Do Policymakers get Training in Statistics? A Comparative Study

Ghislaine Megha-Bongnkar[1]

PhD Candidate, Development Economics Group, ETH Zurich, Switzerland

Abstract

Policymakers are increasingly required to integrate data and evidence into their decision-making processes. In this study, I investigate the extent to which policymaker training programs adequately prepare them for an evidence-informed approach. Acknowledging the various approaches countries have towards policymaker training, this study analyses qualitative data from curricula and semi-structured interviews with key informants from policymaker training institutions across three countries in Central Africa with compulsory pre-service training programs. I adopt a twofold approach: first, I conduct a comprehensive content analysis of training curricula ; second, I conduct a thematic analysis of interviews from policymaker training institutions to gauge the emphasis placed on statistical and data literacy skills. Findings suggest a lack of training in statistics. Preliminary findings from the Democratic Republic of Congo suggest that despite a clear interest among policymakers in adopting evidence-based approaches, there is a noticeable absence of statistical training within the compulsory training cycle. Through these analyses, the study aims to shed light on the level of preparedness of policymakers in effectively using statistical tools and methodologies within their roles.

Keywords: Statistical Literacy, Evidence-informed Policymaking, Central Africa, Policymakers

1 Introduction

Statistical literacy2 is a fundamental component of evidence-based decision-making (OECD, 2020; Proden, 2021; Umbach, 2022; UNECE, 2014). A substantial body of literature in the healthcare sector emphasizes its importance, as it enables healthcare professionals as well as patients to improve decision-making (Anderson et al., 2014; Berndt et al., 2021 Gigerenzer et al., 2007; Jenny et al., 2018; Jindal et al., 2021; Monahan, 2007; Wegwarth, 2015; Windish et al., 2007). Similarly statistical literacy can assist policymakers in better understanding and evaluating the evidence that informs their decisions (OECD, 2020; Proden, 2021; Umbach, 2022; UNECE, 2014). For example, the ability to distinguish between causal evidence and correlational evidence enables policymakers to identify and use high-quality evidence, facilitating more informed decision-making processes (OECD, 2020; Proden, 2021; Umbach, 2022).

Policymakers often make decisions impacting a wide array of domains, including resource allocation and redistribution and are directly accountable for the outcomes (Reeves and Chiang, 2018; Umbach, 2022; UNECE, 2014). These decisions require an in-depth understanding of statistics from diverse sources, including statements, media reports, research articles and both national and international assessments (Abd Jalal et al., 2023). As governments face increased public scrutiny, the demand for evidence-based decision-making grows, emphasizing the need for precise interpretation of statistical information to guide strategic decisions across various sectors (UNECE, 2014). For example, previous studies have attributed shortcomings in the Hungarian public administration system to a lack of strategic focus and evidence-based policymaking (OECD, 2008; Van Wart and Hondeghem, 2015). Despite the recognized importance of statistical literacy for evidence-informed decision-making, the literature on this topic specific to policymaking domains is sparse. A search of academic databases and grey literature sources revealed only a few papers that directly address the statistical literacy of policymakers (OECD, 2020; Proden, 2021; Umbach, 2022), most of which focus on conceptualising statistical literacy competencies for policymaking.

The first significant effort to address statistical literacy among policymakers was outlined in a report by the United Nations Economic Commission for Europe (UNECE, 2014). This study clarified who decision-makers are in political decision-making and defined the core statistical

[2] It involves understanding data collection, analysis, and interpretation, including who collects data and why. It also covers knowledge of data privacy, ownership, the ability to create basic data descriptions, an understanding of various data sources, storage, and representation variations, as well as an understanding of predictive modelling basics (Gould, 2017)

capabilities they require. It emphasized four main competencies: data awareness, understanding statistical concepts, analysing and interpreting statistical information, and effectively communicating statistical findings. The report also conceptualized how statistical organizations could support evidence-based policymaking through improving access to data, developing clear communication channels, and offering training to build statistical capacity among government staff. It advocated for strategies like establishing consultative forums between statistical agencies and policymakers, improving data quality and accessibility, and providing resources to guide decision-makers in assessing the quality and applicability of different data sources. While foundational, the framework's structure and organization may not effectively support the development of comprehensive curricula suited to varied policymaking environments. This raises questions about the utility and adaptability of such frameworks in practice.

Building on the foundational framework established by the UNECE, a subsequent study employed a more empirical approach by surveying 118 policymakers from national governments across continents to assess their statistical literacy (Proden, 2021). The study uncovered a significant gap in understanding fundamental statistical concepts such as distribution, trend, variability, probability, and causality. Notably, only 23.7% of the respondents could accurately define these concepts, with many relying on intuitive understanding. Additionally, more than half of the policymakers surveyed demonstrated inadequate knowledge in these critical areas. These findings underscore the gap in statistical literacy among policymakers, highlighting concerns about their ability to effectively interpret and utilize statistical information, including data visualizations, in decision-making processes. While Proden's study provides valuable insights, it is based on self-reported data, which may not fully capture the actual level of statistical understanding due to potential biases such as social desirability or overestimation of capabilities (Rosenman et al., 2011). Importantly, this study expanded the existing UNECE competency framework by adding two new competencies: *the ability to use data to inform policy design, monitoring, and evaluation, and the ability to use different data sources effectively and accurately*, which now constitute the UNECE Core Data Competencies for Policymakers (see Appendix 5.1).

