Guide to statistics in European Commission development cooperation

VOLUME 2: SOCIAL STATISTICS

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Foreword

Reliable and relevant statistics are essential for all aspects of public discourse and for holding governments accountable. They constitute a key tool for governments and policy makers to measure progress towards development goals and provide information about the effectiveness of policies and programmes.

This Guide provides extensive information on statistics in development cooperation, presenting key international initiatives supporting developing countries in building sustainable statistical systems that produce quality statistics. It provides information on how to identify and develop actions in support of key statistics and how to use data and indicators to define and follow-up cooperation programmes.

This edition also includes various key developments, including the sustainable development goals (SDGs) and the SDG indicators framework, the UN World Data Forum and other related initiatives. The implementation of development programmes aimed at achieving the SDGs has further raised the demand for high-quality statistics in this area.

The EU is the biggest provider of development assistance in the world. In the area of statistics, the European Commission, together with the EU Member States, is highly involved in the field of international statistical cooperation, with Eurostat — the Statistical Office of the EU — at the forefront of developing methodology and instruments for harmonised and reliable statistics. This publication is intended to support EU Delegations around the world, as well as various EU/EC services, and more generally, those involved in implementation of statistical cooperation programmes.

For a non-statistician, the Guide explains how national statistical systems are organised and how they function, the central role of national statistical offices, as well as core international quality frameworks and principles for statistics. Overall, the Guide has been designed as a dynamic, interactive tool providing technical references and guidance on statistics, through hundreds of active hyperlinks for further information.

This updated version of the Guide is the fifth consecutive edition; the first edition was published a decade ago. To make the Guide easier to use, it has been divided into a core volume, supplemented by chapters that present statistics and statistical processes in specific sectors (gathered into a set of four thematic volumes): Sustainable Development Goals and indicators; social statistics; economic statistics and; environment and climate change statistics. With the exception of the volume on economic statistics, the whole publication has been updated for this edition.

Since the start of 2020, the world has been under immense strain from the COVID-19 pandemic and its repercussions. The setback caused by the pandemic and its dire consequences for finances and capacity in many societies may further amplify the challenges. The need for support through capacity development and technical assistance is therefore more vital than ever. In this context, the demand for data and statistics to monitor and evaluate this dynamic situation has become proportionally greater, with a requirement for new statistics and more rapid results.

I hope you will find this new edition of the Guide useful. As always, Eurostat welcomes any feedback and ideas on how to develop it further.

Mariana Kotzeva

Director-General, Eurostat

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All statements on policies within this publication are given for information purpose only. They do not constitute an official policy position of European Commission and are not legally binding.

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Contents

Introduction: The guide to the Guide

Why a Guide to statistics in European Commission development cooperation and who should read it?

> 'I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts...'
>
> Sherlock Holmes in 'A Scandal in Bohemia' by Sir Arthur Conan Doyle, 1891

The purpose of the Guide to statistics in European Commission development cooperation is to explain why statistics are important for development cooperation, how to use them and what needs to be done to make them available. It is not intended to be a course in statistics and statistical methods. Alternative and additional reading is shown in the 'To find out more' box at the end of each section.

The Guide is the fruit of a close cooperation amongst Commission services and international stakeholders in statistical co-operation for development. It is principally aimed at supporting EU staff working in development cooperation, especially in EU delegations. However, it is also relevant to other actors in statistical development programmes. In particular, it aims to aid practitioners who need to know more about statistics in development cooperation context. The Guide explains why and how statistics are relevant to their work and what they need to do in various situations. It provides the information required for Commission staff to undertake the following tasks:

- Use statistical indicators to design and monitor development programmes;
- Identify and develop statistics support actions;
- Promote the use of statistics at each stage of the aid cycle;
- Advocate for early consideration of which statistics and indicators will be needed for implementation, evaluation and impact assessment (and what is required to obtain these).

The Guide aims to answer a number of basic questions about development statistics:

- Part A, this Introduction, is a guide to when and how to consult the Guide
- Part B: Statistics in Development looks at why and how statistics enter the development process and how to understand and check data
- Part C: Support for Statistics considers when and how the European Community needs to act to make sure that good quality statistics are available to support its development goals
- Parts A-C are completed by four thematic volumes dealing with the use of Statistics for Policy Issues. Chapters in these volumes look at how statistics can be used and supported to achieve European Commission policy aims in specific sectors.

When arguing that statistics are important but bread is more urgent, one should ask oneself on what information the answers to the following questions are based: 'How much bread?' and 'Where is it needed?' Development fundamentally is about people and about eliminating poverty. In order to manage the process, it is essential to measure it. While statistics may not directly reduce poverty or hunger, they are an essential component of a complex process; without adequate statistical data it is by no means certain that actions to reduce poverty will be directed at the right problem, that they will be effective or that they will result in sustained improvements.

It is obvious that good and reliable statistics are necessary to donors, in order to assess where aid is most needed, to use resources efficiently, to measure progress and to evaluate results. There is broad consensus that the Sustainable Development Goals (SDGs) identify the desired outcomes as well as the means for measuring progress. Thus, statistics are vital to 'Managing for Development Results' with shared accountability and focus on results.

A key issue is the need for good country-specific and country-owned policies and institutions. Better statistical data and improved analysis can create a political will for changes. Without good statistics, governments cannot deliver efficient administration, good management, and evidence-based policymaking. An effective and efficient national statistical system, providing regular and reliable data on the economy and the well-being of the population, is an important indicator of good policies and a crucial component of good governance.

Statistics also provide a means for the media, non-governmental organisations and any citizen to monitor the activities of government. The ability to provide regular and reliable data on the economy and the well-being of the population is an important indicator of good policies and institutions. When the statistical system produces quality data which is trusted by the public, transparency increases and accountability is promoted. The quality and availability of data depend on the capacity of the institutions involved in the national statistical system, which are often undervalued and underfunded.

This Guide, and in particular this volume, will help you find what you want to know about social statistics.

How to read this volume of the Guide

There are text boxes at the start and end of each chapter. The chapter in brief box starts each chapter and provides a summary of one to two paragraphs. Most sections and each sector chapter end with a 'To find out more' box, which provides references, hyperlinks and supporting information for further research.

The table of contents is provided in detail so that most key issues can be found easily. Hyperlinks are also provided to Eurostat's Concepts and Definitions Database (CODED) and OECD's Glossary of Statistical Terms, as well as to the International Statistical Institute's (ISI) Multilingual Glossary of Statistical Terms.

The Guide is prepared primarily to be used as an electronic document to be disseminated in PDF format. To navigate through the text and find related information, the user can simply click on the interactive links from the Table of Contents. To consult external references over the Internet, the user just has to click on the hyperlinks in the 'To find out more' boxes. The user may also use the normal 'search' facility for PDF documents to find the information of interest, searching on specific keywords or key terms.

To find out more…

These boxes, provided at the end of most sections, summarise reference documents and in most cases give hyperlinks to them, e.g.:

- Eurostat's Concepts and Definitions Database (CODED)
- OECD's Glossary of Statistical Terms
- International Statistical Institute's (ISI) Multilingual Glossary of Statistical Terms
- European Consensus on Development
- Conference of European Statisticians: Classification of Statistical Activities (CSA)

V2.1 Justice and crime statistics

V2.1. Justice and crime statistics

The chapter in brief

This chapter covers statistics that relate to the nature and extent of crime and the operation of the criminal justice system, providing a short overview of the subject. It also presents the main Sustainable Development Goals (SDGs) related to creating safer and more just societies and the indicators devised to monitor progress towards these targets.

Justice and crime statistics cover a very wide area of actors including law enforcement agencies, prosecution authorities, courts and correctional institutions. The chapter begins with a short description of the various components of a typical criminal justice system. It then identifies the main policy areas for which justice and crime statistics are used. It continues with a description of the many different types of justice and crime statistics before providing links to some of the more important sources of existing statistics for illustrative purposes. It then turns to some quality issues. It concludes with a discussion of some of the main aspects that need to be considered in building a sustainable justice and crime statistics system.

The aim is to provide guidance on how to build up or strengthen the capacities for the establishment of meaningful and reliable statistics in the field of crime and criminal justice. Because of the considerable differences in the forms of policing and criminal justice in different countries, it is possible only to provide a broad overview. A more detailed treatment of the subject is available in the UN Manual for the Development of a System of Criminal Justice Statistics.

V2.1.1. Policy applications

V2.1.1.1. THE CRIMINAL JUSTICE SYSTEM

History, customs and traditions, religious beliefs, civil conflict, economic and political factors, and values all play a fundamental part in the development of a country's criminal justice system. There are, therefore, a large variety of criminal justice systems in the world today. The two major models in the Western world are based on civil and common law traditions.([55]) The civil law tradition is the older and more influential and forms the basis of criminal justice systems in Europe, Latin America and African countries. It is based on Roman law and seeks to encourage rules of conduct linked to the ideas of justice and morality. It relies on a written code and is mainly inquisitorial, even though in some countries turned into a more adversial system or in a mixed one between the two. The common law tradition has its origins in England and forms the basis of criminal justice systems in many former colonies of the British Empire. It is derived from precedent and custom although written laws are also important. Judges play a central role and the system is adversarial.

([55]) For a more extended discussion of different models of criminal justice systems, see for example: Robertson, C. and Das, D.K. (2008) An Introduction to Comparative Legal Models of Criminal Justice, London: CRC Press.

A third important model is Sharia law based on traditional Islamic thought and is derived from the divine revelations of the Qur'an and the examples and sayings of the Prophet Muhammad. Some countries have a mixture of different models of criminal justice and the picture is further complicated depending on whether the nation's government is unitary, federal or confederate. Moreover, there are many informal systems of justice based on customary and indigenous traditions, which exist alongside the more formal systems.

A typical formal criminal justice system consists of a complex system of actors dealing with crime, offenders and victims. The police component is often made up of national, regional and local police agencies and a variety of specialised policing bodies dealing with drugs, traffic, health and safety, business, tax and environmental violations. The prosecution component is usually composed of a separate public prosecutor's office and public prosecutors in various government departments. The court component is made up of a range of different types of courts with varying levels of jurisdiction, a number of specialised courts, such as juvenile courts, and appellate courts. The prison component includes all types of custodial institutions from pre- to post-trial. The non-custodial section embraces a range of organisations responsible for supervising measures, such as probation or community service. A comprehensive system of justice and crime statistics collects statistics on the decisions made and outcomes for all the separate components as well as capturing throughput information, monitoring case outcomes and conducting victim surveys.

V2.1.1.2. WHAT THESE DATA ARE USED FOR

Justice and crime statistics have a wide variety of uses including:

- To provide a picture of the nature and extent of crime in society and the effectiveness of the response to it. Alongside other statistics on social harm, justice and crime statistics can serve as a social barometer on the well-being of a nation and the levels of harm and insecurity experienced by its citizens.
- To assess the extent to which the goals, objectives and targets of the whole as well as each part of the criminal justice system — the police services/law enforcement agencies, prosecution authorities, courts and custodial institutions — are being accomplished and whether the resources are being used efficiently and effectively.
- To plan for policy changes within different parts of the system or from outside the system. For example, if a law is passed to increase the severity of the sentence for a particular category of offence, it may be important to be able assess the impact on the size of the prison population.
- To inform budget and personnel decisions and lead to a better management of the courts and control institutions.

- To ascertain that all decisions and activities are compliant with international human rights obligations – including the duty not to wrongfully discriminate and the right to a fair trial in a reasonable time (Article 6 of the European Convention on Human Rights).
- To compare the nature and the extent of crime and punishment across different countries.
- To evaluate the functioning of the civil, commercial and administrative justice across different countries.

V2.1.1.3. TYPES OF JUSTICE AND CRIME STATISTICS

Many countries already collect a range of justice and crime statistics for each of the major agencies within the criminal justice system. Police statistics may include information on recorded crime, 'clear-up' figures, and police use of selected powers, such as stop and search, arrest and detention. Prosecution statistics typically cover caseload data and show the number of cases not proceeded with, the total number of suspects prosecuted and outcome of cases. More sophisticated systems may collect statistics on specific issues, such as racially motivated offences or domestic violence as well as monitoring a range of performance indicators. Court statistics record the number of cases dealt with, the type of plea entered, the outcome of each case, any sentence given and some characteristics of those prosecuted such as age, sex, education and ethnic background. Punishment or disposal statistics record details of the number and characteristics of those sentenced to different forms of punishment such as imprisonment or probation. In addition, most systems collect a range of resource data on the number and characteristics of persons employed in each section and on levels of expenditure.

Box V2.1.1: Indicative list of information included in justice and crime statistics systems

Police

- Number of offences recorded, by type of crime, place, date and time, modus operandi
- Number of persons arrested, by age, sex
- Number of persons stopped, searched and detained, by age, sex
- Number of persons prosecuted or otherwise dealt with, by age, sex
- Number of racially or politically motivated offences

Prosecution

- Number of prosecution cases not proceeded with, by age, sex
- Number of persons prosecuted by type of crime, age, sex

Courts

- Number of persons who pleaded guilty, by type of crime, age, sex, level of education
- Number of persons found guilty, by type of crime, age, sex, level of education
- Number of persons acquitted, by type of crime, sentence, age, sex
- Number of persons sentenced to imprisonment, by type of crime, age, sex, level of education
- Number of persons sentenced to imprisonment by length of sentence
- Number of persons fined, by type of crime, age, sex
- Number of persons given a community sentence, by type of crime, age, sex, level of education
- Cases filed, disposed, pending by legal status of the court process (criminal, civil/commercial, administrative)
- Clearance rate by legal status of the court process (criminal, civil/commercial, administrative)
- Disposition time by legal status of the court process (criminal, civil/commercial, administrative)
- Total backlog by legal status of the court process (criminal, civil/commercial, administrative)
- Backlog resolution by legal status of the court process (criminal, civil/commercial, administrative)
- Number of persons sentenced to probation
- Persons brought before criminal courts by legal status of the court process (convicted/acquitted)

Prisons and other disposals

- Number of persons in prison by category (awaiting trial, awaiting sentence and sentenced)
- Number of persons in prison by sex, age, education level
- Number of persons incarcerated in other types of penal establishment, by age, sex, education level
- Number of persons on a community sentence, by sex, age, level of education
- Number of persons on parole, by sex, age, level of education
- Number of mentally ill incarcerated
- Prison population growth
- Recidivism rate

Resource statistics

- Number of police officers, police civilian personnel, prosecutors, judges (professional and lay), prison officers and other penal establishment staff by age, sex
- Total police, prosecution, court and penal institutions budgets

The criminal 'event' forms the key element of any system of criminal justice and of crime statistics. It involves three components: a criminal act, an offender and a victim. Criminal acts are defined within the criminal laws of each state. Sometimes there are important differences between countries in the types of behaviour considered to be criminal. Every single criminal event may involve more than one criminal act, more than one offender and more than one victim or a series of acts against the same victim. The victim may not be an individual but an organisation such as a shop, bank or even the state itself. Classification schemes are used to categorise the legally defined behaviour groupings and clear and comprehensive instructions are required for recording criminal events involving a series of criminal acts and persons.

Information on the offender can be obtained at various stages in the criminal justice process. The most comprehensive information is normally collected on offenders in prison. As well as age, sex, residence, national origin – information that is normally routinely collected by the police – a range of detailed information, such as educational attainment, physical and mental health, membership of a criminal organisation, can also be collected on individual offenders. Thus, the further along the criminal justice process the richer the information that is typically obtained. However, information gathered at this stage is unlikely be representative of the offender population in general because of tendencies towards the differential treatment of specific groups in the population, such as the poor, mentally ill or those from ethnic minorities.

For crimes where victims are individuals, the characteristics of the victims and the type and severity of their experiences have been given much greater emphasis in recent times in common law systems. In a number of countries, police now routinely collect victim information. The most important development, however, has been the introduction of victim surveys, in part because of the limitation of police recorded crime statistics. These surveys are based on a random sample of the population and focus on ascertaining whether the respondent has been a victim of a crime over their life course or in the last year.

One of the most difficult decisions is whether to collect information on the ethnic origins of those who come into contact with the police or are subsequently dealt with in the criminal justice system. On the one hand, this information provides a means to monitor the performance of people working in the system in their duty to avoid discriminating against any persons on the ground of ethnicity. On the other hand, there are risks that the information collected could be misused. It is therefore imperative that if the information is collected there are measures to prevent misuse and stringent data protection measures built into the criminal justice statistics system.

Box V2.1.2: Indicative list of information collected in victim surveys

- Victimisation in last five years and last year, by type of crime
- Victimisation in last five years and last year, by age, sex
- Attitudes towards police and crime prevention and punishment
- Attitudes towards crime and security
- Household and personal characteristics

Other agencies outside of the criminal justice system may also collect a range of statistics that enhance the understanding of criminal activity. They include, for example, statistics on drug production and consumption, trafficking of persons, arms and drugs, and money laundering and insider trading.

A huge part of court processes involves non-criminal cases, such as civil, commercial and administrative cases. This encompasses categories that can vary across countries but there are many that have a broad applicability, such as contracts between individual parties or corporations, family and juvenile matters such as divorces and custody of children, labour and social security cases, housing, property, damage compensation, bankruptcies, matters of intellectual properties, requests for asylum and other migration related requests and more. The functioning of the overall sector is a key issue from both an economic and a social perspective. The OECD address access to justice as 'core component of inclusive growth, sound democracies and a thriving investment climate'.

V2.1.1.4. SDGS AND SDG INDICATORS RELATED TO JUSTICE AND CRIME

The global indicator framework for the SDGs has given renewed momentum to several areas of crime and criminal justice statistics, in particular relating to crime, violence (including violence against women and children), trafficking in persons, access to justice, corruption, illicit financial flows, firearms trafficking and wildlife crime.

The United Nations Office on Drugs and Crime (UNODC) is custodian or co-custodian agency for the indicators related to crime and criminal justice. The custodian agencies are United Nations (UN) bodies (or other international organisations). They compile and verify country data and metadata, and submit these to the United Nations Statistics Division (UNSD). The custodian agencies are also responsible for developing international standards, recommending methodologies for monitoring and strengthening national monitoring and reporting capacity.

SDG 16 'Promote peaceful inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels' is a transversal goal, cross-sectioning with many of the other SDGs. It is the main goal related to peace and safety in societies, and thus also to the issues of crime and justice.

Other SDGs relevant to crime and criminal justice statistics include SDG 8 'Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all' (forced labour, child labour), SDG 10 'Reduce inequality within and among countries' (smuggling of migrants, human trafficking) and SDG 11 'Make cities and human settlements inclusive, safe, resilient and sustainable'.

Box V2.1.3: Policy areas in the 2030 Agenda for Sustainable Development and related targets and indicators relevant to crime and criminal justice statistics

SDG Targets		SDG indicators	
Violence reduction and crime prevention			
16.1	Significantly reduce all forms of violence and related death rates everywhere	16.1.1	Number of victims of intentional homicide per 100 000 population, by sex and age
		16.1.3	Proportion of population subjected to (a) physical violence, (b) psychological violence, and (c) sexual violence in the previous 12 months
		16.1.4	Proportion of population that feel safe walking alone around the area where they live
16.2	End abuse, exploitation, trafficking and all forms of violence against and torture of children	16.2.2	Number of victims of human trafficking per 100 000 population, by sex, age and form of exploitation
11.7	By 2030, provide universal access to safe, inclusive and accessible green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.2	Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
5.2	Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	5.2.1	Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age
		5.2.2	Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence
Organized crime and illicit trafficking			
16.4	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	16.4.1	Total value of inward and outward illicit financial flows (in current United States dollars)
		16.4.2	Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments
15.7	Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	15.7.1	Proportion of traded wildlife that was poached or illicitly trafficked
Access to justice, corruption and rule of law			
16.3	Promote the rule of law at the national and international levels and ensure equal access to justice for all	16.3.1	Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms
		16.3.2	Unsentenced detainees as a proportion of overall prison population
		16.3.3	Proportion of the population who have experienced a dispute in the past two years and who accessed a formal or informal dispute resolution mechanism, by type of mechanism.
16.5	Substantially reduce corruption and bribery in all their forms	16.5.1	Proportion of persons who had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months
		16.5.2	Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months

Source: Report of UNODC on crime and criminal justice statistics to the UN Statistical Commission (2019)

V2.1.2. Sources of data and metadata: data available from international sources

A range of justice and crime data are available at international, national and regional level. A few of the main sources are provided here to provide an illustration of the type and range of criminal justice statistics that are routinely collected.

UNODC is the central international source for data on crime and criminal justice. As custodian for the SDG indicators in this domain, it validates national data and metadata and provides these to the UNSD Global SDG Database, together with regional and global aggregates.

In addition, UNODC also manages a large collection of administrative and survey data on crime and criminal justice as well as crime victimization surveys, which provide statistical evidence on patterns and trends of crime, criminal justice, as well as for evaluation of policies and crime prevention measures.

The development of international surveys on crime and criminal justice is guided by a UN Roadmap to improve the quality and availability of crime statistics at the national and international level, adopted to the UN Statistics Commission in 2013[56]. This Roadmap covered the development of new standards and methodology to improve crime statistics, as well as initiatives to improve the capacity to produce and disseminate crime data, to improve international data collections and analyses, as well as actions to implement the Roadmap.

In 2019, UNODC presented a review and update of the Roadmap to the UN Statistics Commission.[57] This review and updated Roadmap analysed the Roadmap as a contribution to monitoring of the SDGs, presented progress and achievements in implementation of the Roadmap, and proposed updates with respect to development of methodological tools, capacity-building, international data collection and analysis, as well as strengthening the international framework for implementing the Roadmap.

Since 1977, UNODC has conducted periodic surveys on Crime Trends and Operations of Criminal Justice Systems (CTS), initially covering five yearly intervals from 1970. The aim of the surveys is to collect data on the incidence of reported crime and the operations of criminal justice systems with a view to improving the analysis and dissemination of the information globally. Over the years the content and focus of the questionnaires have altered but they have always covered the main components of the system – police, prosecution, courts and prisons. The frequency was increased from 5 to 3 years from 1995. At the time of writing, the most recent round of the UN-CTS available had been carried out in 2020, with results available on the dedicated section of UNODC's website.

([56]) UN Statistical Commission, Forty-fourth session, 26 February-1 March 2013: Report of the National Institute of Statistics and Geography of Mexico and the United Nations Office on Drugs and Crime on a road map to improve the quality and availability of crime statistics at the national and international levels (E/CN.3/2013/11)

([57]) UN Statistical Commission, Fiftieth session, 5-8 March 2019: Report of UNODC on crime and criminal justice statistics: Review of the progress made in the implementation of the road map (E/CN.3/2019/19)

In 1989, the first International Crime Victim Survey (ICVS) was carried out in 14 industrialised countries. Further surveys were carried out in 1992, 1996, 2002, 2004-05 and 2010. The aim of the international victim surveys is to move beyond the limitations of police recorded crime data to provide more robust comparative measures of the extent of crime and victimisation as well as people's perceptions of crime and attitudes towards the criminal justice system. A standard list of offences is used in each country surveyed overcoming the problem of attempting to compare police crime data which are based on different national definitions. On how to carry out a victim survey, see the UNODC-UNECE Manual on Victim Surveys.

There has been increasing international awareness and concern about the extent of violence against women, so this has been a focus of data collection in recent years. In 1997, the European Institute for Crime Prevention and Control in Helsinki, Finland, affiliated with the UN (HEUNI) together with a number of international experts in the field started developing a comparative and standardised survey tool for measuring violence against women worldwide. The first 'International Violence Against Women Survey' (IVAWS) was conducted in 2003. The survey covered women's experiences, the consequences of violence and background information. It used a number of screening questions to establish lifetime victimisation followed by more detailed questions on prevalence and incidence.

Crime and criminal justice statistics have been available for the European Union (EU) since the Hague Programme gave a specific mandate to Eurostat in 2005 'to establish European instruments for collecting, analysing and comparing information on crime and victimisation and their respective trends in Member States, using national statistics and other sources of information as agreed indicators'. A series of measures for developing such instruments was outlined in a Communication from the Commission on 'Developing a comprehensive and coherent EU strategy to measure crime and criminal justice' (COM/2006/0437 final). The results are published by Eurostat on its website. In addition, an EU survey on victimisation has been developed. A complete system of statistics on crime and criminal justice to produce comparable data for all Member States has been put in place under the Stockholm Programme. These EU developments provide a useful example not only of crime related statistics but also of their collection on a regional as opposed to merely on a jurisdictional basis.

Two important sources of information on organised and transnational crime are Interpol and Europol. Interpol facilitates cross-border police co-operation to help prevent and combat international crime. It represents 188 member countries facilitating cooperation within the limits of the laws existing in the different countries and in the spirit of the 'Universal Declaration of Human Rights'. It can help even where diplomatic relations do not exist between its member states. Europol is a similar body encouraging and facilitating cooperation among European members states to prevent and combat terrorism, unlawful drug trafficking and other serious forms of organised crime.

Box V2.1.4: Governance, peace and security statistics (GPS)

Within the frame of the Strategic Harmonization of Statistics in Africa (SHaSA), surveys on governance, peace, and security (GPS) are being carried out and the resulting statistics disseminated by national statistics offices (NSOs). During the period 2012-2017, African statisticians developed a harmonised methodology for periodic monitoring of GPS across Africa. The methodology for GPS-SHaSA surveys was piloted in 16 countries.

The GPS-SHaSA surveys provide a concrete example that survey-based statistics can provide information required for international and Africa-wide discussions about measuring GPS. The statistics provide evidence for monitoring the implementation of the 'Agenda 2063: The Africa we want', in particular its Aspiration 3: 'An Africa of good governance, democracy, respect for human rights, justice and the rule of law' and Aspiration 4: 'A peaceful and secure Africa'. The GPS-SHaSA statistics also provide a basis for monitoring the global indicators on SDG 16 'Peaceful, just and inclusive societies'. Indeed, progress towards SDG 16 is critical, as without peace and good governance, any other achievements accomplished under the SDGs will not be sustainable.

In 2014, the GPS-SHaSA survey was carried out in Burundi, with the GPS-SHaSA modules attached to a living standards survey (ECVMB). It sampled 13 116 adults, representative of the national population. The survey and the dissemination of results were supported by the EU under the Pan African Statistics programme and by the African Union.

Among others, the Burundi provided data on the following 2023 Targets under the African Union Agenda 2063, with breakdown of responses by urban and rural population:

Aspiration 3: An Africa of good governance, democracy, respect for human rights, justice and the rule of law

- At least 70% of the people perceive the entrenchment of the culture of respect for human rights, the rule of law and due process.
- At least 70% of the public perceive elections to be free, fair and transparent by 2020.
- Zero tolerance for unconstitutional changes in government is the norm.
- At least 70% of the public acknowledge the public service to be professional, efficient, responsive, accountable, impartial and corruption free.
- At least 70% of the people believe that they are empowered and are holding their leaders accountable.

Aspiration 4: A peaceful and secure Africa

- Level of conflict emanating from ethnicity, all forms of exclusion, religious and political differences is at most 50% of 2013 levels.
- Silence all guns by 2020.
- Entrench the culture of peace.

Source: UNDP Africa: Governance, peace, and security in the Strategy for the Harmonization of Statistics in Africa (GPS-SHaSA); UNDP Africa: SHaSA: Governance, peace and security in Burundi, Côte d'Ivoire, Malawi, Mali and Uganda: Comparative survey-based data from NSOs towards the Sustainable Development Goals & African Union Agenda 2063; GPS-SHaSA survey in Burundi (leaflet)

V2.1.3. Quality aspects

The concept of quality in statistics is extensively covered in chapter C.5 of this ***Guide*** and in the European Statistics Code of Practice. Quality of statistics is often defined as 'the fitness for use' by end users. It covers the institutional and organisational environment, statistical processes and statistical outputs. Important institutional or organisational factors include: the extent of professional independence, the mandate for data collection, the adequacy of resources, the quality commitment, statistical confidentiality, impartiality and objectivity. In terms of statistical processes, consideration must be given to the utilisation or development of sound methodologies and appropriate statistical procedures. The burden on respondents should not be excessive and it should be cost-effective. In terms of statistical output, the statistics must be relevant, accurate and reliable, timely, coherent, comparable across regions and countries, and readily accessible by users.

The most important quality issue in justice and crime statistics relates to how well the statistics measure the nature and extent of crime and offending behaviour in society. The key problem is that criminal events are difficult to capture and both police-recorded crime statistics and victim surveys have a number of important limitations. Similarly, prosecution and court statistics are a record of decisions taken rather than a representative picture of crime, victims and offenders. Therefore, it is crucial to always be aware of the different limitations of and problems with each kind of crime-related statistics.

Police-recorded crime statistics, for a variety of reasons, capture only a proportion of the total crimes committed. Many crimes are not reported to the police: the victim does not consider the crime to be serious; they do not want to be involved in the criminal process; they do not consider that the police could do anything about the crime; their previous contacts with the police have been negative and they have no confidence in them; the crime was humiliating and they do not want to add to their humiliation; they do not want to self-incriminate themselves as they were involved in the crime. Moreover, often for a variety of reasons the victim is unaware or unwilling to report that a crime had been committed. For example, women may be unwilling to report domestic abuse.

There are a growing number of 'new' types of crime including for example cybercrime, fraud, counterfeiting, human trafficking, money laundering and terrorism. Many of these criminal activities are in fact not new but they have

taken advantage of technological developments to assume different forms. Such 'new' crimes typically display a high degree of criminal organisation, so they are sometimes categorised under the heading of 'organised crime'. This term is the subject of a formal definition by the UN[58], but it is difficult to implement for unsolved crimes as some of the criteria involved require a conviction to have been obtained. Another term met with in this context is 'transnational crime', reflecting the fact that many criminal organisations have adopted modern communication methods that make national borders largely irrelevant. It is precisely because of these characteristics that international bodies like the UN and the EU are in the forefront of attempts to combat these crimes, and collaboration at international level is therefore important in the development of the appropriate statistical indicators and measurement instruments.

Another quality issue is that there will always be gap between the actual amount of crime committed and what becomes known to the police. This gap is often referred to as the 'dark figure'. Another possible reason for non-recording is that there is a police attitude that discourages the registration of misdemeanour crimes or, in the case of corrupt police, even the most serious ones.

Because of all these problems with police-recorded crime, crime victimisation surveys have been developed to provide a complementary data source to police statistics. However, victimisation surveys also have a number of limitations. Typically, surveys cover only people aged 16 and over and exclude those of no fixed abode. They rely on the memory of the respondent to recall criminal events. The format of the questionnaire, with its emphasis on crime harms, may compel the respondent to exaggerate or make up crime events or their fear of crime, to please the interviewer. Different cultures, classes and social groups both nationally and internationally report similar experiences differently suggesting that a respondent's understanding of victimisation may be very different. As with police-recorded crime, victim surveys will seldom capture organised as well as many types of financial and economic crime.

Justice statistics relating to the police, prosecutions and the courts also have their limitations. They are records of decisions taken at different stages in the criminal justice process and are made in different social and legal contexts. They are products of interactions and demands within and beyond the system. Statistics are drawn up mainly for organisational and administrative purposes and may not respond to requests for other detailed information. They provide much useful information on the operation of discretion or the workload levels in different parts of the system, but how far they can be considered representative of criminal and offending behaviour, is very much a matter of debate among criminologists.

There are two important complications related to justice statistics recorded at different stages of the judicial process. First, a crime reported to the police and classified/qualified under the criminal code is often subsequently re-qualified by the prosecution service or later the court, with the consequence that it will figure under different qualifications in the police and the justice statistics, which are generally kept separate and where no cross-checking takes place. For example, a crime registered as a murder by the police might be re-qualified by the court as an involuntary homicide, but it will probably continue to stay in the crime statistics of the police as a murder. Second, the information recorded by the police in one year will relate to court cases in a following year making it difficult to make comparisons between police and justice statistics. The attrition rate can be used to measure how much the number of persons within the criminal justice system is reduced during the process, from the first contact with the police to the conviction.

A broader concern with both policing and criminal justice statistics is that they may be misused. Levels of crime and the effectiveness of the police and the courts in preventing and detecting criminal behaviour are very sensitive issues in any society. There will therefore always be pressure to present the data in the best possible light and to play down or not publish trends that indicate deterioration in public security. It is therefore imperative that robust systems are put in place to prevent the misuse of these sensitive statistics.

