, methods and results. This draws heavily from the detailed documentation suggested above. For completeness, the document could include an appendix which includes the template information on all of the consistency issues.
Presentation and analysis of revisions
This final section presents a statistical analysis of the revisions. It should include many of the summary statistics used in the validation process to characterise the results. This type of analysis serves two purposes; first it helps the users to gain confidence in the new data, and second, it documents the effects of the specific backcasting exercise to distinguish these revisions as different from the regular revision process. This is important so that users and compilers do not treat these revisions in the same way as routine revisions when examining issues of bias, as this could give a misleading impression of the regular data cycle.

Source: Handbook on Backcasting, 12th meeting of the Advisor Expert Group on National Accounts, 27-29 November 2018, Luxembourg

Chapter 6: Implementation of backcasting within ECOWAS Member States

101. At the end of rebasing of national accounts, the results are published and the country adopt the new series. The change of base year often results in significant revisions. These revisions are linked to several specified factors. These are, notably, to changes in accounting recording principles, reclassifications of entities or methodologies following a new framework, changes in activities or institutional sectors or the inclusion of emerging activities. Thus, these revisions cause breaks in the time series.

Table 6.1: Example of time periods covered by the different national accounts' base **year**



Source: DRS, ECOWAS

102. Possible scenarios are described in the figure above. It is observed that the country or area has several series following the different rebasing exercises. Thus, while the accounts currently published ("base year 2021" according to national accounts terminology) cover the period from 2015 to 2024, there are also old series (known as "base year 1997") which cover the period 1980 and 2016. These are neither fully consistent or comparable with data from other years, which can be seen simply by comparing them over the overlapping period 2015 and 2016. Consequently, the new data series are no longer compatible with the old series.

103. The detailed and up to date information are no longer available for the users, particularly quarterly national accountants, researchers, and those responsible for monitoring convergence

indicators. As a result, they are limited in carrying out their assigned tasks. In response to this situation, the country undertakes backcasting of the national accounts.

104. ECOWAS, as the institution responsible for multilateral surveillance and monitoring, needs to have access to backcasted data from member states over a long period of time as quickly as possible. To assist Member States in the process of backcasting, a practical methodological compilation guide has been developed. The guide outlines a set of recommendations for member states based on data availability and quality.

105. This chapter suggests a set of methods structured in A/B/C based on availability of data, the quality of human resources, etc. It describes the methods that can be used to perform backcasting and then classifies them to improve the quality of the estimates.

- **Method A**: it is the most appropriate method (best approach);
- **Method B**: this is the replacement method that can be used in the event of a constraint on the application of Method A (second best);
- **Method C**: this is the one used in the event of a constraint on the implementation of **B** (third best).

6.1. Choice of the extent of backcasting at Member State level

106. Backcasting should make it possible to obtain a long series of national accounts that are consistent with both the new base year data (2021) and the changes in the previous base year data (2014). The various tables of the National Accounts are backcasted using the same method.

107. To start the backcasting process, it is necessary to have at least one year of accounts in the new database and in the old one. This is commonly known as the link year: for instance, the 2021 database is year 2021. Under the 2014 base, the final national accounts for 2021 had also been published prior to the implementation of the new base.

108. The determination of the scope of backcasting consists of assessing the level of detail for products, industries, institutional sectors, and summary tables, taking into account available data, human and material resources, and, where possible, users' needs. Furthermore, it depends on data quality, the duration of the backcasting, user needs, methodological changes, errors identified and improvements.

Method A

109. The definition of scope takes into account time, available data, methodological errors and changes, and concepts. The backcasting must include all published data (SUT and IEAT). Method A therefore involves reconstructing all of the established series and ensuring their balances.

Box 6.1: scope of the main tables (SUT and IEAT)

Supply and Use Tables (SUT)

The scope of backcasting includes production and transaction accounts. To this end, it is important to backcast the supply-use balances (SUB) and sector account (SA) available in the old database. Supply and Use must be balanced to ensure consistency.

The backcasting of the entire SUT makes it possible to develop:

- accounts by sector of activity and to calculate GDP using **the Production approach:**
- The supply and use balance by product and to calculate the GDP according to **the Expenditure approach:**
- and possibly the generation of earned accounts as a proxy to **Income approach:**

Scope of the Integrated Economic Account Tables (IEAT).

At this level, it is a question of proceeding with the backcasting with construction of institutional sectors accounts and establishing the backcasted IEATs. Its implementation is constrained by the availability of complete balanced accounts by institutional sector under the previous series.

Method B

110. Depending on the constraints and the coverage of the available data, it is possible to define a set of series to be backcasted in accordance with the accounting framework. Thus, the data allowing the calculation of the two (2) approaches to GDP (production and expenditure are

recommended for Member States. For countries that compile the SUT, the backcasting must cover at least the scope of the SUT.

Method C

111. In the presence of constraints related to data availability and coverage, all series to be backcasted must allow the compilation of expenditure-side GDP. In this case, the backcasting must be based on the following aggregates: final consumption, exports, imports, investment (GFCF, changes in stock and net acquisition of valuables).

6.2. Backcasting period

112. The backcasting period refers to determining the length of the series, that is, the number of years of accounts to be reconstructed. The choice of the backcasting period includes, in particular, the deadlines desired by users, the expertise of national accountants in charge of carrying out the exercise, financial resources, and other relevant constraints. The different recommended methods are presented below.

Method A

113. To meet the needs of researchers, forecasters, and stakeholders responsible for monitoring economic activity (including convergence criteria) it is recommended to use the entire period covered by the country's previous series available for the backcasting.

Method B

114. National Statistical Offices may face several challenges, particularly financial or time constraints, in carrying out a complete backcasting of the series. Hence, it is recommended to recompile the data at least up to the last base year. This will provide researchers, modellers, and policymakers with a minimum set of data to perform their work. Similarly, institutions responsible for forecasting macroeconomic indicators and modelling will have the necessary inputs to project aggregates.

Method C

115. The last case is the one in which a major challenge is imposed on national accountants, namely the need to align all economic indicators with the results of the rebased and published figures, in particular the quarterly national accounts. In this case, the backcasting covers at least a series of five (5) years in accordance with the minimum requirements of the IMF for producing quarterly national accounts.

6.3. Implementation of the backcasting classification (OB, OBm, NB)

116. National accounts are compiled based on established classifications, particularly those relating to activities and products. Generally, when changing base years, Countries take the opportunity to highlight the main products and activities used in the country. These improvements may lead to changes in classifications, structure of the economy and economic transactions.

117. Thus, the starting point for implementing backcasting is to carry out a transition of the old codification to the new one. Below are the different scenarios:

- ***The one-to-one relationship***

118. The one-to-one relationship corresponds to a situation where the level of detail of the two classification matches. For example, paddy rice is considered at the basic level of the product classification for both base years.

- ***The one-to-many relationship***

119. This situation corresponds to a splitting of a product from the old classification into several products in the new one. This relationship is often noted when national accountants have better quality and detailed data. It is also the case when the product is growing or when observing the group's by-products. For example, vegetables are broken down into several products (onions, tomatoes, watermelons, other vegetables).

- ***The many-to-one relationship***

120. The many-to-one relationship reflects a situation where the old classification detailed several products that are grouped into one in the new classification. The example of fish, which is broken down in the old classification according to the water sources (fresh water, sea, aquaculture, etc.) into a single fish product, is a plausible situation.

- ***The zero to one relationship***

121. It may happen that a country adds a new product when preparing national accounts in order to improve the coverage of the accounts or to implement a recommendation from international standards. In this case, the product does not exist in the old classification and requires a comprehensive collection to be carried out. For example, the integration of illegal activities (cannabis products or prostitution) or mining exploration.

Table 6.1: Illustration of the different relationships between the backcasting classification

1 to 1 relationship			
A00010004	Paddy rice	A01010004	Paddy rice
1 to many relationship			
A00030001	Vegetables	A01030001	Onions
		A01030002	Tomatoes
		A01030003	Watermelons and melons
		A01030004	Other vegetables
Many to 1 relationship			
A00040001	Fresh water fish	A00040001	Fishes
A00040002	Marine fish		
A00040003	fish farming (aquaculture)		
Relation 0 to 1			
		A01050000	cannabis
		C07010003	Cocaine, heroin

Source: DRS, ECOWAS

122. The initial stage for implementing backcasting is the establishment of the backcasting classification. This is most often a synthetic classification that takes into account the changes introduced in the new classification, the availability of data, the working time for the preparation of retrospective accounts, etc. This work will allow the establishment of a make matrix. This will only require the three classifications (**OB**, **OBm**, **NB**).

123. Also, it should be noted that this exercise will make it possible to identify the activities and products for which recompilation is carried out and where an indirect method can be applied. The recommendation is to use the most detailed classification possible to carry out the backcasting of the accounts.

Method A

124. At the Member States level, it is recommended to use the detailed and updated classifications to carry out the backcasting. The classification takes into account changes and data availability.

Method B

125. In the event that the correspondence is not perfect and there are significant changes, the modified old classification is recommended. This detailed version allows the construction of correspondence tables between the two classification. It also allows for the detailed reconciliation of old and new series. A varying level of detail can be established.

Method C

126. It recommends to maintain the classification at the higher level (level 1) where there are major constraints in conducting the backcasting at a detailed level. However, if possible, a more detailed classification (level 2) may be used as an intermediary to construct the bridge tables.

127. The established classification will be used to construct bridge tables for each activity in order to convert historical data in the old classification into the new classification. This exercise is carried out by using the known relationships between the series during a common reference period often referred to as transition period to extrapolate the time series in the new standards

into the already established periods. Thus, transition factors are calculated over several periods in order to minimise the influence of volatility.

128. At this stage, changes in classification or methodological choices are identified and the exercise is broken down into two groups which inform the selection of the methodological approaches to be used.

129. For example, in an economy where the activity of transport and storage services have become very important. Consequently, it was recommended to split the old sub-sector "transport and storage services" into several activities, including land, water, air, and warehousing and auxiliary transport activities. Thus, during backcasting exercise, it is important to have detailed data on the main activities to better account for the improvements. The table below shows the approach to be adopted to allocate the data from the old series according to the old modified classification.

Practical case: Example of calculating transition factors for the case of 'one to many' relationship conversions of historical series from the old classification to the new classification:

130. In order to meet the needs of users and authorities in charge of transport sector policy, the country has decided, as part of the exercise to change the base year of its national accounts, to subdivide the transport sector into several sub-sectors. This reconfiguration enables the classification by activity (land, water, air). It also highlight the warehousing activity and auxiliary transport activities.

131. Thus, the conversion factors of the old series are calculated from the new data presented in the table below.

Table 6.2: Calculation of transition factors for the Production of Transport and Warehousing Services

New base 2021__Ratio (val/ tot_val) %		
Land transport services	255,024	61
Water transport services	26,587	6
Air transport services	73,850	18
Warehousing and auxiliary transport activities	59,780	14

Source: DRS, ECOWAS

The analysis of Table 6.2 shows that 61% of the production of transport activities comes from the land transport sub-sector. On the other hand, water transport and warehousing activities and auxiliary transport activities represent 6% and 14%, respectively.

132. To modify the old classification which grouped all the activities in a single sub-sector, it is assumed that the structuring of the activity has always been the same. Thus, the level of the old base is modified by applying the ratios obtained on the entire series to be backcasted. This exercise led to the following table:

Table 6.3: Use of the transition factor to allocate the production of transport and warehousing services

Transport and storage	770,491	861,989	951,493	1,002,844	1,112,890	1,226,719	1,336,775
Old classification modified							
Land transport services	473,204	529,398	584,368	615,906	683,491	753,401	820,992
Water transport services	49,333	55,191	60,922	64,210	71,256	78,544	85,591
Air transport services	137,031	153,303	169,222	178,354	197,926	218,170	237,743
Warehousing and auxiliary transport activities	110,923	124,096	136,981	144,374	160,217	176,604	192,448

Source: DRS, ECOWAS

In summary, the shares of the positions in the new classification (year 2021) are first calculated. These are then used to allocate all the old data into the sub-sectors of the new classification.

133. Some tips for transition factors

- This method works best when undertaken at the lowest possible level of disaggregation (subdivision or even ISIC class level).
- Transition factors should ideally be calculated to cover a period to minimise short-term fluctuations in industries.

- It is necessary to ensure that key economic events, such as the rise or decline of industries, are not dismissed as part of the transition factors.

6.4. Note on some methodologies for reconstructing the accounts

134. The methodology section reviewed all the backcasting techniques that can be used to reconstruct old series in the concepts, classification and structures of the new classification. A descriptive summary of the main techniques is given in this section.

135. **Recompilation or bottom-up estimation** refers to compiling new estimates. It involves building these estimates from the components of the source data in order to estimate the variable or account in question. The approach may involve the use of new data source for the past period and the compilation of estimates using a bottom-up methodology. It may also require transforming previously used data sources to the new base, making use of make matrices or additional data. The estimates are then compiled using the method consistent to the new approach. This process may also involve the use of microdata and a complete re-estimation, from individual transactions or institutional units to aggregates.

136. This approach is often used for time periods that are not too far in the past. It is applied to periods for which the source data are available electronically and of good quality. An example of using the bottom-up method could be the implementation of a new recommendation (FISIM, non-life insurance, etc.) or methodology (imputed rent) or the consideration of a new activity.

137. In terms of quality, the recompilation or bottom-up approach produces the most robust results. However, it has several drawbacks: resources (financial and human constraints), lengthy process, and availability of detailed source data in the form of consistent time series for past periods.

Example: implementation of the SNA recommendation for estimating output of non-life insurance.

138. This example relates to a scenario where the country has a data set that allows it to implement the 2008 SNA recommendation. This recommendation concerns the calculation of non-life insurance output using the expectations method within an econometric model. Thus, the country has the detailed data for the period 2014-2021 it used to estimate adjusted claims [4].

Table 6.4: calculation over the backcasting period for the output of non-life insurance.

[4]For the method of calculating production, the reader is referred to the common methodological guide for compiling annual national accounts for ECOWAS states according to the 2008 SNA

Non-life insurance_2014	2015	2016	2017	2018	2019	2020	2021	
Premium	66,861	67,987	71,105	72,204	78,691	86,556	99,613	101,624
Claims incurred	30,509	38,389	29,168	28,367	33,308	34,069	31,775	39,985
Adjusted claims incurred	31,046	30,883	31,273	30,591	32,620	34,612	38,335	38,477
Non-life Insurance Output – Old Method								
Non-life insurance Output	35,815	37,104	39,832	41,613	46,071	51,944	61,278	63,147

Source: DRS, ECOWAS

139. **Linking or joining** is generally used when no direct data source is available to recompile variables to the new base. The new national accounts dataset and the old dataset must overlap for at least one period.

140. For example, in the context of a change in the method for calculating non-life insurance output, it may happen that the detailed series is not available beyond 2014. However, overall insurance output is available over a long period (1999-2021). Consequently, the backcasting of non-life insurance output can be supplemented by a linking method by applying the growth of insurance activity backwards to backcast the series over the periods 1999-2013.

141. ***Retrapolation*** on the other hand refers to backward estimation. It is performed by applying the ratio between the new and old series to the overlap period in order to extend the series to the initial date. It increases or decreases the level of the historical series, while maintaining the growth rate of the historical data set in the new series. This method assumes that the phenomenon leading to the divergence is present throughout the historical time series in constant proportion to the old series.

Table 6.5: example of the backcasting of a series

Series_2016	2017	2018	2019	2020	2021	2022	2023	
New series						121	137	187
Old series	45	58	75	80	103	117	129	154
Historical growth rate		28.9%	29.3%	6.7%	28.8%	13.6%	10.3%	19.4%

Source: DRS, ECOWAS

142. In the above, a change in methodology in 2021 increases the level from 117 to 121 at the end of the country's rebasing exercise. This creates a break in the old series with a sudden increase from 13.6% to 17.5% (121/103) between 2020 and 2021. The retrapolation method recalculates the old series by applying the ratio (121/117) of the value at the overlap period (2021) to the historical period.

143. The new series is recalculated as below. The level of the historical series has increased but the growth rates are maintained.

Table 6.6: the backcast series over the period 2016 - 2023

New series reconstructed	46.5	59.98	77.56	82.735	106.52	121	137	187
Growth rate of the new backcasted series		**28.9%**	**29.3%**	**6.7%**	**28.8%**	**13.6%**	**13.2%**	**36.5%**
Old series	45	58	75	80	103	117	129	154
Historical growth rate		**28.9%**	**29.3%**	**6.7%**	**28.8%**	**13.6%**	**10.3%**	**19.4%**

Source: DRS, ECOWAS

144. ***Interpolation*** consists of extending a series backward. However, the data to be backcasted are bounded by at least two (2) specific values in the past. The method assumes that the gap was generated over the period of the time series, and that the gap has increased over time. It therefore modifies the growth of the original series by a constant factor. It is used when the new variable has been estimated using a sound statistical procedure and the level of that year is to be considered as a reference, for example, when the data for the last rebasing year are developed from those of a general census of businesses and a household consumption survey.

145. The advantages of the linking or joining method are that it is simple to apply and does not require detailed data. However, the method assumes that the impact of changes in the overlap period is the same for the entire backcasted period.

146. In **the metadata-driven approach**, the NSOs compiling the national accounts statistics does not attempt to link the old national accounts series to the revised series, but provides metadata explaining the differences between the old and new series. In this regard, users may experience difficulties in compiling the series on their own, which may led to several versions of the time series compiled by different users. However, it is strongly recommended that the NSOs carry out the backcasting.

147. The presented methods can be combined depending on the data, constraints, and other aspects. In general, in Member States, archiving systems and the availability of quality data over a long period are lacking. Thus, the proposed methods are:

Method A

148. If detailed data are available, the backcasting should be split into several stages to enhance quality of the estimates. For example, identify the periods where detailed quality data are available, those where aggregated data is gathered and those for which indicators can be used. In such a case, it is recommended to use a mixed approach, i.e., carry out the bottom-up method for the available data and carry out the retrapolation for the other periods of the series.

Method B

149. In the case where the country has carried out several rebasing of the national accounts and the data used to prepare the new accounts are not available in the years of rebasing (ad hoc activities including surveys, censuses), it is recommended to use a mixed method combining retrapolation and interpolation, taking care to ensure compliance with the economic realities

observed and reflected by the old accounts (rebasing year). Interpolation is recommended at this level because the rebasing years correspond to situations where the data are of good quality and reflect well the economic structure of the country.

150. It is important to emphasise that the country must assess its accounts by examining and evaluating major data collection activities, the soundness of the methodologies used and compliance with international recommendations.

Method C

151. In cases where countries do not have a long history of rebasing and are generally in their first or second exercise, it is recommended to use the retrapolation method while maintaining economic growth rates.

6.5. Backcasting of the main economic activities

152. In the previous paragraphs, it is indicated that it is recommended that the retrapolation covers at least the scope of the SUT. Therefore, it is often advisable to use bridge tables to automate tasks by calculating changes. This is often referred to as the stage of setting up the IT infrastructure or facility.

153. Given the large number of series to be backcasted, it is advisable to apply a backcasting algorithm which will be the core methodology and which is detailed in this case. Because of the difficulty of making choices adapted to all situations, the backcasting methods of some activities are presented in this section.

