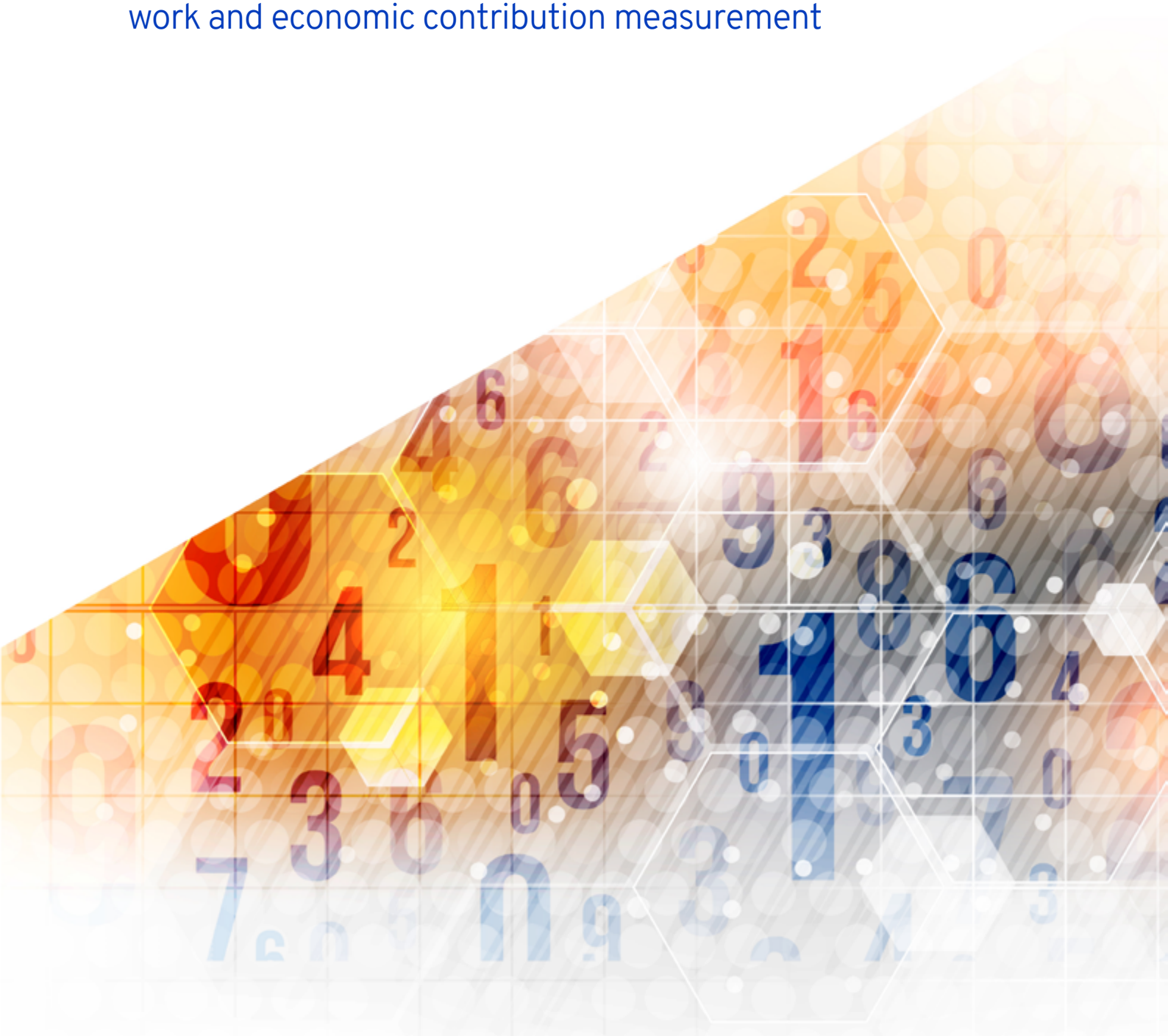
International Labour Organization

CIRIEC INTERNATIONAL

copac coop
Committee for the promotion and advancement of cooperatives

# Statistics on Cooperatives

## Concepts, classification, work and economic contribution measurement



# **Statistics on Cooperatives:**
Concepts, classification, work
and economic contribution measurement

**International Labour Office • Geneva**

---

Statistics on Cooperatives: Concepts, classification, work and economic contribution measurement / International Labour Office (ILO); Committee for the Promotion and Advancement of Cooperatives (COPAC); International Centre of Research and Information on the Public, Social and Cooperative Economy (CIRIEC)
– Geneva: ILO, 2020.
ISBN: 9789220331361 (Web PDF)

---

# **Statistics on Cooperatives:**
# Concepts, classification, work and economic contribution measurement

**Scientific editor: Marie J. Bouchard**

Contributors:

Marie J. Bouchard, Chiara Carini, Hyungsik Eum, Madeg Le Guernic and Damien Rousselière

# Preface

At the 19th International Conference of Labour Statisticians (ICLS) in October 2013, government, workers' and employers' representatives reaffirmed the importance of obtaining more comprehensive, reliable and internationally comparable statistics on cooperatives by adopting a Resolution concerning further work on statistics of cooperatives. The Resolution recommended that the International Labour Office, in cooperation with the ILO's constituents, interested National Statistical Offices (NSOs), and relevant stakeholders carry out further developmental work on the measurement of cooperatives.

Leading up to the 20th ICLS in October 2018, the ILO's STATISTICS Department and its Cooperatives Unit, members of the Committee for the Promotion and Advancement of Cooperatives (COPAC) and international organizations such as the International Centre of Research and Information on Public, Social and Cooperative Economy (CIRIEC) joined forces in developing a series of key resources on statistics of cooperatives. During this period, a series of papers were prepared and discussed by the members of the COPAC Technical Working Group (TWG) on statistics of cooperatives. These papers and discussions around them made a significant contribution toward the drafting of the Guidelines concerning statistics of cooperatives which were endorsed at the 20th ICLS and approved at the 335th Governing Body of the ILO in March 2019. Some of these papers were made publicly available while others remained as background documents.

This book brings together updated versions of these four background studies, which were presented on numerous occasions at research conferences. Together with the guidelines, it will help statisticians to capture more information on key trends and challenges in the world of cooperatives, in particular on the number and characteristics of cooperatives, members of cooperatives, workers employed in cooperatives and value added by cooperatives. Generating and compiling such comparable statistics will also enable public policy makers to better assess and evaluate the output and outcome of their policies related to cooperatives, considered also as part of the social economy. Regardless to say, academics, experts, umbrella organizations, cooperative leaders, and other interested stakeholders will be benefited in having such statistics.

The recent COVID-19 crisis even more highlighted the important resilience and the supporting role of cooperatives. All the more, it is perfect time to make this book publicly available as a way to commemorate the centenary of the Cooperatives Unit at the ILO. We hope that this Book will generate bigger interest from countries around the world to review the existing way of producing statistics on cooperatives, and thus enhance research.

| Rafael Diez de Medina | Vic van Vuuren | Bernard Thiry |
|---|---|---|
| Director, ILO STATISTICS | Director, ILO ENTERPRISES | General Director, CIRIEC |

# Contents

**List of Tables, Boxes and Figures**

# List of abbreviations

| | |
|---|---|
| CBA | Cost-Benefit Analysis |
| CGE | Computable General Equilibrium |
| CICOPA | International Organisation of Industrial, Artisanal and Service Producers' Co-operatives |
| CIRIEC | International Centre of Research and Information on the Public, Social and Cooperative Economy |
| COPAC | Co-operatives and Policy Alternative Centre |
| ENPV | Economic Net Present Value |
| ESOP | Employee Stock Ownership Plans |
| EVAS | Expanded Value Added Statement |
| EURICSE | European Research Institute on Cooperative and Social Enterprises |
| FAO | Food and Agriculture Organization |
| ICA | International Co-operative Alliance |
| ICLS | International Conference of Labour Statisticians |
| ICSE | International Classification of Status in Employment |
| ILO | International Labour Organization |
| ISIC | International Standard Industrial Classification |
| MAS | Multi-Agent System |
| NACE | Nomenclature des Activités Economiques dans la Communauté Européenne |
| NAICS | North American Industry Classification System |
| PSM | Propensity Score Matching |
| ROW | Rest of the World |
| SAM | Social Accounting Matrix |
| SEWA | Self-Employed Women's Association |
| SME | Small and Medium-Sized Enterprise |
| SNA | System of National Accounts |
| SUTVA | Stable Unit Treatment Value Assumption |
| TWG | Technical Working Group |
| UNDESA | United Nations Department of Economic and Social Affairs |
| WFO | World Farmer's Organization |

# Acknowledgments

Scientific editor and co-author of chapters of this book is Marie J. Bouchard, professor at Université du Québec à Montréal (Canada), president of the CIRIEC International Scientific Commission on Social and Cooperative Economy and chair of the ad hoc COPAC Technical Working Group on Cooperative Statistics.

Other authors of this book are: Chiara Carini, researcher at the European Research Institute on Cooperative and Social Enterprises – Euricse (Italy); Hyunsik Eum, Strategy and Statistics Coordinator at the International Co-operative Alliance (Belgium); Madeg Le Guernic, doctoral student and Research Assistant, Université de Rennes 1 (France); and Damien Rousselière, professor at Agrocampus Ouest (France).

At the ILO, Regina Galhardi, David Hunter, Adriana Mata-Greenwood, Mustafa Hakki Ozel, Theodoor Sparreboom, and Amber Van Dessel from the STATISTICS Department and Simel Esim, Hyunjoon Joo, Walteri Katajamäki, Young Hyun Kim, and Guy Tchami (in alphabetic order) from Cooperatives Unit in the ENTERPRISES Department contributed to the efforts that culminated in the development and adoption of the *Guidelines concerning Statistics of Cooperatives*.

All views expressed in this work are those of the authors and do not reflect those of the institutions they are affiliated with. The authors would especially like to thank colleagues from the ILO Statistics Department, the ILO Cooperatives Unit as well as members of the COPAC Technical Working Group on Cooperative Statistics (see list in Annex 1) for their comments and suggestions.

# Introduction

**Marie J. Bouchard**

Cooperatives are a special type of enterprise. Despite a long-lasting presence around the world, their visibility in national statistics is still weak in many countries. Part of the reason was the absence of a harmonized statistical definition and of a common classification of cooperatives. The International Labour Organization (ILO) has produced a series of work leading to the adoption in 2018 of the *Guidelines concerning statistics on cooperatives*. This book presents some of the more recent work that supported the adoption of the *Guidelines*.

Cooperatives are often poorly represented in national statistics: "While statistics on cooperatives are being collected around the world, reliable, coherent and comparable statistics on cooperatives are missing in most countries" (Galhardi, 2015). "Many developed and developing countries produce statistics on cooperatives but they tend to cover only a subset of cooperatives in the countries, often only in certain industries" (ILO, 2013a: 4).

A global mapping of the available national statistics on cooperatives for 69 countries conducted by the ILO revealed among others things that there were uneven processes of data collection, that there was a lack of a single legal and operational definition being used, and that classification of cooperatives (in terms of sectors, size, types, etc.) did not in most cases follow any internationally recognized standards (Galhardi, 2015 and 2016). It appeared that the lack of standardized and agreed-upon methodology for data collection was a major impediment to assess the impact of cooperatives in the economy and society as well.

**Stepping stones towards ICLS and ILO adopting *Guidelines* concerning statistics of cooperatives**

The ILO, in collaboration with its constituents and a number of national and international partners, engaged in work leading to developing new guidelines concerning statistics on cooperatives.

Within the United Nations system, the ILO is the only specialized agency with an explicit mandate on cooperatives (ILO, 2015). In 2002, ILO adopted the Promotion of Cooperatives Recommendation (No. 193), stating that national policies should "seek to improve national statistics on cooperatives with a view to the formulation and implementation of development policies" (ILO, 2002). To reaffirm this, the 19th International Conference of Labour Statisticians (ICLS) in 2013 included cooperatives in the conference agenda for the first time in its history (ILO, 2013b). The discussion converged towards the need for accurate, reliable, relevant and comparable statistics on the economic and social impact of cooperatives on the economies.

At the 19th ICLS, the Resolution concerning further work on statistics of cooperatives was adopted with a view to carry out further developmental work on the measurement of cooperatives and conduct pilot studies in a number of countries to test various measurement approaches on collecting data on cooperatives, and in particular on the number and characteristics of cooperatives, members of cooperatives, workers employed in cooperatives and value added by cooperatives (ILO, 2013a). Follow-up work by the ILO and partners included global mapping of cooperative statistics in sixty-nine countries (Galhardi, 2016), eleven country case studies (Eum, 2016a; Carini *et al.*, 2017),[1] as well as use of statistics on cooperatives in national policy making (ILO, 2017a).[2] In a multi-stakeholders workshop organized by the Committee for the Promotion and Advancement of Cooperatives (COPAC) in Rome in April 2016, it was agreed that a core definition of cooperatives within a broader framework to allow international comparability needed to be developed. COPAC also

[1] Country case studies can be found on ILO website: https://www.ilo.org/global/topics/cooperatives/areas-of-work/WCMS_550541/lang--en/index.htm

[2] This report, prepared by Johnston Birchall, can be found on ILO website: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---coop/documents/publication/wcms_606668.pdf

decided to set up and coordinate, in collaboration with the ILO, a Technical Working Group (TWG) on Cooperative Statistics to improve the quality and accessibility of cooperative statistics.

In 2017, the Technical Working Group on Cooperative Statistics discussed and agreed upon a *Conceptual Framework for the Purpose of Measurement of Cooperatives and its Operationalization* (ILO, 2017a).[3] This framework concluded on the need to produce further work, including background studies on work and employment (Eum, 2018) and valued added (Rousselière *et al.,* 2018), which were commissioned by the ILO, and on classification (Eum *et al.*, 2018), commissioned by COPAC.

▶ **Box 1: COPAC and ICLS**

**COPAC**

COPAC is a multi-stakeholder partnership of global public and private institutions that champions and supports people-centered and self-sustaining cooperative enterprises as leaders in sustainable development. The members of COPAC are global public and private institutions that are committed to the partnership's mission and vision. Current members are the International Cooperative Alliance (ICA), the International Labour Organization (ILO), the United Nations Department of Economic and Social Affairs (UNDESA), the Food and Agriculture Organization (FAO) and the World Farmer's Organization (WFO).

The Technical Working Group on Cooperative Statistics brings together COPAC members and over twenty producers and users of statistics on cooperatives from around the world as well as researchers (CIRIEC, ICA Research Committee, EURICSE). Among the participants, there are representatives of national statistical offices from the Republic of Korea and Iran, as well as other producers and users of cooperative statistics from Tanzania, the Philippines, Italy, France, Costa Rica, Canada, and the USA. The Technical Working Group on Cooperative Statistics was chaired by Marie J. Bouchard.

COPAC website: http://www.copac.coop/

**ICLS**

The International Conference of Labour Statisticians (ICLS) is the world's recognized standard-setting body in the area of labour statistics. The International Conference of Labour Statisticians meets roughly every five years. Participants include experts from governments, mostly appointed from ministries responsible for labour and national statistical offices, as well as from employer's and worker's organizations. Observers come from regional and international organizations and other interest groups. The International Conference of Labour Statisticians is invited to make recommendations on selected topics of labour statistics in the form of resolutions and guidelines, which are then approved by the Governing Body of the ILO before becoming part of the set of international standards on labour statistics. These standards usually relate to concepts, definitions, classifications and other methodological procedures which are agreed as representing 'best practice' in the respective areas, and which, when used by national producers, will increase the likelihood of having internationally comparable labour statistics as well as comparability across time within a country.

ICLS website: https://ilostat.ilo.org/about/standards/icls/

A report on guidelines (Bouchard, 2018), commissioned by the ILO, contributed to establish operational guidelines to be used in developing statistics on cooperatives, including employment. This report refers to relevant international statistical standards: System of national accounts (2008 SNA), 19th ICLS Classification of work activities by form of work (including volunteer work), and the Resolution concerning statistics on work relationships that was to be discussed at the

[3] Chapter 1 of this book presents a summarized version of this conceptual framework.

20th ICLS in October 2018. This report was presented to and discussed by the COPAC Technical Working Group at its meeting at the ILO in Geneva in April 2018.

This report contributed to the development of the *Guidelines concerning Statistics of Cooperatives*, that were prepared and proposed at the occasion of the 20th ICLS (ILO, 2018a).[4] On the 18th of October 2018, the ICLS delegates from across regions as well as workers' and employers' delegates welcomed the draft guidelines and voted for their adoption at the ILO headquarters in Geneva. They were then adopted during the 335th Session of the ILO Governing Body, 14-28 March 2019. The objective of these guidelines is to facilitate the development of a set of statistics on cooperatives that will provide an adequate information base for a wide range of descriptive, analytical and policy purposes related to cooperatives. Since then the ILO has been engaging in further work for the implementation of the guidelines including pilot testing in multiple countries. Communication efforts on the guidelines are also underway through their translation into multiple languages and their dissemination including through informational videos. These initiatives from the ILO are expected to contribute to the development of a handbook to be presented at the 21st ICLS in 2023.

**About this book**

This book presents some of the work produced in 2017 and 2018 to support the production of the *Guidelines concerning statistics on cooperatives* (ILO, 2018a). These consist of the background reasoning that led to the proposed content of the guidelines. While the later hold in a few pages, the research that was conducted upstream amount to hundreds. CIRIEC, COPAC and ILO think it is important that some of this work be shared with academic and practitioners' communities.

The book comprises the following chapters.

The first chapter offers a summary of parts of the conceptual framework that had been commissioned to M.J. Bouchard, M. Le Guernic and D. Rousselière (ILO, 2017a), and which consists of the founding piece on which the following work was based. Authors propose a conceptual framework for defining and classifying cooperatives for measurement purposes. This framework points to a set of four structural-operational qualification criteria to identify cooperatives. It also proposes that the classification of cooperatives should be based on the main economic activity, as for any other enterprise, but as well on a characteristic helping to distinguish different types of cooperatives.

The second chapter presents the work undertaken by H. Eum, C. Carini and M.J. Bouchard to address more specifically the issue of classification (Eum *et al.,* 2018). The fact that data on cooperatives around the world are currently collected in different ways, without a harmonized definition for cooperatives and without referring to comparable classifications of these organizations, results in widely varying statistics and different types of information being collected and prioritized. This explains why it has been hard so far to aggregate or compare statistics on cooperatives from one country to another. Authors propose and test a common classification framework of cooperatives that aims at helping producers and users of statistics to combine and compare data that have been collected for different populations, for different periods, and by different data collection methods or referring to various statistical units. This work helped to justify the types of cooperatives identified in the *Guidelines*.

Chapter three presents a report commissioned to H. Eum, addressing issues around statistics on work and employment in cooperatives (Eum, 2018). According to the 2014 CICOPA Global Report, employment, both full time and part time, in or within the scope of cooperatives, concerned at least 250 million persons in the world (Roelants *et al*., 2014, pp. 9). 26.4 million people work in cooperatives, as employees (15.6 million) or worker-members (10.8 million), while 223.6 million producers organize their production together within the scope of cooperatives. In 2016, this update brings the estimation to 272.3 million persons (Eum, 2017), that is 22 million more compared to 2014, due to an enlarged coverage of the population at stake. As there were no internationally agreed definition and methodology, numbers could so far only reflect an approximate information on cooperative employment and on its different forms. In examining various realities of work and employment in cooperatives and their conceptual links with international statistical standards on work and

[4] The *Guidelines concerning statistics on cooperatives* (ILO, 2018) are presented in Annex 1 of this book.

employment, this chapter proposes a conceptual framework on different forms of work and employment performed "in" and "within the scope of" cooperatives. This work led to the definitions used in the *Guidelines*.

One of the main objectives of the fourth chapter signed by D. Rousselière, M.J. Bouchard and M. Le Guernic is to increase understanding and provide information on the economic contributions of cooperatives by exploring alternative measures of wealth created by cooperatives (Rousselière *et al.,* 2018). Authors also provide recommendations on the way forward with respect to "good practices" for measuring the economic contribution of cooperatives. They base these recommendations on a review of existing methodologies in use, their advantages and disadvantages. They also explore the options available to the user (researchers and academics, official statisticians…) and indicate what questions should be included in national business surveys or in specific surveys on cooperatives. Authors also address the dilemma between measurement that would be too specific to each type of cooperative (therefore limiting comparison), and measurement that would not be specific enough (therefore not measuring the distinctive contribution of cooperatives). This work led to identify the data that should be collected to assess the economic contribution of cooperatives, as recommended in the *Guidelines*. The *Guidelines* also recommend to pursue work on this issue.

# Chapter 1: Conceptual framework for statistics on cooperatives

**Marie J. Bouchard, Madeg Le Guernic and Damien Rousselière**

## 1.1. Introduction

Cooperatives share some of the characteristics of conventional enterprises such as conducting economic market activities on a commercial basis, but they also have special organizational features, such as aiming at serving the needs of user-members who jointly own and democratically control the organization. Cooperatives also adopt specific strategic behaviours, such as providing their services "at cost" to member-clients, buying their inputs at a fair price from member-producers, or creating jobs and offering good work conditions to member-workers, all of this in priority to generating profits.

Cooperatives can play a crucial role in the economy, contributing to the stabilization of markets by addressing market failures, countervailing concentrated market powers, internalizing social costs, reducing information asymmetries, or producing collective or trust goods and services (see Royer, 2014). Cooperatives are said to be more resilient in times of crisis (Sanchez Bajo and Roelants, 2011). They are also considered important for society, as they can contribute to strengthen democracy, encouraging civil society to take an active role in economic, social and political affairs (Brown, 1997).

Such statements can so far only be based on ad hoc surveys (e.g. Dave Grace and Associates, 2014), studies that cover a limited set of industries (ILO, 2013a) or countries (e.g. CICOPA, 2017), or for the largest cooperatives (e.g. EURICSE and ICA, 2016). To verify these at a larger scale and on a more recurrent basis, quantitative evidence that cover the whole of the economy for a large number of countries would be needed. Data on cooperatives around the world had been so far collected in different ways, without a harmonized statistical definition of cooperative, without referring to comparable classifications of types of cooperatives. This meant that it was hard to aggregate or compare statistics on cooperatives from one country to another.

In view of preparing the 2018 ILO *Guidelines* (now in usage as can be seen in the 2019 issue of the World Cooperative Monitor[5]), a conceptual framework was developed. This chapter summarizes parts of the *Conceptual Framework for the Purpose of Measurement of Cooperatives and its Operationalization* (ILO, 2017a)[6] which consists one of the founding pieces on which the following chapters are based. We recall here the conceptual framework for defining and classifying cooperatives for measurement purposes. Based on existing international definitions and on a theorization of the cooperative, it is suggested a set of four structural-operational qualification criteria to identify cooperatives. The chapter also examines typologies for classifying cooperatives based on a cooperative characteristic, namely the member's interest and the cooperative's specific economic function in relation to its members. This classification framework has been tested with various national classifications of cooperatives in order to propose a simple classification, which is presented in chapter 2 of this book. The framework also helped pointing to the relative difficulty in measuring the economic contribution of cooperatives referring to their added-value, as will be seen in chapter 4.

[5] See: https://monitor.coop/sites/default/files/publication-files/wcm2019-final-1671449250.pdf

[6] This is a summarized version of the conceptual framework developed by M.J. Bouchard, M. Le Guernic and D. Rousselière, adopted in 2017 by the ILO (ILO, 2017a). The full version is available at http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---coop/documents/publication/wcms_578683.pdf. The production of the framework has been made possible through a financial contribution of the Committee for the Promotion and Advancement of Cooperatives (COPAC).

## 1.2. Definitions in usage at international level

A first element that needs to be looked at when comparing data on cooperatives is the definition used. The existing internationally recognized definition of cooperative used for legal purposed by the ICA and the ILO (ILO 2002 Recommendation No. 193) can be considered the first and only instrument of universal applicability on cooperative policy and law adopted by an international organization. It is a legal definition of a cooperative. However widely recognized, this definition is not meant to be used for statistical purposes. In fact, there is a lack of a single "legal" definition of cooperatives in some countries (e.g. UK, Australia and Japan) or of an operational definition in others (Galhardi, 2016, pp. 6).

On the other hand, there is a statistical definition of cooperative provided in the System of national accounts (2008 SNA), a system of international accounting techniques for preparing national accounts (UN *et al.*, 2008). The 2008 SNA consists of an integrated, compatible and consistent set of accounts, balance sheets and tables based on definitions and concepts, classifications and accounting rules agreed at international level. A definition of cooperative is provided in the SNA through various articles. Overall, the 2008 SNA definition identifies cooperatives but does not cover all types of cooperatives, namely leaving out worker cooperatives.

Academic researchers have also tackled the issue of the need for a statistical definition of the cooperative, such as the *Manual for Drawing up the Satellite Accounts of Companies in the Social Economy* commissioned to J. Barea and J.-L. Monzón (CIRIEC, 2006), as well as two reports commissioned by the ILO based on a mapping exercise (Galhardi, 2016) and cases studies (Eum, 2016b; Carini *et al.*, 2017).
Comparing these definitions led to identify a set of criteria that seemed consensual. Table 1 sums up the different common-core criteria found in the above mentionned definitions.

▶ **Table 1: Common core criteria proposed or found in international definitions of the cooperative**

| | ICA/ILO (2002) | SNA (2008) | CIRIEC (2006) | Eum (2016b) | Carini *et al.* (2017) |
|---|---|---|---|---|---|
| Private and legal/formally-organized entity/institutional unit with legal status | X | X | X | X | X |
| Created to meet members' needs through the market | X | X | X | X | X |
| Distribution of surplus according to the members' transactions | | X | X | X | X |
| Members must also be customers, employees or suppliers or be otherwise involved in the activities of the cooperative. | | X | X | | |
| Democratic-governance principle, one member-one vote | X | X | X | X | X |
| Voluntary/Freedom of membership | X | X | X | X | X |
| Self-governing entity with autonomy of decision | X | | X | X | |
| Limited interest on share and loan capital | | | X | X | |
| Voting rights of investor members, if allowed, must be limited so that control remains vested in the user members | | | X | X | |
| In the event of winding-up, net assets and reserves must be distributed according to the principle of disinterested distribution | | | X | | |

These criteria identify a cooperative as a private institutional unit with a legal status. Four criteria seem to be consensual or nearly consensual to distinguish it from other institutional units: a cooperative is created on the basis of voluntary and freedom of membership, to meet members' needs through the market, following the democratic governance principle, in which the distribution of surplus is made according to the members' transactions or usage.

## 1.3. Conceptual framework for defining a cooperative

Now, taking from SNA, ICA, CIRIEC and current measurement practices of cooperatives, the definition of a cooperative appears to be based on three general premises, coherent with the previously identified criteria. The first is that a

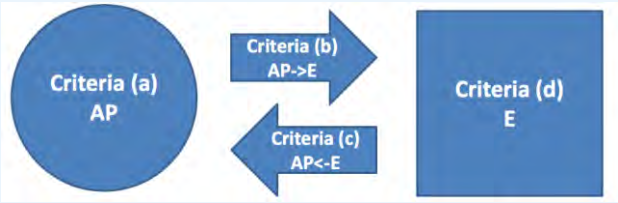
cooperative is an organization with a legal identity that functions according to specific principles. The second is that a cooperative is a member-based organization, which implies the shared identity of members-users. The third is that a cooperative has specific objectives and functions related to its members-users' needs. These premises will be reviewed below.

We first present a conceptual representation of a cooperative and of its qualification criteria. This representation also points to the identification of hybrids. As will be seen, it also helps understand that the definition of cooperative is intrinsically linked to the classification of cooperatives. It will in the end provide grounds for the operationalization of a statistical definition of a cooperative for statistical measurement purposes, as shown in the *Guidelines concerning statistics on cooperatives* (ILO, 2018a) presented in Annex 2 of this book.