V2.1.4. Key issues in building a system

This subsection focuses on some of the broader issues involved in building a system of justice and crime statistics.

Any system of justice and crime statistics must reflect the offences defined under the national criminal law, but also the needs and customs of the country and its system of governance. It must also take into consideration the availability of people with the necessary legal, statistical and computing skills, the level of technical resources and existing demands on public expenditure. In addition, international norms should be taken into consideration.

These elements will influence the type of organisational structure that is chosen. There is no standard structure. Some countries have a centralised approach, where one governmental agency has responsibility for the collection, processing and dissemination of all justice and crime statistics. The agency may be part of the justice ministry or in the national statistics office or totally independent of government. Alternatively, the responsibilities may be devolved to agencies at regional level. This decentralised approach is often found in countries with federal structures.

In making the decision on the form of organisational structure, it is important to consider which form will best achieve professional independence, statistical confidentiality and impartiality and produce the best quality data within the necessary resource constraints. To avoid any possibility of the misuse of crime and justice statistics serious consideration should be given to placing the responsibility for their collation and dissemination in an independent agency. Whichever form is chosen, a key aspect is developing strong relationships between the statistical agency and all parts of the criminal

([58]) United Nations Convention against Transnational Organized Crime (A/RES/55/25)

justice system as well as with outside bodies, such as research institutes and universities.

As the criminal justice system consists of a complex system of actors, it is essential to define the scope of justice system statistics. It is impossible to collect statistics on all aspects without considerable costs. First, it is necessary to define clearly the purposes of the system. Is it to cover administration, planning, policy, research and analysis or it is to have a more limited remit? Second, the users, both current and potential, need to be identified. Thirdly, decisions need to be taken about what types of information are to be collected and by whom and how the information is to be transformed into statistics and submitted to a central system. Finally, once the statistics have been collated, decisions need to be made about which government agencies should receive the data, how often, in what form and how and when the statistics should be published.

Most systems of criminal justice and crime statistics provide information on the following main substantive areas: the nature, the extent and trends in crime; the characteristics of offenders and victims; the volume of activity in the system – crimes reported, stop and search, arrests, and summons, prosecutions, disposals and offenders in custody or under supervision; and resources deployed, including personnel and expenditure; and citizen's views and attitudes about crime and criminal justice. These statistics need to be related to social, economic and demographic information to produce rates of the phenomenon of interest. For example, a normal practice is to show the number of offences or the number of people in prison per 100 000 of the population. Similarly, criminal justice expenditure figures may be represented in relation to the size of the population in different areas.

At the heart of all systems of justice and crime statistics is a detailed legal definition of criminal offences that is used at all stages in the criminal justice process. Criminal laws generally first distinguish between categories of crime, such as violent crimes, property crimes, drug offences and traffic offences. In each category the specific legal definitions of each offence are then included. For example, violent offences generally cover legal definitions for criminal offences, such as homicide, robbery, kidnapping, sexual assault and non-sexual assault. The way criminal behaviour is defined will depend on the country's legal system. Increasingly, defining crimes in terms of the gender of the offender and victim is viewed as important in order to assess the level of violence against women.

As all the segments in the criminal justice system are connected and the decisions taken at one stage in the process will affect the decisions taken at the next stage, it is important to develop statistics which are able to monitor the movement of suspects, cases, charges or crimes through the system. This involves making decisions about which to monitor. At each stage, different information is collected. Typically, the police keep details on crimes, suspects, charges and victims. The courts deal with cases, charges and convictions, and prisons and non-custodial institutions collect information on inmates and offenders. A criminal act reported to the police may involve a number of crimes, offenders and victims. It may produce a number of cases in the court and a number of offenders sent to prison. People, provided the police suspect who committed the crime, form the most important common unit at all stages in the process. Using a person identifier, it is possible to link the different parts of the system together. People are not, however, the only monitoring unit of interest. Crimes, charges, cases, disposals and length of the judicial processes are also important.

Devising a criminal justice and crime statistics system is complex and requires an incremental approach and a detailed assessment of the cost and purpose of each data element. It also requires a careful analysis of the type of information that is already routinely collected by different parts of the system and how this could be adapted to meet broader requirements. Demands for more detailed information are often likely to exceed the resources available.

V2.1.5. Data protection

The collection and processing of data on policing and criminal justice should only be carried out under suitable specific safeguards in order to eliminate errors, to prevent misuse of the data and to uphold the privacy rights of the individual. Data security needs to be built into the system at all levels and detailed protocols are required in terms of data use and exchange. Europe provides a model for the protection of data. Under the ***European Charter of Fundamental Rights, Article 8*** states:

1. Everyone has the right to the protection of personal data concerning him or her.
2. Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data that has been collected concerning him or her, and the right to have it rectified.
3. Compliance with these rules shall be subject to control by an independent authority.

The General Data Protection Regulation (GDPR), Regulation (EU) 2016/679, regulates the protection of natural persons with regard to the processing of personal data and on the free movement of such data. Article 10 of the GDPR regulates the processing of personal data relating to criminal convictions and offences:

> "***Processing of personal data relating to criminal convictions and offences or related security measures based on Article 6(1) shall be carried out only under the control of official authority or when the processing is authorised by Union or Member State law providing for appropriate safeguards for the rights and freedoms of data subjects. Any comprehensive register of criminal convictions shall be kept only under the control of official authority.***"

To find out more…

International initiatives and strategies

- UN Statistical Commission, Forty-fourth session, 26 February-1 March 2013: Report of the National Institute of Statistics and Geography of Mexico and the United Nations Office on Drugs and Crime on a road map to improve the quality and availability of crime statistics at the national and international levels (E/CN.3/2013/11)
- UN Statistical Commission, Fiftieth session, 5-8 March 2019: Report of the United Nations Office on Drugs and Crime on crime and criminal justice statistics (E/CN.3/2019/19)
- Fourteenth United Nations Congress on Crime Prevention and Criminal Justice, 20–27 April 2020: Comprehensive strategies for crime prevention towards social and economic development (A/CONF.234/4)
- United Nations General Assembly, Fifty-fifth session: United Nations Convention against Transnational Organized Crime (A/RES/55/25)
- United Nations Office on Drugs and Crime (UNODC): Crime and criminal justice statistics
- United Nations Office on Drugs and Crime (UNODC): Crime prevention
- International Criminal Police Organization (INTERPOL)

SDGs and crime and criminal justice statistics

- United Nations Office on Drugs and Crime (UNODC): UNODC and the 2030 Agenda for Sustainable Development
- United Nations Office on Drugs and Crime (UNODC): SDG resources

Systems of criminal justice statistics

- United Nations Office on Drugs and Crime (UNODC): Manual for the Development of a System of Criminal Justice Statistics
- International Classification of Crime for Statistical Purposes (ICCS)
- Criminal Justice Assessment Toolkit (CJAT)
- United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems (UN-CTS)
- The 2018 United Nations Survey of Crime Trends and Operations of Criminal Justice Systems (2018 UN-CTS)
- Manual for the Measurement of Juvenile Justice Indicators
- UNODC: Manual on corruption surveys
- UNODC: Global study on homicide
- UNODC: Global report on trafficking in persons
- UNODC: Global study on smuggling of migrants
- UNODC: World wildlife crime report

Crime victim surveys

- How to carry out crime victim survey: UNODC-UNECE Manual on Victim Surveys
- International Crime Victim Survey (ICVS)
- Victimisation Surveys in Comparative Perspective by K. Aromaa and M. Heiskanen (HEUNI)
- Wetenschappelijk Onderzoeken Documentatiecentrum (WODC): Criminal Victimisation in International Perspective, Key findings from the 2004-2005 ICVS and EU ICS by J. van Dijk, J. N. van Kesteren and P. Smit

Violence against women

- European Institute for Crime Prevention and Control, affiliated with the United Nations (HEUNI): International Violence Against Women Survey (IVAWS)
- UN Women: Global Database on Violence against Women
- Expert paper on IVAWS by S. Nevala (HEUNI)
- Violence Against Women: An International Perspective by H. Johnson, N. Ollus and S. Nevala, Springer

Prison populations

- World Prison Brief: World Prison Population List

The EU crime and criminal justice statistics

- The Hague programme: strengthening freedom, security and justice in the European Union (2005/C 53/01)
- Commission Communication (COM/2006/0437 final): Developing a comprehensive and coherent EU strategy to measure crime and criminal justice: an EU Action Plan 2006-2010
- The Stockholm Programme: An open and secure Europe serving and protecting citizens
- European Parliament and Council Regulation (EU) 2016/679: Protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation)
- Eurostat: Crime and criminal justice
- Eurostat's database: Crime and criminal justice
- European Sourcebook of Crime and Criminal Justice Statistic

- Eurostat: Monitoring EU crime policies using the International Classification of Crime for Statistical Purposes (ICCS)
- Eurostat: EU guidelines for the International Classification of Crime for Statistical Purposes (2017 edition)
- Eurostat: Crime statistics (Statistics explained article)
- European Union Agency for Fundamental Rights (FRA)
- European Institute for Gender Equality (EIGE)
- European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)
- EUROPOL - European Union Agency for Law Enforcement Cooperation
- European Court on Human Rights: Guide on Article 6 of the European Convention on Human Rights — Right to a fair trial (criminal limb)

Regional initiatives and references

- UNODC and UN HABITAT: Urban crime prevention and safety: Evidence-based policies for improved community safety in Latin American and African cities
- UNODC: Developing standards in justice and home affairs statistics: International and EU acquis — Development of monitoring instruments for judicial and law enforcement institutions in the Western Balkans

Other references

- European Institute for Crime Prevention and Control, affiliated with the United Nations (HEUNI):
  What does the world spend on Criminal Justice by G. Farrell and K. Clarke
  Criminal Justice Systems in Europe and North America 1995-2004
  Towards the Monitoring of Goal 16 of the United Nations' Sustainable Development Goals (SDGs) by Michael Jandl
  Crime and Gender: A Study on how Men and Women are Represented in International Crime Statistics by Markku Heiskanen and Anni Lietonen
  Recording Community Sanctions and Measures and Assessing Attrition - A Methodological Study on Comparative Data in Europe by Markku Heiskanen, Marcelo F. Aebi, Willem van der Brugge and Jörg-Martin Jehle (eds.)
  International Statistics on Crime and Justice by S. Harrendorf, M. Heiskanen, S. Malby (eds.)

V2.2 Living conditions, poverty statistics

V2.2. Living conditions, poverty statistics

The chapter in brief

This chapter is intended to provide users with an easy understanding and a proper use of living conditions and poverty statistics.

Since poverty is strongly interrelated with the living conditions of people, the term "poverty" is often used in a broader sense by also embracing living conditions.

What is commonly defined as "poverty" seems to be difficult to conceptualise in an exhaustive way and then to be measured. Indeed, some key questions arise when dealing with the matter. They can be summarised as follows:

- How can one define poverty in a given country or economy? Should this be based mostly or uniquely on monetary measures (e.g. an income threshold) or the equivalent of a basket of goods and services (e.g. a minimal asset to match some basic needs) or multiple factors including income distribution and other measures of people's conditions (e.g. access to health care, education, sanitation)?
- How can one we compare different countries or economies? Indeed, this mostly depends on the current conditions of the economies to be compared: how can one compare developed and developing countries based on the same absolute criterion (or criteria) when their living standards differ widely? This represents a challenge when comparing not only different countries but also different areas in the same country (e.g. rural versus urban areas).

This chapter tries to make readers (more) familiar with these issues in order to allow them using any relevant statistical information. Therefore, it explains why poverty statistics are important, how to define and conceptualise the topic, how to assess and measure it in both developing and developed countries, why living conditions statistics are important especially in a multidimensional approach to poverty, what are the most recent and valuable initiatives on the topic (e.g. research, methodology, databases).

The chapter is structured in five short analytical sections. The first section focuses on the main policy applications of poverty statistics; the second one is dedicated to concepts and definitions, including measures; the third one focuses on data and metadata; the fourth one is dedicated to the main data quality issues, while the final one provides some recent inputs for the improvement of sector statistics. Some recent and useful examples are explained in boxes. Detailed and updated references are provided in the 'To find out more' box at the end of the chapter, providing hyperlinks to international documents, literature and databases (including to the sources for all examples provided).

V2.2.1. Policy applications: what this data is used for

Living conditions and poverty statistics are used in a wide range of policy areas. The most important ones are the following:

- **Poverty reduction**. Many national and international projects are designed with the goal to alleviate poverty in a given geographical area. Identifying who the poor are and where they live is essential to target the poorest populations and channel resources to them for better impacts.
- **Project design and piloting**. Knowing poverty characteristics of municipalities in a country provides a statistical base for deciding where to act first or which localities have the best conditions for piloting a poverty reduction project. By conducting poverty surveys, decision makers will have the necessary tools to identify priority issues to address and how to tackle them.
- **Development planning**. Planning for local development is essential for improving living conditions of poor populations. Through poverty statistics, structural information on local populations set the base for planning future initiatives in targeted areas. Survey results on poverty related issues are used for budgeting, setting milestones for the implementation and evaluation of projects in favour of vulnerable populations.
- **Monitoring and evaluation**. With information on the living conditions of targeted populations, poverty statistics are necessary before, during and after a project is implemented. They help to identify areas of improvement in living standard where development projects are active, in comparison to similar places where such projects are not. They are crucial to evaluate how a specific policy impacts on its beneficiaries.

Taking into account the multiple applications for policy makers, one of the key questions arising when dealing with the topic of poverty is the potential presence of any direct link with economic growth. As shown in the example in the following box, economic growth is not always directly and unequivocally linked to improvement of living conditions and reduction of poverty. Indeed, economic growth may be unequal or not homogeneous; in other terms, it may benefit only some regions or zones (e.g. urban zones more than rural ones) or benefit some categories of people more than others (e.g. educated persons more than uneducated ones). One of the risks associated with unequal economic growth is the increase of the disparities or the poverty gap in a given country. This is the reason why – especially in developing countries – development policies aimed at poverty reduction should be better calibrated and targeted on specific people's needs and living situations.

Box V2.2.1: Use of poverty statistics for poverty reduction in Ethiopia

'Harnessing continued growth for accelerated poverty reduction 2020' is the most recent poverty assessment study for Ethiopia, developed with the contribution and support of the World Bank Group. Based on various national sources (Household Living Standard Surveys, Ethiopia socioeconomic Survey, Demographic and Health Survey), this study sheds light on the impact of the social programs adopted by the national government to reduce poverty in the country. Both monetary and non-monetary dimensions of poverty are monitored over a five-year period between 2010-11 and 2015-2016).

The assessment analyses the impact of economic growth on poverty reduction. Changes in poverty – as measured by the poverty rate based on the national poverty line - and inequality (calculated through the Gini Coefficient) are monitored in both rural and urban areas and put in relation to the economic growth experienced by the country (real GDP growth). Other indicators of people's conditions, such as the welfare of the poorest 20% of the population, are also calculated and monitored.

The study shows how poverty reduction is characterised by many discrepancies. In fact, poverty is highly correlated with the level of education (more uneducated people are poor), the dependency rate (poverty is associated with a higher dependency rate), the gender of the head of household (household headed by women are poorer than those headed by men), the regional dimension (rural areas tend to stay behind urban ones when economic growth accelerates).

The study also highlights the importance of economic growth programs in agriculture – especially in urban areas – to accelerate poverty reduction of households by improving their living conditions (e.g. access to basic needs, access to education and welfare).

Source: World Bank: Ethiopia Poverty Assessment, April 2020

V2.2.2. Concepts and definitions

The first step to approach the topic of poverty and living conditions is to understand concepts and definitions. In this case, the key question should be what we define as 'poverty' and 'living conditions', including their mutual relationship.

In simple terms, poverty can be defined as a situation of need, fundamentally expressed by people's socio-economic conditions.

This practical simplification can help us define the concept in general terms. However, the most critical issue is: how do we assess people's needs? In the international community, including social scientists, policy makers and planners, it is commonly agreed to assess this phenomenon from two different perspectives:

- Absolute poverty
- Relative poverty

A household is in a situation of absolute (or extreme) poverty when its members lack the basic necessities for survival.

One example in this regard is the international poverty line as agreed by the United Nations with the approval of the Millennium Development Goals (MDGs) in 2000. Initially, this was fixed at 1.00 US$ PPP a day and further increased to 1.25 US$ PPP a day in 2011([1]). Following the launch of the 2030 Agenda for Sustainable Development and the approval of the related Sustainable Development Goals (SDGs) in September 2015, the threshold of extreme poverty was agreed at 1.90 US$ PPP a day ([2]).

Any international poverty line, including the current one (1.90 US$ a day), can measure the proportion of people in absolute or extreme poverty everywhere in the world. Although it is very important to have an absolute criterion to assess poverty, this is not sufficient to compare countries with a different economic standard (e.g. developed and developing countries) or within a given country with a different regional and development situation (e.g. urban and rural areas). This is the reason why poverty should be assessed also in relative terms; in other words, this should be done based on a specific criterion valid for each specific case study.

Relative poverty is a situation where people's disposable income level - which generally directly influences their standard of living - is too low compared to the general standard of living in the relevant country or region. This describes the status of people struggling to live a normal life and unable to participate in ordinary economic, social and cultural activities. With this definition, relative poverty may vary from country to country, depending on the income level enjoyed by the majority of citizens. While not as extreme as absolute poverty, relative poverty is still very serious and harmful in all countries.

Therefore, we cannot neglect that poverty does affect not only the so-called "poor" countries but also the so-called "rich" ones.

Some examples – as provided in the two following boxes - are useful to understand how poverty is assessed (and measured) in a developing country (Tanzania) and a developed country (The United States), and also how the phenomenon affects the respective national populations differently.

([1]) PPP = Purchasing Power Parity
([2]) World Bank blog: The international poverty line has just been raised to $1.90 a day, but global poverty is basically unchanged

Box V2.2.2: Measuring poverty in a developing country: Tanzania

This example refers to the poverty assessment work supported by the World Bank Group in Tanzania (2020). The primary data refer to the Household Budget Survey (HBS) 2007, 2012 and 2018, as well as several rounds of National Panel Surveys (NPSs) and Demographic Health Sur-vey (DHS) data. It also combines spatial information from the population census and other sources with HBS data.

Poverty in Tanzania is measured in relation to a national poverty line based on the basic consumption needs of the population. Extreme poverty refers to the proportion of people not able to get food where the minimum nutritional requirements are fixed at 2 200 kilocalories per adult per day

Accordingly, the poverty line is estimated at TZS 49 320 per adult per month in 2018 as based on all basic needs, and to TZS 33 748 when referring only to food.

Comparisons are made at national and local level over time.

Survey results show a decline in poverty in both food and other basic needs with differences between urban and rural areas. Even though rural areas generally do experience a considerable decline in poverty over time, the gap with urban areas remains quite high.

Source: World Bank, Mainland Tanzania Poverty Assessment, October 2020

Box V2.2.3: Measuring poverty in a developed country: the United States

Poverty is measured by the US Census Bureau in terms of money income compared to a threshold (income before taxes and tax credits, excluding capital gains and noncash benefits) and depending on the household composition. People are grouped on the basis of age and household composition as follows:

- Individuals (single):
- aged less than 65 years
- aged more than 65 years
- Households with two people, where the householder is aged:
- less than 65 years
- more than 65 years
- Households with more than two people:
- seven groups: from three people to nine people and more

A monetary threshold for each target is foreseen on a growing scale: the higher the number of people in the household, the higher the poverty threshold is. With regard to the last available year (2019), poverty thresholds range from 13,300 US$ for a single under 65 years until 56,895 US$ for a family with nine people and more (with one component aged less than 18 years).

Thresholds are updated on a yearly basis and adjusted for the Consumer Price Index (CPI). Statistics on poverty are available since 1959.

In 2019, more than 33 million people are estimated to be in poverty in the US (a bit more than 10 percent of the total population). 8.5% of all families are in poverty compared to 18.8% of unrelated individuals. About one-fifth of the families headed by a woman (without the presence of the spouse) are in poverty. Black people are poorer than white people regardless of the family composition.

Source: US Census Bureau: Income and Poverty in the United States: 2019, September 2020

V2.2.2.1. MEASURING POVERTY THROUGH INCOME AND CONSUMPTION NEEDS

Both approaches to assess poverty, absolute and relative are based on income and/or consumption assumptions. This can be considered – as a whole – a "***monetary approach***" to poverty.

As such, poverty can assume three different dimensions based on the scopes of our research:

1. **Poverty** (*in the strict sense)*, when we want to investigate if people have enough resources or ability to meet their daily needs of consumption of goods and services;
2. **Inequality**, when we want to investigate the distribution of income, consumption or/and other attributes across the population;
3. **Vulnerability**, when we want to investigate the probability or risk of being in poverty today – or falling deeper into poverty – in the future.

- **Poverty** (*in the strict sense*). We estimate that individuals fail to meet the definition of well-being. To define a poverty measure we need to know: a) What is the accepted poverty line? and b) Which indicator shall we use to assess the poverty level? From these two notions one could count the number of people living with less than the poverty line, say 1.90 US$ a day (***International Poverty Headcount***) or other thresholds (e.g. 3.20 US$ a day or higher). In the context of relative poverty, people could be poor not only because they earn less than the national threshold, but also because they do not have an acceptable standard of living. Relative poverty is sometimes the only way to understand how people with a relatively high level of income – in comparison to other areas – may not be able to live a decent life in their environment. This is the reason why poverty is preferably measured in relative terms. Some recent and valuable initiatives in this regard relate to the work of the OECD with the ***Relative Poverty Rate*** and World Bank with the ***Societal Poverty Line***.
- **Inequality.** Another concept associated with the measure of poverty relates to the inequalities and the distribution of earnings across the whole population. The ***Gini Coefficient*** is an interesting tool for this type of analysis. In the European Union, the preferred indicator for measuring inequality of income distribution is the ***Income Quintile Share Ratio***. Also known as the ***S80/S20***, this is calculated as the ratio of total disposable income received by the 20 % of the population with the highest income (the top quintile) to that received by the 20 % of the population with the lowest income (the bottom quintile).
- **Vulnerability.** The probability (or risk) of being in poverty today or to fall into deeper poverty in the future is known as vulnerability. This plays a key role in the notion of relative poverty. Uncertainty in future income,

e.g. inability to cope with severe weather conditions such as droughts, is a basic aspect of vulnerability.

- The ***At-risk-of-poverty rate*** represents the key indicator of vulnerability adopted by the EU's **Statistics on Income and Living Conditions (EU-SILC)**. In its basic definition, the *"**At-risk-of poverty rate** is the proportion of persons living in households where equivalised disposable income is below the threshold of 60% of the national equivalised median income"*. The "***Equivalised disposable income** is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equalised adults; household members are equalised or made equivalent by weighting each according to their age, …"*.

For vulnerable people, the economic environment becomes a factor of poverty when today's participation in economic activities does not guarantee a decent standard of living conditions in the future. Therefore, there is a need to statistically assess living conditions.

V2.2.2.2. MEASURING LIVING CONDITIONS

Living conditions consider any need (e.g., food, education, health, leisure) that can impact on people's lives. Obviously, needs differ from country to country and tend to change over time. Nevertheless, they are to be considered and assessed in order to provide a broader picture of people's social situation, beyond the one normally expressed by the traditional measures of income and consumption.

Living conditions strongly affect the capacity of people to be socially included or excluded: if someone lacks basic goods and/or services - such as adequate food, basic health cares, access to school - risks to be excluded or to feel excluded from his/her society. This is the reason why living conditions should be analysed in strict conjunction with the social inclusion/exclusion phenomena.

The European Union has adopted some key indicators to measure social inclusion/exclusion:

Material Deprivation expresses the inability to afford a fixed consumption basket of items, considered by most people to be desirable or even necessary to live an adequate life. The indicator distinguishes between individuals who cannot afford a certain good or service, and those who do not have this good or service for another reason, e.g. because they do not want or do not need it.

Material Deprivation Rate provides a headcount of the number of people who cannot afford to pay for specific items. In the EU, the criterion adopted by the Social Protection Committee – before revision in 2017 - was that one cannot afford at least three from a list of nine items:

- rent, mortgage or utility bills;
- keeping their home adequately warm;
- face unexpected expenses;
- eat meat or proteins regularly;
- go one week on holiday;
- have television set;
- have a washing machine;
- have a car;
- have a telephone.

Those who lack at least four of these items are were considered to be severely deprived.

The new deprivation indicator is based on 13 items. Seven deprivation items relate to the person's household and six to the person themselves. The seven household deprivations consist of six items i.e., the inability for the household to:

- face unexpected expenses;
- afford one week annual holiday away from home;
- avoid arrears (in mortgage, rent, utility bills and/or hire purchase instalments);
- afford a meal with meat, chicken or fish or vegetarian equivalent every second day;
- afford keeping their home adequately warm;
- have access to a car/van for personal use; and
- replace worn-out furniture.

The six personal deprivations are the inability for the person to:

1. replace worn-out clothes with some new ones;
2. have two pairs of properly fitting shoes;
3. spend a small amount of money each week on him/herself ("pocket money");
4. have regular leisure activities;
5. get together with friends/family for a drink/meal at least once a month; and
6. have an internet connection.

It is considered severely deprived a person with enforced lack of 7 or more items out of 13.

Another indicator of living conditions is the share of persons living in a household with low work intensity. The **Work Intensity** of a household is the ratio between the number of months that all working age household members have been working during the income reference year and the total number of months that could theoretically have been worked by the same household members. The indicator **Persons living in households with low work intensity** is the number of persons living in households with a work intensity below a threshold set at 0.20. In other words, those active people (of working age) who work 20% or less than of the potential annual working time in a year.

V2.2.2.3. MEASURING POVERTY IN A MULTIDIMENSIONAL WAY

In recent years, the research on poverty has produced some innovative measurement approaches going beyond the traditional income and consumption criteria. The concepts of living conditions and the associate ones of social inclusion/exclusion have been further investigated, developed and integrated in a multidimensional perspective.

A valuable and leading contribution is provided by the **Oxford Poverty and Human Development Initiative (OPHI)**: the **Multidimensional Poverty Index (MPI)**. This is currently published also by the UNDP. The MPI is a complementary measure of poverty, focusing on three dimensions that characterise the life of people:

1. Health;
2. Education;
3. Living standards.

The first dimension, 'Health', is articulated in two components: Nutrition and Child Mortality. 'Education' includes two components: Years of Schooling and School Attendance. The third one ('Living Standards') is articulated in six components: Cooking Fuel; Sanitation; Drinking Water; Electricity; Housing; and Assets. The MPI is calculated on the basis of 10 indicators, one for each of these components. The indicators are in line with the indicators of the respective SDGs. The components of 'Health' and 'Education' are each weighted by 1/6, while each of the six components of 'Living Standards' are weighted by 1/18 in the MPI.

A person is considered as deprived if at least one-third of the ten indicators are below the related cut-offs (i.e. the border lines between poor and non-poor, as suitably identified). MPI can be compared across regions and countries as well as within countries at different levels.

MPI represents an innovative and more comprehensive measurement of poverty. It cannot be monitored separately from other traditional "monetary" tools, but should be strictly linked to them.

The OPHI-UNDP 2020 Global Multidimensional Poverty Index monitors poverty based on the international headcount ratio for extreme poverty (1.90 US$ PPP a day) and the MPI based on its dimensions/components.(3)

V2.2.3. Sources of data and metadata

There are a number of widely used and well-reputed international sources of data and metadata on living conditions and poverty statistics. We can split them in two categories: worldwide and regionally based.

A. International sources (worldwide coverage)

One of the most important worldwide platforms on poverty and living conditions statistics is the Poverty and Equity Data Portal developed and managed by the World Bank Group. This portal provides users with accurate and updated statistics on poverty, shared prosperity and inequality by country, region and category (e.g. Income Level: Low, Lower Middle, Upper Middle). The leading indicator is the Global Headcount Ratio, the internationally agreed poverty line fixed at 1.90 US$ PPP a day. Data for other commonly used poverty lines are also provided (3.20 US$ PPP and 5.50 US$ PPP a day). Time series are available from the early 1980s onwards4.

The World Bank has also elaborated an interactive tool named **PovcalNet**, (accessible from the Poverty and Equity Data Portal. The tool allows users to calculate and extract poverty statistics from the basic data provided by the platform, including calculating and grouping the poverty estimates for 166 economies across the world. It also provides a very useful methodological section where poverty and inequality statistics are clearly explained. The database is updated on a continuous basis (several times a year).

Another important database managed by the World Bank Group is the ***World Development Indicators (WDI)***. This represents the leading database of the World Bank, providing a number of development statistics, including indicators on poverty, living conditions and income distribution.

The main source of basic data on poverty and living conditions elaborated by the World Bank is national household surveys. Metadata for each country are also described in a user-friendly way.

Another important provider of worldwide data on poverty and living conditions is the **United Nations** system. The **United Nations Statistics Division (UNSD)** provides the ***Sustainable Development Goals (SDGs) Database***, covering all indicators under Sustainable Development Goals and specific targets. The most relevant goals for the follow-up of poverty issues around the world are:

- **Sustainable Development Goal 1: End poverty in all its forms everywhere**
- **Sustainable Development Goal 10: Reduce inequality within and among countries**

Each SDG is specified and monitored by targets (e.g., "***Target 1.1: By 2030, eradicate extreme poverty for all people everywhere"***) and related indicators (e.g., "***Indicator 1.1.1: Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)"***. The SDGs database is updated on a continuous basis and also contains a detailed metadata section, including institutional information, concepts and definitions, methodology, data source, data availability, calendar, and data providers.

Within the UN system, the World Income Inequality Database (WIID) of the United Nations University – World Institute for Development Economics Research (UNU-WIDER) provides detailed and updated data on income inequality (e.g., Gini, median, mean) for all countries worldwide.

The **International Labour Organization (ILO)** also provides some relevant databases at worldwide level: the ***Working Poor*** database covers employed people living in households under the internationally agreed poverty lines, and the ***Labour Income and Inequality*** database refers to labour income in PPP by decile.

(3) Based on the last results (OPHI-UNDP 2020) covering 107 countries, about 1.3 billion people (corresponding to 22.3% of the total) live in multidimensional poverty. The majority of people in multidimensional poverty (84.3%) live in Africa and Asia. Trends in multidimensional poverty seem to be not fully associated with the dynamics in monetary poverty. The Codid-19 pandemic seems to have a serious negative impact on the reduction of poverty and especially the multidimensional poverty, notably in the poorest countries.

(4) The Global Poverty Headcount Ratio (or International Poverty Line) at 1.90 US$ PPP a day has passed from 35.9% in 1990 to 9.2% in 2017. The Number of poor at $1.90 a day has passed from 1.91 billion in 1990 to 689 million in 2017 (World Bank, Poverty and Equity Data Portal, last access: October 2020).

In the light of the new initiatives in the field of poverty statistics, a valuable source for poverty data is the **Global Multidimensional Poverty Index (MPI) Databank**, developed and managed by the **Oxford Policy and Human Development Initiatives (OPHI)**. MPI data are available at country level, sub-national level and rural/urban area. Data are updated on a regular basis and are available for the last ten years (2010-2020).

B. International sources (regional coverage)

Other international organisations provide some relevant data on poverty-related issues such as income and inequality with a specific focus on their member countries.

At the European level, two surveys are recommended to users of poverty and living conditions statistics: the ***European Union Statistics on Income and Living Conditions (EU-SILC)*** and the ***European Social Survey (ESS)***.

The ***European Union Statistics on Income and Living Conditions (EU-SILC)*** is the leading source of data on income, social inclusion and living conditions within the Europe 2020 Strategy. Data are collected for key topics of poverty and social inclusion. The EU-SILC data are available for the EU-27 and all EU Member States, and also include EFTA countries (Iceland, Norway, Switzerland), and – where available – some EU candidate countries (Montenegro, North Macedonia, Serbia, Turkey). Data are provided in both a cross-sectional and a longitudinal perspective**.** Some topics are covered at household level (Social exclusion and Housing conditions), while other topics (Labour, Income, Education and Health) are collected at individual level (people aged 16 years and over). Data – freely downloadable from the Eurostat's website – are also supported by a broad methodological section.

