ACCOUNTING SUSTAINABLE DEVELOPMENT

INTERNATIONAL ADVANCEMENTS AT MACRO AND MICRO LEVEL

Editor:
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Accounting Sustainable Development: International Advancements at Macro and Micro Level

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CONTENTS

FOREWORD

Sustainable development is a global priority. Various policy measures have long been proposed to ensure this model of development. United Nations member states also adopted the Sustainable Development Agenda in 2015 to achieve the Sustainable Development Goals (SDGs) by 2031. A number of indicators to track the progress have also been identified and countries, regularly and systematically, seek to monitor them. Unfortunately, though halfway through, still most of the countries have not been able to measure all the indicators set out to verify achievements.

The indicators identified are isolated and do not necessarily follow the rigorous approach adopted by the UN System of National Accounts (SNA). There is a need to develop a *sustainable accounting framework* that can be universally adopted and may provide reliable estimates for effective policy-making and implementation. In addition, sectoral and regional dimensions also need to be addressed through satellite accounts.

ICAAS 2021 organized by the Luxembourg Statistical Society has done a great job by bringing the experts together to apply their minds and share their experiences on this topic. The present volume comprehensively documents the views, experience, and suggestions on how to follow the path for developing sustainability accounting systems.

I am sure that this volume will be of immense value for researchers and official statisticians in the field in their day-to-day work.

I would highly recommend all the students, practitioners, and academics to consult this volume which comprehensively addresses both theoretical and practical issues of sustainable accounting.

Ashish Kumar
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PREFACE

This volume is one of the outcomes of an international conference on accounting and assessment in statistics (ICAAS), that took place in 2021 in Luxembourg and was led by the Luxembourg Statistics Society (SLS) in collaboration with several research, accounting and statistical institutions.

The main topic introduced and discussed in the volume concern current developments in this area of measurement, between research and real-world professional applications, in response to the demand for more quantitative information in order to meet the challenges of sustainability.

Several contributions and points of view of specialists in the field are reported in three sections: the present and future of the accounting system for sustainable development, specific focuses on growing accounting sub-systems and finally, some example of economic sustainability issues for policy makers.

We hope that this volume will contribute to the enhancement of research and applications of accounting systems that can support countries to rapidly reach a sustainable development path. In this attempt, the theoretical and practical applications presented by the contributors to this volume open up interesting prospects for further development of the accounting tools used to process and present numerical data.

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"Special thanks to Jang Schiltz (University of Luxembourg), Christophe Ley (SLS) and Dari Buono (Eurostat)".

APPRECIATION BY THE SOCIÉTÉ LUXEMBOURGEOISE DE STATISTIQUE (SLS)

The Luxembourg Statistical Society is very glad to see this new publication on "Sustainability accounting" with contributions from statisticians and researchers from our scientific community. The publication was possible thanks to the results of the first international conference we promoted in 2021 on accounting and assessment in statistics (ICAAS).

As a Society we are closely following the important ongoing process of revision in official statistics, concerning national and regional accounts (SNA at UN level and ESA at EU level), to meet the need to produce indicators on pressing policy objective for the next decades.

Quite in parallel, a similar process of innovation is underway in the corporate and financial sector accounts to disclose information on sustainability, mainly under the pressure of EU legislation in Europe. These accounts continue to be the basic source of data providing information to statistical offices. Statistical accounts need and benefit from this continuous flow of data; that is why there is almost the same process at micro-accounting level connected to the macro-statistical one.

This is definitely an important era of innovation in accounting and statistics that will change the future information system and official statistics to support the UN SDGs and sustainability challenges globally. In two large political areas, the European Union and the Federal Republic of India, as can be seen from the contributions published in this book, the process of change is already rapidly underway. The analyses and summary results reported on some specific applications in the satellite accounts provide a vision for the future.

The LSS would like to thank the institutions and people involved for their input. We hope that this publication will provide a useful contribution to academic research and its pipeline in this important area of statistics.

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INTRODUCTION

The application of the objective of "sustainability" to development is a sort of theoretical concept that requires policymakers to dispose of a complex set of information as multiple dimensions are involved. As set out in the UN Sustainable Development Goals (SDGs), along with traditional economic targets of development, environmental and social matters have become equally relevant for “sustainability” and as well as being closely interrelated.

The accounting framework that we propose in this publication, provided its systemic approach, appears to be highly suited to address this general policy objective.

There has been quite a long evolution in the history of bookkeeping, from the first accountants in Mesopotamian times in the XX century B.C., who started putting numbers in columns to calculate an addition and the set-up of the first input-output table, to the Italian merchants in the late Middle Ages, when the more complex double-entry was invented in accounting, up to modern times, after the Great Depression of the '30s, with the introduction of National Accounts, and the Second World War, with the developments in computer science and the new information technologies (Edwards *et al*., 2021).

Today, difficulties that we thought to be a "physical" limit to the possibilities of accounting seem to have been overcome by information technology: the amount of data storage, the speed of data processing, the modalities of presentation of accounts and the interaction with human beings. Computers are playing a crucial role in accounting as arithmetic and zero errors in calculations are in the core of computational systems. That is why the system of accounts is expanding beyond belief and at an astonishing speed.

Proof of this are, for example, the subsystems of satellite accounts in national accounts, which were already conceived in the '60s and widely applicable today.

This publication presents the ongoing accounting "revolution" and discusses some key applications, at a micro-company and macro-regional level, with experts in the field, providing some insights on future developments that are expected in the coming years. In addition to the growing IT technology, an acceleration of research and applications by accountants in different areas is expected.

A community of field researchers, statisticians, accountants, professionals and IT experts involved will be at the heart of, leading, the development of this new modern era for the accounting systems.

PART I: Present and Future of the Accounting Systems for Sustainable Development

CHAPTER 1

The Revision Process of National Accounts at the EU and UN Level

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Abstract: At its 51st session, in 2020, the United Nations Statistical Commission (UNSC) started the process of revision of the 2008 System of National Accounts (SNA) for adoption by the Commission in 2025 ("Towards 2025 SNA"; see website UNSTAT 2).

This is a periodic review of the system at an international level, to update the accounts and introduce into the system new challenging topics, such as 'Sustainable development', which require systematisation of the relevant data to achieve the level of coherence needed for policy purposes. The views of the UN, the EU and other countries, such as India, are reported in this chapter.

After recalling the key role of SNA in official statistics, the revision process at the UN level is resumed, with a focus on the main extension, led by Eurostat, on the environmental dimension of sustainability.

The chapter concludes with some remarks on the prospects of this extension for the Indian subcontinent and the Arab countries of the Persian Gulf.

Keywords: Beyond GDP, Data, Digitalization, Environmental-economic accounting, National accounts, Official statistics, Revision process, Sustainable development.

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INTRODUCTION

The present chapter examines the progress and direction taken in updating the SNA with respect to the reflection of broader environmental, sustainability and welfare considerations.

Links to other statistical systems are indicated, showing how relevant supplementary tables can be presented in a 'whole system' approach.

An important insight for Eurostat concerns the System of Environmental Economic Accounting (SEEA). A summary and the results achieved in the EU and some other non-EU countries are introduced at the end of this chapter.

THE SYSTEM OF NATIONAL ACCOUNTS IN OFFICIAL STATISTICS

The system of National Accounts plays an important role in official statistics and is constantly evolving with technological progress and the growing demand for indicators for policy needs. National statistical offices are the public institutions that manage this system and governments devote specific attention to them. In the following paragraphs, we will see the specific function of the accounts and the expected developments of the official statistics.

Accounts in the Factory of Statistics and the Role of Government

In statistics in general, there is a process of reducing the complexity of information. Several stages can be identified, with an active role of public authorities, national and international, to define, standardize and regulate statistics. One could distinguish two main 'blocks' in the statistical process which go from the quantification of phenomena to the final policy decisions (Fig. **1**).

