

# Nearly 10 years of EMOS from an NSI point of view

Markus Zwick

*Federal Statistical Office of Germany (Destatis), Germany*

## Abstract

The European Master in Official Statistics (EMOS) is a label awarded by the European Statistical System Committee (ESSC) to master's programmes providing postgraduate education in the area of official statistics. It is a shared initiative by Eurostat, the European Statistical System (ESS) and the European System of Central Banks (ESCB), which aims to educate students in official statistics and data science to become highly skilled statisticians with expertise in official statistics, and facilitate the exchange of knowledge and experience between the European producers of official statistics and lecturers, researchers, and students in this field. The most important players in EMOS are the students, the universities and the official data producers. The following remarks formulate the view of a statistical office that has been involved in and helped to shape EMOS since the beginning.

**Keywords:** EMOS, statistical education, digital transformation

## 1. Introduction

The European Master in Official Statistics (EMOS) is a story of success. 10 years after the feasibility study "Towards a European Master in Official Statistics" 33 universities in 17 countries of the European Statistical System (ESS) offer an EMOS programme. A major contribution to the success of EMOS lies in the cooperation between universities and official data producers. The National Statistical Institutes (NSI) provide lectures on data production, offer internships and topics for Master's theses and make their data available for this purpose. The current success of EMOS was not foreseeable from the outset and is not guaranteed for the future. The flexible structure, which allows EMOS requirements to be integrated into existing Master's programs, has been well received by the universities. However, there are challenges in terms of awareness of EMOS among Bachelor students and sufficient commitment in the area of data producers. With the study for EMOS, new ideas are now available. The following discussion will focus on the commitment of the NSI.

## 2. Motivation of an NSI to participate on EMOS

For the NSI, there are a number of reasons why it makes sense to get involved in EMOS but there are also costs associated with EMOS involvement. First of all, statistical offices are publicly funded data producers. Public funding rarely includes resources for university

cooperation. Resources invested in EMOS by the NSI must therefore be financed from the regular budget. In Germany, and probably in many ESS countries, there are control bodies that monitor the spending behaviour of public bodies. For this reason, it is always necessary to subject an EMOS commitment to a cost/benefit comparison. Let's start with the benefits.

Data production with the aim of depicting realities in society and the economy is subject to rapid change. In addition to traditional data from surveys and administrative registers, there is now a wide range of new data, such as mobile phone data, data from the internet or many other sources. New or further developed methodological procedures in combination with increasingly powerful computer systems pose further challenges, e.g. also in the context of statistical confidentiality. For high quality data production on the basis of the Code of Practice,<sup>1</sup> this means the need for ongoing scientific development.

For this reason, intensive scientific cooperation is essential. For the German federal statistical office (Destatis), this applies to two areas in particular. On the one hand, the statistical offices need scientific exchange with experienced scientists on topics that are usually not or only to a limited extent available as expertise in the statistical offices. This currently applies to many areas of information technology, new statistical methods of machine learning, but also to topics of survey methodology or digital questionnaire design. In these subject areas, Destatis cooperates with a number of research institutions, mostly at universities. These collaborations take the form of consultancy or joint projects. In both cases, it is often students who work on the specific questions as part of their PhD or doctoral programs. Students trained in this way are often welcome newcomers at Destatis, as these postdocs represent an almost perfect transfer of new knowledge from the universities to the statistical office. In a number of projects, these doctoral students are already employed by Destatis during their training in the respective projects, with the academic degree then being awarded by the cooperating and supervising university. A positive side effect of this is that the doctoral students have significantly better access to data, including microdata, as employees at Destatis compared to being employed at the university.

EMOS fits into this knowledge strategy, as good doctoral students also need good training in the Master's program. Overall, EMOS is an important building block in the acquisition of young scientists for the NSI. This is the second important area for Destatis in the context of university cooperation. For many years, a long time before EMOS, the statistical offices in Germany have

---

<sup>1</sup> <https://ec.europa.eu/eurostat/web/quality/european-quality-standards/european-statistics-code-of-practice>

been active in university education. Often only a few elements of data production and the associated quality of data can be found in social and economic university programmes. Even in the pure statistics courses, there are mainly methodological elements, working with real data is often only rudimentary. One reason for this is that knowledge about data production is often not available at universities, or only to a limited extent. For the academic newcomer in the NSI, this means that they only come from universities with limited knowledge about data production and official statistics. Involvement in higher education therefore means being able to train the own young academics in the own issues at the universities, and this has been the case for around 10 years now in the context of EMOS.

This was the initial motivation; in the meantime, EMOS has also become an important instrument for the NSI to acquire sufficient young academics in the face of strong demographic change. EMOS provides the opportunity to recruit suitable students as junior researchers through internships and supervised Master's theses.