The ***European Social Survey (ESS)*** is elaborated and managed by the **European Social Survey – European Research Infrastructure Consortium (ESS-ERIC)**. The ***ESS*** is carried out every two years since 2002. The ESS covers a wide range of European countries (30 in the 2018 round), with the purpose of analysing various social themes: from media and social trust to subjective well-being, via gender, immigration, justice, democracy and many others. Some topics are monitored on a continuous basis (Subjective well-being, Gender, Household) while other topics are monitored on a rotation basis (e.g., Family work and well-being, Personal well-being). The core module on "Subjective well-being", with its insights on measuring social exclusion, is particularly interesting. Data are regularly updated, and can be easily downloaded in SAS, SPSS and STATA format. A broad methodological guide is also available on the website, including the core questionnaires. A new exercise has been initiated in 2020, with an innovative module focused on COVID-19.

The ***Income Distribution Database*** of the **Organization for Economic Co-operation and Development (OECD)** provides data on the Gini index, income share ratio (top 20% vs. bottom 20% and relative income poverty) for its member countries. The database is updated on a yearly basis and data are freely downloadable from the OECD website. As regards its EU member countries, this database makes a wide use of the EU-SILC data.

Detailed references and related links are provided in the 'To find out more' box at the end of this chapter.

V2.2.4. Analysing data quality and identifying problems

This section is intended to briefly illustrate the main quality issues and problems linked to living conditions and poverty statistics. More specific information on data quality and solutions can be found in another ad-hoc chapter in this guide (see Section 5.3) and some international sources provided at the end of this section.

The key issues linked to the use of surveys are sampling and non-sampling errors. The potential for statistical errors in poverty and living conditions data affects comparability across countries and over time. In-depth assessment of data quality will lead to better statistics in such surveys. More importantly, this will allow for better policy formulation, in favour of beneficiaries of projects designed to improve the living conditions of people.

Measures of data quality are important for the evaluation and improvement of survey design and procedures. The respondents' trust in the confidentiality of information provided, as well as a continuous monitoring and improvement of the data quality of household surveys, is particularly important.

The main survey errors encountered in poverty statistics concern direct measure and estimation errors:

- **Direct measure errors** arise from the fact that what is measured on the units included in the survey can depart from the actual (true) values for those units. These errors concern the accuracy of measurement at the level of individual units enumerated in the survey, and focus on substantive content of the survey: definition of the survey objectives and questions; ability and willingness of the respondent to provide the information sought; the quality of data collection, recording and processing. This group of errors can be investigated in relation to various stages of the survey operation.
- **Estimation errors** occur in the process of extrapolation from the particular units enumerated in the survey to the entire study population for which estimates or inferences are required. They originate from sample design and implementation, and include errors of coverage, sample selection and implementation, non-response, and also sampling errors and estimation bias.

For more information on the quality issues relating to survey data, please refer to the work of the United Nations Statistics Division (UNSD).

Some broad and effective examples on the use of survey data are provided by the EU survey on income and living conditions (EU-SILC), as well as the European Social Survey (ESS).

V2.2.5. Improving living conditions and poverty statistics

There is a continuous work on improving living conditions and poverty statistics at international level. Most of the technical and policy initiatives in this regard are organised under the umbrella of the United Nations in cooperation with other international agencies directly involved (e.g. World Bank), organisations, countries and partners. Eurostat is also widely committed to provide continuous and valuable improvements in this sector.5

At the EU level, it is worth noting the work on the flash estimates produced by **Eurostat**. **Flash estimates** are intended to complement the EU-SILC data in order to have some preliminary data for technical discussion and presentation. This work – based on original econometric techniques of estimation - relates to some key indicators such as **at-risk-of-poverty rate** and the **income quintile share ratio** or S80/S20 ratio. Flash estimates for 2019 are already available at the end of 2020.

An important international initiative aimed at improving poverty and living conditions statistics is the **Network of Experts on Poverty Statistics** under the umbrella of the **United Nations Statistical Commission for Europe (UNECE)**. The Expert's Group is called to improve poverty statistics, including concepts, measures, methodologies and survey tools. Among the most recent contributions arising from the **Expert Meeting on Measuring Poverty and Inequality** (Vienna, 2018), important inputs relate to the need to identify and follow-up the poverty indicators of the 2030 Agenda for Sustainable Development, the improvement of response rates and sample precision in surveys, the focus on asset-based quality and inequality, the need of inclusion of social transfers in kind, housing wealth and rent in poverty measurement, the coverage of marginalised and disadvantaged population groups, and some new issues such as the measurement of poverty at the individual and subjective level.

At the level of policy inputs, the report of the UN Secretary-General on the policy decisions of the **United Nations General Assembly and the Economic and Social Council** of 20 December 2019 highlights the work of the UN Statistical Commission. As regards the chapter **"Poverty Statistics"**, the UN General Assembly, in line with the follow-up of the SDGs, has stressed the need to reinforce the statistical capacities and the monitoring systems at the national level in order "to ensure access to data which are of high quality, accessible, timely, reliable and disaggregated by income, sex, age, race, ethnicity, migration status, disability and geographic location (…)" as well as the importance of the use of multidimensional measures of poverty.

In the same document, the commitment agreed during the workshop of the **Data For Now Initiative (Data4Now)** held in Kigali on 13-14 November 2019 "on a roadmap to increase the use of robust methods and tools that improve the timeliness, coverage, and quality of poverty estimates between survey rounds, focusing on small-area poverty and income estimates" is recalled.6

The United Nations is also committed to provide technical and methodological tools in the field of poverty measurement. The most recent work is the **Guide on Poverty Measurement (2017)** elaborated by the **United Nations Economic Commission for Europe (UNECE)**. This represents a very useful tool for various users and practitioners of poverty statistics (see following box).

Box V2.2.4: UNECE Guide on Poverty Measurement (2017)

The **UNECE Guide on Poverty Measurement (2017)** explains in a clear and user-friendly way how poverty is (and can be) measured at the international level. The guide is supported by a simple language, the use of charts and synopses, a number of practical examples, as well as empirical data and related sources.

It provides a broad conceptual frame for poverty, inequality and social exclusion statistics, including updates on the evolution of the methodology to measure poverty: from unidimensional to multidimensional approaches.

All concepts, from monetary poverty to material deprivation, are supported by full methodological explanations, including metadata (e.g. statistical units, population coverage), use of data collection tools (surveys), and data disaggregation.

The analysis starts from the **monetary poverty** measures (both absolute and relative) as based on income and consumption. Poverty measures are described in a both static (e.g. headcount ratio, poverty gap) and dynamic view (persistent poverty, entry-exit rates). Summary recommendations, including data and metadata, are also provided.

The approach to **material deprivation** is effectively explained as well. It also includes the EU contributions in the matter (EU-SILC), the MDGs/SDGs dashboards, and other international initiatives in the same field.

A wide section is dedicated to the **multi-dimensional approach** to poverty, like the OPHI-UNDP methodology, including multiple deprivation dimensions (e.g. undernourishment, lack of drinking water, children out of school).

Finally, some challenges for the future are described, including the need to broaden and extend the analysis to other inclusion/exclusion indicators (e.g. wealth) and approaches (subjective poverty).

The guide further provides - in annex - a brief assessment of the SDGs poverty-related indicators and the summary results of the UNECE survey on poverty measurement (2014).

Source: United Nations Economic Commission for Europe (UNECE), *Guide on Poverty Measurement*, 2017

(5) Given the scopes and the limited space of this chapter, we can focus on the most recent initiatives in this regard by inviting readers to consult references in the final section for more details.

(6) Workshop organized by UNSD with World Bank and other partners, including the Global Partnership for Sustainable Development Data and the Sustainable Development Solutions Network.

To find out more…

Methodology

- Eurostat: Income Inequality and Poverty Indicators. Why do we need flash estimates of income inequality and poverty indicators? Experimental
- Eurostat: Flash estimates of income inequalities and poverty indicators for 2019 (FE 2019). Experimental results, October 2020
- Eurostat: Income and living conditions – Methodology
- Eurostat: EU statistics on income and living conditions (EU-SILC) methodology – Europe 2020 target on poverty and social exclusion
- Eurostat: At-risk-of-poverty rate; Equivalised Disposable Income; Material Deprivation; Persons living in households with low work intensity; At risk of poverty or social exclusion (AROPE)
- European Social Survey - European Research Infrastructure Consortium (ESS--ERIC): Round-10 Survey Specification for ESS-ERIC Member, Observer and Guest Countries (2020)
- European Social Survey - European Research Infrastructure Consortium (ESS--ERIC): ESS Covid-19 Module – Final Module for ESS 2020 (2020)
- Guio A.C., Gordon D., Najera H., and Pomati M.: Revising the EU material deprivation variables, Eurostat Working Papers (2017)
- Oxford Policy and Human Development Initiatives (OPHI) and UNDP: Global Multidimensional Poverty Index (MPI). Charting pathways out of multidimensional poverty: achieving the SDGs 2020 (2020)
- OECD: Poverty Rate
- United Nations – Economic Commission for Latin America and Caribbean (ECLAC): Income Poverty Measurement. Updated methodology and results (2019)
- United Nations Economic Commission for Europe (UNECE): Harmonised Survey Module for Poverty Measurement (2019)
- United Nations Economic Commission for Europe (UNECE): Guide on Poverty Measurement (2017)
- United Nations Statistics Division (UNSD): Designing Household Survey Samples: Practical Guidelines (2005)
- World Bank: Measuring Poverty
- World Bank: Poverty and Shared Prosperity 2020 (2020)
- World Bank: Societal Poverty: a global measure of relative poverty

International initiatives on poverty and social exclusion

- EAPN: European Anti-Poverty Network
- Eurostat: European Union Statistics on Income and Living Conditions (EU-SILC)
- IFAD: Delivering results that change lives
- IFAD: Developing Effectiveness
- OECD: Inequalities in households wealth across OECD countries: Evidence from the OECD Wealth Distribution Database (2018)
- Oxford Policy and Human Development Initiatives: Global MPI Country Briefings
- United Nations Economic and Social Council: Policy Decisions of the General Assembly and Economic and Social Council that are relevant to the work of the Statistical Commission (2019)
- United Nations Economic Commission for Europe: Expert Meeting on Measuring Poverty and Inequality, Vienna 29-30 November 2018
- United Nations Economic Commission for Europe: Measuring Subjective Poverty: an OECD Perspective (2018)
- United Nations Statistical Commission and Economic Commission for Europe: In-depth Review of Poverty Statistics (2012)
- World Bank: Poverty and Equity Briefs

Data sources

- Eurostat: European Union Statistics on Income and Living Conditions (EU-SILC) - Database
- Eurostat: People at risk of poverty and social exclusion
- ESS-ERIC: European Social Survey – Round 9 (2018)
- ILO: Statistics on the working poor
- ILO: Statistics on labour income and inequality
- OECD: Income Distribution Database (IDD): Gini, Poverty, Income, Methods and Concepts
- OECD: Society at a Glance 2019. OECD Social Indicators
- Oxford Policy and Human Development Initiatives: Global MPI Databank
- United Nations: Sustainable Development Indicators Database
- United Nations University (UNU-WIDER): World Income Inequality Database - WIID
- World Bank: Poverty Equity Data Portal
- World Bank: Open Data Initiative
- World Bank: World Development Indicators (WDI)
- World Bank: POVCALNET: an online analysis tool for global poverty monitoring

Poverty maps

- Hyman, Glenn G., Larrea C., and Farrow, A.: Poverty mapping case studies Harvard Dataverse (2020)
- Our World in Data: Global Extreme Poverty
- World Bank: Poverty Headcount Ratio at 1.90 US$ a day (2011 PPPs); Poverty Headcount Ratio at National Poverty Lines; Gini Index

Recent and current research documents on measuring poverty

- Alkire S., Kanafaratnam U., and Suppa, N.: The Global Multidimensional Poverty Index (MPI) 2020, OPHI MPI Methodological Note 49, Oxford Policy and Human Development Initiative (2020)
- Balestra C. and Tonkin R.: Inequalities in households wealth across OECD countries: Evidence from the OECD Wealth Distribution Database, OECD Statistics Working Papers 2018/01 (2018)
- Semega J., Kollar M., Shrider Emily A., and Creamer John F.: Income and Poverty in the United States: 2019, United States Census Bureau (Census.Gov) (2020)
- United Nations University (UNU-WIDER): Estimates of the impact of Covid-19 on global poverty, WIDER Working Paper 2020/43 (2020)
- Vogel J., Boelhouwer J. and Veenhoven R.: Measuring social exclusion for the ESS core module (2018)
- World Bank: Macro-Poverty Outlook. Sub-Saharan Africa (2020)
- World Bank: Open Knowledge Repository: Poverty Assessment
- World Bank: Tanzania Mainland Poverty Assessment (2020)
- World Bank: Ethiopia Poverty Assessment (2020)
- World Bank: Living Standard Measurement Studies (LSMS), Supported LSMS-High Frequency Phone Surveys on COVID-19

UN documents and reports on Sustainable Development Goals (SDGs)

- United Nations: Transforming our world: the 2030 Agenda for Sustainable Development
- United Nations: Sustainable Development Goals - Goal 1: End poverty in all its forms everywhere
- United Nations: Sustainable Development Goals - Goal 10: Reduce inequality within and among countries
- United Nations: Sustainable Development Goals Report 2020 (2020)
- United Nations: Sustainable Development Outlook 2020 (2020)

V2.3 Population and migration statistics

V2.3 Population and migration statistics

The chapter in brief

This chapter covers population and migration statistics. The main challenge is to make comprehensive statistics on vital events, demography, migration and other sectors available in low income countries as well as in other countries, in particular in relation to data harmonisation. The data are used to prepare indicators in policy areas covered by the Sustainable Development Goals, the European Consensus on Development as well as several other frameworks worldwide, in particular in Africa by the UNECA.

The chapter starts by identifying the main policy areas for which these statistics are used. It continues by providing a user's view of the statistics involved, first generally considering the concepts, definitions and international requirements for statistics, then entering into a brief review of the relevant data sources and data collection methods. The chapter considers the two broad sectors of demography and migration. Among others, references to refugee statistics and Internal Displaced Persons (IDPs) statistics are introduced, based on the recent coordination and development on these topics at global level under the so-called EGRIS initiative.

The chapter presents several new examples on national practices, including the population census in Palestine and population projections in Morocco, the EU contribution to migration statistics in Africa under the Pan-African Statistics Programme and the best practices of Somalia on IDP statistics. Among the other boxes, the improvement of the civil registration and vital statistics in Africa is described. In addition, the main concepts and definitions on international migration statistics available from the UN recommendations of 1998 are presented, although possible changes may result from the ongoing revision of these recommendations.

Finally, the chapter concludes by discussing how to analyse the quality of the statistics and to identify problems in most of the involved sectors, and provides pointers to mounting effective projects in key areas. The analysis of the situation also details how support by the international organisations, methodological developments and increasing sharing of good practices may lead to significant changes in terms of identification of problems and improvement of statistical quality. On the other hand, the improvement of sector statistics may be direct, i.e. linked to the statistical production, or functional to the operations, for instance with respect to the reduction of costs of data collection or better dissemination of data of the population census.

V2.3.1. Policy applications: the uses of this data

Population statistics and demography – the analysis of the population statistics - lie at the base of public or official statistics. Everyday comparisons between countries and over time are often made by dividing economic and social indicators by the total population. Population data are also used to ensure an equitable regional and local allocation of government funds. In addition, population statistics are in most democracies used to apportion electoral areas.([55])

([55]) See for example: http://en.wikipedia.org/wiki/Article_One_of_the_United_States_Constitution and http://fr.wikipedia.org/wiki/Circonscriptions_l%C3%A9gislatives_%28France%29.

More importantly, population statistics are used for planning, monitoring and evaluating public programmes in most social and economic fields. Other policy uses of population statistics include mainly the following:

- Analysis of the ageing of the population and its effects on sustainability and welfare;
- Evaluation of fertility as a background for family policies;
- Evaluation of the economic impact of demographic change;
- Development and monitoring of immigration and asylum policies.

In major emergencies, population data helps planning rescue operations. The Introduction to this ***Guide*** poses the question:

> *'If you think that statistics are important but bread is more urgent, please ask yourself on what information you base your answers to these questions: 'How much bread?' and 'Where is it needed?''*

Population statistics can provide some of these answers.

Statistics on births and deaths are used to analyse fertility and mortality and so to estimate the future size and structure of a population (population projections). These 'vital statistics' are also used for some in-depth investigations, as in the case of deaths by cause. The data informs analysis of the health status of a population and provides the basis for epidemiological studies.

Population projections are also used to address long-term concerns. These include climate change and global and regional population pressures on resources, such as water and energy supplies. Food policies can also be informed by regional, national and global population projections.

In the case of migration statistics, the policy use is of a different nature, ranging from the emergency of rescuing migrants to measures to assist nationals living abroad. Concerning this field, an important current push to improvement and comparability of national data comes from the Global Compact for Safe, Orderly and Regular Migration (GCM) of 2018, with its first objective to collect and use accurate and disaggregated data as a basis for evidence-based policies. In addition, asylum and managed migration statistics on asylum seekers and residence permits, as well as data on migrant integration, provide decision makers with the necessary information for monitoring migration policies.

For all of these fields, the last years have seen a global development in methodological considerations and statistical production with respect to the '2030 Agenda for Sustainable Development' and the 17 Sustainable Development Goals (SDGs). The SDG monitoring framework comprises 247 indicators, informing the different SDGs and providing for disaggregation of data according to these. (It should be noted that there are 231 unique indicators, as some informs more than one Goal.)

Although the policy needs are different in their details, the demand for population and migration data is overall remarkably similar between developed and developing countries. However, developed countries have easier ways to collect accurate data than developing countries. Furthermore, some countries pay attention to specific events occurring only locally, such as internal displacements due to civil wars or natural disasters.

The private sector increasingly uses demographic data to analyse consumer trends, while political parties and interest groups use the information to analyse public opinion. These activities are increasing in developing countries, especially in middle-income countries.

V2.3.2.Concepts, definitions and international requirements

V2.3.2.1 OVERVIEW

This chapter covers population and demographic statistics. This includes demography; vital statistics; population structures and growth; population census; demographic projections; families and households (marriages, divorces and household size); population density; urbanisation; and ethnic and cultural identities. Other subjects covered include migration, refugees, asylum seekers and Internally Displaced Persons (IDPs).

Two main sets of statistics are needed to answer common policy questions:

- the numbers, age, sex, location and other characteristics of the population;
- the changes in the population: the numbers of births and deaths (vital statistics) and the numbers of people entering and leaving a country or region, migrants in particular.

However, many other measurements allow answering the many other policy questions arising in the current society and different contexts, from the local to global level.

Population and demographic data come from a number of sources:

- population censuses;
- population registers;
- civil registration;
- other administrative records;
- social and demographic surveys.

This chapter first reviews the relevant sources. Second, it concentrates on the two broad sectors defined as demography and migration. Demography is the statistical study of human populations. It includes long-term projections of the structures of local, national and global populations. In most areas of statistics, statistical institutes carry out only very short-term projections. For migration, the reference is in general to international and internal migration as well as displacement. International protection is also part of this.

V2.3.2.2. DATA SOURCES

In most countries, using a **population census** to count the number of people present or resident is still a main method of collecting population statistics. It is the main or only data source in many developing countries. The census gives information about the numbers of people, their gender, age, location and other characteristics. In addition, it provides the sample frame from which representative samples of the population are drawn for surveys. Surveys permit more frequent and detailed statistical analyses at lower cost than census questions. The description of the people in the population census provides the information used in setting up the sample frame.

Correct response to the census is a legal requirement, in order for the population to be described accurately. Censuses may include questions about relationships, education, citizenship, previous residence, place of birth, ethnicity, language use and religion. Especially sensitive census questions may in certain circumstances be non-mandatory. An important limiting factor is that each extra question increases the census cost.

The population census is the most likely statistical operation to be challenged politically, whether rightly or wrongly. It is therefore essential that the census is undertaken in a manner that is correct, coherent and transparent.

The population census worldwide still mainly consists of the traditional enumeration, with interviews of the respondents by enumerators. However, in the last decades a series of new methods ranging from the register-based census to the rolling census have been introduced in most developed countries, with the main objectives to undertake the operation easier, to reduce the burden on respondents and to reduce the costs of conducting the census.

Box V2.3.1: The implementation of the 2017 Census of Palestine

The Palestinian Central Bureau of Statistics (PCBS) undertook the last Population, Housing and Establishment Census of the State of Palestine in December 2017. This operation, which covered the territories of West Bank and Gaza Strip, and the enumeration by interviews took into consideration most of the relevant international standards and United Nations principles and recommendations for the 2020 Census Round. The census adopted a paperless method for data collection, with extensive use of Geographic Information System (GIS) tools and tablet devices, integrated in an electronic system composed of several computer applications organised in a relational database.

PCBS outsourced the implementation of the integrated electronic system to a private company. The company developed four main applications covering the census phases of map updating, demarcation of Enumeration Areas (EAs), household listing and building numbering, and the enumeration. Additional applications were developed for conducting the Post Enumeration Survey, for managing the census staff and materials, and for reporting. As a result, PCBS succeeded in both synchronising on a daily basis the data collected in the field with a central database and supervising the field operations in real time. It was the first time that PCBS made extensive use of GIS and mobile technology in such a large statistical operation. This allowed an improvement of the census coverage and data quality and a faster release of census results – by three months for preliminary results and six for the final ones.

The census data dissemination also included the preparation of census reports at national and governorate levels, a web-based interactive census atlas at governorate and locality levels and thematic maps.

A few months after the data collection, the census benefited from technical assistance on behalf of the United Nations, advising PCBS about improvements of the census geodatabase, on how to strengthen capacity of the staff composing the Cartography and GIS Department of PCBS, on the dissemination plan and on other GIS-related activities, also in view of an extended use of administrative data in a medium- to long-term perspective.

Reference: Implementation of Geographical Information Sciences in the State of Palestine 2017 Census. Technical Evaluation, Final Report of the Mission to PCBS, United Nations Statistics Division

International recommendations for conducting censuses exist for the purpose of international comparisons. A web portal has been set up for the 'World Population and Housing Census Programme' to assist countries in sharing knowledge and information on census taking. This website also contains a 'Census Knowledge Base' which provides guidance to countries. The global action plans for statistics discussed in section B.1.3.3 provided support to the last census rounds, in particular towards:

- Developing an overall strategy for funding and conducting censuses in low income countries;
- Researching methods to estimate population regularly;
- Assisting National Statistical Offices (NSOs) in census advocacy;
- Building national technical and management capacity.

The 'World Population and Housing Census Programme' website presents the outcome of many of the successive actions.

A **vital statistics system** is defined as the process of:

(a) collecting information by civil registration or enumeration on the frequency of occurrence of vital events, as well as relevant characteristics of the events themselves and of the person or persons concerned, and

(b) compiling, processing, analysing, evaluating, presenting and disseminating these data in statistical form.

The vital events of interest are: live births, adoptions, legitimations, recognitions; deaths and foetal deaths; and marriages, divorces, separations and annulments of marriage.

Civil registration is defined by the United Nations Statistics Division as:

'*... the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population …. Civil registration is carried out primarily for the purpose of establishing the legal documents provided by the law. These records are also a main source of vital statistics. Complete coverage, accuracy and timeliness of civil registration are essential for quality vital statistics.*

A civil registration system refers to all institutional, legal, technical settings needed to perform the civil registration functions in a technical, sound, coordinated, and standardized manner throughout the country, taking into account cultural and social circumstances particular to the country.'

The core document for vital statistics and civil registration is the United Nations Statistics Division (UNSD) publication 'Principles and recommendations for a vital statistics system, Revision 3'. According to these principles, civil registration is a major foundation for a legal system for establishing the rights and privileges of individuals in a country. Where it is comprehensively maintained, it is the main source of vital statistics.

A **population register** records information, drawn from civil registers, about each member of the resident population. The population register can provide timely information about the size and characteristics of the population. In some developed countries, e.g. in Scandinavia, population registers are accurate enough to be used to replace the population census.

Although civil and population registers can be held on computers, few if any low-income countries manage to maintain accurate records. Citizens may not comply with or even be aware of their obligation to register births and deaths. Registration is often impractical, especially for those who live in rural areas.

Box V2.3.2: Improving the civil registration and vital statistics in Africa

In 2010, improving civil registration and vital statistics became a continental priority for statistics in Africa. Political support was given to the development and implementation of practical solutions through the United Nations Economic Commission for Africa (UNECA).

A workshop on civil registration and vital statistics took place in Tanzania in 2009. In August 2010, the 'First Conference of African Ministers Responsible for Civil Registration' was convened. The ministers agreed that a functional civil registration system is the basis for building modern legal and public administration systems. It is the first step in collecting reliable vital statistics that are necessary for evidence-based policies for national development. Vital statistics compiled from civil registration systems are the building blocks to establish sustainable demographic and health statistics databases. The resulting information can be used to measure and monitor development results, including the Sustainable Development Goals (SDGs). Civil registration and vital statistics information are needed to implement the 'Reference Regional Strategic Framework for Statistical Capacity Building in Africa' and the global action plans for statistics.

At the '6th Africa Symposium on Statistical Development' in November 2010, the National Statistical Offices of African States resolved to strengthen national Civil Registration and Vital Statistics (CRVS) systems over the five years beginning in 2012. The Africa Centre for Statistics started supporting its. The Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS) has helped building significant momentum towards that improvement. The political commitment at national level coupled with regional technical and capacity-developing support for countries has brought a paradigm shift from a fragmented and *ad hoc* approach to a more holistic and integrated improvement of CRVS systems. More than half of the countries have conducted assessment, some have developed strategic plans and a number of them have begun implementing their improvement plans. Despite the remarkable progress achieved in the past few years, there remain a number of major challenges facing the African CRVS systems.

Alternative data sources can be added to a vital statistics system. These include questions on fertility, mortality and migration in population censuses or household sample surveys. Other sources are vital records from sample registration and health records. In some countries, indirect techniques of demographic estimation have been applied to these data sources. The resulting statistical indicators are used for planning purposes, mainly at the national level.

V2.3.2.3. DEMOGRAPHY

Demography covers the compilation, analysis and publication of statistics on issues such as:

- Population size, composition and projections;
- The location of the population: urbanization and population density;
- Births, deaths, marriage and divorce;
- Household characteristics and housing;
- Ethnic, language, religious and cultural characteristics of the population;
- Migration and related phenomena.

Key indicators include:

- Total fertility rate;
- Life expectancy at birth;
- Age-dependency ratios;
- Crude rates of births and deaths;
- Rates of population growth or decline.

The data sources for the size, composition and characteristics of the population have been outlined in the previous sections. We now look at the purpose and methods of demographic analysis.

Indirect methods are used to model population processes in order to interpolate data to replace missing observations. These methods provide estimates of local populations from partial data so that population numbers and locations can be projected[56]. The most recent resources for techniques for population estimation descent from the United Nations 'Manual X: Indirect Techniques for Demographic Estimation' of 1983 and subsequent works such as the '2002 United Nations Manual of Adult Mortality Estimation'. These resources for demographic modelling significantly include the joint Eurostat and UNECE Work Sessions on Demographic Projections and the 'Tools for Demographic Estimation' issued in 2013 by the United Nations Population Fund (UNFPA) and the International Union for the Scientific Study of Population (IUSSP).

'Population Europe: The European Population Partnership' provides a network for demographic research.

Box V2.3.3 summarises the latest forecast of national and regional population and households in Morocco.

([56]) The Wikipedia demographics page gives an idea of the range of approaches.

Box V2.3.3: The projections of population and households in Morocco for 2014-2050

Following the publication of the results of the National Survey on Population and Health undertaken in 2010-2011 and of the General Population and Housing Census of 2014, the Centre d'Etudes et de Recherches Démographiques (CERED), part of the High Commission for Planning, has updated the demographic projections for Morocco. Indeed, these made it possible to provide recent data on the demographic parameters necessary for the projections, such as the levels of fertility, mortality and internal and international migration.

These new data have been taken into account to update population projections at the national, urban and rural levels. To do this, the component method, used by a large number of demographers and international organizations, including the United Nations and the World Bank, was applied.

Since fertility is the factor that most affects the future development of the population, unlike mortality, and as it is impossible to predict with certainty future fertility behaviour, these projections have been established according to three variants called "high", "medium" and "low". According to the "average" variant, future fertility declines moderately, while under the "high" and "low" variants it decreases slowly and rapidly respectively, making it possible to create upper and lower limits of a relative margin of uncertainty to the "average".

The projections highlighted the following main features for the future (under the "medium" variant):

- An additional demographic growth by some 272 000 inhabitants per year
- A gradual decline in the number of young people
- Constantly large classes at active ages for a long time
- An inevitable aging of the population
- A doubling in the number of households
- A decrease in the number of people per household

Source: 'Note sur les projections de la population et des ménages entre 2014 et 2050' and 'Projections de la population et des ménages 2014-2050' (2016), CERED, Morocco

V2.3.2.4. STATISTICS ON INTERNATIONAL MIGRATION AND FORCED MIGRATION

The core reference document for statistics on international migration is the 'Recommendations on Statistics of International Migration, Revision 1'. This was published in 1998 by the UNSD in co-operation with Eurostat. The publication was a response to the growing size and importance of international migration. Governments wish to identify migration flows, measure the number of migrants and monitor changes over time. The statistics are intended to provide governments with a factual basis on which to formulate and implement policies. These recommendations recognise that migration statistics were often either non-existent or hard to interpret. Implementing the recommendations is needed to publish conceptually sound and comparable statistics. The document itself notes that this 'will take time'. Currently, more than 20 years on from the release of these recommendations, the international community is working on developing 'Revision 2' of this publication.

The range of government policies that can be affected by international migration is wide.

Policy in reception countries tends to regulate immigration and manage migrants' stay, focusing on integrating migrants into the economy and society. The main interest in reception countries tends to be in the number of new arrivals and in the total number of foreigners present. There is usually less interest in the numbers of foreigners departing, unless this is a specific policy objective. Reception countries may therefore wish to collect statistics about:

- The numbers, characteristics and location of migrants;
- The utilization of local services such as schools, health facilities, welfare services, accommodation, etc.;
- The effect of migration on local employment and the national labour market;
- The impact on the social security and pension systems and their future liabilities.

Tracking studies can be used to analyse the integration process.

To protect their citizens abroad, countries of origin may wish to monitor migrants' arrangements prior to departure and living conditions afterwards. These countries may also want to collect information about intending and actual migrants and whether their stay is likely to be temporary or permanent; historically, they have been less interested in information on returning citizens. Emigration countries may also wish to collect information on migrants' remittances and their impact on savings, investment and local development.

These policy considerations also apply to non-permanent migrants who work for defined time periods in reception countries, ranging from a few months to many years, and who may or may not gain residency rights. These are often groups of workers organised on a bilateral basis between the origination and reception countries. Although these people are, by definition, usually not permanent migrants, the migration statistics framework needs to identify them correctly.

The policy objectives of reception and emigration countries are therefore very different. This means that the two groups of countries are likely to collect different data. Nevertheless, there is a common interest in comparable and reliable migration data, as there is a common need to forecast the future actions of migrant populations and to understand the relation between migration and development.

The 'Recommendations on Statistics of International Migration' identify many of the key questions of interest to governments that migration statistics aim to answer. Not all of these questions will be relevant to each country, but they provide a framework for the development of comparable statistics:

- What is the overall annual net gain or loss of population through international migration?
- How many international migrants are admitted annually? Which are their countries of origin?

- In countries having free establishment provisions for the citizens of selected states, how many migrants exercise such a right over the course of a year? What are their countries of origin?
- How many citizens emigrate every year? Which are their countries of destination?
- How many emigrant citizens return every year? From which countries are citizens returning?
- How many migrant workers are admitted annually? How many leave the country for good every year?
- How many persons in search of asylum arrive annually? How many international migrants are admitted on humanitarian grounds (including refugees)?
- How many persons are admitted for family reunification over a year?
- How many persons who do not qualify as tourists are admitted for periods shorter than a year? Among them, how many are allowed to work in the receiving country?
- What is the total number of international migrants in the country? How many of those international migrants are economically active?
- How many foreign citizens acquire citizenship of the reception country?