Another study provides a conceptual contribution about statistical literacy and the complexity inherent in policymaking environments (Umbach, 2022). The study emphasizes that policymaking is a multifaceted process with significant societal implications, involving intricate social, economic, and welfare considerations. This complex setting requires policymakers to have a comprehensive understanding of statistical literacy that goes beyond technical skills. It highlights the need for policymakers to understand not only how statistics and data are used, but also their limitations and the impact they have on governance and policy formation. Furthermore, it underscores the

necessity for policymakers to navigate the politicized environments where data can influence political agendas, framing, and decision-making.This broader perspective on statistical literacy includes the ability to critically analyze the power dynamics and potential biases inherent in data-driven policymaking, as well as understanding the governance effects of statistics and data. This study insights significantly enhance the discourse on the essential capabilities that policymakers need to effectively use statistical information in their decision-making processes. In addition, makes a compelling argument for treating statistical literacy in policymaking as a distinct domain, separate from other fields. Nevertheless, the extent to which these competencies have been effectively translated into actual training frameworks remains underexplored.

A recent study conducted in Putrajaya, Kuala Lumpur, and Selangor explores the relationship between attitude towards statistics, statistics anxiety, and statistical literacy among education policymakers using a newly developed instrument, SL-EdP (Abd Jalal et al., 2023). Using a cross-sectional survey on 328 education policymakers, the study finds that despite having at least a basic statistics course, a significant portion of education officers experience statistics anxiety, which negatively impacts their statistical literacy, particularly among those in non-mathematics-oriented disciplines. This study highlights a negative relationship between statistics anxiety and statistical literacy, with anxiety serving as a substantial inhibitor to achieving effective statistical literacy among policymakers. The results suggest that while a positive attitude towards statistics does not significantly enhance statistical literacy, reducing statistics anxiety can have a considerable effect. The findings recommend that interventions aimed at reducing anxiety, such as targeted training and courses that apply statistics to real-world scenarios, are essential for improving statistical literacy among policymakers. It suggests a gap in the current training frameworks that may overlook the significance of managing statistics anxiety and fostering a supportive learning environment.

Collectively, these studies outline the competencies required for statistical literacy and provide insights into the essential elements of training programs for policymakers. By detailing necessary skills, introducing the role of politicized environments, and emphasizing the importance of emotional and psychological factors, they offer a framework that equips policymakers with both the technical abilities and the contextual awareness and behavioural insights needed for effective decision-making. Despite these contributions, several gaps remain evident. First, it is unclear to what extent governments are prioritizing and integrating these competencies within their training programs. This gap suggests a disconnect between theoretical frameworks and their practical application. Additionally, the literature does not sufficiently explore the relevance of these competencies across different policymaking contexts. There is a need to assess whether the

competencies outlined are universally applicable, or if they vary significantly with the specific demands of different policy environments.

Given these gaps in knowledge, this study aims to determine the extent to which these recommended frameworks for statistical literacy are being adopted and implemented within governmental training programs for policymakers. As a secondary objective, I aim to understand the practical relevance of these competencies in various policymaking contexts.

To fulfil these objectives, I conduct a content analysis of the training curricula for policymakers, as well as semi-structured interviews with key informants in policymaker training institutions. I define a policymaker as an individual serving in a public administration capacity, either at a national or international level. Drawing on Bonargent, 2023 definition, I characterise them by (i) a commitment to social welfare, (ii) the ability to implement policies or programmes or inform the implementation process, (iii) the ability to inform or make decisions on budgetary allocations and funding priorities, and (iv) a broad reach that ensures their actions and decisions have widespread implications (p.3). I narrow the scope to exclude large NGOs or social enterprises, focusing solely on roles within government agencies and public administrations. These officials, include but are not limited to state appointed ministers, advisors to the government, senior civil servants, and heads of governmental agencies.

I conduct this study in three countries: the Central African Republic, the Democratic Republic of Congo, and Cameroon selected based on their participation willingness [3]. In these countries, the *Ecole Nationale d'Administration* (ENA) institutions each have the distinct mandate of training policymakers in areas ranging from administration to the judiciary and diplomacy. This compulsory foundational training standardizes the education for policymakers across all government levels. It ensures a uniform educational foundation, facilitating mobility across ministries and sectors because of the shared skills and understanding. While additional specialized training might occur in various sectors throughout the courses of policymakers careers, the foundational training at ENA is compulsory, setting a uniform standard for all. This provides a unique opportunity to access and analyze the curricula. The selection of these countries was primarily based on the availability of data. These countries were uniquely willing to share their curricula through the Ecole Nationale d'Administration (ENA) institutions

[3] Numerous training institutions in various countries were contacted regarding participation in this study, including France, Germany, India, Senegal, South Africa, Switzerland, Singapore, Sri Lanka, Tchad and Pakistan. However, only these countries responded positively and were willing to share their curricula, which determined their selection.