In the first phase, we move from raw data, through basic statistics, accounts and then highly aggregated indicators. In the second phase comes the interpretation of these facts: we extract information in order to feed and to 'augment' the policy of the decision-making process. In the first phase, we reduce the context, we codify the data and, in the second phase, we decode and add context to interpret what we have learned *via* statistics.

Accounting systems are the middle layer, creating a kind of halfway from micro, very detailed statistics with a 'granularity', to a consistent framework which then also enables us to create a smaller set of macro indicators. This is in line with the reduction tunnel we have drawn from complexity to reduced and condensed information. We could say that basic statistics are just a collection of 'stones', even if we sort them according to their 'colours': these would then be economic statistics, social statistics and so forth. With them, we are not really able to see the

overall picture. This only comes if we put them together in a kind of framework: we bring a structured order into the collection of stones, which are the basic statistics. We find a similar role for accounts at different levels: from companies to regions, to national and supranational political unions.

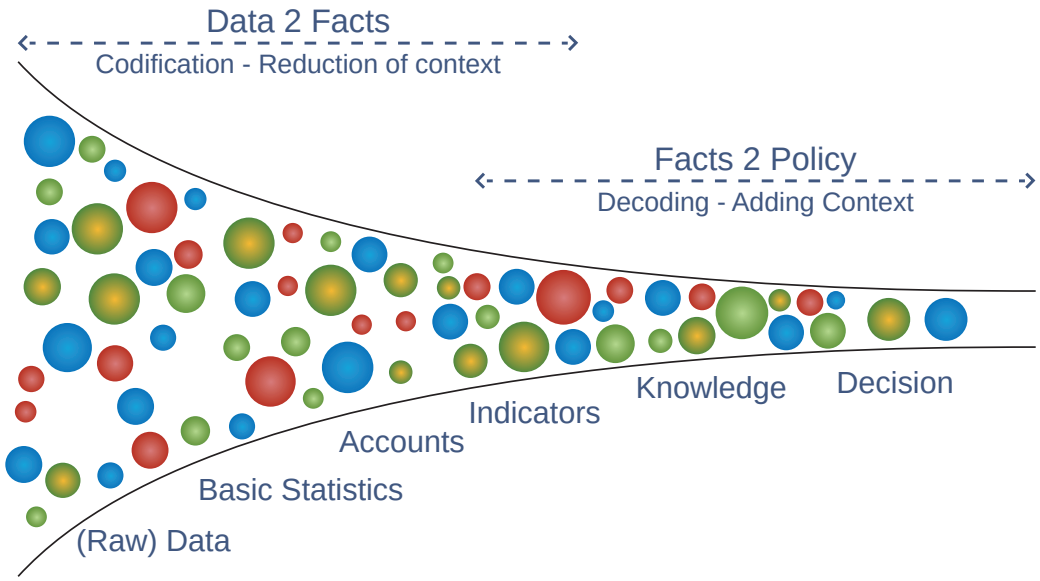

Fig. (1). Reducing complexity: stages from data to policy.

In the opposite direction, we could distinguish from policy to data. This is very popular in many countries and now in the European Commission with the data strategy, with the objective of EU digitalization. These policies that address data issues very rarely include an explicit policy for statistics: a statistical framework and statistical governance, which is not the same as a policy for raw data, markets and the economy of data.

Accounting in Official Statistics

Official statistics has the particular aim to create a common language for the public. The backbone of official statistics is, therefore, standardization, *i.e.*, having a statistical production with standards of quality, comparability and ultimately a low level of required statistical literacy (which results in equality and democracy). The aggregated accounts are an essential framework in this process of standardization and production of information for society (Radermacher, 2020).

Note that this is exactly the opposite of what we do in ‘data science’, where the goal is to have individualized statistical production. In official statistics, we have

CHAPTER 2

Measuring Sustainable Development for Business: The EU'S Experience in Taxonomy and Non-Financial Reporting

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Abstract: Accounting at corporate level has a long and consolidated history and is nowadays highly standardised internationally. Financial and fiscal accounts are the core part of corporate information systems, but the emerging policy needs in recent decades and market pressure from stakeholders and consumers of their products are putting pressure on 'traditional' corporate accounting.

This chapter introduces the two main developments underway at the EU community level, stimulated and, at the same time, supported by specific EU regulations. A new so-called 'taxonomy' is being developed and implemented in Europe. The relationship with the sustainability objectives set at the political level for the business sector will be explained. A second important innovation concerns 'sustainable' reporting, *i.e*. a new form of non-financial accounting and presentation of the social and environmental impacts of business companies' activity.

This chapter is an introduction to this area of accounting which will see important and rapid development in the near future.

Keywords: Business accounting, Corporate information system, Non-financial reporting, Sustainability reporting, Sustainable development goals, Taxonomy.

INTRODUCTION

The accounting entry that is part of the information system of units, financial and non-financial companies, operating in the business sector is evolving very rapidly worldwide, under the pressure of regional policies (mainly in the European Union,

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in North America, and some Asia Pacific countries) and the overall trade environment. Stakeholders and investors are reshaping their choices following new business opportunities and a new demand for information is coming from the progressive society, culture, and concerns.

Nowadays, several challenges well summarized by the UN Sustainable Development Goals (SDGs) are at the core of the collective interest, at global and local levels, and there is a growing awareness on the part of individuals.

The accounting system at the company level, which underpins the process of disclosing corporate information to the public, is being reshaped with the new legal requirements, especially in the EU.

In this chapter, two main stimuli for a new accounting system by EU legislation are discussed: the 'Taxonomy Regulation' of 2020 (EU Regulation 2020/852) and the amended 'Accounting Directive' of 2013 (Directive 2013/34/EU) onwards (EU, 2020; EU, 2021a). This is a specific sub-system, similar to the standard financial accounts system, with the recording and framing of new corporate data, to produce consistent information and to allow the calculation of indicators required for business reporting on sustainable development.

INNOVATIONS IN BUSINESS AND FINANCIAL ACCOUNTING: EU TAXONOMY AND NEW DATA SOURCES FOR THE NATIONAL SYSTEMS

EU Taxonomy Regulation and Definition

While usually, regulations on the business and financial sector can be problematic policy instruments, the EU Taxonomy regulation, and delegated acts are really moving in the right direction and there is the hope that there will be no 'road-blockers' in this way.

The EU environmental taxonomy is a framework to discern when an economic activity can be considered environmentally sustainable. That is the general definition and also the purpose of regulation. Unfortunately, we realise that market operators find difficulties in implementing this regulation. That is why specific training on that topic is necessary for the different companies in the financial sector, starting by explaining what the EU taxonomy is.

Economic Activities not “Taxonomy Eligible”

As we can see, the taxonomy definition is not of what would allow an “easy” identification of a sustainable asset because there is no definition of

Environmental, Social, and Governance (ESG) assets. What would be a "good" ESG investment is somehow relative, because there are different sets of values and priorities at the company level.

It is not even a tool to classify a company because 'sustainability' is a concept really down to the economic activity. If a company has several activities (primary, secondary, and ancillary), we would need to drill down and break down. We would say that the turnover or the Capital Expenditures (CapEx) of the companies, into its different sectors of activity or sub-sectors, account within this classification.

Finally, taxonomy is not either a sector classification: we may have only certain activities that are named as being 'taxonomy eligible'. This is just because certain criteria have been defined and satisfied for these activities.

Of course, there are very green activities for climate change. In practice, we have more 'enabling' activities, that allow other activities to make a substantial contribution to the taxonomy objectives, whereas some very broad activities would not be covered. In the meanwhile, an activity can be indicated as eligible which means that we have a framework to analyse whether the way a company is performing that activity is environmentally sustainable or not. It is just a starting point.

Climate Change Objectives and Measurement Criteria

The objectives that have been covered so far, bearing in mind that we have only the first step of the taxonomy being delivered, are about "climate change". There are about little more than 90 activities which are focusing on the actions that are major contributors to the reduction of greenhouse gas emissions or the enabling sector.