Destatis will continue to expand its cooperation with universities beyond EMOS. Talks are currently underway with various universities to establish joint chairs. The idea is to advertise and appoint the heads of research areas within Destatis together with universities; these heads would then also be employed as professors at the relevant university with all rights and obligations. It is currently being examined whether this requires an explicit research mandate for Destatis or whether the existing legal situation is sufficient.

Destatis has been training Bachelor graduates in a so-called dual study program for several years. Job Training has a long tradition at Destatis, but in the past it was purely vocational education. The dual study program also offers a first academic degree.

In principle, a full academic education is therefore possible at Destatis. After school, the dual study degree leads to an extra occupational EMOS degree, followed by a doctorate in a Destatis project, the next step would be than a junior professor and the management of a smaller research section.

In the meantime, another important topic area has been established that is served by EMOS and is becoming a growing priority for the statistical offices: 'Data or Statistical Literacy'. The statistical products of the NSI are often complex and their outstanding quality is not always recognizable in the quantity of empirical information. There are now a number of strategies to improve this, EMOS is one instrument. In principle, EMOS courses at universities are also open to students who are not aiming for an EMOS degree. So far, this has only been taught to a limited extent. However, the content is relevant for many students, any field of work today operates with data and statistics. A basic understanding of this is therefore necessary, i.e. data

and statistical literacy. The present 'Study on the future of EMOS' therefore provides for a broader range of EMOS courses for other degree programs as well.

### **3. EMOS Challenges for a NSI**

The positive aspects of scientific cooperation in general and EMOS in particular go hand in hand with a number of challenges. Until now, Destatis has not had an explicit research mandate like some other NSI in the ESS and must therefore, as already mentioned, generally cover these activities with normal budget funds. In some cases, however, third-party funded projects can be acquired in cooperation with the scientific community, which can partially offset this problem. Nevertheless, the resources for Destatis' university activities are limited. At the moment, 6 German universities are offering an EMOS program.<sup>2</sup> This is a great demand for cooperation in teaching, internships or the supervision of academic theses.

At this point, the federal structure of German official statistics is really helpful. In addition to Destatis, other statistical offices of the federal states are actively involved in EMOS. The German central bank and the Federal Employment Agency are also EMOS partners and provide data, lectures and internships. Nevertheless, the situation is difficult. The activities of the institutions often depend on a few people and are not a regular strategic and continuous element of the respective institution. If these people are absent, it is sometimes difficult to replace them. This also applies in part to those responsible for the EMOS programs at the universities.

Another challenge lies in offering internships and supervising master theses. It makes sense for internships to be located in the production areas of the NSI. However, supervising students often involves a considerable amount of work. It is often not easy to find activities from the ongoing production process that can be taken on by students. A key argument here is often that the effort involved represents an investment, as in the best-case scenario the students can be recruited for the respective area of work after successfully completing their EMOS master. Unfortunately, this argument does not apply to cross-border internships. This Europe-wide exchange is extremely positive from a student and EMOS point of view, but from the perspective of an individual department in an NSI, it represents an investment without a return.

---

<sup>2</sup> University of Trier, University of Bamberg, Free University Berlin, University of Munich, Technical University Dortmund, Mannheim Business School (Spring 2024)  
see <https://cros.ec.europa.eu/book-page/emos-programmes-across-europe-0>

#### 4. Perspectives

Destatis will support EMOS in the long term, as its involvement in EMOS is an important part of the strategic planning of official statistics in Germany. As mentioned, scientific cooperation is essential for the necessary and permanent further development of official statistics. In addition, EMOS is an important element in the acquisition of young scientists. However, EMOS must be integrated into an overall scientific strategy in the ESS as well as in the national area, which partly goes beyond academic university education.

There is a need for a strategy that succeeds in attracting more students to EMOS during their bachelor's degree and there is a need to offer PhD and doctoral programs for the best EMOS graduates. On the one hand, in order not to lose these best EMOS graduates when they pursue a doctorate, and on the other hand, in order to use these well-trained academics for further scientific development in joint projects with the scientific community.

All of this requires resources. Destatis is currently working with various ministries on a research data law. This law is primarily intended to expand and improve scientific access to publicly funded data. Within this framework, Destatis is also going to receive an explicit research mandate in the context of data production, which would then also be linked to funding that can support Destatis' activities within the framework of EMOS.

#### References

- Köhler, S. & Zwick, M. (2021) Statistical Education as Part of the Digital Transformation of Statistical Offices. In: *Big Data in Education: Pedagogy and Research*. DOI: 10.1007/978-3-030-76841-6\_4
- Navarre, E., Lehtimäki, H., Zwick, M., Bavdaz M. (2021) Education in official statistics: A common challenge of providers of official statistics and universities, *Statistical Journal of the IAOS* 37, p. 817–823, DOI 10.3233/SJI-210837