To complement the content analysis and validate its findings, I conduct qualitative interviews with key informants in the various training institutions. These interviews serve to triangulate the data obtained from the curricula, as well as understand the reasons why statistics may or may not be prioritised in policymakers training programs in each respective country. Preliminary results show that while policymaker training institutions show a strong interest in evidence-informed policymaking, they have a limited understanding of the role of statistical and data literacy.

The investigation into the pre-civil service training programs in Cameroon, the Democratic Republic of Congo, and the Central African Republic reveals a notable absence of comprehensive statistical training across the curricula. Detailed reviews and interviews indicate that essential governance courses such as Project Management, Public Policy Evaluation, and others lack depth in statistical content, focusing predominantly on theoretical knowledge over practical, quantitative skills. This gap suggests a significant mismatch between the training provided and the competencies required for effective data-driven decision-making in public administration. This finding raises concerns about the readiness of policymakers to engage with evidence-informed policymaking. The ambiguity surrounding the integration of statistical training warrants further investigation to determine the actual scope and depth of statistical content within these educational programs.

The rest of the paper is structured as follows; section 2 discusses the methodology in detail. Section 3 discusses the data and section 4 discusses the results, and section V concludes.

2 Methodology

2.1 Design

To assess the extent to which the teaching of statistics is integrated into policymaker training programs within selected institutions, this study adopted a qualitative comparative design (Demuth and Fasulo, 2022). This design is suitable when the goal is to gain an understanding of the studied phenomenon and to recognize both similarities and differences across various countries (Demuth and Fasulo, 2022). The research combined content analysis with qualitative interviews focusing on curricula aimed at public administration officials, which included multiple specialized tracks in some cases.

The content analysis served two primary purposes: providing an overview of the various training offerings and shortlisting key informants who could offer detailed insights into specific subjects within the curriculum. This phase involved a review of course materials to determine their relevance to statistics education. Courses were evaluated for explicit ref- erences to statistics or quantitative methods. Priority was given to courses explicitly mentioning statistics (e.g., ”Applied

Statistics," "Basic Statistics") and those where the application of statistics could be inferred (e.g., "Research Methods," "Economic Theory"). This approach enabled the development of a targeted shortlist of courses, which subsequently informed the selection of interviewees for the qualitative component of the study.

To complement the content analysis, explanatory semi-structured interviews were conducted with key stakeholders: students enrolled in the shortlisted courses, ex-students, instructors and the curriculum developers. The semi-structured interview format was selected to enable flexibility during the interviews (Turner III, 2010)and facilitate dialogue and easy transitions across questions to change the order of questions (Dearnley, 2005; Whiting, 2008). It is also argued that interviews are appropriate tools for the collection of data in African settings, as people are more willing to provide information through oral narration, than having to answer structured questions that include writing and experimentation (Oppong, 2017, p. 3). The development and refinement of the semi-structured interviews were systematically approached, adhering to the guidelines recommended by Kallio et al., 2016. These include which include (1) identifying the prerequisites for using semi-structured interviews; (2) retrieving and using previous knowledge; (3) formulating the preliminary semi-structured interview guide; (4) pilot testing the interview guide; and (5) presenting the complete semistructured interview guide. The Consolidated Criteria for Reporting Qualitative Research reporting guidelines checklist was also used to enhance rigour (Tong et al., 2007).

2.2 Participants

The participants for this study were selected from a diverse group consisting of current students, alumni, curriculum developers, and teachers from the training programs identified in the preliminary review phase. Current students were included based on their enrolment in courses with explicit or implicit statistical content, providing insights into the recent application of statistics within their curricula. Alumni, who have transitioned into relevant professional roles, were selected to offer perspectives on the practical application and long-term impact of statistical training they received. Curriculum developers, involved in designing and implementing the courses, provided insights into the pedagogical intentions and structural components of the curriculum. Teachers, actively engaged in delivering the content, contributed their views on the effectiveness and challenges of integrating statistics into policymaker training.

To recruit participants who could provide thorough information (Patton, 2002), the institution directors were asked to identify individuals with comprehensive knowledge of the course content and curricula. Curriculum developers and teachers were chosen through purposive sampling, targeting individuals who could provide detailed and specific information about curriculum content

and teaching methods. For the students and alumni, a combination of convenience and snowball sampling was utilized. Initially, these participants were selected based on their availability and proximity, which facilitated ease of access and participation. As the study progressed, snowball sampling became instrumental, with initial participants referring further students and alumni. This method helped to broaden the participant base, capturing a wider array of experiences and perspectives regarding the statistical training provided.

This selection of diverse participant groups and the application of multiple sampling strategies were fundamental for data triangulation in this research. By integrating perspectives from students, alumni, curriculum developers, and teachers, the study not only enhances the validity and credibility of its findings but also ensures a multi-dimensional understanding of the effectiveness and impact of statistical training. Triangulation thereby supports the reliability of the conclusions drawn, presenting a comprehensive picture of the statistical education provided across different stages of learning and professional application (Triangulation, 2014).