6.5.1. Backcasting of Output

154. Output levels by product according to the backcasting classification is available or constituted using the different approaches set out in this document. Therefore, it is important to show the approach to adopt in reconstructing output so that the old series is consistent with the new available indicators;

$$OutputNC_{t-1} = OutputNC_t \; X\left(\frac{Output\ OBm_{t-1}}{Output\ OBm_t}\right)$$

where:

$Output\ NC_{t-1}$ output of the product according to the new classification in period t-1

$Output\ NC_t$ the output of the product according to the new classification in period t

$Output\ OBm_{t-1}$ output of the product according to the old classification modified in period t-1

$Output\ OBm_t$ the production of the product according to the old classification modified in period t

155. The implementation of this approach makes it possible to have outputs that conform to the new structure of the economy and which maintain the observed changes in the past.

156. For products whose calculation methodologies have changed, the bottom-up method will allow production to be estimated for the available period. Transition factors derived from the structures will then be used to extend the estimates over the entire backcasting period.

6.5.2. Backcasting of Intermediate Consumption

157. The backcasting of intermediate consumption is carried out on the supply and use balance (SUB) and use sides which is obtained from the sectoral accounts (SA).

158. For the supply of intermediate consumption, the approach used to estimate the value in the base year can be repeated. This specifically involves applying coefficients for the changes of the level of intermediate consumption from the old series to the new reference value.

159. For sector accounts, the country may decide to maintain value added by applying the reality obtained at the level of implementation of the make matrices. Given these conditions, the changes of output are reflected in value added and intermediate consumption is then derived. Its allocation across the different products in demand can be based on the structure of inputs of the new base year of each sector. This approach is similar to that of the projection of intermediate consumption.

160. Alternatively, the country may decide to independently backcast intermediate consumption and deduct the value added. In this case, it is more appropriate to identify all the products used by each sector of activity to estimate them using an approach similar to that used to obtain output. This approach is more relevant for volume indicator, and an appropriate price index is used to obtain the historical value.

6.5.3. Backcasting of Value Added

161. The development of national accounts enables the establishment of a value-added coefficient that tends to become stable over time when production techniques are mastered by the different sub-sector. Backcasting is based on the principle that the value-added rate of the previous accounts is respected and the backcasting is done using the following formula below.

For a sub-sector j,

$$VA_{(t-1)j} = k_{(t-1)j}\, X\, Output_{backcast\,(t-1)j}$$

where: $Output\_backcast_{(t-1)j}$ is the backward-projected output of sub-sector j to year t-1

$VA_{(t-1)j}$ is the backcasted value added of sub-sector j to year t-1

$k_{(t-1)j}$ is the coefficient of the value added of sub-sector j in year t-1. This coefficient can be obtained in the base year or that of the old base obtained for sub-sector j. As the old national accounts takes account of all aspects related to economic events, it is recommended to maintain the old coefficients to avoid economic inconsistencies.

162. It is important to note that a country cannot backcast intermediate consumption and value added at the same time. A choice should be made regarding which indicator to backcast, depending on the country's national accounts compilation process, and the other should then be derived. For countries that compile Supply and Use Tables (SUT), priority is given to the backcasting of intermediate consumption.

6.5.4. Backcasting of final consumption

163. The backcasting of final consumption follows the same principle as that of output. Its backward estimation must, however, consider the approach used for its estimation in the context of rebasing exercise or the old annual national accounts. If it is based on an extrapolation method from a volume and price indicator, the backcasting can be done using the same approach.

164. However, if this is not the case, it is necessary to use the changes to recompile the series in the past.

165. The same principle applies to all transactions involving goods and services. However, for foreign trade, the level of the old accounts can be maintained if the country considers the customs data to be exhaustive and accurate. However, changes to the classification must be taken into account.

166. Since all the aggregates used in the compilation of supply and use balances are available for the different products, it is up to national accountants to calculate the SUB and SA in order to compile the backcasted SUT.

6.5.5. Backcasting of the Supply and Use Table (SUT)

167. Backcasting is recommended for countries that compile annual SUT. Thus, the approach described here aims to highlight the different stages in creating the backcasted SUT. It begins with an approach to extend the SUB into the past, then the sub-sector accounts before commence the exercise on the intermediate consumption table (ICT).

6.5.5.1. Backcasting of SUBs

168. Estimates made using the bridge tables allow for the historical values of the various national accounting activities on goods and services to be available. The development of the SUB will consist of aligning supply and use and balancing them for the different products. The new series must have the same reference point and maintain the changes from the old database.

169. To balance the SUB for a given year *t*, the gap between supply and use is calculated and this is distributed among certain activities in proportion to their weight in the SUB (recommended base year methodology). For every year t-1 to be balanced, we start from the balanced SUB of year t to deduce that of t-1.

170. The next step involves backcasting exogenous factors. This backcasting is typically applied to activities that have undergone changes in concepts, scope, classification and methodological improvements, such as FISIM, household final consumption, imputed rents, etc.

6.5.5.2. Backcasting of the sectoral account (SA)

171. The recommended approach for backcasting sectoral accounts is to combine output and value added (IC demand). However, maintaining backcasted value added may be a constraint. As such, an adjustment is made at the IC level to align with the values obtained.

6.5.5.3. Backcasting of Intermediate Consumption Tables (ICT)

172. The bridge tables provide an initial estimate of all the products demanded by the sectors of activity. This step is carried out using a similar approach to that used to backcast the SUBs. Thereafter, the arbitration phase to resolve the gap between supply and use is initiated. At this stage, it is suggested to align with the intermediate consumption supply from the SUBs to avoid repeating the work of calibrating the SUBs. Thus, the sub-sector levels are adjusted by carrying out a pro rata allocation.

173. Once the second versions of the series are obtained, it turns out that the accounting equalities are no longer respected.

174. To re-establish these accounting equalities, successive adjustments are carried out for each operation. Each time an equality is adjusted, the values are no longer modified, including subsequent adjustments. The order of successive adjustments is defined so that all accounting equalities can *ultimately* be verified.

Box 6.2: A practical case of implementing balancing procedure to reconcile simplified supply and use for a product.

For the use side: intermediate consumption (IC) and final consumption (FC).

Supply side on the other hand, are composed of output and import.

Accounting equality is ensured within the framework of the work of developing the national accounts for the years 2019 and 2020 based on 2014.

Backcasting methods made it possible to have a new estimate of the different use and supply. For the year 2020, equality is verified while an imbalance between supply and use is noted for 2019 (see table below).

Table 6.7: balancing of supply and use data

	Use				**Supply**			
	base 2014							
Year	Intermediate Consumption (IC)	Final Consumption (FC)	Total Use	Growth	Output	Import	Total Supply	Growth
2020	121	504	625	13%	300	325	625	13%
2019	101	450	551		275	276	551	
	base 2021							
2020	141	615	756	25%	323	433	756	29%
2019	111	495	606		287	298	585	

Source: DRS, ECOWAS

This discrepancy is observed following the implementation of backcasting. Accordingly, it becomes important to carry out a balancing of the data for the year 2019 to correct the inconsistencies.

To do this, the calculation is based on the use of a coefficient α. The latter is obtained by applying the formula $\alpha=\sqrt{\frac{IC+FC}{Total\ supply}}$

Digital application

$\alpha = \sqrt{\frac{111+495}{585}} = 1.01779047$

The calibrated coefficient is applied to each supply by multiplying the amount by the coefficient (1.01779047*287). As for use, they are divided by the coefficient (111/1.01779047).

Table 6.8: Rebalanced table using the balancing methodology

	USE				**SUPPLY**			
	Base 2014							
Year	Intermediate Consumption (IC)	Final Consumption (FC)	Total Use	Growth	Output	Import	Total Supply	Growth
2020	121	504	625	13%	300	325	625	13%
2019	101	450	551		275	276	551	
	Base 2021							
2020	141	615	756	25%	323	433	756	29%
2019 before timing	111	495	606		287	298	585	
2019 after calibration	109.1	486.3	595.4		292.1	303.3	595.4	

Source: DRS, ECOWAS

6.5.6. Analysis and validation: impact of backcasting on series obtained

175. Backcasting process is likely to modify the developments observed in the previous database for three distinct reasons: structural effects, taking into account improvements linked to changes in methodology or sources, and balancing during the backcasting exercise.

6.5.6.1. Structural effects

176. If the levels of the base year change in a manner that is not proportional to the detailed level of the classification, even if the changes remained unchanged compared to the previous base, there is a structural effect which will modify the change in the aggregate.

6.5.6.2. Taking into account new improvements

177. Additional data available during the backcasting period, allows changes to be made to the old database, also contributes to revisions to the aggregate's change. These changes are easily traceable because they are directly linked to changes in the new base.

6.5.6.3. Balancing

178. Finally, the rebalancing step for use and supply adds a third level of modification to the changes of the aggregate. Indeed, when the backcasting of the lower levels of supply and use by the growth rates results in a total of use different from the total of supply, the balancing step is necessary to re-establish equality. It then modifies the volume at the lower levels, and therefore also modifies the growth rates.

179. For a given aggregate, from one year to the next, the accumulation of the three factors affecting changes can result in revisions which are not necessarily in the same direction each year.

Chapter 7: Case study of backcasting of national accounts

180. In order to reflect the economic development experienced by the country, the team responsible for compiling the national accounts of NACED undertook a revision of the national account statistics. To this end, 2022 was selected as the new base year, for which the final accounts under the previous 2000 base are available.

181. The rebasing work was marked by a revision of the classification, improvement in the coverage of data sources and statistical methods, as well as the implementation of the changes of the 2008 SNA. These include the estimation of the central bank's output, the application of the new method of calculating non-life insurance, the improvement of the calculation of FISIM.

182. This exercise led to the establishment of a new series of national accounts which resulted in a revaluation of the level of GDP and other macroeconomic aggregates (HFCE, GFCF, etc.). In order to ensure consistency across various economic statistics, the country initiated the backcasting of the national accounts. This process incorporates the changes into the previous series and to provide users with consistent time series reflecting the country's economic history.

183. This chapter presents a case study of backcasting. It implements the practical approach described in Chapter 6 of this guide. It revisits the main steps of backcasting by applying the backcasting of the principal operations over the selected period and provides an example of the backcasting of a SUT for a given year. It should be noted that all the series relating to the previous base are included in the annex to this document.

7.1. Scope of backcasting

184. In order to provide users with consistent data series, the country decided to backcast its goods and services accounts, including the SUT. Specifically, this involves backcasting output, intermediate consumption, imports, and final uses (final consumption, gross fixed capital formation, changes in inventories, and exports). Furthermore, the country will backcast the SUT for the year 2021.

7.2. Choice of the backcasting period

185. The choice of the backcasting period was guided by the needs of users, including forecasters, modelers and analysts, who rely on national accounts data for research, monitoring and evaluating economic policies. Consultations with these stakeholders highlighted the need for long, consistent time series. Accordingly, NACED decided to backcast the entire available series of national accounts, particularly the period from 2000 to 2021.

7.3. Choice of the backcasting classification

186. The compilation of the previous old national accounts was carried out using a classification comprising of 22 industries, 22 product and covering production operations, external trade, intermediate and final consumption as well as GFCF and changes in inventories.

187. During the base year revision, the country disaggregated its classification, which now consists of 39 industries and 39 product groups.

188. Therefore, it becomes appropriate to establish a bridge table. The development of this backcasting classification is carried out taking into account the main needs of users. The work of the specialised working group established for this purpose led to the following conclusions:

- agricultural products must be disaggregated and the classification of the new base is retained;
- livestock products is subdivided into cattle, sheep and goats and other livestock products;
- for agro products, it was decided to group beverages with other agricultural products together and to isolate the others detailed in the new classification;
- for transport, the backcasting should distinguish land transport services and take into account the change whereby postal and courier services are now included under transport (change in ISIC Rev.4);
- information and communication services have been subdivided into telecommunications services and other information and communication services. Likewise, communication services no longer include postal and courier services (see transport services).

189. Ultimately, for the purposes of backcasting, the retained classification consists of 35 products and 35 industries, compared with 39 products and 39 industries in the new series.

Table 7.1: The different classification between the old and new base

Old base classification (OC)		**New base classification (NC)**	
Code	**Label**	**Code**	**Label**
A01	Agriculture, hunting and related activities	A01	Agriculture and related activities
	Cereal and other crops n.a.	A01 01	Cereal crops
	Tuber and pod vegetable crops	A01 02	Tubers
	Vegetable farming; horticulture; nurseries	A01 03	Vegetables and spices

		A0104	Other agricultural activities
A02	Livestock farming	A02	Livestock farming, hunting and related activities
	Cattle, sheep, goat and horse breeding	A0201	cattle, sheep, goats
	Poultry farming	A0202	poultry
		A0203	Other livestock farming, hunting and related activities
A03	Forestry, logging and related activities	A03	Forestry and logging
B00	Fishing, fish farming and aquaculture	A04	Fishing and aquaculture
C00	**Extractive activities**	B00	Extractive activities
C0001	Crude oil and natural gas extraction	B0001	Hydrocarbon extraction
C0002	Extraction of metallic ores	B0002	Extraction of metallic ores
C0003	Other extractive activities	B0003	Other extractive activities
D15	Food and beverage manufacturing	C01	Manufacture of food products, beverages, tobacco
	Slaughtering, processing and preservation of meat and fish	C0101	Slaughtering, processing and preservation of meat and fish
	Fat production	C0102	edible fats
	Grain processing, manufacturing of starch products	C0103	Grain and starch product processing

	Beverage manufacturing	C0104	Drinks
	Food product manufacturing n.e.c.	C0105	Other activities related to the manufacture of food products and tobacco
D18	Textile manufacturing	C02	Textile, clothing and leather manufacturing
D23	Oil refining, coking, nuclear industries	C03	Coke production and petroleum refining
D36	Manufacturing activities n.a.	C04	Other manufacturing activities
E01	Electricity production and distribution	D00	Electricity and gas production and distribution
E02	Water collection, treatment and distribution	E00	Water collection, treatment and distribution
F00	Construction	F00	Construction
G00	Automobile sales and repair	G00	Trade and repair of automobiles and motorcycles
		G0001	Sales and repair of automobiles and motorcycles
		G0002	Other shops
I00	Transport and communication	H00	Transportation and storage
		H0001	Road transport
		H0002	Air transport
		H0003	Other transport and storage

H01	Hotels and restaurants	I00	Accommodation and catering activities
I02	Transport and communication	J00	Information and communication
		J0001	Telecommunications services
		J0002	Other information and communication services
J00	Financial and insurance activities	K00	Financial and insurance activities
	Financial activities	K0001	Banking and microfinance services
	Insurance	K0002	Insurance services
	Financial and insurance auxiliary activities	K0003	Other financial and insurance services
K01	Real estate activities	L00	Real estate activities
K02	Other business service activities	M00	Other business service activities
L00	Public administration activities	O00	Public administration activities
M00	Education	P00	Education
N00	Health and social action activities	Q00	Human health and social action activities

Source: DRS, ECOWAS

Table 7.2

Backcasting classification

Code	**Label**

A01		Agriculture and related activities
	A0101	cereals
	A0102	Tubers
	A0103	Vegetables and spices
	A0104	Other agricultural activities
A02		Livestock farming, hunting and related activities
	A0201	cattle, sheep, goats
	A0202	Other livestock farming, hunting and related activities
A03		Forestry and logging
A04		Fishing and aquaculture
B00		Extractive activity
B0001		Hydrocarbon extraction
B0002		Extraction of metallic ores
B0003		Other extractive activities
C01		Manufacture of food products, beverages, tobacco
	C0101	Slaughtering, processing and preservation of meat and fish
	C0102	edible fats
	C0103	Grain and starch product processing
	C0105	Other activities related to the manufacture of food products and tobacco

CO2	Textile, clothing and leather manufacturing
CO3	Coke production and petroleum refining
CO4	Other manufacturing activities
D00	Electricity and gas production and distribution
E00	Water collection, treatment and distribution
F00	Construction
G00	Trade and repair of automobiles and motorcycles
H00	Transportation and storage
H0001	Road transport
H0003	Other transport and storage
I00	Accommodation and catering activities
J00	Information and communication
J0001	Telecommunications services
J0002	Other information and communication services
K00	Financial and insurance activities
K0001	Banking and microfinance services
K0002	Insurance services
K0003	Other financial and insurance services
L00	Real estate activities
M00	Other business service activities
O00	Public administration activities
P00	Education

Q00	Human health and social action activities

Source: DRS, ECOWAS

7.4. Transformation of data from the old base according to the backcasting classification

190. The transformation of data from the old series into the backcasting classification requires the use of ratios. The method for calculating the transition factor is already described in Chapter 6. In this case, the ratio is derived from data from the new base, which is more disaggregated for certain activities or products. The calculated ratio is then applied to the output from the old base, which is more aggregated.

