

12th biennial IFC Conference: “Statistics and beyond: new data for decision making in central banks”

22-23 August 2024

Together we go further: designing a common statistical literacy strategy for the ESCB¹

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¹ This contribution was prepared for the conference. The views expressed in this publication are those of the authors and do not necessarily represent the official views of the Committee, its members, or the BIS.

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Abstract

In modern societies, proficiency in reading and interpreting numerical data is essential. Central banks, as statistical producers, recognize their pivotal role in promoting statistical literacy by incorporating best practices in statistical communication. However, different levels of knowledge on the subject and resource availability place countries at disparate stages along this path. This paper describes how the European System of Central Banks (ESCB) is collaboratively formulating a common strategy to enhance the promotion of central bank statistics. By doing so, the ESCB aims to build trust between statistical producers and users and provide society with new tools to better understand the world and make more informed decisions.

Keywords: statistical literacy

JEL classification: D8

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1. Introduction

It is hard to imagine modern societies without statistics. Be it census data for the allocation of public resources, GDP as a basis for economic policy making or inflation as a reference for monetary policy: statistical data are the basis for political decisions and government action. Decision-makers must therefore be able to assess the quality and methodological limits of statistical surveys. Citizens, who have to judge the performance of their elected representatives, should also have at least a basic understanding of the data that determine political decisions.

In this respect, a democratically constituted modern society presupposes a minimum level of statistical literacy among all citizens, and it is the task of state bodies to it. This also applies to central banks, at least under three aspects:

Accountability: Central banks must communicate their policies effectively as they are accountable to society. Because their decisions are data-driven and much of the data used is based on statistical methods, society needs a basic level of statistical competence to assess the performance of central banks.

Data understanding: Central banks, as producers of statistical data, must ensure users comprehend the data they collect and publish. While analysts and other expert users may find complete metadata and methodologies sufficient, central banks also have the responsibility to foster a basic understanding of the data they produce among the general public.

Financial Literacy: Central banks often have a role in promoting financial literacy to support individuals in their personal financial decisions. As financial literacy also requires a basic understanding of statistical data, statistical literacy should also be part of financial literacy campaigns.

Given the relevance of statistical literacy for several central bank activities, the Working Group on Statistical Communication (WG SC) of the European System of Central Banks' (ESCB) has been tasked to analyse the topic further and assess the need and potential for an ESCB wide strategy to promote statistical literacy.

This paper provides an overview of the project and is divided into three parts:

- Defining statistical literacy: presents a definition of statistical literacy, its importance, and how it differs from related concepts of literacy.
- ESCB activities in statistical literacy: provides an overview of the national central banks' activities to promote statistical literacy, based on a survey conducted by the WG SC.
- Elements for a common strategy: presents elements for a common statistical literacy strategy within the ESCB to more effectively work as a system.

2. Statistical literacy: a definition

The attempt to define statistical literacy is not new. For decades, researchers have been discussing this interdisciplinary topic in fields such as mathematics, statistics, and psychology (UNECE, 2012). Some conclusions of this research work indicate that "statistical literacy is indeed a complex construct" (Watson & Callingham, 2003). This is largely because statistical literacy requires many abilities, such as mathematical and statistical skills, the ability to understand figures correctly and being able to distinguish between valid and misrepresented data (UNECE, 2012). Additionally,

statistical literacy is not only important to our society as a whole; it is also relevant to individuals as they make decisions based on information they are exposed to.

Several definitions of statistical literacy can be found in the literature. The concept has been defined as the “ability to understand and critically evaluate statistical results that permeate our daily lives – coupled with the ability to appreciate the contributions that statistical thinking can make in public and private, professional and personal decisions” (Wallman, 1993). Statistical literacy is here seen as a relevant skill both at the individual and societal level.

Another definition found in the literature goes beyond statistical results, defining statistical literacy as “(a) people’s ability to interpret and critically evaluate statistical information, data-related arguments, or stochastic phenomena, which they may encounter in diverse contexts, and when relevant (b) their ability to discuss or communicate their reactions to such statistical information, such as their understanding of the meaning of the information, their opinions about the implications of this information, or their concerns regarding the acceptability of given conclusions” (Gal, 2002).