Table 1: Comparative Overview of Training Institutions for Public Administration Officials

Attribute	Cameroon	DRC	Central African Republic
Name of Institution	Ecole Nationale d'Administration et de Magistrature	Ecole Nationale d'Administration	Ecole Nationale d'Administration et de Magistrature
Years of Operation	Since 1959	Since 2014	Since 1962
Duration of Training	24 months	12 months	6 months
Prerequisites	Bachelor's degree	Master's degree	Professional experience
Training Methodology	In-person	In-person	In-person
Training Recipients	Public Administration officials	Senior Administration Officials	Public Administration officials
Internship/Field Experience included	Yes	Yes	Yes
Number of Offer-ings/specialisations	Seven	One	One

3 Data

3.1 Data Collection

Data collection commenced in January 2024, involving two primary phases. The first phase focused on gathering comprehensive curriculum data from various training programs in Cameroon, the Democratic Republic of Congo, and the Central African Republic. This data collection provided detailed insights into the subjects, learning objectives, and educational structures of each program, which served as a crucial foundation for subsequent research steps. This information was instrumental in selecting participants for interviews, crafting interview guides, and gaining a thorough understanding of each institution's approach to integrating statistics into policymaker training.

The second phase involved conducting Zoom interviews with selected participants, initiated in April 2024 and still ongoing in Cameroon (n=2), the Democratic Republic of Congo (n=10), and the Central African Republic (n=1). As of now, a total of 13 interviews have been conducted. Conducted in French, each interview lasted between 30 and 45 minutes.

All interviews were audio recorded and transcribed using Trint.

3.2 Data Analysis

The data analysis for this study was conducted in three main phases, initially focusing on the curriculum content analysis, followed by country level thematic analysis of interview data and a secondary comparative analysis.

The first phase involved a high-level review of the curricula provided by various policymaker training institutions. This review was executed by scanning the curricula for keywords, subjects and modules related to statistical and data competencies and shortlisting interdisciplinary quantitative subjects such as accounting and economics that were likely to incorporate essential quantitative skills. Following this, detailed course material was requested from instructors. [4]

Building on the curriculum analysis, the study then proceeded to a detailed examination of interview data, utilizing both deductive and inductive coding. These approaches provide a comprehensive approach in analysing qualitative data (Azungah, 2018). Deductive coding was applied first, using a set of predefined codes derived from the UNECE Core Competency Framework to assess the relevance of statistical training against internationally recognized

[4] One major reason for this approach was that given the vast number of courses offered in these institutions, the workload requirements for finding, scanning and sending detailed training offers for all subjects offered was not feasible. As such, training institutions suggested a more targeted approach to identifying relevant subjects and courses for investigation.

competencies. In conjunction with deductive coding, inductive coding was employed to identify emergent themes from the interviews, capturing insights into the implementation of the curriculum, the effectiveness of pedagogical approaches, and stakeholder perceptions that were not initially anticipated by the competency framework. The interviews for each country were analysed separately to identify subcategories for each country.

Following the thematic analysis, a comparative analysis across the data from different countries was conducted. This comparison highlighted similarities and differences in approaches to teaching statistics, revealing country-level variations and offering insights into the challenges and successes faced by educational institutions in implementing statistical training for policymakers. In qualitative comparative research, a key issue is to find comparable units of analysis 'to identify domains that can be compared across the different settings' (Demuth and Fasulo, 2022, p. 16).

Certain segments of the transcript were excluded to maintain a focused examination of the research questions. Excluded data includes: contextual details about the participant's career trajectory that do not directly illuminate their statistical training or application; any duplicative information that did not add substantive value to the understanding of key themes; specifics of statistical software functionality that did not demonstrate the participant's understanding or application of these tools in a policy context.

3.3 Ethical considerations

This study adhered to rigorous ethical standards and was conducted under the approval of ETH Zurich's Institutional Review Board (IRB), which granted approval on November 14, 2023 (EK 2023-N-292), with no objections. All necessary ethical clearances were obtained prior to the commencement of data collection, ensuring compliance with international guidelines on research ethics.

Informed consent was a cornerstone of the participant engagement process. Before conducting interviews, each participant was fully informed about the study's objectives, the nature of their involvement, and their right to withdraw at any time without consequence. Consent was obtained in written form from all participants to ensure transparency and mutual understanding.

Confidentiality and privacy were maintained throughout the research process. All participant data were anonymized in the study's documentation and publication, with personal identifiers removed to prevent the possibility of participant identification. Audio recordings and transcripts were securely stored and accessible only to the research team, safeguarding the participants' information.

4 Results

4.1 Review of Curricula

4.1.1 Preliminary Review of Curricula

The study conducted a comprehensive review of civil service training programs, analyzing a total of 181 subjects across Cameroon, the Democratic Republic of Congo (DRC), and the Central African Republic, focusing specifically on the inclusion of statistical training. Notably, Cameroon contributed 130 of these subjects, a reflection of its numerous training tracks, which indicates a more specialized approach to public administration training compared to the more generalized approach observed in the DRC and CAR.

The analysis of course descriptions and learning objectives revealed a significant observation: no curricula from the three countries included foundational statistics courses. This absence underscores a systemic gap in introductory statistical education across the board. Consequently, the review focused on more applied statistical education within specific contexts, particularly in fields such as economics and finance where statistical methods are implicitly required rather than explicitly taught.