How does EU Taxonomy work? The regulation defines six environmental objectives and, for the time being, the EU has the framework for the first two: "climate change mitigation" and "climate change adaptation". For each activity that has been defined, we have rules that are as much as possible objectives, scientific-based and quantitative, to evaluate whether an entity's activity, the way the activity is being undertaken by the company can be considered as contributing substantially to the environmental objectives. We have what is called the Technical Screening Criteria (TSC), that define a matrix. Very often this will be in terms of greenhouse gas emissions and the threshold. Usually, it will be like a relative measure to the sector, but it is different from one sector to the other, plus a certain number of additional criteria, to ensure that when an activity, for instance, is targeting climate change mitigation, it does not harm the other five en-

PART II: Developments in the Sub-Systems of the National-Regional Accounts and the Related Satellite Accounts for Sustainable Development Policy Purposes

CHAPTER 3

The Central Framework of National Accounts and the Satellite Accounts in A Systemic Approach to Organize Statistical Data

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Abstract: The UN System of National Accounts (SNA) and the European System of Accounts (ESA) both provide a sequence of accounts, at the national and possibly regional level, describing economic activity in an accounting year. This is the core of the system of accounts which has been consolidated over several decades of implementation in official statistical offices after periodical revisions. The central framework has been progressively expanded and integrated with further accounts, to focus on specific sectors of economic activity, sub-populations of national producers, or new areas of policy interest, going far beyond the consolidated representation of the economy and society.

Today, there is a broad consensus among academia, statisticians, and experts in the field that the system of accounts should cover information on key sustainability topics. This implies including measurements of the other two dimensions of sustainability: the social and the environmental. Probably in the future, there will be a refocusing on what should be considered 'central' to this accounting framework.

Keywords: National accounts, Satellite accounts, Systemic approach, Social and environmental sustainability, Sustainable development.

INTRODUCTION

The system of national accounts provides a powerful statistical framework to describe at the macro-level the development process of an economy in a reference accounting year. The UN System of National Accounts (SNA) and the European System of Accounts (ESA) both provide the methodological basis and the sequence of economic accounts at national and possibly regional levels (UNSTAT, 2009; Eurostat, 2013). This is the core of the system which has been consolidated over time but also expanded and integrated with specific Satellite

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Accounts (SA), that attempt to cover the environmental and social dimensions interacting with economic development.

The three dimensions, together, are necessary to properly describe progress with respect to the sustainability of development and to enable policy decisions to be taken accounting for all existing interactions in the system.

Furthermore, what is considered 'central' in the framework of the system of accounts is evolving based on methodological developments, new data availability, and changing policy instruments.

After a brief consideration of the systemic approach to accounting, the methodological indications of SNA and ESA manuals are summarized with respect to the SA relevant to analyse "sustainability". The potential advantages and limitations of this statistical tool are reported at the end.

THE SYSTEMIC APPROACH TO DATA ORGANIZATION

Modern system theory, widely used in science, provides a useful approach for the analysis of sustainability applied to social issues in the broad sense, that is including economics and its natural environment (Dyball *et al*., 2015). Extensions, such as those of chaos theory, allowed also us to consider the complexity of dynamics in our real world and how even small events and actions can affect the whole system (Lorenz, 1972). That is why even small values or variations in macro aggregates should be kept under great attention.

Macro-(national and regional) accounts have been developed following this systemic approach within the SNA and ESA (UNSTAT, 2009; EU, 2013). As mentioned, this is the proper way to describe the complex phenomenon composed of many 'parts' interacting with each other, in particular macroeconomic developments within the environmental and social spheres, even if this has to be expressed only in monetary terms. The SNA/ESA framework is structured in a central set and several satellite sets of accounts, with connected entries that consider feedback effects. This is a typical "application of a systematic accounting approach" (ESA, par. 22.10).

This "accounting framework of the SNA allows economic data to be compiled and presented in a format that is designed for purposes of economic analysis, decision-making, and policymaking" (SNA, par. 1.1). The data, after the organization into accounts, are suitable for producing statistical macro-indicators to be used for the previous purposes.

Specifically, SA has to be considered in this methodological approach based on system theory.

SATELLITE ACCOUNTS IN THE SNA SYSTEM

In the SNA manual, chapter 29 is dedicated to "Satellite accounts and other extensions".

For the SNA manual "The sequence of accounts is fully integrated in large part because of the underlying rigour of the [business] accounting system" (SNA, par. 29.1) as it is "derived from the broad bookkeeping principles" (SNA, par. 3.112). That is why "SNA works with a quadruple-entry accounting system" (SNA, par. 26.17).

SNA is, for the previous reason, "integrated, economically complete and internally consistent"; moreover, despite these characteristics, "A great deal of flexibility can be applied in its implementation" in different ways (SNA, par. 29.1). Based on that, several further systems of accounts linked to the "core accounts" (SNA, par. 17.193) can be devised.

It is possible "to select a group of products or industries …designated here as key sectors" and "to compile a complete sequence of accounts for the key sector also" (SNA, par. 29.3). This is the development of a sub-system of "key sector accounts" (SNA, par. 29.3), which is, in this case, fully included and so coherent with the central system. An example of this, provided by the manual, is "the goods and services primarily serving tourism" (SNA, par. 29.3).

Following the manual, this approach may lead to very specific choices "for example concentrating on a single agricultural crop or mineral output" (SNA, par. 29.3). This is theoretically possible, but implementation is constrained by the availability, at the time of compilation, of basic data or disaggregated statistics.

"A further and more extensive form of flexibility is that of truly satellite account", "linked to, but distinct from, the central system" (SNA, par. 29.4). Note that "each is consistent with the central system, they may not always be consistent with each other" (SNA, par. 29.4).

"There are two types of satellite accounts" (SNA, par. 29.5): "internal satellite" or extension Satellite Accounts (SA), by introducing reclassifications and extensions; "external satellite" or supplement SA, by introducing alternative concepts (SNA, par. 29.85).

In the first case, there could be "some rearrangements of central classifications and the possible introduction of complementary elements. Such satellite accounts

CHAPTER 4

Natural Capital in National and Regional Accounts: The Example of India

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Abstract: It is now clear to countries around the world that economic development is no longer sustainable at the expense of the natural environment. Only economic accounting integrated with environmental accounting allows for controlling any imbalances and finding out the trade-offs for appropriate policy decisions. In developing countries, like India, solutions are being sought to enhance the value of natural capital in policy decisions, in a similar way as in developed economies.

This chapter introduces how India is implementing the System of Economic and Environmental Accounting (SEEA), now recognised by the UN as an international statistical standard. It also highlights new opportunities in data availability and technological advances that suggest innovative ways to exploit this information for environmental accounting purposes.

Keywords: Environmental-economic accounting, Ecosystem services, India statistics, National-regional accounts, Natural capital.

INTRODUCTION

The geographical area of the Asian subcontinent administered by the Indian government, is characterized by a great diversity of natural ecosystems: from deserts to swamps and forests, from plateaus to plains, mangroves and coral reefs, just to give some examples. Ten biogeographic zones can be distinguished along with successive variations in agro-climatic areas, ranging from the peaks of the Himalayas in northern India, through the central arid and semi-arid regions, to the tropical rainforests in the south and the coasts of the Indian Ocean (Bhanumati, 2021).

In India, the natural environment is discussed at the constitutional level in the Principal Directives of State Policy, of 1950. They indicate the commitment of the

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Edoardo Pizzoli (Ed.)

Indian state to it, specifically forests and wildlife, and impose a fundamental duty of protection and improvement on its citizens (Art. 48A and Art. 51A; Government of India, 2022). The various states address the environment through legislative and administrative instruments, considering the federal system of government of India; while the Union Parliament makes laws for the entire country (Art. 25 of the Constitution). Powers are distributed according to three lists of area (Union, State and Concurrent). For example, land and water are state matters, while forests and wildlife are concurrent matters. Environment is a concurrent subject and statistics are produced following this distribution among the various levels of government.