Table 7.3: Supply and Use Table – according to the previous base year

Output of activities

	Supply of products	Total supply at purchasers' prices	Trade margin	Total supply at basic prices	A01 Agriculture and related activities	A02 Livestock, hunting and related activities	A03 Forestry and logging	A04 Fishing and aquaculture	B00 Mining and quarrying	C01 Manufacture of food products, beverages and tobacco	C02 Manufacture of textiles, wearing apparel and leather	C03 Coke and refined petroleum products	C04 Other manufacturing activities	D00 Electricity and gas supply	E00 Water collection, treatment and distribution	F00 Construction	G00 Trade, repair of motor vehicles and motorcycles	H00 Transport and storage	I00 Accomodation and food service activities	J00 Information and communication	K00 Financial and insurance activities	L00 Real estate activities	M00 Other business services	O00 Public administration activities	P00 Education	Q00 Human health and social work activities	Total output by industry	Imports			
A01	Products of agriculture and	2313	362	1951	1702																						1702	249			
A02	Products of livestock, hunting	823	111	712		708																					708	4			
A03	Products of forestry and logging	83	24	59			57																				57	2			
A04	Products of fishing and	292	95	197				191																			191	6			
B00	Products of mining and	4020	36	3984					1830																		1830	2154			
C01	Food products, beverages and	4137	908	3229						2527																	2527	702			
C02	Textiles, wearing apparel and	571	209	362							174																174	188			
C03	Coke and refined petroleum	3122	540	2582								1397															1397	1185			
C04	Products of other	4628	671	3957									222														222	3735			
D00	Electricity and gas	1033		1033										1033													1033	0			
E00	Water collection, treatment	339		339											339												339	0			
F00	Construction works	2194		2194												2194											2194	0			
G00	Sales	250	-2956	3206													3206										3206	0			
H00	Transport and storage services	1298		1298														1155									1155	143			
I00	Accommodation and food	523		523															523								523	0			
J00	Information and	1131		1131																1067							1067	64			
K00	Financial and insurance services	1074		1074																	957						957	117			
L00	Real estate services	1426		1426																		1426					1426	0			
M00	Other business services	965		965																			783				783	182			
O00	Public administration services	1450		1450																				1450			1450	0			
P00	Education services	1049		1049																					984		984	65			
Q00	Human health and social work	478		478																						474	474	4			
	Total	**33199**	**0**	**33199**	**1702**	**708**	**57**	**191**	**1830**	**2527**	**174**	**1397**	**222**	**1033**	**339**	**2194**	**3206**	**1155**	**523**	**1067**	**957**	**1426**	**783**	**1450**	**984**	**474**	**24399**	**8800**			

Intermediate consumption of activities

	Use of products	Total use at purchasers' prices	Trade margin	Total use at basic prices	A01 Agriculture and related activities	A02 Livestock, hunting and related activities	A03 Forestry and logging	A04 Fishing and aquaculture	B00 Mining and quarrying	C01 Manufacture of food products, beverages and tobacco	C02 Manufacture of textiles, wearing apparel and leather	C03 Coke and refined petroleum products	C04 Other manufacturing activities	D00 Electricity and gas supply	E00 Water collection, treatment and distribution	F00 Construction	G00 Trade, repair of motor vehicles and motorcycles	H00 Transport and storage	I00 Accomodation and food service activities	J00 Information and communication	K00 Financial and insurance activities	L00 Real estate activities	M00 Other business services	O00 Public administration activities	P00 Education	Q00 Human health and social work activities	Total intermediate consumption	Exports	Final consumption	Gross fixed capital formation	Changes in inventories
A01	Products of agriculture and	2313			77	41	0	0	0	473	0	0	1	0	0	0	13	3	43	0	0	0	0	2	1	2	656	235	1300	0	122
A02	Products of livestock, hunting	823			15	32	1	0	0	171	0	0	0	0	0	0	1	0	10	0	0	0	0	0	0	0	230	0	537	69	-13
A03	Products of forestry and logging	83			0	0	0	0	0	8	0	0	1	0	0	1	1	0	9	0	0	0	0	1	0	0	21	1	61	0	0
A04	Products of fishing and	292			0	0	0	5	0	103	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	112	29	151	0	0
B00	Products of mining and	4020			0	0	0	0	177	13	0	395	0	0	1	197	0	0	0	0	0	0	0	0	0	0	783	2246	839	105	47
C01	Food products, beverages and	4137			2	80	0	1	0	319	0	0	2	0	0	0	28	5	116	0	0	0	0	15	2	0	570	525	2894	0	148
C02	Textiles, wearing apparel and	571			0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	0	0	0	0	0	0	0	90	80	402	0	-1
C03	Coke and refined petroleum	3122			13	4	1	37	82	78	18	1	9	381	19	128	58	231	4	16	14	2	21	77	7	17	1218	377	1145	0	382
C04	Products of other	4628			75	3	5	8	96	170	2	5	70	21	27	307	33	95	12	81	23	3	54	48	36	44	1218	286	1036	2291	-203
D00	Electricity and gas	1033			18	1	0	6	6	75	17	29	10	9	39	6	44	10	12	28	27	3	10	31	8	17	406	0	627	0	0
E00	Water collection, treatment	339			11	0	0	0	0	3	13	12	1	1	4	4	4	2	1	0	1	0	1	17	2	3	80	0	259	0	0
F00	Construction works	2194			0	0	0	0	1	1	0	0	0	0	0	82	2	4	1	1	3	5	1	0	1	1	103	0	0	2070	21
G00	Sales	250			2	0	0	4	36	13	0	1	2	12	12	11	13	45	3	9	8	3	15	16	4	17	226	0	24	0	
H00	Transport and storage services	1298			18	1	12	7	91	106	2	11	10	16	14	58	169	141	10	42	12	6	30	25	11	28	820	100	378	0	
I00	Accommodation and food	523			1	0	0	0	6	2	0	0	0	3	1	0	4	13	3	7	8	0	4	75	14	27	168	0	355	0	
J00	Information and	1131			1	0	0	1	6	11	12	0	2	2	1	10	34	37	4	134	14	2	15	50	6	5	347	107	595	82	
K00	Financial and insurance services	1074			3	0	1	2	21	51	0	15	9	15	9	40	103	48	9	28	88	71	25	19	1	16	574	11	489	0	
L00	Real estate services	1426			0		0	0	5	14	54	0	5	1	1	27	99	30	8	20	18	3	12	20	9	13	339	0	1087	0	
M00	Other business services	965			2	0	0	1	35	50	3	17	6	13	5	69	23	61	8	108	109	4	51	18	5	37	625	269	71	0	
O00	Public administration services	1450			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1450	0	
P00	Education services	1049			0	0	0	0	1	0	0	0	2	0	0	1	1	4	0	5	1	0	1	0	1	1	19	27	1003	0	
Q00	Human health and social work	478			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	472	0	
	Total	**33199**	**0**	**0**	**238**	**162**	**20**	**72**	**563**	**1661**	**121**	**486**	**130**	**474**	**134**	**941**	**720**	**729**	**256**	**479**	**326**	**102**	**240**	**415**	**108**	**228**	**8605**	**4299**	**15175**	**4617**	**503**
	VALUE ADDED	**15794**			**1464**	**546**	**37**	**119**	**1267**	**866**	**53**	**911**	**92**	**559**	**205**	**1253**	**2486**	**426**	**267**	**588**	**631**	**1324**	**543**	**1035**	**876**	**246**	**15794**				
	Compensation of employees				33	15	1	67	195	160	19	142	40	90	87	449	1476	56	88	237	239	777	11	353	565	127	5227				
	Wages and salaries				33	15	1	67	182	157	17	136	38	85	76	430	1340	53	79	226	216	720	11	306	511	116	4815				
	Actual social contributions				0	0	0	0	6	1	1	1	2	2	5	12	32	1	4	9	9	33	0	17	15	11	161				
	Imputed social contributions				0	0	0	0	0	2	1	5	0	3	6	7	104	2	5	2	14	24	0	30	39	0	251				
	Taxes on production				0	0	0	1	20	4	0	0	2	3	3	8	58	2	4	6	8	74	1	12	10	0	216				
	Subsidies on production				-1	0	0	0	-3	-1	0	0	0	-1	0	-4	-2	0	-7	-3	-3	-8	0	-1	-1	0	-35				
	Gross operating surplus / mixed				1432	531	36	51	1055	703	34	769	50	467	115	800	954	368	182	348	387	481	531	671	302	119	10386				
	Persons employed by industry				1243326	257991	10088	69702	58852	421805	431	2352	10764	419402	10891	19727	178387	677276	87251	130302	69783	22259	10422	43372	48685	77354					

						Sum of value added				15,794						Final consumption		15,175														5,227
						Taxes on imports				-						GFCF		4,617								Taxes						216
						Taxes on exports										Changes in inventories		503														- 35
						Other taxes on products										Exports		4,299								Taxes						-
						Subsidies on products										Imports		8,800														10,386
						GDP (production approach)				**15,794**						**GDP (expenditure**		**15,794**								**GDP (income approach)**						**15,794**

7.5. The backcasting of output

191. The compilation of national accounts under the previous base made it possible to obtain economic data that describe the economic history of the country "NACED". This base serves as the reference dataset for analysis and the implementation of economic policies.

192. The change of base year led to a substantial modification in the level of output, highlighting a revaluation of the level of economic activity. It therefore becomes necessary to carry out backcasting in order to provide all data users with consistent and comprehensive time series on output.

193. The backcasting of output is carried out in two stages. This involves applying the backcasting method to the old series while maintaining constant growth rates. This approach makes it possible to reflect the structural changes of the new series in the old series. The exercise is conducted by isolating the changes introduced by the **2008 SNA** and imputed rent. For these components, the direct method consisting of estimating output in accordance with the recommendations of the 2008 SNA is applied.

7.5.1. Backcasting of exogenous factors

194. For the estimation of imputed rent, the methodology developed in the common methodological guide for the compilation of annual national accounts, for Member States in accordance with the 2008 SNA is used. Its backcasting is carried out based on the estimation approach applied for years in which household living conditions surveys or population and housing censuses are not available. This approach is also detailed in the same ECOWAS guide referenced above. In the context of this case study, the backward-estimated amounts obtained through the implementation of this method are incorporated into the backcasting exercise. It is important to note that no estimation of imputed rent was carried out in the compilation of the previous accounts. Thus, the expansion of coverage led to its estimation, which justifies its treatment as an exogenous backcasting component.

195. The central bank output is estimated using the cost approach. It should be noted that its estimation was previously embedded within financial and insurance activities in the old accounts.

Central bank output is therefore obtained during the rebasing exercise as the sum of intermediate consumption, compensation of employees, and consumption of fixed capital.

Table 7.4: Central bank output according to the 2008 SNA

Intermediate consumption	37	48	51	53	54	55	52	52
Compensation of employee	130	140	140	137	135	133	144	147
Consumption of fixed capital	6	18	29	23	24	29	18	19
Output	**173**	**206**	**220**	**213**	**213**	**217**	**214**	**218**

Source: DRS, ECOWAS

FISIM is determine by a reference rate and subsequently allocated across institutional sectors.

The reference rate is estimated in line with the recommendations of the financial handbook "Financial Production, Flows and Stocks in the System of National Accounts".

$$Reference\ rate = 0.5 \times \left(\left(\frac{interest\ received}{average\ stock\ of\ loans}\right) + \left(\frac{interest\ paid}{average\ stock\ of\ deposits}\right)\right)$$

The approach implemented made it possible to obtain the FISIM.

$$FISIM_{loans} = average\ stock\ of\ loans\ \times (average\ interest\ rate - reference\ rate)$$

$$FISIM_{deposits} = average\ stock\ of\ deposit\ \times (reference\ rate - average\ deposit\ rate)$$

$$FISIM\ Output = FISIM\ on\ loans\ + FISIM\ on\ deposits$$

Table 7.5: Calculation of FISIM output

FISIM output calculation	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Total Interest Paid	57	69	77	84	88	101	114	127

Total Interest Received	206	223	249	276	304	364	365	394
Deposits	3185	3781	4366	4620	5108	5707	6429	7268
Loans	2898	3258	3719	4365	4922	5248	5607	6249
Interest rates on deposits	4.3%	4.4%	4.1%	3.9%	4.0%	4.3%	4.0%	4.0%
Interest rates on loans	7.2%	7.4%	7.1%	7.1%	7.3%	7.2%	6.9%	6.9%
Reference rate	4.4%	4.6%	4.5%	4.4%	4.2%	4.5%	4.3%	4.3%
Output_FISIM_SNA_1993		154	172	191	216	262	252	268
Output_FISIM_SNA_2008		95	104	130	155	150	159	174

Source: DRS, ECOWAS

With regard to insurance, the method developed and illustrated in Chapter 6 is applied to recalculate output. This is a simple illustrative case.

$$Output = Premiums\ earned - Adjusted\ claims\ incurred$$

Table 7.6: Output of non-life insurance services

_2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Output of property and casualty insurance services							

Premiums of the period	117	128	142	164	168	184	205	179
Claims (indemnities) of the period	29	34	35	33	41	45	52	56
Output _1993_SNA	**88**	**94**	**107**	**131**	**127**	**139**	**153**	**123**
Adjusted claims (indemnities) of the period	31	33	35	40	40	45	51	53
Output_2008_SNA	**86**	**95**	**107**	**124**	**128**	**139**	**154**	**126**

Source: DRS, ECOWAS

Estimates of output considered exogenous were incorporated into the backcasted data using an approach that preserves constant growth rates.

7.5.2. Implementation of the "backcasting" method

196. The chosen methodology requires the availability of data from both the old and the new base, expressed according to the backcasting classification.

197. The make matrix is established by estimating the transition ratios. These transition ratios are calculated as the ratio of output, expressed in the backcasting classification, between year $(n-1)$ and year n.

$$Make\ matrix = \frac{Output_{n-1}}{Output_n}$$

Table 7.7: Make matrix for backcasting the 2021 series to 2015

Code: **PRIMARY SECTOR**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
A01	Agriculture and related activities	0.8703	1.0004	0.9035	0.9216	0.8170	1.0025	0.9428

A0101	cereals	0.8703	1.0004	0.9350	0.9216	0.8170	1.0250	0.9428	
A02	Livestock farming, hunting and related activities	0.8703	1.0004	0.9350	0.9216	0.8170	1.0250	0.9428	
A0201	cattle, sheep, goats	0.8703	1.0004	0.9350	0.9216	0.8170	1.0250	0.9428	
	SECONDARY SECTOR								
B00010	Hydrocarbon extraction	0.8467	0.8624	0.7180	0.8809	0.9094	0.8072	0.8487	
B00020	Extraction of metallic ores	0.9394	0.9594	0.9656	0.9496	1.0170	0.9158	0.8755	
B00030	Other extractive activities	1.0012	0.9707	0.9090	0.7137	1.5533	0.9243	0.8367	
C01	Manufacture of food products, beverages, tobacco	0.9328	0.9760	0.9104	0.7816	1.3043	0.9052	0.9222	

C0101	Slaughtering, processing and preservation of meat and fish	0.93288	0.9760	0.9104	0.7816	1.3043	0.9052	0.9222	
CO2	Textile, clothing and leather manufacturing	0.83230	0.9380	0.9420	0.9804	0.9184	0.8815	0.9168	
CO3	Coke production and petroleum refining	0.91833	1.0975	1.2174	0.5649	1.0002	0.6014	0.9852	
F00	Construction	0.95003	0.8570	0.7546	0.9836	1.2423	0.8766	0.8917	
	TERTIARY SECTOR								
G00	Trade and repair of automobiles and motorcycles	0.95584	0.9511	0.9407	0.9370	1.0747	0.8890	0.8986	
H00	Transportation and storage	0.93006	0.9262	0.9677	0.9325	1.1254	0.9151	0.9126	
J0001	Telecommunications services	1.01669	0.9625	1.0090	0.9793	0.9830	1.0288	0.9324	

K00	Financial and insurance activities								
K0001	Banking and microfinance services								
K0003	Other financial and insurance services	0.988 7	0.986 9	0.974 6	0.936 2	0.931 1	0.945 2	0.958 0	
L00	Real estate activities	0.982 5	0.985 1 8	0.944 0	0.970 8	0.905 3	0.960 2	0.885 4	
M00	Other business service activities	0.891 3	0.855 9 1	0.846 4	0.800 8	1.100 2	1.000 6	0.702 1	
O00	Public administration activities	0.970 3	0.973 2	0.923 6	0.933 7	0.911 3	0.857 5	0.951 2	

Source: DRS, ECOWAS

198. The backcasted data were obtained by backwards multiplication of the value for the year 2022 by the ratio for the year 2021. The process is repeated iteratively back to the year 2000.

$$Output\_A0101\_2021 = Output\_A0101\_2022 \times Make\_matrix\_A0101\_2021$$

Numerical Application:

$$\boldsymbol{Output_{A0101_{2021}} = 822 \times 0.9428 = 775}$$

199. Ultimately, the backcasted output for the period 2000-2021 is obtained by consolidating the two approaches. For certain activities, such as real estate services, the two resulting values were summed, as this reflects an addition (i.e., improvement in coverage.

7.6. Backcasting of intermediate consumption

200. The guide indicates that countries should make a choice between backcasting intermediate consumption or value added. For each option, a methodological approach is proposed. In this case study, the approach adopted is to estimate IC and derive value added (***Output – IC***).

201. The approach adopted is similar to that used for output. It consists of applying, in a backward manner, the historical growth rates. This method relies on a make matrix that captures the changes between two consecutive periods.

In addition, for products that are used as intermediate consumption in the new base due to improved coverage of by-products, the backcasted value is derived by estimating the IC/output ratio of the product, which is assumed to be constant over time. By way of illustration, this approach is applied to the IC of textile, clothing and leather products.

202. For financial services (K00010), the estimation of intermediate consumption is carried out using the methodology developed during the base year revision. To apply this approach to previous years, a structural analysis is undertaken.

7.7. Backcasting of final consumption

203. The backcasting of final consumption is carried out in two (2) stages. First, a backward calculation is performed for all products used by households in final consumption, based on the approach of using constant growth rates (methodology adopted and described in Chapter 6). This approach is identical to that used for backcasting output.

204. In the second step, the backcasting of exogenous consumption components is undertaken. At this stage, allocation or estimation is carried out in line with country-specific conditions and the recommendations of the **2008 SNA** which specifically addresses the estimation of final consumption of general government, the central bank, FISIM, and imputed rent.

205. For general government, the backcasted output is fully allocated to final consumption of the product. The same applies to central bank output, which is entirely added to the final consumption of financial services. This treatment is justified by the fact that these are non-market outputs whose corresponding use is non-market final consumption.

206. With regard to FISIM, FC is estimated using the recommended methodology, in particular by allocating resources across uses. Accordingly, final consumption is backcast over the period.

For years in which detailed information on loans, deposits, and interest is not available, the FC/Supply ratio is applied to estimate the final consumption of the product.

207. For imputed rent, the estimated output is added to the backcasted final consumption of real estate services using the methodology described.

208. Ultimately, the backcasted final consumption vector by product, an extract of which is presented in table in Annex A.7 below is obtained by adding, where applicable, the backcast values derived from the two approaches. For example, the final consumption of real estate services is obtained by summing services paid for by tenants (backcast using approach 1) and imputed rent (re-estimated).

7.8. Backcasting of imports and exports

209. Imports and exports of goods and services are derived from external trade statistics using the balance of payments. It is recommended to rely on this source, whose system for monitoring and collecting data on external trade is robust. However, national accountants are required to carefully adapt the classification by exploring detailed data within the framework of backcasting, while maintaining overall levels, unless it is established and accepted that certain products were inadequately covered. Nevertheless, balance of payments data may be revised or supplemented. In such cases, only the products concerned should be backcast to reflect these adjustments. Backcasting of other transactions on goods and services

7.9. Backcasting of other operations on goods and services

210. Other transactions in goods and services consist of GFCF and changes in inventories. The approach based on maintaining growth rates is applied. In other words, backcasting is carried out using a similar approach. This makes it possible to obtain a complete set of supply and use data over the period 2000–2022. Since the operations are carried out independently, a reconciliation of total supply and use may reveal discrepancies. Therefore, consistency checks and adjustments are undertaken to align the figures and validate the level of backcast GDP, ensuring equality across the different approaches. The two tables (Annex A.8 and A.9) below highlight the imbalances between backcast supply and use.

7.10. Balancing supply and use

211. The backcasting of the different series was carried out using methodologies consistent with recommended standards. This made it possible to obtain, for each transaction in goods and services, coherent data over the period 2000–2022, incorporating the improvements introduced during the rebasing exercise.

212. However, this approach led to imbalances between supply and use. To ensure consistency in the flows of goods and services, a balancing process is undertaken.

213. The balancing or alignment process is carried out by applying the methodology described in this guide. It consists of calculating an adjustment ratio, defined as the square root of the ratio (***total use/total supply***).