In Cameroon, despite the diversity offered by its multiple training tracks, foundational statistical courses that provide broad-based introductory training in statistics were notably absent. Instead, the curriculum incorporates statistics more implicitly within specialized subjects, necessitating a focus on applied statistics during the review. Preliminary findings suggest that such a curriculum design assumes a pre-existing level of statistical knowledge among students, particularly highlighted by insights from the DRC where it is expected that students entering these programs, typically holding master's degrees, already possess foundational statistical skills.

This approach was evident in the examination of certain subjects in Cameroon and the DRC, where no explicit emphasis on statistical literacy was found. The lack of introductory statistical training in the curricula points to a potential underestimation of the need for comprehensive statistical education in preparing students for effective public administration roles.

4.2 In-Depth Review of Curricula

The in-depth analysis of the civil service training curricula in the Democratic Republic of Congo focused on key subjects that are pivotal for the training of public administrators. The subjects examined included Project Management, Prospective Analysis for Development, Execution of Public Markets, and Formulation and Evaluation of Public Policy. Detailed teaching materials provided by instructors were thoroughly reviewed for each of these subjects.

A significant finding from this review is the absence of references to statistical competencies as outlined by the United Nations Economic Commission for Europe (UNECE) or any other recognized standards in statistical education within the teaching materials. This is particularly noteworthy in courses like Prospective Analysis for Development, where macroeconomic forecasting is a core component. The materials for this course primarily emphasize theoretical aspects of economic forecasting, without delving into the quantitative methods necessary for executing such forecasts effectively. This trend of prioritizing theoretical knowledge over practical, methodological skills recurs throughout the curriculum.

For instance, in Project Management, where quantitative planning and assessment techniques are essential, the materials reviewed did not integrate these statistical aspects. Similarly, the courses on Execution of Public Markets and Formulation and Evaluation of Public Policy, which involve substantial evaluation and forecasting elements, lacked instruction in the statistical methods that support accuracy and reliability in these processes.

4.3 Interview Findings

4.3.1 Data Awareness

The consensus among interviewees is that data plays a crucial role in the formulation and implementation of policies. Participants articulated a clear understanding of how data-driven decisions can significantly enhance the effectiveness of government actions. They emphasized that robust data analysis provides a foundation for transparent, accountable, and effective policymaking, which is essential in addressing the complex challenges facing the country.

”Les donn´ees statistics sont tres importantes parce qu’il y a droit pour d’autres politiques. Il faut d’abord analyser les donees pass´ees et faire des projecteurs dans.” Policymaker, interview, [May 7 2024]

(Translation: ”Statistical data are very important because they pave the way for other policies. It is essential to first analyze past data and make projections.”)

Furthermore, the interviews highlighted a widespread belief among the participants that a well-informed approach to policy development, underpinned by accurate and timely data, is indispensable for successful public administration. This orientation suggests a high level of data literacy among those interviewed, indicating that, while introductory statistics courses may be absent from the curricula, there is an acknowledgment of the need for competency in data handling and analysis within the higher echelons of the civil service.

This strong emphasis on data underscores an institutional recognition of its value, but also raises questions about the pathways through which policymakers are expected to acquire these skills, given the noted gaps in formal statistical training. The reliance on presumed pre-existing data competencies suggests a potential area for further development in the training programs to ensure that all public administrators are adequately equipped with these essential skills from the outset of their careers.

4.3.2 Differences in Statistical Literacy Among Public Administrators

Findings reveal that the educational backgrounds of public administrators are predominantly in economics and law. As such, there is a noticeable difference in the level of statistical literacy among policymakers, which can be attributed to their educational backgrounds. Those with economics backgrounds often possess advanced quantitative skills, having been exposed to complex statistical methods and econometric analysis during their studies. In contrast, individuals from a law background might only have a basic understanding of statistics, typically limited to descriptive statistics.

”Mais apr`es quand nous avons fait l’ENA, nous ´etions a` peu pr`es 30% de qui ont fait l’´economie, 50% qui ont fait le droit puis dix 15% de ce qu’on fait, le reste est des relations internationales.” [00:21:06][15.5]

(Translation: ”But after we attended the ENA, about 30% of us had studied economics, 50% had studied law, and the remaining 15% were from other fields like international relations.”)

This breakdown indicates that the vast majority of public administrators are either trained as economists or as legal experts, each bringing distinct approaches to data interpretation and decision-making. Economists may have a stronger quantitative foundation, often familiar with advanced statistical methods and economic modeling, while those with legal backgrounds might primarily focus on qualitative assessments and normative legal frameworks. This divergence in foundational training can lead to varied approaches in handling data-driven tasks and policy evaluations within government roles.

”Ma formation initiale, elle est juridique, donc j’ai fait le droit a` l’universit´e. Je ne serai pas non plus une experte en statistiques comme le serait quelqu’un qui a pass´e cinq ann´ees d’´etudes soit en statistiques et que sais-je encore.” Policymaker,

Interview, [May 7, 2024]

(Translation: ”My initial training is in law, so I studied law at university. I will not be an expert in statistics as someone who spent five years studying statistics or something similar would be.”)