This definition reminds us that statistical literacy seems to overlap with data literacy and information literacy (Schield, 2004). Even if the demarcation of all these literacies may be blurred, “data” for the purposes of data literacy seems to be a much broader concept than the “statistical results” of statistical literacy. In fact, data literacy is more about the “handling of data” (acquiring and storing data and producing knowledge from it), while statistical literacy regards the interpretation of existing statistics (Schüller, 2020, p. 17).

Additionally, also the UNECE agrees that the concept contains “numeracy” or “mathematical skills” as well as “the ability to read and communicate the meaning of data” and “getting users to appreciate the value of statistics” and do something with that information (UNECE, 2012).

The WG SC agreed that, for the purpose of ESCB central banks, statistical literacy may be defined by the ability to interpret and critically evaluate statistical information and data-related arguments, which we may encounter in diverse contexts of daily life. It is also a skill that can be seen in a continuum, encompassing different levels: from a basic to an advanced level, each level with abilities that increase in complexity.

2.1. Statistical literacy vs economic and financial literacies

Statistical literacy has common points with other more established literacies, namely economic and financial literacy. They all tend to be concerned with developing critical thinking and decision-making abilities. There may also be overlaps in concepts and topics (e.g. interest rates or inflation).

However, statistical literacy should not be mistaken for the more established types of literacy. In fact, statistical literacy may be understood as the basis of other literacies, given that without numerical abilities, financial and economic literacies may fall short on their goals. Statistical literacy also brings figures to concepts. Additionally, statistical literacy is much broader than these two other literacies, in that it encompasses skills that are relevant for different domains and areas (e.g. natural sciences).

Statistical literacy also differs from financial literacy in that it is not as concerned about the financial impact of decisions on the individual. Financial literacy is “a combination of financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions and ultimately achieve individual financial well-being” (OECD, 2020). Statistical literacy, in turn, ultimately intends to contribute to more informed citizens and therefore their well-being and that of society.

It is also relevant to note that statistical literacy is a skill needed in the individual’s social and professional life. In other words, it is relevant as a skill for citizenship and participation in society,

but also in the current modern and data-driven economy it is an important skill in one's personal and professional life. Statistical literacy is for the contemporary economy what reading and writing once were.

3. The role of central banks in promoting statistical literacy

3.1. Survey background and scope

As part of its task to analyse the relevance of statistical literacy for the ESCB, WG SC carried out a stock-taking among ESCB members. The survey was designed to provide an overview on current and past activities to promote statistical literacy and the context in which these activities have been developed. It was also supposed to identify areas where a common strategy would add value.

3.2. Main results

Twenty-six ESCB members participated in the survey. It showed that most institutions have statistical communication activities which also include a literacy component. The main objective being to ensure transparency, improve public understanding, and support informed decision-making among policymakers, business, and citizens. For half of the institutions, promoting statistical literacy is part of a broader country-wide communication framework and is aligned with the central banks' mission, vision, and objectives.

Almost all central banks aim at engaging with diverse target groups: 92% of the respondents are targeting general public, 71% journalists, 46% researchers, 46% financial institutions, 42% university students, 42% high school students, 37% private companies, 29% public entities, 29% schoolteachers, 25% university professors and 17% school students.

These target groups are usually addressed directly through institutional websites and social media accounts but also through press releases, email newsletters, statistical portals, events, training sessions or surveys; in very few cases engagement with target groups takes place indirectly through partnership with educational institutions, such as schools or universities.

For direct outreach, in the context of statistical communication or promotion of statistical literacy, all central banks use their web presence, 82% are using LinkedIn, 64% X, 50% Facebook, 41% e-mail newsletters, events (conferences and webinars) and YouTube, 36% training sessions and 32% are using traditional media (TV, press) and Instagram. None but one central banks is using TikTok, which is in the process of testing this channel.

Several central banks would like to engage with new target groups, such as private companies, university professors, schoolteachers or primary and high school students. This is an area where joint activities with central banks already active in this field may be useful.