The Ministry of Statistics and Programme Implementation (MoSPI) of the Government of India acts as a liaison agency for the integrated planning and development of the statistical system. For environmental statistics and accounts, to provide accessibility, MoSPI has created a compendium of environmental statistics, consolidating the historical series since 1997 on the basis of the United Nations Framework for the Development of Environmental Statistics (FDES) 1984 (MoSPI, 1998-2016).

In 1997, MoSPI established a technical working group on Natural Resource Accounting (NRA) to study the introduction to the environmental accounts system. A study was undertaken in a province for the period 1999-2000 and discussed among academia and statistical offices. In order to develop a specific uniform methodology, MoSPI commissioned a series of state-level studies on natural resources: land, forests, air, water and subsoil (MoSPI, 2006; 2008). In 2011, MoSPI created an expert group, chaired by Prof. Partha Dasgupta, from the University of Cambridge in England, to develop a framework for India's green national accounts and propose a roadmap for their implementation. The report of 2013 titled “Green National Accounts in India- A Framework” (MoSPI, 2013) recommended the compilation following the United Nations System of Environmental-Economic Accounting (SEEA).

THE ENVIRONMENTAL-ECONOMIC ACCOUNTING SYSTEM

To measure growth at the regional level, several statistical indicators are used, with GDP and other macroeconomic aggregates at the core. In order to achieve sustainability, it is essential to supplement economic information with information on the state of natural capital such as biotic, and abiotic resources and the ecosystems. The natural environment provides raw materials for production and this causes dependence on environmental conditions. Further social benefits derive from being able to enjoy nature. Understanding the interdependence that exists between the environment and the economy is very important for decision-

makers when they develop their growth policies, to ensure a sustainable use of natural resources.

Within the United Nations, a comprehensive, internationally agreed conceptual framework has been developed: the System of Environmental-Economic Accounting (SEEA) (UN, 2014). The objective of the SEEA accounts is to describe the environmental burden of economic activity, and the current state of the natural environment and to provide data for environmental indicators. Labour, capital, and nature interact in the national economy to enable its growth.

With these integrated accounts, a range of macro-level issues, such as the efficient use of resources and their productivity, can be studied through techniques such as decomposition analysis and structural input-output analysis. We can distinguish two main sub-systems: SEEA-Central Framework (SEEA-CF) adopted by the United Nations Statistical Commission as the international standard for environmental-economic accounting in 2012 (UN, 2014), that considers "individual environmental assets", such as land, water and energy resources, and the flows between these assets between the environment and the economy. SEEA-Ecosystem Accounting (SEEA-EA), adopted in 2021, is a coherent framework for integrating an assessment of ecosystems and ecosystem service flows with measures of economic and other human activities (UN, 2021). Both form the integrated basis of this system that can be applied to specific subject areas.

DEVELOPMENTS OF THE ACCOUNTING SYSTEM IN INDIA

MoSPI started compiling environmental accounts under the SEEA framework in 2018 to ensure international comparability. Some results have already been published in "EnviStats-India".

This publication consists of two annual issues. Volume I covers various dimensions of environmental statistics (EnviStats-India, 2019-2022a) in line with the United Nations Framework for the Development of Environmental Statistics (FDES) 2013 (UNSTAT, 2017). FDES provides indicators on the state of the environment, our dependence on it, our impact and that of the environment on human life, environmental protection and management. The publication of 2021 provides information on 222 indicators from the 2013 FDES. Volume II presents the SEEA reports that provide a systematic view of the state of the environment in India in relation to resources and ecosystems (EnviStats India, 2018; 2019-2022b). In this publication, we find ((MoSPI, 2021; Table **1**):

CHAPTER 5

Non-Profit Sector Accounting in the Italian Official Statistics

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Abstract: The implementation of the United Nations 2030 agenda for sustainable development requires a solid statistical framework that has prompted the National Institutes of Statistics (NISs) to produce Sustainable Development Goals (SDGs) indicators. While nonprofit institutions and social entrepreneurship are increasingly recognized as important actors supporting the achievement of sustainable development goals (Salamon *et al*., 2015), official statistics investigating those actors are rare. Even in the absence of international regulations as a legal basis for producing social economy and the third sector-related statistics, the Italian Institute of Statistics (ISTAT) has been producing official statistics on the core characteristics of NonProfit Institutions (NPIs) for more than 20 years (definition in S.15; Eurostat, 2013).

The objective of this chapter is to show the state of the art of statistical production on the non-profit sector and Corporate Social Responsability (CRS) in Italy. With the objective of enhancing the available information and expanding the perspective of social economy, the ISTAT permanent census of enterprises has investigated the corporate Environmental, Social, and Governance (ESG) performance, including corporate social CSR. Undeniably, the integration of data sources, combining survey results with administrative data, positively contributes to acquiring insight into SDGs while enhancing measures and statistics on the third sector and social economy, such as the creation of a satellite account of NPIs (UNSTAT, 2018).

Keywords: Corporate and social responsibility, Non-profit sector accounting, Social economy, Third sector statistics.

INTRODUCTION

In the last decades, the interest of statisticians, policymakers, and social scientists has been focusing on organizations that are different from market firms or public

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agencies. In literature and public debate, this type of social institution is differently mentioned as "non-profit", "voluntary", "civil society", or "third sector" organizations, and commonly these terms also include sports and recreation clubs, art and cultural associations, private schools, research institutes, hospitals, charities, religious institutions, social services organizations, advocacy groups, and charitable foundations.

The reasons for this interest in those organizations, named "nonprofit institutions" (NPIs), are to find not only the functional importance assumed in the context of social policy and the legal framework but also in their specific way of doing business and in interpreting economic action. In brief, we can identify four reasons behind the public interest:

- NPIs economic relevance has been growing in countries throughout the world. Despite the idea of the nonprofit sector's marginality in contemporary societies, the empirical evidence has shown the economic growth of this sector even in recent periods of economic crisis and the capabilities to solve persistent social and economic issues;
- NPIs are increasingly concerned with public policy. Against the backdrop of the welfare state crisis, a process of "non-profitization" of social policies is taking place as governments increasingly give to nonprofit organizations public services (Salamon, 2016);
- NPIs have distinct organizational behaviour and features that differentiate them from other economic sectors. At least for some analytical purpose, it is important to split NPIs out from other economic actors, considering their specific organizational structure and social functions;
- NPIs' role is to promote democracy, pluralism and social cohesion. A more accurate representation of the nonprofit sector appears even more crucial if we consider the social and economic relevance. Indeed, NPIS can play a fundamental part in the construction and maintenance of a vibrant and cohesive society.

Therefore, in recent years, the need for statistical information on the non-profit sector without privileging only the world of business firms and public agencies has increased.

The chapter explores, thus, how and to what extent the Italian Institute of Statistics (ISTAT) is committed to producing official statistics of the nonprofit sector, in order to investigate emerging issues.

NONPROFIT SECTOR IN THE OFFICIAL STATISTICS

The measurement of the nonprofit sector has always challenged scholars and organizations dealing with official statistics. In fact, nonprofit institutions are not always easily identifiable, particularly when there is no legal framework to identify them when they are not legally formalized. Nonetheless, the international regulations concerning the production of official statistics provide some definitions, identifying the characteristics that distinguish nonprofit institutions. A general definition of nonprofit institutions, applicable to different national contexts, is contained in the System of National Accounts (UNSTAT, 2009: 61, 455) which states that:

"Non-profit institutions (NPIs) are legal or social entities created for the purpose of producing goods and services but whose status does not permit them to be a source of income, profit or other financial gains for the units that establish, control or finance them […]. The distinguishing feature that identifies an NPI is that its status does not permit it to be a source of income, profit, or other financial gains for the units that establish, control, or finance it. An NPI may make a profit, it may be exempted from taxes, and it may have a charitable purpose but none of these are determining characteristics. The only essential criterion for a unit to be treated as an NPI is that it may not be a source of income, profit or financial gain to its owners".