4.3.3 Role of External Consultants

Interviews conducted in the Democratic Republic of Congo have highlighted a significant involvement of external consultants in the civil service training programs. These consultants are engaged not only in developing the training curricula but also in performing specialized statistical tasks. The findings indicate that consultants frequently handle complex statistical and econometric modeling tasks, which are integral for planning and budgeting within public administration.

This engagement reflects a reliance on specialized knowledge for integrating advanced statistical methods and economic modeling techniques into the training programs. The use of external consultants for these tasks suggests that there may be a gap in local expertise or a preference for international standards and practices in these critical areas.

”on voulait Faire ce qu’on appelle un budget ´economique, comme ¸ca se fait dans les autres pays mais l’expert qui ´etait venu a, sur base des notions de budget

´economique, a ´elabor´e un mod`ele” Policymaker, interview, [May 7 2024]

(Translation: ”we wanted to do what we call an economic budget, as is done in other countries, but the expert who came, based on economic budget concepts, developed a model.”)

The extensive use of external consultants to both outline necessary competencies and execute sophisticated modeling tasks highlights their pivotal role in shaping and implementing the curriculum. By detailing the specific contributions of consultants in areas requiring highlevel quantitative skills, this section provides a factual overview of how external expertise is leveraged within the training programs in the Democratic of Congo.

”il y a eu des consultants belges qui ont ´et´e recrut´es par la coop´eration belge et ils sont venus a` l’ENA pour ´evaluer les diff´erents modules qui ´etaient confi´es au d´epart. Depuis 2013.” Policymaker, Interview, [May 7, 2024]

(Translation: ”Belgian consultants were recruited by Belgian cooperation and they came to ENA to evaluate the various modules that were initially entrusted.

Since 2013.”)

”je pense que les modules de formation de L’ENA c’etait bas´e sur ce que l’ENA france pensait utile parce qu’il etait en coop´eration a ce temps et je sais qu’il y avait mˆeme des comment je peux dire des des consultants qui ´etaient venus Expertise France surtout en Belgique. Policymaker, Interview, [May 8, 2024]

(Translation: ”I think the ENA training modules were based on what ENA France thought was useful because it was in cooperation at the time, and I know that there were even consultants who had come from Expertise France especially in Belgium. There was also the German Institute which also helped with the ENA RDC curricula.” — Policymaker, Interview, [May 8, 2024]

4.3.4 Relevance of statistics to professional role

Statistical literacy is widely recognized among policymakers as a crucial aspect of their daily responsibilities. However, these needs vary widely across different domains. This variability reflects the diverse nature of tasks that policymakers and administrators are tasked with, which require different levels of statistical expertise.

”la maˆıtrise des statistiques et de tout ce qui est donn´e est tr`es important parce que c’est cela mon quotidien. C’est ce que nous faisons tous les jours.” Policymaker, Interview, [May 8, 2024]

(Translation: ”The mastery of statistics and everything related to data is very important because that is my everyday reality. It’s what we do every day.”)

”Nous sommes dans les chiffres. Il y a des coll`egues qui sont au minist`ere de Travaux publics, Travaux publics, c’est aussi des chiffres. Donc, il y a deux coll`egues qui sont au minist`ere des Hydrocarbures. Les hydrocarbures, c’est toujours les chiffres.” [00:34:41][14.6]

(Translation: ”We deal with numbers. Colleagues in the Ministry of Public Works also work extensively with numbers. Similarly, in the Ministry of Hydrocarbons, numbers are always a fundamental aspect.”)

4.3.5 Use of statistical software

Public administrators employ a variety of tools for data analysis and management, reflecting different levels of complexity and accessibility. While advanced statistical software like SPSS is utilized by some for in-depth statistical studies, tools like Microsoft Excel and Access are more broadly used across different sectors for their versatility and ease of access:

”Sur cette base, nous avons pu faire une analyse sur SPSS, l’analyse de donn´ees ou` nous avons fait une ´etude statistique, une ´etude sur les moyennes, sur les ´ecarts types de distanciation, mais aussi nous avons eu `a travailler sur l’´etude des effets parce qu’on n’a pas fait les ´etudes d’impact, parce que les ´etudes d’impact, les donn´ees n’´etaient pas tr`es repr´esentatif.” [00:13:07][29.4]

(Translation: ”Based on this, we were able to perform an analysis using SPSS, where we conducted statistical studies on means, standard deviations of distancing, and also worked on impact studies because the data for impact studies were not very representative.”)

Further highlighting the ubiquity of more accessible tools, another administrator detailed their use of Microsoft software for daily data management tasks:

”Nous utilisons une petite base de donn´ees Excel, non une petite base de donn´ees Access, et nous avons mont´e au niveau de la direction. Et c’est `a partir de cette base de donn´ees Access que nous faisons toutes les manipulations.” [00:20:26][17.6]

(Translation: ”We use a small database in Access, not Excel, and we have set it up at the management level. It is from this Access database that we perform all our manipulations.”)