### 1.3.1. Formal organization with a specific set of principles

A cooperative can be schematically represented as the combination of an association of persons (AP) and of an enterprise (E) (Fauquet, 1935; Vienney, 1980a), reciprocally linked to each other by a set of principles. It is this set of principles that characterizes the cooperative and distinguishes it from other entities. A structural analysis of the cooperative leads to identify the need for a minimum of four characteristics that distinguish the cooperative from other entities: one for each of the components of the combination AP and E, and one for each of the two relations linking AP to E and E to AP. A socioeconomic analysis of cooperative organisations and their evolution in various types of economies (Vienney, 1981) indicates that these common characteristics of a cooperative are what keep the cooperative from losing its distinctiveness from other forms of associations and of enterprises when pressures from social, political or economic environment are exerted on the cooperatives.

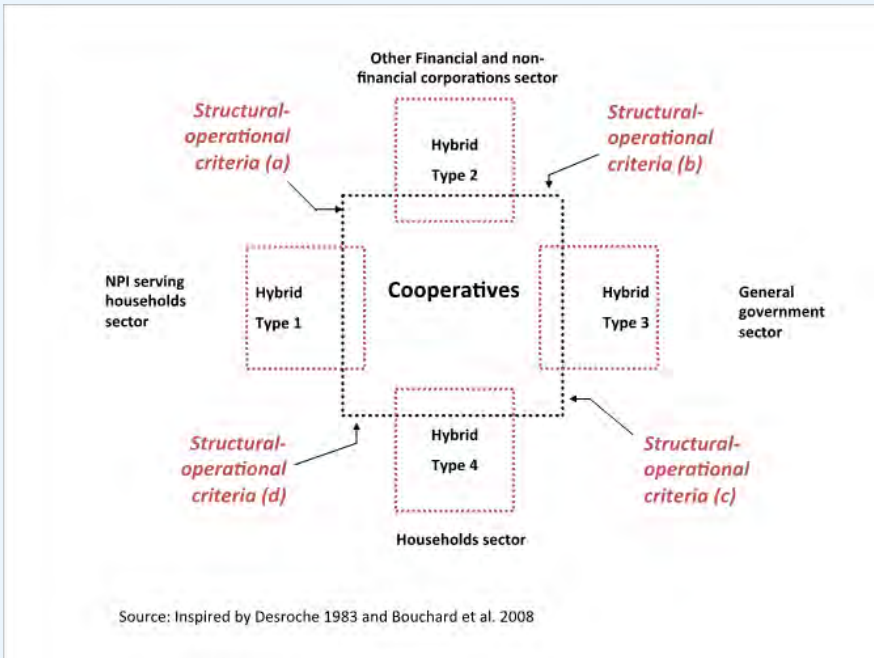
▶ **Figure 1: Conceptual definition of cooperative**




Source: The authors, adapted from Fauquet, 1935 and Vienney, 1980a.

This schematic conceptualization of a cooperative helps to represent the cooperative and hybrid forms as ideal-types. Some organizations are similar to cooperatives as they share some of these features but not all of them. Figure 2 illustrates the core of the cooperative identity and examples of the hybrid forms – or "uncertain" forms, to follow Desroche's (1983) reasoning – that share some of the cooperative characteristics without meeting all of them. This figure also points the institutional sector of the SNA to which these organisations might be associated.

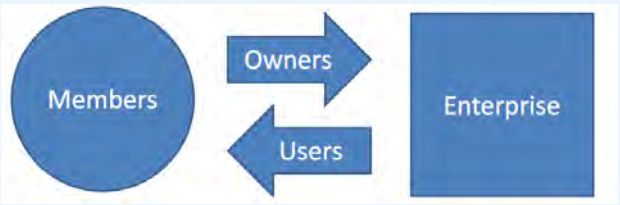
▶ **Figure 2: Qualifying cooperatives and hybrids**




## 1.3.2. Shared identity of members-users

The dual nature of the cooperative is reflected in the shared identity of members as both owners and users of the cooperative. Through the ownership linkage (economic participation and voting rights), the members jointly (through their association) own the cooperative. The usage linkage means that the cooperatives' activities serve members' needs and aspirations, and that members are able to make use of these activities. There can be a minimum threshold for number of members in order for an enterprise to be counted as a cooperative.

▶ **Figure 3: Share identity of cooperative members**

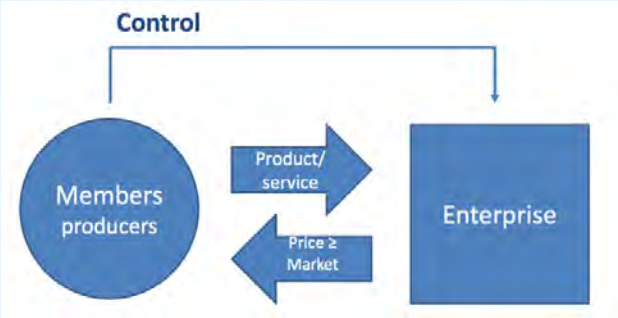



Source: The authors, adapted from Fauquet, 1935 and Vienney, 1980a.

Malo (1980) identifies three general types of member-relations to their cooperative. Other types of member-relations to their cooperative exist, as we will see further on. We present those identified by Malo to illustrate how membership and usage define the economic objective function of the cooperative:

1) The provider (or producer) cooperative marketizes its members' production (e.g. farmers products) or inputs (e.g. savings). Members expect to receive through their cooperative a price that will be higher if not equal to the market price. A representation of a providers' relation to the cooperative is shown in Figure 4.

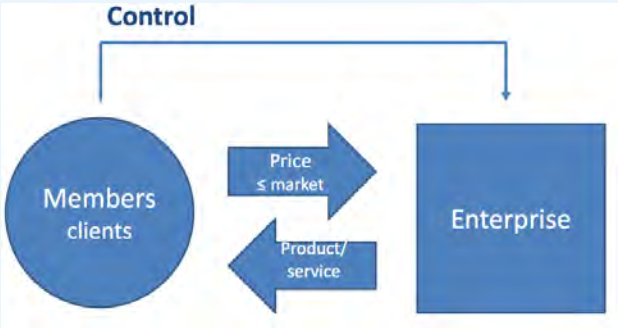
▶ **Figure 4: Member-providers relation to the cooperative**




Source: The authors, adapted from Malo, 1980.

2) The consumers (or clients) cooperative offer to its members' products (e.g. food) or services (e.g. homecare) for their own usage or that of their production unit (e.g. farm). Members expect to access those products and services through their cooperative at a price that will be lower if not equal to the market price. A representation of a consumer (or client) cooperative is shown in Figure 5.

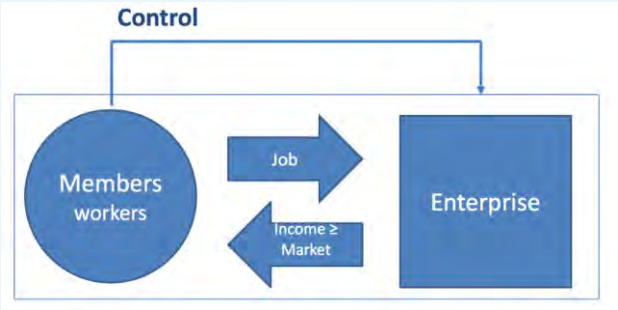
▶ **Figure 5: Members-clients relation to the cooperative**




Source: The authors, adapted from Malo, 1980.

3) The workers' cooperative provides jobs to its members as well as control over the cooperative's activities and what results from it. A representation of a workers' cooperative is shown in Figure 6.

▶ **Figure 6: Member-workers relation to the cooperative**




Source: The authors, adapted from Malo, 1980.

### 1.3.3. Organization with specific economic objective functions

The status of an organization cannot always be inferred from its name, and it is necessary to examine its objectives and functions. As explained by J. Barea and J.-L. Monzón (CIRIEC, 2006), cooperatives have different objective functions than other types of corporations. The objective function of a corporation is determined by the character and behaviour of those within it who control the decision-making process and appropriate the surplus.

> In traditional companies, the dominant and beneficiary categories are made up of capitalist investors, for whom the value generated by the group stands for capital gains and who attempt to achieve the greatest possible returns on their investment. In the case of social economy companies [including cooperatives], if there is any distribution of surpluses it is not directly linked to the capital subscribed by each member and neither is decision-making, which takes place democratically, so the dominant and beneficiary categories are not made up of capitalist investors. [...] [T]he objective function of these companies is geared to increasing the value of other types of assets. (CIRIEC, 2006, pp. 21)

In this perspective, members join a cooperative to benefit from the usage or transactions they have with it. For example, this benefit comes from: maximizing the value of members' products, services, or savings (suppliers of the cooperative's inputs); maximizing employment and working conditions of members (workers of the cooperative); minimizing the intermediation costs for members' purchases of products, services or loans (consumers or clients of the cooperative's outputs); insuring the availability and reducing the risk to members-users of managed resources or held assets such as equipment, machinery, real estate properties or network platforms (users of the cooperative's assets). Community members can also join a multi-stakeholder cooperative to contribute their expertise or funding (supporters of the cooperative's activities).

## 1.4. Analytical framework of cooperatives' classifications

The different types of usage or transaction members have with their cooperative, taken into consideration alongside with the different economic objectives and functions of the cooperative, help complement the understanding of the classification of cooperatives.

Cooperatives are generally classified by their main economic activity, enabling to compare them to the rest of the economy, and by a second classification, used to differentiate types of cooperatives. The proposed analytical framework of cooperatives' classification summarizes different types of categories that can be used to classify cooperatives, other than their economic activity.[7]

[7] The next chapter of this book presents a proposed classification after testing this framework with existing cooperative classifications in different countries.

This framework takes from three sources. One concerns the classifications of cooperatives that were currently in use before the adoption of the ILO *Guidelines*. The second is the view of the cooperative as a member-based organization. The third is the identification of different objective functions of cooperatives. Taking from these three sources, a framework can be developed that combines and organizes a number of dimensions and groups them into categories or types that are compatible with existing frameworks for producing labour statistics: main objective of the cooperative (ILO, 2013a); members' interest (Lund, 2011); members' usage linkage to the cooperative (Vienney, 1980b; Malo, 1980); economic objective function of the cooperative; and types of cooperatives. It is to be noted that the later presents examples coming from various classifications and is not intended to be exhaustive.

**▶ Table 2: Analytical framework of cooperatives' classifications[8]**

| Main objective (ILO, 2013a) | Members interest (Lund, 2011) | Members usage linkage (Vienney, 1980b; Malo, 1980) | Economic objective function of the cooperative (CIRIEC, 2006) | Type of cooperative (example) |
|---|---|---|---|---|
| Service the production of goods and services, or workers | Short term: production costs covered<br>Long term: reduced risk, sustainable source of income, market development | Providers of the cooperative's inputs | Assist members in bringing their products to the market<br><br>Maximize the value of inputs (products, savings) members provide to the cooperative | Producer marketing cooperative<br><br>Producer processing cooperative<br><br>Savings cooperative |
| | Short term: reliable work, fair wage<br>Long term: safe, respectful, gainful employment | Workers self-employed and self-managed in the cooperative | Create and maintain sustainable jobs<br>Maximize jobs creation and good work conditions to its members-workers | Worker cooperative<br><br>Social cooperative |
| | | Work placement of members | Increase the capacity of members to negotiate for decent work<br>Exerting pressure on labour market | Labour cooperative |
| | | Workers offered a double status of entrepreneur and employee | Minimize risk and test of an entrepreneurial project | Employment and activity cooperative |
| Service persons as consumers | Short term: Accessible location and price<br>Long term: Access to specialized goods or services, predictable pricing, supply | Final consumers of the products and services of the cooperative | Minimize the intermediation costs for members-consumers of the cooperative's outputs (products, services, savings, loans)<br>Mutualize risk<br>Provide service to members<br>Ethical supply-chain | Consumer cooperative<br>Mutual insurance cooperative<br>Utility cooperative<br>Rental (housing) cooperative<br>Organic or fair-trade |
| | Short term: Existence of resource in community<br>Long term: healty and vivrant economy | Multiple member usage linkages (including volunteers and supporting community members) | Arbitrate two or more of the above mentioned objective functions | Social or multi-stakeholder cooperative |

Source: The authors

One should note that cooperatives may have more than one objective function (e.g. a producer cooperative may do both, purchase members' goods in order to marketize them, and as well sell to members services or inputs for their own production activity). The similar issue is met in any other classifications of organizations, hence the simple, yet somehow reductionist identification of the "main activity" of a business facility, in order to classify it in one – and only one – industry sector. Some cooperatives have more than just a single member usage linkage (e.g. a multi-stakeholder cooperative may be comprised of members who are consumers, workers, of support members of the cooperative). The 2018 ILO *Guidelines* considers as multi-stakeholder cooperatives those for which "more than one type of member is represented in the

[8] ILO 2017a, table 5, pp. 37.

governance structure of the cooperative"; and where "no type of member has a dominant position through a majority of votes in the governing body or an exclusive veto over decisions" (ILO, 2018a, article 16).

Testing this framework with existing national classifications, as we will see in chapter 2, enables to propose a simple, clear-cut, mutually-exclusive set of categories to classify cooperatives. This is the classification that was retained in the ILO *Guidelines*.

## 1.5. Conclusive remarks to the conceptual framework

Many challenges need to be addressed and choices need to be made in order to produce robust, relevant and harmonized statistical data about cooperatives in the world. The particular nature of the cooperative is the main reason explaining the measurement challenges this chapter has outlined. The conceptual framework aims at showing how these particularities may orient the statistical definition and classification of cooperatives.

This conceptual framework shows that for defining cooperatives, not one criterion suffices. A set of a minimum of four criteria is necessary. Filtering entities by these criteria will establish the perimeter and qualify in-scope entities and those that are at the boundaries of the cooperative core perimeter. The *Guidelines* concerning statistics of cooperatives (ILO, 2018a) have incorporated these criteria as well as identified the institutional units in which cooperatives are present within the System of national accounts (2008 SNA) (see the guidelines in Annex 2).

For classifying, a single classifying system does not suffice. Cooperatives need to be classified by two systems, one referring to its main economic activity, as all enterprises, and the second one to a cooperative feature. The framework presented in this chapter has been tested with existing classifications (see chapter 2) leading to a simple clear-cut mutually-exclusive set of 4 types of cooperatives based on member's interest (see the guidelines in Annex 2).

Many of the challenges in producing statistics on cooperatives have to do with the variety of organizational forms, legal frameworks and cultural environments in which cooperatives develop. Of course, this can be also said of other types of entities, namely of non-profit institutions. But because cooperatives are vested by social values and aspirations, which are periodically re-affirmed by cooperators in their everyday life as well as by apex and international organizations representing them, and because cooperatives play very specific roles in the economy, it is important to represent them adequately in official statistics. It is only through harmonized, coherent and comparable data on cooperatives that we will be able to adequately measure their contribution.

Aside from the usual arbitration between cost and quality of the collected information, measuring cooperatives also implies using the appropriate sources and the adequate measurement tools. These need to be sophisticated enough to capture the specific features of the cooperative, but also sufficiently standardized to make the work feasable at the national statistical organizations' level. This could seem like trying to square the circle. A solid understanding by national statistical offices of what a cooperative is, and better knowledge by cooperative stakeholders of how statistics are constructed, are the keys to overcoming such obstacles.

# Chapter 2: Classification of Cooperatives. A Proposed Typology

**Hyungsik Eum, Chiara Carini and Marie J. Bouchard**

## 2.1. Introduction[9]

As explained in the first chapter, because data on cooperatives around the world are currently collected in different ways, classifications of cooperatives did not so far follow a standard international system and, in many cases, even a common national classification (or even definition) within a single country.

As there were no common or mutually consistent and harmonized standards and classifications, attempt was made to achieve a reasonable degree of comparability across different standards and classifications by making the explanation of differences and similarities part of the analysis involving such datasets. This required a process of reconciliation of the different classifications and statistical standards into a common framework, maximizing the correspondence between them (UNSD 1999, pp. 5). In practice, the issue was rendering different classifications interpretable through a common classification framework or typology. Such a framework is proposed in the *Conceptual framework for the purpose of measurement of cooperatives and its operationalization* (ILO, 2017a) (and summarized in chapter 1 of this book).

The objective here was to propose and test a common classification framework of cooperatives that will help producers and users of statistics combine and compare data that have been collected for different populations, for different periods and/or by different data collection methods or statistical units.

This chapter is structured as follows: section two describes the main criteria adopted in the literature and practice so far to classify cooperatives; section three discusses the research design and the main findings. Finally, section four articulates the main conclusions about the proposed methodology.

## 2.2. Criteria for classifying cooperatives

There seems to be a consensus, both in the literature and practice in the production of statistics on cooperatives, to the effect that cooperatives are generally classified by economic activity and their cooperative characteristic.

While the classification according to economic activity is already realizable with the International Standard Industrial Classification (ISIC), there was yet no uniform typology for a cooperative's characteristics. Previous works by the ILO (2013a), EURICSE and ICA (2016), UN (Dave Grace and Associates, 2014) and others (Lund, 2011; Pascucci and Gardebroek, 2010) demonstrate that typologies of cooperatives are organized according to characteristics that are based on a variety of criteria (ILO, 2017a)[10]:

- Member relationship with the cooperative, for example, consumer, user, worker;
- Nature of member's activity as a producer, for example, crafter, farmer, fisherperson;
- Number of membership types, for example, multi-stakeholder cooperatives; and
- Nature of the cooperative's function in relation to the members' production, for example, purchasing, marketing.

[9] Production of the report presented in this chapter has been made possible through a financial contribution of the Committee for the Promotion and Advancement of Cooperatives (COPAC) and of the Autonomous Province of Trento (Italy).

[10] See chapter 1 of this book for more details.

These criteria are often mixed within existing classifications, making it difficult if not impossible to compare statistics on cooperatives coming from different sources. The issue is therefore to render these different classifications interpretable through a common classification framework.

Each of these criteria can however be related to the conceptual characteristics of a cooperative, as shown in Table 3. A first conceptual characteristic is that a cooperative is an enterprise. A second is that a cooperative is a member-based organization. A third is that a cooperative has specific purposes, which lead to different economic objective functions with regard to member's objectives in creating or joining a cooperative.

In fact, while the economic activity criterion enables measuring the contribution of cooperatives to the whole economy and comparing it to that of other types of entities or institutional sectors of the 2008 SNA (other corporations, government, other non-profit institutions serving households, households), the other criteria are specific to cooperatives and enable comparison between different cooperative sectors.

**▶ Table 3: Cooperative characteristics and criteria for classification**

| Comparability | Cooperative characteristics | Criteria for classification | Examples of categories** |
|---|---|---|---|
| Comparability with other economic entities | Enterprise* | Main economic activity or industrial sector | Financial intermediation, construction, fishery |
| Comparability between different types of cooperatives | Member-based organization | Member's relation to coop | Consumer, user, worker |
| | | Member's activity | Crafter, farmer, fisherperson |
| | | Number of membership types | Multi-stakeholder (including volunteer-members, community-members) |
| | Serving a purpose other than maximizing profits for capital owners | Purpose of the cooperative | Purchasing, marketing, selling, providing work, managing assets |

* Part of the Financial and Non-Financial Corporations sectors, and part of the Non-Profit Institutions Serving Households sector
** Examples of categories found in existing classifications of cooperatives
Source: The authors

### 2.2.1. Cooperatives as enterprises

The classification according to sector of activity is already used in most of statistical works on cooperative statistics, and it employs the International Standard Industrial Classification of All Economic Activities (ISIC) or regional equivalents, such as the North American Industry Classification System (NAICS) and Statistical Classification of Economic Activities in the European Community (NACE, for the French term *Nomenclature des Activités Economiques dans la Communauté Européenne*). Some cooperatives combine two or more economic activities or processes, such as in the case of many producer cooperatives, but such a situation may also occur for economic entities that are not cooperatives. There are methodological rules for resolving the issue; specifically, these involve identifying the main economic activities of the different establishments.[11] This enables comparison between cooperatives and non-cooperative entities in an industrial sector, referring to the same methodological procedures.

[11] The activity classification of each unit is determined by the ISIC class in which the principal activity—or range of activities—of the unit is included. All activities are considered when determining the principal activity, but only the principal activity is used to classify a unit. The principal activity of the unit in general can usually be determined from the goods that it sells or ships or the services that it renders to other units or consumers. However, the descriptions and explanatory notes of the individual classes in ISIC [...] should be used to determine the activities carried out in terms of ISIC categories,

### 2.2.2. Cooperatives as member-based organizations

The members' relationship to the cooperative is identified by their linkage to the cooperative. The categories generally in usage are as follows: consumer/user and worker. Yet, another category implicitly exists, which is that of a member-provider of the cooperative's inputs. This is usually one of the linkages producers have with a producer cooperative.

The members' activity is generally used for classifying cooperatives of which the members are producers. As mentioned above, such members can be the providers of the inputs of the cooperatives' activities, which can involve transforming and marketing members' products (e.g. transforming member-producers' milk into cheese and selling the later on the market), and they can be intermediate consumers of the cooperative's products if those are the inputs for the members' production (e.g. selling to members the grain used to feed their animal farms). In practice, the two criteria, "type of members" and "member's activity" (namely, the activity of the "producer"), are used jointly in many classifications of cooperatives in usage at the time of this study.

The number of membership types is used to qualify cooperatives with more than one type of member relationship to the cooperative, as in the case of multi-stakeholder cooperatives, where members can be the consumers, workers (sometimes including volunteer workers) and support members of the cooperative (generally community members).

Finally, as explained by Barea and Monzón (CIRIEC, 2006), cooperatives have purposes that are different from those of other types of corporations. The objective function of a corporation is determined by the characteristics and behaviour of those within it who control the decision-making process and appropriate the surplus. In contrast,

> "[i]n the case of cooperatives (as well as in other social economy enterprises), if there is any distribution of surpluses, it is not directly linked to the capital subscribed by each member [...] [T]he objective function of these companies is geared to increasing the value of other types of assets." (CIRIEC, 2006; pp. 21)

From this perspective, members join a cooperative to benefit from the usage or transactions they have with it. This benefit comes from, for example, maximizing the value of members' products, services or savings (members are suppliers of the cooperative's inputs); maximizing the employment and working conditions of members (members are workers of the cooperative); minimizing the intermediation costs for members' purchases of products, services or loans (members are consumers or clients of the cooperative's outputs); and ensuring the availability and reducing the risk to members-users of managed resources or held assets such as equipment, machinery, real estate properties or network platforms (members are users of the cooperative's assets). In practice, this criterion is hardly ever used to classify cooperatives. However, it helps differentiate the purpose of cooperatives, such as marketing or purchasing cooperatives. Each purpose will be translated into a different economic function. It also helps classify cooperatives for calculating their economic contribution of measuring their efficiency (see ILO, 2017a; also see the chapter 4 by Rousselière *et al.* in this book).

## 2.3. Typology for classifying cooperatives

### 2.3.1. Research design

Many of the criteria for classification described in the previous paragraph are in fact combined, creating a great variety of types. Thus, to make it possible to combine and compare existing statistics, it may be necessary to think of a framework that considers both the classifications proposed in the literature and practices adopted in operational reality.

The starting point of this reflection is the Analytical framework of cooperatives' classification (ILO 2017a, pp. 35-38) summarized here in chapter 1, which evaluates existing typologies, considering various criteria: main objective of the cooperative (ILO, 2013a), cooperative members' interest (Lund, 2011), cooperative members' usage linkage to the

using not only the output structure but also the input structure and most importantly the production process. [...] Ideally, the principal activity of the unit should be determined with reference to the value added to the goods and services produced. The relevant valuation concept is gross value added at basic prices, defined as the difference between output at basic prices and intermediate consumption at purchaser's prices. (UN, 2008; pp. 20).

cooperative (Vienney, 1980b; Malo, 1980), purpose and economic function of the cooperative, and the types of cooperatives that correspond to these characteristics.

The typologies that were currently used for statistical purposes in 11 countries at the time of this study[12] were analyzed (see Annex 3). Case studies conducted in 2016 and 2017 (Eum, 2016b; Carini *et al*., 2017) served as a reference to examine and test the feasibility of the typology. This led to establishing which categories were most useful for combining and comparing data on cooperatives. A total of 202 types of cooperatives were identified. When the typology for statistical purposes did not exist or appeared too simplified, the study referred to the types used for legal or administrative purposes.[13]

The analysis was mainly carried out based on the official descriptions provided, either as meta-data on statistics or as defined in legislation. When possible, authors' knowledge was also mobilized.[14] In analyzing the typologies, the generally accepted methodological principles for statistical classification (EUROSTAT n.d.; OECD, 2011; UNDESA, 2013; UNSD, 1999) that were employed can be summarized as follows:

- Relevancy: To address the purposes for which the data are sought by users;
- Coherence: To be logically connected and mutually consistent within a dataset, across datasets, over time and across countries;
- Significance: To reflect the significant particularities of the phenomenon;
- Comparability: To enable comparisons between countries or regions within a country;
- Applicability: To be in coherence with existing international statistical classifications systems in use;
- Exhaustiveness: To be large enough to cover all possible categories or types;
- Objectivity: Categories must be identifiable through factual and observable indicators;
- Rigour: Concepts and nomenclatures must be precise enough that two different persons, using the same tools, will classify an observation unit in the same category;
- Mutual exclusiveness: To be composed of categories that are independent from one another;
- Feasibility: To make it possible to distinguish between the categories in the classification based on the information available; and
- Robustness: To last for a period of time.

The analysis proceeded in three phases (see details in Annex 5). The first phase focused on checking how the types currently in use at the national level may be explained or translated within the above mentioned analytical framework. The second phase focused on identifying the additional recurring criteria in national typologies and evaluating the opportunity to consider them in the definition of this typology. Finally, in the third phase the typology was reviewed and finalized.

Phase one highlighted that three of these dimensions were frequently reflected in the cooperative typologies currently in use, namely "main objective", "members' interest" and "member usage linkage". These results also showed that, while for the "main objective" and "members' interest" dimensions, it seems easier to find a one-to-one correspondence between the categories applied at the national level and the dimensions proposed in the analytical framework, the matter becomes more complex in terms of "members' usage linkage". In most cases, more than a single members' usage linkage was identified in the types of cooperative currently in use at the time of the study. Although useful for understanding the economic performance or contribution of cooperatives, the criterion of 'economic function of the cooperative' is not clearly identifiable in existing typologies.

[12] These countries are Spain, Italy, France, the Republic of Korea and Costa Rica (Eum, 2016b) and Canada, Colombia, Philippines, the Russian Federation, Brazil and the United Kingdom (UK) (Carini *et al.*, 2017).

[13] Out of 202 types of cooperatives, six generic types in three countries were excluded (Russian Federation, Costa Rica and Canada).

[14] However, in a few cases, the descriptions were not clear enough. Therefore, it should be noted that there are possible misclassifications of some examined types. Nevertheless, since the majority of information could be processed, the results of this analysis can be trusted as being significantly robust.

In the second phase, two additional criteria were included for explaining the constituting logics of some types that represent a significant number of cases, namely financial/non-financial economic activity and types of membership.

Finally, in the third phase of the analysis, after discussions with different stakeholders and in-depth analysis, and to make a more parsimonious and coherent typology, a decision was made to restructure the results of the first and second phases, leading to the exclusion of the criteria "main objective of the cooperative", "members' usership linkage" and two additional criteria introduced in the second phase.