Countries do not use the same criteria to determine who is an international migrant. This situation has long been recognized as a key source of inconsistency in international migration statistics. Box V2.3.4 presents the recommended definitions of short and long-term migrants and of the country of usual residence.

Box V2.3.4: Definition of country of usual residence, long-term international migrant and short-term international migrant

Country of usual residence

The country in which a person lives, that is to say, the country in which he or she has a place to live where he or she normally spends the daily period of rest. Temporary travel abroad for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage does not change a person's country of usual residence.

Long-term migrant

A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant, and from that of the country of arrival, the person will be a long-term immigrant.

Short-term migrant

A person who moves to a country other than that of his or her usual residence for a period of at least 3 months but less than a year (12 months) except in cases where the movement to that country is for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage. For purposes of international migration statistics, the country of usual residence of short-term migrants is considered to be the country of destination during the period they spend in it.

Source: 'Recommendations on Statistics of International Migration. Revision 1', United Nations

Whereas international migration flows can be defined in terms of the numbers of people changing their country of residence, stocks of migrants within the overall population can be defined according to citizenship or country of birth.

Wherever possible, citizenship and country of birth should not be used as proxies for each other.

Citizenship is widely recorded in administrative systems as this frequently impacts on a person's rights to enter, reside and work in a country. However, migrants can and often do change citizenship, often being granted the right to acquire the citizenship of the new country of residence after a number of years or following marriage to a national citizen. Depending on the specific national rules for acquiring citizenship, national citizens of the reporting country may also include many people who are foreign born and who were previously recorded as foreign citizens. It is therefore useful to collect statistics on acquisition of citizenship.

Defining migrant stocks according to country of birth has the advantage that a person's place of birth is fixed and will not change. However, country of birth may not be well recorded in some administrative data sources. It should be noted that native-born persons might be foreign citizens – as many countries do not automatically grant citizenship to children born in their territory, with children instead taking the citizenship of their parents.

The following potential data sources for migration statistics are identified by the Recommendations:

- Population registers
- Registers of foreigners
- Issuance of residence permits
- Issuance of work permits
- Official clearance of departing migrant workers
- Processing of requests for asylum
- Records from regularization drives
- Border systems
- Censuses
- Household surveys
- Reports to tax or social security authorities
- Establishment business surveys
- Registration of individuals in special insurance schemes
- Reports from labour recruitment agencies
- Apprehension and deportation systems
- Registers of acquisitions of citizenship of the destination country by foreign citizens

The 'Recommendations' do not guide the user on how to obtain acceptable measures of undocumented or irregular migration. Irregular migration mainly came into focus in the last 25 years, with the flows of people without documents or permissions migrating from developing countries towards similar countries (often for transit reasons) or developed countries, remaining in the receiving countries without the necessary documentation. Other cases concern foreigners who overstay in the receiving countries beyond the validation of a visa ('visa overstayers'). Operations within the countries,

at border points, along the borders and on the sea enable national authorities to identify and apprehend such groups of migrants, which often include vulnerable persons such as unaccompanied children and victims of human trafficking. Other irregular migrants may leave a trace, e.g. by registering, sending remittances or using health facilities.

Although the coverage of irregular migrants may be partial due to the unregistered nature of their migration, for those under the control of national authorities it is possible to establish statistics and profiles, including the identification of cases of return to the country of origin or resettlement in a third country. Very few national statistical institutes publish data on irregular migration, as this is mainly assigned to administrative bodies and police services. In any case, in some cases data on irregular migration should be considered as estimates or partial measurements rather than statistics.

Box V2.3.5: The EU contribution to migration statistics in Africa under the Pan-African Statistics Programme

In recent years, Eurostat has been involved in the implementation of the Pan African Statistics (PAS) Programme. PAS was a large EU financed statistical capacity developing programme aimed at assisting the African Union Commission (AUC) in developing its statistical capacity, improving the production and dissemination of good quality official statistics at AU and country level and strengthening the coordination of all actors engaged in producing official statistics for Africa. The Programme's objectives built on the Strategy for the Harmonization of Statistics in Africa (SHASA) and the African Charter on Statistics. One of the first PAS projects focused on a series of priority sectors, including migration statistics.

Concerning migration statistics, PAS assisted the AUC in defining the work to be undertaken in the sector, including in particular the support to the ongoing Joint Labour Migration Programme of the AUC, ILO and others with the collection and assessment of data and revision of the methodology. In addition, the Programme and AUC engaged the Global Initiative against Transnational Organised Crime (GI-TOC) for establishing a methodology for data collection on irregular migration and associated protection risks in Africa. The proposed methodology was discussed and approved during an Expert Group Meeting held in Addis Ababa in 2018. Several African countries expressed interest in implementing the methodology In 2019/2020, three of these countries, namely Botswana, Tunisia and Kenya, participated in a pilot phase covering the data and capacity needs assessment, the data collection and capacity building, the modelling exercise for data estimation, and the reporting. Following the preparatory stages, the assessment and data collection activities were conducted in these three countries to pilot the methodology on irregular migration and associated risks. The results of these pilot tests were delivered in 2021.

Source: Eurostat website and PAS newsletters.

Sometimes considered under international migration, the application for asylum, the recognition of the status of refugees and the internal displacement due to force represent other areas of increasing interest for policy and statistics, particularly in the African countries.

For statistics on asylum seekers and refugees, overall the countries face several challenges, including:

Gaps in official statistics, including a lack of socio-economic data on refugees and asylum seekers;

Lack of comparability between national statistics and across displacement situations within countries;

Necessity to improve the understanding of concepts of flows and stocks of the different types of refugees;

Necessity to build information systems useful for both the administrative and statistical needs;

Measurement of forced population movements in humanitarian crises;

Rapid change in the population distributions and so the sampling frames for surveys;

Necessity to maximize the use of available data sources (e.g. by integrating questions into existing data sources) and to develop new data sources;

Limited connection between national statistics on refugees and asylum seekers, often managed within immigration departments, and national statistics on migration and population;

Extreme sensitivity of refugee and asylum seeker data and the importance of confidentiality and data protection in refugee statistics; and

Significant variation across countries in terms of the size of forcibly displaced populations, the capacities of the national statistical and administrative systems, and national policy priorities, in particular for developing countries.

Some national authorities and international organizations such as UNHCR and Eurostat elaborate and publish statistics on refugees and asylum seekers. In many countries, this is undertaken by UNHCR until such time that the national authorities have developed the regulations on asylum and the capacity to produce its own statistics.

Several of the challenges mentioned above also apply to the statistical production on Internally Displaced Persons (IDPs). In addition, in this case statistics are elaborated by the NSOs, other national agencies and even international entities such as UNHCR and the Joint IDP Profiling Service (JIPS).

To support the countries worldwide and under the same framework, between 2016 and 2020 the Expert Group on Refugee and IDP Statistics (EGRIS) working under the chair of Eurostat, UNHCR, JIPS and other international and national entities established the first international recommendations on refugee statistics and on IDP statistics. A Compiler Manual integrates these two tools, whereas the EGRIS group will continue to support and promote the production and use of refugee and IDP statistics up to 2024.

Box V2.3.6: The best practices of Somalia on IDP statistics, based on an operational humanitarian data collection and SDG indicators disaggregated by displacement status

Prior to 2015, virtually all statistics on IDPs in the urban area of Mogadishu were based on data collected by humanitarian actors. This meant that data collected on IDPs were exclusively focused on populations residing in so-called IDP settlements, where IDPs were known to concentrate. As a result, all persons residing in these areas were automatically included in the IDP statistics. In 2015-16, however, a profiling exercise was undertaken in collaboration with local authorities, national authorities and humanitarian actors, which altered this practice. In the new profiling approach, IDPs were singled out from other population groups living in settlement areas through analyses of migration histories. The profiling revealed that approximately 85 percent of these populations were actual IDPs, while the rest represented members of the local urban population, Somali economic migrants, returned refugees, and refugees and migrants from other countries. From a resource perspective, this profiling approach helped to obtain more accurate information on the settlement areas where the most vulnerable and in-need-of-assistance populations were expected to live, regardless of their displacement history. The profiling did not, however, aim to produce comprehensive figures on IDPs in the whole city, although it was known that a large amount of the population in the city had been displaced at some point in the past. Rather than aiming to cover the total of this population, the process concentrated on obtaining more targeted information about the settlement areas where the most vulnerable and in-need-of-assistance populations were expected to live.

In addition to this, the Somali Government has decided to work towards monitoring 66 of the SDG indicators. It has categorised the SDGs into the groups of economic growth and related sectors, social services, climate change and the environment, and enablers to sustainable development, and there are efforts to disaggregate the SDGs by displacement status. These efforts are in line with Somalia's efforts to create a National Development Plan, which aims to develop monitoring and evaluation mechanisms for tracking these indicators and the path to achieving the targeted SDGs.

Source: Technical Report on Statistics of Internally Displaced Persons: Current practice and recommendations for improvement, European Union and United Nations, 2018.

V2.3.3. Data and metadata

The key global source on population statistics and forecasts is the UN 'World Population Prospects Database, 2019 Revision'. This is produced by the UN Population Division. It provides indicators and projections of total population and major demographic measures for the period 1950-2100 for all countries and regions.

The 'United Nations Demographic Yearbook' is produced by the UNSD. It provides more demographic variables than the Population database. Occasionally, the yearbook covers special topics such as the results of population projections or population censuses.

Other global demographic publications are available from the website of the UNSD, Demographic and Social Statistics. Examples are the biannual vital statistics data and the World's Women reports.

Data on the international migrant stock is also available on the UN Population Division website, with updates every two years. Other global population and urbanisation data series and metadata can also be found on this website.

The 'Recommendations on Statistics of International Migration' note that African statistics on migration are often missing, unavailable or not comparable. More recently, this situation has been confirmed by the data collection and consultations under the 'Joint AU/ILO/IOM/UNECA Labour Migration Program' (JLMP) and other initiatives. The new African Observatory for Migration and Development (OAMD) will take on the gathering data relevant under the Global Compact for Safe, Orderly and Regular Migration (GCM). Properly carried out, the initiatives discussed in section V2.3.5 below should start to address the absence or penury of data.

The International Organization for Migration (IOM), now UN Migration, has the key objectives to enhance the capacity of governments to collect reliable and comprehensive statistics and data on migration and to advance the understanding of migration issues more generally. The IOM also compiles statistics on issues such as emergency and post-emergency repatriation, resettlement, assisted voluntary return, health of migrants, trafficking and internal displacement and return. Among others, several IOM missions worldwide adopt the Displacement Tracking Matrix (DTM) in order to capture, process and disseminate information to provide a better understanding of the movements and evolving needs of displaced populations, whether on site or ***en route***. The IOM Global Migration Data Analysis Centre (GMDAC), created in 2017, presents data through its 'Migration Data Portal'.

The domain 'Population Statistics' of Eurostat's website provides a standard for demographic and migration data dissemination, including a range of statistics on annual or longer basis such as the population census rounds for the EU and about 25 other countries and territories:

- Demographic data on population and various demographic events (births, deaths, marriages and divorces) broken down by several characteristics such as age, gender, legal marital status and educational attainment;
- Demographic indicators such as total fertility rate, life expectancy at birth, age-dependency ratios, crude rates of births, deaths and population growth;
- Statistics on the population and housing censuses, offering regional detail and several cross-tabulated data, are available every ten years from the censuses conducted in EU Member States;
- Population projections at national and regional level, providing information on the likely future size and structure of the population, according to different what-if scenarios
- Migration and citizenship, including information on population stocks by citizenship and country of birth, on migration flows by citizenship, country of birth and country of previous/next residence, and on acquisition of citizenship;

- Residence permits granted to non-EU citizens, disaggregated by citizenship, length of validity and reasons for the permit being issued;
- Asylum statistics, including data on asylum applicants, first instance and final decisions on asylum applications, requests for taking back or taking charge of asylum seekers within the framework of Dublin procedure;
- Statistics on the enforcement of immigration legislation, providing data on non-EU citizens refused entry at the EU external borders, found to be illegally present or ordered to leave, and on actual removals of non-EU citizens whose presence was unauthorised.

V2.3.4. Analysing data quality and identifying problems

The key question for population and demographic data is whether the terms used correspond to the usual international classifications. One example is whether the standard five-year age groups are adhered to: 0-4; 5-9; 10-14 etc.

Demographic data is of much higher quality if it is based on a universal and up-to-date population register. The sources of demographic data should be ascertained and improved, particularly in developing countries. The number of entries in the population register might be compared with the estimated population. Technical development may allow for improvement, even on the basis of sources of limited quality or limited coverage.

In looking at migration statistics, data concepts should be compatible with those laid out in the relevant recommendations. However, one should not look for completeness, as it is understood that most countries will only produce a subset of the migration statistics framework that meets their own and their partners' needs. A potential tool for validating results is to use mirror techniques between the two sides of international migration flows: this is still adopted only to a limited extent, also due to the lack of basic statistics in many countries and due to differences in definitions. Overall, migration statisticians attempt to integrate more and more data available from different sources. Moreover, sub-sectors such as internal displacements are considered only in the selected countries which are affected by the phenomenon. The best practices adopted are widely shared through international meetings and events held at regional or global level. The 'International Forum on Migration Statistics' (IFMS), which was organised by OECD, IOM and UNDESA in 2018 in Paris and 2020 in Cairo, represents the most important event on that.

V2.3.5. Improving sector statistics

Historically, EU support for population and migration statistics has focused on the central issue of census funding. A high profile example was the support for the '2005/06 Nigeria Census Support Initiative', which had a contribution of EUR 116.5 million. A common implementation mechanism for that has been a contribution agreement with UNDP and UNFPA.

An important theme for census improvement is cost limitation. This is because the cost of carrying out population censuses in developing and middle-income countries is very high relative to most other statistics activities. Low- and middle-income countries sometimes have difficulties financing their census. The '2001 UNFPA/PARIS21 International Expert Group Meeting on Censuses' included a critical appraisal of census costs, backed by examples in many developing countries. At that time, UNFPA prepared a publication on strategies for reducing costs. The subject of census costs has later been considered successively by specific papers and guides such as the UNFPA 'Population and Housing Censuses - Strategies for Reducing Costs' and 'Counting the People: Constraining Census Costs and Assessing Alternative Approaches', some Census Knowledge Base papers, as well as the UN recommendations on census. Among other, the self-compilation of the census questionnaires via Internet was adopted in several developed countries.

Another important area of action for the sector is improving the exploitation and dissemination of census data. This was initially brought into focus by the '2003 UNFPA/PARIS21 International Expert Group Seminar', whose objectives were:

- review census data dissemination and use in the 2000 round of censuses;
- establish partnerships between users and producers to maximize use of census data;
- ensure that quality population-based data are disseminated and used for national planning, poverty reduction strategies, monitoring of national and international development goals.

Several recommendations and actions for the successive rounds of censuses followed the same lines. It also includes the PARIS21 advocacy video on the African perspective for the population census dissemination.

Concerning other areas of population and migration statistics, improving civil registration and vital statistics systems in low income countries, in particular in Africa, is still a major issue. There is little prior experience in supporting this type of action. The objective is to provide improved statistics between censuses and to reduce or eliminate the need for large-scale inter-censal surveys. Analysis should look at whether the information recording system proposed is realistic. Will the system be accessible to the citizens who need to record vital events? Will the resulting statistics be consistent with international recommendations? Utilising regional experience could help ensure that planned actions can be sustained. The current focus on civil registration and vital statistics in Africa is discussed further in Box V2.3.2.

Among other areas, current aims are also to increase the availability and comparability of data on international migration and to have more national authorities involved in the production of statistics of refugees and IDPs, where relevant, according to the recently established

international requirements. These objectives can be seen as complementary to the support to the population censuses.

New technologies, including smartphone-based technologies, are starting to be applied in censuses, vital statistics and migration statistics. A seminar on 'New Technologies in Population and Housing Censuses: Country experiences' linked to the 42nd session of the UN Statistical Commission was held in February 2011. The paper by the Brazilian Institute of Statistics and Geography (IBGE) on IT in the 2010 Brazilian Census is of particular interest. The topic of new technologies in the census has been followed up at many other international events later. Among others, the US Census Bureau has issued a paper entitled 'Four ways new technology is revolutionizing the 2020 Census'.

In supporting demographic analysis, the outputs and the main data sources available need to be defined in the terms of reference. The analyst will need to justify not only the selection of an appropriate demographic tool but must also make clear how the model parameters are arrived at.

EU support for developing migration statistics in other countries presupposes that there is a mutual interest in monitoring migration flows between the two parties. Both sides need to be clear regarding which statistics can be produced to meet the data needs. In any case, the resulting statistics should be designed to follow international definitions.

To find out more…

Recent and current initiatives and activities

- UN Economic Commission for Africa (UNECA): Initiative on civil registration and vital statistics (CRVS) systems in Africa
- First Conference of African Ministers Responsible for Civil Registration: Report on improving Civil Registration and Vital Statistics in Africa (2017)
- Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics Systems Monitoring Framework: Report on the status of civil registration and vital statistics in Africa (2016)
- Commemoration of Africa Civil Registration and Vital Statistics (CRVS) Day (2019)
- United Nations Statistics Division (UNSD): 2020 World Population and Housing Census Programme
- United Nations Department of Economic and Social Affairs (UNDESA): Sustainable Development Goals
- Migration data for Sustainable Development
- United Nations Statistics Division (UNSD): United Nations Expert Group Meeting on Migration Statistics
- Eurostat, UNHCR and other entities: Expert Group on Refugee and Internally Displaced Persons Statistics (EGRIS)
- Joint UNECE / Eurostat work sessions on census, migration statistics and demographic projections
- International Forum on Migration Statistics
- Population Europe (The Network of Europe's Leading Demographic Research Centres)

Further strategies and methodologies

- United Nations Statistics Division (UNSD): Principles and recommendations for a vital statistics system, Revision 3 (2014)
- United Nations Statistics Division (UNSD): Handbooks on Civil Registration and Vital Statistics Systems (2018-2019)
- United Nations: Principles and Recommendations for Population and Housing Censuses, Revision 3 (2017)
- United Nations Statistics Division (UNSD): Recommendations on statistics of international migration, Revision 1 (1998)
- Expert Group on Refugee and Internally Displaced Persons Statistics (EGRIS): International Recommendations on Refugees Statistics (IRRS) (2018)
- Expert Group on Refugee and Internally Displaced Persons Statistics (EGRIS): International Recommendations on Internally Displaced Persons Statistics (IRIS) (2020)
- Eurostat's Metadata and RAMON metadata server

Data and metadata

- United Nations Statistics Division: Demographic and Social Statistics
- United Nations Statistics Division: Demographic Yearbook
- United Nations Population Division: International Migration Stock, 2019 revision
- United Nations Population Division: World Population Prospects, 2019 Revision
- IOM Global Migration Data Analysis Centre (GMDAC): Migration Data Portal
- IOM Displacement Tracking Matrix
- World Bank: Migration and Remittances Factbook
- African Observatory for Migration and Development (AOMD) (forthcoming)
- Integrated Public Use Microdata Series (IPUMS) International: census data for 55 countries worldwide
- Integrated European Census Microdata (IECM): database containing anonymised microdata samples from more than 40 European countries
- Eurostat: Population statistics portal, with database

Other background

- European Commission and United Nations: Joint Migration and Development Initiative
- United Nations Population Division: Papers and reports
- World Bank: People move (blog)
- Global Forum on Migration and Development
- PARIS21 videos on Population Census Dissemination: the African Perspective part 1 and part 2

V2.4 Education statistics

V2.4. Education statistics

The chapter in brief

Education is widely accepted as a fundamental resource for individuals as well as societies. In many countries, basic education is nowadays perceived not only as a right for citizens, but also as a duty for governments. This chapter covers education statistics, covering educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education. Due to the complex role of education statistics for social and economic development planning, national and international agencies are actively seeking to improve them in order to obtain a robust means for decision-making, monitoring and evaluation. The main issues of the education statistics centres on the quality of national statistics received as well as the quality of the internal systems for collection, processing, analysis and dissemination of the data and metadata.

The chapter starts by identifying the main policy areas for which these statistics are used and continues by providing a user's view of the statistics involved. The chapter then identifies the main sources of data and information about methods, continues by discussing how to analyse the quality of the statistics in these fields and concludes with information on complementary sources.

V2.4.1. Policy applications: what education data is used for

The education sector plays a complex role in a country's social and economic development, presenting both a challenge and an opportunity for sustainable development. A country's successful social and economic development depends notably on a robust and sustainable education system as skilled human capital is seen as a key factor to improve people's welfare. In addition, there is empirical evidence that shows that the education level of a country is positively linked with economic growth. Therefore, the design and implementation of an effective education system and reforms in the education sector are a priority of governments. Hence, national education statistics, as well as international ones, are instrumental to inform adequately these policy reforms.

Education statistics are collected mainly by Governments and international institutions to design, implement, monitor and evaluate education policies. These statistics are used to assess the alignment of the capacity and performance of the education system to the national education program and also to assist in planning for further development of the education sector.

The education statistics are used mainly to: (i) distinguish between the actors in the education systems (individual learners, instructional settings and learning environments, education service providers, the education system); (ii) measure learning outcomes for individuals and countries; and (iii) identify the policy issues (quality of educational outcomes, equity and opportunities, adequacy and effectiveness of resources management).

Specifically, education statistics allow for an assessment of the:

- access to and participation in education;
- demand for and supply of educational opportunities (students, teachers, etc.);
- individual learning outcomes;
- impact of education on personal growth;
- well-being of all education beneficiary (individual, community, country);
- study of the causes in disparities, and their effect on social and economic development;
- quality of the teaching and learning process;
- internal efficiency of the education system;
- concern for equity in education.

V2.4.2. Concepts and definitions

The education statistics discussed here include data on educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education, lifelong learning, vocational training and adult learning, impact of education, assessments of student performance, etc.

In order to promote common definitions and concepts of education statistics and enable international comparisons, UNESCO designed the International Standard Classification of Education (ISCED). ISCED is a framework for assembling, compiling and analysing cross-nationally comparable statistics on education. The current classification is ISCED 2011, adopted in 2011, covering the levels of education of programmes (ISCED-P) and introducing a classification of levels of educational attainment based on qualifications (ISCED-A). In 2013, this was complemented by a revised classification of education and training fields (ISCED-F). In addition, a comprehensive list of education indicators, their definitions, purposes, calculation methods, and formulae have been developed and maintained by the UNESCO Institute for Statistics (UIS). In addition, the UIS also maintains a glossary of the main education concepts.

Education, according to the ISCED 2011, is defined as "organised and sustained communication designed to bring about learning". The OECD Handbook of Internationally Comparative Education Statistics, most recently updated inn 2018, presented the ISCED 2011 education classification under the following categories:

Pre-primary education (ISCED 0): Early Childhood Development Programmes (ECD) cover pre-primary education corresponding to ISCED level 0, and also all other school- or centre-based programmes involving organized activities aimed at encouraging children (before age of 5) to learn and for their emotional and social development. The aim of education at this level is fourfold: (i) to provide to children a first contact with the education

Box V2.4.1: Links between Education and the Sustainable Development Goals

Building on the achievements towards reaching the Millennium Development Goals, in September 2015 the UN Sustainable Development Summit adopted the 'Transforming our world: the 2030 Agenda for Sustainable Development", also known as the Sustainable Development Goals (SDGs). The Sustainable Development Goals comprises a framework consisting of 17 goals with 169 specific targets and 231 unique indicators to measure progress towards these. The environment dimension of the Sustainable development agenda is covered by the following goal, targets and indicators:

Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

Indicators: 4.1.1 Proportion of children and young people:
(a) in grades 2/3;
(b) at the end of primary; and
(c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex

Target 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

Indicators: 4.2.1 Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex.
4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex

Target 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

Indicators: 4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex.

Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

Indicators: 4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill.

Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

Indicators: 4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict affected, as data become available) for all education indicators on this list that can be disaggregated.

Target 4.6: By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

Indicators: 4.6.1 Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex.

Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Indicators: 4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment.

Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

Indicators: 4.a.1 Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single sex basic sanitation facilities; and (g) basic hand washing facilities (as per the WASH indicator definitions).

Target 4.b: By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.

Indicators: 4.b.1 Volume of official development assistance flows for scholarships by sector and type of study.

Target 4.c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least dev.

Indicators: 4.c.1 Proportion of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country.

Accompanying the Sustainable development Framework is the Incheon Declaration, adopted by around 1600 participants at the World Education Forum in Incheon, Republic of Korea in May 2015. The Declaration represents the firm commitment of countries and the global education community to a single, renewed education agenda.

system; (ii) to better prepare entry into primary school; (iii) to provide opportunities to introduce other programmes such as health, hygiene and nutrition; and (iv) to allow women to return sooner to the labour market or go back to their studies.

Primary education (ISCED 1): Primary education usually begins at age 5 and generally lasts for 4 to 6 years. Generally, no previous formal education is required before entering primary education. This is generally one component of "basic school education", which in many countries corresponds to compulsory education. These programmes are normally designed to give students a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, arts and music.

Secondary education (ISCED 2 and 3): Secondary education is divided into two main programmes: lower secondary (ISCED 2) and upper secondary (ISCED 3). The lower secondary generally pursues the basic programmes of the primary level, although teaching is typically more subject-focused. Lower secondary education may be either "terminal" (i.e. preparing students for direct entry into working life) and / or "preparatory" (i.e. preparing students for upper secondary education).This level can range from 2 to 6 years of schooling. The upper secondary education typically begins at the end of full-time compulsory education for those countries that have a system of compulsory education. More specialization may be observed at this level than at ISCED 2 and often teachers need to be more qualified or specialized. The entrance age to this level is typically 15 or 16 years. The educational programmes included at this level typically require the completion of about 9 years of full-time education (since the beginning of level 1) for admission or a combination of education and vocational or technical experience, with minimum entrance requirements the completion of level 2 or demonstrable ability to handle programmes at this level.

Post-secondary non-tertiary education (ISCED 4): Post-secondary education is generally designed to provide short (6 months to 2 years) technical or vocational training courses. Sometimes these programmes can also be intended as a preparation for tertiary education for students leaving secondary school without getting the normal certificate.

Tertiary education (ISCED 5 and 6): Tertiary education at level 5 programmes have an educational content more advanced than those offered at levels 3 and 4. Entry to these programmes normally requires the successful completion of secondary education level. Programmes at level 5 must have a cumulative theoretical duration of at least 2 years from the beginning of level 5 and does not lead directly to the award of an advanced research qualification. The level 6 is reserved for tertiary programmes that lead directly to the award of an advanced research qualification. The theoretical duration of these programmes is 3 years full-time in most countries (for a cumulative total of at least 7 years FTE at the tertiary level), although the actual enrolment time is typically longer.

While the revision in 2011 concentrated primarily on changes to the levels of education of programs (ISCED-P) and introduced a classification of levels of educational attainment based on qualifications (ISCED-A), the revision in 2013 focused on the fields of education and training (ISCED-F). Ten broad fields were identified and each field broken into narrow fields and detailed fields. For example, for the broad field of Natural Sciences, Mathematics and Statistics, the classification of the narrow field of "Biological and related sciences" is:

- Biology
- Botany
- Cell biology
- Entomology
- Genetics
- Mycology
- Zoology

Numerous statistical indicators are collected in order to give a complete overview of education system55. The main indicators are:

Adult Literacy Rate (ALR): The ALR is the percentage of total population aged 15 years and over who can both read and write with an understanding of a short simple statement on his/her everyday life. Generally, 'literacy' also encompasses 'numeracy', which is the ability to make simple arithmetic calculations. The ALR shows the accumulated achievement of primary education and literacy programmes in imparting basic literacy skills to the population, thereby enabling them to apply such skills in daily life and to continue learning and communicating using written words. Literacy represents a potential for further intellectual growth and contribution to the economic-socio-cultural development of a society.

Youth Literacy Rate (YLR) or **-** Literacy rate of 15-24 year-olds: The YLR is defined as the percentage of the population aged 15 to 24 years old who can both read and write, with understanding of a short, simple statement about their everyday life. YLRs are increasingly used to assess the impact of primary education as well as the speed with which illiteracy can be eradicated. In general, literacy data can measure the achievement of literacy programs and primary education.

School-Life Expectancy (SLE): The SLE is a measure of how many years of education the average population of a country receives in their lifetime. It is used to compare and assess the development of a country.

Transition Rate (TR): The TR conveys information on the rate of access (or transition) from one cycle of education to a higher one. This is expressed as the percentage of pupils who graduate from one level of education and move on to the next higher level (from primary to intermediate; or from intermediate to secondary).

([55]) UNESCO Institute for Statistics. Education Indicators. Technical Guidelines, 2009

Net Enrolment Rate (NER): The NER is defined as the enrolment of the official age-group for a given level of education expressed as a percentage of the total population from the same age group. A high NER implies a high degree of participation of the official school-age population.

Gross Enrolment Ratio (GER): The GER is defined as the total enrolment, regardless of age, expressed as a percentage of the official school-age population for a given level. The GER shows general levels of participation in education. When net (aged-based) enrolment data are not available, gross enrolment can be used as a substitute indicator. This data can also be compared to net enrolment figures to indicate the extent of over- and under- aged enrolment. A GER of 100% or more indicate that a country is, in principle, able to accommodate all of its school-age population.

Repetition Rate (RR): The RR is the proportion of pupils who enrol in the same grade/year more than once to the total number of pupils/students enrolled in that grade/year during the previous year. The RR helps to measure the effect on the internal efficiency of educational systems.

Dropout Rate by Grade (DR): It is the proportion of pupils from a cohort enrolled in a given grade at a given school year, but who are no longer enrolled in the following school year. The DR measures the trend of pupils leaving school without completion, and its effect on the internal efficiency of educational systems. In addition, it is one of the key indicators for analysing and projecting pupil flows from grade to grade within the educational cycle.

Survival Rate (SR) - It is the percentage of pupils enrolled in the first grade of a given level or cycle of education in a given school year who reach the final grade at the end of the required number of years of study. The SR measures the retention capacity and internal efficiency of an education system. It illustrates the situation regarding retention of pupils (or students) from grade to grade in schools, and conversely the magnitude of dropouts by grade.

Public expenditure on education as % of total government expenditure: It is the total public expenditure on education (current and capital) expressed as a percentage of total government expenditure (current and capital) in a given financial year. This indicator assesses a government's policy emphasis on education relative to the perceived value of other public investments. It reflects also the commitment of a government to invest in human capital development.

Public current expenditure per pupil as % of GNP per capita. It represents public current expenditure per pupil (or student) at each level of education, expressed as a percentage of GNP per capita in a given fiscal year. This indicator contributes to assess a country's investment in its human capital development and to measure the relative emphasis placed by the country on a particular level of education

Pupil-Teacher Ratio (PTR): The PTR is the average number of pupils (students) per teacher at a specific level of education in a given school year. It measures the level of human resources input in terms of the number of teachers in relation to the size of the pupil population.

Percentage of female teachers: it is the number of female teachers at a given level of education expressed as a percentage of the total number of teachers (male and female) at the same level in a given school year. This indicator shows the gender composition of the teaching force. It helps also in assessing the need for opportunities and/or incentives to encourage women to participate in teaching activities at a given level of education.

Gender Parity Index (GPI) - Ratio of girls to boys: The GPI is the ratio of female to male values of a given indicator. It measures progress towards gender parity in education participation and/or learning opportunities available for women in relation to those available to men. It also reflects the level of women's empowerment in society.

V2.4.3. Sources of data

Education statistics are collected from two main sources: (i) Administrative data and periodic school surveys; and (ii) Population censuses and household surveys. Administrative data are the primary country's source of education statistics and cover the whole country on an annual basis. These data are based on school reporting, generally at the beginning of the school year. School- based surveys focus on pupils only with no information on household characteristics and children who do not attend school. The shortcomings of these data are their quality in terms of coverage, which is often incomplete, thus impairing the accuracy of the statistics, and their comparability between countries, which is limited when the statistical definitions used are not in line with the agreed international standards.