In contrast, tools like Excel and Access are widely used for everyday tasks such as tracking budgets, scheduling, and simple data analyses, which do not require the same level of statistical sophistication but are crucial for day-to-day administration. The accessibility of these tools makes them indispensable for many administrators, facilitating routine data management tasks and enabling basic analyses that support operational decisions.

This diverse usage of software tools reflects the varying levels of statistical training and the different needs across government departments. It underscores the importance of providing tailored training that equips all public administrators with the skills necessary to utilize the tools relevant to their specific roles effectively.

5 Conclusion

This study aimed to adress the role of statistical literacy in policymaking and the degree to which current training programs in public administration equip policymakers with the necessary skills to utilize evidence effectively in their work. The investigation stems from an observed gap in knowledge about how training institutions prepare public officials and how this training translates into competent, evidence-based decision-making.

This research involved an in-depth review of civil service training curricula across three countries, focusing on how these programs incorporate statistical training that is crucial for effective policymaking. However, the detailed presentation of findings in this paper is confined to the Democratic Republic of Congo, as this is where complete data from interviews are currently available. The review and interviews explored key subjects pivotal to the training of public administrators, such as Project Management and Public Policy Evaluation, assessing the presence and depth of statistical content in the training materials provided.

Interview findings reinforced the importance of data-driven decision-making in enhancing the effectiveness and transparency of government actions. Despite the crucial role recognized for robust data analysis in policy formulation and implementation, there remains a notable discrepancy between this recognition and the training provided. The diverse educational backgrounds of administrators, predominantly in economics and law, create variability in baseline statistical literacy, impacting the overall efficacy of public administration. This discrepancy has several implications: (1)Without robust statistical training, policymakers are potentially less equipped to interpret and utilize data effectively, undermining their ability to make informed decisions. (2)The reliance on external expertise for tasks involving complex statistical analysis and economic modeling indicates a lack of internal capacity, which could impede sustainable development and transfer of skills. (3)The diversity in educational backgrounds, with a substantial proportion of administrators having non-quantitative training (notably in law), further complicates the uniform application of data-driven decision-making principles across various governmental departments.

Given these findings, the study highlights a pressing need for enhanced statistical training that caters to the varied educational backgrounds of administrators, ensuring all are equipped with essential quantitative skills to effectively handle data-driven tasks. There is also a need to develop local expertise through continuous professional development and advanced training modules to gradually reduce reliance on external consultants. Additionally, the curriculum should be revised to include more practical applications of statistical methods and quantitative analysis to better prepare administrators for the complexities of modern governance.

5.1 Limitations

A limitation of this study stems from the method by which the curricula were collected. Countries were invited to submit their curricula for evaluation, but they had the discretion to select which curricula they chose to send. This voluntary submission process may have introduced a selection bias, as the participating countries could have opted to provide only those curricula they deemed most representative or favourable, potentially omitting others that might not showcase

their training programs as effectively. Consequently, this selective submission could mean that the study did not evaluate the full breadth of trainings offered, skewing the understanding of statistical education's scope and depth across different countries.

Secondly, magistrates were excluded due to their specialized judicial education, which may not typically prioritize statistical training. However, it is recognized that magistrates can ascend to public administration roles where such literacy would be beneficial. As such, the exclusion of this group may overlook a future need for statistical acumen in their professional development.

Thirdly, the potential for individuals outside these formal education systems to assume policymaking roles in public administration was not directly addressed in this study. Although less traditional, these paths into policymaking suggest an area for future investigation, particularly in how these individuals acquire the necessary competencies for effective governance.

Furthermore, this study did not investigate continuous professional development (CPD) opportunities external to the ENA(M)s' offerings, such as international programs that might be available to policymakers. These global options have the potential to supplement the educational gaps identified, enriching the statistical acumen of public servants. However, such international CPD opportunities are frequently accompanied by significant barriers—financial costs, logistical complexities of travel, and substantial time investments—which may render them inaccessible to many. The assumption that policymakers can leverage these international resources is optimistic and may not accurately reflect the practical challenges they face in accessing such development opportunities.

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Appendix A. UNECE Core Data Competencies for Policymakers

1. **Data Awareness** A good understanding why using data in their work is not only beneficial but critical

2. **Ability to Understand Statistical Concepts** A proper use of numbers, foundational mathematical skills, the understanding of central tendency and variability measures, and an appreciation of the concepts related to probability and causality

