CHAPTER 1
UNDERSTANDING THE QUARTERLY ACCOUNTS

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ESA 95:[1] "Quarterly accounts have the advantage of being able to provide the only coherent set of indicators available with a short time lag, and capable of offering a general overview of recent economic activity."

1.1. Objective: to derive quarterly figures from previous yearly accounts, and provide an at-a-glance macro-economic overview of the present climate

Deriving quarterly figures from previous annual accounts

The primary objective of producing quarterly accounts is to describe and quantify economic fluctuations in a quarter-by-quarter manner. To do this previous annual accounts are broken down into three-month periods, creating a series of quarterly figures which form part of the national accounts. These data series allow for a more precise analysis of economic developments, and a better understanding of the quarterly evolution of our economy.

Providing a snapshot of the current macroeconomic situation

Deriving quarterly figures from annual accounts is based on the assumption that these annual accounts are complete. And yet the estimated figures for the annual accounts are published relatively late: an initial estimate of the macro-economic situation for a given year is provided by the provisional accounts, published four and a half months after the end of the year in question. Even then, these provisional figures are not based on the individual data which make up the semi-definitive and definitive accounts. It thus falls to the quarterly accounts to offer a macro-economic description of the recent past, something which is not possible with the annual accounts.

In order to fulfil this twofold objective of providing quarterly figures on the past and a description of the present economic situation (or at least the very recent past), we need rapidly-available sub-annual data (quarterly or monthly). This information is provided by the short-term indicators published immediately after the end of a given period. The method used to compile quarterly data based on previous annual accounts is thus extended to incorporate this short-term information, and to provide an estimate of the future national accounts as accurate as possible. For example, the industrial production index (published around 40 days after the end of the month in question) represents the principal source of information regarding the month-to-month development of industrial output: the quarterly breakdown of previous annual production figures, as well as the short-term diagnosis published each quarter, are both largely informed by this index.

1.2. An indispensable tool for macro-economic and short-term outlook analyses

Macro-economic analysis

The quarterly accounts have proved to be very useful for economists. The majority of French macro-economic models thus base their estimates on the quarterly accounts. Furthermore, more detailed analyses of economic trends – for example the evolution of prices compared to wages, or the ratio of household income to consumption – are often based on the data provided by the quarterly accounts.

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[1] The European System of Accounts (ESA), European Commission 1995. ESA remains the accounting system of reference for all concepts and methods used in the 'Base 2005' national accounts (published since 2011). A new version of the ESA (ESA 2010) will be implemented during the transition to Base 2010, starting in 2014.

Nonetheless, users should not forget that the quarterly breakdown of annual accounts is essentially an artificial construct based on multiple data sources and using various statistical tools (calibration and fitting, adjustments to take into account the number of working days or seasonal variation, etc.). These tools are not neutral in terms of the influence they can have on the econometric results obtained from the data series.

Analysing the short-term outlook

The quarterly accounts have rapidly come to play a central role in the analysis of the short-term economic outlook. Short-term indicators are legion, and can sometimes be difficult to interpret. Some of them deal with the same topic, but may be different because of the field considered or the data collection method used. As regards industrial output, for example, the first information to become available is qualitative, and comes from surveys conducted on French businesses. The industrial production index is published slightly later on, and contains quantitative information. The next data to be published are the turnover indices, which also offer a quantitative assessment of monthly industrial activity.

When these indicators do not cover precisely the same themes, it can be difficult to find a coherent method of cross-comparing the information they provide in order to understand the short-term trends. For example, in certain months the consumption expenditure of households on manufactured goods rises significantly while the industrial production index remains stable, and all the statistics from the customs office indicate that exports are down. Coherently collating and comparing all of these information sources is a very delicate operation.