### 2.3.2. Proposition of a typology

The three-step analysis led therefore to the adoption of the "members' interest" as the criterion for constructing a typology. This choice resulted in the definition of four groupings of types of cooperatives, as follows[15]: producer, worker, consumer and multi-stakeholder cooperative. [16]

▶ **Table 4: Proposition for a typology**

| Classifying criterion – Members' interest | Type |
|---|---|
| Production activity | Producer cooperative |
| Work | Worker cooperative |
| Consumption | Consumer/user cooperative |
| More than one interest | Multi-stakeholder cooperative |

Source: The authors

#### 2.3.2.1. Producer cooperative

The first grouping includes producer cooperatives. This is a grouping of types of cooperatives (70 types in 10 countries)[17] in which members' interest relates to the production activity. Members share common short-term interest in covering production costs and long-term interest in reduced risk, a sustainable source of income and market development. These types represent cooperatives serving production or professional activities of producers who may be persons, groups of persons in the form of households or corporations that are legal or social entities with their existence recognized by law or society. Economic activities carried out by these cooperatives are diverse, from the primary sector (e.g. agriculture, forestry) to the transformation (e.g. cheese producing) and service sectors (e.g. doctors, transport). In many of them, cooperatives have different economic purposes concerning members' production activities. In most of the analyzed cases, the types adopted at the national level were quite general, so that it was difficult to specify a single main purpose of the cooperatives. However, in some of the cases, the typologies adopted at the national level made it possible to identify types of cooperatives specialized in specific purposes, such as commercialization cooperatives, in which members are providers

[15] These proposed types were included in the ILO 2018 *Guidelines* concerning statistics on cooperatives (ILO, 2018a).

[16] Out of 196 types analysed, 155 types correspond to one of these 4 groupings. The definitions of other 23 types were too broad to be specified with only one grouping (most of 23 types have the names indicating economic activities and information on their characteristics was not available or if any, in a very limited way), other 15 types could not be analysed at all due to the generic character of types (including generic legal status of cooperative which might be used by any kinds of cooperatives, types noted as "others", and some specific types (specialised coop, integral coop, pre-coop, multi-activity coop) which do not offer information on cooperative's members or activity. And another 3 types related to "employee ownership model" were not included in this analysis due to its conceptual complexity which will be discussed more in detail in "2.3.3. Applicability and limitations of the typology".

[17] The names of types of cooperatives in the studied countries include the following: agricultural cooperative, dairy cooperative, fishery cooperative, forestry cooperative, transport cooperative, artisans' cooperative, cooperative of the self-employed, housing (construction) cooperative, doctors' cooperative, retailer-owned cooperative, SME cooperative and enterprise cooperative.

of the cooperative's inputs; supply cooperatives, in which members are intermediate consumers of the products and services provided by the cooperatives; and utilization of agricultural material cooperatives, in which members are users of the assets managed by the cooperatives.

Considering the importance of the economic functions associated with these different purposes regarding calculating their economic contribution or performance, this type may eventually be developed into sub-types, such as "marketing cooperatives", "processing cooperatives", "supply or purchasing cooperatives", "cooperatives for management of assets" and "multi-purpose cooperatives" as their combination, as well as "undetermined" when no specific purpose is indicated. In addition, there are five types of cooperatives in three countries[18] that have multi-activities, including financial services.[19] In the present typology, these types of cooperatives may be placed either in the consumer cooperative or producer cooperative category according to the principal activity of most, if not all, the cooperatives of the same type. For internationally comparable statistics, it would be preferable to check which is the principal activity of these cooperatives following the method of treatment of mixed activities in the ISIC (UN, 2008; pp. 22–27).

#### 2.3.2.2. Worker cooperative

The worker cooperative grouping includes types of cooperatives (20 types in 11 countries) in which members' interest concerns their work. Members share a common interest in reliable work and fair wages for the short term and safe, respectful and gainful employment for the long term. Members are basically workers who jointly own their cooperative and manage it through democratic governance structures. One of the specificities of this type is that members' jobs are directly assured by or through their cooperative. In this sense, members' jobs should be counted as being created and maintained by or through cooperatives, regardless of their current legal status as employees or self-employed individuals. The cooperatives in this type are called worker cooperatives in many countries, but this grouping also includes worker cooperatives that, in some countries, are named based on the economic activities carried out by the cooperative, such as "health cooperative" (Brazil), "common exploitation of land cooperative" (Spain), "agricultural work cooperative" (Italy), "agricultural cooperative-collective farm" and "cooperative farm" (Russia).[20] In some countries, they are also called "production cooperatives" (Brazil and Costa Rica). Although no case was identified in the studied countries, this grouping also includes labour cooperatives in which members' main usership linkage is "work placement of workers".[21] In France, there is a type of cooperative called a "business and employment cooperative" (*coopérative d'activité et d'emploi*), where members' main usership linkage is to have "a double status of entrepreneur and employee".[22] Considering apparently

[18] Agrarian reform cooperative (Philippines), agricultural consumer service cooperative (Russia), agricultural cooperative, fishery cooperative and forestry cooperative (the Republic of Korea).

[19] Differently from "producer cooperative" type which focus only on members' production or professional activities, cooperatives in these types provide various services to producers in the primary sector not only for their production activities but also for various kinds of services for personal needs mainly including financial services. This cooperative model, also called the Raiffeisen model, was originally designed for helping people in rural areas, who suffered lack of financial tools for their production activities as well as for daily substances during non-harvest time. Whereas the model has developed as financial service cooperatives in the Western countries, it was introduced as multi-purpose producer cooperatives including financial services in developing countries by colonial authorities or by governments for developing the primary sector and for helping people in rural areas. The cooperatives provide various services needed for the life in rural areas, such as production, consumption and financial services, in strong relation with public authorities which often use these cooperatives as instruments of channelling public subsidies and of implementing public policies.

[20] Common exploitation of land cooperative (Spain), agricultural work cooperative (Italy), agricultural cooperative-collective farm, and cooperative farm (Russia) have their own concept and historical background which are different from worker cooperatives. Cooperatives in these types are mainly collective farm style cooperatives in which agricultural producer members are employed or have specific forms of employment, such as worker-member status (*trabajo asociado*) in Spain. However, in statistical terms, they are distinguishable only with their economic activity (agriculture and fishery) and other characters are the same as those of worker cooperatives. Therefore, in this typology, they are considered as part of worker cooperatives.

[21] This type is meaningful for identifying cooperatives related to "multi-party work relationships". According to the proposed ICSE-18, "multi-party work relationships exist when a third party is involved between the worker and the economic unit for which the work is performed. Arrangements of this type may be mediated by an institutional unit that acts as the employer and makes the worker available, on a temporary or permanent basis, to work for another economic unit while paying the wage or salary of the employee".

[22] However, this type is not a separate type in the French official statistics on cooperatives, but can be identified with ad hoc criteria. Although this type represents few empirical cases, considering increasing interest in public policy on freelancers and indepedant producers, it seems important to mention it as a separate sub-type because worker-members' nature is unique as it represents a mixed form of entrepreneur and employee at the same time.

different ways of working of these members' usership linkages from that of a worker cooperative, this type may be developed into subcategories, including the following: "worker cooperative", "labour cooperative" and "business and employment cooperative".

#### 2.3.2.3. Consumer/user cooperative

The consumer cooperative type covers various kinds of cooperatives in which members use the goods and services of cooperatives as consumers. In this grouping of types of cooperatives (59 types in 11 countries), members share common short-term interest in accessible location and price and long-term interest in access to specialized goods or services and predictable prices and supply. In this type, a main subdivision is possible according to their branch of economic activities, as many currently used types illustrate, such as "consumer cooperative" (retail), "housing tenants' cooperative" (accommodation), and "utility cooperative" (water supply, electricity supply, telecommunication). This type includes financial service cooperatives, which often provide financial services to producers' production activities, even those with specific names related to producers, such as *Crédit agricole* and *Crédit maritime* in France. However, because members may be considered consumers due to the nature of financial services, it would be reasonable to include all financial service cooperatives in the consumer cooperative type.[23] The names of these types of cooperatives in the studied countries include the following: consumer cooperatives, electric cooperatives, water service cooperatives, housing (tenants') cooperatives and financial service cooperatives, which have various names.[24] It should be noted that this type also includes four types in three countries specialized in education on cooperatives. They are called school cooperatives, youth cooperatives (Costa Rica), education cooperatives (Brazil) and advocacy cooperatives (Philippines). These cooperatives have been created as a tool for teaching and training about the cooperative model. In Costa Rica, they are dealt with separately in statistics on cooperatives. However, in considering students and youth as consumer members who use education services, these cooperatives seem to have the same characteristics as those of consumer cooperatives in the education sector. Therefore, in this proposed typology, these types are considered part of the consumer cooperative type, and they are identifiable by crosschecking the data with the classification of the sector of activity.

#### 2.3.2.4. Multi-stakeholder cooperative

The multi-stakeholder cooperative grouping includes the types of cooperatives (six types in four countries) which have more than one type of member with significant involvement in the activity of the cooperative, and in which: more than one type of member is represented in the governance structure of the cooperative; and no type of member has a dominant position through a majority of votes in the governing body or an exclusive veto over decisions.[25] Multi-stakeholder cooperatives pursue the interests of and engage different types of members, such as providers, consumers, workers, volunteers, financers and/or supporters, in their activity, which may involve one or more economic activities and/or purposes.

### 2.3.3. Applicability and limitations of the typology

The analysis that was conducted for this report highlights two main factors that could affect the applicability of the typology: the level of granularity of the national classifications and the criteria used in some countries to define the classification that have not been considered in this typology. There are also some issues caused by specific types of cooperatives.

[23] This is what is suggested in the *Guidelines* (see Article 15) (ILO, 2018a).

[24] The names of financial service cooperatives include the following: credit union, credit cooperative, savings and credit cooperative, cooperative bank, financial service cooperative, employees credit society, insurance cooperative, mutual insurance cooperative, rental funds, mutual guarantee society and cooperative of guarantee and credit.

[25] Other types of cooperatives may also have more than one type of member but only one type of member is predominant in the governance of the cooperative. In such case, the cooperative will be classified in this member-category type.

#### 2.3.3.1. Level of granularity of the national classifications

The granularity of national classifications strongly conditions the definition of the typology. As the goal here is not so much to create a new classification, but instead to create a tool that makes the existing classifications comparable, the level of detail of the typology is influenced by that of the national classifications. The results of the testing showed that some of the difficulties encountered in finding a correspondence between the types currently in use at national level and the analytical framework comes mainly from the low level of detail of the national classifications that affected the possibility of translating them within the analytical framework.

A typology that would be too detailed compared with national realities could be difficult to apply. Conversely, a typology that would not have a sufficient level of granularity could lead to difficulties in interpretation of national realities into the typology. In the analysis, it was the case for 23 types which were too broad to be specified with only one of the proposed types and 15 types which have too generic character.

#### 2.3.3.2. Specific criteria used in the national classifications – social cooperative

The second issue refers to the fact that there may be national classifications that are defined based on criteria not considered in the definition of the typology and this might imply the need to verify the applicability of the typology. This is the case, for example, for criteria based on the social categorization of members (i.e. women, youth, indigenous, etc.) or the social mission of the activity of the cooperatives. This second example also opens the discussion on a specific type of cooperative that cannot be identified by the typology, that is, social cooperatives. Since the first Italian legislation on social cooperatives in 1991, the concept of the social cooperative has developed across the world and has been added as a new type of cooperative with new legislation (such as in the Republic of Korea) or modification of existing institutional settings (such as in France or Canada [Quebec]). Whereas the main specificity of the social cooperative model is to have social mission as its prime purpose, it can be defined in different ways. First, the social mission may be defined with the economic activities and purposes of the cooperative (Italy, Brazil).[26] Second, a multi-stakeholder governance structure may represent the way that the collective interest of the local community is identified and different resources in the local community may be mobilized (Canada [Quebec], France, Republic of Korea).[27] Third, social purpose may be defined by the type of members who are special target groups to be supported by the society, such as women, youth, the elderly, indigenous people or marginalized groups (indigenous people cooperatives in Canada [Quebec]). For many cases, social cooperatives have a non-profit distribution constraint but not always. In statistical terms, it seems difficult to define a type of social cooperative without introducing an additional criterion concerning the social mission as the main purpose, which is not a currently used criterion in statistics. However, characteristics of social cooperatives can be explained with the criteria used for the typology so that they may be translated into one of the proposed types. For many cases, social cooperative types can be translated with the 'multi-stakeholder cooperative' type (Canada [Quebec], France, Republic of Korea, Italy). Some other cases may be identified as 'worker cooperatives' (Italy, Brazil) or 'consumer cooperatives' (Brazil). However, with increasing interest on social cooperatives, if there was any specific need for establishing statistical data on social cooperatives at the international level, social cooperatives may be identified with the existing legal status of a social cooperative or an operational definition reflecting the aforementioned criteria. It would be noted that, according to the 2008 SNA, social cooperatives are counted in the non-profit institutions sector if they have a non-profit distribution constraint (ILO, 2017a).

[26] According to the Italian law 381/1991, social cooperatives pursue the general interest of the community and social integration of citizens by carrying out social, health and educational services, or by carrying out other activities - agricultural, industrial, commercial or other services - aimed at providing employment for disadvantaged people. The social cooperative in Brazil is defined as a cooperative conducting activities for social and professional integration of disadvanteged persons.

[27] Solidarity cooperatives in Canada (Quebec) and collective interest cooperative societies in France are recognised as social cooperatives with a multi-stakeholder governance structure in which different stakeholders in local community may decide together their activity in view of serving their local community. In the Korean case, whereas the multi-stakeholder governance is compulsory, their social mission and activities should be approved by concerned public authorities.

#### 2.3.3.3. Issues of specific types – employee ownership model and cooperative mainly composed of non-cooperative corporation members

Finally, some application limitations may be found for minor types of cooperatives. Among the analyzed types of cooperatives, there is a grouping of types (three types in France and the United Kingdom) in which members are employees who own shares of their enterprise through the cooperative. Whereas the functioning of the cooperative is similar to those specialized in management of members' assets, members' interest in these cooperatives seems diverse. On the one hand, this model is sometimes considered part of worker cooperatives because it may serve as a transitory form toward real worker ownership and control. On the other, it is used for the financial benefits of members in the form of dividends or retirement funds. Sometimes, it is also used for promoting employees' participation in the management of enterprises in view of developing their enterprise and saving their jobs. These types of cooperatives were excluded from the proposed typology for two reasons. First, this model is not widespread, and it has not been sufficiently conceptualized as an independent type in the literature and in practices. Second, although the three types analyzed here are included in statistics on cooperatives in these two countries[28], similar organizations are not included in the categories of cooperatives in other countries, for instance, labour companies (*sociedades laborales*) in Spain and Employee Stock Ownership Plans (ESOPs) in the United States. It seems necessary to study these types of cooperatives and organizations more for a clearer conceptualization, thereby finding an appropriate place for them in the statistical framework.

During the study, there was a discussion about cooperatives that are mainly composed of non-cooperative legal person members, such as non-cooperative for-profit corporations or public governmental entities. In the proposed typology, these types of cooperatives are included in the producer cooperative type. This is because other producer cooperatives do not limit their membership to natural persons, and also because the statistical concept of 'enterprise' covers natural persons as well as corporations. However, article 34 of the *Guidelines* mention that: "[t]o the extent possible, statistics should be compiled separately for cooperatives, enterprises that are members of cooperatives and enterprises that are owned and controlled by cooperatives" (ILO, 2018a; pp. 6).

## 2.4. Conclusive remarks about classification

The present chapter aimed at addressing an important issue in the production of statistics concerning cooperatives at the world-wide scale. As countries used various classifications of cooperatives, sometimes more than one classification within a single country, the comparison and aggregation of data was impossible. A conceptual framework for classifying cooperatives had been sketched (ILO, 2017a) but needed to be tested. This study is the first one to concretely examine existing practices with the goal of developing a common classification of cooperatives that would meet rigorous methodological principles. The proposed classification has been introduced in the 2018 ILO *Guidelines* concerning statistics on cooperatives (ILO, 2018a).

This study proposed a classification system for statistics on cooperatives that comes in addition to their classification by economic activities. The proposed classification is based on cooperative characteristics. Whereas the literature and analyzed national practices show that there are different criteria that can be used to classify cooperatives based on their characteristics, following the analysis on typologies currently in use, the typology proposed in the present study considers members' interests as a main criterion that may be useful for comparing national statistics.

This classification is designed in the first place to translate and compare types of cooperative that already exist at the national level. However, the typology may be used in different ways according to national contexts. In cases where a country does not currently release statistics by type of cooperative but intends to introduce such a classification, the proposed typology (and the criteria underlying its definition) should be considered. Where it is intended to introduce a classification system of this type to the collection of primary data directly (e.g. in a census or survey), the implementation of a classification system that allows for a greater degree of detail may prove more appropriate.

[28] Also, workers-shareholder cooperative (*coopérative de travailleurs actionnaire*) is recognised as one of types of cooperatives in Quebec, Canada but is integrated into the category of worker cooperative in the official statistics at the federal level.

It was also recommended that cooperatives be classified according to their main economic activity or industrial sector in order to know their comparative weight in the economy. For this purpose, information on the main economic activity of each cooperative should be collected following the internationally agreed-upon methods and standards, especially the ISIC codes or their regional or national equivalents.

This analysis can be considered a first step for comparing statistics on cooperatives compiled in different parts of the world. However, unresolved issues remain to be addressed and further work is needed in order to test the typology. Given the limited number of countries covered by the study, an extension of the test would allow for the validation of the typology in different contexts and for the verification that the principles that guided it are actually respected. In addition, this would make verification of the classification's robustness, relevance and applicability, and highlight any weaknesses or critical issues that have not yet emerged, thereby fueling further discussion and facilitating agreement where possible.

It is noteworthy that this study contributed to establish the classification of cooperatives proposed in the *Guidelines* concerning statistics on cooperatives (ILO, 2018a). The *Guidelines* also recommends that the ILO, in collaboration with interested countries and institutions, should arrange for testing of the concepts and definitions presented in these guidelines.

# Chapter 3: Statistics on Work and Employment in Cooperatives

**Hyungsik Eum**

## 3.1. Introduction

This third chapter is the outcome of a research project carried out to address issues around statistics on work and employment[29] in cooperatives.[30] The project aimed at proposing a statistical conceptualization of different forms of work and employment in cooperatives as well as testing, with empirical data, the practicability of the existing methods to capture and quantify them. The results of this study have served in developing the ILO *Guidelines* concerning statistics on cooperatives (ILO, 2018a).

The research was conducted in following steps:

First, in order to identify different forms of work in cooperatives, various situations in different types of cooperatives were examined based on document analysis and author's previous field works conducted for two research projects on employment in cooperatives (Roelants *et al.,* 2014; Eum, 2017).

Second, to understand the conceptual framework related to statistics on work and employment in general, particularly the International Classification of Status in Employment (ICSE)[31], the author joined the online co-working space of the working group for the revision of ICSE-93 and participated in the 4th meeting of the working group (25-28 September 2017 at the ILO Headquarters in Geneva).

Third, the outcomes from these two activities were synthesized in the form of a "*Concept note for stakeholder consultation – Statistics on work and employment in cooperatives"*. In this concept note, a conceptual framework covering different forms of work and employment in cooperatives was proposed and some conceptual and technical issues were raised to facilitate discussions among experts on both sides, namely cooperative experts and statisticians. This concept note was circulated among members of ILO and COPAC Technical Working Group (TWG) on Cooperative Statistics, ICA regional offices and some members of the working group for the revision of ICSE in order to get feedback from different perspectives.

Fourth, with the elaborated conceptual framework, existing practices concerning statistics on work and employment in cooperatives were analysed. As already explained in chapter 2, this empirical test was conducted mainly with 11 country cases studied in two country case studies produced for the ILO (Carini *et al*., 2017; Eum, 2016b).

Finally, following feedback on the draft and discussion in TWG, the final report was written. The final report was used for producing the *Report on Guidelines for Statistics on Cooperatives* (Bouchard, 2018) which, in turn, served as a base for *Guidelines concerning statistics of cooperatives* adopted in the 20th ICLS in 2018 (ILO, 2018a).

This chapter is composed of six sections including the introduction. Firstly, some conceptual considerations, such as general conceptual frameworks concerning statistics on work and employment, categories of persons performing their

[29] According to the Resolution concerning statistics of work, employment and labour underutilisation (ILO, 2018a), "work" is a broader concept which includes "employment". In this chapter, even when the terms of "work" is used alone, it also includes "employment". Author mainly uses the terms of "work and employment" to emphasize the fact that employment represents significant parts of work form in cooperatives.

[30] Production of the report presented in this chapter has been made possible through a financial contribution of the International Labour Office.

[31] During the research period (2017), the revision of ICSE-93 was being discussed. Therefore, the revision draft was used for this research as reference. However, in this paper, the ICSE-18 which was finally adopted in the 20th International Conference of Labour Statisticians (ICLS) in October, 2018 is used as reference. Further information on the ICSE-18, please see https://www.ilo.org/global/statistics-and-databases/meetings-and-events/international-conference-of-labour-statisticians/20/WCMS_648693/lang--en/index.htm

work in cooperatives and statistical units will be examined (section 3.2). Section 3.3 and 3.4 will explain different forms of work and employment "in" cooperatives (section 3.3) and in other economic units but "within the scope of" cooperatives (section 3.4). Based on findings in the empirical test (Annex 5), strengths and drawbacks of different data sources for collecting data on work in cooperatives will be analysed and some technical points will be proposed to improve data collection methods (section 3.5). Finally, in the conclusion, the main findings will be summarized and recommendations will be proposed (section 3.6).

## 3.2. Conceptual considerations

### 3.2.1. General conceptual frameworks concerning statistics on work and employment

To understand different forms of work and employment in cooperatives, we need to refer to the two main conceptual frameworks concerning statistics on work and employment in general: the *Resolution concerning statistics of work, employment and labour underutilisation* (hereafter *Resolution on statistics of work*) adopted in 19th ICLS, 2013 (ILO, 2013c) and the *Resolution concerning statistics on work relationships* adopted in the 20th ICLS, 2018 (ILO, 2018b). Whereas the former provides a general framework for different forms of work including employment (remunerated work), the latter proposes a more detailed categorization of employment according to different work relationships.

#### 3.2.1.1. Cooperatives and different forms of work

The 19th ICLS adopted the *Resolution concerning statistics of work, employment and labour underutilization,* which revises the earlier *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment* adopted in 13th ICLS in 1982. The new resolution defines the concept of "work" which "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 (§ 6)", and narrows down the earlier concept of "employment" to one form of work "done for pay or profit". The new resolution proposes five mutually exclusive forms of work which are identified for separate measurement. These forms of work are distinguished on the basis of the intended destination of the production (for own final use; or for use by others, i.e. other economic units) and the nature of the transaction (i.e. monetary or non-monetary transactions, and transfers), as follows:

- *own-use production work* comprising production of goods and services for own final use;
- *employment* comprising work performed for others in exchange for pay or profit;
- *unpaid trainee work* comprising work performed for others without pay to acquire workplace experience or skills;
- *volunteer work* comprising non-compulsory work performed for others without pay;
- *other work activities* (not defined in this resolution). (§ 7)

#### 3.2.1.2. Statistics on work relationships

The adoption of the *Resolution on statistics of work* as well as recent changes in the world of work requested to amend the ICSE-93. The ICSE-93 classified jobs with respect to the type of explicit or implicit contract of employment between the job holder and the economic unit in which he or she is employed. The following five substantive categories are specified:

- *Employees*,
- *Employers*,
- *Own-account workers*,
- *Members of producers' cooperatives*,
- *Contributing family workers*.

Today, these categories do not provide sufficient information to adequately monitor changes in employment arrangements that are taking place in many countries, and are not sufficiently detailed to monitor various non-standard forms of employment. A variety of new contractual arrangements that aim to increase flexibility in the labour market are

leading to increasing uncertainty about the boundary between self-employment and paid employment, while at the same time generating a need for statistical information to monitor the impact of these arrangements.

Following a review of the range of national practices with respect to statistics on status in employment and on the employment relationship more generally, a new *Resolution concerning statistics on work relationships* was adopted in the 20th ICLS. In proposing an overarching conceptual framework for statistics on work relationships, this resolution includes the *International Classification of Status at Work* (ICSaW-18) (see Annex 4) which has categories relevant to all forms of work (own-use production work, employment, unpaid trainee work, volunteer work and other forms of work) as well as a proposition of revised *International Classification of Status in Employment* (ICSE-18).

The *Resolution on work relationship* uses two aspects of work relationship as criteria to differentiate categories of jobs and work activities in specific economic units. These are the "type of authority" that the worker is able to exercise in relation to the work performed and "the type of economic risk" to which the worker is exposed. A relatively detailed set of mutually exclusive categories is defined on the basis of these criteria, to form the ICSaW-18. The subset of these categories that relate to employment forms the ICSE-18.

▶ **Box 2: Type of authority and type of economic risk**

**Type of authority**

- The *type of authority* refers to the nature of the control that the worker has over the organization of his or her work, the nature of authority that he or she exercises over the economic unit for which the work is performed (including its activities and transactions), and the extent to which the worker is dependent on another person or economic unit for organization of the work and/or for access to the market. The type of authority is used to classify workers as dependent or independent.
  - *Independent workers* own the economic unit for which they work and control its activities. They make the important strategic and operational decisions about the economic unit for which their work is performed and the organization of their work, are not accountable to or supervised by other persons, nor are they dependent on a single other economic unit or person for access to the market, raw materials or capital items. They may work on their own account or in partnership with other independent workers and may or may not provide work for others.
  - *Dependent workers* are workers who do not have complete authority or control over the economic unit for which they work. If they are in employment for profit they have no employees, and do not make the most important decisions about the activities of the economic unit for which they work.

**Type of economic risk**

- The *type of economic risk* refers to the extent to which the worker may (1) be exposed to the loss of financial or other resources in pursuance of the activity; and (2) experience unreliability of remuneration in cash or in kind or receive no remuneration.
- Economic risk may be measured operationally by considering:
  (a) the existence and nature of remuneration for the work performed,
  (b) the degree of stability or permanence of the job or work activity; and
  (c) the extent to which worker is protected in the event of sickness, accident, or termination of the job.
- In statistics on employment, the type of economic risk is used to classify workers as *in employment for profit* or *in employment for pay* based primarily on the nature of the remuneration for a particular job. The aspects of the nature of the remuneration taken into consideration include whether or not remuneration is received or expected:
  (a) in the form of profit (and therefore also entails the risk of loss);
  (b) based on time worked;
  (c) by the piece for the goods produced or services provided; or
  (d) as a fee for the production of goods or provision of services.

(Extracted from *Resolution concerning statistics on work relationships*, ILO 2018c)

## 3.2.2. Categories of persons performing their work in cooperatives

The categories of persons who may perform their work in cooperatives include members of cooperatives, non-member employees and other categories. Whereas "employees" and "other categories" correspond to concepts in existing statistical frameworks on work and employment, the concept of "members of cooperatives" is unique in cooperatives and brings about conceptual complexity.

### 3.2.2.1. Members of cooperatives

Members of cooperatives are a category of persons specific to cooperatives.[32] Whereas the category of "members of producers' cooperatives" which was one of employment status in the ICSE-93 had been narrowly understood as a specific form of work performed only in collective-farm-style cooperatives, it did not appropriately cover worker cooperatives which are mainly active in the industrial and service sectors, nor the majority of producer cooperatives of which members work in their own economic units rather than in a cooperative. For that reason, the category of "members of producers' cooperatives" was removed in the ICSE-18 and this change provided an opportunity for employment performed by members of cooperatives to be placed in categories that more accurately reflect their employment arrangement. However, to extract work and employment in cooperatives from existing labour statistics or to establish statistics on work "in" and "within the scope of" cooperatives, the category of "members of cooperatives" need to be reintroduced with clearer conceptualization.