Monitoring the impact of communication activities takes place at some central banks but is not universal. Very few survey participants draw conclusions from impact monitoring for future communication activities. On institutional websites, 67% the central banks measure the impact by page views and 48% by the number of users; 14% analyse bounce rates. On social media, 48% analyse impact by impressions and 33% by engagement. 38% of respondents measure event performance by number of participants and 24% with the help of feedback questionnaires.

Although very few central banks carry out systematic impact evaluations, many are reviewing on a regular basis their communication activities. They review content and navigation on the

website and apply regular improvements, assess the focus of their campaigns, or identify the most popular statistics and feed them into different communication channels.

At the same time, the survey revealed a lack of common standards for evaluating communication activities across ESCB members. A common strategy could help establish these standards and provide a reference point for assessing the effectiveness of communication efforts and their contributions to enhancing statistical literacy.

The survey also collected a number of noteworthy initiatives to foster statistical communication:

Danmarks Nationalbank produces and publishes short stories for journalist about recent development in relevant statistical areas (e.g. deposits, loans, interest rates, payments). Journalists are reached by press releases and social media.

Deutsche Bundesbank tries to reach the general public by promoting a recurrent annual open day where the Statistics Department shows, in a lively and interactive way, some statistical results.

Bank of Greece organized the 1st National Open Data Competition "Bank of Greece Datathon 2023" to reach university students and firms. Bank of Greece also produced an "Abecedary of Economy" which is an original dictionary of financial literacy for primary school students available in all bookstores and digitally on the Bank of Greece website.

Banca d'Italia organized a conference on a wide range of statistical issues together with the National Statistical Office. The event was advertised through both web sites and social media channels. The Bank is also contributing to an annual university course on the official statistics for master students as part of the "European Master on Official Statistics" programme. Every year, high school students are hosted for 2 weeks to learn and perform statistical tasks.

Banque Centrale du Luxembourg organized the "Generation Euro Students Award" which is a youth competition that includes the use of statistics for high school pupils from 16 to 19year-old. The competition included a quiz, a written assignment and a presentation.

Bank of Hungary organized a statistical competition for undergraduate students called "StatWars Uni". The competition was promoted via press release and social media campaign.

Narodowy Bank Polski organized exhibitions and other initiatives (guided tours, lectures, competition for the best master's thesis about social and economic History) that familiarize the audience with issues related to the development of economics and the monetary economy, the functions that money has served throughout History, as well as the History of the creation and evolution of the banking system and central banking. It uses a variety of attractive forms of presentation and modern technologies.

Banco de Portugal produces, on a regular basis, explanatory notes about statistics for the general public. The content is published on the bank's data portal *BPstat* and on social media. In addition, the Bank organizes training sessions with schoolteachers, building on a partnership with the Directorate-General of Education. The partnership started in 2020 with webinars for teachers on topics and statistics used in high school lessons of economics. Furthermore, Banco de Portugal is offering StatFlix, an e-learning course on official statistics (e.g. national accounts, financial sector) for university students.

Oesterreichische Nationalbank produces digital infographics for journalist as a tool for storytelling and proposes material for schoolteachers that covers statistical topics in the context of financial literacy.

The European Central Bank offers visitors basic information on the calculation of inflation as part of any general public visit to the ECB. They receive between 200 to 300 visitor groups each year.

4. Elements for a common strategy to promote statistical literacy

4.1. Why joint actions make sense

Based on the outcome of the survey the WG SC identified three areas that would benefit from a common strategy: Firstly, it would develop the statistical communication and literacy missions among central banks still lacking such a function. Secondly, joint ESCB activities could move communication on a higher level, reach a larger audience, professionalize content production and evaluation, and realize efficiency gains. Lastly, a common strategy would guide and structure the work of the WG SC and facilitate knowledge sharing.

At the same time, WG SC members are conscious that a common strategy will come at a cost: Central banks will have to devote resources to the implementation of the strategy, coordination of activities will create some overhead and ESCB will have to agree on a common understanding of statistical literacy and priorities for action.