The quarterly accounts allow to combine these information sources in the context of the national accounts, summarising them in the form of aggregate indicators such as gross domestic product (GDP), the gross operating profit of companies, the gross disposable income of households…

Economic forecasts

The quarterly national accounts often provide the basis for forecasts, including those used when calculating future budgets and drafting new fiscal legislation. On the one hand, the purpose of short-term predictions is to offer an advance preview of the forthcoming quarterly accounts. The INSEE's 'Conjoncture in France' bulletins are based on a simplified version of the accounts, providing estimated figures for the next two or three quarters. On the other hand, forecasts for the longer term are calculated using macro-economic models, the majority of which are constructed using quarterly data.

1.3.   The publication schedule

For 2013, the results for each quarter were issued in two successive publications:

- the preliminary figures, issued no more than 45 days after the end of the quarter in question, offer an initial estimate of GDP and the major indicators concerning goods and services (production, investment, consumption, foreign trade, etc.);

- subsequently, no more than 90 days after the end of the quarter, detailed figures are published in order to add a greater degree of precision to the aggregate indicators given in those preliminary figures. They also include an assessment of the operating finances of the different institutional sectors.

The publication deadlines have been gradually shortened as the time it takes to calculate the most essential indicators used in the quarterly accounts has been reduced. The INSEE is constantly looking for new ways to reduce these deadlines, with the encouragement of the European authorities (the European Central Bank and Eurostat, the EU's statistics agency). In years to come, the publication calendar will surely continue to evolve.

There are nonetheless some delays which cannot be shortened without jeopardising our commitment to publishing high-quality statistics. One criterion which can be used to assess the quality of the accounts published is the extent to which they are revised subsequently. The balance to be struck between speed of publication and the quality/extent of revision of the accounts is the subject of regular discussion and debate.

1.4. Revisions which are unavoidable, but whose scale needs to be seen in context

Revisions are unavoidable…

The purpose of the quarterly accounts is to provide a rapid macro-economic overview of the present situation, whilst adhering to the concepts which form the basis of the national accounts. In order to achieve this goal, the accounts are based on calculation methods which seek to fill in the gaps in the available information and offer the most accurate possible predictions of the future annual accounts. As such, the quarterly accounts have to strike a delicate compromise between speed and quality. As a result, subsequent revisions are inevitable.

Each new version of the accounts includes revisions covering the whole of the period under consideration, revisions which are generally relatively minimal when it comes to the earlier quarters. These revisions may be necessary for one of four clear reasons.

- *Modification of a short-term indicator*

    Indicators are often revised, especially for the most recent months or quarters, as more complete information gradually becomes available. Moreover, in cases where the final values of an indicator are not known when the quarterly accounts are being drawn up, they are provisionally extrapolated from the preceding results due to the pressing obligation to publish quarterly accounts before full information becomes available. This is, for example, the case with the monthly turnover indices used to calculate certain consumption or investment aggregates: information concerning the last month in the quarter only becomes available later on with the publication of the detailed figures. When the extrapolated figures are replaced with the observed data, revisions ensue. Finally, the seasonal adjustment required for each indicator is re-estimated with each new publication. The revisions resulting from the re-estimation of seasonal adjustment generally concern the tail end of the period under consideration.

- *Modification of the annual accounts*

    As a general rule, while quarterly representations of data series can be modified at the source, annual aggregations of raw data are not modified since they are fitted to the annual accounts up until the last provisional account published. Definitive (Y-3), semi-definitive (Y-2) and provisional (Y-1) accounts are published once annually, in May of year Y, modifying the annual estimates given for the macro-economic aggregates. The quarterly accounts integrate this information for the latest annual accounts exercise when publishing the preliminary figures for the first quarter of year Y. Revisions to the quarterly accounts for the year (Y-1) can generally be put down to one of three causes.

    - The re-estimation of seasonal adjustment and working day adjustment models.

    - The re-estimation of calibration coefficients, because of the integration of definitive and semi-definitive accounting data into the calculations made for the current exercise. This will change the dynamic of the macro-economic aggregates towards the end of the period. The coefficients of these models are thus slightly modified. They may be modified more substantially if the new information prompts a change of econometric model.

    - Fitting of certain annual data available for the first time, or in a more precise form. This includes the data published for the general government, financial corporations, agriculture and certain final household consumption indicators.