Population censuses and household surveys provide a good complement to administrative data. Indeed, individual and household information collected through these surveys are instrumental to better analyse education data. Also, information on children's background and schooling decision can also be assessed. However, these data refer to the resident population and not to the education system; it may be difficult to relate these data to other education statistics for two reasons. The first is that the situation of the resident population concerning education may reflect the education system of another country, in case of immigrants, while missing some of the persons who were educated in the country, emigrants. This is as relevant as the migration flows are significant. The second reason is that the results of general population surveys refer to an age cohort of the population which may have been subject to the educational systems in very different moments in time, while statistics on the educational systems refer to their situation in one specific school or academic year.

Internationally comparable education statistics are mainly administrative data, collected through data collections run by international institutions. The UNESCO Institute for Statistics (UIS) uses a questionnaire to collect, annually, these data with the relevant national authorities of 200 countries (for example, Ministries of Education, Ministries of Finance or the National Library). The UIS education database, with more than 200 countries and territories, is the most comprehensive education data set in the world. It covers all education levels and a range of issues such as gender parity, teachers and financing. Worldwide statistics on education are collected through three major data collections:

UIS survey: The UIS education survey questionnaires are sent to UNESCO Member States/Countries annually. The questionnaires are based on international standards, classifications and measures that are regularly reviewed and modified by the UIS in order to address emerging statistical issues and improve the quality of data.

UOE survey: UNESCO-UIS, the OECD and Eurostat (UOE) have jointly administered this annual data collection since 1993. The UOE questionnaire compiles data from high- and middle-income countries that are generally members or partner countries of the OECD or the European Union. The UOE survey gathers more detailed education statistics and allows for production of a wider set of indicators. Additionally, Eurostat collects subnational data on enrolments, foreign language learning and short-term learning mobility.

Literacy statistics for adults aged 15 years and older and for youth aged 15 to 24 years are available from national population censuses, household surveys and estimates using the UIS Global Age-Specific Literacy Projections Model (GALP). The methodology to implement this survey is discussed in the report "Global Age-Specific Literacy Projections Model (GALP): Rationale, Methodology and Software".

Statistics on educational attainment for the population aged 25 years and older are based on national population censuses or surveys. Population data are based on the World Population Prospects by the United Nations Population Division (UNPD). Data on economic indicators such as gross domestic product (GDP) can be obtained from the World Bank and education public expenditure from the UIS.

Data on teachers and the curriculum have been collected since the early 1990s by the OECD through its "Teachers and the Curriculum" survey. Data cover: (i) Compulsory and non-compulsory intended instruction time for students; (ii) Teachers working time and teaching time; and (iii) Annual statutory teacher compensation.

Data on **educational attainment** of the adult population are collected as part of the Annual Labour Statistics data request, which is conducted by the OECD in February/March each year. The National Statistical Offices provide data on employment, unemployment and population by National Educational Attainment Categories (NEAC), by gender and age groups. Data are derived from National Labour Force Surveys. They are mapped to ISCED-97 levels of attainment using

Box V2.4.2: Overview over ISCED

Each country's education system is dynamic and changes frequently in structure and curricular content. International comparison is thus difficult for policy makers. The international initiatives to facilitate comparisons of education statistics and indicators of different countries, on the basis of uniform and internationally agreed definitions, are coordinated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) As education systems are constantly evolving, the ISCED framework is periodically updated. First developed in the mid-1970s, the International Standard Classification of Education (ISCED) has been revised several times.

The ISCED 2011 revision provides an integrated and consistent statistical framework for the collection and reporting of *internationally comparable* education statistics, covering both levels of education and training (ISCED-P) and levels of educational attainment based on qualifications (ISCED-A). The coverage of ISCED 2011 extends to all organised and sustained learning opportunities for children, youth and adults, including those with special educational needs, irrespective of the institutions or organisations providing them or the form in which they are delivered. In particular, ISCED 2011 took into account the many significant changes in education systems worldwide since the ISCED revision in 1997.

In ISCED 2011, the first level (ISCED 0) has been expanded to include a sub-category of the increasingly popular education programmes designed for children under three years old. At the same time, the classification of tertiary levels of education has changed substantially. ISCED 2011 has four levels of tertiary education, compared to two categories in the previous version. A main reason for this is to better reflect the tertiary education structure (Bachelor, Master and Doctorate), in particular in view of the implementation of the Bologna Process in Europe. ISCED 2011 also introduces educational attainment into the framework. Thus, ISCED offers a system to classify qualifications into educational attainment levels.

The mapping of country (national) data to those of the ISCED 2011 is critical to ensure the meaningfulness and comparability of the education data. A special 'Questions and Answers about ISCED 2011' section is available on UNESCO-UIS's website.

The revision in 2013 covered ISCED Fields of Education and Training (ISCED-F), enabling examination of fields of education in a separate process. ISCED-F has been implemented since 2016. The classification identifies ten broad fields of education:

00 – Generic programmes and qualifications
01 – Education
02 – Arts and humanities
03 – Social sciences, journalism and information
04 – Business, administration and law
05 – Natural sciences, mathematics and statistics
06 – Information and Communication Technologies
07 – Engineering, manufacturing and construction
08 – Agriculture, forestry, fisheries and veterinary
09 – Health and welfare
10 – Services

the agreed mapping from NEAC to ISCED-97 standardized levels of attainment established by the Network B of the OECD education indicator project after consultation with country representatives. Work status is reported according to the International Labour Organization (ILO) guidelines and definitions of employment and unemployment.

In addition to public examinations at the end of educational cycles, some countries implement national assessments to have a comprehensive view of the learning standard and the system performance. These national assessments are sometimes linked with regional or international evaluations which allow comparisons of education systems. Beside these sources of general statistical data, several initiatives assess general or specific learning outcomes, including:

The OECD Programme for International Student Assessment (PISA), collected for the first time in 2000, is a three-yearly survey of the knowledge and skills of 15-year-olds in the main industrialised countries. It assesses young people's capacity to use their knowledge and skills in order to meet real-life challenges and, specifically, assesses literacy in reading, mathematics and science. The assessments are conducted through students sitting pencil and paper tests in their schools. The students and principals of the schools also answer questions about themselves and their schools allowing analysis of the factors that influence good and bad performance. 79 countries/economies participated in PISA 2018.

The Out-of-School Children Initiative (OOSCI). UNICEF and the UNESCO Institute for Statistics launched OOSCI in 2012. The aim is to make a substantial and sustainable reduction in the number of out-of-school children worldwide. To this end, partner governments are provided with data that can be directly used to take action. OOSCI identifies barriers that lead to exclusion and develops proposals for policies and programmes that put more children in school. Over 90 countries participate, with many basing their education sector plans on OOSCI data.

The Trends in International Mathematics and Science Study (TIMSS). Since 1995, TIMSS reports every four years on the achievement of fourth and eighth grade students. It is an international assessment of student achievement in mathematics and science involving around 70 countries around the world. The evaluations are organized around two dimensions, a content dimension specifying the domains or subject matter to be assessed (number, algebra, geometry, data, biology, chemistry, physics, and earth science) a cognitive dimension specifying the domains or thinking processes to be assessed (knowing, applying, and reasoning)...

The Progress in International Reading Literacy Study (PIRLS) assesses the reading comprehension for students in their fourth year of formal schooling. In 2016, 60 countries participated in the PIRLS study.

The Southern Africa Consortium for Monitoring Education Quality (SACMEQ). Sixteen ministries of education in Southern and Eastern Africa share experiences, monitor and evaluate the conditions of schooling and the quality of education with technical assistance from UNESCO International Institute for Educational Planning (IIEP).

The Programme d'Analyse des Systèmes Éducatifs (PASEC). Created in 1991, this programme aims to assess learning skills in Francophone Africa and Indian Ocean.

The Laboratorio Latino-Americano de la Evaluación de Calidad de la Educación (LLECE). Since 1994, with the support of UNESCO, the LLECE organises regional evaluations on teacher policies and pedagogical practices in Latin America and the Caribbean. LLECE has so far organised four rounds of the Regional Comparative and Explanatory Study. The ERCE 2019 is the fourth instalment of the study, measuring the learning achievements of students from educational systems in 18 countries.

Regarding the dissemination of education statistics, various international organisations publish education statistics for their member countries.

The UNESCO Institute of Statistics (UIS) monitors progress towards the SDG 4 '***Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all***', and act as custodian for most of the indicators informing the targets of SDG 4. The UIS provides a rich set of cross-nationally comparable data, compiled by the UIS, as well as information from household surveys. UIS statistics are used by diverse partners, including governments, donor agencies and other UN organisations. The UIS is also an important source of education data for UNESCO's 'Global Education Monitoring Report', the World Bank's 'World Development Indicators' and UNDP's 'Human Development Reports'.

Every year, the OECD publishes 'Education at a Glance', which provides comparable data across OECD countries and a number of partner economies. It provides a rich, comparable and an up-to-date array of indicators on systems and represents the consensus of professional thinking on how to measure the current state of education internationally. Education at a Glance presents data on the structure, finances and performance of education systems provide key information on the output of educational institutions; the impact of learning across countries; access, participation and progression in education; the financial resources invested in education; and teachers, the learning environment and the organisation of schools.

V2.4.4. Analysing data quality and identifying problems

The main education data used at the international level are national administrative data. These data are frequently combined with data from national surveys on educational institutions, compiled and further processed by international institutions. Data quality is fundamental to the credibility of the statistics produced. The quality of these data depends on several factors: the quality of national statistics received,

Box V2.4.3: Case study: Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ)

The SACMEQ is an international non-profit developmental organisation of 16 Ministries (Angola, Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe) of Education in Southern and Eastern Africa.

The SACMEQ's mission is "To undertake integrated research and training activities that will expand opportunities for educational planners and researchers to: (a) receive training in the technical skills required to monitor, evaluate, and compare the general conditions of schooling and the quality of basic education; and (b) generate information that can be used by decision-makers to plan the quality of education." Two key targets are drawn from this mission statement. Firstly, the main target audiences for SACMEQ's activities were "educational planners and researchers". Second, the substantive content of SACMEQ's activities was divided into two main areas: "training" (in technical skills) and "information generation" (for use by decision-makers).

The Evolution of SACMEQ and Its Research and Training Programmes have evolved over the past decenniums in harmony with the increased scope and complexity of the four research and training projects in which it has been involved. This evolution has four phases: (i) an "Innovate" phase (1989-1994) in which the IIEP worked with a single country on an innovative experimental educational research and training project designed to address a major educational challenge related to planning the quality of education; (ii) the "collaborate" phase (1995-2004) where the IIEP encouraged several countries in the same region to work together on a mutually beneficial multi-country replication of the earlier experiment that drew upon lessons learned; (iii) the "consolidate phase" (1995-2004) where the control of participating countries over the whole of the research and training process is strengthened; and (iv) Finally there was the "Launch" (began in 2005) phase in which the participating countries assumed overall control of research and training directions, and began to make their own professional decisions about who assisted them and how they were to be assisted.

The use of SACMEQ research and training resources by ministries, international organizations, bilateral organizations, universities, and individual researchers and planners is increasing. SACMEQ resources have been used by various planners and researchers, national and international bodies such as ministries of education, international/bilateral organizations, universities, individual educational planners and researchers.

Source: Adapted from http://www.sacmeq.org/about.htm

as well as the quality of the internal systems for collection, processing, analysis and dissemination of the data and metadata. In addition, the comparability of education data may be impacted by differences between countries' educational systems.

Each of these factors needs to be adequately addressed in order to obtain quality education statistics. While the first factor depends principally on the country, the second one relies on the relevant international institutions (Eurostat, OECD, UNESCO, World Bank, etc.).

At the national level, the quality of education statistics is linked to the adequacy of national data sources and the extent to which international data definitions and guidelines are correctly applied. Hence, the challenges of education statistics at the national level are three-fold:

- A mismatch between the coverage of the national sources and the ISCED definition;
- A difference between the school/academic year to which the statistics refer, the point in time that the data were collected and the date on which the count of students is taken, may all differ from the international requirements.
- National data item definitions (e.g. a teacher, a graduate, a programme) and their classifications (e.g. programme level, type of educational personnel) may be different to those required internationally.

Another challenge at the national level may come from the difficulty of comparability of the statistics over time for the following reasons: (i) changes in the educational system (such as the implementation of reforms that lead to an increase in the stock of students); (ii) changes in the coverage of the data collection (inclusion/exclusion of programs,…); and (iii) changes in the methodology used.

Addressing the above-mentioned challenges is not an easy task and requires the implementation of several actions as follows:

- Ensuring that countries are provided with detailed data definitions and data reporting advice and guidance;
- Allowing for data collection tools to include sufficient disaggregated levels of sub-classifications in areas where it is known to be difficult for countries to provide the required data;
- Providing clear guidance on the reporting of missing data;
- Requesting the data providers, whenever possible, to provide metadata;
- Mapping countries' national educational programs to the ISCED levels;
- Including automated verification checks if the questionnaires are electronic;

V2.4.5. Improving sector statistics

There is no rule-of-thumb for building a statistical action in the education sector of any developing country; in other words, each country will have its own challenges, which will need to be addressed accordingly. Nonetheless, the overarching goal of any statistical task in the education sector should be to improve the quality, accuracy and timeliness of the statistics. In most developing countries, Educational Management Information Systems (EMIS) are established to collect, process and analyse statistical data on the educational system to improve planning within the sector and guide the formulation of educational policy reforms. Thus, statistical actions in the sector should focus on strengthening the EMIS

Box V2.4.4: The Education statistics Data Quality Assessment Framework

The UNESCO Institute for Statistics (UIS) has been working for several years in Africa on improving the Data Quality Assessment Framework (DQAF) for education statistics. The 'Education statistics Data Quality Assessment Framework' (Ed-DQAF) has been developed by UIS and the World Bank, based on the IMF's generic DQAF structure. The Ed-DQAF is used to diagnose data quality in education, evaluating the quality of countries' production and management systems for education statistics and the decision making information available on the education sector.

The Ed DQAF identifies practices relevant to assess quality, classifying them into dimensions, sub-dimensions and indicators. The six dimensions span the whole information value chain:

1. **Pre-requisites of quality**
   Evaluation and understanding of the institutional context in which the statistical processes exist and which is essential to the other quality dimensions; how statistical laws, human resources and technical resources impact on other quality dimensions.
2. **Integrity**
   Objectivity in the collection, compilation and dissemination of statistics. This covers institutional arrangements that ensure professionalism in statistical policies and practices, transparency, as well as ethical standards.
3. **Methodological soundness**
   The methodological basis for statistics should be sound, following internationally accepted standards, guidelines and good practices. This is dataset specific, reflecting different methodologies for different datasets. This covers: concepts and definitions; scope; classification/ sectorisation; basis for recording.
4. **Accuracy and reliability**
   Whether data give an adequate picture of the education sector in the country. This is dataset specific, reflecting the specificity of the sources and treatments. This covers: source data; statistical techniques; assessment and validation of source data; assessment and validation of intermediate data and statistical outputs; revision studies.
5. **Serviceability**
   To which extent statistics are useful for planning or policy purposes, referring mainly to periodicity, timeliness and consistency.
6. **Accessibility**
   Data and metadata should be presented in a clear and understandable way and should be easily available to users. Metadata should be relevant and regularly updated. Assistance to users should be available, efficient and performed in a reasonable time.

Each practice is scored according to whether it is 'Observed'; 'Largely observed'; 'Largely not observed' and 'Not observed'.

UIS and the World Bank have developed a dedicated Wiki knowledge portal, with information about the UIS Education DQAF, covering statistical data quality in general and education data quality in particular. The Wiki contains a presentation of the Ed DQAF framework, the methodology used to apply it (UIS DQAF manual), country validated reports, events, and a number of associated topics and references. The objective is to provide an interactive platform for anyone interested in contributing to the development of this repository of knowledge about the **Education DQAF** and the quality of education data in general.

Source: UNESCO Institute for Statistics' and the World Bank's 'Education statistics Data Quality Assessment Framework Wiki'

in order for the education statistics to meet the requirements of the end-users.

The design and implementation of an effective EMIS are expensive and complex. Thus, it is instrumental to take into consideration the needs of all the groups that will provide and/or use these statistics (Ministry of planning, Finance, regional and district education offices, donors and NGOs). To be effective, an EMIS should be driven by national needs and not donor requirements.

Education statistics provided by any EMIS should be timely and complete in order to ensure a good quality and for the data to be useful. Hence, there is a need to strengthen these EMIS. Several roadmaps can be implemented to improve education data collection. One of these roadmaps consists of the following steps:

1. Ensure the collection and analysis of educational data, as possible.
2. If not in place, establish a data collection unit within the education authority to co-ordinate data collection at all levels.
3. Assess the status of EMIS nationally. Consider any needed improvements and seek assistance as appropriate to strengthen national capacity in this area.
4. Conduct data analysis to produce indicators to guide policy makers and provide recommendations for practitioners to improve the quality of educational provision.
5. Educational authorities should seek, obtain and share statistical data concerning nationals

Box V2.4.5: Suggestions for the estimation of missing data

National data sources are rarely adequate to provide all of the data requested at the international level and missing codes frequently have to be used, hence the need to derive estimates for some of these missing values.

There are broadly five situations in which missing values might arise:

- Data not collected for a variable: It may be possible to generate an estimate by formulating assumptions with data available. For example, if the students' age distribution is not available but the grade distribution is, it is a logical to assume that all students in the same grade are of the same age.
- Data not available for the desired level of aggregation: A feasible approach may be to scale up the sub-national figures to national level using a scaling factor derived from a different, but related dataset. For example, partial student enrolment numbers could be scaled up on the basis of student data from labour force surveys or from the results of an ad-hoc survey.
- Data may be available only for certain sub-populations: Similar to the previous situation where the same potential solution could be applied. For example, certain data may be available for public schools and government-dependent private schools but not for independent private schools and they could be scaled up as described above.
- Data not available for the desired level of disaggregation: For example, expenditures data may not be available for each level of education separately but can be apportioned to the corresponding levels based on student enrolments in the respective levels.
- Data may not be available for the year of the data collection: In this case, it may be possible to estimate the data on the basis of data from previous years.

In all cases, when choosing a technique to estimate missing data, thought needs to be given to the use to which the data will be put, particularly in indicator calculations. For example, using student numbers as a basis for estimating missing expenditure data would be inappropriate if the estimated expenditure data were then to be used calculate expenditure per student.

Specific data items which most commonly require estimation are: (i) Retirement expenditure (particularly in unfunded or partially funded schemes); (ii) Household expenditures on education (these are most commonly derived from national household expenditure surveys); (iii) Private employer expenditure on training of apprentices and other combined school and work-based training programmes.

Source: OECD Handbook for internationally Comparative Education Statistics (2018)

To find out more…

Strategies and programmes

- Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Incheon Declaration: Education 2030: Towards inclusive and equitable quality education and lifelong learning for all
- UNICEF: Data Must Speak initiative
- UNESCO: Education for All (EFA) 2000-2015
- African Union: Continental Education Strategy for Africa 2016-2025 (CESA 16-25)
- Southern African Development Community: Regional capacity building strategy for Educational Management Information Systems (EMIS) (2010)

Methodology

- UNSD: SDG indicators metadata
- UNESCO Institute for Statistics (UIS): ISCED 2011 (levels of education); ISCED-F 2013 (education fields); 'Questions and answers about ISCED 2011'; Glossary of education terms
- UNESCO Institute for Statistics (UIS): Education Indicators. Technical guidelines, 2009.
- UIS-OECD-Eurostat: 'ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications' (2015)
- OECD: OECD Handbook for internationally Comparative Education Statistics (2018)
- UIS: 'Education statistics Data Quality Assessment Framework' (Ed-DQAF)
- UIS and World Bank: Global Age-Specific Literacy Projections Model (GALP): Rationale, Methodology and Software (2006)
- UIS, OECD and Eurostat (UOE): UNESCO-OECD-Eurostat (UOE) joint data collection – methodology
- Educational Management Information Systems (EMIS)
- African Union: Continental Education Strategy for Africa 2016-2025 (CESA 16-25): Indicators Manual (2006-2015)
- Southern African Development Community: Monitoring Framework for the Regional Implementation Plan on Education and Training (2009)
- Asian Development Bank: Administrative data sources for compiling Millennium Development Goals and related indicators (reference handbook on using data from education, health and vital registration systems) (2011)

Data sources

- United Nations Statistics Division (UNSD): SDG indicators database
- UNESCO Institute for Statistics (UIS): Data for the Sustainable Development Goals
- UNESCO: Global Education Monitoring Report
- UIS: UNESCO UIS education survey questionnaires
- UNESCO: Education For All (EFA) Development Index 2000-2015
- World Bank: World Development Indicators
- UNDP: Human Development Reports data
- World Bank: EdStats - Education Statistics Database
- OECD: Online Education Database and Education at a Glance
- UNICEF: Education data
- OECD: Labour statistics
- UNECA: ECA Statistics database - data on education
- United Nations Population Division (UNPD): World Population Prospects
- International Labour Organization (ILO)
- Eurostat: Online database on education and training
- European Commission: The European Education and Training Monitor

Other surveys and examples

- OECD Programme for International Student Assessment (PISA)
- UNICEF and UNESCO-UIS: Out-of-School Children Initiative (OOSCI) (see also the Operational Manual)
- Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) (common website)
- Laboratorio Latino-Americano de la Evaluación de Calidad de la Educación (LLECE)
- Programme d'Analyse des Systèmes Éducatifs (PASEC) des États et gouvernements membres de la CONFEMEN (Conférence des ministres en Education des pays ayant le français en partage)
- Southern Africa Consortium for Monitoring Education Quality (SACMEQ)

Resources

- UNESCO: International Bureau of Education (IBE)
- European Commission: Eurydice - European Network for Information in Education
- OECD: Centre for Educational Research and Innovation (CERI)
- International Labour Organization (ILO)
- United Nations Children's Fund (UNICEF)
- International Association for the Evaluation of Educational Achievement (IEA)
- UNESCO International Institute for Educational Planning (IIEP); IIEP-UNESCO Dakar; IIEP-UNESCO Buenos Aires

V2.5 Health statistics

V2.5. Health statistics

The chapter in brief

This chapter covers the full range of health statistics and their direct uses in indicators such as those of the SDGs. The relationship between data collection and policy formation provides the introduction and, together with a section on concepts and definitions, provides the motivation.

The chapter covers administrative and survey-based statistics. The difficulties of coordinating health statistics collection and publication are also covered. The chapter proceeds with sections on SDG and other health indicators; health information systems; and health accounts as the frameworks for health statistics integration and use.

An example of the use of administrative and survey health statistics to formulate policy is provided. A checklist to analyse statistical quality is shown. Indicators for improving health statistics are given.

V2.5.1. Policy applications: what the data are used for

The health statistics presented in this chapter have a variety of uses, notably to:

- Analyse the health situation of the people and identifying and quantifying health care activities and resources and the causes of death as a basis for policy preparation
- Prepare and monitor sector health programmes
- Manage available health resources efficiently and effectively to obtain measurable and comparable health outcomes throughout a country
- Enable health expenditure to be distributed between regions and population groups so that people can have similar expectations for health and longevity
- Assess the outcome of health policies
- Assess links between health care and social structures to inform social policies
- Assess links between health and individual behaviour to inform public health education
- Respond rapidly and appropriately to serious events
- Quantify, locate and monitor epidemics to provide early warning systems (locally, nationally and globally) and support emergency response
- Provide information to vital statistics (birth and death recording) systems for population statistics (see also the chapter on population statistics)
- Communicate the national health status to international organisations and partners in a timely manner, especially about serious health situations
- Support international comparisons through the Sustainable Development Goals indicators

This list shows that health statistics have a wide range of uses for health and social policies. Timely and relevant statistics are essential to formulate, implement and monitor policy actions. In the absence of this data, it is easy to misdirect limited health funds. In many developing countries, the challenge to meet these policy needs is overwhelming. Other statistics collectors have intervened, such as donor-supported international agencies and charitable organisations. Therefore, an important policy objective regarding health statistics is to ensure effective coordination of the various interventions.

V2.5.2. Concepts and definitions

V2.5.2.1 OVERVIEW

Health statistics cover a wide range of health-related topics. These include life expectancy, health status, health and safety, health determinants (including lifestyle, nutrition, smoking, alcohol abuse), health resources and expenditure, health care systems, morbidity and mortality (including infant and child mortality), hospital admission, causes of illness and death, national and international reporting of infectious diseases, disabilities, pharmaceutical consumption and sales, health personnel, remuneration of health professions, environmental health status, health inequality, health finance, health care resources and technology.

The first basic type of health statistics consists of **administrative statistics**. These consist of the records produced while admitting, treating and discharging patients from hospitals, doctors' surgeries and other health centres; and the records produced in the course of the management of health institutions. These include also death data derived from death certificates.

Other health statistics are based on household **health surveys**, directly collecting information about health status and determinants from a random sample of the target population.

As record keeping and data provision to statistics agencies improves, survey-based data tend to be replaced by statistics from administrative sources, which are the preferred data source and are cheaper to collect. However, even in developed countries, health surveys are rarely completely replaced. The two types of data sources are in principle complementary and can be used to validate other results. It is important to develop an **integrated health statistics information system** that draws from all data sources and produces relevant, timely, geographically disaggregated information that is sufficiently accurate to inform policy decisions.

This information can take the form of **Health indicators**, such as life expectancy and child mortality and are ideally based on several data sources. However, in low income countries, the data are often based on the results of single surveys, making these critically important to decision making. The best known indicator set consists of the **SDG indicators**.

The **System of Health Accounts** (SHA) has been developed to analyse the adequacy of resource levels for health care and the way that those resources are used.

Box V2.5.1: Classifications and nomenclatures relevant to health statistics

The International Classification of Diseases (ICD-11) is the standard to categorize diseases.

The World Health Organization (WHO) has developed a 'Handbook on Monitoring and Evaluation of Human Resources for Health' and several other tools for monitoring and developing human resources for health (HRH). WHO uses 9 occupational categories for the health workforce (18 occupational categories are available for some countries, differentiating some categories according to skill level and specialization).

The International Classification for Health Accounts (ICHA), developed by the OECD, covers three dimensions of health care:

- Health care functions (ICHA-HC)
- Health care service providers (ICHA-HP)
- Health care financing schemes (ICHA-HF)

Please see the section 'To find out more' for external hyperlinks.

V2.5.2.2 ADMINISTRATIVE DATA ON HEALTH

Administrative data on health consists of all the data that is regularly collected by hospitals and other health facilities. It covers data on the available beds and other medical facilities; the numbers of doctors and paramedical staff; the numbers of patients admitted, treated and discharged; hospital activities performed, such as number of surgeries, number of preventive services, etc.; and records of births and deaths within health facilities. Records of cases of notifiable diseases and health situations are also included. These data are usually reported to the Ministry of Health or a similar agency to provide information on health issues and for management purposes.

Health facility assessments cover the number of hospital beds and other health facilities in use. These data are often collected annually, since changes are comparatively rare. Health staff numbers are also collected and classified: the numbers of doctors, dentists, nurses, paramedical staff, community health workers, pharmaceutical personnel and so on.

Hospitals and other health facilities maintain records of consultations / inpatient admissions, medical condition according to classification, length of stay and discharge.

Surveillance (sentinel) systems monitor the occurrence of specific medical conditions to assess the stability or change in health levels of a population. The resulting statistics permit the study of disease rates in a specific cohort, geographic area, population subgroup, etc. to estimate trends in the larger population. The WHO International Health Regulations (IHR) require notification of health events defined by specific diseases and according to a set of criteria.

Biometric information and patient history information collected systematically from patients can be considered as part of the heath administrative dataset.

The civil register and vital statistics system, based on the register of births and deaths, or on death certification, is a primary source of administrative information on cause of death. However, this data source is rarely reliable in low income countries (see chapter on Government finance and public sector statistics). Records of attended births and deaths in health facilities, especially hospitals, may be more reliable but cannot be used by themselves as unbiased indicators for the whole population, since home births need to be included.([55]) While registered births may be more complete than deaths, some developing countries have facilities to register births retrospectively at school entry age, meaning that data on pre-school age children are incomplete.

Health facility expenditure data, the source of financing of treatment and of facilities are key components of the national health accounts. This information may be drawn from administrative data sources, such as hospital financial records. National Health Accounts are discussed below.

Administrative health data are often combined with data from other sources, notably population data, to obtain indicators based on ratios. These ratios include number of doctors, community health workers or hospital beds available per 10 000 or 100 000 population, nationally or within a province / region or health district. Health indicators may also be derived from combining two administrative data series, such as percentage hospital bed occupancy.

Outside EU and OECD countries, administrative data on health are often primarily collected by routine health information systems for current treatment and management of health facilities. Since the data are not collected for statistical analysis, data definitions may not follow current standards and classifications, leading to problems in using these data for health statistics. Public health reporting systems may under-report infectious diseases and private institutions may not report at all. Transmission of data may not be consistent and timely.

In recent years, private health facilities in many low- and middle-income countries have greatly increased in number and in the range of treatments offered, from pharmacies through to hospitals. Facilities supported and organised by external non-governmental organisations may also consider themselves as operating outside the national health system. Data collection from these facilities may be difficult. Such difficulties were observed during data collection for Malawi's national health accounts, discussed in the box below.

Health district boundaries may differ from provincial/regional boundaries and geo-location data may be insufficient to compensate for boundary differences. The basic population data at administrative or health district level may be incompatible with the administrative health data and so require adjustment. To enable health records held by multiple health facilities and agencies to be incorporated into health statistics, health information systems at local level need to

([55]) See Euro-Peristat publication and associated scientific papers

access data from all sources. Health information systems are considered at greater length below.

The problem of overcoming the incompatibility of disparate data sources is more likely to be addressed at national level through an **integrated health statistics system**, although Ministry of Health officials may not have the skills to compile and validate the basic statistics nor to calculate indicators. In addition, the NSI and Health Ministry may produce 'competing' publications.

Maintaining **geographical disaggregation** in national health statistics publications is important to ensure equity and to identify populations at risk. District health information systems support the collection of local data.

The WHO World Health Statistical Information System (WHOSIS) provides detailed definitions of the health related data series that are collected from national agencies, usually Ministries of Health, and used in its own publications. The preferred data sources and alternatives to them are identified.

Statistical analysis, particularly epidemiology, is a major use of administrative data. If these data are not present, insufficient or incorrectly collated, such analysis is not possible. Demands for increased statistical collection are both continual and costly, both in developing countries as in developed countries. Nevertheless, examples of the successful analytic exploitation of administrative health data can easily be found.[56]

V2.5.2.3 SAMPLE SURVEYS ON HEALTH

International household and other population-based sample survey methodologies generally include a major health component. The survey methodology should be incorporated into national practice, so that the results of a nationally organised survey can be interpreted correctly and are internationally comparable. A major survey is ideally conducted once every five years. An interim survey is sometimes conducted, often considering a specific issue and providing updated data.

- Demographic and Health Surveys (DHS) aim to collect and disseminate accurate, nationally representative data on fertility, family planning, maternal and child health, gender, HIV/AIDS, malaria, and nutrition. The AIDS Indicator Survey, Malaria Indicator Survey and other types of survey are also carried out by the DHS Programme.
- The WHO World Health Survey Plus modular system of health surveys aims to address critical data gaps. The most recent survey identified took place in 2016 and an updated system is currently (2020) being developed.
- Multiple indicator cluster surveys (MICS) are supported by UNICEF which assists countries in collecting and analysing data on the situation of children and women. The MICS aim at enabling countries to produce statistically sound and internationally comparable estimates of a range of indicators on topics that include fertility, mortality, contraceptive use, unmet needs, maternal and new-born health, female genital mutilation, menstrual hygiene management, child illness and treatment, and child development and nutrition, among others. The current survey round, MICS6, is being carried out during the period 2017-2021. MICS6 focuses on coverage of the Sustainable Development Goals, key frameworks such as WHO's Every Newborn Action Plan, and emerging child and adolescent issues including the use of technology, literacy skills and child functioning. MICS survey questions and modules are harmonized with DHS to ensure a coordinated approach to survey implementation and to provide comparability across surveys.
- The World Bank Living Standards Measurement Study (LSMS) multi-purpose survey collects data on many dimensions of household and individual wellbeing to assess household welfare, understand household behaviour and evaluate the effect of various government policies on the living conditions of people in low- and middle-income countries. The LSMS Plus programme assists selected low income countries in collecting individual-disaggregated survey data on asset ownership and employment, following the latest international guidelines. Many recent LSMS surveys have omitted or greatly reduced the survey sections related to health.
- The population census (see chapter on population and migration statistics) is sometimes used to analyse health questions, notably death rates and causes of death. Although a useful source of data, the population census has a low frequency, usually once every ten years. Limitations on the census arise from a limited number of health questions, due to cost, and inherent difficulties in accurately recalling the dates of births and deaths.