4.2. Strategic vision

An ESCB strategy to promote statistical literacy should improve the understanding of statistical information among selected target groups and the general public and promote awareness for the topic. It should promote the critical reading of statistical data, an understanding for statistical methods as well as for the limitations of statistical information.

4.3. Objectives and target audiences

A common strategy may address both internal and external goals. Internally, it could serve to develop and strengthen the capacity of WG SC members to effectively deliver statistical literacy and communication activities. Externally, it may develop communication packages for key target groups such as students, schoolteachers or university teachers.

4.3.1. Internal goals

As a first step, a common strategy should emphasize building and developing internal capacity to fulfil the mission of improving statistical literacy. This would address constraints identified by WG SC members which often lack dedicated teams for statistical communication and a notable deficiency in resources for developing and implementing these initiatives.

Therefore, the strategy should outline possible lines of action aimed at enhancing the internal capacity of WG SC members, including training sessions focusing on communication and data visualization. It could also set a minimum standard to which all ESCB members would commit.

4.3.2. External goals

The external goals focus on defining strategies and actions that allow reaching the two target audiences considered priorities: the general public and students.

Goal #1: Raise awareness among the general public about the importance of statistical literacy, not only through specific initiatives on statistical literacy but also integrating statistical literacy into existing financial and economic literacy efforts. This approach emphasizes the relevance of statistical literacy in informed decision-making processes.

Goal #2: Increasing student awareness of the importance of official statistics and the reliability of official statistics sources by promoting official statistics among high school and university students, who often require reliable data for academic purposes.

4.4. Governance and evaluation

A common strategy should be designed with long-term goals in mind, with an implementation period extending over around two years. A mid-term evaluation should take place after one year, a final evaluation at the end of the implementation period. The evaluation should be based on commonly agreed criteria. It should analyse the effectiveness of the activities carried out as well as the added value of acting jointly.

5. Conclusion

Statistical literacy is essential for participation in modern societies. Both producers and users of statistics invest in this area to ensure data is understood and used responsibly in decision-making.

The results of the survey confirmed that all central banks in the EU are actively engaged in efforts to promote statistical communication and literacy. This collective endeavour underscores the potential of adopting a joint approach, which offers a powerful means to enhance consistency, credibility, and trust in official statistics. A common approach can significantly contribute to fostering a more informed and engaged society.

Despite the challenges, the WG SC is well-positioned to leverage these opportunities, maximizing the impact of initiatives across countries and laying the groundwork for broader, large-scale efforts. By addressing the constraints identified—such as the lack of dedicated teams for statistical communication and limited resources for developing and implementing initiatives—a unified approach will facilitate the sharing of best practices and innovative solutions.

The commitment to a coordinated approach in advancing statistical literacy within the ESCB is paramount. It supports the individual mandates of the central banks while reinforcing their collective capacity to communicate complex statistical data effectively. This concerted effort will not only improve the overall quality and reach of statistical literacy programs but also contribute to building a society that is better equipped to understand and utilize statistical information in decision-making processes.

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TOGETHER WE GO FURTHER: DESIGNING A **COMMON STATISTICAL LITERACY STRATEGY** FOR THE ESCB

AUG. 2024 | BASEL

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BANCO DE
PORTUGAL
EUROSISTEMA