- *A modification to the methodology*

    More often than not, this will concern a change of indicator, linked either to the loss of a given data source or the adoption of a new indicator which is considered to be more efficient than its predecessor. Indeed, since the science of statistics is constantly evolving, certain sub-annual indicators may disappear, replaced by new ones which can be used when calculating the quarterly

accounts. Sometimes two similar indicators may coexist. Their relative volatility and rate of revision will then be examined, and their annual figures compared with those of the annual accounts over the whole period for which data is available. It may turn out an indicator used in calculating the quarterly accounts is inferior in quality to a rival indicator used elsewhere; the quarterly accounts will then change indicator. Changes of this nature generally occur when annual account data are being integrated.

- *A change of calculation base*

  Furthermore, the national accounts regularly change their calculation base. After the '95 base' used from 1999 onwards, replaced by the '2000 base' in 2005, the national accounts made the transition to the '2005 base' in 2011. A change of base can generate major revisions of the previously-published macro-economic aggregates, for the most recent years and for the whole period for which accounts are published (via a process of retropolation). Each change of base requires a review of all quarterly accounts. This can lead to substantial changes, on top of the more routine corrections made to the definitive and semi-definitive accounts: updates to the system of classifications, and the concepts and methods involved. The transition to the 2005 base, for example, provided an opportunity to make significant changes to the classification system.

…but they need to be seen in context

An analysis of these revisions shows that, between 1991 and 2010, the mean absolute deviation between the first (published with the 'preliminary figures') and second (published with the 'detailed figures') estimates of the quarterly growth of GDP was 0.07 points. For the same period, the mean absolute revision made between the initial estimate of quarterly GDP growth and the figure published one year later was 0.16 points. The mean absolute revision is 0.21 points after two years, and 0.25 after three years.

Furthermore, a number of international organisations regularly conduct studies looking at the revisions made to quarterly accounts in different countries. The most thorough of these studies is that conducted by the OECD, comparing the revisions made to quarterly national accounts in around twenty developed nations. This OECD study is now updated regularly, and can be consulted via a dedicated section of the organisation's website. [17]

The OECD traditionally assesses various different aspects of such revisions: their scale, their consequences, and where necessary the presence of any bias in the estimates. The report shows that, while these revisions may be relatively substantial, France is one of the countries with the lowest levels of revision, with initial estimates which have been shown to present no systematic bias.

1.5.   A methodology which is not set in stone

This document explains the methodology used to calculate the French quarterly accounts as produced for the year 2011, using the '2005 base'. It serves as an update to the document published in 2005 describing the method used to compile the accounts for 2004, using the '1995 base'. This document thus offers an explanation of the methods used at a given moment in time, which should allow users to better understand the construction of the quarterly accounts, and comprehend their strengths and weaknesses.

Such a thorough presentation leaves little space for reflection on potential improvements. But that is not to say that our methods are set in stone: in addition to changes of indicator, which occur for various reasons, numerous theoretical fields and practices are the subject of consideration. These reflections are further enriched by the work of Eurostat, coordinating working groups which bring together representatives of the various European statistical offices. These groups are convened to examine different methodologies, covering both annual and quarterly national accounts, and to achieve the greatest possible level of standardisation between the different national systems. This work also stimulates some very fruitful exchanges of expertise regarding different accounting practices.

Various aspects of the French accounting methodology are thus regularly reviewed to identify potential sources of improvement. Calibration and seasonal adjustment are statistical methods which have both been the subject of numerous studies, both at the INSEE and elsewhere. The issue of measuring prices and volumes is also a matter

of crucial significance, and the method used was modified significantly in 2007 with the publication of chained volumes in place of the old system of volumes measured at constant prices derived from the base year. Nonetheless, it would be inconvenient for users if these methods were changed too often. A certain level of stability is required to ensure that the forecasting tools remain relevant.

Improving the indicators is a constant priority when compiling the national accounts, and changes of indicator represent the most common form of methodological change. More specifically, the accounts given for different economic agents or 'institutional sectors', a more recent creation, are improved thanks to the continuous refinement of the field covered by the available indicators.