Table 7.8: Adjustment ratio (supply and use balancing process)

Code	**2000**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	
	PRIMARY SECTOR																							
A01	Agriculture and related activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0101	Cereals	0	0	0	1	1	0	1	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1
0102	Tubers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0103	Vegetables and spices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0104	Other agricultural activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	Livestock farming, hunting and related activities	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	1
0201	Cattle, Sheep, Goats	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	1
0203	Other livestock farming, hunting and related activities	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	0	0	1	1
A03	Forestry and logging	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
A04	Fishing and aquaculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SECONDARY SECTOR																								
B00	Extractive activities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B0010	Hydrocarbon extraction	1	1	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1
B0	Extraction of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

0020	metallic ores																								
B0030	Other extractive activities	0	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	
C01	Manufacture of food products, beverages, tobacco	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	
0101	Slaughtering, processing and preservation of meat and fish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0102	Edible fats	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	
0103	Grain and starch product processing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0105	Other activities related to the manufacture of food products and tobacco	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C02	Textile, clothing and leather manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C03	Coke production and petroleum refining	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	

C04	Other manufacturing activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D00	Electricity and gas production and distribution	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
E00	Water collection, treatment and distribution	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	0	1	0	1	1
F00	Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
	TERTIARY SECTOR																								
G00	Trade and repair of automobiles and motorcycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
H00	Transportation and storage	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0001	Road transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0003	Other transport and storage	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
I00	Accommodation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

0	and catering activities																								
J00	Information and communication	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0001	Telecommunications services	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
0002	Other information and communication services	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
K00	Financial and insurance activities	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
0001	Banking and microfinance services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0002	Insurance services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0003	Other financial and insurance services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L00	Real estate activities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

M00	Other business service activities	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
O00	Public administration activities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P00	Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q00	Human health and social action activities	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1	0	0

Source: DRS, ECOWAS

Table 7.9: Matrix of adjustment ratios to rebalance supply and use

Code_**Description**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	
A01	Agriculture and related activities	0.967	0.962	0.981	0.978	0.970	0.959	0.960
A0101	cereals	1.020	1.014	1.026	1.026	1.002	1.047	1.028
A02	Livestock farming, hunting and related activities	1.014	1.009	1.001	0.995	0.989	0.981	0.992
A0201	cattle, sheep, goats	1.015	1.014	1.002	0.996	0.987	0.972	0.982
B00010	Hydrocarbon extraction	1.414	1.436	1.454	1.470	1.378	1.523	1.506
B00030	Other extractive activities	1.0	1.0	1.0	1.0	1.1	1.2	1.2

		0 0	5 5	2 3	9 0	8 5	4 4	4 2
C01	Manufacture of food products, beverages, tobacco	1.0 2 4	1.0 1 8	1.0 2 1	1.0 1 6	0.9 9 8	1.0 2 3	1.0 1 9
C0101	Slaughtering, processing and preservation of meat and fish	0.8 8 2	0.8 6 4	0.8 7 7	0.8 5 4	0.7 8 1	0.8 7 9	0.8 6 5
CO2	Textile, clothing and leather manufacturing	0.8 5 9	0.8 7 9	0.8 7 6	0.8 6 5	0.8 5 4	0.8 6 1	0.8 4 9
CO3	Coke production and petroleum refining	1.0 7 5	1.0 1 8	1.0 3 9	1.0 7 5	0.9 7 5	0.9 7 0	0.8 4 1
H00	Transportation and storage	1.2 5 5	1.2 5 6	1.2 5 5	1.2 5 4	1.2 5 3	1.2 5 6	1.2 5 0
J00	Information and communication	1.0 2 0	1.0 1 8	1.0 1 9	1.0 1 6	1.0 1 5	1.0 1 5	1.0 1 3
J0001	Telecommunications services	1.0 1 4	1.0 0 4	1.0 0 9	1.0 0 2	1.0 0 2	0.9 9 8	0.9 9 4
K00	Financial and insurance activities	1.0 3 0	1.0 1 6	1.0 1 5	1.0 0 4	1.0 0 8	1.0 1 1	0.9 9 9
K0001	Banking and microfinance services	0.9 5 5	0.9 7 0	0.9 6 4	0.9 7 3	0.9 6 0	0.9 7 7	0.9 5 2
K0002	Insurance services	1.3 9 3	1.3 3 2	1.2 8 4	1.2 1 1	1.2 2 6	1.2 3 5	1.1 8 7
K0003	Other financial and insurance services	0.9 5 3	0.9 5 8	0.9 6 0	0.9 6 4	0.9 6 8	0.9 6 0	0.9 7 1

Source: DRS. ECOWAS

214. On the supply side (output and imports). the backcast values were multiplied by the adjustment ratio for each product.

215. On the use side. however. the values are divided by the ratio. Specifically. the values of IC. FC. GFCF. changes in inventories. and exports are divided by the adjustment ratio. whereas the amounts of output and imports are multiplied by the adjustment ratio.

216. The implementation of such an approach may have impacts on the trends and the levels of the different aggregates.

217. Once all the transactions have been backcasted and the adjustment has been carried out for each product and branch of activity. the next step concerns the backcasting of a SUT.

7.11. Backcasting of the SUT

218. In the context of this case study. the approach for backcasting a SUT is applied to the year 2021; the principle is identical for the other years.

219. The construction of the SUT requires the availability of information on the origins of products (output or imports) and on their uses. Thus. the first step is to reconstruct the supply and use balances (SUBs) and the sector accounts (IAs). which describe the production process by linking the level of output with the inputs and factors of production required for its generation.

220. The balancing for the different products is ensured through the adjustment work carried out in the previous section.

221. The most important part at this stage is the backcasting of the inputs required to obtain the levels of backcast output. The backcasting of the Intermediate Use Table (IUT) block must take into account the structural changes observed following the change of the base year of the national accounts.

222. Thus. the production structure is calculated for each sector of activity. The implementation of such an approach makes it possible to ensure the maintenance of the new output structure. However. it will create an imbalance between the supply and demand of intermediate consumption.

- ***Backcasting of the supply table.***

223. The construction of the backcast supply table is based on backcast and balanced output and import data. In the new base year. trade and transport margins have been grouped. Therefore. the backcasting of margins is also carried out in a grouped manner. using the new margin rates calculated from the information contained in the rebased 2022 SUT.

- ***Backcasting of the Use Table***

224. The use table consists of four quadrants. one of which relates to final uses. For these. the backcast and balanced data are incorporated into the SUT framework.

225. With regard to intermediate consumption. the output structure is first calculated based on the cost structure of the new base year.

226. For a product i used by sector j. **the ratio of IC of product i / output of sector j** provides the ratio. A matrix of output cost ratio relating to purchases of inputs per unit of output is then calculated. This matrix is used to approximate the demand for intermediate consumption.

After this initial step. intermediate consumption demands are calculated using the following formula.

$$IC\ of\ product_i\ for\ activity_j\ in\ 2021 = Output\ of\ sector_j\ in\ 2021\ \times ratio\ IC\ of\ product_i\ .$$

227. The application of such an approach guarantees fixed of the intermediate consumption rate but creates an imbalance between the supply and demand of intermediate consumption. In this regard. it is recommended to rebalance it by eliminating the existing gap. This work can be carried out using the RAS method. by aligning at the level of the backcast and balanced supply of intermediate consumption in order to avoid new distortions. However. if the team has the necessary time. it is preferable to proceed with a manual balancing. In the context of the practical case. the backcast and balanced supply of intermediate consumption by product was retained. and the gap represents 1% of the demand for intermediate consumption. As a result. a reasoned choice was made. and the imbalances are added for each product at the level of the demand of the main sector of activity.

228. This process made it possible to backcast the 2021 SUT. and the approach is identical for the SUTs the other years.

Table 7.10 Backcasted Supply and Use (SUT) for 2021 of the country NACED.

Supply of products		Total supply at purchasers' prices	Transport margin	Trade margin	Total supply at basic prices	Output of activities																									
						A01 Agriculture and related activities	A02 Livestock, hunting and related activities	A03 Forestry and logging	A04 Fishing and aquaculture	B00 Mining and quarrying	C01 Manufacture of food products, beverages and tobacco	C02 Manufacture of textiles, wearing apparel and leather	C03 Coke and refined petroleum products	C04 Other manufacturing activities	D00 Electricity and gas supply	E00 Water collection, treatment and distribution	F00 Construction	G00 Trade, repair of motor vehicles and motorcycles	H00 Transport and storage	I00 Accommodation and food service activities	J00 Information and communication	K00 Financial and insurance activities	L00 Real estate activities	M00 Other business services	Q00 Public administration	P00 Education	Q00 Human health and social work activities	Total output by industry	Imports			
A01	Products of agriculture and related activities	1309	197	160	952	703																						703	249			
A02	Products of livestock, hunting and related	376	61	49	266		262																					262	4			
A03	Products of forestry and logging	107	13	11	83			82																				82	1			
A04	Products of fishing and aquaculture	344	52	42	250				220																			220	30			
B00	Products of mining and quarrying	3683	19	16	3648					3208																		3208	440			
C01	Food products, beverages and tobacco	3367	1044	841	1482						780																	780	702			
C02	Textiles, wearing apparel and leather products	840	26	21	793							605																605	188			
C03	Coke and refined petroleum products	2663	154	125	2384								1199															1199	1185			
C04	Products of other manufacturing activities	5535	44	41	5450									344														344	5106			
D00	Electricity, distribution of electricity and gas	1161			1161										1161													1161	0			
E00	Water collection, treatment and distribution	534			534											534												534	0			
F00	Construction	2122			2122												2122											2122	0			
G00	Trade and repair services of motor vehicles and motorcycles	138	-1610		1748													1748										1748	0			
H00	Transport and storage services	1181		-1306	2487														2344									2344	143			
I00	Accommodation and food service services	735			735															735								735	0			
J00	Information and communication services	1109			1109																1045							1045	64			
K00	Financial and insurance services	1258			1258																	1141						1141	117			
L00	Real estate services	428			428																		428					428	0			
M0	Other business services	547			547																			365				365	182			
O00	Public administration services	1342			1342																				1342			1342	0			
P00	Education services	644			644																					601		601	43			
Q0	Human health and social work services	204			204																						200	200	4			
	Total	29627			29627	703	262	82	220	3208	780	605	1199	344	1161	534	2122	1748	2344	735	1045	1141	428	365	1342	601	200	21169	8458			

Use of products		Total use at purchasers' prices	Transport margin	Trade margin	Total use at basic prices	Intermediate consumption of activities																									
						A01 Agriculture and related activities	A02 Livestock, hunting and related activities	A03 Forestry and logging	A04 Fishing and aquaculture	B00 Mining and quarrying	C01 Manufacture of food products, beverages and tobacco	C02 Manufacture of textiles, wearing apparel and leather	C03 Coke and refined petroleum products	C04 Other manufacturing activities	D00 Electricity and gas supply	E00 Water collection, treatment and distribution	F00 Construction	G00 Trade, repair of motor vehicles and motorcycles	H00 Transport and storage	I00 Accommodation and food service activities	J00 Information and communication	K00 Financial and insurance activities	L00 Real estate activities	M00 Other business services	Q00 Public administration	P00 Education	Q00 Human health and social work activities	Total intermediate consumption	Exports	Final consumption	Gross fixed capital formation	Changes in inventories
A01	Products of agriculture and related activities	1309				157	8	0	0	0	236	0	0	0	0	0	0	33	0	111	0	0	0	0	0	0	0	545	235	456	0	73
A02	Products of livestock, hunting and related	376				0	0	0	0	0	108	0	0	0	0	0	0	0	0	76	0	0	0	0	0	0	0	184	0	119	78	-5
A03	Products of forestry and logging	107				0	0	0	0	0	3	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	17	1	89	0	0
A04	Products of fishing and aquaculture	344				0	0	0	0	0	36	0	0	0	0	0	0	0	0	71	0	0	0	0	0	0	0	107	29	208	0	0
B00	Products of mining and quarrying	3683				0	1	0	0	327	0	0	950	0	0	0	25	0	0	0	0	0	0	0	0	0	0	1303	2246	8	0	126
C01	Food products, beverages and tobacco	3367				0	4	0	0	2	96	0	0	0	0	0	1	63	0	330	0	0	0	0	10	1	1	508	525	2186	0	148
C02	Textiles, wearing apparel and leather products	840				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	759	0	1
C03	Coke and refined petroleum products	2663				67	0	0	40	53	2	27	15	0	243	0	260	2	295	10	0	8	0	0	11	2	0	1035	377	241	0	1010
C04	Products of other manufacturing activities	5535				0	0	0	106	26	32	3	33	0	16	2	77	132	626	2	1	0	1	86	280	44	17	1484	285	793	2954	19
D00	Electricity, distribution of electricity and gas	1161				0	0	3	0	7	16	34	0	0	0	5	16	138	26	10	10	12	8	50	24	4	6	369	0	792	0	0
E00	Water collection, treatment and distribution services	534				0	0	0	0	8	2	27	4	0	0	0	1	42	6	10	0	1	1	0	33	5	2	142	0	392	0	0
F00	Construction	2122				0	2	0	0	12	0	0	0	0	0	0	0	0	0	0	0	1	24	0	53	6	1	99	0	0	2197	-174
G00	Trade and repair services of motor vehicles and motorcycles	138				0	0	0	0	1	0	0	1	0	4	0	1	3	105	0	15	1	0	0	2	0	0	133	0	5	0	0
H00	Transport and storage services	1181				26	0	8	0	381	13	4	1	0	11	0	1	86	99	8	6	125	1	1	10	1	4	786	100	295	0	0
I00	Accommodation and food service services	735				0	0	3	0	30	0	0	5	0	8	6	12	67	11	0	5	51	0	3	10	26	1	238	0	497	0	0
J00	Information and communication services	1109				0	0	1	0	23	7	23	2	0	1	1	2	41	169	3	71	3	13	1	3	0	0	364	107	636	0	2
K00	Financial and insurance services	1258				0		0	0	5	4	0	165	8	20	2	81	133	42	2	99	76	5	17	146	20	12	837	11	410	0	0
L00	Real estate services	428				0	0	16	40	45	0	106	2	0	1	1	14	54	23	7	26	8	0	0	7	1	1	352	0	76	0	0
M0	Other business services	547				0	0	0	0	13	5	13	1	0	1	0	2	19	71	3	71	16	0	0	4	0	0	219	269	59	0	0
O00	Public administration services	1342				0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1341	0	0
P00	Education services	644				0	0	0	0	2	0	0	11	0	0	0	0	0	0	0	0	0	0	0	2	0	0	15	27	602	0	0
Q0	Human health and social work services	204				0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	197	0	0
	Total	**29627**				**250**	**15**	**33**	**186**	**935**	**560**	**237**	**1190**	**8**	**319**	**17**	**493**	**813**	**1473**	**643**	**304**	**302**	**53**	**158**	**595**	**110**	**45**	**8739**	**4298**	**10161**	**5229**	**1200**
	Value added	**12430**				**453**	**247**	**49**	**34**	**2273**	**220**	**368**	**9**	**336**	**842**	**517**	**1629**	**935**	**871**	**92**	**741**	**839**	**375**	**207**	**747**	**491**	**155**	**12430**	**4160**	**-10161**	**-5229**	**-1200**
	Compensation of employees					10	7	1	19	351	41	130	1	148	135	220	584	555	115	30	298	318	220	4	255	317	80	3839				
	Wages and salaries					10	7	1	19	327	40	117	1	139	128	192	559	504	109	27	284	287	204	4	221	287	73	3540				
	Actual social contributions					0	0	0	0	11	0	6	0	8	2	13	16	12	1	1	11	12	9	0	13	8	7	130				
	Imputed social contributions					0	0	0	0	13	1	6	0	0	5	15	9	39	5	2	2	19	7	0	21	22	0	166				
	Taxes on production					0	0	0	0	37	1	3	0	6	4	9	11	22	5	1	7	11	21	0	9	6	0	153				
	Subsidies on production					0	0	0	0	-6	0	0	0	0	-2	0	-5	-1	0	-2	-3	-4	-2	0	0	-1	0	-26				
	Gross operating surplus / mixed income					443	240	48	15	1891	178	235	8	182	705	288	1039	359	751	63	439	514	136	203	483	169	75	8464				
	Persons employed by industry					**1243326**	**257991**	**10088**	**69702**	**58852**	**421805**	**431**	**2352**	**10764**	**419402**	**10891**	**19727**	**178387**	**677276**	**87251**	**130302**	**69783**	**22259**	**10422**	**43372**	**48685**	**77354**	**4E+06**				

						Sum of value added					12,430						Final consumption			10,161								Compensation of employees				3,839
						Taxes on imports					-						GFCF			5,229								Taxes on production				153
						Taxes on exports											Changes in inventories			1,200								Subsidies on production and products			-	26
						Other taxes on products											Exports			4,298								Taxes on products				-
						Subsidies on products											Imports			8,458								GOS/Mixed income				8,464
						GDP (production approach)					**12,430**						**GDP (expenditure**			**12,430**								**GDP (income approach)**				**12,430**

Source: DRS. ECOWAS

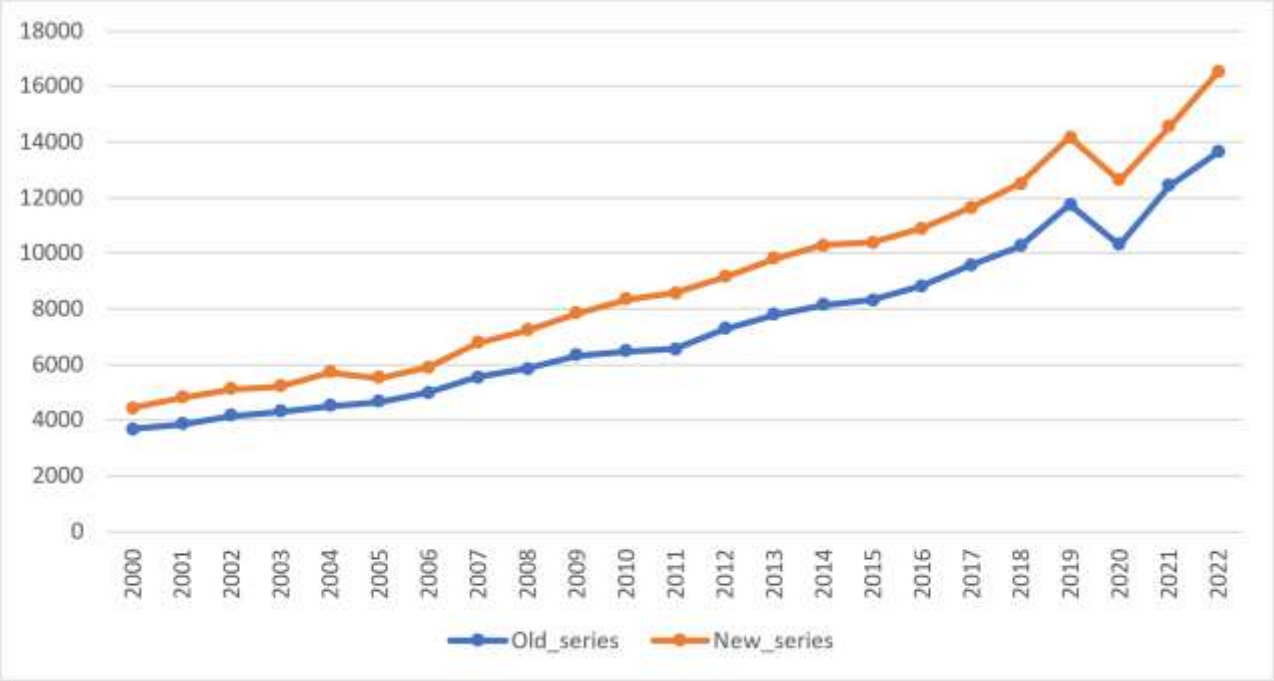
229. The backcasting of the SUT made it possible to produce new data for the year 2021 that incorporate the changes observed in the NACED economy. In addition. the new structure highlighting output costs. obtained following the rebasing exercise. was applied to the year 2021.

7.12. Comparative analysis of old and new series

7.12.1 Overall changes of economic activity

230. The comparison between the two series shows that. for 2022. GDP stood at **16.512.9 billion ECO** in the new base. compared with **13.642.7 billion ECO** in the old base. representing a **revaluation of 21.0%**. Over the period **2000–2022** as a whole. GDP at market prices recorded an average upward revision of **22.9%**.