Members of cooperatives have a double status in cooperatives: owners of cooperative and users of goods produced and services provided by the cooperative. They may perform different forms of work in their cooperatives but also in their own economic units in using goods produced and services provided by cooperatives. The unique character of work in cooperatives is the fact that the work performed by members or the provision of goods and services facilitating members' work are organized by members themselves through jointly and democratically managed governance structures.

### 3.2.2.2. Non-member employees

Non-member employees in cooperatives are workers employed for pay in cooperatives. Usually, they are in the same situation as employees in other types of economic units.

### 3.2.2.3. Other categories

There are also other categories defined in the *International Classification of Status at Work* (ICSaW-18) who might perform their work in cooperatives, even though their number is always small and their presence is rather anecdotal.[33]

As other for-profit corporations or non-profit organizations, cooperatives may have specific types of persons, such as unpaid trainee workers, organization-based volunteers and other unpaid workers.[34]

## 3.2.3. Statistical units

In addition to the fact that different forms of work are performed by different categories of persons in cooperatives, cooperatives also provide goods and services which facilitate different forms of work performed in other economic units.

[32] The concept of "member" exists also in other member-based organizations such as non-profit associations, trade-unions, employers' associations etc. However, as members of cooperatives might be directly related to employment in cooperatives, it can be used as a specific variable for work in cooperatives. This is also related to the specific character of cooperatives as an enterprise and association of persons at the same time (ILO, 2017a).

[33] In some school cooperatives, students who are cooperatives members might participate in some economic activities organized by the cooperative. However, although their work might be considered as a kind of employment, it needs to be checked further, because the objective of these activities is to teach students about cooperatives rather than doing real work. It is not clear, for the time being, whether this type of work should be classified as employment or other work activity according to the *Resolution concerning statistics on work, employment and labour underutilization*.

[34] According to the ICSaW-18, "other unpaid workers" are defined as "workers who cannot be classified in any other groups in the *International Classification of Status at Work*. They include workers performing activities such as unpaid community service and unpaid work by prisoners, when ordered by a court or similar authority, and unpaid military or civilian service."

Although both roles, as an "economic unit" and as a "provider of goods and services", are important contribution of cooperatives to work, it is important to distinguish them. Whereas the work performed in cooperatives as an economic unit should be included in direct boundary of statistics on work in cooperatives, the contribution as a provider of goods and services for work needs to be included in the scope of cooperatives.

## 3.3. Work and employment in cooperatives

There is no specific form of work unique to cooperatives but the different forms of work as defined in the *Resolution on statistics of work* may cover all forms of work in cooperatives. "Employment", "volunteer work", "unpaid trainee work" and some "other (unpaid) work activities" performed by different categories of persons may be identified in cooperatives as well as in related economic units. This point is clearly mentioned in the *Guidelines*: "24. Work performed in cooperatives can be undertaken by members and by non-members and may include all forms of work defined in the Resolution concerning statistics of work, employment and labour underutilization adopted by the 19th International Conference of Labour Statistics (2013). 25. Work within the scope of statistics on cooperatives includes work performed by members and non-members in (i) cooperatives; (ii) economic units that are members of a producer cooperative or multi-stakeholder cooperative; (iii) subsidiary enterprises owned or controlled by cooperatives. Statistics on work generated in cooperatives, in particular statistics on employment, should be compiled and tabulated separately or disaggregated for each of these institutional settings". It is important to underline that work performed by members of cooperatives which is not related to the cooperative should be considered as work outside the scope of statistics on cooperatives (Article 27 of the *Guidelines*).

Based on the result of research project on statistics of work and employment in cooperatives, the *Guidelines* define particularly four different forms of work which might be found in cooperatives: worker-members of cooperatives, members of producer cooperatives, members of cooperatives working in the management or administration of the cooperative and non-members (employees and volunteers). These definitions reflect the different work relationships defined in the *Resolution concerning statistics on work relationships*.

### 3.3.1. Worker-members

The work performed by worker-members of cooperatives is based on a specific form of work relationship, called "worker ownership". Worker-members own the cooperative in which they work and they control its activities. They make the most important decisions about the activities of the economic unit and the organization of their work, through jointly and democratically managed governance structures in which they have equal rights and responsibilities regardless of the amount of invested capital. In many cases, they are paid, on the one hand, with a fixed amount based on time worked, distributed over the year before the settlement of account, which is considered either as wage or salary, or as advanced payment of expected profit, according to the applied legal regimes,[35] and on the other hand, with an amount adjusted as the rest of profit to be paid, after the settlement of account. The rest of profit to be paid to worker-members is often called "surplus" or "patronage" calculated based on their contribution rather than dividend on invested capital.

Since the beginning of 19th century, the worker ownership has been developed by people who tried to avoid subordination and to promote their autonomy and economic prosperity at work. The international cooperative movement defines worker ownership as a specific work relationship which is distinguished from paid employment (based on employer-employee relationship) as well as from self-employment.[36]

[35] In many Spanish speaking countries, the concept of "*anticipo*" is used to emphasize the characteristics of worker-members as the self-employed. *Anticipo* means the advance payment to worker-members, executed on a regular basis during a business year, which is calculated in anticipating the total amount of annual profits expected. However, as a scheme jointly established by pooling income from all activities conducted through the cooperative, the *anticipo* is also a way to guarantee a certain level of job security and income so that it may be considered as "pay" rather than "profit".

[36] *World declaration on worker cooperatives* approved by the ICA General assembly in Cartagena, Colombia, 2005. http://www.cicopa.coop/World-Declaration-on-Worker-1947.html

However, the worker ownership is not sufficiently institutionalized yet at the global level. Although there is specific legislation on worker cooperatives or worker-members' status in several European countries (Spain, Italy and France) and Latin American countries,[37] it is differently understood in different institutional settings, for example as a derogation of paid employment in some countries, or as a part of self-employment in others. Even worse, it is not known at all in many countries. According to CICOPA's second report on cooperatives and employment, the number of jobs based on worker ownership is estimated as 11 million across the world (Eum, 2017).

Labour statistics which have been dominated by the dichotomy between "paid employment" and "self-employment" have not recognized this form of work relationship so far. Due to the weak level of institutionalization, the limited number of empirical cases, and the lack of agreed operational definitions for statistical purposes, it seems still difficult to recognize the work relationship based on worker ownership as a form of employment at its own right in international standards of statistics.

The concept of work performed by worker-members based on worker ownership can be applied mainly to worker-members in worker cooperatives and worker-member based social cooperatives. It may be also applied to producer-members in collective-farm-style producer cooperatives which still exist in some countries, particularly former planned economy countries.[38] When together with other categories of members, employees are also members of cooperatives and have their voices in the governance structure in an institutionalized way with significant power, these cooperatives may be classified as multi-stakeholder cooperatives (for a statistical definition of multi-stakeholder cooperatives, see the *Guidelines*).

However, there are still difficulties in applying this concept of worker-members into the current statistical system. So far, with the ICSE-93, worker-members have not been specifically recognized but identified differently either as employee or as self-employed according to different institutional settings. In most of countries, the worker-member status is not considered as a category in its own right but a subcategory or derogation of one of the two main categories (employee or self-employed). Without additional operations for checking whether a person is "member" of "a cooperative for serving work and employment of its members", namely a worker cooperative according to the cooperative typology in the *Guidelines*, it is not possible to distinguish him/her from non-member employees, for the case of being considered as employee, and it is difficult to distinguish him/her from producer-members who work in their own economic unit, for the case of being considered as the self-employed.

The ICSE-18 which allows to overcome the dichotomy between paid employment and self-employment opened an opportunity for worker-members to be position more appropriately in the statistical system. To implement the ICSE-18 into the concept of worker-member, two key questions need to be answered.

- Are they dependent workers or independent workers?
- Are they employed for profit or for pay?

Regarding the first question, the *Guidelines* adopted a view that they are dependent workers because they do not have full control over the enterprise, as can do owner-operators who have substantial control power by holding either a majority of shares or at least a large minority. Given that it is the inequality in the number of shares held that gives owner-operators of corporations the control, when owner-operators would have the controlling ownership together with other partners,

[37] For example, in Spain, the status of worker-ownership (*trabajo asociado*) is recognized not only for worker-members (*socio trabajador*) in worker cooperatives and cooperatives for community exploitation of the land (similar with collective-farm-style cooperatives) but also for members in other types of cooperatives (*socio de trabojo*). Similarly, in Colombia, the worker-member based on worker ownership is considered as a specific status which can be found in all kinds of cooperatives.

[38] Depending on how production and the financial flow are organized, these collective-farm-style cooperatives might have two different models. If producer-members all work together, or even if each one is responsible for specific fields and activities, but if they all receive a more or less regular remuneration from the cooperative, then it would be considered as being based on worker-ownership. If the producer-members work on their own premises whereas the role of cooperative is only to invoice members' products to the market, on their behalf, then, it would be closer to business and employment cooperative (*Coopérative d'activité et d'emploi*) model in France which is different from the traditional model of worker ownership. It seems necessary to do further analysis about this type of cooperatives.

the number of partners should be limited in order that they may have the substantial control power.[39] However, for the case of cooperatives, although members are owners of cooperative and share the equal power as expressed with "one person, one vote", because they have to respect the rules jointly decided by members through democratic governance structures, they should be considered as dependent on their cooperative. While members who are elected as board members might have the authority to act on behalf of the cooperative, they would not have full control as they have to be accountable to the members. In this sense, the employer is the cooperative itself as a legal entity rather than specific persons who have positions in the management.

Regarding the second question, there are practices, such as the concept of "*anticipo*" in Spanish speaking countries, that consider the remuneration to worker-members as profit, according to the approach used in the ICSE-18. However, even in these cases and if worker-members' regular remuneration during the year is decided based on time worked, it should be defined as being paid a wage or salary. In this case, worker-members are classified into "employees" as defined in the ICSE-18.[40] The concept of employee should not be narrowly interpreted. Even according to the ICSE-18, employees "may hold shares in the economic unit in which they are employed, or have authority over aspects of the operations of the economic unit as employees with management responsibilities but do not hold controlling ownership of the enterprise" because "they are accountable to a third party within the economic unit such as a person or board". In the case of cooperatives, the third party is the cooperative as an incorporated enterprise represented by its board.

However, worker-members in some professions are sometimes paid only in profit, or with a fee for each service without a contract of employment, for example, in some taxi drivers' cooperatives or domestic workers' cooperatives. It is also possible that some members working in cooperatives are misclassified as producer-members rather than worker-members although their work is strongly dependent on their cooperative rather than their own economic unit. According to the ICSE-18, members working in the situation with high dependency on the cooperative and with payment in form of profit (whether it is worker cooperative or producer cooperative in the legal sense) are defined as "dependent contractors". However, because the definition of "dependency" on cooperative is not clearly defined, for the time being, it is difficult to operationalize it for the purpose of measurement. This point needs to be developed further in analysing borderline cases between worker cooperatives and producer cooperatives.

Based on these arguments, Article 28 of the *Guidelines* defines worker-members as follows:

"Worker-members of cooperatives are dependent workers because they do not have the same degree of control over the operation of their enterprise as, for example, a majority shareholder. If these workers are paid a wage or salary for time worked or for each task or piece of work done in the cooperative, they should be classified as employees of their own cooperative; if they are paid only in profit or surplus or paid a fee per service, they should be classified as dependent contractors according to the *Resolution concerning statistics on work relationships* adopted by the 20th International Conference of Labour Statisticians (2018)".

[39] For this reason, in small worker cooperatives composed only of two or three worker-members, worker-members might be considered as "owner-operators" among the categories of ICSE-18. However, there might be only a small number of real cases.

[40] The Resolution concerning statistics on work relationship defines "Employees" as follows; "41. Employees are workers employed for pay, on a formal or informal basis, who do not hold controlling ownership of the economic unit in which they are employed. They are remunerated in cash or in kind in return for time worked or, in some cases, for each task or piece of work done or for services provided including sales (by the piece or commission). Payment for time worked is the typical mode of remuneration. Payment in kind is generally received in the form of goods. Where payment is received in the form of services, this is generally complementary to payment in cash. 42. Employees may be employed in market units, non-market units and households producing goods and/or services mainly for own consumption. They may hold shares in the economic unit in which they are employed, or have authority over aspects of the operations of the economic unit as employees with management responsibilities but do not hold controlling ownership of the enterprise. They are accountable to a third party within the economic unit such as a person or board. 43. Employees include the following specific groups among others: (a) … (b) worker-members of cooperatives who are paid for time worked or for each task or piece of work done (c) …" (underlined by us).

▶ **Box 3: New forms of worker-members**

There are cooperatives in which members perform their work individually but with the legal status of employees or its equivalent. In principle, they might be included into the category of worker-members in a large sense. Members of cooperatives are practically freelancers who want to maintain their autonomy and flexibility at work but join cooperatives to obtain the legal status of employee which may allow a higher level of social protection. This is the case of business and employment cooperatives in France, SMart in Belgium and cooperatives of independent workers in Finland. Although their ways of organizing work are different from the traditional model of worker cooperatives, in a changing world of work, they might play a role similar to that of worker cooperatives, as workers communities organized by workers facing changes in the context of the industrialization and tertiarization of the economy. In this sense, members of these new workers' communities in form of cooperatives might be considered as worker-members in a large sense in spite of different ways of organizing their work. However, these new forms of worker-members need to be further analysed in terms of statistics on work and employment. It is possible that they would be considered as a different employment form from the traditional sense of worker-members.

### 3.3.2. Producer-members significantly depending on their cooperative

Usually, producer-members in producer cooperatives are considered as working in their own economic units so that they are not included as working in the cooperative but within the scope of cooperative.

However, we can observe that in some producer cooperatives, producer-members' own economic activities performed at their own premises might significantly depend on cooperatives for accessing the market and clients (marketing, processing and commercialization). Therefore, their employment might be considered as being strongly related to and even dependent on cooperatives. They do not receive or expect, from the cooperative, a wage or salary in return for the time worked or for each piece produced, but sell their products and/or services to the cooperative which is often their principal client (and even in some cases, by statute, the only one) or through cooperative which significantly controls producer-members' access to clients. It is probable that an important part of producer cooperatives in industrial and service sectors, such as transport cooperatives, personal service cooperatives, handicraft cooperatives etc. are in this situation.

This dependency of producer-members' employment on cooperatives might make confusing perception to producer-members so that they might think that they are working in their cooperatives. It can make significant differences between the results of household-based surveys which rely mainly on respondents' personal perception and that of establishment-based surveys or administrative records which rely on the legal status of jobs.

Beyond members' perception, it is also possible that producer-members' legal status as own-account worker (self-employed) might hide their real work relationship. This is the case when a producer cooperative or worker cooperative status is abusively used by employers in view of avoiding responsibilities and obligations as employers.

▶ **Box 4: Examples of taxi cooperatives**

While offering the same service, taxi cooperatives may be of different cooperative types and offer, accordingly, different forms of members' work.

- A taxi cooperative may be a **worker cooperative** when its' members have an employment contract or its equivalent with their cooperative. After being paid by the client, drivers bring all amounts of money except daily costs (gas, parking) to their cooperative. The daily costs are covered by the cooperative at cost. The drivers are paid with a salary according to the rule established by the cooperative. Vehicles are owned by the cooperative. In this case, drivers who are members of cooperatives are worker-members and should be considered as **employees** in statistical terms.
- A taxi cooperative may be a **producer cooperative** when its' members join the cooperative only for sharing some services, such as radio-services, online-application, gas-station, etc. Drivers have their own vehicles. They are directly paid by clients and they are responsible for their own profit or loss. They pay service fees to their cooperative. In this case, drivers who are members of cooperatives are producer-members and should be considered as **owner-operators** in statistical terms.
- A taxi cooperative may be a **producer cooperative** in a formal sense because its' members do not have employment contract or its equivalent but are considered as self-employed persons. Drivers are responsible for their own profit or loss. However, when the cooperative owns vehicles and rents them to drivers with a significant level of instructions, drivers should be considered as being dependent on their cooperative. In this case, although drivers who are members of cooperatives are usually producer-members, they should be considered as **dependent contractors** in statistical terms.

Article 29 of the *Guidelines* specifies these two different situations. "29. Owner-operators of enterprises that are members of producer cooperatives should in general be classified as independent workers; they may be classified as dependent workers if their business depends significantly or entirely on the cooperative in terms of access to markets, organization or pricing of work (i.e., the cooperative implicitly or explicitly controls the activities of the members) and if they satisfy the criteria to be classified as dependent contractors that are specified in the current standards for statistics on work relationships."

To deal with this issue, it will be reasonable to study further on the concept of dependency in cooperatives and to develop operational measurement tools to distinguish producer-members as dependent contractors of the cooperative from those who work in their own economic units as owner-operators of enterprises.

### 3.3.3. Employment performed by members in the management or administration of the cooperative

When some members (mainly elected but also appointed by members) in any type of cooperatives work in the management or administration of their cooperatives, the time worked for these tasks may be paid or not.[41] If the work is paid, it should be classified as "employment".[42] For example, when a farmer who usually works in his own economic unit is elected as a board member of an agricultural cooperative and if the time that he works as a board member is paid, his work as a board member should be considered as a separate job in which he is employee of the cooperative. If the work is not paid, for the case of producer cooperatives, it should be considered as employment in the producer-members' job in their own account because their contribution will be compensated with more benefit they can get from the cooperative. For the case of worker-members in worker cooperative, it should be considered as employment in their cooperative

[41] Theoretically, worker-members' working time for main production activities and that for management or administration need to be distinguished as two different jobs. However, it seems difficult to collect this kind of information except through surveys specifically designed for this purpose.

[42] In the current labour statistics, when their work is paid, members working in the management or administration may be identified among persons with the category of "manager" in the International Standard Classification of Occupations (ISCO-08) but it needs to be checked whether they are members of their cooperative or not.

because the unpaid time will be compensated in the form of surplus.[43] For the case of consumer/user-members, it is classified as volunteer work. This analysis is fully included in Article 30 of the *Guidelines*.

### 3.3.4. Employment performed by employees

All types of cooperatives can have employees who are not necessarily members. The employees work to serve members by executing tasks decided upon and controlled by members of cooperatives.

Employees might be members or not.

- In cooperatives with no direct relation to members' employment, such as consumer / user cooperatives (e.g. consumer cooperatives, utility cooperatives, financial service cooperatives, housing cooperatives) in which members use cooperatives for their final consumption, if legislation or statute does not prohibit it, employees can be members of the cooperative. However, in this case, employees' membership does not have any direct relation to their work as employees. Therefore, they are in a different situation from worker-members who often have the legal status of employee as well.
- In producer cooperatives, employees might be members when they have a production activity as a secondary job and want to use the services provided by the cooperative. It means that their economic activity as employees in cooperatives should be distinguished from the one as producer-members in their own economic units. In this case, they can be considered as having two different economic activities with different employment status: as employees and as producer-members. This is the same for the case that producer-members are employed as part-time or seasonal employees to work in the economic activities of a cooperative, for example, farmers who work during agricultural off-season in food processing factories managed by their cooperatives.
- In worker cooperatives where employment is the prime mission of the cooperative, there can be two forms of workers: worker-members and non-member employees.

Therefore, except worker-members as defined above, all employees in cooperatives should be considered as non-member employees at least for the purpose of statistics on work and employment in cooperatives. Non-member employees are recognized, in the ICSE-18, with the category of "employees". In certain institutional settings, it is possible that worker-members and non-member employees both have the same legal status of employee and naturally, are classified into the same category of "employees" in the ICSE-18. However, in statistics on cooperatives, they need to be distinguished one from the other by checking their membership and type of their cooperative.

When non-members work in the management or administration in the cooperative and are paid for it, they are classified into "employees", because, although they may have authority over aspects of the operations of economic units by having management responsibilities, they do not hold controlling ownership of the cooperative.

Article 31 of the *Guidelines* explains this aspect with a short sentence. "31. Non-members can perform work in all types of cooperatives, including as employees and as volunteers."

### 3.3.5. Volunteer work

Volunteer work may be performed by all categories of persons in all types of cooperative. When persons perform volunteer work in cooperatives, their work relation is considered as "organization-based volunteers" defined in the ICSaW-18.[44] It is important to remark that this definition recognizes unpaid non-compulsory activities not only "for others through

[43] In some worker cooperatives, besides full-time workers, worker-members who are elected or appointed for specific positions in the management or administration may be paid for the time that they work for that task (e.g. meeting times) which may have a different remuneration scheme from that for their main production activities. However, there are also cases where the working time is not paid due to financial constraint.

[44] According to the ICSaW-18, "7 Organization-based volunteers" are defined as "workers who perform any unpaid non-compulsory activities to produce goods or provide services for others through or for organizations comprising market and non-market units. Included in this group are workers who produce goods or provide services for others through or for self-help, mutual aid, or community-based groups of which the worker is a member. Excluded from this group are (i) unpaid apprentices, trainees and interns, (ii) workers performing unpaid compulsory activities and (iii) own-account volunteers (§ 68)".

cooperatives" which is based on a more altruistic or philanthropical perspective, but also "for cooperatives" themselves. Including volunteer work provides a full picture of the contribution of cooperatives to the economy by valuing important part of work in cooperatives which has not been visible with a narrow sense of employment. However, as mentioned in 3.3.3., unpaid activities related to members' employment would not be always considered as volunteer work, because they might be compensated at a certain moment. Therefore, although this issue should be analysed further, it seems reasonable to consider that volunteer work is performed only by consumer/user-members rather than producer-members or worker-members.

Members also may perform volunteer work for people who are in need or for their local community through cooperatives. It is particularly true for social cooperatives[45] which aim at improving collective and general interest of the community rather than members' own economic interest. In social cooperatives, different types of members having different functions such as employees, producers, users or financers may perform volunteer work for their cooperative but also for people in need or local community through the cooperative. It is often difficult to distinguish employment, volunteer work for cooperatives and that for people in need or local community, because social cooperatives' prime mission is to serve people in need and the local community. There is often a specific membership category of "volunteer member" in many social cooperatives as well.

Employees in cooperatives may perform volunteer work for cooperatives outside working hours, if they do so voluntarily. As the case of members who perform their paid work in cooperatives, their volunteer work should be distinguished from their employment in cooperatives.

Logically, it is not impossible that non-members (who are not employees either) may perform volunteer work through or for cooperatives. Although there is little statistical information, it is probable that social cooperatives, community cooperatives and cooperatives with focus on ethical and environmental values such as fair trade or organic products might have non-member volunteers in their activities including management and/or administration.

This aspect of volunteer work was not fully addressed in the *Guidelines* but mentioned in a secondary way. In Article 30 concerning work performed by members in the management or administration, it is mentioned that "if consumer-members perform any type of work in their cooperative without pay it is volunteer work". In Article 31 concerning non-members' work, it is mentioned that "non-members can perform work in all types of cooperatives, including as employees and as volunteers".

## 3.4. Work and employment performed in other economic units but within the scope of cooperatives

Although they are not performed directly in cooperatives, some types of work and employment are considered as being performed thanks to cooperatives. In some statistical information, these types of work and employment are reported as part of those in cooperatives. As this approach wants to emphasize, the impact and influence of cooperatives on creating, maintaining and developing these types of employment should not be underestimated. However, in terms of statistics on cooperatives, it seems reasonable to produce and collect data on these forms of work and employment but in a way that they can be distinguished from those in cooperatives.

The *Guidelines* define statistical units to be included within the scope of statistics on cooperatives; (i) cooperatives; (ii) economic units that are members of a producer cooperative or multi-stakeholder cooperative; (iii) subsidiary enterprises owned or controlled by cooperatives. Statistics on work generated in cooperatives, in particular statistics on employment, should be compiled and tabulated separately or disaggregated for each of these institutional settings.

[45] For examples, "cooperativa sociale" (social cooperative) in Italy, "société coopérative d'intérêt collectif" (collective interest cooperative society) in France, "사회적협동조합" (social cooperative) in South Korea, "coopérative de solidarité" (solidarity cooperative) in Québec (Canada), etc.

### 3.4.1. Economic units that are members of a producer cooperative or multi-stakeholder cooperative

Many cooperatives work as an interface with people working in their own economic units other than cooperatives, such as farmers, fishermen, artisans, etc. who rely partly or totally on cooperatives in order to transform or commercialize their products or services, or to provide them with key production inputs. Although cooperatives do not employ these producers, they play a critical role in facilitating members' own economic activities. Therefore, whereas producer-members should not be considered as having jobs in cooperatives[46], considering their significant number[47], it is important to collect information on work and employment in economic units that are members of producer cooperatives or multi-stakeholder cooperatives. More attention should be also put on how cooperatives contribute to their work and how this contribution could be measured appropriately.

Enterprise-members (or legal-person-members) of enterprise cooperatives, such as SME cooperatives and cooperatives of retail shops, are also included into the category of producer-member. Therefore, employment performed by employers and employees in enterprise-members are not to be considered as working in cooperatives but its information needs to be collected as statistics on work and employment in a distinguished way from that on cooperatives.

In the *Guidelines*, whether they are persons or enterprises, they are defined as producer-members in producer cooperatives or multi-stakeholder cooperatives.

### 3.4.2. Employees in non-cooperative enterprises owned or controlled by cooperatives

Employees in non-cooperative enterprises owned or controlled by cooperatives, such as subsidiaries might be differently interpreted.

- As subsidiaries owned by cooperatives, it can be said that they are significantly affected by the culture and sense of cooperatives. In the data collection conducted by cooperative organizations, employees in the subsidiaries are often reported as those in cooperatives without distinguishing between mother-cooperatives and non-cooperative subsidiaries.
- On the other hand, in administrative terms, subsidiaries are distinctive establishments from their mother-cooperatives so that it seems difficult that their information in economic censuses or administrative records could be identified in relation with cooperatives. It also seems difficult that, in household-based censuses or surveys, respondents might perceive their enterprise as being related to a cooperative.

According to the *Guidelines*, non-cooperative enterprises owned or controlled by cooperatives are within the scope of statistics on cooperatives but "should be compiled and tabulated separately or disaggregated" differently from cooperatives.

### 3.4.3. Employment in private and public agencies related to cooperatives

Some studies include "jobs created because of the very existence of cooperatives" such as governmental cooperative departments, cooperative training institutions and cooperative audit companies, and "spill-over effect", namely jobs created in other business with which cooperatives maintain commercial relations, as the contribution of cooperatives to the creation of employment (Schwettmann, 1997). If available, this information might serve to illustrate the impact of cooperatives as well. For example, in the satellite accounts for cooperatives in Iran, under the title of "cooperative logistics", information on different private and public agencies were included in the scope of satellite accounts for

[46] However, it should be noted, as discussed in 3.2. that producer-members who significantly depend on their cooperative need to be separately identified as dependent contractors in cooperatives when appropriate methods would be available.

[47] According to CICOPA Employment report, there are more than 250 million producer-members across the world, including certain amount of double counted membership. On the contrary, the number of jobs "in" cooperatives covering employees and worker-members is 27 million (Eum, 2017).

cooperatives but in a way that they can be distinguished from cooperatives. These private and public agencies are cooperative unions, cooperative chambers, Edalat investment enterprises, Ministry of Cooperatives, Central Organization Rural Cooperatives of Iran and Cooperative Development Bank (Ministry of Cooperative, Labor and Social Welfare, 2015).

However, in the *Guidelines*, these agencies related to cooperatives are not included in the scope of statistics on cooperatives.

## 3.5. Data sources and data collection methods

How can data on different forms of work and employment in cooperatives be collected? As examined with the empirical cases (in the Annex 5), currently available statistics on cooperatives do not cover all of these different forms of work and employment "in" and "within the scope of" cooperatives. Each method has its own strength in obtaining certain types of data but not for other types. In this section, the focus will be laid on the strength of each method and possible solutions to improve their relevance regarding statistics on work in cooperatives.