IN A DATA-DRIVEN WORLD, **PROMOTING STATISTICAL LITERACY** MUST BE A **TASK OF CENTRAL BANKS**

Supports accountability on mandate



Relevant in the context of financial literacy

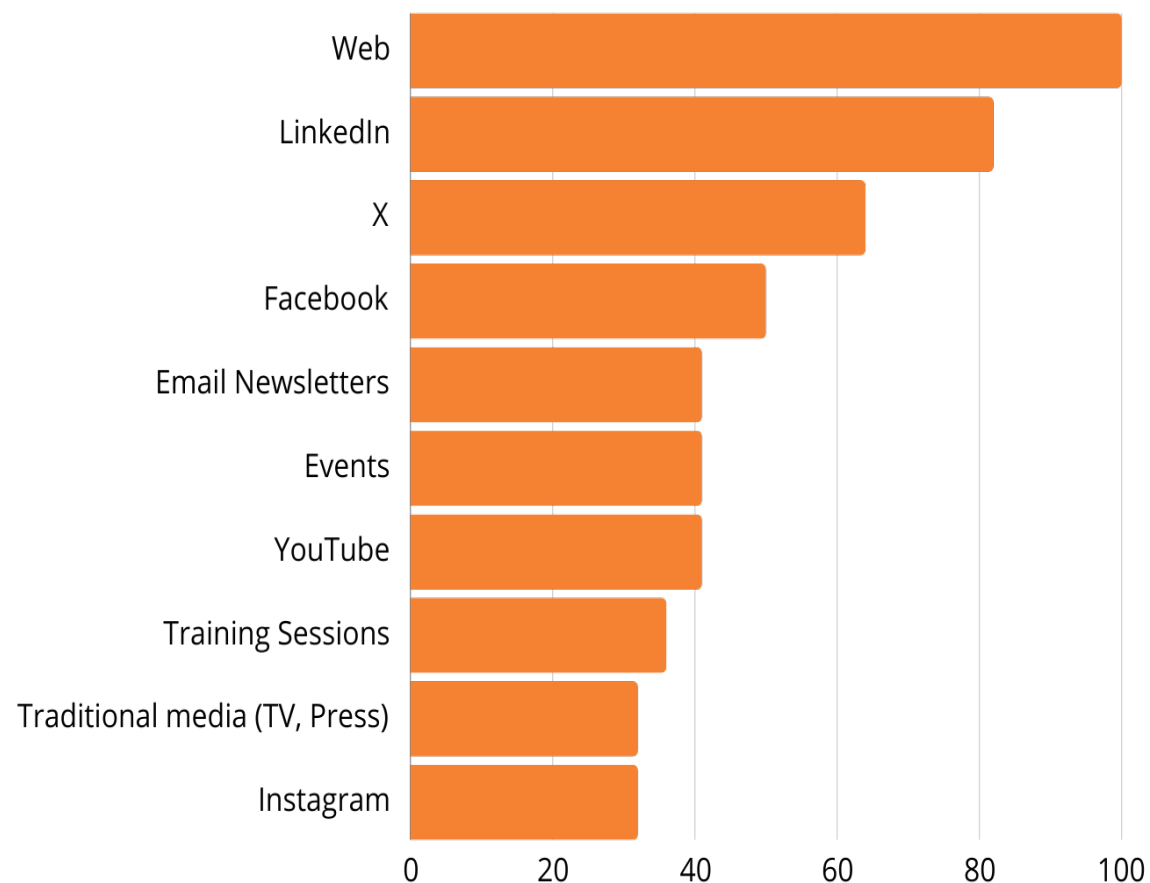


Responsibility as a data provider



MANY GOOD INDIVIDUAL INITIATIVES ARE BEING UNDERTAKEN BY ALL THE **26 ESCB MEMBER RESPONDENTS**

Statistical communication channels | in %



Main targets reached by Central Banks

TOWARDS A COMMON DEFINITION

STATISTICAL LITERACY is defined by the ability to interpret and critically evaluate statistical information and data-related arguments, which we may encounter in diverse contexts of daily life.

A COMMON STRATEGY WILL COME **AT A COST**



Resource
allocation



Coordination
of activities



A common
definition



BUT **BENEFITS** OUTWEIGH THE COSTS



01

Develop the statistical communication among central banks still lacking the function



02

Reach larger audiences and professionalize content creation



03

Guide the work of the WG SC by facilitating knowledge sharing



External goals

Reach the two targets considered priorities: the general public and students



Internal goals

Develop internal capacity to fulfil the mission of improving statistical literacy



Governance & evaluation

Evaluation based on the effectiveness of the activities carried out and the added value of acting jointly.

A top-down view of several hands of different skin tones reaching towards the center, each holding a light-colored wooden puzzle piece. The pieces are being brought together to form a larger shape, symbolizing teamwork and collaboration.

**ALONE, WE CAN DO SO LITTLE;
TOGETHER, WE CAN GO FURTHER.**

Let's work together to make this vision a reality.