***Figure* 1: GDP growth in both series at market prices**

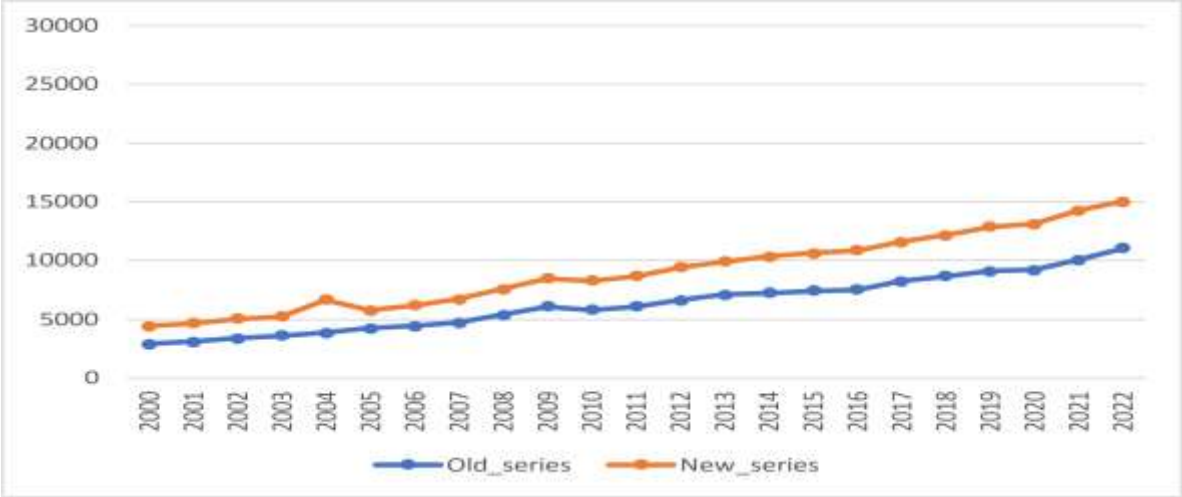


Source: DRS. ECOWAS

7.12.2 Final consumption

231. On average. final consumption appears higher in the new base than in the old one. with a difference of 2.708.1 billion ECO over the period. corresponding to an increase of 42.8%. In 2022. it amounts to 14.994.7 billion ECO in the new base compared to 11.053.8 billion ECO in the old base. representing an increase of 35.7%.

***Figure* 2: Changes of final consumption of the two series**

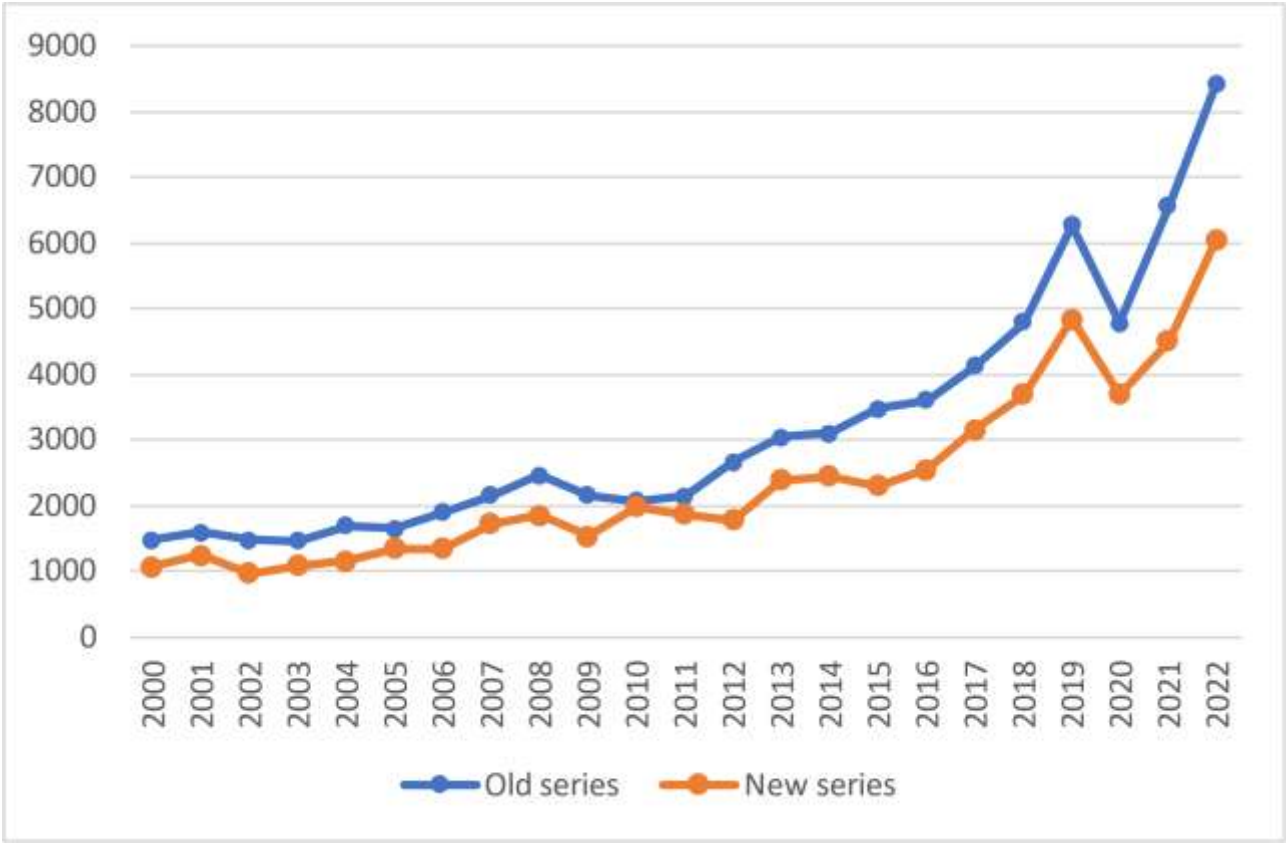


Source : DRS. ECOWAS

7.12.3 Gross capital formation

232. Investment recorded an average downward revision of 25.2% over the period. corresponding to an average gap of 801.7 billion ECO between the new and the old base. In 2022. the contraction is even more pronounced. with a decline of 28.2%. as investment decreases from 8.428.1 billion ECO in the old base to 6.053.1 billion ECO in the new base.

***Figure* 3: Changes of investment at the level of the two series**



Source: DRS. ECOWAS

Conclusion

The regional methodological guide for the backcasting of national accounts is a valuable tool made available to ECOWAS Member States for carrying out their backcasting exercise within a harmonised framework.

Thus. this document presents the main steps to be followed in carrying out backcasting. In addition. it describes the methodologies recommended to the ECOWAS Member States and accompanies them with practical illustrations. The document presents a practical case describing the backcasting process. from the determination of aggregates through to the compilation of the Supply and Use Table.

It is important to recall that this guide forms part of a broader framework for the development of methodological documents. In this regard. where necessary. the reader is invited to consult the other complementary documents mentioned in the bibliographical references.

Bibliographical references

[1] ANSD (2020). **Backcasted national accounts for the period 1999–2013. following the 2014 base year and the 2008 SNA**.

[2] BRILHAUT G. (2002). **Backcasting of GFCF series and calculation of fixed capital under ESA 95 in the French national accounts**.

[3] DEMAILLY D. and TRANAP A. (1986). **Backcasting. 1959–1969. of detailed goods and services accounts**.

[4] DARES Working Paper D (2018). **Reconstruction of labour turnover since 1993: methodological guide**.

[5] ECOWAS. **Common methodological guide for the compilation of annual national accounts for the Member States of the Economic Community of West African States (ECOWAS). according to the System of National Accounts (SNA) 2008: Theory and Practice**.

[6] Luc EYRAUD. **Practical guide to chain-linked accounts**. DGTPE Working Paper Series. July 2007.

[7] Ilaria DI MATTEO (2018). **Handbook on Backcasting**. United Nations Statistics Division. ECE Meeting of the Group of Experts on National Accounts. 22–25. Geneva.

[8] INSEE (2024). **Methodological sheet No. 17: backcasting of national accounts in 2020**.

[9] INSEE (2015). **Backcasting of INSEE Results series "Labour Market – Long Series" following the change in questionnaire in 2013**.

[10] Jacques Nournay. Johara Khélif. INSEE. **Long series of national accounts: a review of the backcasting of accounts**.

[11] Luc EYRAUD. Practical guide to chain-linked accounts.

[12] Marc Beudaert. Léna Lori. Michel Séruzier (1978). **Backcasting of national accounts in the new French national accounting system: 1959–1970 series**. INSEE.

[13] INS (December 2022). **Methodological note on the backcasting of national accounts of Côte d'Ivoire**.

[14] Sacco. B (2024). Projecting the Past: Micro-Based Backcasting Methods in Business Statistics through Micro Decomposition Analysis. National Statistics Office (Malta)

[15] SADC. Methodological guidelines for the compilation of national accounts statistics in SADC region.

[16] United Nations System of National Accounts 2008 (2008 SNA).

[17] Tommaso Di Fonzo. constrained backcasting of high frequency data using related series: A simple dynamic model approach.

Annexes

Annex 1: IMF Generic Data Quality Assessment Framework

Quality Dimensions	Elements	Indicators
0. Prerequisites of quality	**0.1 Legal and institutional environment—***The environment is supportive of statistics.*	0.1.1 The responsibility for collecting, processing, and disseminating the statistics is clearly specified. 0.1.2 Data sharing and coordination among data-producing agencies are adequate. 0.1.3 Individual reporters' data are to be kept confidential and used for statistical purposes only. 0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.
	0.2 Resources—*Resources are commensurate with needs of statistical programs.*	0.2.1 Staff, facilities, computing resources, and financing are commensurate with statistical programs. 0.2.2 Measures to ensure efficient use of resources are implemented.
	0.3 Relevance—*Statistics cover relevant information on the subject field.*	0.3.1 The relevance and practical utility of existing statistics in meeting users' needs are monitored.
	0.4 Other quality management— *Quality is a cornerstone of statistical work.*	0.4.1 Processes are in place to focus on quality. 0.4.2 Processes are in place to monitor the quality of the statistical program. 0.4.3 Processes are in place to deal with quality considerations in planning the statistical program.

1. Assurances of integrity *The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.*	**1.1 Professionalism—***Statistical policies and practices are guided by professional principles*.	1.1.1 Statistics are produced on an impartial basis. 1.1.2 Choices of sources and statistical techniques as well as decisions about dissemination are informed solely by statistical considerations. 1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.
	1.2 Transparency—*Statistical policies and practices are transparent.*	1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public. 1.2.2 Internal governmental access to statistics prior to their release is publicly identified. 1.2.3 Products of statistical agencies/units are clearly identified as such. 1.2.4 Advanced notice is given of major changes in methodology, source data, and statistical techniques.
	1.3 Ethical standards—*Policies and practices are guided by ethical standards.*	1.3.1 Guidelines for staff behaviour are in place and are well known to the staff.
2. Methodological soundness *The methodological basis for the statistics follows internationally accepted standards, guidelines, or good practices.*	**2.1 Concepts and definitions—***Concepts and definitions used are in accord with internationally accepted statistical frameworks.*	2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.
	2.2 Scope—*The scope is in accord with internationally accepted standards, guidelines, or good practices.*	2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.
	2.3 Classification/sectorization—*Classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices.*	2.3.1 Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.

	2.4 Basis for recording— *Flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.*	2.4.1 Market prices are used to value flows and stocks. 2.4.2 Recording is done on an accrual basis. 2.4.3 Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines, or good practices.
3. Accuracy and reliability *Source data and statistical techniques are sound and statistical outputs sufficiently portray reality.*	**3.1 Source data—***Source data available provide an adequate basis to compile statistics.*	3.1.1 Source data are obtained from comprehensive data collection programs that take into account country-specific conditions. 3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required. 3.1.3 Source data are timely.
	3.2 Assessment of source data— *Source data are regularly assessed.*	3.2.1 Source data-including censuses, sample surveys and administrative records-are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide statistical processes.
	3.3 Statistical techniques— S*tatistical techniques employed conform to sound statistical procedures.*	3.3.1 Data compilation employs sound statistical techniques to deal with data sources. 3.3.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.
	3.4 Assessment and validation of intermediate data and statistical outputs— *Intermediate results and statistical outputs are regularly assessed and validated.*	3.4.1 Intermediate results are validated against other information where applicable. 3.4.2 Statistical discrepancies in intermediate data are assessed and investigated. 3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs
	3.5 Revision studies— *Revisions, as a gauge of reliability, are tracked and mined for the information they may provide*.	

		are investigated. 3.5.1 Studies and analyses of revisions are carried out routinely and used internally to inform statistical processes (see also 4.3.3).
4. Serviceability *Statistics, with adequate periodicity and timeliness, are consistent and follow a predictable revisions policy.*	**4.1 Periodicity and timeliness—** *Periodicity and timeliness follow internationally accepted dissemination standards.*	4.1.1 Periodicity follows dissemination standards. 4.1.2 Timeliness follows dissemination standards.
	4.2 Consistency—*Statistics are consistent within the dataset, over time, and with major datasets.*	4.2.1 Statistics are consistent within the dataset. 4.2.2 Statistics are consistent or reconcilable over a reasonable period of time. 4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.
	4.3 Revision policy and practice—*Data revisions follow a regular and publicized procedure.*	4.3.1 Revisions follow a regular and transparent schedule. 4.3.2 Preliminary and/or revised data are clearly identified. 4.3.3 Studies and analyses of revisions are made public (see also 3.5.1).
5. Accessibility *Data and metadata are easily available and assistance to users is adequate.*	**5.1 Data accessibility—***Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.*	5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts). 5.1.2 Dissemination media and format are adequate. 5.1.3 Statistics are released on a pre-announced schedule. 5.1.4 Statistics are made available to all users at the same time. 5.1.5 Statistics not routinely disseminated are made available upon request.
	5.2 Metadata accessibility— *Up-to-date and pertinent metadata are made available.*	5.2.1 Documentation on concepts, scope, classifications, basis of

	5.3 Assistance to users— *Prompt and knowledgeable support service is available.*	recording, data sources, and statistical techniques is available, and differences from internationally accepted standards, guidelines, or good practices are annotated. 5.2.2 Levels of detail are adapted to the needs of the intended audience. 5.3.1 Contact points for each subject field are publicized. 5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.

Source: https://www.imf.org/external/np/sta/dsbb/2003/eng/dqaf.htm

Annex 2: Practical case for implementing backcasting

Table A.1: Output by industry of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
	PRIMARY SECTOR	**6**	**6**	**6**	**6**	**6**	**6**	**7**	**7**	**8**	**8**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
A01	Agriculture and related activities	3	3	3	3	3	3	4	4	4	4	7	6	7	5	6	6	7	7	8	8	1	1	1
A02	Livestock. hunting and related activities	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	4
A03	Forestry and logging	2	2	3	3	3	3	4	4	6	6	6	7	7	8	8	8	8	9	9	9	9	1	1
A04	Fishing and aquaculture	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3
	SECONDARY SECTOR	**3**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**6**	**6**	**6**	**7**	**8**	**8**	**8**	**8**	**9**	**1**	**1**	**1**	**1**	**1**
B0010	Extraction of hydrocarbons	7	7	7	8	8	8	8	9	9	9	1	2	2	3	2	2	3	3	5	6	6	8	9
B0020	Extraction of metal ores	6	7	8	8	8	8	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2

B0 0 0 3 0	Other mining and quarrying	1	2	2	2	2	3	2	2	2	4	5	5	6	6	7	5	5	5	6	8	5	5	7
C0 1	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	2
C0 2	Manufacture of textiles. wearing apparel and leather	9	1	1	1	2	2	2	9	2	3	2	2	4	4	4	3	4	4	5	5	5	6	7
C0 3	Coke and refined petroleum products	2	3	3	3	3	4	4	3	4	5	3	3	3	6	6	6	6	6	5	8	8	1	1
C0 4	Other manufacturing activities	5	6	7	8	8	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	4	6
D0 0	Electricity and gas output and distribution	4	4	5	5	5	5	6	6	7	7	7	7	8	8	8	8	8	9	9	1	1	1	1
E0 0	Water collection. treatment and supply	8	9	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	5	5	4	5	5
F00	Construction	7	6	7	7	8	7	8	9	1	1	1	9	1	1	1	1	1	1	2	2	1	2	2
	TERTIARY SECTOR	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**3**	**3**	**4**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**5**	**6**	**6**	**6**	**7**	**7**
G0 0	Wholesale and retail trade; repair of motor vehicles and motorcycles	4	3	4	5	5	6	6	7	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1
H0 0	Transportation and storage	3	3	3	3	4	4	5	5	6	7	6	6	7	7	8	8	9	9	1	1	1	1	1

I00	Accommodation and food service activities	2	2	2	2	3	3	4	4	4	5	4	5	5	6	6	6	6	7	7	7	7	7	7
J00	Information and communication	1	2	2	2	3	3	4	6	6	7	7	8	8	9	9	1	1	1	1	1	1	1	1
K00	Financial and insurance activities	1	1	2	2	2	3	4	5	6	7	7	7	7	8	8	8	8	9	9	1	1	1	1
L00	Real estate activities	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
M00	Other business service activities	7	9	8	8	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4	3	3	5
O00	Public administration activities	2	2	3	3	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	1	1	1	1
P00	Education	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	6	6
Q00	Human health and social work activities	7	8	8	8	8	7	7	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Total output		**5**	**6**	**6**	**7**	**7**	**8**	**8**	**9**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**2**

Source: DRS. ECOWAS

Table A.2: Output by industry according to the old base of NACED national accounts and the backcasting classification

		2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Code	**Backcasting classification**								
	PRIMARY SECTOR								
A01	Agriculture and related activities	666	765	765	818	888	1087	1060	1124
A0101	cereals	239	275	275	294	319	390	380	404
A02	Livestock. hunting and related activities	265	291	320	330	331	339	372	451
A0201	cattle. sheep and goats	135	147	162	167	168	172	189	229
	SECONDARY SECTOR								
B00010	Extraction of hydrocarbons	282	333	386	538	611	672	832	981
B00020	Extraction of metal ores	1402	1492	1556	1611	1697	1668	1822	2080
B00030	Other mining and quarrying	533	533	549	604	846	544	589	704
C01	Manufacture of food products. beverages and tobacco	203	218	223	245	314	241	266	289

		8	5	9	9	7	3	5	0
C0101	Slaughtering. processing and preservation of meat and fish	495	531	544	597	764	586	647	702
C02	Manufacture of textiles. wearing apparel and leather	381	457	487	517	528	575	652	711
C03	Coke and refined petroleum products	615	669	610	502	889	889	1478	1500
F00	Construction	1397	1470	1715	2273	2311	1860	2122	2379
	TERTIARY SECTOR								
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	1342	1400	1472	1565	1670	1554	1748	1945
H00	Transportation and storage	1885	2025	2187	2259	2423	2145	2344	2569
J00	Information and communication	1022	1005	1044	1035	1057	1075	1045	1121
J0001	Telecommunication services	760	748	777	770	786	800	778	834
K00	Financial and insurance activities	878	888	916	940	1004	1078	1141	1191

K0001	Banking and microfinance services	588	594	613	629	672	722	764	797
K0002	Insurance services	130	132	136	139	149	160	169	176
K0003	Other financial and insurance services	160	162	167	171	183	196	208	217
L00	Real estate activities	319	325	341	362	372	411	428	484
O00	Public administration activities	832	858	915	991	1054	1150	1342	1469