Therefore, NPIs can produce goods and services for sale like for-profit businesses. However, the above-mentioned definition states that none of these characteristics distinguish NPIs from other institutional units considered in national accounts. There is only one decisive character: the constraint of non-distribution of profits. For an organization to be classified as a nonprofit institution must not be a source of income, profit, or other financial gains for those who set up, control, or finance them (businesses, public administrations, families or individuals, *etc.*).

However, this definition does not provide a comprehensive classification of the contribution of nonprofit institutions in the 4 sub-sectors of the economy in the SNA (Non-financial corporations, S11; Financial corporations, S12; General government, S13; Households sector, S15). Moreover, the contribution of the nonprofit sector to the economy results underestimated and its characterization, is biased, if the contribution is assigned to other sub-sectors. Indeed, the primary objective of SNA 2008 and ESA 2010 is to determine the criteria for the allocation of NPIs to the appropriate institutional sectors of SNA, *i.e*., government and financial and non-financial corporation sectors. Regarding the remaining NPIs serving the household sector, a separate sector, *i.e*. Non-Profit Institutions Serving Households (NPISHs), is created for the purpose of distinguishing the

CHAPTER 6

An Integrated Framework for Monetary Environmental Accounts: A Pilot Study on Italy

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Abstract: The research agenda of the System of Environmental-Economic Accounting–Central Framework (SEEA CF), the UN standard on environmental accounts, includes developing an integrated framework for monetary environmental accounts. At the 2017 London Group meeting, Eurostat (European Commission), leader on this topic, presented a proposal for a framework, calling, in the following year, EU member states for experimental compilation of the proposed tables. ISTAT (Italian Institute of Statistics) completed a pilot exercise in 2020, compiling the tables covered by the Eurostat layout: Supply Table, Use Table, Production account, and Expenditure account.

This chapter recalls the main accounting features of the integrated monetary framework and presents the results of the Italian pilot compilation.

Based on the same equations underlying national accounts, the integrated framework aims at assuring consistent estimates on the supply and demand of environmental products and it can be compiled starting from existing environmental accounts, EGSS mainly providing estimates on the supply of environmental goods and services, and Environmental Protection Expenditure Accounts (EPEA) providing, at present, estimates on expenditures for environmental protection purposes.

In the Italian exercise, putting EGSS and EPEA into the integrated framework layout allowed us to highlight and quantify differences in scope, coverage, and definitions between the two accounts. However, the most interesting findings concern the improvements derived from the combined use of the two accounts: the production of balanced estimates allowed for checking and adjusting inconsistencies among data, filling in gaps, and optimizing calculation processes. Furthermore, it allowed us to enlarge the supply of statistical information on the economy and the environment for Italy, beyond the present scope of EGSS and EPEA.

The exercise carried out by ISTAT is an example of how statistical information can be enhanced to better comply with the requirements of the European Green Deal and, more generally, with the demand arising from the effort towards mainstreaming environmental sustainability in all EU policies.

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Keywords: Environmental products classifications, Integrated framework of accounts, Monetary environmental accounts, Supply-use tables.

INTRODUCTION

The research agenda of the System of Environmental-Economic Accounting –Central Framework (SEEA CF), which is the UN "standard" on environmental accounts (UN, 2014), recognizes the need to determine whether the different aspects of monetary environmental accounts can be further integrated into a single accounting framework (Integrated Framework - IF) (Schenau, 2016).

Eurostat (European Commission), a leader on this SEEA CF research agenda topic, presented a proposal for an IF for monetary environmental accounts at the 2017 London Group meeting (Eurostat, 2017b).

The proposal is based on a common set of concepts and definitions of environmental activities, producers, and products and a set of accounting tables that can be compiled on the basis of the Environmental Goods and Services Sector account (EGSS) and Environmental Protection Expenditure Account (EPEA): Supply Table, Use Table, Environmental production account and Environmental expenditure account. The next paragraph summarizes the main features of Eurostat's IF proposal (Eurostat, 2017b, 2018), currently a work in progress and is to be finalized by the SEEA CF technical committee.

In this context, in 2020, ISTAT completed a pilot project aiming at testing an IF for monetary environmental accounts. The Eurostat's layout is the reference framework for the Italian pilot compilation (Battellini *et al*., 2021). Paragraph 3 describes the main steps carried out to fill in the IF and presents the results and main achievements of the pilot exercise with reference to the supply and use tables, while the compilation of the environmental production account and environmental expenditure account is not dealt with in this chapter.

Finally, we draw some conclusions on the feasibility of compiling an integrated framework for countries that regularly produce monetary environmental accounts as well as on the implications in terms of policy use.

EUROSTAT'S LAYOUT FOR AN INTEGRATED MONETARY FRAMEWORK

Monetary environmental accounts also known as environmental activity accounts present monetary transactions carried out for the purpose of environmental protection and resource management.

The SEEA CF provides an accounting framework for representing four main kinds of monetary transactions. The first account concerns the expenditures of the general government, corporations, non-profit institutions, and households for the prevention and reduction of pollution (Environmental Protection Expenditure Account – EPEA). The second one reports the flow of the goods and services produced by the economy for environmental protection and for preserving resources from depletion (Environmental Goods and Services Sector account – EGSS). The third one relates to expenditures for resource management purposes following the same basic structure as outlined for the EPEA (Resource Management Expenditure Account – ReMEA). Finally, the fourth one accounts for the flows of environmental taxes and subsidies (Environmental subsidies and other transfers – ESST).

Within SEEA, each of the four monetary accounts has been designed for a specific purpose. The Integrated framework developed by Eurostat aims to provide a comprehensive picture of the actions and activities of economic operators for environmental purposes.

To this aim, the layout of the IF proposed by Eurostat includes a set of supply and use tables, and two flow accounts: production and expenditure.

This set of tables allows us to show balanced estimates on the:

- Supply, *i.e.*, which economic activity produces the environmental products (resources) available and for which environmental purpose based on the Classifications of Environmental Protection Activities (CEPA) and Resource Management Activities (CReMA) (Eurostat, 2020)?
- Use, *i.e.*, who uses the environmental products made available? for what kind of use (intermediate, final, investment, export)? and for which environmental purpose?
- Production, *i.e.*, the amount of value added generated by the production of environmental products, the amount of environmental output used as input for the production of environmental output (intermediate consumption of environmental products), the amount of output available for resident users;
- Expenditure, *i.e.*, how much the economy spends for an environmental purpose, including the investments in non-environmental products necessary for environmental purposes.

The remainder of this paragraph provides detailed explanations of the supply and use tables, whereas, as stated in the introduction, the environmental production account and environmental expenditure account are not dealt with in detail in this chapter.

CHAPTER 7

Modernization of the Economic Accounts for Agriculture in the EU

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Abstract: This chapter presents issues related to the modernisation of the economic accounts for agriculture since 2017 (Eurostat, 2022). The methodological aspects and the transmission deadlines of the Economic Accounts for Agriculture (EAA) are set up in Regulation (EC) No 138/2004 Annex I (EU, 2004) and follow closely the SNA 2008 (UNSTAT, 2009) and the ESA 2010 (Eurostat, 2013).

Eurostat's effort in the modernization of EAA is an example of the direction to follow and the potential of these satellite accounts for the core system of national accounts in SNA.

Keywords: Common agricultural policy, Economic accounts for agriculture, Indicators, Modernization process, Sustainable development goals, Total factor productivity.

INTRODUCTION

European Union (EU) policies require, for their implementation and adaptation over time, comparable and reliable statistical information from the member states on all the different components of sustainability: economic, social, territorial and environmental. Eurostat's official statistics enable the various policy actors to assess the current state of the Union and to adopt the most appropriate measures for future development.