The Inter-secretariat Working Group on Household Surveys, sponsored by the UN Statistical Commission, has operated since 2015 to improve statistics based on household surveys through coordination and cooperation between international agencies and NSIs. Its task forces cover sector statistics, including health statistics. Further information can be found in relation to the Cape Town Global Action Plan for Sustainable Development Data.

Much of the current developments in household surveys are concerned with methodological improvements; the effective application of technology to surveys; improving coordination with other data sources; and utilising innovative data sources and data collection methods in relation to household surveys, for example the high frequency telephone surveys used for LSMS during the COVID-19 restrictions. These issues also affect Living conditions and poverty statistics (see chapter on living conditions and poverty).

([56]) For example, 'Cancer control in developing countries: using health data and health services research to measure and improve access, quality and efficiency' by Timothy P Hanna and Alfred CT Kangolle, BMC International Health and Human Rights 2010, 10:24

V2.5.2.4 CONSOLIDATION: HEALTH INFORMATION SYSTEMS

Health data from administrative sources and surveys can provide different results. A means of coordination and consolidation is required to confront the various data sources; identify potential errors; and ensure the data follow common concepts and classifications, especially geographical boundaries in order to produce reliable statistics at local and national levels.

An integrated health information system (HIS) collects and disseminates data from and to local health offices to deliver a consistent indicator set that can be used to monitor health outcomes, resources and finance, as well as develop and implement a sector health strategy at national and local levels. Effective coordination among statistics producers and users is the key element.

The case for investing in integrating or updating a health information system is that the information produced will enable scarce health resources to be directed in appropriate amounts to activities and locations where they are most needed. Management of the health system is the primary objective; the production of statistics is essential to this objective.

A health information system aims to produce and disseminate a comprehensive local and national picture of the current health situation and its development. Coverage should highlight immediate health priorities. The system should transmit health statistics that follow international standards to the relevant regional and global organisations in a timely manner, in particular on reportable diseases. The health information system should be sustainable, both technically and in terms of human resources. A health information system is almost inevitably a collection of disparate and potentially incompatible software packages, as well as manual elements. It is essential to avoid duplicate systems, especially electronic and paper-based ones, since neither will be complete. Implementing or upgrading a HIS is therefore also a system integration project.

Health statistics are produced from administrative sources, early warning / sentinel systems on notifiable infectious diseases, household surveys and civil registration and vital statistics systems. Data from externally financed surveys that are not integrated into the national survey programme also need to be incorporated into a health information system, as do data drawn from private health facilities. The system may also incorporate financial; health insurance; medical laboratory; logistics and supply; infrastructure; and human resources information. The standards used, for example classifications of diseases, need to be compatible between various types of data sources. Geographical definitions also need to be aligned. Health districts often do not coincide with the regional or provincial boundaries that are used to report survey results because health districts are often designed to reflect the catchment area (current or historic) of a hospital or other health facility. A GIS is often used to link locations to geographical classifications. WHO identifies the scope of the system:

'Country health information systems include a range of population-based and health facility-based data sources. The main population-based sources of health information are census, household surveys and (sample) vital registration systems. The main health facility-related data sources are public health surveillance, health services data (also sometimes referred to as health management information system or routine health information system) and health system monitoring data (e.g. human resources, health infrastructure, financing). Lastly, national health accounts can provide a comprehensive picture of health financing.([57])'

In administrative terms, the Ministry of Health, a related agency or local authorities usually collect administrative data, while survey statistics are usually the responsibility of the NSI. Effective communication and a clear and agreed division of responsibilities between the organisations may require a formal coordination agreement. The minimum aim is to publish a single set of data on each topic, then to ensure that data from different sources are published using the same standards and classifications, so that they are comparable at the national level. Achieving this level of commonality needs to account for changing health issues and standards.

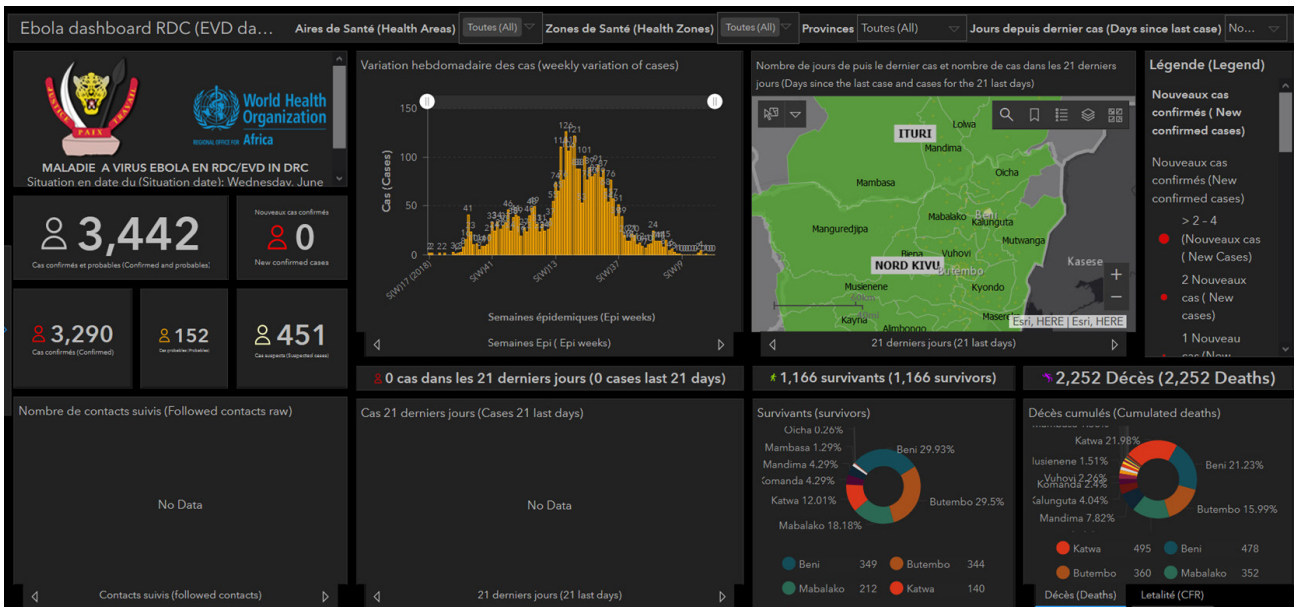
The information required for health facility and sector management is more detailed and more frequent than that required for official statistics. To take an extreme example, during an epidemic, near-real time information on medical supplies, hospital capacity and personnel availability is essential in core facilities, while, during the 2020 COVID-19 pandemic, at least some low income developing countries managed to produce daily data bulletins. Similarly, the WHO has produced a GIS dashboard based on daily case data from the 2018-2020 Ebola outbreak in Democratic Republic of the Congo, as shown in Figure V2.5.1.

The statistics derived from a health information system needs to present information from different sources consistently. Information needs to be available at national or at area level – the locality or area needs to be clearly defined by administrative boundaries, health districts or both. Data should be as up to date as users reasonably require. The need for consistency and to communicate with international organisations and partners means that the statistics presented must be compatible with international standards.

The resources and coordination required to construct or renew a health information system are such that any development action should be included in a National Strategy for the Development of Statistics in order to ensure political support, develop common goals across institutions and ensure professional commitment. Staff at all levels will need to be trained to understand and use the system; a permanent training mechanism is likely to be needed.

([57]) World Health Organization Health information systems http://www.who.int/healthinfo/systems/en/

Figure V2.5.1 Health Information System derived dashboard for Ebola outbreak, Democratic Republic of the Congo, 2020



The World Health Organisation's website proposes a range of resources to build and maintain the non-IT elements of a health information system, as well as a common monitoring and evaluation framework:

- Classification and indicators
- Data collection and measurement
- Data quality and analysis
- Analytical and statistical reports
- Country monitoring and evaluation
- Monitoring universal health coverage

V2.5.2.5 HEALTH INDICATORS AND THE SDGS

Health indicators provide the means to observe and analyse health status at national and local level; to manage health facilities and the health sector as a whole; and to inform the public. Most are derived from health sector statistics. Their coverage, whether from an integrated national health information system, as discussed in the previous section or otherwise, should include:

- Accessibility: such as distance to health facility
- Availability: ratios of health & social facilities and doctors to population; ratios of doctors and other health professional to hospital beds
- Coverage: vaccination, attended births
- Health status: morbidity and mortality rates

The purpose of the Sustainable Development Goals health indicators is to provide internationally comparable data to measure progress towards the 2030 Agenda for Sustainable Development. Data, definitions, methodologies and sources on the SDG indicators can be found at the Sustainable Development Goals indicators website. This was developed by the Inter-Agency and Expert Group on SDG indicators (IAEG-SDGs) and coordinated by the United Nations Statistics Division.

As with other SDG indicators, data on the global website may not match national data on the same indicators. This situation can arise for a variety of reasons. These include delays in transmitting data and metadata; non-acceptance of the survey methodology by the global agency; differences in indicator definition and methodology; and adjustments made by global agencies in the interest of comparability. In this situation, conflicting viewpoints often arise. It is usually necessary to analyse the difference in each indicator on a case by case basis. In some situations, there is no resolution, since the country can make a good case that its own indicator definition better represents the evolution in the SDG target. At the same time, the global agency is required to ensure comparability between countries.

A good presentation of child health statistics in the context of these indicators can be found in the presentation of the late Hans Rosling to the 2010 TEDxChange conference – for link, see 'To find out more'. This illustrates both the use of comparable international indicators and the potential conflicts between national survey results and international comparability.

The following box presents the SDG health-related goals, targets and indicators, together with some surveys that potentially can be used as data sources. This table is based on an initial analysis performed in 2006, updated to reflect recent developments in the methodology and scope of these surveys. The paper from which this overview is drawn aimed to illustrate the importance of sample survey data.

Box V2.5.2: Health-related SDGs, targets, indicators and survey data sources

	IS/ LSMS	DHS	MICS	PC
Goal 3: Ensure healthy lives and promote well-being for all at all ages				
Target 3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births				
3.1.1 Maternal mortality ratio	◉	●	●	●
3.1.2 Proportion of births attended by skilled health personnel	○	●	●	○
Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births				
3.2.1 Under-five mortality rate	◉	●	●	●
3.2.2 Neonatal mortality rate	◉	●	●	●
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases				
3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	○	◉	○	○
3.3.2 Tuberculosis incidence per 1,000 population	◉	○	○	○
3.3.3 Malaria incidence per 1,000 population	◉	◉	○	◉
3.3.4 Hepatitis B incidence per 1,000 population	○	○	○	◉
3.3.5 Number of people requiring interventions against neglected tropical diseases	◉	○	○	◉
Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being				
3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	◉	◉	○	○
3.4.2 Suicide mortality rate	○	○	○	○
Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol				
3.5.1 3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	○	○	○	○
3.5.2 Alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol	○	◉	○	○
Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents				
3.6.1 Death rate due to road traffic injuries	○	○	○	○
Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes				
3.7.1 Proportion of women of reproductive age who have their need for family planning satisfied with modern methods	○	●	●	○
3.7.2 Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group	◉	●	●	●
Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all				
3.8.1 Coverage of essential health services	◉	●	●	●
3.8.2 Proportion of population with large household expenditures on health as a share of total household expenditure or income	○	○	○	○
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination				
3.9.1 Mortality rate attributed to household and ambient air pollution	○	◉	○	○
3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene	○	◉	○	○
3.9.3 Mortality rate attributed to unintentional poisoning	○	○	○	○
Target 3.a: Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate				
3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older	○	◉	◉ (1)	○

Target 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all				
3.b.1 Proportion of the target population covered by all vaccines included in their national programme	◉	●	●	○
3.b.2 Total net official development assistance to medical research and basic health sectors	○	○	●	○
3.b.3 Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	○	○	○	○
Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States				
3.c.1 Health worker density and distribution	◉	○	○	○
Target 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks				
3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	◉	○	○	○
3.d.2 Percentage of bloodstream infections due to selected antimicrobial-resistant organisms	○	○	○	○

Key:
● Indicator can be measured with this survey
◉ Indicator can be measured with this survey but changes to methodology may be required
○ Indicator would not normally be measured with this survey

IS/LSMS Integrated Survey / Living Standards Measurement Study (World Bank)
DHS Demographic and Health Survey (USAID) – includes AIDS Indicator Survey
MICS Multiple Indicators Cluster Survey (UNICEF)
PC Population and Housing Census

Sources: Intersecretariat working group on household surveys: Mapping of SDG global indicators to household sample surveys
'An Accelerated Data Program for Africa Building on the Marrakech Action Plan for Statistics' by Dupriez and Fantom

([1]) MICS6 covers 'Number of women age 15-49 years who smoked cigarettes or used smoked or smokeless tobacco products at any time during the last one month'. Source: MICS Indicators: Numerators and Denominators, UNICEF

V2.5.2.6 EXPENDITURE ON HEALTH: SYSTEM OF HEALTH ACCOUNTS

The purpose of the System of Health Accounts (SHA) is to analyse the adequacy of resource levels for health care and the way that those resources are used in order to answer questions such as:

- What are the main drivers accounting for health expenditure growth?
- How are changes in the structure of health spending and performance of health systems related?
- What factors explain the observed differences between countries?
- What are the main structural differences in health spending between countries?

The core methodological manual is 'A System of Health Accounts 2011' (SHA 2011), developed by OECD, Eurostat and WHO, which revises and unifies earlier approaches. This defines the function and purposes of the SHA as follows:

'Health accounts provide a systematic description of the financial flows related to the consumption of health care goods and services. Their intent is to describe a health system from an expenditure perspective. But as more countries implement and institutionalise health accounts, there are increased expectations from analysts, policy makers and the general public alike for the more sophisticated information that can be gained through the greater volume of health expenditure data now available. Health accounts are increasingly expected to provide inputs (along with other statistical information) into improved analytical tools to monitor and assess health system performance.'

SHA 2011 provides a standard for classifying health expenditures according to the three axes of consumption, provision and financing. It gives guidance and methodological support in compiling health accounts. More specifically, the purposes of the System of Health Accounts 2011 are:

- to provide a framework of the main aggregates relevant to international comparisons of health expenditures and health systems analysis
- to provide a tool, expandable by individual countries, which can produce useful data in the monitoring and analysis of the health system
- to define internationally harmonised boundaries of health care for tracking expenditure on consumption

In order to pursue these purposes, SHA 2011 provides the basis for collecting, cataloguing and estimating all the monetary flows related to health care expenditure.

Figure V2.5.2, taken from SHA 2011, links health system functions, the three dimensions or 'axes' of the health system accounts, the instrumental objectives and the system's ultimate objectives.

The SHA proposes three core classifications covering the dimensions of Consumption (goods and services), Provision (producers of goods and services) and Financing (who pays). These are:

- Health care functions (HC)
- Health care providers (HP)
- Financing schemes (HF)

Other classifications that together compose the International Classification for Health Accounts (ICHA):

- Revenues of health care financing schemes (FS)
- Factors of health care provision (FP)

The System of Health Accounts establishes a basis for health statistics reporting that is compatible with other economic and social statistics, in particular the System of National Accounts (SNA), for which see chapter on national accounts.

Some further links are also possible between the health accounts and other data sources such as:

- beneficiaries characteristics: age, gender, disease, socioeconomic characteristic or region
- human resources in health care using ISCO 2008
- health care products

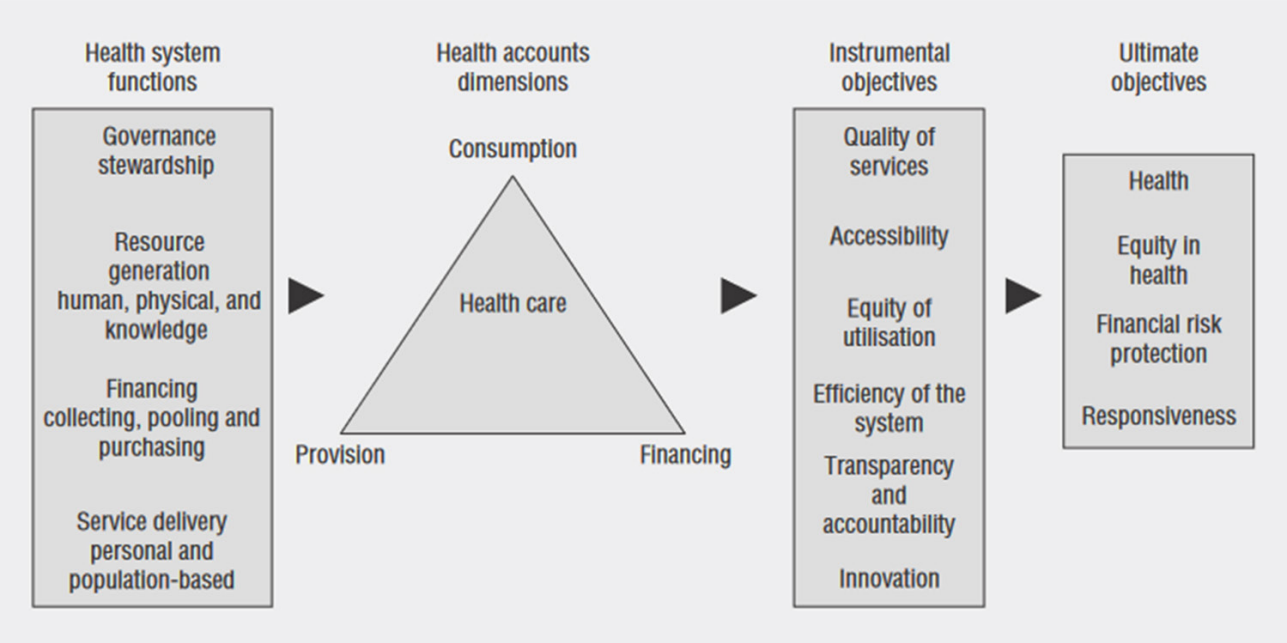
This system supports analysis of funding flows by disease and by intervention clusters. Eurostat's main health statistics datasets do not cross these data sources with the health accounts. The OECD provides some data on expenditure by disease, age and gender under the System of Health Accounts (SHA) Framework[58].

The World Health Organisation health accounts website also provides health accounts production and analysis tools; training materials; a Global Health Expenditure Database (GLED); and a documentation centre that covers global and regional reports on health expenditure; and national health accounts reports.

As shown in the case study in the following box, implementing a system of health accounts in Malawi, a low income country, required the analysis of health statistics from all sources and demonstrates the difficulties in obtaining and comparing data.

([58]) See 'To find out more ' However, these data cover a small number of countries and for not recent years.

Figure V2.5.2: Linkage between the frameworks of health systems and health accounts



Source: System of Health Accounts (SHA), OECD / Eurostat / WHO, 2011

Box V2.5.3: Successive reports on health financing in Malawi from National Health Accounts

These successive reports summarise Malawi national health accounts exercises, covering respectively financial years 1998/99 to 2005/06; 2012/2013–2014/2015; and 2015/16 to 2017/18. Each describes the flow of funds and their uses in the health system and derives policy recommendations relevant to developing health financing policy and successive strategic plans. Methodology was based on 'A System of Health Accounts 2011' and predecessor documents. Household data was drawn from LSMS integrated household surveys. Health facility data was drawn from a questionnaire rather than directly from an integrated health information system but was prepared using the National Health Accounts Production Tool available from the WHO website.

The studies describe the data sources used in the National Health Accounts exercises:

- The data sources were similar across all three reports, including public sector institutions providing and receiving health funds and providing health care goods and services. In the 2020 report, the questionnaire was sent to '146 nongovernmental organizations (NGOs); 130 large employers; 28 district councils; 27 donors; 10 ministries, departments, and agencies; and 6 health insurance companies.' These last provided data on employer and employees premium contributions.
- Employers and employees in Malawi contribute to health expenditures through provision of on-site health facilities; reimbursements to employees; employer/employee contribution to an outside health insurance scheme; and in-house health insurance scheme.
- The 2010 study surveyed selected providers by different levels of care, ownership and region were carried out to collect information on utilization of services. Surveys covered HIV/AIDS, reproductive health and child health (children age 0-5 years) and expenditure figures by source of finance/financing agent and function. The 2020 report utilised the 2016/17 integrated household survey and estimates from the Institute for Health Metrics and Evaluation, themselves based on the 2010 'Malawi National STEPS Survey for Chronic Non-Communicable Diseases and their Risk Factors'.
- Household out-of-pocket health expenditure was derived for each report on recent national integrated household surveys. For the 2020 report, this survey was carried out in 2016/17.
- A 'People Living with HIV/AIDS' (PLWHA) survey was conducted for the 2010 study, targeting confirmed HIV positive persons in Malawi age 15 years and older at the time of the survey. The major types of information obtained included utilization of health care services, household assets and expenditures for inpatient and outpatient care. Location sampling was used to identify the target population; those identified for the survey were: (a) PLWHA receiving anti-retroviral drugs in health centres and hospitals; and PLWHA receiving prevention of mother-to-child transmission treatment. A sample of 900 individuals throughout the country was selected. The 2016 study re-interviewed the National AIDS Commission. The 2020 study referenced the 2016 World Bank 'Policy Brief: Improving the Allocative and Technical Efficiency of Malawi's HIV Response',

The 2010 study noted that data sources often provided conflicting data, requiring value judgments to be made. The response rate from donors and NGOs was poor and other sources were used to estimate their spending. Essential data on outpatient visits and inpatient admissions data by disease and facility type were unavailable in the national Health Management Information System (HMIS). Indicators such as bed occupancy rates, average length of stay, bed turnover rates, utilization by age, gender, type of facility-central hospital, district hospital, health centres are not reported to HMIS. It did not contain data by private-for-profit health sector.

The 2010 study also noted that funding and health services delivery were integrated at health facility level, making it difficult for providers to disaggregate expenditures by source, function (curative, rehabilitative, ancillary services etc.) and disease type, e.g. HIV/AIDS. Most for-profit facilities were unwilling to provide expenditure and revenue data. Data on reported cause of morbidity or care seeking, number of bed days, discharge etc. were available in patient registers but were in a poor state.

Policy prescriptions in each of the reports included a recommendation to increase spending on preventative measures, as being more cost-effective.

Sources:

"Health financing in Malawi: Evidence from National Health Accounts" by E. Zere, O. Walker, J. Kirigia, F. Zawaira, F. Magombo and E. Kataika (BMC International Health and Human Rights 2010, 10:27)

Malawi National Health Accounts Report 2012/2013–2014/2015, Malawi Ministry of Health, 2016

Malawi National Health Accounts, A Summary Brief of Fiscal Years 2015/16, 2016/17, and 2017/18, Malawi Ministry of Health, 2020

V2.5.3. Sources of data and metadata

The World Health Organisation is the primary global source for comparable health data. The website includes the Global Health Observatory (GHO), the statistics and indicators platform that provides data by country and by indicator. Highlighted issues are health coverage, health emergency statistics and data on health and well-being. In addition to World Health Statistics Report, the website provides SDG indicator values and a visual dashboard on progress. World Health Survey data are available. WHO data are compiled to ensure data comparability, so that its statistics might not replicate data from national sources. There may also be delays in transmitting and compiling new data received from national sources.

The organisations discussed above regarding household surveys provide libraries of the country surveys undertaken using their methodologies. Demographic and Health Surveys and related surveys cover most developing and transition countries. This is a primary resource for country level health data. The UNICEF website provides statistics from the Multi-Indicator Cluster Surveys (MICS) and other data related to child and maternal health. In addition to the World Bank general databank on health, nutrition and pollution statistics, survey reports and microdata from the Living Standards Measurement Study (LSMS) are also available. The UN Statistics Division provides datasets from population censuses.

The Health Metrics Network provides the Global Health Data Exchange, which is a source of global health data and in particular a repository of household surveys.

Current values for comparable SDG indicators can be found at the UN Statistics Sustainable Development Goals indicators website.

Eurostat's health statistics provide a guide to the types of data and indicators that can be made available. Eurostat provides health care expenditure statistics as well as on non-monetary data on health care employment and physical and technical resources. The box below summarises Eurostat's main health statistics datasets and publications as a guide as to what can be made available.

The European Centre for Disease Control (ECDC) is an EU agency aimed at strengthening Europe's defences against infectious diseases. The core functions cover a wide spectrum of activities: surveillance, epidemic intelligence, response, scientific advice, microbiology, preparedness, public health training, international relations, health communication, and the scientific journal Eurosurveillance.

ECDC collects, analyses and disseminates surveillance data on 56 communicable diseases and related special health issues. Surveillance data collected at the European level are predominantly case-based and comprise demographic, clinical, epidemiological and laboratory information. Indicator-based surveillance consists of systematic collection, analysis, interpretation and dissemination of structured information ('indicators') for public health action. ECDC's goal is for infectious disease surveillance in EU/EEA to provide relevant data for the effective prevention and control of infectious diseases while minimising the burden on the Member States.

The European Cancer Information System (ECIS), operated by the Joint Research Centre (JRC), provides the latest information on indicators that quantify cancer burden across Europe. It permits the exploration of geographical patterns and temporal trends of incidence, mortality and survival data across Europe for the major cancer entities. Its purpose is to support research as well as public-health decision-making in the field of cancer and to serve as a point of reference and information for European citizens. Incidence and mortality historical data and current estimates are provided, as are estimated indicators of survival, by cancer sites and sex, across European countries and regions.

The OECD health statistics section of OECD.Stat covers:

- Health expenditure and financing
- Health Status
- Non-Medical Determinants of Health
- Health Care Resources
- Health Workforce Migration
- Health Care Utilisation
- Health Care Quality Indicators
- Pharmaceutical Market
- Long-Term Care Resources and Utilisation
- Social Protection
- Demographic References
- Economic References

Its Health at a Glance publication compares key indicators for population health and health system performance across OECD members, candidate and partner countries. It highlights how countries differ in terms of the health status and health-seeking behaviour of their citizens; access to and quality of health care; and the resources available for health.

Box V2.5.4: Eurostat health statistics

The objective of the Eurostat health statistics is to ensure data of high quality and comparability for evidence based policy decisions at EU level. The statistics on health status; health determinants; health care; disability; causes of death; and health and safety at work are presented as datasets and pre-defined data tables.

The 'Statistics Explained' article 'Healthcare expenditure statistics' presents data according to the three core classifications used in the System of Health Accounts: who pays (financing agents); for which goods and services (functions of health); and who produces these services (providers).

Eurostat health statistics have four main sources:

- The joint OECD-Eurostat-WHO Health Accounts (SHA) Data Collection provides annual data on health care expenditure, compiled according to the System of Health Accounts (SHA) methodology
- The joint OECD-Eurostat-WHO-Europe data collection on Non-Monetary Health Care Statistics provides annual data on health care resources and most of the data on health care activities (hospital discharges and length of stay, medical procedures, selected preventive services and consultations)
- Annual Causes of Death statistics provide information on all deaths in the population relating to an underlying cause of death. Therefore, the risks associated with death from a range of specific diseases and other causes can be assessed.
- Annual Accidents at work statistics provide data on occupational accidents that result in at least four calendar days of absence from work, including fatal accidents.
- Annual pilot data collection on occupational diseases provide data on recognised cases of occupational diseases. The data reflect not only the occurrence of such diseases, but also the way in which the concept of occupational disease has been integrated into the national social security systems.
- EU Statistics on Income and Living Conditions (EU-SILC) provides annual data on unmet needs for medical and dental care
- European Health Interview Survey (EHIS) provides data every five years for some health care activities: self-reported use of hospital services, consultations, preventive services and use of medicines. Survey rounds were carried out in 2014 and 2019/2020.

V2.5.4. Analysing data quality and identifying problems

Although health statistics may be of better quality than those for other sectors in developing countries, this is because the immediate availability of good quality health statistics for urgent decision can directly be a question of life and death. Data quality depends, among other issues, on the coverage, the timeliness of the published figures and their compliance with the agreed methodology (see section on statistical quality). For data comparison and cross-country analysis, international standards and classifications should be respected.

The potential problems with health surveys are the same as social surveys generally. The most common problem is a lack of timeliness; the data takes too long to collect, process and publish, so that the data are no longer current when it finally appears. This is often the result of a poorly planned survey. Common problems include:

- Logistics problems: slow sending out and return of questionnaires
- Questionnaire design gives rise to coding problems
- Data entry and validation is not matched to questionnaire arrival
- Limited or absent statistical analysis
- Insufficient budget exists to disseminate the results

A badly drawn sample often is coupled with an excessive sample size at province / regional level and for target groups, resulting in too high survey costs. The number of people who are able to design an efficient and effective sample is often limited in developing countries. One good indicator of a well-designed sample is a clear methodological text.

In administrative health statistics in developing countries, problems may include some or all of the following:

- Non-adoption of current international definitions and classifications
- Incomplete returns from health facilities, especially private companies and in particular concerning notifiable illnesses
- Insufficient process management to ensure timely and full data coverage
- Key indicators not calculated
- Limited and late publication of basic tables without analysis
- 'Competitive' publications of different data for the same series

The fundamental problems are usually:

- Lack of capacity to manage data collection and processing effectively
- Lack of capacity to identify, prepare, present and analyse key indicators
- Lack of formal coordination between the health and statistics institutes

Coverage of the private health sector, such as clinics and pharmacies, is also of considerable importance for the completeness and information value of the statistics. This requires an effort to explain the need for and the use of the statistics, and the safeguards put in place to protect respondents. Achieving a good quality response from the sector will also usually require the existence of effective sanctions for non-response.

The difficulties in integrating data from different sources into a health information system should not be minimised. A key quality issue is that the organisation responsible for its management, whether the NSI or the health ministry or agency, at least implements basic credibility and consistency checks on the data between different sources. Classifications, methods and coverage should be compatible between the organisations that collect these different data or else the means to pass from one classification to another should be developed.

Externally financed surveys that are not integrated into the national programme complicate the situation further (even though they may use NSI resources to carry out the survey). The epidemiological and/or social justification for such surveys may mean that they cover only a part of the country. The geographical units used may not match regional / provincial boundaries and there may be little or no attempt to improve statistical capacity. On the other hand, the resulting data may be more accurate and timely than official figures. From the perspective of the organisation carrying out the survey – especially if the funds are charitable donations – the survey can only be carried out cost-effectively if it focuses on the target region. Their responsibility is to produce an analysis to address their mandated priority issues and not address general health statistics issues for the nation. Such organisations may make efforts to coordinate with Ministry of Health and NSI officials but may not be prepared to make a costly effort to do so. At worst, this lack of coordination can result in non-comparable data being published outside of the country concerned and not being readily accessible for purposes other than the direct objectives of the survey.

V2.5.5. Improving sector statistics

The key sector objective is to produce a consistent set of health indicators that can be used to monitor a health system and so plan and implement a sector health strategy at national and local level. This data are ideally obtained through the development of an integrated health information system and analysed using national health accounts. The usual major difficulty is in coordinating the various health statistics producers and users around a common system that uses international statistical standards and classifications and common geographical boundaries. This approach can provide the framework for coordinating and improving surveys, making administrative data more useful and integrating data from censuses and improved vital statistics systems. A health information system can be viewed as a continual process of identifying information requirements and developing and integrating the necessary statistics.

Interventions should identify, address and document critical points in the data chain, from data collection and processing to the publication of statistics.

An efficient use of resources requires that data collection exercises are not duplicated. It is therefore vital to establish a close cooperation between the institutions active in the sector. Whether the NSI should publish statistics based on the administrative data or the health administration should publish the data themselves depends on the structure of the national statistical system. A formal service-level agreement or memorandum of understanding, especially for statistical activities not covered by legislation, is often necessary to align the interests of the two services.