Source: DRS. ECOWAS

Table A.3: Extract from the backcasting of supply (output + imports) = adjusted uses

Code	**Description**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
A01	Agriculture and related activities	1453	1634	1705	1813	1947	2316	2313
A0101	cereals	566	634	660	704	744	931	917
A02	Livestock. hunting and related activities	600	655	716	732	729	742	823
A0201	cattle. sheep and goats	305	333	363	371	368	372	413
B00010	Extraction of hydrocarbons	326	327	415	483	447	443	550
B00030	Other mining and quarrying	670	688	706	788	1036	755	741

C01	Manufacture of food products. beverages and tobacco	3196	3305	3472	3757	4536	3820	4137
C 0101	Slaughtering. processing and preservation of meat and fish	586	610	639	681	786	695	751
C02	Manufacture of textiles. wearing apparel and leather	365	413	454	464	474	506	572
C03	Coke and refined petroleum products	1831	1664	1663	1803	2453	2340	3122
H00	Transportation and storage	1005	1091	1160	1242	1328	1241	1297
J00	Information and communication	1128	1114	1159	1127	1142	1158	1131
J0 001	Telecommunication services	824	807	843	818	830	839	817
K00	Financial and insurance activities	752	1055	914	1227	971	1279	1078
K 0001	Banking and microfinance services	482	777	624	921	647	937	700
K 0002	Insurance services	147	155	164	178	186	197	220
K 0003	Other financial and insurance services	115	117	121	125	134	141	153

Source: DRS. ECOWAS

Table A.4: Intermediate consumption by product of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A	Agriculture and related activities	2	2	2	2	2	2	2	2	3	3	4	4	4	4	3	4	4	4	4	4	5	5	5

A	Livestock. hunting and related activities	5	5	5	5	6	6	7	7	7	8	9	9	1	1	1	1	1	1	1	1	1	1	2
A	Forestry and logging	6	6	7	7	8	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
A	Fishing and aquaculture	3	4	4	4	4	4	5	5	5	6	6	6	6	8	7	7	8	9	1	1	1	1	1
B	Extraction of hydrocarbons	9	1	1	1	1	1	2	1	2	3	2	3	3	5	4	4	4	5	6	6	6	8	1
B	Extraction of metal ores																							
B	Other mining and quarrying	1	2	1	2	2	2	2	1	2	3	3	4	4	5	5	4	4	4	5	6	5	4	3
C	Manufacture of food products. beverages and tobacco	1	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	5	5	5
C	Manufacture of textiles. wearing apparel and leather	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	Coke and refined petroleum products	2	3	3	3	3	3	4	4	5	5	5	6	6	7	7	7	7	6	8	9	1	1	1

C	Other manufacturing activities	4	4	4	5	5	5	6	6	7	8	8	9	9	1	1	1	1	1	1	1	1	1	1
D	Electricity and gas output and distribution	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	3	3	3	3	4
E	Water collection. treatment and supply	3	3	3	4	4	4	5	5	6	7	7	7	8	8	8	9	9	1	1	1	1	1	1
F	Construction	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	4	4	4	1	1	1	9	1
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	3	3	4	4	5	5	6	6	8	8	8	9	1	1	1	1	1	1	1	1	1	1	1
H	Transportation and storage	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	7	7	8	8	7	8
I0	Accommodation and food service activities	5	4	5	5	6	8	9	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
J	Information and communication	8	9	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	3	3
K	Financial and insurance activities	1	1	1	2	2	2	3	3	4	5	5	5	5	6	6	6	6	6	6	7	7	8	8
L	Real estate activities	7	8	8	9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3
M	Other business	6	7	7	7	8	9	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3

	service activities																							
O	Public administration activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	Education	0	0	0	0	0	0	0	1	7	7	8	9	1	1	1	1	1	1	1	1	1	1	1
Q	Human health and social work activities																							
T		**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**4**	**5**	**5**	**5**	**5**	**6**	**6**	**6**	**6**	**7**	**7**	**8**	**8**	**8**	**9**

Source: DRS. ECOWAS

Table A.5: Backcasted intermediate consumption

Code	**Backcasting classification**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
	PRIMARY SECTOR								
A01	Agriculture and related activities	475	508	515	554	578	610	633	690
A0101	cereals	224	239	243	261	272	287	298	325
A02	Livestock. hunting and related activities	146	162	186	194	195	216	228	254

A0201	cattle. sheep and goats	67	74	85	89	89	99	104	116
	SECONDARY SECTOR								
B00010	Extraction of hydrocarbons	124	131	161	199	201	209	259	331
B00030	Other mining and quarrying	519	567	577	669	760	730	576	483
C01	Manufacture of food products. beverages and tobacco	491	513	524	544	557	599	599	656
C0101	Slaughtering. processing and preservation of meat and fish	37	39	40	41	42	46	46	50
C02	Manufacture of textiles. wearing apparel and leather	45	54	57	61	62	68	77	84
C03	Coke and refined petroleum products	659	631	571	680	813	886	854	1003
F00	Construction	46	48	46	166	194	122	105	130
	TERTIARY SECTOR								
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	214	211	201	222	244	271	225	253
H00	Transportation and storage	811	921	987	1053	1103	1141	1082	1229
J00	Information and communication	34	33	35	36	37	40	35	38

		8	4	0	8	5	6	4	3
J0001	Telecommunication services	212	204	214	224	229	248	216	234
K00	Financial and insurance activities	426	598	491	695	527	738	593	689
K0001	Banking and microfinance services	187	359	248	448	267	458	295	371
K0002	Insurance services	182	181	185	188	198	213	227	242
K0003	Other financial and insurance services	57	57	58	59	62	67	71	76
L00	Real estate activities	281	289	303	325	333	367	385	425

Source: DRS. ECOWAS

Table A.6: Final consumption by product of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A01	Agriculture and related activities	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	4	4	4	4	5
A02	Livestock. hunting and related activities	2	2	2	2	2	2	1	2	4	4	4	6	6	6	7	9	9	1	1	1	1	1	1

A03	Forestry and logging	2	2	2	2	3	3	3	4	5	5	6	6	6	6	6	7	7	7	7	8	8	8	1
A04	Fishing and aquaculture	2	1	1	5	7	6	7	5	8	1	9	9	1	1	1	1	1	1	1	2	2	2	2
B00010	Extraction of hydrocarbons																								
B00020	Extraction of metal ores																								
B00030	Other mining and quarrying	2	2	4	4	4	4	4	4	5	5	5	6	7	8	7	7	8	8	8	8	7	8	9
C01	Manufacture of food products. beverages and tobacco	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
C02	Manufacture of textiles. wearing apparel and leather	1	2	2	2	2	3	2	1	2	4	2	2	3	5	5	4	4	5	6	6	6	7	9
C03	Coke and refined petroleum products	4	6	4	4	5	7	7	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
C04	Other manufacturing activities	3	3	3	4	4	4	4	4	5	5	6	5	6	6	6	6	6	6	7	7	7	7	8
D00	Electricity and gas output and distribution	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5	5	5	6	6	7	7	7	8
E00	Water collection. treatment and supply	4	6	7	8	9	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	4
F00	Construction																								
G00	Wholesale and retail trade; repair of	3	3	4	4	4	4	4	4	5	5	5	6	6	6	6	6	7	5	6	6	5	5	6

	motor vehicles and motorcycles																							
H00	Transportation and storage	1	8	9	9	1	1	1	1	1	2	1	1	2	2	2	2	2	2	2	3	2	2	3
I00	Accommodation and food service activities	1	1	9	9	1	1	1	2	2	2	2	2	3	3	3	3	4	5	4	5	4	4	5
J00	Information and communication	4	8	1	1	1	1	2	3	3	4	4	4	4	4	5	5	4	5	4	5	5	5	5
K00	Financial and insurance activities	3	4	4	5	7	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	4	4
L00	Real estate activities	5	7	7	7	7	6	6	7	8	9	1	1	1	1	1	1	1	1	1	1	1	1	1
M00	Other business service activities	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
O00	Public administration activities	2	2	3	3	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	1	1	1	1
P00	Education	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	6	6
Q00	Human health and social work activities	7	8	8	8	8	7	7	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Total final consumption		**2**	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**5**	**6**	**5**	**6**	**6**	**7**	**7**	**7**	**7**	**8**	**8**	**9**	**9**	**1**	**1**

Source: *DRS. ECOWAS*

Table A.7: Backcasted final consumption

Code	**Backcasting classification**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
	PRIMARY SECTOR								
A01	Agriculture and related activities	821	933	1033	1081	1173	1208	1231	1520
A0101	cereals	295	334	370	388	420	433	441	545
A02	Livestock. hunting and related activities	407	432	461	461	454	459	533	673
A0201	cattle. sheep and goats	229	243	260	259	256	258	300	379
	SECONDARY SECTOR								
B00030	Other mining and quarrying	14	16	15	15	15	14	16	17
C01	Manufacture of food products. beverages and tobacco	2359	2368	2515	2600	2701	2765	2939	3116
C0101	Slaughtering. processing and preservation of meat and fish	451	453	481	497	517	529	562	596
C02	Manufacture of textiles. wearing apparel and leather	184	208	238	261	273	289	329	420
C03	Coke and refined petroleum products	18	14	15	15	17	15	16	17

		5	2	0	7	1	5	5	8
	TERTIARY SECTOR								
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	30	31	26	28	30	22	24	27
H00	Transportation and storage	375	374	389	421	458	348	439	513
J00	Information and communication	597	562	593	577	603	608	598	597
J0001	Telecommunication services	530	499	527	513	535	540	532	530
K00	Financial and insurance activities	342	466	428	528	443	547	473	309
K0001	Banking and microfinance services	269	389	347	443	349	452	365	408
K0002	Insurance services	21	23	24	25	27	28	32	35
K0003	Other financial and insurance services	52	54	57	60	66	67	77	84
L00	Real estate activities	972	975	1044	1067	1106	1180	1231	930

Source: DRS. ECOWAS

Table A.8: Gross fixed capital formation by product of the national accounts according to the old base

	Old-base classification	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A02	Livestock. hunting and related activities	2	3	3	4	3	3	4	2	4	3	4	3	4	5	6	5	6	6	7	7	6	7	9
C04	Other manufacturing activities	5	8	6	6	7	8	9	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3
F00	Construction	7	7	6	6	7	7	8	9	9	8	9	1	1	1	1	1	1	1	2	2	1	2	2
J00	Information and communication	1	1	1	1	1	1	1	2	1	1	2	2	2	2	7	7	9	8	9	1	1	1	1
Total GFCF		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**4**	**5**	**4**	**5**	**6**

Source: *DRS. ECOWAS*

Table A.9: Changes in inventories by product of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A01	Agriculture and related activities	1	-	5	1	1	-	9	7	1	-	7	4	7	-	5	1	1	1	1	-	1	7	1
A02	Livestock. hunting and	3	0	1	4	3	-	2	2	2	2	-	-	2	1	-	1	4	3	4	3	-	-	3

	related activities																							
A03	Forestry and logging	0	0	0	0	0	0	0	0	0	-	-	0	-	-	-	0	0	0	0	-	-	0	-
A04	Fishing and aquaculture	5	-	2	5	2	-	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B00030	Other mining and quarrying	4	5	6	4	4	5	3	1	-	7	1	9	1	6	1	1	7	8	6	2	-	1	3
C01	Manufacture of food products. beverages and tobacco	1	4	4	1	2	-	9	4	5	1	2	2	2	3	3	5	2	-	1	6	6	1	2
C02	Manufacture of textiles. wearing apparel and leather	-	2	8	-	7	-	-	-	-	2	-	-	-	-	-	7	3	-	-	-	-	1	-
C03	Coke and refined petroleum products	-	-	1	-	-	-	-	-	-	-	-	-	-	6	3	4	4	5	1	2	1	1	1
C04	Other manufacturing activities	1	-	2	1	2	-	1	-	2	1	-	-	5	-	-	3	2	-	1	-	2	1	-
D00	Electricity and gas output and distribution	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

E00	Water collection . treatment and supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F00	Construction	7	-	6	2	1	-	-	2	6	1	6	-	2	1	-	2	-	2	2	-	-	-	-	
J00	Information and communication	1	2	-	0	0	0	1	2	0	1	3	1	2	2	1	2	0	1	2	4	1	2	5	
Total changes in inventories		**1**	**-**	**1**	**9**	**1**	**-**	**4**	**1**	**1**	**8**	**-**	**-**	**1**	**1**	**2**	**3**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	

Source: *DRS. ECOWAS*

Table A.10: Exports by product of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A	Agriculture and related activities	4	3	1	9	5	4	4	4	6	5	6	6	6	6	8	8	1	1	1	1	1	2	1	
A	Livestock. hunting and related activities	0	0	1	1	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	
A	Forestry and logging	1	1	1	1	1	0	1	1	2	1	1	1	1	1	1	2	2	2	1	1	2	1	1	

A	Fishing and aquaculture	5	5	5	4	6	5	4	4	4	2	2	3	4	4	2	2	3	3	4	4	2	2	3
B	Extraction of hydrocarbons	4	5	6	7	8	9	1	6	1	1	1	1	1	2	2	2	2	2	3	3	3	4	5
B	Extraction of metal ores	6	7	8	8	8	8	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2
B	Other mining and quarrying	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	4	5	5	5	4	5	6
C	Manufacture of textiles. wearing apparel and leather	4	6	1	1	1	1	3	4	4	5	7	9	1	1	8	9	1	9	7	6	7	8	8
C	Coke and refined petroleum products	5	2	1	1	1	1	1	2	1	3	1	2	1	1	1	1	1	2	2	4	3	3	5
C	Other manufacturing activities	5	5	7	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3
H	Transportation and	3	4	2	2	4	5	6	6	6	6	2	2	4	6	7	7	7	7	8	1	7	1	1

	storage																							
I	Accommodation and food service activities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	0	0	0	0
J	Information and communication	3	3	4	4	4	5	5	7	9	9	6	9	9	1	1	1	1	1	1	1	8	1	1
K	Financial and insurance activities	0	0	5	3	3	3	4	4	4	2	2	2	2	6	5	6	7	9	9	9	9	1	1
L	Real estate activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	Other business service activities	4	6	4	6	6	7	8	8	8	1	9	1	9	1	1	1	1	1	2	2	2	2	2
O	Public administration activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	Education	0	0	4	0	1	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2
Q	Human health and social work activities	0	0	0	0	0	0	0	0	0	1	1	1	1	2	3	3	3	6	6	6	3	6	5
Total exports		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**3**	**4**	**4**

Source: *DRS. ECOWAS*

Table A.11: Imports by product of the national accounts according to the old base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A	Agriculture and related activities	3	4	5	6	6	6	6	6	9	1	9	9	1	1	1	1	1	1	1	1	2	2	3
A	Livestock. hunting and related activities	0	0	1	1	1	1	1	1	3	3	2	2	3	2	2	3	3	5	4	3	3	4	4
A	Forestry and logging	4	4	2	3	2	3	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	2
A	Fishing and aquaculture	4	2	5	5	1	2	1	1	1	9	1	9	1	9	9	8	7	6	1	6	2	3	6
B	Extraction of hydrocarbons	6	7	1	1	1	2	2	9	2	4	2	2	2	4	4	3	3	4	4	3	3	4	6
C	Manufacture of food products. beverages and tobacco	2	1	2	2	3	3	3	3	4	5	4	3	4	5	5	5	4	5	6	5	6	7	8
C	Manufacture of textiles. wearing apparel and leather	4	5	5	7	6	7	6	7	8	9	8	7	8	1	1	1	1	1	1	1	1	1	3
C	Coke and refined petroleum products	1	3	1	1	1	1	2	4	3	3	2	3	4	5	5	6	4	5	8	9	8	1	2

C	Other manufacturing activities	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	5	5
H	Transportation and storage	5	6	3	2	3	5	5	5	6	6	6	3	5	6	7	7	8	9	1	1	9	1	1
I	Accommodation and food service activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	Information and communication	5	8	1	1	1	1	2	2	3	3	3	4	5	5	6	7	8	8	6	6	5	6	6
K	Financial and insurance activities	1	1	2	1	1	1	1	9	1	1	1	1	1	2	7	7	7	7	8	8	7	1	1
L	Real estate activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	Other business service activities	3	3	3	5	5	7	7	7	8	8	7	8	8	7	9	8	8	1	1	1	1	1	8
O	Public administration activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	Education	3	3	2	3	1	6	8	9	3	1	2	2	2	1	1	1	1	2	2	2	3	4	5
Q	Human health and social work activities	0	1	1	0	1	0	0	0	0	0	1	3	1	1	1	2	2	2	2	2	3	4	5
Total imports		**1**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**4**	**4**	**3**	**4**	**4**	**5**	**5**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**1**

Source: *DRS. ECOWAS*

Table A.12: Backcasted output by industry

Code	**Backcasting classification**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
	PRIMARY SECTOR								
A01	Agriculture and related activities	1357	1560	1559	1667	1809	2214	2160	2291
A	cereals	48	56	56	59	64	79	77	82

0101		7	0	0	8	9	5	5	2
A02	Livestock. hunting and related activities	589	646	711	732	734	753	826	1002
A0201	cattle. sheep and goats	299	327	360	371	372	382	419	508
	SECONDARY SECTOR								
B00010	Extraction of hydrocarbons	1	1	1	2	2	2	3	3
B00020	Extraction of metal ores	531	566	590	611	643	632	690	789
B00030	Other mining and quarrying	669	668	688	757	1061	683	739	883
C01	Manufacture of food products. beverages and tobacco	2567	2752	2819	3097	3962	3038	3356	3639
C0101	Slaughtering. processing and preservation of meat and fish	623	668	685	752	962	738	815	884
C02	Manufacture of textiles. wearing apparel and leather	283	340	363	385	393	428	485	529
C03	Coke and refined petroleum products	232	253	230	189	335	335	557	566
F00	Construction	141	148	173	229	233	187	214	240

		0	4	1	4	2	7	2	2
	TERTIARY SECTOR								
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	193	201	212	225	240	223	251	280
H00	Transportation and storage	749	805	869	898	963	852	931	1021
J00	Information and communication	1029	1012	1052	1042	1064	1083	1052	1129
J0001	Telecommunication services	766	753	783	776	792	806	783	840
K00	Financial and insurance activities	657	959	821	1137	874	1190	963	849
K0001	Banking and microfinance services	457	749	596	891	616	911	660	569
K0002	Insurance services	86	95	107	124	128	139	155	126
K0003	Other financial and insurance services	114	115	119	122	130	140	148	155
L00	Real estate activities	975	986	1054	1091	1124	1200	1259	1355

O00	Public administration activities	900	927	989	1071	1140	1244	1450	1588														

Source: DRS. ECOWAS

Table A.13: Unadjusted backcasted output by industry according to the new 2022 base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A01	Agriculture and related activities	6	6	6	6	6	6	8	8	9	9	1	1	1	1	1	1	1	1	1	1	2	2
0101	cereals	2	2	2	2	2	2	3	3	3	3	5	5	5	4	4	4	5	5	6	6	8	8
0102	Tubers	6	6	6	6	6	6	7	7	8	9	1	1	1	1	1	1	1	1	1	1	2	2
0103	Vegetables and spices	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3
0104	Other agricultural activities	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	5	5	5	5	6	6
02	Livestock. hunting and related activities	2	2	2	2	2	2	2	2	3	3	3	4	4	4	5	5	6	7	7	7	7	8
020	cattle. sheep and goats	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	4