### 3.5.1. Household-based surveys

Usually, household-based surveys are appreciated as one of the sources for collecting statistics on work and on the labour force covering the resident population, their participation in all jobs and in all forms of work (ILO, 2017a).

In currently available household-based surveys, there are few cases which collect information on work and employment in cooperatives. For example, Iran conducts the labour force survey which includes cooperatives. In the Iranian labour force survey, cooperative is proposed as one among different options to identify the institutional units in which employees might work. In the survey, "employment status" is categorised into four main groups: employer, own-account worker, employee and family worker. Then "employee" is divided into "employee in public sector", "employee in private sector" and "employee in cooperatives".[48]

It is known that household-based surveys have drawbacks such as sampling errors, sampling preventing reliable estimates for small groups and areas, dependence of data quality on accuracy of respondents (ILO, 2017c). These problems are particularly sensitive to work in cooperatives.

- Usually, the number of persons who perform their work in cooperatives (members and employees) is small in the national population.[49] Therefore, it is difficult for them to be proportionally represented in sample groups. In the Iranian case, it is reported that the information from the labour force survey underestimates employment in cooperatives so that it is never referred to as statistics on cooperatives.[50]
- It is probable that respondents might not be sufficiently aware of the concept of cooperative. When the cooperative is proposed as one of options for economic units where people work, employees who work in large cooperatives might consider their workplace just like a private enterprise rather than a cooperative.

Mainly due to these problems, it seems difficult to use household-based surveys to obtain general estimates on work "in" cooperatives. One idea for using additional questions is presented in the Annex 6.

Household-based surveys may collect information on volunteer work in cooperatives. For example, in the National Household Survey in Costa Rica, there is a question on affiliation to social organizations. Cooperatives are suggested as one among different options, together with trade unions, solidarity associations, trade associations and community associations (Eum, 2016b). Although this question is not directly related to volunteer work, it seems important that

[48] Communication with Mirfallah Nassiri, Director, Centre for Strategical Statistics & Information, Iran (23 December and 12 January, 2017).

[49] According to CICOPA's second report on cooperative employment (Eum, 2017), the estimated weight of employed persons (worker-members and employees) in 156 countries is only 0.92% of the whole employed population in these countries. In Europe, where the rate is slightly higher, the estimated weight is 1.89%. Probably, one of the highest rates would be the case of Iran where 5.8% of employees work in cooperatives (as of 2010, Ministry of Cooperatives, Labor and Social Welfare, n.d.)

[50] Communication with Mirfallah Nassiri (23 December, 2017).

cooperatives are separately recognized as one among membership-based organizations which might be main target institutional units for surveys on volunteering.

### 3.5.2. Establishment censuses or surveys

Establishment censuses or surveys have key advantages in identifying information on jobs in formal establishments. Therefore, it seems useful for collecting information on persons in paid employment in cooperatives, namely employees (regardless of membership) and persons in management positions (regardless of membership).

However, there are some inconveniences concerning cooperatives. First of all, whereas cooperatives are included as investigation units in establishment censuses or surveys, information on cooperative members are not collected. Secondly, at least in currently available data sources, the category of cooperative is not often distinguishable from other forms of economic units.[51] Therefore, it is often difficult to extract information on cooperatives from the result of establishment censuses or surveys. Thirdly, in many cases, establishment censuses or surveys do not cover small and unregistered businesses so that it is probable that small cooperatives are not included in censuses or surveys.

Given that those limits are rather structural ones, it seems difficult to improve them only for statistics on cooperatives. On the other hand, recent trends of establishing "statistical registers on active enterprises (business register)" based on various data sources might improve establishment-based statistics in general including cooperatives (Eum, 2016b, pp. 74). However, we must again underline that cooperatives should be dealt with as a category in its own right for using business registers as data sources for statistics on cooperatives.

### 3.5.3. Administrative records

Administrative records have the advantages of exhaustivity, maximum detail and availability (ILO, 2017c). Particularly, concerning employment, social security data can provide a high quality of information on persons in paid employment in cooperatives, that is, employees (regardless of membership) and persons in management positions (regardless of membership), with an exhaustive coverage.

However, administrative records in general except those specific to cooperatives do not provide information on members of cooperatives. It is particularly problematic in countries where worker-members do not have the legal status of employee. In this case, a significant part of employment performed by worker-members cannot be reported.

In theory, cooperative-specific administrative records can provide sufficient information on different forms of work. However, in many countries, cooperative registers themselves do not update information on cooperatives and do not remove non-active cooperatives from the registers. Therefore, when public authorities in charge of cooperatives update data on a regular basis, the collected data might be used for statistics on cooperatives.

One of recommendable solutions is that cooperative-specific administrative records would be well integrated into, or well-articulated with administrative records in general. This solution will allow to produce statistics on work and employment in cooperatives based on the same framework for statistics in general, while keeping cooperative-specific information. This would be particularly important for the statistical business registers.

### 3.5.4. Cooperative-specific censuses or surveys

Cooperative-specific censuses or surveys might be the best and most practical solution not only for work and employment issues but also other aspects of cooperatives. According to the different ways of designing the censuses and surveys, information on all kind of work forms in cooperatives might be collected through them. However, at the international

[51] In this regard, the SME census and the agricultural census in Russia and the general census on industry, service and non-profit entities in Italy are good examples which use cooperatives as a separate category.

level, a significant effort would be needed in harmonizing and standardizing definitions, variables and classifications to develop these data collection methods.

It should be noted that it is difficult to frequently conduct cooperative-specific censuses due to resource constraints. However, if they could be conducted regularly, they might be reliable data sources with a high-quality level.

If different variables such as types of cooperative, economic activities, regions and size would be well considered in sampling process, cooperative-specific surveys might be used for collecting various kinds of information on cooperatives at a lower cost.

## 3.6. Conclusive remarks about work and employment

In examining various realities of work and employment in cooperatives and their conceptual links with international statistical standards on work and employment, the present study proposed a conceptual framework on different forms of work and employment performed "in" and "within the scope of" cooperatives. These different forms of work in cooperatives reflect the specificities of cooperatives, while also corresponding to the general frameworks for statistics on work and employment in the *Resolution on statistics of work* and the newly adopted ICSaW-18 and ICSE-18 in the *Resolution concerning statistics on work relationship*.

The main findings of this study can be summarized as follows.

- To understand the specificities of work and employment in cooperatives, it is necessary to use, as a variable, different categories of persons in cooperatives, such as members of cooperatives, employees and others. Whereas "members of producers' cooperatives" as one of employment statuses in the ICSE-93 disappeared, the concept of "members of cooperatives" is still necessary and needs to be developed in statistics on cooperatives.
- There is no specific form of work for cooperatives but different forms of work as defined in the *Resolution on statistics of work* may cover all forms of work in cooperatives. "Employment", "volunteer work", "unpaid trainee work" and some of "other (unpaid) work activities" performed by different categories of persons may be identified in cooperatives as an economic unit.
- Both roles of cooperatives as an economic unit and as a provider of goods and services for work need to be fully recognized and appropriately measured. However, as the impact of cooperatives on work, employment and production activities, the information on the latter should not be confused with that on the former.
- In order to identify specific forms of work and employment in cooperatives, four variables may be used: categories of persons in cooperatives (members, employees and others), economic unit (in cooperative or in other economic units), occupation (ISCO-08) and ways of being paid (pay or profit).

Based on these findings, this study identified different forms of work and employment in cooperatives such as:

- Worker-members
- Producer-members significantly depending on their cooperative
- Employment performed by members in the management or administration of the cooperative
- Employment performed by employees
- Volunteer work

It also identified different forms of work and employment performed in other economic units but within the scope of cooperatives such as:

- Economic units that are members of a producer cooperative or multi-stakeholder cooperative
- Employees in non-cooperative enterprises owned or controlled by cooperatives
- Employment in private and public agencies related to cooperatives

The *Guidelines* includes all these forms of work and employment except the last one.

Each data source and data collection method has its own strengths and drawbacks in collecting information on different forms of work and employment in cooperatives. Among different methods, cooperative-specific administrative records and cooperative-specific censuses / surveys might reflect well specificities of work and employment in cooperatives.

One among the key issues which need to be discussed further is the concept of "members' work". The specificities of work in cooperatives are based on this concept that a cooperative is an enterprise and association of persons at the same time. Worker ownership, contribution of cooperatives to producer-members' work in their own economic units, diverse forms of work (work in management and/or governance tasks, members' volunteer work for production activities, dependent contractors) should be elaborated further to be integrated into the official statistics on work and employment.

To move further, two additional points could be examined.

Firstly, given that the concept of members' work (not only employment but also different forms work) is commonly important in other components of the Social and Solidarity Economy, such as non-profit associations, mutuals, and community organizations including cooperative-like informal groups, a harmonized effort to develop statistics on work and employment in the Social and Solidarity Economy might be envisaged. In that way, the importance of members' work concept may be more easily recognized.

Secondly, given that it would not be easy to apply the proposed conceptual framework on work in cooperatives into the main official labour statistics in the near future, cooperative censuses or surveys and data collection by cooperative organizations might be mobilised first to test and develop it. In parallel with the effort for integrating statistics on work in cooperatives into the official statistics, the main stakeholders might step forward practically and substantially to develop statistics on work and employment in cooperatives.

# ▶ Chapter 4: On the economic contribution of cooperatives

**Damien Rousselière, Marie J. Bouchard and Madeg Le Guernic**

## 4.1. Introduction

As a follow-up to the ILO Conceptual Framework for the Purpose of Measurement of Cooperatives and its Operationalization (ILO, 2017a)[52], the main objectives of this last chapter are to: (1) Increase understanding and provide information on the economic contributions of cooperatives by exploring alternative measures of wealth created by cooperatives; (2) Provide recommendations on the way forward with respect to "good practices" for measuring the economic contribution of cooperatives.[53]

Specifically, the chapter aims to address the following questions: (1) What are the existing methodologies in use, their advantages and disadvantages? (2) What are the options available to the user (researchers and academics, official statisticians…)? (3) What are the questions that should be included in national business surveys or in specific surveys on cooperatives? (4) What is there to say about the dilemma between measurement that would be too specific to each type of cooperative (therefore limiting comparison), and measurement that would not be specific enough (therefore not measuring the distinctive contribution of cooperatives)?

This chapter is based on a survey of the academic literature, including an exhaustive review of the 100 papers on the microeconomic impact of producers' cooperatives. More sparse literature on other cooperative forms was also taken into account.

The remainder of the chapter is as follows: first, we provide the definition of the main economic concepts and describe the methodological issues. Second, the effects of cooperative will be described at theoretical and empirical levels. The main methods used to assess the economic contribution will be examined in the next section. Finally, we will highlight the main issues for official statistics on cooperatives.

## 4.2. Definitions of the economic concepts and methodological issues

### 4.2.1. Performance and efficiency

First of all, one must define the various economic concepts. Drucker (1977) defines **efficiency** as "doing things right": efficiency is the ability of an organization to attain a level of output with the utilization of a minimum level of inputs. For the literature on production economics, it can be defined either as input efficiency (minimal use of input for a given output) or as output efficiency (maximum output production for a given input) (Fuss and McFadden, 1978).

At the theoretical level, there is a distinction between (Bagnoli and Megali, 2011):

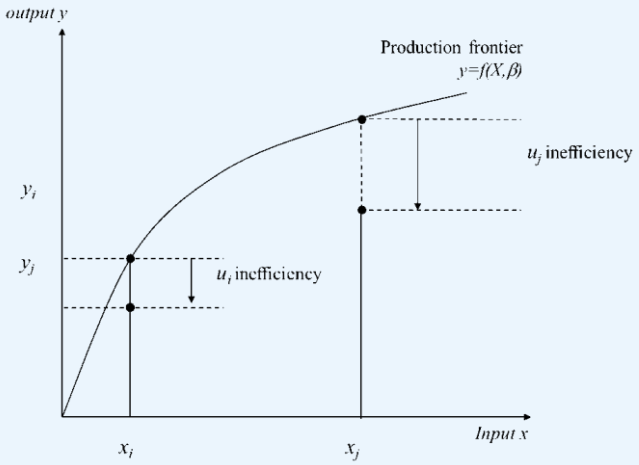
1. inputs, the resources that contribute to the activities undertaken;
2. outputs, in terms of both activities realized to achieve the mission and direct and countable goods/services obtained by means of the activities carried out;
3. outcomes, the benefits or impact for the intended beneficiaries; and
4. impacts, the consequences for the wider community.

[52] Also see chapter 1 of this book.

[53] Production of this report has been made possible through a financial contribution of the International Labour Office.

In a given industry, one can draw a production frontier that is the maximum possible production level of one output (y) for any given production level of an input (x), given the existing state of technology. Any organization under this production frontier can be described as inefficient (see figure 7).

▶ **Figure 7: The measure of inefficiency in production economics**




Source: The authors

Performance is more general and may encompass social, economic and environmental dimensions.

As noted in various studies (Bagnoli and Megali, 2011; Soboh *et al.,* 2009) there is an ambiguity of the notion of performance for cooperatives and more generally for social economy, as cooperatives can pursue multiple objectives. Various indicators have been used in the literature. Few studies propose a multi-output approach to cooperatives (Becchetti and Pisani, 2015; Bouchard and Rousselière, 2018). Estimating a growth model, Bouchard and Rousselière (2018) focus on the simultaneous increase of volunteering, employment and income, whereas Becchetti and Pisani (2015) estimate a multi-output frontier model with the volume of goods and services as outputs.

#### 4.2.1.1. The problem with value added as a measure of economic performance for non-workers cooperatives

As informed by the ILO *Conceptual Framework for the Purpose of Measurement of Cooperatives and its Operationalization* (ILO, 2017a), value added and profit have to be used with caution for measuring the economic contribution of marketing and supply cooperatives. For a marketing cooperative, the producers' income is, on one hand, a part of value added (patronage refunds or interests on members' social capital shares) and it is, on the other hand, a reduction of value added (payment of raw material).

In this type of cooperative, value added is not a relevant indicator to measure the economic activity of the cooperative (Deshayes, 1988). The cooperative differentiates itself from a for-profit enterprise as the product under-risk ("produit risqué") is no longer the capital provided by the shareholders but the raw material purchased from the members. This leads Declerck (2013) to note that value added is relevant only in the case of a marketing cooperative that faces economic difficulties. In such a case the capital provided by the members can also be considered as a product under financial risk, broadly defined as the risk of losing money (Shah, 1997).

For a supply cooperative, the producers' expenses may reflect different price strategies (combination between price and patronage refunds). For Fulton and Giannakas (2001), a purchasing cooperative maximizes the welfare of its members that may lead to a downward biased value added.

This may not allow comparison of different industries or different economies. In the case of a sectorial analysis, Musson and Rousselière (2017) use turnover because interviews with directors suggest that patronage refunds and price strategies are relatively similar among all the craftsmen cooperatives. This is the same strategy used by Madau *et al.* (2018) when comparing technical efficiency of fishermen cooperatives.

#### 4.2.1.2. Alternative indicators based on a modification of value added

As demonstrated above, measuring the value added of cooperatives requires consideration of their social and economic objectives. We can quote two alternative indicators based on a modification of value added.

As Balaguer and Castellano (2012) noted, cooperative associations are a special kind of companies that combine economic and social objectives, trying to achieve their social aims while allowing the members to benefit from a positive financial profit, although not as a function of the contributed capital, but as a function of their contribution to the common work. By proposing an adjusted calculation of cooperative value added, they want to consider the non-monetized value of the service exchange between members of the same cooperative.
However, no recommendations are made regarding the operating subsidies (subsidies on product or subsidies linked to production) the cooperative can receive from public authorities. An original proposition is to include financial incomes into value added calculation, which are commonly not considered as a part of the cooperative purposes.

Deshayes (1988) introduced two financial concepts applied to cooperatives: value received ("valeur obtenue") and value shared ("valeur partagée").

Value received is the cash-flow balance resulting from the sales of members' agricultural products and the purchase of all necessary inputs (other than financial costs and interests on social shares). This can be viewed as the ability of the cooperative to generate enough cash flow from its marketing activity and purchase of inputs to pay back the loans and the interest, to finance itself and to pay the members' products.

Value shared is the amount earned from the payment of agricultural products that is shared between members. It includes advances, price complements and patronage refunds paid to members. It is an indicator of the ability of the cooperative to meet the members' needs with agricultural products appropriately compensated for.

In this framework, operating subsidies are part of the value received. However, exceptional incomes and financial incomes are excluded. Value shared considers the renewal of assets. These concepts are also relevant for services cooperatives and consumer cooperatives (Deshayes, 1988). They may be used at a macro-economic level but need different treatments between cooperatives serving households and serving companies.

#### 4.2.1.3. Other economic indicators

Economic literature uses various other economic indicators especially in cases of comparison between cooperatives and non-cooperative enterprises. The total costs are used as a performance indicator for consumer cooperatives or cooperative banks. According to Fulton and Giannakas (2001), a consumer cooperative maximizing the welfare of its members sets the price at the marginal cost. This indicator may be in that case considered as a better proxy than value added, as both cooperatives and for-profit enterprises try to minimize the total costs (Hauner, 2005).

Total costs are not so relevant for producer cooperatives as the payment to members may be a part of these costs. In that case authors advocate an approach based on turnover (Maietta and Sena, 2008, 2010; Gagliardi, 2009; Soboh *et al.* 2012; Musson and Rousselière, 2017). The use of turnover is empirically but also theoretically grounded in production economics, as after a log-transformation, it refers directly to canonical production function such as CES, Cobb-Douglas or Translog. As these functions express the technological relationship between the amounts of inputs and the amount of output that can be produced by those inputs, elasticities and economies of scale can be computed directly.

Specific indicators have been developed for specific forms of cooperatives. For example, in the case of bank cooperatives, the bank stability (Z-score) reflects a bank's probability of insolvency. This indicator relates a bank's capital level to variability in its returns, so that one can know how much variability in returns can be absorbed by capital without the bank

becoming insolvent (Köhler, 2015).[54] In some case (e.g. farm machinery cooperatives or housing cooperatives), investment is a good proxy to economic activity (Cornée *et al.,* 2017). Finally some studies use volume instead of values (e.g. Becchetti and Pisani, 2015), especially in the case of (partially) non-market output.

The problem of perceived quality (for example Housing cooperatives and quality of life (Cooper and Rodman, 1994)) leads authors to adopt a proxy such as "services satisfaction". It is not so much the type of decision-making that is important in keeping residents satisfied with their housing, but the amount of decision-making opportunities that residents are offered (Altus and Mathews, 2002).

## 4.2.2. Economic contribution vs economic impact

### 4.2.2.1. The problem of the counterfactual situation: what if there is no cooperative?

The problem of impact refers to the problem of the comparison to a hypothetical situation. This problem is the problem of observational data (versus experimental data).

Gelman (2011) notes three different problems for causal inference: the first is the difficulty of generalizing from experimental to realistic settings; the second is studying questions of forward causation in observational studies or experimental settings with missing data (the traditional focus of causal inference in the statistics and biostatistics literature); and the last is to recall that missingness is inherent of the counterfactual definition of causal effects.

As summarized in the following table, Heckman (2008) describes the problem of causality when one uses observational data.

▶ **Table 5: The three distinct tasks arising in the analysis of causal models**

| Task | Description | Requirements |
|---|---|---|
| 1 | Defining the set of hypotheticals or counterfactuals | A scientific theory |
| 2 | Identifying causal parameters from hypothetical population data | Mathematical analysis of point or set identification |
| 3 | Identifying parameters from real data | Estimation and testing theory |

Source: Heckman (2008)

A counterfactual is a potential outcome or the state of affairs that would have happened in the absence of the cause (Guo and Fraser, 2010). Every counterfactual or potential outcome can be conceived in a theoretical missing values framework. By definition, it is not observed in real data and referred to a hypothetical situation. This "fundamental problem of causal inference" (Holland, 1986) forces the researcher to use all known information (data, beliefs, etc.) to find a suitable value for this hypothetical situation in order to make valid inference. This can be simulated in the case of methods based on simulation. In an agent-based simulation model, Delay *et al*. (2013) study the impact of the disappearance of cooperatives in the case of agricultural mountains areas. This dramatic change increases the hazard of farmers.

Qualitative and quantitative approaches to counterfactual situations are provided for input-output methods in Uzea and Duguid (2015). As stated by the authors, defining the counterfactual is always going to be a controversial issue. Only robustness checks can be made with different hypotheses or sets of counterfactual situations.

We should note that the controversy is not of the same nature depending on the economic level chosen (microeconomic versus macroeconomic). Applied micro-econometric methods are especially designed to routinely address this counterfactual problem (Athey and Imbens, 2017). Our review on microeconomic effects is based with an empirical

[54] The variability in returns is typically measured by the standard deviation of Return on Assets (ROA) as the denominator of z-score, while the numerator of the ratio is typically defined as the ratio of equity capital to assets plus ROA.

literature growing at an exponential trend. On the other hand, handling endogeneity at a macro-level is much more like "pick the less lethal poison" between various alternatives and untestable assumptions, even if new simulation methods can be seen as promising avenues.

Finally one should note that this question is different from the "opportunity costs question" of comparing the economic contribution of the various other organizational forms in competition with cooperatives (for-profit enterprises, family enterprises, public or nonprofit…). This question is simply: what if instead of being invested in cooperatives this one dollar (say euro, Swiss franc…) was invested in a for-profit enterprise?

#### 4.2.2.2. Local effects vs systematic effects: the problem of indirect effect

The Red Queen effect (Derfus *et al.,* 2008) can be seen as a contest in which each firm's performance depends on the firm's matching or exceeding the actions of rivals. In these contests, performance increases gained by one firm as a result of innovative actions tend to lead to a performance decrease in other firms. The only way rival firms in such competitive races can maintain their performance relative to others is by taking actions of their own. Each firm is forced by the others in an industry to participate in continuous and escalating actions and development that are such that all the firms end up racing as fast as they can just to standstill relative to competitors. Using this framework, Ingram and Simons (2002) show that the developments of some federations of kibbutzim may have indirect negative impacts (due to increasing competition) on kibbutzim in other federations.

Cooperatives change the sector, industry and economy (change the behavior of their competitors which had to mimic cooperatives too). Good performance may escalate the reference point stakeholders use to evaluate future performance (Tversky and Kahneman, 1991).

This indirect effect questions empirical models which do not take into account endogenous transformation of the economic environment by the cooperative sector.

#### 4.2.2.3. Total contribution vs marginal effect: the problem of double counting

Economic impact is conceived as the impact of an additional observation (i.e. marginal effects).

Watson *et al.* (2007) propose the following definitions:

- Economic contribution can be defined as the gross change in economic activity associated with an industry, event or policy in an existing regional or national economy.
- Economic impact is the net change in new economic activity associated with an industry, event or policy in an existing regional or national economy.
- Economic benefit is a net increase in total social welfare. Economic benefits include both market and non-market values.

The purpose of the analysis of the economic contribution is to determine how much economic activity was associated with the industry, event, or policy. The purpose of the economic impact is to determine the causal effect of the given industry, event or policy.

## 4.3. Economic contributions of cooperative and sustainable development goals: Theoretical effects and empirical evidence

### 4.3.1. Macroeconomic effects

#### 4.3.1.1. Bargaining and countervailing market power

In the global supply chain, some intermediaries may have a market power. This market power may be bidirectional: buyer market power or seller market power. The seller market power is the ability of a firm to raise the market price of a good or service over marginal cost and therefore increase its profit. The buyer market power is the ability of a firm (in general

a retailer or a processor) to demand concessions from sellers, since the sellers have no or few alternatives to selling to the buyer.

Countervailing power is therefore a concept (introduced by the seminal work of Galbraith (1952)) referring to the market power that one side of the market develops in reaction to the market power present on the other side. Hansmann (1996) argues that protection against monopoly is the most prominent function for cooperative firms.

This effect had been illustrated in numerous empirical studies. Agricultural cooperatives provide individual farmers with an institutional mechanism that increases their bargaining power against upstream and downstream partners in food supply chains, and corrects for excess supply induced prices.

The effect can be seen as controversial according to regulation authorities. In the US legislation, The Capper-Volstead Act allows agricultural producers to set prices together, as long as they do not unduly enhance market prices. It is therefore accepted as a second-best solution and in certain case permitted (see for example Blair and Boylston Herndon (2004) in the case of Physicians cooperatives). It is also at stake in the new reform of the common market organization in Europe (Velazquez and Buffaria, 2017).

#### 4.3.1.2. Procompetitive and yardstick competition effect

Nourse (1922) provides the earliest articulation of the view where he characterizes the function of cooperatives as providing a yardstick against which the performance of non-cooperative firms can be measured.

This idea can be summarized as follows: The more powerful cooperatives are, the higher are the prices that members receive for their products. In the long run, prices are expected to be lower in markets where cooperative represent a higher market share.

This effect is well documented in the case of agricultural cooperatives (see Fulton and Giannakas, 2013; Van Herck, 2014). Empirical evidence worldwide (Milford, 2012; Balineau, 2012; Bergman, 1997; Hanisch *et al.*, 2013…) show that there is a negative relationship with the market share of agricultural cooperative and the aggregate price on the market. Prices paid by agricultural cooperative are higher than those of the for-profit enterprises.

In the case of utilities, Sagebiel *et al.* (2014) show also that consumers pay less for electricity from a cooperative but there is a more important impact of price transparency. However as suggested by the authors, because of the credence good characteristics of electricity, the price transparency can reduce both information costs and quality uncertainty. Cooperatives are inherently advantageous in this respect, but this would be mimicked by non-cooperative electric utilities.

Procompetitive effects on the price proposed by the processors to fishermen have also been shown in the case of fishermen cooperatives (Jardine *et al*., 2014). Note that in the case described by the authors the cooperative was also able to improve product quality. In the funeral industry, Audebrand and Barros (2017) show that in the long-run the co-op alternative also forced private companies to reduce the price of mortuary supplies. In the broadband industry, consumer cooperatives were set up to provide market transparency and protect consumers from excessive prices by investor-owned monopolists (Sadowski, 2017). Consumers are more likely to join a cooperative if they can expect network externality benefits (price and innovation-related advantages).

A paper by the Federal Reserve shows that credit unions have a procompetitive impact on bank and thrift deposit pricing (Hannan, 2003). On the other hand, Deller and Sunaram-Stukel (2012) find some evidence against pro-competitive impact: with banks and credit unions offering relatively similar prices, the differences in location patterns may actually define segmented market share. That is to say members may prefer to stay with the credit union because of other organizational benefits such as ownership stake and governance structure.

More generally procompetitive effect is based on the hypothesis that the cooperative sector represents a relatively important share of the market. This explains why there is little evidence of the effect of workers cooperatives on labor market (as they represent a small market share), although they propose higher wages. On the other hand, they may suffer from the competition imposed by corporations, which may attract high-ability members (Burdin, 2016).

There is a strong impact of governance on the effect: Procompetitive effects are higher in the case of open membership but may disappear if the membership is closed (i.e limit of the number of members or total volume of activity) like in the case of New Generation Cooperatives (Fulton and Giannakas, 2013). On the other hand increasing heterogeneity may threaten the stability of the cooperative (in case of complete pooling, in which each producer is paid on the same average price policy) (Merel *et al.,* 2015). New practices of agricultural cooperatives (partial pooling) also induce procompetitive effects. According to Liang and Hendrikse (2017), the yardstick effect becomes stronger when the cooperative adopts a more differentiated price policy. Barry and Rousselière (2017) show a positive impact of differentiated contract based on quality on the performance of small French agricultural cooperatives especially for the ones with less than 2 million euros of turnover.