Specifically, European agricultural statistics provide data for the Common Agricultural Policy (CAP) and fisheries, as well as information on the environment, food safety and farm animal health. The 'Strategy for Agricultural Statistics for 2020 and beyond' is the major programme in the Union to modernise these statistics run by the European Commission jointly with Member States (Eurostat, 2015b).

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This strategy includes the following key objectives:

- Produce high quality statistics that meet users' needs efficiently and effectively;
- Improve the harmonisation and coherence of European agricultural statistics.

These are the objectives of the European Statistical System Committee (ESSC) and are reflected in the Regulatory Fitness and Performance (REFIT) program that would like to improve the overall European System of Agricultural Statistics (EASS). International recommendations on reporting greenhouse gas emissions by the Intergovernmental Panel on Climate Change (IPCC) and the standards provided by the UN Food and Agriculture Organization (FAO) are included in the European strategy. This is also in line with the UN Global Strategy to improve agricultural and rural statistics.

Finally, agriculture is at the core of the European Green Deal, specifically for the 'Farm-to-Fork strategy' (EC, 2020).

The European Commission, EU Council and Parliament need this relevant information as a substantial share of the EU budget is allocated to the CAP (Eurostat, 2022), which is nearly 40% of the Union's total budget in the context of the 2014-2020 Multiannual Financial Framework (MFF).

As said, a priority of the European Commission is to have modernized statistics for the European Green Deal, within the Farm-to-Fork and Biodiversity strategies.

Agricultural accounts considered here are at the core of the agricultural statistics system and provide information for sustainable development. With this approach, social objectives and rural development policy are together with competitiveness and economic sustainability of production. Furthermore, these accounts are increasingly needed to understand the effects of climate change and regional policies that impact local development.

This instrument allows us to meet the main quality criteria for statistical data: to be consistent and comparable. The Union legislation provides the common statistical standards, concepts and reporting formats.

In summary, today we can observe that Eurostat has compiled a full set of European agricultural statistics and accounts for decades, covering several aspects: structure of farms, economic performances (including labour input), animal and crop production, organic farming, agricultural prices, pesticides, nutrients and other agri-environmental aspects. All of them are important to support the EU policy decision-making for sustainable development.

The Economic Accounts for Agriculture

The performance of the agricultural sector in the EU, as a whole, can be assessed with the volume and price changes for agricultural goods and services in the frame of an accounts system. The Economic Accounts for Agriculture (EAA) provide macroeconomic-level information about the agricultural output and inputs (costs, investment, land and labour) to key users.

Annual macroeconomic information is provided to European policymakers with the first estimates in November (before the end of the same year), the second in January the year after, followed by (semi)final data in September.

EAA follow the methodology for national accounts as a satellite account of the European System of Accounts (ESA 2010). However, their compilation requires specific rules and methods, set out by Regulation (EC) No 138/2004 and later amendments of the European Parliament and of the Council (EU, 2004).

National and regional economic accounts for agriculture have been produced and transmitted to Eurostat by Member states since 2000. An assessment in 2016 by Eurostat found that an update was necessary to consider changes in the sector and EU policy priorities.

The Modernisation Process Started Already in 2017

The updating of European agricultural statistics, including the EAA, is carried out by Eurostat within the European Statistical System (ESS), building on a long-standing partnership with the National Statistical Institutes (NSIs) and the other concerned authorities.

As indicated in the 'Strategy for Agricultural Statistics for 2020 and Beyond', "the main categories of stakeholders of European agricultural statistics are data producers (NSIs and other national authorities as well as Eurostat), respondents (farmers, farmers' organisations and businesses) and users (public and private decision-makers - in particular other Commission departments - researchers and journalists). They have been consulted extensively on problems and desired changes in the status quo, their data needs and priorities, possible policy options to solve the problems, impacts of suggested actions, and the formulation of the strategy" (EU, 2022b).

The evaluation of this strategy included in the Special Report SR 01/2016 by the European Court of Auditors audit provides some indications of the extent to which EAA satisfy the data needs of the users (ECA, 2016). These results are also important drivers for the modernisation of the EAA.

CHAPTER 8

Public Sector and Government Accounts

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Abstract: The specific sub-system of national accounts dedicated to the public sector deserves careful analysis since through this, the main public policy actions can be monitored by statisticians. With great care, in the System of National Accounts (SNA) and the European System of Accounts (ESA) in the EU, public sector and government accounts are brought into the framework and firmly linked within the core system of national accounts. This is a required coherence effort as there is a long history of public sector accounts and, normally, a double accounting with different criteria is carried out by the public institutions in European countries. The basic frame and definitions will be introduced in this chapter, underlining the problems but also the necessity of this great effort at the accounting level.

This challenge represents a frontier for accounting research for the purposes of monitoring policies for sustainable development.

Keywords: Functional classification, Government finance, Government accounts, Public sector accounting, Sustainable development policies.

INTRODUCTION

In this chapter, we present the specific system of accounts developed for the main actor in the economy: the so-called 'government' or, more extensively, the ‘public administration’ operating in each country at several territorial levels. A specific sector of units (the 'Public Sector') and accounts (the ‘Government Accounts’ and ‘Public Sector Accounts’) is defined in the UN System of National Accounts (SNA) manual and the EU version of the European System of Accounts (ESA) (UNSTAT, 2009; Eurostat, 2013).

“The flexibility of the SNA is further illustrated with the public sector, whose components are systematically shown at various levels of detail in the classification of institutional sectors. The components of the public sector may be rearranged to group the accounts of the overall public sector. These accounts may

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be shown before consolidation and after consolidation to describe the relations between the public sector and the private sector and between the public sector and the rest of the world (by separating the external transactions of the public sector)" (SNA, par. 2.162).

SNA provides the "international standards for … public accounting" (SNA, Preface, B, xlvii). The manual defines the macro-economic accounting principles in response to developments in accounting standards for government, public corporations, and public-private partnerships. How to record transactions between units within the sector and with units in other sectors of the economy.

The ESA Manual follows the SNA standards, providing further definitions and classifications for specific cases.

PUBLIC SECTOR ACCOUNTS

"The public sector consists of general government and public corporations" (ESA, par. 20.303).

Resident institutional units operating in the economy are included in this specific sector based on the "government control principle" (SNA, par. 4.26; ESA, par. 20.309). Specific attention is devoted to this key classification feature of public units and to borderline cases in SNA and ESA manuals (SNA, par. 4.23 and 4.77; ESA, par. 20.309).

"The elements composing the public sector are already present in the main sector structure of the system and can be rearranged to compile the public sector accounts. This is undertaken by putting together the subsectors of the general government sector and the public subsectors of non-financial and financial corporations" (ESA, par. 20.303).

"Public sector accounts may be constructed according to the ESA framework and sequence of accounts, and in principle, both consolidated and unconsolidated versions are analytically useful. Alternative presentations, such as the … Government Finance Statistics presentation … are also useful" (ESA, par. 20.305).

Government Accounts

This system of accounts covers the 'general government' broken down into its hierarchical and territorially defined sub-sectors: Central Government, State Government (for Federal political organizations), Local Government, and Social Security Funds (SNA, par. 4.129; ESA, par. 2.113). The accounts of each sub-sector may be presented independently.

Specific accounts are also compiled for some units belonging to this sector: non-market institutions such as agencies, institutes, and non-profit institutions (NPIs) controlled by the government.

Public Corporations Accounts

Public corporations are controlled by the government and follow the same accounting rules as private corporations.

"One common sub-sectoring (of the institutional sectors) is to identify those non-financial and financial corporations that are controlled by the government, called public corporations" (SNA, par. 4.34).

Their peculiarities can be related to the sectors of activity in which they operate, considered strategic or necessary to require public support at the central or territorial level of the government. Public corporations are created or acquired "when a government unit wishes to intervene in the sphere of production" (SNA, par. 4.120).

The Development of Public Accounts

Public accounts are organised according to the hierarchical organisation of the institutional units within the public sector, as follows (Fig. **1**):

Each subsystem of accounts, corresponding to the previous regroupings of units, has a different territorial reference and economic size.