1																								
0203	Other livestock. hunting and related activities	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	4	
A03	Forestry and logging	2	2	2	2	2	2	3	3	5	4	5	5	6	6	6	6	6	7	7	7	7	8	
A04	Fishing and aquaculture	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	3	2	3	2	
B00	Mining and quarrying	7	8	8	9	9	1	9	1	1	1	1	1	1	1	2	1	1	1	2	2	2	2	
B0010	Extraction of hydrocarbons	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	3
B0020	Extraction of metal ores	4	4	5	5	5	5	5	5	6	6	7	7	8	8	8	8	9	9	9	1	1	1	
B0030	Other mining and quarrying	2	3	2	3	3	4	3	3	3	5	5	6	7	8	9	6	6	7	7	1	7	7	
C01	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	
0101	Slaughtering. processing and preservation of meat and fish	2	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	7	6	6	
010	edible fats	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	

2																							
0103	Grain milling and starch products	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6	8	6	6
0105	Other manufacturing activities de produits alimentaires. tabacs	7	7	8	8	8	8	8	9	9	1	1	1	1	1	1	1	1	1	1	2	1	1
C02	Manufacture of textiles. wearing apparel and leather	5	9	9	1	1	1	1	6	1	2	1	1	2	3	2	2	2	2	3	3	3	3
C03	Coke and refined petroleum products	3	5	5	5	5	6	6	7	7	1	6	7	7	1	1	1	1	1	9	1	1	1
C04	Other manufacturing activities	1	1	1	1	1	2	2	3	3	3	4	5	4	5	5	4	5	6	7	7	7	8
D00	Electricity and gas output and distribution	3	3	4	4	5	5	5	5	6	6	6	6	7	7	7	7	7	8	8	9	9	1
E00	Water collection. treatment and supply	5	6	7	8	8	9	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	3
F00	Construction	7	6	7	7	8	7	8	9	1	1	9	9	1	1	1	1	1	1	2	2	1	2
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	7	7	8	9	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
H00	Transportation and storage	3	3	3	4	4	5	5	6	6	7	6	6	7	8	8	9	9	1	1	1	1	1
0	Road transport	1	1	1	1	2	2	2	2	2	3	2	3	3	3	3	4	4	4	4	5	4	4

001																							
003	Other transportation and storage	2	1	2	2	2	2	3	3	3	4	3	3	4	4	4	5	5	5	6	6	6	6
I00	Accommodation and food service activities	2	1	2	2	2	2	3	3	3	4	3	3	4	4	4	4	5	5	5	5	5	5
J00	Information and communication	1	2	2	2	3	4	5	6	7	8	8	8	8	9	1	1	1	1	1	1	1	1
0001	Telecommunication services	1	1	1	2	2	3	3	4	5	6	6	6	6	7	7	7	7	7	7	7	8	7
0002	Other information and communication services	5	6	7	7	8	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
00	Financial and insurance activities	4	3	4	3	4	3	5	4	5	4	6	5	7	5	8	6	9	8	1	8	1	9
0001	Banking and microfinance services	3	2	3	2	3	2	3	2	3	2	4	3	5	3	6	4	7	5	8	5	8	6
0002	Insurance services	2	3	4	4	5	6	7	8	8	9	1	1	1	1	1	1	1	1	1	1	1	1
0003	Other financial and insurance services	1	2	2	2	3	4	5	6	7	8	8	9	9	1	1	1	1	1	1	1	1	1

00	Real estate activities	5	6	6	6	6	6	6	7	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1
M00	Other business service activities	1	2	2	2	6	2	2	3	3	3	3	3	4	4	4	4	5	6	6	7	7	7	
O00	Public administration activities	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	9	9	1	1	1	1	
P00	Education	2	2	2	2	2	2	3	3	4	4	5	5	6	6	6	7	7	7	7	8	8	1	
Q00	Human health and social work activities	1	1	1	1	2	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	

Source: *DRS. ECOWAS*

Table A.14: Unadjusted backcasted intermediate consumption by product according to the new base

IC	**Year**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A01	Agriculture and related activities	2	3	3	2	2	3	3	3	3	4	5	5	5	5	4	4	5	5	5	5	6	6	6
0101	cereals	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	3
0102	Tubers	8	9	9	8	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
010	Vegetables and spices	3	3	3	3	3	3	3	4	4	5	6	6	7	5	5	5	6	5	6	6	7	7	8

3																									
0104	Other agricultural activities	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2
02	Livestock. hunting and related activities	7	8	7	7	9	9	1	9	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
0201	cattle. sheep and goats	3	3	3	3	4	4	5	4	4	5	5	5	5	6	6	6	7	8	8	9	1	1	1	1
0203	Other livestock. hunting and related activities	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	7	8	1	1	1	1	1	1	1
A03	Forestry and logging	7	8	9	9	9	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
A04	Fishing and aquaculture	4	4	4	4	4	4	5	5	5	6	6	6	6	8	8	7	8	1	1	1	1	1	1	1
B00	Mining and quarrying	2	3	2	3	3	4	3	2	3	5	5	6	7	8	8	6	6	7	8	9	8	7	8	8
B0010	Extraction of hydrocarbons	2	3	4	4	6	6	7	3	7	1	7	1	1	1	1	1	1	1	1	1	1	2	3	3
B0030	Other mining and quarrying	1	2	2	2	3	3	2	2	2	4	4	5	6	6	7	5	5	5	6	7	6	5	4	4
C01	Manufacture of food products. beverages and tobacco	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6
	Slaughtering.	1	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5

0101	processing and preservation of meat and fish																								
0102	edible fats	3	3	3	3	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	9	8	8	1	
0103	Grain milling and starch products	6	7	7	7	7	8	8	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0105	Other manufacturing activities de produits alimentaires. tabacs	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
C02	Manufacture of textiles. wearing apparel and leather	1	2	2	2	3	3	2	1	3	5	2	3	5	6	6	5	6	6	7	7	7	9	9	
C03	Coke and refined petroleum products	2	3	3	3	3	4	4	4	5	5	4	5	6	7	6	7	7	6	7	1	1	1	1	
C04	Other manufacturing activities	3	3	4	4	4	4	5	5	5	6	6	7	8	7	7	9	9	9	1	1	1	1	1	
D00	Electricity and gas output and distribution	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	
E00	Water collection. treatment and supply	1	1	2	2	2	2	3	3	3	4	4	4	4	4	5	5	5	7	8	7	7	8	8	
F00	Construction	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	4	4	4	1	1	1	1	1	
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	6	5	7	7	8	9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	

H00	Transportation and storage	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	8	9
001	Road transport	8	9	9	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	3	2	3
003	Other transportation and storage	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	5	5	5	5	6
I00	Accommodation and food service activities	3	3	3	3	4	5	6	6	7	8	7	8	9	1	1	1	1	1	1	1	1	1	1
J00	Information and communication	8	9	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
001	Telecommunication services	5	5	6	7	7	8	9	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
002	Other information and communication services	2	3	3	4	4	5	6	7	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
K00	Financial and insurance activities	2	1	2	1	2	1	2	2	3	2	3	2	4	3	5	3	5	4	6	5	7	5	8
001	Banking and microfinance services	1	1	1	1	1	1	1	1	1	1	2	1	2	1	3	1	3	2	4	2	4	3	5
002	Insurance services	3	3	4	4	5	5	6	7	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1

003	Other financial and insurance services	1	1	1	1	2	2	2	3	4	4	5	5	5	5	6	6	5	6	6	6	7	7	7
L00	Real estate activities	8	9	9	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	4
M00	Other business service activities	1	1	1	1	8	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	6	6	7

Source: *DRS. ECOWAS*

Table A.15: Unadjusted backcasted final consumption by product according to the new 2022 base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
A01	Agriculture and related activities	3	3	3	4	3	4	5	5	5	6	7	7	7	7	8	8	9	1	1	1	1	1	1
0101	cereals	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	4	4	4	5
0102	Tubers	5	5	5	5	5	5	6	6	7	8	9	1	9	1	1	1	1	1	1	1	1	1	1
0103	Vegetables and spices	9	9	9	9	8	9	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3
0104	Other agricultural activities	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4

02	Livestock. hunting and related activities	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	4	4	4	4	4	4	5	6
0201	cattle. sheep and goats	6	7	7	7	6	6	5	7	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3
0203	Other livestock. hunting and related activities	4	5	5	5	4	4	4	5	8	9	8	1	1	1	1	1	1	2	2	2	2	2	2
A03	Forestry and logging	1	1	1	1	2	2	2	2	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6
A04	Fishing and aquaculture	1	1	1	4	6	4	6	4	7	8	8	7	9	1	1	9	9	1	1	1	2	1	1
B00	Mining and quarrying	3	3	7	8	8	7	7	9	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B0030	Other mining and quarrying	3	3	7	8	8	7	7	9	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C01	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	3
0101	Slaughtering. processing and preservation of meat and fish	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	6
0102	edible fats	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
01	Grain milling and starch products	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	6

03																									
0105	Other manufacturing activities de produits alimentaires. tabacs	6	6	7	7	7	7	8	8	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C02	Manufacture of textiles. wearing apparel and leather	7	1	1	1	1	1	1	6	1	2	1	1	1	2	2	2	2	2	3	3	3	4	4
C03	Coke and refined petroleum products	1	2	2	1	2	2	2	4	4	5	3	4	5	7	7	9	7	7	7	9	8	1	1
C04	Other manufacturing activities	4	3	5	5	5	5	6	5	6	7	6	7	8	7	7	8	8	8	9	9	9	1	9
D00	Electricity and gas output and distribution	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	6	7
E00	Water collection. treatment and supply	3	4	4	5	6	6	7	8	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	2	2	3	2	2	2
H00	Transportation and storage	1	9	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	2	3	4
0001	Road transport	8	6	7	7	8	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2
0003	Other transportation and storage	4	3	3	3	4	6	6	7	7	9	8	8	8	8	9	1	1	1	1	1	9	1	1
I00	Accommodation	5	5	5	5	8	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3

0	and food service activities																								
J00	Information and communication	5	9	1	1	1	2	3	3	4	4	5	5	5	5	5	5	5	5	5	5	6	5	5	
001	Telecommunication services	5	8	1	1	1	1	2	3	3	4	4	4	4	4	5	5	4	5	5	5	5	5	5	
002	Other information and communication services	4	9	1	1	1	2	3	4	5	6	6	6	6	6	6	6	5	6	5	6	6	6	6	
00	Financial and insurance activities	2	1	2	1	2	2	2	2	2	2	2	2	3	2	4	3	4	4	5	4	5	4	4	
001	Banking and microfinance services	2	1	2	1	2	1	2	1	2	1	2	2	2	2	3	2	4	3	4	3	4	3	3	
002	Insurance services	2	3	3	3	5	6	8	8	8	1	9	1	1	1	1	1	1	1	2	2	2	2	2	
003	Other financial and insurance services	6	8	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	5	6	6	7	7	8	
L00	Real estate activities	4	5	5	5	5	4	5	5	6	7	8	8	8	8	9	8	8	9	9	9	1	1	9	
M00	Other business service activities	4	4	5	5	5	4	5	6	6	7	7	8	8	8	9	9	8	8	8	6	6	7	2	
O00	Public administration activities	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	9	9	1	1	1	1	1	

P00	Education	2	2	2	2	2	3	3	3	4	4	5	5	6	6	6	6	7	7	7	8	8	1	1
Q00	Human health and social work activities	1	1	1	1	2	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	5

Source: *DRS. ECOWAS*

Table A.16: Unadjusted backcasted gross fixed capital formation (GFCF) by product according to the new 2022 base

Code	**Year**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
02	Livestock. hunting and related activities	2	3	3	4	3	3	4	2	4	3	4	3	3	4	5	5	5	6	6	6	6	6	8
0201	cattle. sheep and goats	4	8	6	8	6	8	1	5	8	6	9	6	7	9	1	1	1	1	1	1	1	1	1
0203	Other livestock. hunting and related activities	1	3	2	3	2	3	3	2	3	2	3	2	3	3	4	4	4	4	5	5	5	5	6
B00	Mining and quarrying	3	5	3	4	5	6	5	5	4	8	9	9	1	1	1	9	9	9	1	1	9	1	1
B0030	Other mining and quarrying	3	5	3	4	5	6	5	5	4	8	9	9	1	1	1	9	9	9	1	1	9	1	1
C04	Other manufacturing activities	4	5	5	4	5	5	7	7	1	8	7	9	1	1	1	1	1	1	1	2	1	2	2

F00	Construction	7	6	7	7	7	7	8	9	11	11	9	9	11	11	11	11	11	11	22	22	11	22	22
J00	Information and communication	7	9	8	8	9	11	11	11	11	11	11	11	11	11	44	55	55	55	66	66	77	88	88
0001	Telecommunication services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0002	Other information and communication services	7	9	8	8	9	11	11	11	11	11	11	11	11	11	44	55	55	55	66	66	77	88	88

Source: *DRS. ECOWAS*

Table A.17: Backcasted changes in inventories according to the old base

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Agriculture and related activities	77	42	77	-43	54	17	15	11	17	-25	134	73	134
Livestock. hunting and related activities	-2	-3	2	1	-2	1	4	3	4	3	-3	-5	3
Forestry and logging	-3	0	-1	-1	-1	0	0	0	0	-1	-3	0	-1
Fishing and aquaculture	0	0	0	0	0	0	0	0	0	0	0	0	0
Other mining and quarrying	183	98	130	69	197	116	77	85	67	238	-39	126	314
Manufacture of food products. beverages and tobacco	20	22	21	30	30	56	27	-10	117	652	69	148	263
Manufacture of textiles. wearing apparel and leather	-35	-25	-1	-18	-8	7	3	-5	-7	-5	-7	1	-15
Refined petroleum products	-2	-2	-1	65	35	49	46	52	11	247	180	101	160

	87	81	89									0	2
Other manufacturing activities	-26	-9	52	-26	-15	38	22	-11	18	-10	2	19	-25
Electricity and gas output and distribution	0	0	0	0	0	0	0	0	0	0	0	0	0
Water collection. treatment and supply	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	64	-130	20	103	-36	26	-14	26	20	-33	-84	-174	-89
Information and communication	3	1	2	2	1	2	0	1	2	4	1	2	5
TOTAL	-6	-284	112	183	255	312	181	153	249	1068	258	1200	2192

Source: DRS. ECOWAS

Table A.18: Unadjusted backcasted changes in inventories by product according to the new 2022 base

	Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Code	**PRIMARY SECTOR**													
A01	Agriculture and related activities	128	70	128	-71	91	28	26	19	28	-41	223	122	223
A0101	cereals	97	53	97	-53	68	21	19	14	21	-31	169	92	168
A0102	Tubers	13	7	13	-7	9	3	3	2	3	-4	23	13	23
A	Vegetables and spices	2	1	2	-1	1	0	0	0	0	-1	3	2	3

01 03														
A 01 04	Other agricultural activities	16	9	16	-9	12	4	3	2	4	-5	29	16	29
A 02	Livestock. hunting and related activities	-4	-7	5	3	-6	4	11	8	11	7	-8	-13	8
A 02 01	cattle. sheep and goats	-4	-7	4	3	-6	3	10	7	10	6	-7	-12	7
A 02 03	Other livestock. hunting and related activities	0	-1	1	0	-1	0	1	1	1	1	-1	-2	1
A03	Forestry and logging	0	0	0	0	0	0	0	0	0	0	0	0	0
A04	Fishing and aquaculture													0
	SECONDARY SECTOR													0
B00	Mining and quarrying	69	37	49	26	74	43	29	32	25	89	-15	47	122
B000 10	Extraction of hydrocarbons													4
B000 20	Extraction of metal ores													0
B000 30	Other mining and quarrying	69	37	49	26	74	43	29	32	25	89	-15	47	118
C01	Manufacture of food products. beverages and tobacco	21	22	22	31	31	58	28	-11	12 1	67 6	72	153	273
C 01 01	Slaughtering. processing and preservation of meat and fish	0	0	0	0	0	1	0	0	2	9	1	2	4
C 01 02	edible fats	-4	-4	-4	-5	-5	-10	-5	2	-21	-18	-13	-27	-48
C	Grain milling and starch	10	10	10	15	14	27	13	-5	56	31	34	72	12

0103	products																							
0105	Other manufacturing activities de produits alimentaires. tabacs	14	15	15	22	21	40	19	-7	84	469	50	107	190
C02	Manufacture of textiles. wearing apparel and leather	27	19	1	13	6	-6	-2	4	6	4	5	0	11
C03	Refined petroleum products	-91	-89	-60	21	11	16	15	17	4	79	57	322	510
C04	Other manufacturing activities	202	68	-408	206	116	-530	-176	90	-141	81	-14	-149	196
F00	Construction	-8	16	-2	-13	4	-3	2	-3	-2	4	10	21	11

Source: *DRS. ECOWAS*

Table A.19: Unadjusted backcasted exports by product according to the new 2022 base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Code	**PRIMARY SECTOR**																							
A01	Agriculture and related activities	3	2	1	7	4	3	3	3	4	4	4	5	5	5	6	6	8	8	8	1	1	1	1
0101	cereals	1	1	0	0	0	1	1	1	2	1	2	2	2	2	2	2	3	3	3	5	5	6	4
0102	Tubers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vegetables	1	9	4	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	4	4	6	4

0103	and spices																								
0104	Other agricultural activities	2	1	8	5	2	2	2	2	3	2	3	3	3	3	4	4	5	5	5	9	9	1	1	8
02	Livestock. hunting and related activities	1	1	2	2	2	3	4	3	2	1	1	1	1	1	2	2	1	0	1	1	1	1	1	1
0201	cattle. sheep and goats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0203	Other livestock. hunting and related activities	1	1	2	2	2	3	4	3	2	1	1	1	1	1	2	2	1	0	1	1	1	1	1	1
A03	Forestry and logging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A04	Fishing and aquaculture	1	1	1	8	1	1	1	9	1	4	5	7	8	8	5	5	7	8	8	8	5	6	7	
	SECONDARY SECTOR																								0
B00	Mining and quarrying	3	4	4	4	4	5	5	5	5	6	7	7	8	8	9	8	8	9	9	1	9	1	1	
B0010	Extraction of hydrocarbons																								1
B0020	Extraction of metal ores	2	2	3	3	3	3	3	3	3	4	4	4	5	5	5	5	5	5	6	6	6	6	7	

B0030	Other mining and quarrying	1	1	1	1	1	1	1	1	1	2	2	3	3	3	4	3	3	3	3	4	3	3	4
C01	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	4	4	5	5	4	4	5
0101	Slaughtering. processing and preservation of meat and fish	6	7	8	7	9	8	9	1	1	7	1	1	1	1	1	1	2	2	2	2	2	2	2
0102	edible fats	5	6	7	6	7	7	7	8	9	6	8	8	1	1	1	1	1	2	2	2	1	2	2
0103	Grain milling and starch products	9	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	4	3	3	4
0105	Other manufacturing activities de produits alimentaires. tabacs	4	5	6	5	6	6	6	7	7	5	7	7	1	1	1	1	1	1	1	2	1	1	2
C02	Manufacture of textiles. wearing apparel and leather	7	1	2	2	1	3	5	8	8	1	1	1	2	2	1	1	1	1	1	1	1	1	1
C03	Refined petroleum products	5	2	1	1	1	1	1	2	1	3	2	2	2	2	1	1	1	2	2	4	3	4	6
C04	Other manufacturing activities	7	7	1	1	1	1	2	2	2	2	2	2	2	3	3	3	2	2	2	3	3	3	4
	TERTIARY SECTOR																							
H0	Transportation	5	5	3	3	6	7	9	8	9	9	3	3	6	9	1	1	1	1	1	1	9	1	1