Given the needs for effective inter-ministerial coordination, there must be a clear demand and support for improved health statistics at decision-maker level. The data should reflect provincial / regional boundaries, especially if decentralisation of decision making has brought about increased demand for health statistics. Such commitments should be identified in any National Strategy for Development of Statistics (NSDS) and resources planned accordingly.

Sufficient capacity to produce and disseminate the improved statistics requires a structure within the Ministry of Health that is responsible for statistics and planning, in addition to a means of effective communication between the health and statistics authorities. An appropriate level and ability of staff and training are also required.

Where population and health facility data are maintained on geographical information systems, it is essential that they remain up to date. Different ministries may have different GISs, perhaps provided by different donors, so that data communications need to be established.

The key issue in developing a programme of improvement will be to involve the users in determining the key indicators and thus the key data to be collected and developed. At the same time, international demands for core data and indicators according to standard classifications must be met, in particular demands for data for the SDG indicators. This prioritisation exercise should produce a medium term plan for developing sector statistics, perhaps as part of an NSDS.

At a basic level, one strategy is to focus on achieving progressive improvements in a core administrative statistics publication, such as a yearbook. This approach would focus on improving data collection and thus the number of facilities reported on, as well as improving timeliness, data compilation and tabulation. This procedure should be planned to improve the identification of location, so that provincial / regional statistics can be published. Basic indicators and graphs are presented in a summary document.

As with any social survey, some basic requirements need to be respected in improving health survey statistics:

- The survey outputs – the tables and graphs of results – need to be discussed and defined with stakeholders at the start of the process
- The sample needs to be defined correctly to enable the results to be statistically valid, especially at sub-national level or for specific target groups. A risk exists in many countries of defining an excessively large and costly sample size that nevertheless may not deliver statistically valid results at sub-national level or for target groups. Nevertheless, social distinctions and target groups often need to be taken into account in designing the sample
- The international classifications described above should be respected

- Localised results should be planned to the extent that these can be realised by an affordable and feasible survey plan. Preferably, results should be presented according to regional / provincial government boundaries
- The survey plan, processing and associated logistics need to be designed, costed and presented as part of the survey preparation
- A training plan should accompany the survey plan
- Budget for dissemination of results needs to be included in the survey plan
- Responsibility for release of the results should be clearly defined to lie with the agency responsible for the survey, rather than at a political level

WHO provides technical assistance packages, as well as integrated measurement tools, including disease specific modules, to set standards, monitor and analyse information. Primary funding of Demographic and Health Surveys (DHS) has been from USAID.

The Global Fund to fight AIDS, Tuberculosis and Malaria is a partnership with governments, civil society, technical agencies, the private sector and individuals affected by disease designed to accelerate the end of AIDS, tuberculosis, malaria and COVID-19 as epidemics. As part of its strategy to build resilient and sustainable systems for health, the Global Fund supports strengthening data systems and data use; and improving data tracking within health systems.

To find out more…

Core classifications, initiatives and activities

- WHO: International Classification of Diseases (ICD-11)
- WHO: International Health Regulations (IHR)
- WHO: World Health Survey Plus
- Demographic and Health Surveys (DHS)
- UNICEF: Multiple Indicator Cluster Surveys (MICS)
- World Bank: Living Standards Measurement Study (LSMS)
- WHO: Health workforce
- UN Statistics Division: Sustainable Development Goals indicators
- Global Fund to fight AIDS, Tuberculosis and Malaria
- WHO: Health accounts
- OECD System of Health Accounts (SHA) Framework
- OECD Health at a Glance

Further strategies and methodologies

- UN Statistics Division: Population and housing census
- Inter-secretariat Working Group on Household Surveys (ISWGHS)
- Pan American Regional Observatory of Human Resources in Health
- WHO: Ebola in the Democratic Republic of the Congo 2018-2020 and associated Ebola GIS dashboard RDC
- Hans Rosling: Reducing child mortality – a moral and environmental imperative (TEDxChange presentation 2010)
- Health financing in Malawi: Evidence from National Health Accounts (Eyob Zere, Oladapo Walker, Joses Kirigia, Felicitas Zawaira, Francis Magombo & Edward Kataika; 2010)
- Malawi Ministry of Health: Malawi National Health Accounts – A Summary Brief of Fiscal Years 2015/16, 2016/17 and 2017/18 (2020)
- Eurostat: Healthcare Expenditure Statistics (Statistics Explained online article)

Data sources

- Eurostat: Health statistics
- European Centre for disease control (ECDC)
- European Cancer Information System (ECIS)
- OECD.Stat health database
- Euro-Peristat – statistics on perinatal health
- WHO: World Health Data Platform
- Demographic and Health Surveys (DHS)
- UNICEF: Child statistics
- UNICEF: Multiple Indicator Cluster Surveys (MICS) results
- World Bank: Living Standards Measurement Study (LSMS) data
- World Bank: Health, Nutrition and Population Statistics DataBank
- UN Statistics Division: Population Censuses' Datasets
- Institute for Health Metrics and Evaluation (IHME): Global Health Data Exchange (GHDx)
- UN Statistics Division: Sustainable Development Goals indicators database

V2.6 Labour market statistics

V2.6. Labour market statistics

The chapter in brief

This chapter aims to guide users in understanding and using labour statistics, including the use of statistics in labour market monitoring and policy development.

Labour statistics are essential to analyse not only the labour market in strict terms, but also a number of related socio-economic topics and issues in a given context: at local or country level, at regional level or worldwide. For example, when the unemployment rate in a country is structurally high or tends to raise, what are the related implications at the socio-economic level? More people are in need of social transfers to live or survive; more people tend to migrate elsewhere; more people cannot pay for education or health care; more efforts are requested from policy makers to sustain economic activities and reduce social conflicts; and so on.

Given its specific, multiple and intersected importance, labour statistics assume a place similar to that of other key statistical sectors for policy and decision making, such as demography, health, economy and finance, education and science.

Labour statistics are also fundamental for international development strategies and policies, especially those linked to economic growth and poverty reduction. This is the reason why they have assumed a crucial place and a growing role in the frame of sustainable development statistics at the global level, both in the Sustainable Development Goals (SDGs) and the United Nations Agenda 2030, and previously the Millennium Development Goals (MDGs).

The chapter aims to explain labour statistics in a simple and – hopefully – exhaustive way. The first section is dedicated to the policy applications of the labour statistics, while the second section goes through concepts and definitions, including classifications. Data sources (e.g. labour force survey, censuses) are described in the third section. The fourth is dedicated to main data quality issues, while the final section provides advice on how to improve the labour statistics. At the end of the chapter, readers can find a detailed list of references, including methodologies, data sources, research reports and development cooperation initiatives, international recommendations, resolutions and guidelines, specific links to the SDGs and the main source of labour statistics (i.e. labour force survey).

V2.6.1. What this data is used for

Labour market statistics (or simply 'labour statistics') are fundamental to comprehend, analyse and manage a number of specific work-related issues and other connected socio-economic matters.

'Employment' represents one of the core topics of the labour market. In this regard, labour market statistics are used not only to measure the number of employed persons at a given level (country, region, etc.), but also a number of key characteristics of this aggregate (e.g. sex, age, sector of activity, type of work, hours worked, work conflicts). When policy makers are called to promote economic growth, they are fundamentally called to foster employment or contribute to create employment opportunities. Employment, together with physical capital or technology, is a key productive factor of economic growth. Employment creation does not mean just creation of jobs or job opportunities, but also ensuring some basic quality requirements such as gender equality, a minimum wage, a set of rights at work. Therefore, policy makers need further labour statistics, providing data e.g. on wages and salaries, number of strikes, work inspections, injuries at work…

Moreover, statistics on employment provides only a partial picture – although fundamental - of the labour market situation. Another key aggregate associated with employment is 'Unemployment' that count people that are involuntarily without a job. Policy makers need to understand the reasons why these people remain without a job, despite wishing to work and being actively committed to do so. This is the reason why labour market policies aimed at promoting or increasing employment must act also on unemployment. Users also analyse the so-called 'Economically active population' or 'Labour force' which includes both Employment and Unemployment. This picture becomes even broader, because there is a need to analyse the specific issues of unemployment. Labour market statistics must provide unemployment data according to relevant characteristics (e.g. sex, age, education level, duration of unemployment). These statistics are essential to guide decision making, providing more specific information on the phenomenon and, accordingly, more knowledge and awareness to face it.

This is not everything. What about people who do not actively participate in the labour market? These are people that – although belonging to the so-called "Working-age population" (normally taken to be the population aged 15 years old and above) are neither in employment nor in unemployment. This component is called 'Not economically active population' or simply 'Persons outside the labour force'. It is composed of various categories of persons that, for different reasons, do not participate in the labour market: these include retired people, disabled people and students, as well as people that do not search for work because they do not need to and/or want to, or are simply discouraged by a long period of unemployment. When dealing with some socio-economic issues, such as reform of pension systems, promotion of youth opportunities, increase of social transfers (just to mention some examples), policy makers need to have a broad picture of the labour market situation. They need to understand how many people do not participate in the labour market and the reasons why. Are there any contingent or structural reasons explaining inactivity? How can people become active if they have been discouraged? This is a further reason why labour market statistics are important, and why they should be more detailed also for 'Persons outside the labour force', providing information on a number of characteristics such as sex, age, education level, reason of inactivity.

Voluntary or physiological reasons only partially explain inactivity. Indeed, some characteristics seem to impede people from being active, although this is not true for all people in the same conditions. For example, some disabled

Box V2.6.1: Employment and 'Decent Work' in the Sustainable Development Goals (SDGs)

With the launch of the 2030 Agenda for Sustainable Development in September 2015, the renewed efforts of the United Nations have been focused on the 17 Sustainable Development Goals (SDGs) and related global indicator framework, as approved by the UN General Assembly in July 2017.

The main SDG related to the labour market is **Goal 8 "*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*"**. Still, this is not the only employment-related goal in the 2030 Agenda. There are other goals that include aspects relevant to employment and labour market issues, like Goal 1 "*End Poverty in all its forms everywhere*", Goal 5 "*Achieve gender equality and empower all women and girls*" and Goal 10 "*Reduce inequality within and among countries*".

Goal 8 is articulated into 10 targets (plus two added targets: 8a and 8b) and 14 related indicators (plus two additional indicators, one for each of 8a and 8b respectively). The most relevant and refined indicators are:

- 8.2.1 – Annual growth rate of real GDP per employed person
- 8.3.1 – Proportion of informal employment in non-agriculture employment, by sex
- 8.5.1 – Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
- 8.5.2 – Unemployment rate by sex, age and persons with disabilities
- 8.6.1 – Proportion of youth (aged 15-24 years) not in employment, education or training
- 8.7.1 – Proportion and number of children aged 5-17 years engaged in child labour, by sex and age
- 8.8.1 – Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status
- 8.8.2 – Level of national compliance with labour rights (freedom of association and collective bargaining)
- 8.b.1 – Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy

The International Labour Organization (ILO) is the custodian agency not only for the above Goal 8 indicators, but also for other relevant SDG indicators related to employment, namely:

- 1.1.1 – Working Poverty Rate (percentage of employed living below 1.90 US$ PPP)
- 1.3.1 – Proportion of population covered by social protection and floors/systems
- 5.5.3 – Female share of employment in managerial positions
- 9.2.2 – Manufacturing employment as proportion of total employment
- 10.4.1 – Labour Income share as percentage of GDP

The ILO ensures monitoring and reporting of the above indicators around the world. It compiles statistics coming from the national statistical offices, verifies data in order to ensure quality and international comparability, makes regional and global estimates, analyses data, reports data and metadata to the United Nations, provides its specific contribution to the SDGs progress reports and supports countries in improving the quality of data to produce the SDGs-related indicators. Coverage is generally ensured from beginning of 2000s until the most recent available year.

To know more:

- International Labour Organization (ILO): *Decent Work and the Sustainable Development Indicators. A guidebook on the Sustainable Development Indicators* (2018)
- International Labour Organization (ILO): *20th International Conference of Labour Statisticians (ICLS), Geneva 10-19 October 2018, Report I – General Report* (2018)
- International Labour Organization (ILO): *Sustainable Development Goals (SDGs) Database* (Website)
- United Nations Statistics Division: *Sustainable Development Goal 8, and SDGs indicator framework updates* (Website)

persons do not participate in the labour market because of physical constraints, while others want to be more active, to be integrated or reinserted in the labour market regardless of their physical constraints. This should compel policy makers to create job opportunities for these people; for example, through training or forms of support to enterprises hiring people with disabilities. For doing that, policy makers need more detailed data and statistics on the topic.

As can be seen from the above, labour market statistics are fundamental for decision making: the more policy applications are to be targeted and effective, the more extensive, detailed and updated labour market statistics should be.

Labour statistics have a wide spectrum of policy applications, going beyond demography and economy, to embrace a number of fields like social life, health, education and many others. Let us make another example: how important is the "Youth Unemployment Rate" (usually assumed as the number of unemployed people aged 15-24 years as a percentage of the labour force of the same age group)? This issue is important, not only to understand why many young that are willing to work remain unemployed because of a lack of opportunities. It is also important because these persons represent a highly sensitive target group; they risk to be excluded not only from economic production but also from society. They are more sensitive to phenomena like forced migration or crime than their peers who enjoy job opportunities. This is the reason why labour statistics are so important and relevant for all societies, regardless of their degree of economic development.

The crucial importance of labour statistics for societies and policy makers is also witnessed by their high relevance in international development strategies and policies. Since the beginning of this century, the United Nations system is committed to the achievement of development goals as defined in the 2030 Agenda and the Sustainable Goals (SDGs) and previously the Millennium Development Goals (MDGs). In this regard, the concepts of 'Employment' and 'Decent Work'[55] assume a preeminent place and role in the whole strategy for development. The following box provides a quick overview and understanding.

V2.6.2. Concepts and definitions

V2.6.2.1. BACKGROUND

At the international level, the International Labour Organization (ILO) promotes standards on various topics of labour market statistics. Standards are defined according to Conventions and Recommendations adopted by the ILO's annual International Labour Conference, and to Resolutions and Guidelines adopted by the International Conference of Labour Statisticians.

The ILO Convention n° 160 provides general guidelines encompassing all areas of basic labour market statistics. It is complemented by several resolutions regarding specific topics, including the statistics of child labour, the measurement of working time, the economically active population, employment, underemployment, employment in the informal sector and classifications. The Resolutions provide information on conceptual frameworks, definitions and methodologies to be used when producing labour market statistics. They are complemented by Guidelines which refer to specific areas.

Numerous statistical variables and indicators are collected in order to give a comprehensive overview of the labour market. The definitions of the main variables, as agreed at the international level, are presented in the following section. Generally, the terminology used is that of the ILO. The ILO plays a key role given its position as a specialised agency of the UN, which includes a specific responsibility for labour market statistics. In addition, a number of other actors are involved in labour market statistics, including Eurostat, OECD, IMF, UNSD and the World Bank. Since a long time, the ILO and other international actors have been working to improve the quality of labour market statistics, through the promotion of international harmonization of concepts and definitions and through technical assistance to improve statistical capacity at national level.

[55] Since a long time, the concept of 'Decent Work' represents a crucial topic in employment promotion. As defined by the International Labour Organization (ILO), decent work "involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men" (see ILO's website page on Decent Work).

Many more indicators than the ones defined in the following section are available at European level. To improve harmonisation of labour market statistics and the related definitions and concepts throughout the European Statistical System, a number of regulations have been adopted and form the legal basis for the labour market statistics in the EU. Generally, the definitions and recommendations of the International Labour Organization are followed.

Eurostat's Labour market statistics website provides methodological information and definitions for EU labour market statistics, as well as references to international methodological recommendations, guidelines, etc. The European Union Labour Force Survey (EU-LFS) website contains detailed information regarding the concepts and definitions, survey methods, organization and comparability of the EU-LFS. Eurostat also maintains a Concepts and Definitions Database (CODED) where, amongst others, concepts and definitions for labour market statistics can be consulted.

V2.6.2.2. CONCEPTS AND DEFINITIONS

The core general concept in labour statistics is Work as productive activity.

The most relevant component of work is Employment, which refers only to work for others, for pay or for profit, excluding other forms of work (such as unpaid trainee work, volunteer work or work for own final use). This distinction is important. Everybody can work, but not everybody are employed (in any form: formal or informal; or any status: independent workers or dependent workers).

Labour statistics do not uniquely focus on work and its main component (i.e. employment). They also provide a broader view of the labour market. In fact, labour represents a "service" in productive activities. As such, it is characterised by two dimensions: supply and demand.

Labour supply statistics (LS) refer to the population that is concretely or potentially involved in the labour market. The starting point is the Working-age Population (WP), namely the population normally assumed to be in of working age (usually 15 years old and above). The part of this population that is actively participating in the labour market is called "Economically Active Population" or "Labour Force (LF)", while the remaining part is defined as "Not Economically Active Population" or "Persons outside the Labour Force". The Labour Force is the sum of Employment (EM) and Unemployment (UN). Unemployment refers to persons who are not in employment, but want to work and are actively committed to search for a job.

On the labour demand side (LD), labour statistics refer to the actors who use the service defined as "labour", namely the employers. Some examples of relevant labour demand statistics are statistics on job vacancies, skills required by job offers and job creation.

Box V2.6.2: Key ILO definitions

According to ILO, "Labour statistics refer to the productive activities of workers, and the labour market deficiencies associated with them. Work comprises any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use, and labour statistics potentially cover all forms of work. This includes for pay or profit for use by others (employment), work not for pay or profit for use by others (unpaid trainee work, volunteer work, and other work activities) and work for own final use (own-use production work)" (ILO 2017).

According to the 19th Resolution of International Conference of Labour Statisticians concerning statistics of work, employment and labour underutilization (ILO 2013):

"Work comprises any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use. (a) Work is defined irrespective of its formal or informal character or the legality of the activity. (b) Work excludes activities that do not involve producing goods or services (e.g. begging and stealing), self-care (e.g. personal grooming and hygiene) and activities that cannot be performed by another person on one's own behalf (e.g. sleeping, learning and activities for own recreation). (c) The concept of work is aligned with the General production boundary as defined in the System of National Accounts 2008 (2008 SNA) and its concept of economic unit that distinguishes between: (i) market units (i.e. corporations, quasi-corporations and household unincorporated market enterprises; (ii) non-market units (i.e. government and non-profit institutions serving households); and (iii) households that produce goods or services for own final use. (d) Work can be performed in any kind of economic unit."

"The various forms of work are measured with respect to a short reference period. The appropriate reference period for each form is based on the intensity of participation and working time arrangements: (a) seven days or one week, for employment and unpaid trainee work; (b) four weeks or one calendar month, for own-use production of goods, unpaid trainee work and volunteer work; (c) one or more 24-hour days within a seven-day or one-week period, for own-use provision of services."

"Measures of labour underutilization include, but may not be restricted to: (a) time-related underemployment, when the working time of persons in employment is insufficient in relation to alternative employment situations in which they are willing and available to engage; (b) unemployment, reflecting an active job search by persons not in employment who are available for this form of work; (c) potential labour force, referring to persons not in employment who express an interest in this form of work but for whom existing conditions limit their active job search and/or their availability."

Labour statistics are not merely limited to the conceptual pillars of the labour market. Indeed, they cover a wide range of domains, including formal or informal sector, wages and salaries, working time, rights of workers (e.g. membership in trade unions), conditions at work (e.g. occupational injuries) and labour productivity.

Below is a selection of the main labour statistics, based on recognised international standards, by topic:

Labour Force, Employment and Unemployment

The Economically active population (or Labour force) encompasses persons employed and unemployed. People are classified as employed or unemployed according to the definitions of the ILO (see below). When measured for a short period of time, e.g. a day or a week, it refers to the labour force or the current economically active population. When measured for a long period of time, such as a year, it relates to the usually active population. The Activity rate is the share of the total population that is economically active, i.e. the labour force as a percentage of the population of working age (in the EU, this is defined as the population aged 15-64 years).

Employed persons are those who, during a short reference period, did any activity for pay or profit, or were not working but had jobs from which they were temporarily absent or engaged in different working-time arrangements. Pay includes cash payments or payment in kind (i.e. payment in goods or services rather than money), whether payment was received in the week the work was done or not. Anyone who receives a wage for on-the-job training which involves production of goods or services is also considered as being in employment. Self-employed and family workers are also included. The Employment rate is calculated as the share of persons in employment in the total population; the employment rate is frequently broken down by sex and age groups.

- ***Unemployment*** includes all persons of working age who – during a specified recent period – "***were not in employment, carried out activities to seek employment and were currently available to take up employment (given a job opportunity)"***. The ***Unemployment rate*** is the number of people unemployed as a percentage of the labour force. The ***Youth unemployment rate*** expresses the percentage of unemployed persons aged 15-24 years in the labour force in this age group. The ***Long-term unemployment rate*** is the number of persons unemployed for 12 months or longer as a percentage of the labour force.
- ***Labour underutilization*** is composed of all those persons in working age whose willingness to be employed is not matched by the opportunities offered by the labour market.

Labour conditions

Labour conditions cover issues such as wages, working time, work organization, maternity protection and arrangements to adapt working life to the demands of life outside work. It can be defined as the legislated conditions that shape workers' experience at work. Numerous conventions regarding working time and work organization have been adopted, and a number of associated international standards exist. A key international policy initiative aimed at improving labour conditions is the ILO's Decent Work Agenda.

According to the ILO methodology, definitions of main indicators are:

- **Usual hours worked** are the modal value of the actual hours worked per week over a long reference period, excluding weeks when an absence from work occurs (e.g. holidays, leaves, strikes ...).
- **Actual hours worked** in the reference week are the hours the person spent in work activities during the reference week. Work activities should include production activities, ancillary activities, short pauses and education and training, which are necessary for successfully carrying out either the production or ancillary activities.

Actual hours worked should exclude travel time between home and the place of work, the main meal breaks, absences from work within the working period for personal reasons and education and training hours which are not necessary for carrying out the production or ancillary activities.

Health and Safety at Work

Health and safety at work is a cross-disciplinary area. Since 1950, the ILO and the World Health Organization (WHO) have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950. The definition reads:

> *"Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job.".*

Current international statistical guidelines on occupational injuries are found in the Resolution concerning "Statistics on occupational injuries resulting from accidents at work" (adopted by the ILO's 16th International Conference of Labour Statisticians (ICLS), 1998), which adopted much of the European Commission's European Statistics on Accidents at Work (ESAW) methodology. The ICLS Resolution and the ESAW methodology provide terms and definitions for statistics on occupational injuries.

According to the ILO methodology, definitions of main indicators are:

- **Occupational accident:** an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death; as occupational accidents are to be considered travel, transport or road traffic accidents in which workers are injured and which arise out of or in the course of work, i.e. while engaged in an economic activity, or at work, or carrying on the business of the employer;
- **Occupational injury:** any personal injury, disease or death resulting from an occupational accident; an occupational injury is therefore distinct from an occupational disease, which is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity.

Strikes and Lockouts

Official statistics related to strikes and lockouts data are provided following the guidelines included in the Resolution concerning statistics of strikes, lockouts and other actions due to labour disputes, adopted by the 15th International Conference of Labour Statisticians in 1993, which gives the following definitions:

- A **Strike** is a temporary work stoppage effected by one or more groups of workers with a view to enforcing or resisting demands or expressing grievances, or supporting other workers in their demands or grievances.
- A **Lockout** is a total or partial temporary closure of one or more places of employment, or the hindering of the normal work activities of employees, by one or more employers with a view to enforcing or resisting demands or expressing grievances, or supporting other employers in their demands or grievances.
- **Workers involved in a strike:** workers directly involved in a strike are those who participated directly by stopping work. Workers indirectly involved in a strike are those employees of the establishments involved, or self-employed workers in the group involved, who did not participate directly by stopping work but who were prevented from working because of the strike.
- **Workers involved in a lockout:** workers directly involved in a lockout are those employees of the establishments involved who were directly concerned by the labour dispute and who were prevented from working by the lockout. Workers indirectly involved in a lockout are those employees of the establishments involved who were not directly concerned by the labour dispute but who were prevented from working by the lockout.
- A **Labour dispute** is a state of disagreement over a particular issue or group of issues over which there is conflict between workers and employers, or about which grievance is expressed by workers or employers, or about which workers or employers support other workers or employers in their demands or grievances.

Job Vacancies and Job Creation

Job vacancy statistics provide information on the demand side of the labour market (whereas employment and related statistics illustrate the supply side). These indicators are used to analyse the business cycle and as early indicators of downturns in the business cycle. Recently, an emphasis has been made on job vacancies and job creation, which belong to the indicators used to closely monitor short-term changes in the labour market.

The Eurostat definition is as follows (see Eurostat's Labour Market Glossary):

- Job vacancy is defined as a paid post newly created, unoccupied, or about to become vacant for which the employer is taking active steps to find a suitable candidate and is prepared to take further steps to find a suitable candidate from outside the enterprise concerned; and which the employer intends to fill either immediately or within a specific period of time.

The concepts "active steps to find a suitable candidate" and "specific period of time" are country specific, and defined in relation to national legislation. A vacant post that is only open to internal candidates is not treated as a 'job vacancy'.

Job vacancy statistics are predominantly presented in terms of the Job Vacancy Rate (JVR). This indicator measures the percentage of total posts that are vacant, in line with the definition of job vacancy above, expressed as follows (see Eurostat's Labour Market Glossary):

*JVR = number of job vacancies / (number of occupied posts + number of job vacancies) * 100*

An occupied post is a post within an Organization to which an employee has been assigned.

Job creation is a new concept in labour market statistics and represents the new jobs created in a given area (country, region etc.) in a specific period (e.g. on a monthly basis); it normally refers to the jobs created directly or indirectly by governments through their policies aiming at reducing unemployment or labour underutilisation.

V2.6.2.3. CLASSIFICATIONS

Several classifications are relevant for labour market statistics. The ILO is responsible for the maintenance, the update and the revision of two main classifications specifically used for labour market statistics; the International Standard Classification of Occupations (ISCO) and the International Classification of Status in Employment (ICSE).

- The International Standard Classification of Occupations (ISCO) groups individuals working in similar types of work, defined by tasks and duties undertaken in the job, irrespective of where the work is performed.

The International Classification of Status in Employment (ICSE) is a set of discrete values which can be assigned to the variable "type of contract which a person has with other persons or organizations when performing a particular job" when that is measured in a statistical survey or registered in other administrative files.

Other classifications are also of relevance to labour market statistics, in particular:

United Nations' International Standard Industrial Classification of all Economic Activities (ISIC). In the European Statistical System, the NACE classification is used.([56])

- UNESCO's International Standard Classification of Education (ISCED).

There is need to point out that employment is not only employment that is framed in a formal way (registered enterprises, registered self-work), but also comprises productive activities that are implemented outside the country's current legislation. This is usually categorised as informal employment. Since a long time, informal employment has assumed a growing interest for both labour statisticians and policy makers. In this regard, the International Labour Organization (ILO) and the Organization for Economic Development and Co-operation (OECD) have provided valuable contributions to the definition and the measurement of informal employment (see the following box).

V2.6.3. Data sources

V2.6.3.1. SOURCES OF LABOUR STATISTICS

There are various sources of labour statistics; the main ones are the following:

- Labour Force Survey (LFS)
- Population census
- Business surveys
- Administrative sources (e.g. employment service)
- Other specific sources (e.g. trade unions)
- Other surveys (e.g. Demographic and Health Survey)

The Labour Force Survey (LFS) represents the most important and wide source of statistical information on labour. It is held at the level of households and provides detailed data on a number of topics, such as working-age population, labour force (employment, unemployment, potential labour force), hours of work, youth not in employment, education and training (NEET). These aggregates are generally broken down by sex, age, education level and other specific characteristics linked to the items (e.g. for employment: sector of economic activity, status in employment). LFS also provides other useful information such as workers' earnings.57

The population census also represents an important source of data on the labour market. This is a universal survey usually undertaken every ten years. Its focus is on the general characteristics of the population and housing. A specific module is also dedicated to the economic activities of people, including employment and unemployment. Data are not as accurate and detailed as the ones provided by the LFS, which strictly focuses on the labour characteristics of the population. Censuses are normally used as a complementary source of labour statistics and usually provide the sampling frame from which the sample of the LFS - as well as other household surveys - are drawn. The population census still represents the unique source of labour statistics for countries lacking a labour force survey or similar regular survey.

([56]) NACE is based on ISIC and adapted to reflect economic activities of particular relevance to the European economy through sub-division of ISIC sub-groups. Statistics produced on the basis of NACE are comparable at European and, in general, at world level.

([57]) In the EU-LFS from 2021 on.

Box V2.6.3: Informal sector and informal employment

The term "informal economy" is used by the ILO as including the informal sector as well as informal employment. An international conceptual framework for measurement of the non-observed economy already exists, which distinguishes the informal sector from underground production, illegal production and household production for own final use, The concept of informal sector refers to production units as observation units, while the concept of informal employment refers to jobs as observation units (OECD 2002). Informal sector enterprises and employment in the informal sector are defined according to the resolution concerning statistics of employment in the informal sector, adopted by the 15th International Conference of Labour Statisticians (ICLS).

According to the 17th ICLS, ***informal employment*** comprises the total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period:

1. own-account workers employed in their own informal sector enterprises;
2. employers employed in their own informal sector enterprises;
3. contributing family workers, irrespective of whether they work in formal or informal sector enterprises;
4. members of informal producers' cooperatives;
5. employees holding informal jobs in formal sector enterprises, informal sector enterprises, or as paid domestic workers employed by households;
6. own-account workers engaged in the production of goods exclusively for own final use by their household, if considered employed according to paragraph 9(6) of the resolution concerning statistics of the economically active population, employment, unemployment and underemployment adopted by the 13th ICLS

Employees are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits. The reasons may be that the jobs or the employees have not been declared; the jobs are casual or of a limited short duration; the hours of work or wages fall below a specified threshold; employment by unincorporated enterprises or by persons in households; the employee's place of work is outside the premises of the employer's enterprise (e.g. outworkers without employment contract); or labour regulations are not applied, not enforced, or not complied with for any other reason for the jobs in question.

The structure and size of the informal economy varies greatly between countries; the operational criteria for defining informal jobs of employees must be determined in accordance with national circumstances and data availability.

Informal employment outside the informal sector comprises: employees holding informal jobs in formal sector enterprises (or as paid domestic workers employed by households); contributing family workers working in formal sector enterprises; own-account workers engaged in the production of goods exclusively for own final use by their household.

Countries which exclude agricultural activities from the scope of their informal sector statistics should develop suitable definitions of informal jobs in agriculture, especially with respect to jobs held by own-account workers, employers and members of producers' cooperatives.

Some options of revision to the 15th ICLS Resolution and the 17th ICLS Guidelines have also been envisaged in the course of the 20th ICLS and under work to be elaborated and presented to the next 21st ICLS.

To know more:

- ILO: 20th International Conference of Labour Statisticians (ICLS), *Revision of the 15th ICLS Resolution concerning statistics of employment in the informal sector and the 17th ICLS guidelines regarding the statistical definition of informal employment*, Geneva (10-19 October 2018)
- ILO: 17th International Conference of Labour Statisticians (ICLS), *Guidelines concerning a statistical definition of informal employment*, Geneva (November-December 2003)
- ILO: 15th International Conference of Labour Statisticians (ICLS), *Resolution concerning statistics on employment in the informal sector*, Geneva (January 1993)
- ILO: *Informal Economy* (Website)
- OECD: Glossary of Statistical Terms (Website)
- OECD: Measuring the Non-Observed Economy. A Handbook (2002)

Business surveys represent an important source of data on job vacancies, skills required by employers, wages, continuing vocational training and labour costs. Moreover, they provide detailed information on the characteristics of the business establishments (e.g. size, activity). The sample is usually drawn from the records of business registers where only formal business units are included. Therefore, the enterprises operating in the informal sector are often not covered.

Employment services represent the main administrative source of statistical information on the labour market. They represent a quick source of data on job-seekers (or registered unemployed persons) and their scope is to match these data coming from workers (supply side) with job vacancies coming from enterprises (demand side). However, data are often not accurate - being based on standards not comparable with international nomenclatures or other sources - and frequently not updated.