#### 4.3.1.3. Effects on quality (not well incorporated in prices)

The theoretical literature on cooperatives is pessimistic about the ability of producers' cooperatives to sell high quality products. Pooling practices may fail to reward adequately producers of the highest quality products, causing an adverse selection problem with in consequence reductions in product quality or the exit from the cooperatives of the producers of high quality products.

There is mixed evidence about the effects of cooperative on quality (Frick, 2017). Jardine *et al.* (2014) highlight a positive effect of membership on quality for salmon harvesting. Pennerstorfer and Weiss (2013) report negative effect of cooperative on wine quality in Austria. The results are likely to be highly affected by the nature of industry, the nature of the product and the diversity of organizations in competition. But one should note also that this negative effect (higher quality products proposed by for-profit enterprises and lower quality products proposed by cooperatives) can be addressed by a higher commitment of members and higher social capital within the cooperative (Cai *et al.*, 2016; Deng and Hendrikse, 2017).

There are very few elements on other cooperatives than producer cooperatives, such as consumers' cooperatives. In the case of waters' utilities privatization, apart from keeping the prices low, the cooperative also aims at improving the quality of water provision because its members are simultaneously users of its services (Douvista and Kassavetis, 2014; Arvonen *et al.,* 2017).

#### 4.3.1.4. Missing markets and public goods

In many studies, cooperatives have been viewed as providing goods and services that would be not provided otherwise. This case of market failure appears when for-profit enterprises do not find it profitable to operate in a particular industry or geographic area (Valentinov and Iliopoulos, 2013). Therefore, consumers cannot purchase goods or services, producers cannot market their raw product, etc. Historically the emergence of cooperative banks is largely a response to market failure (Périlleux *et al.,* 2016).

According to different authors, this differentiation may be constructed by market forces. For Marini and Zevi (2011), consumer cooperatives are likely to behave not so differently to traditional profit-maximizing firms in all the retail markets in which goods are highly (but not fully) homogeneous and competition occurs mostly in price. As a reaction to these market forces, cooperatives may attempt to propose genuinely differentiated goods to their customers and, consequently, enhance consumer welfare.

More generally, the cooperatives may provide public goods that go beyond their core activities. This includes research and market information for commodities markets (Akiyama *et al.,* 2001), or social networks for farm machinery cooperatives (Lucas *et al.,* 2019) or smallholder producer cooperatives in developing countries (Tadesse *et al.,* 2018)) . There are particular challenges for these public goods, due to indirect effects that can hardly be measured.[55] For example, when assessing the importance of the impact of wine cooperative on local economy, Figueredo and Franco (2018) choose to administrate an ad hoc survey (with questions on cooperation among citizens).

[55] See ILO (2017a) for a more general discussion on the measurement of non-market outputs.

#### 4.3.1.5. Economic stability

A high resilience of cooperatives in comparison with other enterprises (Bouchard and Rousselière, 2016; Pape *et al.,* 2016) has been underlined in numerous studies. But it is also important to highlight the benefits of cooperatives on the economic stability. Uzea (2014) focuses on local economic stability, but it is interesting to adopt a broader view.

As farmers' cooperatives, entrepreneurs' cooperatives have a clear impact on the survival of small businesses. In the context of transitional economies, craftsmen cooperatives may be a convenient tool for small businesses to survive the shift in the economy (Cordell, 1993; Surubaru, 2012). By improving the coordination of supply with demand, cooperatives lead to prices that are more consistent with production costs. For the labor market, cooperatives have a stabilizing effect on employment with respect to shocks (Delboni and Reggiani, 2013; Alves *et al.,* 2016).

At the macro level, another interesting byproduct of agricultural cooperatives is the impact on prices volatility (Muller *et al.,* 2017): the authors found that (in the European milk industry) a high market share of cooperatives decreases the price volatility. This is especially relevant as price risks make it difficult for farmers to plan ahead.

Cooperative banks have explanatory power for macro-economic stabilization during the crisis years, but only above a certain market share threshold (Chiaramonte *et al.,* 2015; Köhler, 2015). In particular, in a positive context, such as the period preceding the crisis, high cooperative banks presence is not a determinant in the stability of other banks. The non-key role of the significant cooperative banks market share during the pre-crisis period is largely due to the fact that in boom business cycles, on the whole, most banks tend to be stable. Conversely, in an adverse macroeconomic scenario, a significant percentage of cooperative banks market share increases the stability of the financial system in which they operate.

Hence, cooperative banks have explanatory power for stabilization during crises, but only above a certain market share threshold. This result suggests that a U-shaped relationship exists between cooperative banks market power and bank stability in the crisis period. Köhler (2015) also shows a positive impact of cooperative banks and saving banks on financial stability.

One should note that cooperatives have lower switching costs[56] (for banks: Egarius and Weill, 2016, for energy: Sagebiel *et al.,* 2014); therefore the question of commitment may be a key point for the survival of these organizations.

#### 4.3.1.6. Asset accumulation

Studies find that successful co-operative businesses create wealth and help their members accumulate wealth and/or assets (Gordon Nembhard, 2014). Cooperative housing reduces the costs of home ownership and maintenance. Farm machinery cooperatives have direct benefits such as cost reduction, efficiency gain, and profit increase. Like credit unions and cooperative banks, these cooperatives contribute to the accumulation of assets at a local level. A component of these assets (indivisible reserve) cannot be divided among the members. Gordon Nembhard (2002, 2014) provides some empirical evidence on the contribution of cooperatives to assets and wealth accumulation at collective and individual levels.

The nature of this asset accumulation has also positive effects on economic stability (see previous section on credit unions).

### 4.3.2. Microeconomic effects

Most of the literature on the micro-economic effects of cooperatives focuses on producers' cooperatives. The other part is on microfinance and cooperative banks.

[56] Switching costs can be defined as "the onetime costs that customers associate with the process of switching from one provider to another" (Burnham *et al*., 2003: pp. 110).

#### 4.3.2.1. Poverty, welfare and the SDG

As pointed out by Herbel *et al.* (2015: 31), "cooperatives can allow family farms to access markets turning them into viable and competitive units of production thus contributing to national programs such as food security and poverty reduction". In order to address the question whether cooperative membership contributes to poverty reduction, the literature often takes into account the impacts on production and incomes. Studies focus on income per capita, profits, or agricultural income, but the estimated effect is often similar: membership generally increases significantly household income and welfare (Ahmed *et al*., 2017; Alemu and Adesina, 2015; Pender and Gebremedhin, 2007; Mojo, 2017; Verhofstadt and Maertens, 2014).

From a larger perspective, cooperatives are highly relevant in the realization of the 17 Sustainable Development Goals from the UN Agenda 2030. Most of the goals are covered according to the types of cooperative (Wanyama, 2014). As regard poverty reduction (goal #1), savings and credit cooperatives facilitate their members' access to financial capital; agricultural cooperatives help farmers access inputs, and help them process, transport and market their produce, helping achieving food security and put an end to hunger (goal #2). Consumer cooperatives make it possible for their members and the society at large to access good quality household supplies like food, clothing, and other products at affordable prices.

Health cooperatives serve millions of households worldwide, promoting good health and well-being (goal #3). Farm-machinery cooperatives experiences in Benin offered a tremendous gain of workforce and time for farmers, who can now send their children to school instead of needing help working in the fields (Balse *et al*., 2015) in line with the goal #4 for a wider access to education. The Self-Employed Women's Association (SEWA) cooperative federation in India promotes gender equality, women's economic empowerment (goal #5) and self-reliance (ILO, 2014); from a larger perspective, cooperatives seem to be better at offering sustainable jobs and decent work (Roelants *et al*., 2014; goal #8) than traditional companies.

The question of who benefits the most of cooperative membership is essential but very few quantitative studies have addressed this issue. The "middle class effect" proposition of Bernard and Spielman (2009) states that the probability of cooperative membership is higher among landholders with intermediate levels of assets, so better-off farmers in terms of resources and access to information are more likely to participate in a farmer association (Mojo *et al.*, 2017). This suggests that the potential benefits may be bigger for poor farmers, although they might face other problems: no awareness of the potential benefits, high entry fees or low expected returns as they are more vulnerable to false or corrupt cooperatives. Studies tend to show that the potential benefits from membership appear to be higher for the small farmers than larger ones (Cazzuffi, 2012; Chagwiza *et al.*, 2016; Hellin, 2007) but this is not consensual (Ahmed *et al*., 2017; Verhofstadt and Maertens, 2015).

Cooperatives can be a critical income and employment source to remote rural communities (McNamara, 2001; Folsom, 2003). A cooperative as a viable local enterprise is also reputed maintaining the associated income and employment in a community that would otherwise not be competitive in attracting other private business capital.

#### 4.3.2.2. Effects on price (paid or received)

The existing literature widely suggests that cooperative membership may have an effect on price paid to farmers compared to capitalist firms. Studies show a positive and significant effect of membership on price paid to farmers on a regular basis (Bernard *et al.,* 2008; Cazzuffi, 2012; Kamdem, 2016; Wollni and Zeller, 2007). For example, Shiferaw *et al.* (2008) estimate the surplus on price paid to farmers around 24% for the farm-gate price differential for marketing groups in eastern Kenya. As this premium might come at the cost of delayed payments (on average 5 weeks), it may explain why farmers under financial constrain would rather sell to other channels.

From a global perspective, cooperative membership enhances market inclusion, namely the participation to domestic (Francesconi and Heerink, 2010; Holloway *et al*., 2000; Okoye *et al.,* 2016) or exportable market (Bobojonov *et al*., 2016). Indeed, marketing cooperatives can address existing market failures and can have advantages in high-quality product markets; they are also able to improve product quality, as well as attract and sustain a higher price (Jardine *et al*., 2014).

Heterogeneity across households reveals also different behaviors: contrary to larger ones, small farmers tend to reduce their marketed output as a result of higher prices (Bernard *et al*., 2008).

Certification may also foster cooperative benefits. For Milford (2004), the Fair Trade system seems to be successful in supporting cooperative initiatives in Mexico: findings suggest that without the financial support of the organic market and Fair Trade system, coffee cooperatives would not have been able to sustain higher price levels, have a pro-competitive effect on the market and make such level of investments. The effect of certification leads to a dilemma for Stellmacher and Grote (2011) in their study of Ethiopian forest coffee: certification aims at paying higher producer prices, but higher prices may encourage farmers to intensify their production and therewith may contribute to the process of forest depletion and loss of biodiversity.

#### 4.3.2.3. Technical efficiency and innovation

A significant part of the literature interested in measuring whether cooperatives foster the adoption of new technologies have primarily focused on agricultural cooperatives, producers organizations and farmers groups in developing countries, due to the availability of a statistically equivalent counterfactual and Propensity Score Matching (PSM) techniques. Indeed, as producers organizations are mainly used as a preferential channel to access agricultural inputs (fertilizers, improved seeds and breeds, pesticides) and services (i.e., financial, training and extension), members of agricultural cooperatives are expected to be technically more efficient, in particular through a better access to innovations and new practices. They can also facilitate the diffusion of knowledge on how to use new technologies and make the risk associated with trying new techniques collectively borne. Cooperative membership may be a proxy for access to information: members of farmers groups can share experiences and exchange information about new technologies when they meet (Kassie *et al*., 2011).

Studies addressing the issue of the adoption of innovation suggest evidence that membership reduces the adoption lag of new agricultural technologies and practices (Chagwiza *et al*., 2016; Hellin, 2007; Kristjanson *et al*., 2005; Shiferaw *et al*., 2008; Wollni *et al*., 2010; Wollni and Brümmer, 2012; Fischer and Qaim, 2012), but this is not systematic. Cooperatives indeed have a role to play in developing countries, where major productivity gains can be achieved through mechanization and the adoption of pesticides, fertilizers, improved seeds and breeds adoption. This is also true for non-conventional agricultural inputs, such as the adoption and use of Information Communication Technologies for an agricultural purpose. As Mazoyer (1998) recalls, only 2% of worldwide farmers have access to a tractor, there is a huge potential for productivity gains due to mechanization. Farm machinery cooperatives, enabling farmers to have access to up-to-date equipment at a lower cost, is a fine illustration of how farmers gain access to innovation thanks to cooperative membership.

Fostering the adoption of new technologies and access to innovation leads cooperatives to improve the technical efficiency and agricultural productivity of their members in various countries for different resources (Alwarritzi, 2015; Binam *et al*., 2005; Bravo-Ureta and Lee, 1988; D'Haese *et al*., 2007). For example, Pender and Gebremedhin (2008) find that in Ethiopia, being a member of a marketing cooperative would increase crop yields by 44%.

Some studies report a non-significant, rarely negative, effect of cooperative membership on technical efficiency, mainly due to poor cohesion, weak commitments and low accountability among members in farmers' groups, which make many cooperatives too weak to exploit their benefits and economies of scale. Either that or the economic benefits provided by cooperatives to their members contributes to reduce the incentive to operate efficiently. Besides, it seems the effects of improved technical efficiency holds for the youngest in terms of memberships but may decrease over time (Ainembabazi *et al*., 2016).

#### 4.3.2.4. Other economic dimensions

At a microeconomic level, in order to go beyond the income increase (that can be difficult to measure in some context and plagued by missing data patterns), various indicators of well-being have been used: the Life satisfaction index popularized by the World values survey (Musson and Rousselière, 2019), or the life aspirations (Mojo *et al*., 2016). For this last indicator, the authors constructed five aspired dimensions for each individual with a weight based on a qualitative approach: the

level of personal income, the level of assets, the level of education, the level of social status, the level of care for the environment and nature.[57]

# 4.4. Methods for measuring the economic contribution of cooperatives

## 4.4.1. Microeconometric methods

### 4.4.1.1. The controversy between the various methods: Randomization and experimental methods, and quasi-experimental methods

There is a controversy surrounding the causal inference methodology. In effect, there is an ongoing debate on the theory of matching and randomization for causal inference, dating back to the 1990s (see for example Heckman and Smith, 1995). Quasi-experimentation using propensity score matching appears as an a-theoretical alternative to a structural econometric approach. This latter approach is viewed by some other authors as not suitable for "a cautious and risk-averse investigator [who] may care primarily about being right" (Sobel, 2005: 128).

Due to the hypothesis of SUTVA (Stable Unit Treatment Value Assumption), there is a problem of generalization of the results. This hypothesis is as following: the potential outcomes for any unit do not vary with the treatments assigned to other units, and for each unit there are no different forms or versions of each treatment level, which lead to different potential outcomes. The idea is that we should exclude the possibility that cooperative membership has any effect on any outcome for another person.

### 4.4.1.2. Methods used in cooperative studies

A meta-analysis on 100 papers published between 1988 and 2016 has been conducted on the impacts of agricultural cooperative membership (Le Guernic *et al.,* 2017).[58] This quantitative analysis of literature highlighted the existence of strategies to provide more robust results, including sensitivity analysis and/or selection bias mitigation:

▶ **Table 6: Econometric strategies in cooperative studies**

| | Sensitivity Analysis | | |
|---|---|---|---|
| Bias | No | Yes | Total |
| No | 19% | 26% | 45% |
| Yes | 12% | 43% | 55% |
| Total | 31% | 69% | 100% |

Source: Le Guernic *et al.* (2017)

In 43% of the case, the authors conduct both a sensitivity analysis (providing multiple estimations using various estimators or various sub-samples) and a bias analysis (taking into account that the membership can be endogenous).

Methodologies used to compute the economic contribution of agricultural cooperatives involve various parametric and non-parametric approaches, including different types of Propensity Score Matching, simultaneous equation modeling, instrumental variables modeling. Studies mostly rely on primary data, collected by the authors themselves through interviews and questionnaires submitted to the farm manager or the head of farm household.

[57] The weight is based on the repartition of 25 coffee beans in the five boxes (one for each aspiration dimension) according to the importance of each of the dimensions.

[58] We acknowledge the bias of this literature review toward agricultural cooperatives, as few if any of the econometrics studies on worker cooperatives had already assess the impacts of cooperative membership (an exception is Burdin (2016)).

Collected variables relate to efficiency, innovation, output and income, marketing, vulnerability or the environment. Data can also originate from secondary sources, such as agricultural or marketing household surveys or National Agricultural censuses. Surveys and censuses are conducted by consortium are often made of research institutes, universities, national statistical offices and other sectorial national statistics services.

### 4.4.2. Methods based on accounting databases

Uzea (2014) has presented the interests and limits of some models based on value added. This includes the three first models presented here. We also include the other simulation models developed in agricultural economics.

#### 4.4.2.1. Head counts models

Deller *et al*. (2009) define the head-count approach as a simple inventory of the relative size of the cooperative sector based on a count of the sales revenues, the number of employees, the total wages, salaries and patronage… This method is the less expensive but maybe also considered as the less accurate.

A recent attempt is Altman (2017) in New Zealand. The author advocates a value added approach to estimate the cooperative sector contribution to New Zealand GNP using a combination of surveys and annual reports. The author reports the revenue, assets, the number of members, the number of employees and an estimation of the employment by the members. These values were guess-estimated for the 31 cooperatives (for a total of 86 cooperatives in New Zealand) which did not answer to the survey following a single imputation based on the mean.[59]

#### 4.4.2.2. SAM (Social Accounting Matrix) and Input/Output methods

A Social Accounting Matrix (SAM) is a summary table, which refers to a given period, representing the production process, income distribution and redistribution which occurs between sectors, factors of production, actors in an economic system and the "Rest of the World" (ROW), meaning, all actors outside the economic system being studied. SAM, which is a comprehensive and economy-wide data framework, serves as the database of the Computational General Equilibrium model (Lofgren *et al*., 2002). SAM models produce different kind of results. The more useful results for planners and policymakers are estimates of jobs, wage and salary income, total income, and tax flows (USDA, 2003).

In the clear majority of cases, studies (Deller *et al*., 2009; Karaphillis and Lake, 2015; Karaphilis *et al.,* 2017; Folsom, 2003; McKee, 2011) predominantly use the “Input-Output Analysis” method to estimate the value-added of cooperatives in the economy. This method is a subset of SAM methods. The advantage stems from the less demanding data model required by the Input-Output methods. In effect an Input-Output model simply includes purchasing and selling of goods and services, whereas SAM include other transactions (purchasing of intermediate goods, savings, investment…). Therefore SAM models need more detailed data (see USDA (2003) for an example).

An Input-Output model offers a “snapshot” of the cooperatives sector, detailing the sales and purchases of goods and services for a given period of time within a conceptual framework derived from economic theory (Deller *et al*., 2009). The model estimates what will be the effect of a given change in output on a final demand within the economy. It can be estimated at the cooperative sector level or for a given cooperative (e.g. Tuck, 2018). The various linkages and effects from a change in outcome can be direct, indirect or induced.

The Input-Output analysis, first developed by W. Leontief (1936), estimates the inter-industry transactions and uses those figures to evaluate the economic impacts of any changes to the economy. For example, the simulation results from a change to an Input-Output model will show the direct and indirect impacts, which industries benefit the most, the number of jobs created, wages, rough estimates of indirect taxes and subsidies generated, etc. Value-added derived from the

[59] Note that in this case (with approximatively 36% missing data), statisticians recommend multiple imputation method (although single imputation may be attractive because of its simplicity for univariate analysis as in Altman (2017)). See for an empirical example Bouchard and Rousselière (2016).

Input-Output model are based on the linkages between various economics sectors using revenue, wages, taxes data and other expenditures.

As a descriptive tool, the input-output model is very good at presenting an enormous quantity of information in a concise and easily understood manner, at showing the supply chain linkages by producing results sector by sector, and providing different scenarios. The input-output model includes direct, indirect and induced impact of the cooperatives (Deller *et al*., 2009).

- direct impacts: revenue, jobs and taxes generated by the cooperatives;
- indirect impacts: revenue, jobs and taxes generated by enterprises that supply the cooperatives; and
- induced impacts: revenue, jobs and taxes generated from spending by direct and indirect employment; spending by employees of cooperatives, employees of suppliers to the co-operatives, and their families.

The direct, indirect and induced impacts are measured using multipliers (multipliers measure total change throughout the economy from one unit change for a given sector). Secondary (indirect and induced) economic impacts can be only measured once the direct economic impact associated with a business or activity has been estimated. However, the biggest constraint in estimating the value added of the cooperative is the difficulty in obtaining accurate data about cooperatives. Added to this, most of the Input-Output model focuses on the pecuniary measure of direct and indirect economic impacts and exclude non-pecuniary benefits, such as the value of countervailing market power, the value of providing services that would otherwise not be supplied or the time spent working as volunteer for a cooperative. The benefits of the cooperatives cannot be measured only in monetary terms, the relationship between cooperatives and their community is very important and they face the challenge of clearly documenting and describing the benefits they create, not just for their members but also for the broader community (Folsom, 2003). The Input-Output method does not consider the value of the service exchange between members of the same cooperative because these services are not monetized.

Currently, within the Input-Output framework, many industries classification assume all businesses have similar production functions (or economic objective function) and expenditures patterns. However, as mentioned by Zeuli and Deller (2007), cooperative theory suggests that this is not a correct assumption. Cooperatives may purchase more of their inputs locally than other types of firms within the same industry classification. The difference in spending patterns between cooperatives and other business structures presents a specific form of aggregation bias that has not been previously acknowledged as a limitation to Input-Output analysis.

Karaphilis *et al*. (2017) provide the first longitudinal analysis comparing the situation in Canada in 2009 and in 2010. The analysis, based on an Industry Canada's Annual Survey of Canadian Co-operatives, show an increase of about 9 percent in value-added GDP contribution.

The failure to include non-pecuniary economic impacts of cooperatives and the non-distinction between cooperatives and other business structures understate the economic impact of this business model. There is a need and advantages to expand the kinds of indicators and measures that are in use to estimate the value-added for cooperatives.

#### 4.4.2.3. CGE (Computable General Equilibrium) and microsimulation

One should note that the literature on cooperatives simulation is sparse but contrary to previous literature reviews (as in Uzea, 2014), we find some relevant references.

A typical Computable General Equilibrium (CGE) model is calibrated using a SAM. The standard CGE model explains all of the payments recorded in the SAM. The model therefore follows the SAM disaggregation of factors, activities, commodities, and institutions. It is written as a set of simultaneous equations (which can be nonlinear in order to capture more realistic effects). The equations define the behavior of the different actors. In part, this behavior follows simple rules captured by fixed coefficients (for example, modelling public policies such as ad valorem tax rates). Production and consumption decisions are modeled using economic theory. As such, behavior is captured by nonlinear, first-order optimality conditions that is, production and consumption decisions are driven by the maximization of profits and utility, respectively. The equations also include a set of constraints that have to be satisfied by the system as a whole but are not

necessarily considered by any individual actor. These constraints cover markets (for factors and commodities) and macroeconomic aggregates (balances for Savings and Investment, the government, and the current account of the rest of the world).

Microsimulation is a general term for modeling the behavior and interactions of micro units (persons, households, firms etc.). A microsimulation model is a set of rules operating on a representative sample of micro units. A key point in comparison to Input-Output models is to take fully into account the heterogeneity of the cooperative sector, as a large set of specific economic objective functions can be implemented. A drawback is that accurate data or consensual untestable assumptions are needed.

Brownstone *et al*. (1988) develop a model on the mediating impact of cooperatives for tax shelter on house demand. Housing cooperatives have an important effect on the real estate market by lowering the household demand for house owning. Shahnazarian (2011) proposes a microsimulation model for firms that take into account the variability of the organizational forms (including cooperatives). This model is designed to help analyzing the behavioral effects induced by changes in the tax code and forecasting tax revenues. It is also designed to provide macroeconomic development forecast. It will be straightforward to implement a specific analysis on cooperatives.

In comparison to microsimulation, agent based model is a more formal approach for simulating the actions and interactions of autonomous agents. Some authors simulate the emergence of cooperatives in various contexts (Hendrikse *et al.,* 2007; Xiong *et al.,* 2016). In order to understand the impact of cooperatives, Delay *et al.* (2015) develop a multi-agent system (MAS) to model the behavior of the actors involved in cooperative wine production. This model analyses cooperative systems' impact on socio-economic factors (income inequality and the rate of business failure) and landscapes (percentage of total land as vineyards, particularly in steep areas) of the regions considered. The findings show that cooperatives play a role of socio-economic and landscape stabilizer in these regions. Various social sciences models that can be implemented for cooperatives studies are provided on the website of researchers networks (e.g. https://maps.hypotheses.org/ ).

#### 4.4.2.4. Other simulation methods

Farm level modelling is popular in agricultural economics. Models within this scope are often used in order to evaluate the impact of a number of decisions previously made by stakeholders in response to partial changes of the context. These models do not simulate the decisions of farmers on their technical systems but allow assessing the impacts of these decisions. Mathematical farm models based on nonlinear programming are aimed to overcome these limitations. These models have been widely used to evaluate ex ante the impacts of new agricultural policies of the biophysical environment or context of access to resources (water, labor market) or the introduction of new crops or techniques on the socio-economic and environmental performances of farms. They are usually coded in the GAMS language (www.gams.com ), which is widely used by the research community, or in the APSIM and R open access software (www.apsim.info / http://cran.r-project.org ).

To our knowledge, two papers used simulation in order to assess the impact of cooperative membership on farm performance. Djanibekov *et al.* (2015) simulate various cooperative game solutions over cotton producing farms in a bio-economic model of a water users association and marketing cooperative. The study results show that cooperation can fulfill multiple objectives: ensure the cotton production targets, increase farm profits and grain production, and reduce the pressure on water resources.

A paper on farm machinery cooperatives (De Toro and Hansson, 2004) underlines the impact of cooperatives on costs at the farm level. Using a discrete event simulation technique, daily field operations on a farm could be simulated considering available resources (machinery, labor), constraints (e.g. soil workability) and management criteria. Machinery sharing enabled total costs to be reduced by about 15% and investment requirements by about 50%.

Although it has not been developed yet, one can think that nonlinear programming can also be straightforwardly applied to develop mathematical enterprise models, for example in order to evaluate the impact of any producer cooperative on

its members. The flexibility of nonlinear programming allows to test any of theoretically or empirically based behavioural assumptions.

## 4.4.3. Other methods

### 4.4.3.1. CBA (Cost-Benefit Analysis)

CBA (Cost-Benefit Analysis) is a systematic approach to estimate and compare the benefits and costs of a public policy or a decision (for example a change in the production process or in the organizational design – such as a creation of a cooperative). As proposed by the comprehensive guide to CBA from the European Union (2015), CBA must take into account opportunity costs in the total costs of the evaluated decision. Opportunity costs are defined as the potential gains from the best alternative forgone when a choice needs to be made between several mutually exclusive alternatives. Contrary to Input-Output analysis, indirect effects and wider effects must be excluded. Economic performance indicators are expressed in monetary terms. Cash flows are forecasted for a given temporal horizon with the application of a given discount rate, in order to calculate an ENPV (Economic Net Present Value). An Economic Rate of Return can also be estimated for the ranking of competing projects and alternatives (including a baseline or counterfactual scenario defined as what would happen in the absence of the project). CBA can be extended to account for social or environmental costs and benefits (Hoogmartens *et al*., 2014).[60]

Borzaga and Depedri (2013) provide an example of the application of CBA to cooperatives. The authors investigated the efficiency of Italian social cooperatives (which provide work integration services for disadvantaged workers) calculated as the difference between the revenues that it ensures to public authorities and the costs it implies. Costs-benefits are distinguished between:

- those at the cooperative level: they are calculated as the difference between the transfers to the cooperative on one hand and the benefits (value added generated, taxes paid to the public sector);
- those at the individual level (the workers of the cooperative that would be unemployed otherwise): the benefit are the tax paid to the cost of the labor and the savings for the public sector related to lower usage of public social services and lower monetary transfers, whereas the costs are the subsidies given per worker to the cooperatives.