The transition from accounts of a lower hierarchical level to those of a higher level requires an aggregation, called 'consolidation', which requires the clearing of transactions that occur between units within the system represented by the level in question.

Complexity and Consistency Issues

This system of accounts is particularly complex given the size of the public sector and the number of units operating in this sector of the economy. In addition, some specific transactions are subject to special accounting rules that differ from the rest of the economy. Therefore, the overall system of public accounts is particularly problematic, with regard to some specific quality standards that require special attention from public authorities.

PART III: Economic Sustainability Issues for Policy Makers: National Accounts Applications

CHAPTER 9

Output and GDP in National Accounts: Possible Dis-Aggregations and Reclassifications to Estimate Un-Observed and Neglected Areas of the Economy Relevant for Sustainability

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Abstract: The definitions of output and Gross Domestic Product (GDP) are, in line with the UN System of National Accounts (SNA), intended to measure the total "human economic activity" over a territory and estimates have been developed by official statistical offices to calculate the economic aggregates.

A theoretical reclassification of their components would allow us to account for different categories of products and new types of producers. This is a useful exercise that can become a tool for supporting data collection and measuring the difficult components of these key national accounts aggregates. In addition, new subsystems of accounts, such as the UN Economic and Environmental Accounts (SEEA), can be developed from them, in support of core national estimates. They can provide data to calculate indicators on important environmental policies and to monitor the sustainability of development. From this point of view, studies on European countries such as Italy could provide instructive starting points for further research.

Keywords: Economic sustainability, GDP, National accounts, Output, Satellite accounting, Un-observed economy.

INTRODUCTION

Gross Domestic Product (GDP) is still a main indicator in the national account system even if now numerous authors from different authoritative parts consider it necessary to integrate and eventually overcome it (Costanza *et al*., 2014). Yet, back to the national accounts developments after the Great Depression, during the 1930s, and later, after the Second World War, promoting GDP growth has remained the primary national policy goal in almost every country.

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Now, if we reconsider the rich information content behind this indicator, and specifically the main aggregate of Output, it is possible to estimate new sub-aggregates and calculate indicators that can be useful for a correct analysis of the development sustainability. Several extensions of the core national accounts system are actually proposed by the UN Statistics Division and by Eurostat integrating this important information system.

Output and GDP in ESA and SNA

The two base indicators for national accounting (Output and GDP) have been detailed and defined in the UN System of National Accounts (SNA) and accordingly by the EU European System of Accounts (ESA) in several editions of the national accounts' manuals (UNSTAT, 2009; Eurostat, 2013).

The main components of these aggregates are observable and measured by almost all the UN countries. Some of them are difficult to observe and collect the data or they are even not directly observable. There is an area of non-observed economy that includes underground economy, informal and illegal production that for economic and statistical reasons is missing in official Output and GDP and only in some cases estimated.

Furthermore, there is much-hidden information that is 'nested' within the aggregates, which is very useful for understanding development and its long-term sustainability.

Definition of Output in ESA

Based on the ESA definition "Output is the total of products created during the accounting period" (Eurostat, 2013; ESA, par. 3.14). Output is the aggregation of goods and services, *via* monetary prices, which are the result of a production process with a human involvement or direction (human production).

Behind the concept of output is, therefore, the concept of production: "an activity carried out under the control, responsibility, and management of an Institutional Unit (IU) that uses inputs of labour, capital and goods and services to produce outputs of goods and services" (ESA, par. 3.07).

"The ESA records all outputs that result from production within the production boundary" (ESA, par. 1.31). To set the boundary of an economy and make operational the inclusion/exclusion mechanism for statistical measurement, it requires a certain degree of approximation, that is the introduction of a degree of

statistical error and the adoption of some conventions that guarantee the comparability of aggregates internally in the measurement system (*i.e.* EU comparability for ESA).

Based on this definition of the aggregate, that is why the production of goods and services as a natural process is excluded; such as, for example, the unmanaged growth of fish stocks in international waters (ESA, par. 3.07). The products are offered for free by nature so they are outside the economic boundary. Note that, this exclusion from economic output does not mean that the produced goods and services are not useful or needed for final or intermediate use (consumption or investment). If there is a human effort for management and 'extraction' of the natural resources, that is human work of employees, then this production enters into the economic boundary, and goods and services belong to output.

Goods and services are considered part of the output if they are supplied to units other than their producers (ESA, par. 3.08). That is why some activities and their goods or services are not recorded as production: for example, domestic services are produced and consumed within the same household. In this case, services (or goods in other cases) do not generate income, final consumption expenditure, and employment. These human products are not 'socially' produced and consumed, that is, are not collective goods and services or exchanged through the market, or donated for free or at no market prices (*i.e.* supplied to other households). These products are produced and consumed internally in the households.

In addition to the goods and services offered through the market (disposed of on the market or intended to be disposed of), therefore at an economically significant price (market price) to other IUs, within the production boundary of the economy, the following shall be recorded as well (ESA, par. 1.29):

- Production of individual and collective services by government;
- Own-account production of housing services by owner-occupiers;
- Production of goods for own final consumption, *e.g.* of agricultural products;
- Own-account construction, including the one by households;
- Production of services by paid domestic staff;
- Breeding of fish in fish farms;
- Production forbidden by law, as long as all units involved in the transaction enter into it voluntarily;
- Production from which the revenues are not declared in full to the fiscal authorities, *e.g.* clandestine production of textiles.

The following fall outside the production boundary, and shall not be recorded in the ESA (ESA, par. 1.30):

CHAPTER 10

Public Spending, Multinational De-Localization and Income Redistribution: The Budget Trap for Policymakers Toward Sustainable Development Policies

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Abstract: The growing awareness of the need for sustainable development at the United Nations level, has highlighted the complexity of system dynamics and the challenges for governments and policymakers. New objectives, based on increasing dimensions considered relevant to sustainability, are incorporated in the agenda of policy designers: in this scenario, the traditional economic goals of long-term prosperity become more difficult to achieve.

Moreover, although governments in Europe, the United States, and many other market economy countries are committed to balancing the public budget, de facto, public deficits are realized every year and public debt accumulates. Specifically in the EU, due to the pandemic crisis, the previously agreed limits of the public deficit in relation to the level of economic activity are currently not respected. The data and statistical trends are evident.

In the current organization of the globalized economy, multinational groups do not help the public authorities in governing the economy, playing as autonomous economic entities. The introduction of technological innovations and the re-location of plants to deal with regional demand crises, falling prices, and global market competition worsen the tasks of economic and social stabilization. Shareholders demand profitability and, consequently, private financial statements must be annually positive.

This is a budget 'trap': policymakers struggle with income redistribution to address the current economic crisis. This dilemma is discussed with examples from OECD countries.

Keywords: Fiscal policy, Financial sustainability, Government spending, Public sector accounting, Public budget, Public deficit, Public debt.

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INTRODUCTION

The adoption of the new paradigm of sustainable development at several geographical and policy governance levels, with the effort to include in a single frame environmental - socio-economic objectives, has highlighted issues already known in the past such as the complexity of the social system dynamics and the limits of our policy instruments.

A specific perspective will be adopted to address the issue of sustainability in this paper: that of the budgets in the system of economic accounts. How to keep economic sustainability within a sustainable development framework?

The recent explosion of the debt mechanism and the governments' reactions will be introduced in the first part. Considerations on the context of market globalisation will pave the way for a reflection on the "budget trap" and the possible developments for economic theory and policy practice in the conclusions.

General Government Spending and Public Debt

Government spending or expenditure in the National Accounts includes all government compensation of employees, intermediate and final consumption, investment (capital expenditure), interests, and transfer payments (social benefits, incentives, and redistribution items) (UNSTAT, 2009; Eurostat, 2013).