Indeed, an analysis of the labour market should make use of various sources of data, depending on the characteristics that are being focussed on and their specificities. For example, statistics on strikes and lockouts are provided by Labour Relations Records; occupational injuries by Insurance Records; labour income share by using the National Accounts.

The following box provides a concise summary of the different sources of labour statistics.

Box V2.6.4: Recommended sources for key labour market statistics

Labour Force Survey (LFS):

- Working-age population (usually assumed as the one aged 15 years and above)
- Labour force or economically active population (i.e. employment plus unemployment)
- Employment and unemployment
- Underemployment
- Hours of work of all workers
- Time-related underemployment
- Potential labour force
- Youth Not in Employment, Education or Training (NEET)

Population census:

- Total population (normally used as population frame for LFS or other household surveys)
- Other labour statistics (working-age population, labour force, employment, unemployment), but not as accurate and disaggregated as the LFS data (this latter is preferably to be used)

Business surveys:

- Wages
- Hours of work of paid employees
- Vacancy statistics
- Labour costs
- Characteristics of business establishments (e.g. size, sector of activity)

Employment services/offices:

- Registered unemployment
- Registered job vacancies

Trade unions:

- Employed members of trade unions
- Employees covered by collective bargaining

Labour relations records:

- Number of strikes and lockouts
- Workers involved in strikes and lockouts
- Days not worked due to strikes and lockouts

Insurance records:

- Fatal occupational Injuries
- Non-fatal occupational injuries

Labour inspection records:

- Labour inspectors
- Labour inspection visits

National Accounts:

- Labour productivity, where the numerator is the Gross Domestic Product (GDP) and the denominator is usually drawn from LFS (persons employed)
- Labour Income share (wages and social protection transfers of employees)

To know more: ILO: *Quick Guide on Sources and Uses of Labour Statistics* (2017)

Since a long time, the Labour Force Survey (LFS) represents the fundamental source of labour statistics in the European Union. The current EU-LFS represents a benchmark in terms of design, organization, implementation and methodological innovation. See the following box for a quick, concise and comprehensive view of the EU-LFS.

Box V2.6.5: The European Union's Labour Force Survey (EU-LFS)

The European Union's Labour Force Survey (EU-LFS) represents the main statistical tool to collect labour force statistics in the European Union (EU).

In 1960, Eurostat organised the first LFS in the six EC founder countries (i.e. Belgium, France, Germany, Italy, Luxembourg, and Netherlands). Other LFS surveys were held between 1968 and 1971 on a yearly basis. From 1973 to 1981, the LFS was conducted on a biennial basis; from 1983 to 1997, once per year (in spring); since 1998 it is carried out on a quarterly continuous basis.

The LFS found its first legal basis in EC legislation in 1973, followed by EC Council Regulation n. 577/98). This has subsequently been modified and implemented. Since 1st January 2021, the legal basis is the EU regulation 2019/1700.

The EU-LFS currently covers 35 countries, including the 27 EU Member States, the United Kingdom, three EFTA countries (Iceland, Norway and Switzerland) and four candidate countries (Montenegro, North Macedonia, Serbia and Turkey).

The EU-LFS is based on the current international standards and guidelines (ILO) and makes use of common concepts and definitions, classifications and variables for all countries. This allows a sound comparison of data in a both static (cross-country) and dynamic (over time) perspective.

The survey is carried out on a quarterly basis; data are collected by the national statistical offices of the participating countries and transmitted to Eurostat that validate and publish country data and EU aggregates..

Data -are provided on a quarterly and annual basis. The survey comprises a core set of around 100 variables, and a rotating ad-hoc module every year (e.g. in EU-LFS 2020: Accidents at work and work related health problems; in EU-LFS 2021: Labour market situation of migrants and their immediate descendants).

Four interview modes are foreseen (face-to-face, phone, web and self-administered interviews); the majority of interviews are based on computerised questionnaires.

The main objective of the EU-LFS is to provide detailed information on the three components of the Working-age population (i.e. people aged 15 years and above):

- Employment
- Unemployment
- Inactive population

The EU-LFS is used for multiple purposes:

- To monitor and analyse situations and trends in the national and EU labour markets
- To monitor and analyse the countries' performance vis-à-vis the targets laid down by the EU 2020 Strategy (e.g. Employment Targets), the European Employment Strategy (EES), the EU Joint Assessment Framework (JAF), and the related EU Sustainable Development Goals (SDGs) as well as for the Pillar of Social Rights
- To provide the Euro Area with updated and reliable information on key labour market indicators (e.g. Employment rate, Unemployment rate)

To Know more:

- Eurostat: Employment and unemployment – Overview (website)
- Eurostat: EU Labour Force Survey (website)
- Eurostat : EU Labour Force Survey Database User Guide (2019)

V2.6.3.2. INTERNATIONAL DATABASES

The most recommended labour market databases at international level are described as follows.

The first recognised source of labour statistics is the International Labour Organization (ILO) with its broad and detailed database ILOSTAT. ILOSTAT covers a number of topics of labour statistics: labour supply (e.g. labour force, employment and unemployment), industrial relations (e.g. collective bargaining, membership to trade unions), competiveness (e.g. labour productivity, labour cost), poverty and inequality (e.g. working poor, informal economy), working conditions (wages, working time, safety and health conditions). Furthermore, data cover selected groups (e.g. youth, labour migrants) and also some key or new topics (child labour, SDGs, COVID-19). Data coverage is ensured for all countries with available statistics: data are continuously updated and freely downloadable from the institutional website. A very interesting section of ILOSTAT is also dedicated to LFS resources, a worldwide tutorial for survey design, including questionnaire models and modes of administration based on the ILO recognised international standards. Another important section is dedicated to the Labour Market Information System (LMIS), for which the ILO ensures a detailed and user-friendly tutorial covering architecture, data processing, data inputs and outputs, a portal for all countries who want to build or improve their own LMIS system.

In the **European Union**, **Eurostat** publishes the ***Employment and Unemployment (LFS) Database*** with full tables on all LFS topics, generally from 2008 onwards. Data are reported on an annual and a quarterly basis. They are available in various formats: tables, charts and maps. Labour statistics are accompanied by labour indicators (e.g. activity rate, employment rate, unemployment rate). Data are also provided at territorial level (i.e. countries' NUTS 2 regions). This database also includes the monthly sample size at both country and aggregate level (EU). It further contains the ordinary and the annual LFS modules.

Within the theme "Population and Social Conditions" the Eurostat's online database contains a section dedicated to ***Labour Market*** statistics that includes the following sub-sections: Employment and Unemployment (LFS), job vacancies statistics, earnings, labour costs and labour market policy. In the same general database, the section "Tables on EU Policy" includes the sub-section "Employment and Social Policy Indicators"; within this latter, the ***Employment Performance Monitor*** provides specific indicators dedicated to employment issues (e.g. gender employment gap, youth employment rate, labour productivity per person employed and hours worked, newly employed, involuntary temporary employment. In the section "Cross-cutting topics", ***Skill-related statistics*** provide data on skills' supply (e.g. ICT usage in households and by individuals) and skills' demand (e.g. enterprises that recruited ICT specialists). Within the "**Tables on EU Policy**", the sub-section dedicated to the ***Sustainable Development Indicators (SDGs)*** presents ad-hoc indicators calibrated on Goal 8 (e.g. long-term unemployment rate, NEET, people killed in accidents at work), and other relevant goals (in work at-risk-of-poverty rate for Goal 1).

Another recognised source of labour statistics at worldwide level is the World Bank with its innovative Jobs Diagnostics and Data. This is a freely accessible database with more than 70 standardised indicators on employment, covering around 120 countries on the basis of more than 1 200 surveys. Jobs indicators are disaggregated by sex, geographic location (urban/rural) and education level. Methodology, tools and guidance for jobs indicators are also provided. Some examples: structure of population, labour force and employment; employment by type, sector and occupation; labour market outcomes (weekly working hours, median monthly wages); educational attainment.

As for health conditions at work, the World Health Organization (WHO) holds a health database covering 194 countries across the world – the Global Health Observatory Data Repository - including statistics on occupational injuries. Data are freely accessible from the WHO's website.

Other international organizations provide detailed and accurate databases on labour statistics at regional level (i.e. mostly focused on their member countries). This is the case of the **Organization for Economic Co-operation and Development (OECD). The OECD** publishes the ***Employment Database***, a complete source of data on several labour issues: employment, unemployment, earnings and wages, labour market policies and institutions, skills and works - with the *Survey of Adult Skills (PIAAC)* and the *World Indicators of Skills for Employment (WISE)* – and job quality (as measured through Earnings Quality, Labour Market Security and Quality of the Working Environment). The database covers all OECD countries and contains data from the beginning of the 2000s. Data are freely available on the OECD website in various formats, including charts and maps.

V2.6.4. Analysing data quality and identifying problems

There are two key official tools to make a diagnosis of the statistics produced at international level, including the labour statistics. These are:

- **The Data Quality Assessment Framework (DQAF)** developed by the International Monetary Fund (IMF) – latest version published in 2012
- **The European Statistics Code of Practice** developed by Eurostat with the European Statistical System – latest version published 2017. The Code of Practice is integrated in the Quality Assurance Framework of the European Statistical System (latest version: 2.0 published in 2019)

The DQAF is a reference document for national statistical systems across the world, while the ESS Code of Practice is applied to the national statistical systems of the EU Member States, EFTA countries and in candidate countries and potential candidates. It is also functioning as basis for Eurostat assessment of countries within the European Neighbourhood Policy (ENP). DQAF and the ESS Code of Practice are broadly

harmonised and provide principles and recommendations to ensure quality criteria in the production of statistics, including institutional environment, resources, methodology, procedures, accuracy and reliability. Both tools are applicable to all sector statistics, including labour statistics.

The ILO is the leading institution providing international standards for concepts, definitions and procedures in the field of labour statistics. Although all countries around the world in principle are committed to these standards, not all of them are at the same level with respect to quality. Labour statistics at the level of EU and OECD are characterised by high standards of quality and comparability (e.g. working age population, labour force, employment and unemployment indicators, job vacancies). However, this is not yet completely reached in a number of developing countries, where some international quality standards are not yet matched, e.g. due to the adoption of different definitions and tools of data collection or continued use of outdated versions of international classifications and methodologies. For example, in a number of developing countries, the lower limit of the working-age population is still below the age of 15 years (i.e. the standard assumed at the international level) because of the predominance of child labour and the different upper age for the mandatory school education. A number of developing countries do not have a regular labour force survey as they do not have the financial and/or human resources required to organise this kind of survey or do it on a regular basis. Many of them still refer to population censuses data that in principle are not comparable with the LFS or other survey data and contain different definitions of core concepts of labour market.

Even where a labour force survey or a similar tool is in place, regardless of common issues linked to the presence and treatment of sampling and non-sampling errors, there are concerns with respect to the sampling frame. For example, the natural sampling frame for labour force surveys (or any household survey) is the population census or the population register (where this exists). Many developing countries lack a population register and refer - as the unique source of demographic data - to the population census which is normally held every ten years. The population dynamics of most developing countries is not absolutely comparable with the one of developed countries, and demographic data in both absolute and structural terms may not be reliable anymore even after a couple of years. For this reason, any subsequent survey referring to the population census as its population frame suffers a number of problems linked to the construction of the sample.

There are also constraints linked to the specific topics. The measurement of the informal economy - and specifically the informal employment - has generally assumed a crucial role in the developed countries where the phenomenon is generally much less prevalent than in most developing countries. In most developed countries, the LFS questionnaires are well structured to gauge many characteristics of the informal employment. In a number of developing countries, even where a similar tool to LFS exists, the questionnaires do not contain specific questions on informal employment.

With regard to the demand side, many developing countries lack a business register from which the samples for business surveys are normally drawn. This hampers the possibility to design a representative sample of establishments.

Data constraints do not affect only survey data (universal or sample surveys), but also the administrative sources. The use of administrative data to compile statistics has the advantage of generally being less costly than the implementation of surveys and treatment of data from these. However, the reliability and especially the adequacy of administrative data depend on the organization and ability of the administration to manage and maintain them efficiently. For instance, if unemployed people do not systematically register at job agencies (e.g. because the agency is not efficient or because there is no incentive to do it), information from those agencies will have a poor coverage of the actually unemployed population.

Finally, at national level, the multiple sources for producing labour market data (population censuses, labour force surveys, establishment surveys and administrative records) may create confusion. These data sources have the advantage of providing users with a wide spectrum of statistics. However, different data sources with different methodologies measure the same phenomena in different ways, with more or less accuracy and coverage. As a result, the final figure for the same type of variable may not be directly comparable across sources. In addition, not all countries are able to produce data on a regular basis.

The comparison of data from different sources is also a way to identify and understand problems and gaps. Some countries go one step further and try to reconcile/adjust data collected from different sources in order to bridge distinctive gaps in coverage of individual sources, smooth over measurement errors and harmonised definitions and classifications used. Other countries go further by integrating data or constructing labour accounting systems where various types of inconsistent data are reconciled to yield hybrid "best" estimates. The main aim of such systems is to combine statistical data sources to enhance their strengths and overcome their weaknesses, in order to produce new data series with improved quality. One of the advantages is the elimination of contradictory results.

Box V2.6.6: Example of two data sources in Europe: EU-LFS and National Accounts

The EU Labour Force Survey (EU-LFS) and National Accounts of EU Member States are the two main sources of employment data. These two sources are not independent; LFS is frequently an input to National Accounts employment estimates. Although using common definitions, LFS and National Accounts have their own aims and measurement approaches, which may lead to different results. In addition, other statistics based on business surveys or administrative sources also provide estimates of employment, which may differ from these other sources. They may also be used as input to the National Accounts. The main differences between LFS and National Accounts concern elements of geographical coverage (resident persons employed in the LFS vs. employment in resident production units in National Accounts), other coverage issues such as age boundaries and treatment of institutional households and some borderline differences regarding for example the recording of conscripts, unpaid apprentices and trainees or work in agriculture solely for own consumption.

To ensure consistency between the numerator (output in terms of value added) and the denominator (labour input) in the productivity indicators, the primary source for employment growth and branches of activity is National Accounts data; EU LFS data are used for employment rates and for gender and social breakdowns.

To know more:

- Eurostat: Employment and Unemployment (LFS) – an overview (website)
- Eurostat: National Accounts – an overview (website)

V2.6.5. Improving sector statistics

Countries' statistical capacities may be developed along different paths and strategies, depending on the national context, policies, development goals and practices. For these reasons, this section does not seek to be prescriptive or exhaustive. Instead, it describes some key constraints and considerations, as well as important priority actions recommended by ILO that should be considered when seeking to improve labour market statistics in the framework of a cooperation program.

Even if national settings are very different, many of the problems in the development of sustainable systems for labour market statistics are common. Some widespread challenges for developing and improving the capacity for producing labour market statistics in a developing country are:

- Labour statistical systems are often not sufficiently co-ordinated. Concepts, definitions and classifications are not harmonised within countries and the labour market statistical system is not well co-ordinated with the statistical system for related domains (e.g. education, health, agriculture). Data might be available, but there may be (partly serious) problems concerning coherence and definitions and concerning the quality control of the data.
- Given the numerous stakeholders involved in producing labour market data, inter-institutional co-ordination is a major issue in many countries. Often, the Ministry of Labour and the National Statistical Institute do not collaborate closely to define statistical needs and priorities, co-ordinate statistical standards and output or avoid overlaps in data collection.
- A lack of capacities within government ministries (e.g. ministries responsible for labour, social security, education, vocational training and occupational health) to generate quality data from administrative records is often observed in developing countries. In addition, statistics on the supply and demand in the labour market, based on registers kept by employment agencies, may be very unreliable due to their low coverage of the labour market (informal sector not covered; vacancies are not reported; unemployed persons are not registering).
- A lack of communication between users and producers of statistics is often observed. Access to data might be difficult (even if data exist) and dissemination not appropriate. A lack of co-ordination of concepts and definitions generates difficulties for users in reconciling statistics produced from different sources and for different regions or periods. Users may also lack the specialised skills and knowledge to analyse and interpret the labour market statistics.

Each of these challenges needs to be addressed in order to develop and improve the capacity to produce even a basic set of labour market statistics. Factors that should be put in place to make data available include:

- organization of the statistical system for labour market data;
- primary data collection mechanisms;
- data processing methods;
- dissemination mechanisms;
- data analysis capacity;
- staff qualifications;
- funding mechanisms;
- hardware and software equipment;
- premises;
- partnerships with non-statistical units and with employers and trade unions.

Furthermore, factors concerning possible synergies with other data production mechanisms must be addressed:

- sampling frames and registers;
- survey systems;
- dissemination of statistics;
- compatibility of concepts adopted;
- synchronisation of activities;
- training;
- multi-sectoral analyses within the framework of development and poverty reduction policies;
- user-satisfaction surveys.

ILO generally recommends prioritising the following actions:

- If it does not already exist in a given country, the highest priority should be given to the introduction of at least one national household survey with detailed labour force questions (preferably a labour force survey (LFS)) and subsequently a regular programme of LFS. At early stages of development in a country with limited resources and capacities, the labour force survey programme might comprise annual surveys of urban areas and 5-yearly (intercensal) surveys with national coverage. Informal employment should be measured in these labour force surveys. ILO provides specific guidelines for covering the informal labour market (see also ILO 2003)
- Second priority should be given to build the capacity of the NSI and government ministries to generate quality statistics from administrative records. In order to build this capacity, it might be useful to initially develop statistics from one simple system only (such as reports of labour disputes or registered job-seekers), in order to build the confidence and skills of the statistical staff.

In countries where the labour market statistics is more advanced (a good LFS already exists, ad-hoc surveys are conducted (e.g. child labour, informal sector), statistics from administrative records are available (but with uneven quality)), priority can be given to the improvement or widening of the existing process, such as:

- increasing the frequency of the LFS (e.g. quarterly or monthly);
- widening the thematic coverage of the LFS (e.g. modules related to accidents at work, details of training, work history, travel to/from work, labour migration, etc...);
- introducing a regular programme of specialised household surveys (informal sector, household budget, child labour);
- improving business surveys (e.g. separate surveys for employment, extending existing surveys to include labour turnover and unfilled job vacancies, enlarge coverage to all business sectors);
- improving existing statistics based on administrative records (content, definitions, classifications, coverage, frequency, reporting accuracy, quality checks) or compiling statistics from untapped administrative records (e.g. social security records, industrial relations reports and registrations, public sector records, etc.).

In addition, collaboration between ministries, other statistical producers/users and the national statistical office should always be encouraged. Moreover, overall management of the data flows and the implementation of a sustainable and modern information system is an issue in many developing countries. In some countries, administrative records are not yet available in an electronic format.

The choice of which improvements or developments to focus upon should be based on the particular country priorities and directly linked with the user needs. Indeed, all potential actions should be complemented by an improvement of statistical analyses and of the relevance to user needs and priorities. It should also be kept in mind that, the more labour market statistics are used for current political issues, the more political awareness is raised and more use is made of labour market statistics when discussing, formulating and implementing policies. This should in turn raise the political awareness of the need to improve statistical capacity, both generally and specifically for labour market statistics. In this framework, organization of user/producer workshops to encourage communication between these parties and of training workshops to guide users in how to make better use of labour market statistics might be considered.

The European Union represents a pioneering experience not only in relation to the methodological contributions and the factual achievements on the labour force surveys, but also for its work on the modernisation and coordination of the administrative sources, such as the Network of Public Employment Services (PES), and the introduction of innovative tools to measure the short-term trends in the labour market, like the European Labour Market Barometer (see the following box).

On the other side, by looking at the experience of different developing regions in the world, a lot of work is needed to create reliable and functioning labour market systems. As shown in the following box, the implementation of the Labour Market Information Systems (LMIS) in the African context generally represents a crucial issue, despite of any existing and valuable efforts by the international community aiming at building, strengthening or improving them.

Box V2.6.7: The EU Network of Public Employment Services (PES) and the EU Labour Market Barometer (EU-LMB)

An innovative tool in the field of Labour Market statistics offered and implemented by the European Union is the European Network of Public Employment Services (PES). Introduced in 2014, the PES Network aims at enhancing the co-operation between the public employment services in Europe. It currently comprises the EU-27 Member States, the EFTA countries Iceland and Norway, plus the European Commission.

The core mission of the PES Network is to ensure the modernisation of the national public employment services by implementing the use of ICT, strengthening the data sources, and assisting them in their supporting activities to EU policies and strategies. This should ensure more effective labour market functions, supporting labour demand with valuable labour market information as well as labour supply in job searching and skills development.

An innovative tool has recently been introduced by EU-PES to monitor the EU labour market: the European Labour Market Barometer (EU-LMB), published for the first time on 20 October 2020. Following the successful experience of the Labour Market Barometer adopted by the Federal Employment Service in Germany, this indicator is intended to predict the short-term development of employment and unemployment in Europe.

The EU-LMB is based on a survey conducted on a monthly basis among the local branches of the employment services in the European countries. These branches are questioned about the expected developments of employment and unemployment in their areas of competence within the coming three months. Five options of answer are possible on a five-level scale with the extreme values "Decline strongly" and "Increase strongly". Answers weighted for the size of the local districts are aggregated at the national level and standardised on a scale from 90 to 110. The minimum of 90 corresponds to a very bad outlook while the maximum of 110 means a very good outlook; the value of 100 corresponds to neutrality, meaning that both components (Employment and Unemployment) are foreseen to be stable within the next three months. The barometer expresses the mean of the two components. Values at national level are used to calculate the barometer at the European level. In this regard, the values of each component (Employment and Unemployment) are weighted by the demographic size of countries and then averaged to produce the European Labour Market Barometer.

Thus, the EU-LMB has considerable predictive power, especially for unemployment. A high indirect correlation has been shown between the value of the barometer and the dynamics of unemployment in the following three months, by analysing a wide set of data between 2018 (pilot phase) and 2020 at European level.

In September 2020, the overall value of the LMB in Europe stood at 98.7, where the indicator for the seasonally adjusted unemployment is 99.5 and the indicator for employment is 98.0. The crisis due to the impact of COVID-19 produced a barometer value of 93.5 in April 2020, equivalent to a decline of 6.9 points compared to March 2020

To know more:

- European Union: Network of Public Employment Services (PES) (website)
- Institute for Employment Research (AIB): the European Labour Market Barometer (website)

Box V2.6.8: Harmonisation and Co-ordination Framework for the Labour Market Information System in Africa. Follow-up of the Ouagadougou 2004 Plan of Action

The Labour Market Information System Co-ordination and Harmonisation Framework Project (LMIS/CHP), approved by the African Union (AU) in April 2011, was a fundamental tool to ensure the implementation of the Ouagadougou 2004 Plan of Action for Promotion of Employment and Poverty Alleviation. However, with some exceptions, no consistent progress seemed to have been recorded in the course of the following years. Among the key constraints in this regard were in particular the lack of adequate financial and human resources as well as the weakness, including poor coordination, of the labour market institutions.

The follow-up report of the Ouagadougou 2004 Plan of Action and the Ouagadougou 2004 + 10 Plan of Action (September 2014) was approved at the 24th AU Assembly. The document identified six priorities areas for the new plan, namely: "(i) Political Leadership, Accountability and Good governance; (ii) Youth and Women Employment; (iii) Social Protection and Productivity for Sustainable and Inclusive Growth; (iv) Well-functioning and inclusive Labour Market Institutions; (v) Labour Migration and Regional Economic Integration; (vi) Partnership and Resource Mobilization".

As regards the priority area (iv) Well-functioning and inclusive Labour Market Institutions, the key strategies envisaged that the expected outcome (Enhanced and modernised labour market institutions) were identified at three levels – the AU member states, the African Union Commission (AUC) and the regional communities (RECs). This is reported below:

- At the national level: "Develop and strengthen synergies and complementarities among the key labour market stakeholders, enabling the Public Employment Services to act as a hub for the improvement of services provision on self-employment and intermediation interventions; Establish and strengthen Employment and Human Resource planning, monitoring and evaluation units (….); Reinforce the labour market institutions and improve their professionalization; Implement the Labour Market Information Systems Harmonization and Coordination Framework; Undertake institutional, legal and other labour markets reforms to enhance employment and growth, ensure the inclusion of vulnerable groups, including people with disabilities, people with HIVs, migrants' workers and internally displaced persons"
- At the AUC level: "Undertake assessment of the African Regional Labour Administration Centres and upgrade them as specialized African structures to support AU Policies on labour, employment, social protection and migration (…). Strengthen the capacity of African labour market institutions to identify future skills and vocational training needs for inclusive growth and regional economic integration."
- At the regional level (RECs): "Support the establishment of national tripartite coordinating committees on employment and labour issues to coordinate with RECs; Support or facilitate the establishment of national structures on Labour Market Information Systems"

The work of the implementation of the labour market information systems in Africa seems to be in progress and – as also shown by previous experiences – the African countries can rely on the technical and financial support of a number of cooperation programs already put in place by both international agencies and consortia (e.g. ILO, UNDP, USAID, World Bank, European Union, PARIS21) and national development agencies.

An example of technical assistance is the study developed by Sorensen K and Mas J.M. (2016), upon request of the African Union. Following the process initiated with the Ouagadougou Plan of Action, this study provided a Roadmap for the Development of Labour Market Information Systems in Africa. It was shown that most LMISs in Africa were still weak, because of a general lack of financial and human resources, lack of reliable data even at basic level (e.g. main indicators from LFS) and a low demand by internal labour market actors (notably, the private sector). Moreover, the national statistical offices, which are normally in charge of the LMIS, seemed scarcely coordinated with other data providers and policy makers and needing more resources to ensure and accomplish their duties. Other gaps related to the information provided: the data were generally not accurate and not updated, ignoring the informal sector (which in most African countries represents more than 80% of the value of the whole economy) and weak dissemination of the information produced. This seemed to limit the potential of development of the LMIS. In order to improve and strengthen the African LMIS, the study recommended to:

- Increase the support by high-level decision makers
- Use or better use the current administrative sources (e.g. trade registries, public services, trade associations, immigration services, education institutions)
- Integrate LMIS information with analytical inputs (e.g. analysis of economic contexts and trends)
- Enlarge the knowledge of the informal sector (through, for example, microfinance institutions, municipalities and tax authorities, trade associations)
- Focus more on data at the local level
- Strengthen partnerships with research institutions and the private sector
- Follow an open data approach (e.g. sharing and improving the existing databases)

To know more:

- African Union (AU): *Report on the Follow-up on the Ouagadougou 2004 Summit: Employment, Poverty Eradication and Inclusive Development in Africa*, Assembly of the AU, 24th Ordinary Session, Addis Ababa, 30-31 January 2015
- The Africa – EU Partnership: *Towards Harmonised and Coordinated Labour Market Information Systems* (website)
- The Africa – EU Partnership: *Pan African Statistics* (website)
- Sorensen K and Mas J.M.: *A Roadmap for the Development of Labour Market Information Systems*, USAID – Workforce Connections - African Union - FHI360 (2016)

To find out more…

Methodologies, concepts and definitions

- European Statistical System (ESS): Quality Assurance Framework of the European Statistical System, version 2.0 (2019)
- Eurostat - European Statistical System (ESS): European Statistics Code of Practice (2017)
- Eurostat: Eurostat's Concepts and Definitions Database
- Eurostat: Labour Market
- Eurostat: Labour Market (including Labour Force Survey) - Overview
- Eurostat: Employment and Unemployment (LFS) – Methodology - Main Concepts
- Eurostat: National Accounts - an Overview
- Eurostat: European Statistics of Accidents at Work (ESAW). Summary Methodology (2013)
- International Labour Organization (ILO): Concepts and definitions
- International Labour Organization (ILO): International Classification of Status in Employment (ICSE-18) and International Classification of Status at Work (ICSaW)
- International Labour Organization (ILO): Quick guide on sources and uses of statistics on occupational safety and health (2020)
- International Labour Organization (ILO): COVID-19: Guidance for labour statistics data collection. Essential labour force survey content and treatment of special groups (Rev. 1), Technical Note, 30 April 2020
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- International Labour Organization (ILO): Quick guide on measuring economic characteristics in the population census (2019)
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- International Labour Organization (ILO): Labour Force Survey (LFS) - Resources
- International Labour Organization (ILO): Decent Work
- International Labour Organization (ILO): Informal Economy
- International Labour Organization (ILO): NORMLEX - Information System on International Labour Standards
- International Monetary Fund (IMF): Data Quality Assessment Framework (2012)
- Organization for Economic Co-operation and Development (OECD): Glossary of Statistical Terms
- Organization for Economic Co-operation and Development (OECD): The Non-Observed Economy in the System of National Accounts, Statistics Brief 2014, N. 18
- Organization for Economic Co-operation and Development (OECD): Measuring the Non-Observed Economy. A Handbook (2002)

International classifications

- Eurostat, Reference and Management of Nomenclatures: NACE Rev. 2
- International Labour Organization (ILO): Data collection guidelines for ICSE-18 (2018)
- International Labour Organization (ILO): International Standard Classification of Occupations (ISCO) – ISCO-08
- International Labour Organization (ILO): International Classification of Status in Employment (ICSE) – ICSE-93
- United Nations Educational, Scientific and Cultural Organization (UNESCO): International Standard Classification of Education (ISCED) - 2011
- United Nations Statistics Division (UNSD): International Standard Industrial Classification of all Economic Activities (ISIC) – Rev. 4
- United Nations Statistics Division (UNSD): System of National Accounts (SNA) 2008

Data sources

- Country economy: Labour Force Survey (LFS)
- Eurostat: Employment and Unemployment (LFS) - Database
- Eurostat: Employment performance monitor – indicators
- Eurostat: Labour Market Statistics by Area and Region
- Eurostat: Skills-related statistics
- Eurostat: Sustainable Development Indicators- Goal 8 Decent Work and Economic Growth
- International Labour Organization (ILO): ILOSTAT
- International Labour Organization (ILO): Labour Market Information System (LMIS)
- International Labour Organization (ILO): Sustainable Development Goals (SDGs) Data
- Organization for Economic Co-operation and Development (OECD): Employment Database
- World Bank: Aspire: The Atlas of Social Protection Indicators of Resilience and Equity
- World Bank: Jobs Diagnostics: Data, Tools and Guidance
- World Health Organization (WHO): Global Health Observatory Data Repository

Other relevant research and reports

- European Training Foundation (ETF): Labour Market Information Systems. Collecting Information and Data on Labour Market Trends (2019)
- International Labour Organization (ILO): World Employment and Social Outlook. Trends 2020 (2020)
- International Labour Organization (ILO): Social Dialogue, Skills and Covid-19. The Global Deal for Decent Work and Inclusive Growth Flagship Report (2020)
- International Labour Organization (ILO): Resources
- Organization for Economic Co-operation and Development (OECD): Employment Outlook 2020. Worker Security and COVID-19 Crisis (2020)
- PARIS21: Labour Market Data Sources towards Digital Technical and Vocational Education and Training (TVET) (2018)
- SOCIEUX+ Expertise on Social Protection, Labour and Employment (EU) : 2020 Labour Market Vision : Labour Market Information Systems for the New Decade (2019)

Main international cooperation and development activities

- African Union (AU): Report on the Follow-up on the Ouagadougou 2004 Summit: Employment, Poverty Eradication and Inclusive Development in Africa, Assembly of the AU, 24th Ordinary Session, Addis Ababa, 30-31 January 2015
- The Africa – EU Partnership: Towards Harmonised and Coordinated Labour Market Information Systems
- The Africa – EU Partnership: Pan African Statistics
- European Commission and International Labour Organization: Conclusions of the 15th High Level Meeting (HLM), Geneva-Brussels, 2 October 2020
- European Union: Network of Public Employment Services (PES)
- Eurostat: International cooperation overview
- Eurostat: Reports on Reviews
- Institute for Employment Research (AIB): European Labour Market Barometer
- International Household Survey Network: Overview
- International Labour Organization (ILO): Decent Work and the 2030 Agenda for Sustainable Development
- International Labour Organization (ILO): Labour Market Information Systems (LMIS)
- International Labour Organization (ILO): Employment, Labour Market and Youth Branch (EMPLAB)
- International Training Center of the ILO (ITC-ILO): International Labour Standards Academy for Africa
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