The gain is estimated as 118,000 euros on average for each person subsequently employed in the open labor market and 97,000 euros for each person maintaining his or her job in the social cooperative. Note however that this gain is not an ENPV as a discount rate has not been applied.

### 4.4.3.2. EVAS (Expanded Value Added Statement)

Building on traditional accounting principles, the Expanded Value Added Statement (EVAS) is an innovative tool to account for economic, social, and environmental factors. It provides a way to account for traditionally non-monetized factors (such as volunteer hours) to provide a better picture of social value creation. Initially developed for non-profit organizations, it has been extended to cooperatives. Mook *et al.* (2002) provide an example of a student housing cooperative.

The EVAS is a method of social accounting which attempts to answer the following question: "what difference do our actions make in economic, social and environmental terms? In sharp contrast to the question addressed by traditional accounting, how can we maximize profit for our owners?"

Total outputs are subdivided into primary, secondary and tertiary, reflecting how directly the associated items are connected to fulfil the cooperative mission. Primary outputs are the direct services of the cooperative, secondary output are indirect outputs that accrue to the organization's members or customers; tertiary outputs are indirect outputs that accrue to those other than the organization's members or customers (a key point is to identify these relevant stakeholders).

[60] European Union and OECD (2015) propose an application of social CBA to evaluate social enterprises.

The EVAS attempts to quantify and place a value on goods and services that are usually viewed as "free". It integrates financial and social information: financial information from audited financial statements, and social values from calculations of typically non-monetized factors, such as volunteer hours or other non-market outputs.

## 4.5. Main issues for official statistics

In this last section, the objective is to describe the main issues for official statistics in developing relevant methodologies for measuring the economic contribution of cooperatives and for collecting the relevant data.

### 4.5.1. The need of a cost-benefit framework for improving statistics on the economic contribution of cooperative

The tradeoff between data requirements and computational complexity, and how well the model reflects reality have made Input-Output model the most common tool for the measurement of the economic impact of co-operatives (Uzea and Duguid, 2015).

Cost-benefit frameworks have been developed to assess the balance between the benefits of improving statistics and the costs of collecting (new) data. Wallis (2006) proposes a benefit-to-cost ratio methodology to value improvements to key statistical outputs. This methodology is based on calculating the baseline value of key statistical outputs and then applying a predefined ratio to this to obtain a monetary sum that 'represents' the value of improvements. The underlying principle is that the value of an improvement project to an output is a percentage of the output's total cost.

For example, survey on cooperatives is included in the national survey on firms by the French national statistical agency. While this practice lowers dramatically the costs, the downside is that no question specific to cooperatives can be asked. Therefore, an additional survey or access to specific database must be done.

### 4.5.2. Identification of the economic specificities of cooperatives in administrative registries and surveys

#### 4.5.2.1. Volunteering

There is an important volunteer work in cooperatives (ILO, 2011; 2017a) both at a technical level and at an administrative level. Not to consider this dimension may lead to undermine the economic contribution of cooperatives.

Volunteer contributions are often not assigned a monetary value. The EVAS provides one way to account for these contributions. The main issues are: (a) attributing an appropriate market value to volunteer labour; (b) attributing a value to benefits received by the volunteers from their volunteering, and (c) attributing value to the social impacts.

While it is often difficult to quantify these kinds of values, as there may not be a direct market (price) comparison, proxy market values can be estimated as appropriate to the types of skills involved. The method uses conservative assessments to calculate the comparative market value of social contributions, and is transparent in articulating the assumptions behind the calculations. The value of volunteers is therefore a sum of the following components: value of volunteer time contribute to cooperatives (as a resource for cooperatives); unpaid or subsidized specialized or technical contributions (such as free consulting), informal skill development received by volunteers (e.g. leadership and management), personal development of volunteers, community networking and collaboration.

#### 4.5.2.2. Activities with members and non-members

As highlighted in this report, it is important to identify the share of intermediate consumption with members of producers' organizations, as this is a component of members' revenues but not a part of value added. For example Deller *et al.* (2009) did not correctly identify the income of cooperative members, as they did not account for the share of activities with members.

There is an implicit hypothesis (and in some case explicit[61]) that the local purchase of goods and services is the same for cooperatives and non-cooperative enterprises. We know that the local nature of cooperatives (or "territorial anchoring") is significantly different from other enterprises (Triboulet *et al*., 2013) therefore the multiplier of the Input-Output model can be (largely) underestimated.

Identification of the share of sales with members may be easier as in numerous legislations only sale to members are allowed (or a limit amount to non-members). In other legislations, a special tax status is attributed to the transactions to non-members, which may be therefore easier to track in an accounting database.

A specific issue is that specific *ad hoc* surveys are needed in order to identify raw products bought by producers' cooperatives to their members.

#### 4.5.2.3. Patronage refunds

Patronage refunds are considered as a part of members revenues or as a deduction of members expenses. The patronage refund is a payment (a portion of the surplus) from a cooperative to a member (patron) based on the quantity or the value of the business done with the member. The refund may be made annually in cash or retained in the enterprise in a member account (or some combination) for each individual member.

National surveys or national administrative databases on firms do not identify correctly patronage refunds (wrongly considering them instead as dividends).

Input-Output analysis can be adapted, based on the identification of patronage refunds. Folsom (2003) chose to consider patronage refunds as part of personal income. In USDA (2003) or Deller *et al*. (2009), patronage refunds were treated as a separate influence to final demand, thereby creating their own set of impacts (in terms of total income and tax revenues). Therefore it may overestimate the impact of cooperatives which choose this form of revenues for their members instead of a direct payment of raw products (if a producer cooperatives) or instead of setting low price (if a consumers cooperative).

#### 4.5.2.4. Indivisible funds and social capital

Cooperatives can self-finance themselves in two fundamental ways: either by means of capital shares owned individually by members, or by resorting to non-divisible reserves of capital, which take the form of the asset lock.

An indivisible reserve in a cooperative is property owned by the cooperative which can never be divided among members. It is created by allocating a set percentage (e.g., 20% or 40%) of annual surpluses to the indivisible reserve (or other rules that can refer to the debt ratio, as in the Quebec law). This has been shown to have stabilizing effects on cooperatives in comparison to other enterprises in the sector they compete (Rousselière and Joly, 2011). Note though that theses indivisible reserves do not exist in all national regulations on cooperatives.

In European cooperative banks, indivisible reserves are the main part of the capital stocks. In Italy, due to legislation, the cooperative banks must allocate at least 70 per cent of annual profit to indivisible reserves, which means that an important part of the capital stock is stable (Catturani *et al*., 2016).

Identification of these indivisible reserves is a key point in assessing the local contribution to asset accumulation. Access to accounting database is necessary for this identification.

Finally note that it would be interesting to explore the role of non-member investment in cooperatives' financing and consider the cooperative's returns to non-members when assessing their economic contribution. Issuing investment shares (non-voting shares) can be an effective way to raise additional capital and a useful tool to address undercapitalization issues. This financing mechanism has been incorporated in various regulatory framework governing cooperatives.

[61] E.g. Lilliwhite and Frye (2014: 3): "The percentage of local sales allocated to each industry sector was assumed to hold for all New Mexico food cooperatives."

## 4.6. Conclusive remarks about economic impact measurement

Because of the existence of indirect impacts of cooperatives at the macroeconomic level (such as pro-competitive effect of cooperatives, or markets that would not exist otherwise), the question of their full impact assessment faces the lack of counterfactual. This remains an open scientific controversy. This situation may lead national statistical agencies to be reluctant to use other methods than head-count or Input-Output approaches although, paradoxically, these methodologies implicitly presume the absence of such macroeconomic effects.[62] Estimating economic contributions for other organizational forms (for-profit enterprises, family enterprises…) and to compare them to the economic contribution of cooperatives is therefore necessary although not sufficient.

Certain avenues of research that are promising in this area - but not yet totally applied to cooperatives - may also face the limitations of some current practices pointed out in this report. Multi-agent or micro-simulation methods may go beyond former Input-Output models when assessing the value and impact of cooperatives, but they need additional data to be accurate (patronage refunds, share of intermediate consumption with members).

As in the case for technology (see the famous paper of David (1985) on the "economics of qwerty"), there is a path dependency in economic contribution methods for cooperative studies. This path dependency largely favors Input-Output methods. As shown in the other areas of economic impact studies like public policies (Bourguignon and Spadaro, 2006), there are high returns on investment on the long run for switching to more sophisticated methods, like microsimulation, even if the short-run benefits may be difficult to estimate. EVAS is practicable at a microeconomic level or to compare ideal-typical units.

The following final remarks can be made:

- It should be noted that the question of indicators is different if we want to compare cooperatives and non-cooperative or measure the contribution of cooperatives to economy. The comparison between cooperatives and non-cooperative enterprises is related to the question of performance and efficiency, this issue is addressed routinely using a complete set of different methodologies and data (based on value or volume) in the academic literature. More difficult is the question of the measure of the economic contribution of cooperatives to the economy.
- Implicit hypothesis of using value added, as informed in the conceptual framework (ILO, 2017a), are as follows: same payment policies or same price policies, stability of practices… for all cooperatives across times and sectors. If these hypotheses do not hold, one should prefer alternative indicators such as cooperative added value or Deshayes' financial concepts.
- Which are the alternatives to surveys or administrative databases? Quality of accounting databases is weak in most of the federations as they are essentially built for internal purposes such as wages payments, and therefore in a design that is not directly exploitable for statistical analysis. Old versions are also regularly erased which prohibits longitudinal analysis.

Tables summarizing methodologies and indicators discussed in this chapter can be found in Annexes 7 and 8.

[62] These macroeconomic effects are of course no relevant, as noted by Tuck (2018), when the Input-Output model is estimated at the cooperative level.

# References


Ahmed, M.H.; Mesfin, H.M. 2017. "The impact of agricultural cooperatives membership on the well-being of smallholder farmers: Empirical evidence from eastern Ethiopia", in *Agricultural and Food Economics*, Vol. 5, No. 1, pp. 1-20.

Ainembabazi, J.H.; van Asten, P.; Vanlauwe, B.; Ouma, E.; Blomme, G.; Birachi, E.A.; Nguezet, P.M.D.; Mignouna, D.B.; Manyong, V.M. 2016. "Improving the speed of adoption of agricultural technologies and farm performance through farmer groups: Evidence from the Great Lakes region of Africa", in *Agricultural Economics*, Vol. 48, No. 2, pp. 1-19.

Alemu, A.E.; Adesina, J. 2015. "Effects of co-operatives and contracts on rural income and production in the dairy supply chains: Evidence from Northern Ethiopia", in *African Journal of Agricultural and Resource Economics*, Vol. 10, NO. 4, pp. 312-327.

Altman, A. 2017. "The importance of co-operatives to the New Zealand economy: Constructing a co-operative economy", in *International Journal of Social Economics*, Vol. 44, No. 12, pp. 2086-2096.

Altus, D.E.; Mathews, R.M. 2002. "Comparing the Satisfaction of Rural Seniors with Housing Co-Ops and Congregate Apartments", in *Journal of Housing For the Elderly*, Vol. 16, No. 1-2, pp. 39-50.

Alwarritzi, W.; Nanseki T.; Chomei Y. 2015. "Analysis of the factors influencing the technical efficiency among oil palm smallholder farmers in Indonesia", in *Procedia Environmental Sciences*, Vol. 28, pp. 630-638.

Akiyama, T.; Baffes, J.; Larson, D.; Varangis, P. (eds). 2001. *Commodity market reforms: lessons of two decades* (Washington, DC, The World Bank).

Arvonen, V.; Kibocha, S.N.; Katko, T.S.; Pietila, P. 2017. "Features of Water Cooperatives: A comparative study of Finland and Kenya", in *Public Works Management & Policy*, Vol. 22, No. 4, pp. 356-377.

Athey, S.; Imbens, G.W. 2017. "The State of Applied Econometrics: Causality and Policy Evaluation", in *Journal of Economic Perspectives*, Vol. 31, No. 2, pp. 3-32.

Audebrand, L.; Barros, M. 2017. "All Equal in Death? Fighting inequality in the contemporary funeral industry", in *Organization Studies*, Vol. 39, No. 9, pp. 1323–1343; doi.org/10.1177/0170840617736934

Bagnoli, L.; Megali, C. 2011. "Measuring Performance in Social Enterprises", in *Nonprofit and Voluntary Sector Quarterly*, Vol. 40, No. 1, pp. 149-165.

Balaguer, J.I.G.; Castellano C.J.P. 2012. "The different conception of economic profit in cooperatives", in *Journal of Co-operative Accounting and Reporting*, Vol. 1, No. 1, pp. 29-52.

Balineau, G. 2013. "Disentangling the effects of fairtrade on the quality of Malian cotton", in *World Development*, Vol. 44, pp. 241-255.

Balse, M.; Ferrier, C.; Girard, P.; Havard, M.; Herbel, D.; Larue, F. 2015. *Une expérience originale de méchanisation partagée en Afrique: les coopératives d'utilisation de matériel agricole du Bénin*, Champs d'acteurs 3 (Montrouge, FARM).

Barry, I.; Rousselière D. 2017. *Impact of quality incentives on the efficiency of cooperatives*, Working Paper GAEL (Grenoble, GAEL).

Becchetti, L.; Pisani, F. 2015. "The determinants of outreach performance of social business: An inquiry on Italian social cooperatives", in *Annals of Public and Cooperative Economics*, Vol. 86, No. 1, pp. 105-136.

Bergman, M. 1997. "Antitrust, marketing cooperatives and market power", in *European Journal of Law and Economics*, Vol. 4, No. 1, pp. 73-92.

Bernard, T.; Spielman, D.J. 2009. “Reaching the poor through rural producer organizations?: A study of agricultural marketing cooperatives in Ethiopia”, in *Food Policy*, Vol. 34, No. 1, pp. 60-69.

Bernard, T.; Taffesse, A.S.; Gabre-Madhin, E. 2008. “Impact of cooperatives on smallholders' commercialization behavior: Evidence from Ethiopia", in *Agricultural Economics*, Vol. 39, pp. 147-161.

Binam, J.N.; Tonye, J.; Wandjin, N. 2005. “Source of technical efficiency among all small-holder maize and peanut farmers in the slash and burn agriculture zone of Cameroon”, in *Journal of Economic Cooperation*, Vol. 26, No. 1, pp. 193-210.

Blair, R.D.; Boylston Herndon J. 2004. “Physician cooperative bargaining ventures: An economic analysis”, in *Antitrust Law Journal*, Vol. 71, pp. 989-1016.

Bobojonov, I.; Teuber, R.; Hasanov, S.; Urutyan, V.; Glauben, T. 2016. “Farmers' export market participation decisions in transition economies: A comparative study between Armenia and Uzbekistan”, in *Development Studies Research*, Vol. 3, No. 1, pp. 25-35.

Borzaga, C.; Depedri, S. 2013. “When social enterprises do it better: Efficiency and efficacy of work integration in Italian social cooperatives” in S. Denny and F. Seddon (eds): *Social enterprise: Accountability and evaluation around the world* (London, Routledge), pp. 85-101.

Bouchard, M.J. 2018. *Report on guidelines for statistics on cooperatives* (Geneva, International Labour Office), (internal document).

Bouchard, M.J.; Ferraton, C.; Michaud, V. 2008. “First steps of an information system on the social economy: Qualifying the organizations”, in *Estudios de Economía Aplicada*, Vol. 26, No. 1, pp. 7-24.

Bouchard, M.J.; Rousselière, D.; International Centre of Research and Information on the Public, Social and Cooperative Economy (CIRIEC) (eds). 2015. *The weight of the social economy: An international perspective* (Brussels, Peter Lang).

Bouchard, M.J.; Rousselière, D. 2016. “Do hybrid organizational forms of the social economy have a greater chance of surviving?: An examination of the case of Montreal”, in *Voluntas*, Vol. 27, No. 4, pp. 1894-1922.

Bouchard M.J.; Rousselière D. 2018. “Does Gibrat's law hold among urban social economy enterprises?: A research note on Montreal social economy”, in *Economics Bulletin*, Vol. 38, No. 3, pp. 1523-1540.

Bourguignon, F.; Spadaro, A. 2006. “Microsimulation as a tool for evaluating redistribution policies”, in *Journal of Economic Inequality*, Vol. 4, No. 1, pp. 77-106.

Bravo-Ureta, B.E.; Lee, T.C. 1988. “Socioeconomic and technical characteristics of New-England dairy cooperative members and non-members”, in *Journal of Agricultural Cooperation*, Vol. 3, pp. 12-27.

Brown, L. 1997. “Organizations for the 21st century? Co-operatives and ‘new’ forms of organization”, in *Canadian Journal of Sociology*, Vol. 22, pp. 65-93.

Burdin, G. 2016. “Equality under threat by the talented: evidence from worker-managed firms”, in *Economic Journal*, Vol. 126, pp. 1372-1403.

Burnham, T.A.; Krels, J.K.; Mahajan V. 2003. “Consumer switching costs: A typology, antecedents, and consequences”, in *Journal of the Academy of Marketing Science*, Vol. 31, No. 2, pp. 109-126.

Cai, R.; Ma, W.; Su, Y. 2016. “Effects of member size and selective incentives of agricultural cooperatives on product quality”, in *British Food Journal*, Vol. 118, No. 4, pp. 858-870.

Carini, C.; Borzaga, C.; Carpita, M. 2017. Case studies on Brazil, Canada, Colombia, the Philippines, the Russian Federation, the United Kingdom (Geneva, ILO).

Carini, C.; Borzaga, C.; Carpita, M. 2018. “Advancing statistics on cooperatives: Reflections on six country case studies”, *Euricse Working Papers,* 104|18.

Catturani, I.; Kalmi, P.; Stefani, M.L. 2016. "Social capital and credit cooperative banks", in *Economic Notes*, Vol. 45, No. 2, pp. 205-234.

Cazzufi, C. 2012. *Small scale farmers in the market and the role of processing and marketing cooperatives: A case study of Italian dairy farmers*, Unpublished thesis submitted for the degree of Doctor of Philosophy, September 2012, Department of Economics, University of Sussex, 260 p.

Centro de Investigación del Cooperativismo (CENICOOP); Confederación de Cooperativas de Colombia (CONFECOOP). 2014. *Desempeño sector cooperativo colombiano 2014* (Bogota).

Chagwiza, C.; Muradian, R.; Ruben, R. 2016. "Cooperative membership and dairy performance among smallholders in Ethiopia", in *Food Policy*, Vol. 59, pp. 165-173.

Chiaramonte, L.; Poli, F.; Oriani, M.E. 2015. "Are cooperative banks a lever for promoting bank stability?: Evidence from the recent financial crisis in OECD Countries", in *European Financial Management*, Vol. 21, No. 3, pp. 491-523.

Confederación de Cooperativas de Colombia (CONFECOOP). 2016. *Cooperativas: Empresas para la gestion social y economica* (Bogota).

Cooper, M.; Rodman, M.C. 1994. "Accessibility and quality of life in housing cooperatives", in *Environment and Behavior*, Vol. 26, No. 1, pp. 49-70.

Cooperative Association of the Czech Republic (CACR). 2015. *Czech co-operative movement and selected statistical data in 2014* (Prague).

Coop FR. 2014. *Panorama Sectoriel des Entreprises Coopératives et Top 100* (Paris).

Cordell, V. 1993. "Effects of public policy on marketing channels in transitional economies: The case of Poland", in *Journal of Macromarketing*, Vol. 13, No. 1, pp. 20-32.

Cornée, S.; Le Guernic, M.; Rousselière, D. 2017. *Governing Common-Property Assets: The Case of Farm-Machinery Cooperatives*, Manuscript submitted for publication.

Dave Grace and Associates. 2014. *Measuring the size and scope of the cooperative economy: Results of the 2014 Global Census on Co-operatives*, For the United Nations Secretariat, Department of Economic and Social Affairs, Division for Social Policy and Development (Madison).

David, P.A. 1985. "Clio and the Economics of QWERTY", in *American Economic Review*, Vol. 75, No. 2, pp. 332-337.

Declerck, F. 2013. « L'approche financière des coopératives agricoles », in C. Chomel, F. Declerck, M. Filippi, O. Frey, and R. Mauget (eds) : *Les coopératives agricoles, Identité, gouvernance et stratégies* (Paris, Larcier), pp. 263-340.

Delay, E.; Bourgoin, J.; Zottele, F. 2013. « Les conséquences de la coopération sur les paysages viticoles de montagne », in *Ciência e técnica vitivinicola*, Vol. 28, No. 1, pp. 30-43.

Delay, E.; Chevallier, M.; Rouvellac, E.; Zottele, F. 2015. "Effects of the wine cooperative system on socio-economic factors and landscapes in mountain areas", in *Journal of Alpine Research|Revue de géographie alpine*, Vol. 103, No. 1; doi: 10.4000/rga.2733

Delboni, F.; Reggiani, C. 2013. "Cooperative firms and the crisis: Evidence from some Italian mixed oligopolies", in *Annals of Public and Cooperative Economics*, Vol. 84, No. 4, pp. 383-397.

Deller, S.; Sundaram-Stukel, R. 2012. "Spatial patterns in the location decisions of US credit unions", in *Annals of Regional Science*, Vol. 49, pp. 417-445.

Deller, S.; Hoyt, A.; Hueth, B.; Sundaram-Stukel, R. 2009. *Research on the economic impact of cooperatives* (Madison, WI, University of Wisconsin Center for Cooperatives).

Deng, W.; Hendrikse, G. 2017. "Social interactions and product quality: the value of pooling in cooperative entrepreneurial networks", in *Small Business Economics,* Vol. 50, No. 4, pp. 749-741.

Derfus, P.J.; Maggitti, P.G.; Grimm, C.M.; Smith, K.G. 2008. "The Red Queen Effect: Competitive Actions and Firm Performance", in *Academy of Management Journal*, Vol. 51, No. 1, pp. 61-80.

Deshayes, G. 1988. *Logique de la co-opération et gestion des coopératives* (Paris, Skippers).

Desroche, H. 1983. *Pour un traité d'économie sociale* (Paris, CIEM).

De Toro, A.; Hansson, P.A. 2004. "Machinery Cooperatives: A case study in Sweden", in *Biosystems Engineering*, Vol. 87, No. 1, pp. 13-25.

D'Haese, M.; Francesconi, G.-N.; Ruben, R. 2007. "Network Management for Dairy Productivity and Quality in Ethiopia", in L. Theuvsen, A. Spiller and M. Peupert (Eds.): *Quality Management in Food Chains*, (Wageningen, Wageningen Academic Publishers), pp. 185-197.

Djanibekov, N.; Djanibekov, U.; Sommer, R.; Petrick, M. 2015. "Cooperative agricultural production to exploit individual heterogeneity under a delivery target", in *Agricultural Systems*, Vol. 141, pp. 1-13.

Douvitsa, I.; Kassavetis, D. 2014. "Cooperatives: An alternative to water privatization in Greece", in *Social Enterprise Journal*, Vol. 10, No. 2, pp. 135–154.

Drucker, P.F. 1977. *An introductory view of management* (New York, NY, Harper's College Press).

Egarius, D.; Weill, L. 2016. "Switching costs and market power in the banking industry: the case of cooperative banks", in *Journal of International Financial Markets*, *Institutions & Money*, Vol. 42, pp. 155-165.

Eum, H. 2016a. *Conducting country case studies for advancing global statistical system on cooperatives: Spain, France, Italy, the Republic of Korea and Costa Rica* (Geneva, ILO). (internal document)

____. 2016b. *Lessons from country-case studies on cooperatives, Spain, France, Italy, South Korea and Costa Rica: Toward common definition, classification and methods at the international level*, Report to the ILO, COPAC Multi-stakeholder Workshop on Statistics on Cooperatives, Rome, FAO Headquarters, 5-6 April 2016.

____. 2017. *Cooperatives and Employment: second Global Report – Contribution of cooperatives to decent work in the changing world of work* (Brussels, CICOPA).

____. 2018. *Cooperative employment measurement: categories, statistical variables and methods* (Geneva, ILO). (internal document)

Eum, H.; Carini, C.; Bouchard, M.J. 2018. *Classification of cooperatives: A proposed typology* (Geneva, ILO). (internal document)

European Research Institute on Cooperatives and Social Enterprise (EURICSE); International Co-operative Alliance (ICA). 2016. *World Cooperative Monitor 2016* (Trento and Brussels).

European Union. 2015. *Guide to Cost-Benefit Analysis of Investment Projects* (Luxembourg).

European Union; OECD. 2015. *Policy Brief on social impact measurement for social enterprises: Policies for social entrepreneurship* (Luxembourg, Publications Office of the European Union).

EUROSTAT. n.d. *Quality Assurance Framework of the European Statistical System*, (Brussels, European Commission); Available at http://ec.europa.eu/eurostat/documents/64157/4392716/ESS-QAF-V1-2final.pdf/bbf5970c-1adf-46c8-afc3-58ce177a0646

Fauquet, G. 1935. *Le secteur coopératif : Essai sur la place de l'homme dans les institutions coopératives et de celles-ci dans l'économie* (Bruxelles, Les Propagateurs de la coopération).

Figueiredo, V.; Franco, M. 2018. "Wine cooperatives as a form of social entrepreneurship: Empirical evidence about their impact on society", in *Land Use Policy*, Vol. 79, pp. 812-821.

Fisher, E.; Qaim, M. 2012. "Gender, agricultural commercialization, and collective action in Kenya", in *Food Security*, Vol. 4, pp. 441-453.

Folsom, J. 2003. "Measuring the Economic Impact of Cooperatives in Minnesota", RBS Research Report 200 (Washington, DC, United States Department of Agriculture Rural Business-Cooperative Service).

Francesconi, G.N.; Heerink, N. 2007. "Ethiopian agricultural cooperatives in an era of global commodity exchange: Does organisational form matter?", in *Journal of African Economies*, Vol. 20, No. 1, pp. 153-177.

Frick, B. 2017. "Some cooperatives produce great wines, but the majority does not: Complementary institutional mechanisms to improve the performance of an indispensable organizational form", in *Journal of Wine Economics*, Vol. 12, No. 4, pp. 386-394.

Fulton, M.; Giannakas, K. 2001. "Organizational commitment in a mixed oligopoly: Agricultural cooperatives and investor-owned firms", in *American Journal of Agricultural Economics,* Vol. 83, pp. 1258–1265.

Fulton, M.; Giannakas, K. 2013. "The Future of Agricultural Cooperatives", in *Annual Review of Resources Economics*, Vol. 5, pp. 61-91.

Fuss, M.; McFadden, D. (Eds.). 1978. *Production economics: A dual approach to theory and applications* (Amsterdam, Elsevier).

Gagliardi, F. 2009. "Financial development and the growth of cooperative firms", in *Small Business Economics,* Vol. 32, pp. 439-464.

Galbraith, J.K. 1952. *American capitalism: The concept of countervailing power* (Boston, Houghton Mifflin).

Galhardi, R. 2015. *Mapping exercise on statistics on cooperative. Preliminary results (Draft report)*, (Geneva, ILO Department of Statistics), (internal document).

_____. 2016. *Methodology for country-case studies: Statistics on cooperatives* (Geneva, ILO Department of Statistics) (internal document).

Gelman, A. 2011. "Causality and statistical learning", in *American Journal of Sociology*, Vol. 117, No. 3, pp. 955-966.

Gezahegn, T.W.; Gebregiorgis, G.; Gebrehiwet, T.; Tesfamariam, K. 2018. "Adoption of renewable energy technologies in rural Tigray, Ethiopia: An analysis of the impact of cooperatives", in *Energy Policy*, Vol. 114, pp. 108-113.