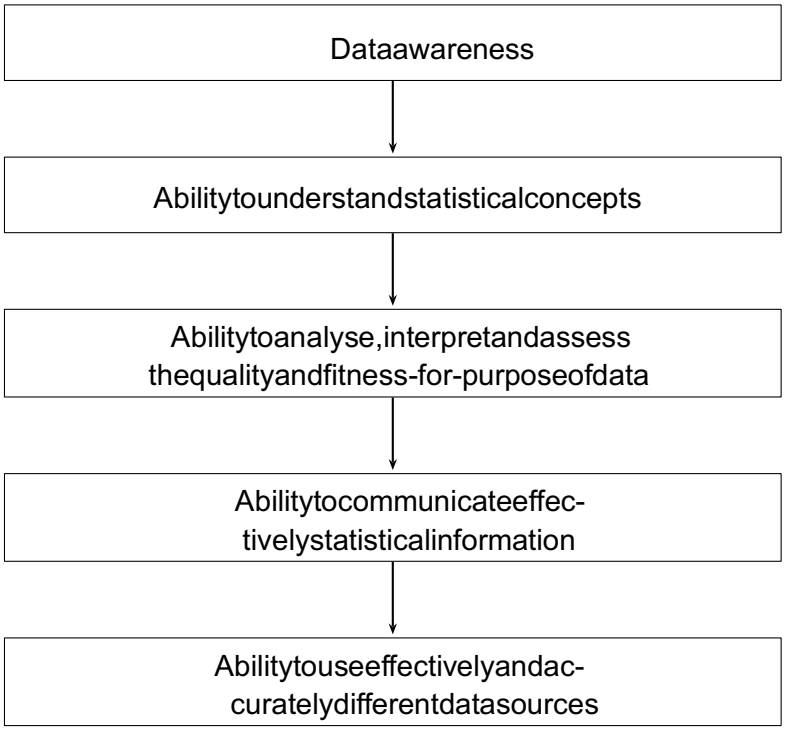
3. **Ability to analyse, interpret and assess the quality and fitness-for-purposeof data.** Familiarity with the concept of official statistics and its significance in data analysis and decision-making processes. Understanding of the UN Fundamental Principles of Official Statistics, which underpin the production and use of official statistics. Knowledge of the Quality Assurance Framework commonly employed by National Statistical Offices (NSOs) to ensure the accuracy and reliability of official statistics. Ability to differentiate between various sources of data, including censuses, surveys, administrative data, geospatial imagery, social media data, Big Data, and citizen-generated data. Capability to locate and utilise relevant metadata to assess the suitability of data for specific objectives. Proficiency in comprehending sample surveys, confidence intervals, and statistical inference methods to correctly interpret the results of studies and

regression analyses. Application of statistical skills to enable evidence-based policymaking and decision-making processes.

4. **Ability to communicate effectively statistical information** Ability to tell a compelling story with data to effectively convey messages and drive desired actions or changes. Emphasis on objective and transparent communication, avoiding intentional or unintentional omissions or partial presentations to influence opinions in support of specific policy options. Skill in avoiding the misuse of absolute numbers without providing context (denominator) to present a complete picture of the data. Proficiency in using visual elements like tables, graphs, and maps to present data in a user-friendly manner that accurately reflects information. Capability to critically read and interpret visual presentations of data, allowing policymakers to make informed decisions and analyse data with a discerning eye. Familiarity with guidelines and resources, such as UNECE's "Making data meaningful" series and publications from organisations like Statistics Norway and PARIS21, to improve data storytelling and presentation skills.

5. **Ability to use effectively and accurately different data sources** Proficiency in locating and utilising official statistics from National Statistical Offices (NSOs) or ministries Figure 1:

Coredatacompetenciesforpolicymakers.



Ability to use data to actually inform the design of a policy, and ensure the monitoring and evaluation of its implementation belonging to National Statistical Systems (NSSs) to track national progress on specific indicators or sets of indicators. Familiarity with different data sources for

official statistics, including censuses, surveys, administrative data, and alternative data sources, and understanding the importance of quality checks for using non-traditional data. Proficiency in accessing and utilising national SDG reporting platforms, SDG progress reports, and statistical annexes for Voluntary National Reviews provided by NSOs. Skill in interpreting data from international organisations' websites for making country-to-country comparisons or finding data not available on NSO/NSSs websites. Knowledge of specific surveys or datasets relevant to various areas of interest, such as poverty, trade, finance, health, or environment, available on NSO or International Organization websites. Understanding the differences between panel data, cross-sectional data, time series, and microdata, and their appropriate use for studying progress over time, comparing administrative units, or conducting detailed analyses. Ability to evaluate the design and depth of scientific studies to inform the selection of appropriate policy options.

6. Ability to use data to actually inform the design of a policy, and ensure themonitoring and evaluation of its implementation Ability to identify the type of data needed to address specific policy questions, considering key statistics such as demographic trends, GDP growth, savings, investment, debt, and various economic indicators. Proficiency in designing policies that align with the national context and selecting appropriate options by learning from the experiences of other countries through data analysis. Capability to analyse data by examining different variables and disaggregations to identify patterns and correlations, enabling evidence-based decision-making. Advanced skill in identifying relevant studies and evaluations that establish causal links between policies and outcomes, and assessing the robustness of their conclusions. Knowledge of identifying and utilising performance indicators to effectively monitor policy implementation and progress. Proficiency in costing and budgeting policies to ensure efficient resource allocation and fiscal planning. Capability to evaluate policy effectiveness by assessing whether objectives are met and understanding what aspects work well and what need improvements, using methods like impact assessments and causality analysis. Understanding of different evaluation methodologies, such as randomised control trials, difference-in-difference, propensity score matching, and other econometric methods, to assess policy impacts post-factum. Awareness of the requirements and limitations associated with proposing and commissioning independent policy evaluations or impact assessments.