0	and storage																							
0001	Road transport	1	2	1	1	2	2	3	2	3	3	1	1	2	3	3	3	3	3	4	4	3	4	5
0003	Other transportation and storage	3	3	2	2	4	4	6	5	6	6	2	2	4	6	6	6	6	7	7	9	6	9	1
I00	Accommodation and food service activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J00	Information and communication	2	3	4	3	4	4	5	7	8	8	5	8	8	1	1	1	1	1	1	9	7	9	1
0001	Telecommunication services	2	3	3	3	3	3	4	6	7	7	4	7	7	9	1	1	1	1	1	8	6	8	1
0002	Other information and communication services	4	5	6	6	6	7	8	1	1	1	9	1	1	1	2	2	2	2	1	1	1	1	2
00	Financial and insurance activities	0	0	1	1	1	1	1	1	1	5	6	6	7	1	1	2	2	2	3	2	2	3	4
0001	Banking and microfinance services	0	0	1	7	7	7	8	9	8	4	4	4	5	1	1	1	1	1	2	1	1	2	2
0002	Insurance services	0	0	4	3	3	3	3	3	3	2	2	2	2	5	5	6	7	8	8	8	8	1	1
0	Other financial and	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1

003	insurance services																							
M000	Other business service activities	4	5	4	5	5	6	7	7	7	8	8	8	8	9	9	9	1	1	1	2	2	2	2

Source: *DRS. ECOWAS*

Table A.20: Unadjusted backcasted imports by product according to the new 2022 base

	Year	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Code	**PRIMARY SECTOR**																							
A01	Agriculture and related activities	3	3	4	4	5	5	5	5	7	9	7	8	9	1	1	1	1	1	1	1	1	2	2
0101	cereals	2	2	3	4	4	4	4	4	6	7	6	6	7	8	9	9	9	1	1	1	1	1	2
0102	Tubers	1	1	1	2	2	2	2	2	2	3	2	3	3	3	4	4	4	5	5	5	5	7	9
0103	Vegetables and spices	3	3	4	4	4	5	4	5	6	8	6	7	8	9	1	1	1	1	1	1	1	1	2
0104	Other agricultural activities	3	3	4	4	4	4	4	5	6	8	6	7	8	9	1	1	1	1	1	1	1	1	2
02	Livestock. hunting and related activities	1	2	4	4	3	3	5	7	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2

0201	cattle. sheep and goats	1	1	2	2	1	2	3	4	7	7	5	7	8	6	7	8	9	1	1	8	9	1	1
0203	Other livestock. hunting and related activities	1	1	2	2	1	2	2	3	6	6	5	6	7	5	6	7	8	1	1	7	8	1	1
	SECONDARY SECTOR																							
B00	Mining and quarrying	1	1	1	1	2	2	2	1	2	3	2	3	4	5	4	3	4	4	5	5	6	5	6
B0010	Extraction of hydrocarbons	2	3	4	4	5	5	6	3	6	1	7	9	1	1	1	1	1	1	1	1	2	2	3
B0030	Other mining and quarrying	8	1	1	1	1	1	1	7	1	2	1	2	3	3	3	2	3	3	3	3	4	2	3
C01	Manufacture of food products. beverages and tobacco	2	2	2	3	3	3	4	4	5	6	4	4	5	6	6	6	5	6	6	6	7	7	9
0101	Slaughtering. processing and preservation of meat and fish	1	1	1	1	2	2	2	2	2	3	2	2	3	3	3	3	3	3	3	3	4	4	5
0102	edible fats	3	3	4	4	5	5	6	6	7	9	6	6	8	9	9	9	8	9	1	9	1	1	1
0103	Grain milling and starch products	9	8	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	3

3																								
010 5	Other manufacturing activities de produits alimentaires. tabacs	1	9	1	1	1	1	1	1	2	2	1	1	2	2	2	2	2	2	2	2	3	3	4
C02	Manufacture of textiles. wearing apparel and leather	2	2	2	3	2	3	2	3	3	4	3	3	3	5	5	6	5	6	6	6	6	8	1
C03	Refined petroleum products	3	16	5	6	6	7	1	1	1	9	1	1	1	1	2	1	1	2	3	3	4	7	
C04	Other manufacturing activities	6	7	7	7	8	8	9	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	
	TERTIARY SECTOR																							
H00	Transportation and storage	3	3	1	1	1	2	3	3	3	3	3	1	2	3	3	3	4	4	5	5	4	7	8
0001	Road transport	1	1	66	7	1	1	1	1	1	1	18	1	1	1	1	1	2	2	2	2	3	3	
0003	Other transportation and storage	2	3	1	1	1	2	2	2	3	2	2	1	2	3	3	3	3	4	5	5	4	7	8
J00	Information and communication	6	1	1	2	1	2	2	3	4	4	3	5	6	6	7	8	9	9	7	6	6	7	7
0001	Telecommunication services	3	5	6	19	1	1	1	2	2	2	2	3	3	3	4	4	5	3	3	3	3	3	
00	Other information and communication	3	5	6	19	1	1	1	2	2	1	2	3	3	3	4	4	4	3	3	3	3	3	

02	services																					
00	Financial and insurance activities	1	2	2	1	1	1	1	1	1	1	1	1	2	2	8	8	9	9	9	18	1	1
0001	Banking and microfinance services	1	2	3	2	1	2	2	1	1	2	2	2	2	3	9	9	9	9	1	11	9	1	2
0002	Insurance services	1	1	2	1	1	1	1	9	1	1	1	1	1	2	7	7	7	7	8	8	7	1	1
0003	Other financial and insurance services	1	1	1	1	0	1	1	0	0	1	1	1	1	1	3	3	3	3	4	4	3	5	7
M00	Other business service activities	5	5	5	8	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1

Source: *DRS. ECOWAS*

Table A.21: Total backcasted supply

Code	**Backcasting classification**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
	PRIMARY SECTOR							
A01	Agriculture and related activities	1502	1698	1737	1853	2007	2415	2409
A0101	cereals	555	625	644	686	742	889	893
A02	Livestock. hunting and related activities	592	649	715	736	737	756	830
A0201	cattle. sheep and goats	300	329	362	373	373	383	420

	SECONDARY SECTOR							
B00010	Extraction of hydrocarbons	326	310	406	443	377	356	443
B00030	Other mining and quarrying	669	668	688	757	1061	683	739
C01	Manufacture of food products. beverages and tobacco	3120	3246	3401	3700	4543	3732	4058
C0101	Slaughtering. processing and preservation of meat and fish	665	706	729	798	1006	790	868
C02	Manufacture of textiles. wearing apparel and leather	425	469	518	537	555	588	674
C03	Refined petroleum products	1704	1635	1601	1678	2516	2412	3712
	TERTIARY SECTOR							
H00	Transportation and storage	801	869	925	990	1059	989	1038
J00	Information and communication	1106	1094	1137	1109	1124	1141	1116
J0001	Telecommunication services	812	803	835	816	829	841	822
K00	Financial and insurance activities	730	1039	901	1222	963	1265	1080
K0001	Banking and microfinance services	505	801	647	946	674	960	736
K0002	Insurance services	105	116	128	147	151	159	186
K0003	Other financial and insurance services	120	122	126	129	138	146	158

Source: DRS. ECOWAS

Table A.22: Total backcasted uses

Code	**Backcasting classification**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
	PRIMARY SECTOR							
A01	Agriculture and related activities	140	157	167	177	188	222	222

		5	2	3	3	8	2	1
A 0101	cereals	578	643	677	722	746	974	943
A 02	Livestock. hunting and related activities	609	661	717	728	721	728	817
A 0201	cattle. sheep and goats	309	338	364	370	364	362	406
	SECONDARY SECTOR							
B00010	Extraction of hydrocarbons	326	345	425	526	530	551	683
B00030	Other mining and quarrying	672	708	724	821	1012	835	744
C01	Manufacture of food products. beverages and tobacco	3273	3366	3545	3815	4528	3909	4217
C 0101	Slaughtering. processing and preservation of meat and fish	517	527	560	582	613	611	650
C02	Manufacture of textiles. wearing apparel and leather	313	363	398	401	405	436	486
C03	Refined petroleum products	1967	1693	1728	1938	2393	2271	2626
	TERTIARY SECTOR							
H00	Transportation and storage	1262	1370	1456	1558	1664	1559	1621
J00	Information and communication	1151	1133	1181	1145	1159	1175	1146
J0 001	Telecommunication services	836	810	850	820	831	837	813
K00	Financial and insurance activities	775	1071	928	1232	978	1294	1077
K 0001	Banking and microfinance services	461	753	601	896	622	916	667
K 0002	Insurance services	205	206	211	216	228	243	262
K 0003	Other financial and insurance services	109	112	116	120	129	135	149

Source: DRS. ECOWAS

Table A.23: Gap between supply and use following the implementation of the backcasting methods

Code		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	PRIMARY SECTOR																						
A01	Agriculture and related activities	1	1	8	6	7	9	9	1	1	1	2	1	2	1	9	9	1	6	8	1	1	1	2
0101	cereals	5	1	0	-	-	1	-	3	4	8	-	-	-	1	-	-	-	-	-	-	-	-	-
0102	Tubers	2	2	1	1	1	1	1	2	2	2	3	3	3	2	1	1	2	9	1	1	2	2	-
0103	Vegetables and spices	3	3	2	2	2	2	2	3	4	2	7	6	8	1	3	3	3	1	2	2	8	6	3
0104	Other agricultural activities	5	5	4	4	4	4	5	5	6	5	1	1	1	4	8	7	8	7	8	8	1	1	1
02	Livestock. hunting and related activities	3	5	3	5	5	6	9	4	4	2	5	6	-	2	2	-	-	-	8	1	2	1	-
0201	cattle. sheep and goats	1	3	2	3	3	4	5	2	2	1	3	7	-	1	2	-	-	-	3	1	2	1	-
02	Other livestock. hunting and related	1	1	1	2	2	2	3	1	1	1	1	-	-	7	5	-	-	0	5	6	7	-	-

03	activities																								
A03	Forestry and logging	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	0	0	0	-	-	0	0
A04	Fishing and aquaculture	9	1	4	1	1	9	1	1	1	2	2	2	2	2	3	2	2	3	4	4	5	4	4
	SECONDARY SECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B00	Mining and quarrying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
B0010	Extraction of hydrocarbons	-	-	2	2	3	5	6	-	5	1	-	9	-	2	4	0	-	-	-	-	-	-	0
B0020	Extraction of metal ores	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
B0030	Other mining and quarrying	2	-	-	-	-	-	-	6	-	-	6	-	-	-	2	-	-	-	-	4	-	-	0
C01	Manufacture of food products. beverages and tobacco	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
C0101	Slaughtering. processing and preservation of meat and fish	7	8	8	8	7	7	7	1	8	5	1	1	1	1	1	1	1	1	2	3	1	2	1
C0102	edible fats	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-

0 1 0 3	Grain milling and starch products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0 1 0 5	Other manufacturing activities de produits alimentaires. tabacs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C0 2	Manufacture of textiles. wearing apparel and leather	3	6	7	5	8	7	4	1	4	9	7	7	6	7	1	1	1	1	1	1	1	1	1	1
C0 3	Coke and refined petroleum products	3	1	1	1	8	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
C0 4	Other manufacturing activities	7	5	8	8	9	7	1	9	1	1	1	1	2	1	1	2	2	1	2	2	2	2	2	3
D0 0	Electricity and gas output and distribution	7	8	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	0	0	-	-	-	-	0
E0 0	Water collection. treatment and supply	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
F0 0	Construction	4	2	3	3	3	2	2	3	4	4	4	1	3	5	3	4	3	5	-	-	-	-	-	0
	TERTIARY SECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G0 0	Wholesale and retail trade; repair of motor vehicles and motorcycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0	0
H0 0	Transportation and storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

0001	Road transport	4	1	1	2	2	1	1	9	1	1	1	2	2	3	2	2	3	3	3	3	6	3	5
0003	Other transportation and storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I00	Accommodation and food service activities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0
J00	Information and communication	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0001	Telecommunication services	1	6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	9	1
0002	Other information and communication services	-	-	-	-	-	-	3	5	7	9	1	1	1	4	-	-	-	-	-	-	-	-	-
0006	Financial and insurance activities	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
0001	Banking and microfinance services	8	1	1	9	5	6	6	3	4	1	1	9	1	1	4	4	4	4	5	5	4	6	-
0002	Insurance services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	Other financial and	4	4	5	5	5	5	6	8	1	1	1	1	1	1	1	1	1	1	9	9	1	9	7

003	insurance services																								
L00	Real estate activities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
M00	Other business service activities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O00	Public administration activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P00	Education	6	5	1	7	8	7	7	1	7	1	1	1	1	2	2	2	3	3	3	3	2	3	5	
Q00	Human health and social work activities	0	-	-	-	-	0	0	-	-	0	-	-	-	0	1	1	1	4	3	3	-	1	5	

Source: *DRS. ECOWAS*

Table A.24: Total backcasted and adjusted supply (supply and use rebalancing process)

		2	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
	PRIMARY SECTOR																							
A01	Agriculture and related activities	7	7	7	7	6	7	8	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
0101	cereals	2	2	2	2	2	2	3	3	3	4	5	5	6	4	5	5	6	6	7	7	9	9	
0100	Tubers	6	6	6	6	6	6	8	8	8	9	1	1	1	1	1	1	1	1	1	1	2	2	

2																								
0103	Vegetables and spices	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	4	4	
0104	Other agricultural activities	2	2	2	2	2	2	3	3	3	3	4	4	5	4	4	4	5	5	6	6	7	7	
02	Livestock. hunting and related activities	2	2	2	2	2	2	2	2	3	3	3	4	4	4	5	6	6	7	7	7	7	8	
0201	cattle. sheep and goats	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	4
0203	Other livestock. hunting and related activities	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	4
A03	Forestry and logging	2	2	2	2	3	3	3	4	5	5	5	5	6	6	6	6	6	7	7	7	7	8	
A04	Fishing and aquaculture	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	3	3	3	3	
	SECONDARY SECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B00	Mining and quarrying	7	8	8	9	9	1	9	1	1	1	1	1	1	1	2	1	1	1	2	2	2	2	
B0010	Extraction of hydrocarbons	7	8	1	1	1	1	1	9	1	3	2	2	2	4	3	3	3	4	4	4	4	5	
B00	Extraction of metal ores	4	4	5	5	5	5	5	5	6	6	7	7	8	8	8	8	9	9	9	1	1	1	

020																								
B0030	Other mining and quarrying	2	3	2	3	3	4	3	3	3	5	5	6	7	8	9	6	6	7	7	1	7	7	
C01	Manufacture of food products. beverages and tobacco	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	4	3	4	
01001	Slaughtering. processing and preservation of meat and fish	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	6	6	6	7	6	7	
01002	edible fats	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	
01003	Grain milling and starch products	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	7	7	7	8	1	8	9	
01005	Other manufacturing activities de produits alimentaires. tabacs	8	8	9	9	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	
C02	Manufacture of textiles. wearing apparel and leather	9	1	1	1	1	2	1	1	2	3	2	2	3	4	4	3	4	4	4	4	5	5	
C03	Refined petroleum products	4	8	7	6	7	8	8	1	1	1	9	1	1	1	1	1	1	1	1	2	2	3	
C04	Other manufacturing activities	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	2	3	3	3	4	4	4	

D00	Electricity and gas output and distribution	3	3	4	4	5	5	5	5	6	6	6	6	7	7	7	7	7	8	8	9	9	1
E00	Water collection. treatment and supply	5	6	7	8	8	9	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	3
F00	Construction	7	6	7	7	8	7	8	9	1	1	9	9	1	1	1	1	1	1	2	2	1	2
	TERTIARY SECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G00	Wholesale and retail trade; repair of motor vehicles and motorcycles	7	7	8	9	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
H00	Transportation and storage	4	4	4	4	5	5	6	6	7	8	7	7	8	9	9	1	1	1	1	1	1	1
0001	Road transport	1	1	1	1	2	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	5
0003	Other transportation and storage	2	2	2	2	2	3	3	3	4	4	4	4	4	5	5	5	6	6	6	7	6	7
I00	Accommodation and food service activities	2	1	2	2	2	2	3	3	3	4	3	3	4	4	4	4	5	5	5	5	5	5
J00	Information and communication	1	2	2	3	3	4	5	6	7	8	8	8	9	1	1	1	1	1	1	1	1	1
0001	Telecommunication services	1	1	1	2	2	3	4	4	5	6	6	6	7	7	7	8	8	8	8	8	8	8

0002	Other information and communication services	5	6	7	8	9	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	
K00	Financial and insurance activities	4	3	4	3	4	3	5	4	5	4	6	5	7	6	9	7	19		19		19	1	1
0001	Banking and microfinance services	4	2	4	2	3	2	4	2	3	2	4	3	5	3	7	4	7	6	9	6	9	7	
0002	Insurance services	3	4	4	5	5	6	7	8	9	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0003	Other financial and insurance services	1	2	2	3	3	4	5	6	7	8	8	9	9	1	1	1	1	1	1	1	1	1	1
L00	Real estate activities	5	6	6	6	6	6	6	7	8	9	9	1	1	1	1	1	1	1	1	1	1	1	1
M00	Other business service activities	2	2	2	2	6	3	3	3	4	4	4	4	5	5	5	5	6	7	7	9	9	9	
O00	Public administration activities	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	9	9	1	1	1	1	
P00	Education	2	2	2	2	2	3	3	3	4	4	5	5	6	6	6	7	7	7	8	8	9	1	
Q00	Human health and social work activities	1	1	1	1	2	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	

Source: *DRS. ECOWAS*

Annex 3: List of persons who participated in the preparation of the Methodological Guide for the Backcasting of Annual National Accounts

First name and surname	Contact	Country	Position	Role
Malick DIOP	+221 77 443 47 23 / diopmalick2@gmail.com	Senegal	Head of the National Accounts Division / ECOWAS resource person	Document drafter
ALMADJIR TASSIOU	talmadjir@gmail.com/ almadjir@yahoo.fr	Niger	National accounts expert	Member of the Technical Working Group (TWG)
DOUEU KOTO MATHIAS	dou75eu@yahoo.fr	Cote d'Ivoire	Deputy Director of National Accounts	TWG member
HEVI KODZO DODZI	bertin.hevi@yahoo.fr	Togo	Director of National Accounts	TWG member
BIAOU ABIONA ABRAHAM	abbiaou@yahoo.fr	Benin	Adviser	TWG member
MENSAH Francis Bright	fbmensah@gmail.com	Ghana	Director of National Accounts	TWG member
JOBARTEH Fatou	fatoukartehjobarteh@gmail.com	The Gambia	National accountant	TWG member
Jalilah Ahmadu Bello	jalilahusman@gmail.com	Nigeria	National accountant	TWG member