In government finance accounting, the acquisition of goods and services for current use by governments, to directly satisfy the individual or collective needs of the community, is classed as Government Final Consumption Expenditure (GFCE); while the government acquisition of goods and services intended to create "future benefits", such as infrastructure investment or research spending, is classed as government investment (Government Gross Capital Formation, GGCF). These two main types of government spending, on final consumption and gross capital formation, together constitute one of the major components of Gross Domestic Product (GDP) (Eurostat, 2019c).

Internally to the public budget, given the budget constraint, there is a competition between expenditure components, specifically on items supporting environmental and social sustainability with respect to doubtful or even "destructive" expenses like, for example, military weapons systems.

This is a major instrument of policy at the national level. As we know, there is also a concern about this main economic aggregate as there is an annual push to expand and redistribute this collective spending.

Public debt, sometimes also referred to as government debt, represents the total outstanding debt (bonds and other securities) of a country's central government. As we know, public debt can be raised both externally and internally, where external debt is the debt owed to lenders outside the country and internal debt represents the government's obligations to domestic lenders.

Public debt is an important source of resources for a government to finance public spending and fill holes in the budget. Public debt as a percentage of GDP is usually used as an indicator of the ability of a government to meet its future obligations.

In 2019, before the Covid-19 pandemic crisis, the public debt situation at the global level was the following (Fig. **1**):

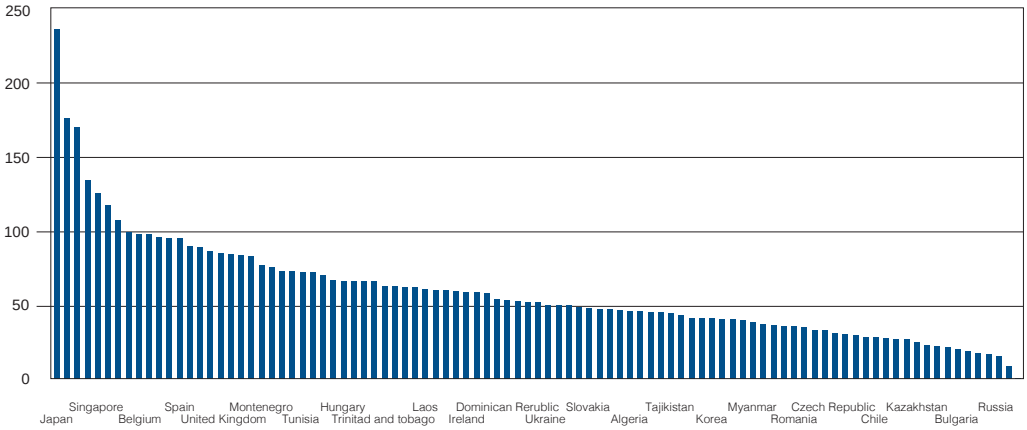

Fig. (1). Public debt (% of GDP) – Year 2019 (Source: UNSTAT).

In 2019, on available data, we had Japan with more than 200% debt, ten countries (USA, Italy, Greece, *etc.*) with more than 100% public debt, more than 50 countries with more than 50% debt, (we have to remember that not all the countries data are available or reliable; for example, it is estimated that Venezuela has overcome 300% of GDP.

The United States has the largest national debt in fiscal terms, while Japan has the largest relative debt of any other developed economy when compared to GDP.

After the Pandemic period, started at the end of 2019 with a new wave of economic crisis, this percentage exploded in most countries.

CHAPTER 11

The Green Economy: A Possible Technological Option to Deal with Economic Un-Sustainability

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Abstract: The global economic crises of the new century are long-lasting and seem without prospects of recovery. The ‘green' economy paradigm proposes an alternative basket of products with respect to the standard one, currently available for consumption and investment in the industrial economies of the 21st century.

The green economy is proposed as a smart solution for an alternative growth path that should lead to sustainable economic development.

If this is a possible scenario, a specific sustainability accounting system is necessary. This system should allow us to investigate: whether the available policy instruments are sufficient to achieve the required structural change in the economy and if the economic transition will take place in time with respect to what scientific studies require.

This new paradigm and the related economic trends are discussed in this chapter.

Keywords: Economic crisis, Economic sustainability, Green conversion, Green economy, Long-term trends, Technological progress.

INTRODUCTION

The present chapter raises several questions related to the possible evolution of the economic crisis in the current economic and political context. What seems emerging as new in the mainstream attempt to govern the difficulties involved, is the proposal of the so-called ‘green' economy and the linked sustainable development policy strategy. This is evident in actual EU policy strategy by the European Commission and documents published by UN agencies.

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In the following paragraphs, a brief introduction to the argument is provided to address some of the critical issues that should be investigated by economic research in the future.

WHAT IS A GREEN ECONOMY?

'What and how to produce' into the economy are the canonical questions for economic science and normally the answer is based on basic human needs, consumerism, enterprises' supply of commodities to the market, and political choices. To find out which possible options are currently available, it is necessary to get inside the black box of the production technologies at the specific historical time (Rosenberg, 1983). Going backward from final consumption to the origin of the production chains of the economy, several of the producible goods and services can be identified as 'preferable' products for their environmental impact throughout their life cycle (ISO, 2018). These products imply, by definition, a reduction of human impact on nature, at the time of production or consumption, with respect to other products currently produced (UN, 2014). Their productions identify industries and economic activities that have environmental positive effects concerning environmental protection and natural resources management (Eurostat, 2001b, 2014a).

The 'green' economy proposes this basket of 'green' products to be produced in alternative with respect to the standard one that is currently offered in industrial economies. This is a perspective of a structural change in the economy that implies a different growth path and, as a result, an alternative economic development scenario at the world level.

New Economic Policy Perspective for a Green Conversion

At the international level in the last decades, after important climate changes and scientific results, there was a growing consensus on the need to transform the world economy to reduce CO_2 emissions and natural resource degradation.

Examples of international policy actions, grown after several international meetings, are the UNEP Green Economy Initiative (UNEP, 2017), the OECD Project on Green Growth (OECD, 2011), and the European Commission's commitment to move towards a green economic policy (Eurostat, 2023; EEA, 2018).

As UNEP says on its homepage, "We promote the transition to economies that are low carbon, resource-efficient …an alternative to today's dominant economic model. Over the past decade, the concept of the green economy has emerged as a strategic priority for many governments" (www.unenvironment.org).

Many and an increasing number of countries, regions, and, at the local level, urban and rural administrations are implementing plans or single actions to contribute to a green conversion. This seems to be a historical trend at the beginning of the 21st century.

A Missing History of Green Technologies

Technologies, as already largely documented, had a historical evolution across the different eras of human development with some important jumps and acceleration that allows, even if arbitrary, a division in phases (Buchanan, 2018). They are characterized by the dominant materials and sources of power of the period, and their application to production.

An enormous acceleration of Western technological development has characterized the recent centuries. Specifically, since the eighteenth century producers and scientists have become systematically linked, this has allowed technology to flourish (Mokir, 2008).

Nowadays technology is intended as the utilization of natural phenomena and regularities for human purposes. In practice, this allowed humanity to develop over time systematic techniques for making and doing things, all of them having some kind of impact on the environment. Despite this necessary consequence, some of the products are preferable compared to others for their reduced impact throughout their life cycle (UN, 2014). These products can be labeled as 'green' and they should allow defining 'green' or 'greener technologies' in a geographical region at a specific historical time.

Unfortunately, there is no history of green technologies and it is unknown if they have evolved towards a lower environmental impact throughout human civilizations. What is known is that the market, together with geopolitical choices, has been the driver of changes at least since the first industrial revolution in Britain. Some technologies have been preferred in enterprises' investments for their capacity to reduce costs and increase labour productivity, regardless of the negative externalities to the environment or human health. Relative prices are the regulator and driving of business choices, so cheaper technologies were preferred if that allowed companies to be more competitive on the market and to produce higher profits.

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SUBJECT INDEX

F

G

H

I

K

L

N

O

P

Q

R

S

T

U

W

Z

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