Gordon Nembhard, J. 2002. "Cooperatives and wealth accumulation: Preliminary analysis", in *American Economic Review*, Vol. 92, No. 2, pp. 325-329.

_____. 2014. "Understanding and measuring the benefits and impacts of co-operatives", in E.L. Brown, C. Carini, J. Gordon Nembhard, L. Hammond Ketilson, E. Hicks, J. McNamara, S. Novkovic, D. Rixon and R. Simmons (eds): *Co-operatives for sustainable communities: Tools to measure co-operative impact and performance* (Ottawa and Saskatoon, Co-operatives and Mutuals Canada and University of Saskatchewan), pp. 152-179.

Gruppo CLAS; Unioncamere Emilia-Romagna. 2012. *Le cooperative in Emilia-Romagna* (Emilia-Romagna, SMAIL).

_____. 2014. *Le cooperative in Emilia-Romagna* (Emilia-Romagna, SMAIL).

Guo, S.; Fraser, M.W. 2010. *Propensity score analysis: Statistical methods and applications* (London, SAGE Publications).

Hanisch, M.: Rommel, J.; Müller, M. 2013. "The cooperative yardstick revisited: Panel evidence from the European dairy sectors", in *Journal of Agricultural & Food Industrial Organization*, Vol. 11, No. 1, pp. 151-162; doi: doi.org/10.1515/jafio-2013-0015

Hannan, T.H. 2003. *The impact of credit unions on the rates offered for retail deposits by banks and thrift institutions* (Washington, DC, Federal Reserve Board); Available from: https://www.federalreserve.gov/pubs/FEDS/2003/200306/200306pap.pdf

Hansmann, H. 1996. *The ownership of Enterprise* (Cambridge, The Belknap Press of Harvard University Press).

Hauner, D. 2005. "Explaining efficiency differences among large German and Austrian banks", in *Applied Economics*, Vol. 37, No. 9, pp. 969-980,

Heckman, J.J. 2008. "Econometric Causality", in *International Statistical Review*, Vol. 76, No. 1, pp. 1-27.

Heckman, J.; Smith, J.A. 1995. "Assessing the case for social experiments", in *Journal of Economic Perspectives*, Vol. 9, No. 2, pp. 85-110.

Hellin, J. 2006. *Farmer Organization, Collective Action and Market Access in Meso-America*, CAPRi Working Paper No. 67 (Washington, DC, CAPRi) paper presented at the Research Workshop on Collective Action and Market Access for Smallholders, October 2-5, Cali, Colombia.

Hendrikse, G., Smith, R., de la Vieter, M. 2007. "Orientation in diversification behavior of cooperatives: An agent-based approach", in G. Cliquet, M. Tuunanen, G. Hendrikse, J. Windsperger (eds): *Economics and Management of Networks* (Dordrecht, Springer), pp. 421-435.

Herbel, D.; Rocchigiani, M.; Ferrier, C. 2015. "The role of the social and organizational capital in agricultural co-operatives' development: Practical lessons from the CUMA movement", in *Journal of Co-operative Organization and Management,* Vol. 3, No. 1, pp. 24-31.

Holland, P.W. 1986. "Statistics and Causal Inference", in *Journal of the American Statistical Association*, Vol. 81, pp. 945-960.

Holloway, G.; Nicholson, C.; Delgado, C.; Staal, S.; Ehui, S. 2000. "Agro-industrialization through institutional innovation transaction costs, cooperatives and milk-market development in the east-African highlands", in *Agricultural Economics*, Vol. 23, pp. 279-288.

Hoogmarten, R.; Van Passel, S.; Van Acker, K.; Dubois, M. 2014. "Bridging the gap between LCA, LCC and CBA as sustainability assessments tools", in *Environmental Impact Assessment Review*, Vol. 48, pp. 27-33.

Ingram, P.; Simons T. 2002. "The transfer of experience in groups of organizations: Implications for performance and competition", in *Management Science*, Vol. 48, No. 12, pp. 1517-1533.

Innovation, Science and Economic Development Canada. 2015. *Co-operatives in Canada in 2012* (Ottawa).

Instituto Nacional de Fomento Cooperativo (INFOCOOP); Programa Estado de la Nación CONARE. 2012. *Sintesis IV censo nacional cooperative 2012* (San José, Costa Rica).

International Centre of Research and Information on the Public, Social and Cooperative Economy (CIRIEC). 2006. *Manual for drawing up the satellite accounts of companies in the social economy: Co-operatives and mutual societies* on behalf of the European Commission, Enterprise and Industry Directorate-General (Liège, CIRIEC).

International Labour Organization (ILO). 2002. *Promotion of Cooperatives Recommendation No. 193*, Geneva, 90th ILO session (Geneva); Available at: http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312531

_____. 2009. *Cooperative sector in Russia and the implementation of the ILO Recommendation No. 193 in the development of different Russian cooperative trends: Analytical report* (Moscow, ILO Subregional Office for Eastern Europe and Central Asia)

_____. 2011. *Manual on the measurement of volunteer work* (Geneva).

_____. 2013a. *Statistics on cooperatives*, prepared by A. Mata-Greenwood, 19th International Conference of Labour Statisticians, October 2013 (Geneva).

_____. 2013b. *Resolution III concerning further work on statistics of cooperatives*, 19th International Conference of Labour Statisticians (ICLS) (Geneva).

_____. 2013c. *Resolution concerning statistics of work, employment and labour underutilization*, 19th International Conference of Labour Statisticians (Geneva).

_____. 2014. “Chapter 7: Self Employed Women's Association (SEWA), India”, in ILO: *Learning from catalyst of rural transformation* (Geneva).

_____. 2015. *The story of the ILO’s promotion of cooperatives recommendation 2002* (No. 193) (Geneva).

_____. 2017a. *Conceptual Framework on Measurement of Cooperatives and its Operationalization*, (Geneva, ILO), Report discussed at the COPAC Technical Working Group on Cooperative Statistics Meeting, Geneva, May 2017, available at: http://www.ilo.org/global/topics/cooperatives/publications/WCMS_578683/lang--en/index.htm

_____. 2017b. *Conceptual framework for statistics on the work relationship,* Discussion paper for Working Group for the Revision of the International Classification of Status in Employment (ICSE-93) (Geneva).

_____. 2017c. *Quick guide on sources and uses of labour statistics* (Geneva).

_____. 2018a. *Guidelines concerning statistics on cooperatives* (Geneva), available at: https://www.ilo.org/stat/Publications/WCMS_648558/lang--en/index.htm [31 August 2019].

_____. 2018b. *Meeting of Experts on Labour Statistics in Preparation for the 20th International Conference of Labour Statistics*, Geneva, 5-9 February 2018 (Geneva).

_____. 2018c. *Resolution concerning statistics on work relationships* (Geneva), available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_647343.pdf [12 July 2020]

International organisation of cooperatives in industry and services (CICOPA). 2017. *Global report: Industrial and service cooperatives 2015-2016* (Brussels); Available from: https://www.cicopa.coop/publications/industrial-and-service-cooperatives-global-report-2015-2016/

Jardine, S.L.; Lin, Y.C.; Sanchirico, J.M. 2014. “Measuring Benefits from a Marketing Cooperative in the Copper River Fishery”, in *American Journal of Agricultural Economics*, Vol. 96, No. 4, pp. 1084–1101.

Kamdem, C. 2016. “Collective Marketing and Cocoa Farmer's Price in Cameroon”, in *Economics Bulletin*, Vol. 36, No. 4, pp. 1-22.

Karaphillis, G.; Lake, A. 2015. “Economic impact of the co-operative Sector in Nova Scotia”, in *Journal of Co-operative Accounting and Reporting*, Vol. 3, No. 1, pp. 7-18.

Karaphillis, G.; Duguid, F.; Lake, A. 2017. “Economic impact of the Canadian co-operative sector (2009 and 2010)”, in *International Journal of Social Economics*, Vol. 44, No. 5, pp. 643-652.

Kassie, M.; Shiferaw, B.; Muricho, G. 2011. “Agricultural Technology, Crop Income, and Poverty Alleviation in Uganda”, in *World Development*, Vol. 39, No. 10, pp. 1784-1795.

Köhler, M. 2015. “Which banks are more risky? The impact of business models on bank stability”, in *Journal of Financial Stability*, Vol. 16, pp. 195-212.

Kristjanson, P.; Okike, I.; Tarawali, S.; Singh, B.B.; Manyong, V.M. 2005. “Farmers' perceptions of benefits and factors affecting the adoption of improved dual-purposed cowpea in the dry savannas of Nigeria", in *Agricultural Economics*, Vol. 32, pp. 195-210.

Lee, C.; Kim, L.; Kim, Y.; Hwang, J.; Nam, S.; Lim, S. 2015. *The cooperative baseline study 2015* (Sejong and Seoul, The Ministry of Strategy and Finance and KIHASA).

Le Guernic, M.; Rousselière, D.; Audebrand, L.; Ben Selma, M.; Salanié, J.; Vézina M. 2017. *Evaluation the impact of cooperative on farmers performance: A Bayesian Meta-regression*, International Cooperative Alliance, Global Research Conference, June, Sterling.

Leontief W. 1936. “Quantitative input and output relations in the economic systems of the United States”, in *The Review of Economics and Statistics*, Vol. 18, No. 3, pp. 105-125.

Lerman, Z.; Sedik, D. 2014. *Cooperatives in the CIS and Georgia: Overview of legislation*, Policy Studies on Rural Transition No 2014-2 (Budapest, FAO Regional Office for Europe and Central Asia).

Li, X.; Tripe, D.W.L.; Malone, C.B. 2017. *Measuring Bank Risk: An Exploration of Z-Score*; Available at SSRN: https://ssrn.com/abstract=2823946 or http://dx.doi.org/10.2139/ssrn.2823946

Liang, Q.; Hendrikse, G. 2016. "Pooling and the yardstick effect of cooperatives", in *Agricultural Systems*, Vol. 143, pp. 97-105.

Lillywhite, J.; Frye, E. 2014. *Economic significance of food cooperatives in New Mexico*, Research Report 789 (Las Cruces, NM, New Mexico State University); Available at: http://aces.nmsu.edu/pubs/research/economics/RR789.pdf

Lofgren, H.; Harris, R.L.; Robinson, S. 2002. *A standard computable general equilibrium (CGE) model in GAMS* (Washington, International Food Policy Research Institute, Microcomputers in Policy Research).

Lucas, V.; Gasselin, P.; Van Der Ploeg, J.D. 2019. "Local inter-farm cooperation: A hidden potential for the agroecological transition in northern agricultures", in *Agroecology and Sustainable Food Systems*, Vol. 43, No. 2, pp. 145-179.

Lund, M. 2011. *Solidarity as a Business Model: A Multi-Stakeholder Cooperatives Manual* (Ohio, OH, Ohio, Cooperative Development Center).

Madau, F.A.; Furesi, R.; Pulina, P. 2018. "The technical efficiency in Sardinian fisheries cooperatives", in *Marine Policy*, Vol. 95, pp. 111-116.

Maietta, O.W.; Sena, V. 2008. "Is competition really bad news for cooperatives? some empirical evidence for Italian producers' cooperatives", in *Journal of Productivity Analysis,* Vol. 29, pp. 221-233.

____. 2010. "Financial constraints and technical efficiency: Some empirical evidence for Italian producers' cooperatives", in *Annals of Public and Cooperative Economics,* Vol. 81, No. 1, pp. 21-38.

Malo, M.C. 1980. *Une typologie des coopératives: association et entreprises*, No. T-79-1 (Montréal, École des Hautes Études Commerciales, Centre de gestion des coopératives).

Marini, M.A.; Zevi, A. 2011. "'Just one of us': consumers playing oligopoly in mixed markets", in *Journal of Economics*, Vol. 104, pp. 239-263.

Mazoyer, M. 1998. « Des agricultures manuelles à la motorisation lourde: des écarts de productivité considérable », in *Grain de sel,* No. 48, pp. 12.

McKee, G.J. 2011. *The Economic Contribution of North Dakota Cooperatives to the North Dakota State Economy*, Research Report No. 687 (Fargo, ND, North Dakota State University).

McNamara, K.T.; Fulton, J.; Hine, S. 2001. *The Economic Impacts Associated with Locally Owned Agricultural Cooperatives: A Comparison of the Great Plains and the Eastern Cornbelt*, Paper Presented at NCR-194 Research on Cooperatives Annual Meeting, October 30, Las Vegas, Nevada.

Mérel, P.; Saitone, T.L.; Sexton, R.J. 2015. "Cooperative stability under stochastic quality and farmer heterogeneity", in *European Review of Agricultural Economics*, Vol. 42, No. 5, pp. 765-795.

Milford, A.B. 2004. *Coffee, co-operatives and competition: The impact of fair trade*, CMI Working Paper (Oslo, CMI).

Milford A.B. 2012. "The Pro-Competitive Effect of Coffee Cooperatives in Chiapas, Mexico", in *Journal of Agricultural & Food Industrial Organization*, Vol. 10, No. 1; doi: doi.org/10.1515/1542-0485.1362

Ministry of Cooperative, Labor & Social Welfare. 2015. *Satellite accounts for cooperatives in I.R.Iran* (Teheran).

____. (n.d.). *Selected tables on cooperatives statistics in Iran* (Teheran).

Mojo, D.; Fischer, C.; Degefa, T. 2016. "Collective action and aspirations: The impact of cooperatives on Ethiopian coffee farmers' aspirations", in *Annals of Public and Cooperative Economics*, Vol. 87, No. 2, pp. 217-238.

_____. 2017. "The determinants and economic impacts of membership in coffee farmer cooperatives: recent evidence from rural Ethiopia", in *Journal of Rural Studies*, Vol. 17, pp. 84-94.

Mook, L.; Richmond, B.J.; Quarter, J. 2002. "Using social accounting to show the value added of co-operatives: The expanded value added statement", in *Journal of co-operatives*, Vol. 35, No. 3, pp. 183-204.

Müller, M.; Hanisch, M.; Malvido, A.; Rommel, J.; Sagebiel, J. 2017. "The structural effect of cooperatives on price volatility in the European dairy sector", in Applied Economics Letters, Vol. 25, No. 8, pp. 576-579; doi: 10.1080/13504851.2017.1346358

Musson, A.; Rousselière, D. 2017. *Exploring the effect of crisis on cooperatives. A Bayesian performance analysis of French craftsmen cooperatives*, Working Paper SMART-LERECO 18-07 (Rennes, INRA UMR 1302 SMART-LERECO).

_____. 2019. "Social Capital and Subjective Well-Being", in G. Brulé and C. Suter (eds): *Wealth(s) and Subjective Well-Being* (Dordrecht, Springer), pp. 353-374.

Nourse, E.G. 1922. "The economic philosophy of co-operation", in *American Economic Review,* Vol. 12, No. 4, pp. 577-597.

Okoye, B.C.; Abass, A.; Bachwenkizi, B.; Asumugha, G.; Alenkhe, B.; Ranaivoson, R.; Randrianarivelo, R.; Rabemanantsoa, N.; Ralimanana, I. 2016. "Effect of transaction costs on market participation among smallholder cassava farmers in Central Madagascar", in *Cogent Economics & Finance*, Vol. 4, pp. 1-20.

Organisation for Economic Cooperation and Development (OECD). 2011. *Quality frameworks and guidelines for OECD statistical activities Version 2011/1* (Paris, OECD, Statistics Directorate); Available at: http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=std/qfs(2011)1&doclanguage=en

Osservatorio della Cooperazione Agricola Italiana. 2015. *Rapporto 2014* (Rome).

Pape, U.; Chaves-Avila, R.; Pahl, J.; Petrella, F.; Pielinski, B.; Savall-Morera, T. 2016. "Working under pressure: Economic recession and third sector development in Europe", in *International Journal of Sociology and Social Policy,* Vol. 36, No. 7/8, pp. 547-566.

Pascucci, S.; Gardebroek, C. 2010. *Some like to join, others to deliver: An Econometric Analysis of Farmers' relationships with agricultural co-operatives* (Wagenigen, Wageningen University, Agricultural Economics and Rural Policy Group).

Pender, J.; Gebremedhin, B. 2007. "Determinants of Agricultural and Land Management Practices and Impacts on Crop Production and Household Income in the Highlands of Tigray, Ethiopia", in *Journal of African Economies*, Vol. 17, No. 3, pp. 395-440.

Pennerstorfer, D.; Weiss, C.R. 2013. "Product quality in the agri-food chain: do cooperatives offer high-quality wine?", in *European Review of Agricultural Economics*, Vol. 40, No. 1, pp. 143-162.

Périlleux, A.; Vanroose, A.; D'Espallier, B. 2016. "Are Financial Cooperatives Crowed out by Commercial Banks in the Process of Financial Sector Development?", in *Kyklos*, Vol. 69, No. 1, pp. 108-134.

Roelants, B.; Eum, H.; Terrasi, E. 2014. *Cooperatives and Employment: a Global Report* (Brussels and Québec, CICOPA and Desjardins Group).

Rousselière, D.; Bouchard, M.J.; Le Guernic, M. 2018. *Report on the economic contribution of cooperatives* (Geneva, International Labour Office) (internal document).

Royer, J. 2014. "The neoclassical theory of cooperatives", in *Journal of cooperatives*, Vol. 28, pp. 1-35.

Sadowski, B.M. 2017. "Consumer cooperatives as an alternative form of governance: The case of the broadband industry", in *Economic Systems*, Vol. 41, pp. 86-97.

Sagebiel, J.; Muller, J.R.; Rommel, J. 2014. "Are consumers willing to pay more for electricity from cooperatives? Results from an online Choice Experiment in Germany", in *Energy Research & Social Science*, Vol. 2, pp. 90-101.

Sanchez Bajo, C.; Roelants, B. 2011. *Capital and the dept trap: learning from cooperatives in the global crisis* (Houndmills, Palgrave Macmillan).

Schwettmann, J. 1997. "Coopératives et emploi en Afrique", ILO Working Papers (Geneva).

Shah, A.K. 1997. "The social dimensions of financial risk", in *Journal of Financial Regulation and Compliance*, Vol. 5, No. 3, pp. 195-207.

Shahnazarian, H. 2011. "A Dynamic Micro-Econometric Simulation Model for Firms", in *International Journal of Microsimulation*, Vol. 4, No. 1, pp. 2-20.

Shiferaw, B.; Obare, G.; Muricho, G. 2008. "Rural market imperfections and the role of institutions in collective action to improve markets for the poor", in *Natural Resources Forum,* Vol. 32, pp. 25-38.

Sobel, M.E. 2005. "Discussion: The scientific model of causality", in *Sociological Methodology*, Vol. 35, No. 1, pp. 99-133.

Soboh, R.A.M.E.; Lansink, A.O.; Giesen, G.; van Dijk, G. 2009. "Performance Measurement of the Agricultural Marketing Cooperatives: The Gap between Theory and Practice", in *Review of Agricultural Economics*, Vol. 31, No. 3, pp. 446-469.

Soboh, R.; Lansink, A.; Van Dijk, A. 2012. "Efficiency of cooperatives and investor owned firms revisited", in *Journal of Agricultural Economics*, Vol. 63, No. 1, pp. 142-157.

Stellmacher, T.; Grote, U. 2013. *Forest Coffee Certification in Ethiopia: Economic Boon or Ecological Bane?*, Working Paper Series No. 76 (Bonn, University of Bonn, Center for Development Research).

Surubaru, A. 2012. « Les producteurs roumains de l'habillement à la recherche de clients : une analyse sociologique des rencontres d'affaires », in *Sociologie du Travail*, Vol. 54, pp. 457-474.

Tadesse, G. ; Abate, G.T.; Ergano, K. 2018. "The Boundary of Smallholder Producers' Cooperatives: A Conceptual and Empirical Analysis", in *Journal of Agricultural Economics*, Vol. 70, No. 2, pp. 29–549; doi: doi.org/10.1111/1477-9552.12310

Triboulet, P.; Pérès, S.; Filippi, M.; Chantelot, S. 2013. « Empreinte spatiale de la coopération agricole française : Un éclairage par l'économie de la proximité », in *Revue d'Economie Régionale et Urbaine,* No. 2013/2, pp. 363-390.

Tuck, B. 2018. *Economic Contribution of the Viroqua Food Cooperative* (Minneapolis, MA, University of Minnesota Extension Center for Community Vitality); Available at: https://conservancy.umn.edu/

Tversky, A.; Kahneman, D. 1991. "Loss aversion in riskless choice: A reference-dependent model", in *Quarterly Journal of Economics*, Vol. 106, No. 4, pp. 1039-1061.

Unioncamere; Si.Camera. 2014. *Cooperazione, non profit e imprenditoria sociale: economia e lavoro* (Rome).

United Nations (UN). 2008. *International Standard Industrial Classification of All Economic Activities Revision 4* (New York).

United Nations (UN); European Commission; International Monetary Fund (IMF); Organisation for Economic Co-operation and Development (OECD); World Bank. 2008. *System of national accounts 2008* (New York, United Nations publication).

United Nations Department of Economic and Social Affairs (UNDESA). 2013. *Best Practice Guidelines for Developing International Statistical Classifications,* paper presented at the Expert Group Meeting on Statistical Classifications, New York, NY, 13-15 May 2013, ESA/STAT/AC.267/5, 6 May 2013.

United Nations Statistics Division (UNSD). 1999. *Standard Statistical Classifications: Basic Principles*, prepared by Eivind Hoffmann (Bureau of Statistics, International Labour Office) and Mary Chamie (United Nations Statistics Division), (New York, UN Statistical Commission, Thirtieth Session, 1-5 March 1999, Items 8 of the provisional agenda, 10 February 1999).

United States Department of Agriculture (USDA). 2003. *Measuring the Economic Impact of Cooperatives: Results from Wisconsin*, Rural Business Cooperative Service, RBS Research Report 196 (Washington, DC).

United States of Department of Agriculture (USDA). 2017. *Agricultural cooperative statistics 2015*, Rural development service report 79 (Washington, DC).

Uzea F.N. 2014. "Methodologies to measure the economic impact of cooperatives: A critical review", in *Journal of Rural Cooperation*, Vol. 42, No. 2, pp. 101-121.

Uzea, F.N.; Duguid, F. 2015. "Challenges in conducting a study on the economic impact of co-operatives", in International Centre of Research and Information on the Public, Social and Cooperative Economy (CIRIEC), M.J. Bouchard, and D. Rousselière (Eds): *The Weight of the Social Economy: An International Perspective*, Social Economy and Public Economy (Brussels, Peter Lang), pp. 251-276.

Valentinov, V.; Iliopoulos, C. 2013. "Economic Theories of Nonprofits and Agricultural Cooperatives Compared: New Perspectives for Nonprofit Scholars", in *Nonprofit and Voluntary Sector Quarterly*, Vol. 42 No. 1, pp. 109-126.

van Herck, K. 2014. *Assessing efficiencies generated by agricultural producer organizations* (Luxembourg, Publications Office of the European Union).

Velazquez, B.; Buffaria, B. 2017. "About farmers' bargaining power within the new CAP", in *Agricultural and Food Economics*, Vol. 5, No. 1; doi: doi.org/10.1186/s40100-017-0084-y

Verhofstadt, H.; Maertens, M. 2014. Smallholder cooperatives and agricultural performance in Rwanda: do organizational differences matter?, in *Agricultural Economics*, Vol. 45, pp. 39-52.

_____. 2015. "Can Agricultural Cooperatives Reduce Poverty? Heterogeneous Impact of Cooperative Membership on Farmers' Welfare in Rwanda", in *Applied Economic Perspectives and Policies,* Vol. 37, No. 1, pp. 86-106.

Vienney, C. 1980a. *Socio-économie des organisations coopératives, Tome 1, Formation et transformations des institutions du secteur coopératif français* (Paris, CIEM).

_____. 1980b. « Rapport d'activités et rapport de sociétariat » in J.-G. Desforges et C. Vienney (eds): *Stratégie et organisation de l'entreprise coopérative* (Montréal/Paris, Éd. Du Jour/CIEM), pp. 251-283.

_____. 1981. *Socio-économie des organisations coopératives, Tome 2, Analyse comparée des coopératives fonctionnant dans des systèmes socio-économiques différents* (Paris, CIEM).

Wallis, G. 2006. *A methodology for valuing statistical benefits* (London, Office for National Statistics).

Wanyama, F. 2014. *Cooperatives and the Sustainable Development Goals: A Contribution to the Post-2015 Development Debate. A policy brief* (Geneva, International Co-operative Alliance/ International Labour Organization).

Watson, P.; Wilson, J.; Thilmany, D.; Winter, S. 2007. "Determing Economic Contributions and Impacts: What is the difference and why do we care?", in *Journal of Regional Analysis & Policy*, Vol. 37, No. 2, pp. 140-146.

Wollni, M.; Brümmer, B. 2012. "Productive efficiency of specialty and conventional coffee farmers in Costa Rica: Accounting for technological heterogeneity and self-selection", in *Food Policy*, Vol. 37, pp. 67-68.

Wollni, M.; Zeller, B. 2007. "Do farmers benefit from participating in specialty markets and cooperatives? The case of coffee marketing in Costa Rica", in *Agricultural Economics*, Vol. 37, pp. 243–248.

Xiong, H.; Kinsella, S.; Payne, D. 2016. "Self-enforcing agreement in cooperatives teams: an agent-based modelling approach", in *Complex Adaptive Systems Modeling*, Vol. 4, No. 21; doi: doi.org/ 10.1186/s40294-016-0033-8.

Zeuli, K.; Deller, S. 2007. "Measuring the local economic impact of cooperatives", in *Journal of Rural Cooperation*, Vol. 35, No. 1, pp. 1-17.

# Annexes

# Annex 1. COPAC Technical Working Group on Cooperative Statistics (2016-2018)

## PARTICIPANTS' LIST

*(at the last meeting on 4 April 2018)*

| First name | Last name | Position | Organization | Country |
|---|---|---|---|---|
| Ramin | Behzad | Counselor | Permanent Mission of Iran to the UN | Iran |
| Marie J. | Bouchard | TWG Chair<br>President, CIRIEC International Scientific Commission 'Social & Cooperative Economy' | CIRIEC International and<br>UQAM - Université de Québec à Montreal | Canada |
| Josefina | Bitonio | Regional Director | Cooperative Development Authority | Philippines |
| Şehmus Şenol | Bozdağ | Head, Annual Business Statistics | TurkSTAT | Turkey |
| Susan | Bvumbe | | ILO COOP | Switzerland |
| Chiara | Carini | Data Analyst | Euricse | Italy |
| Rafael | Diez de Medina | Director | ILO Statistics | Switzerland |
| Adrian | Egbers | Policy Analyst | Innovation, Science and Economic Development Canada | Canada |
| Simel | Esim | Head of Unit | ILO COOP | Switzerland |
| Hyungsik | Eum | Data Analyst | CICOPA | Belgium |
| Rodrigo | Gouveia | Director of Policy | International Co-operative Alliance | USA |
| Gretchen | Hacquard | Director of Membership | International Co-operative Alliance | Switzerland |
| David | Hunter | ILO Consultant | | Switzerland |
| Kyunghee | Kim | Seconded to ILO Statistics | Statistics Korea | South Korea |
| Young Hyun | Kim | Cooperatives Policy Division | Ministry of Strategy and Finance (MOSF) | South Korea |
| Madeg | Le Guernic | Doctoral Candidate | Université de Rennes 1 | France |
| Fran | McCrae | Coordinator | COPAC | USA |
| Celso | Mendes de Carvalho | Policy Officer | FAO | Switzerland |
| Sonia | Novkovic | Professor of Economics | Saint Mary's University | Canada |
| Mustafa Hakki | Özel | Head of Unit | ILO Statistics | Switzerland |
| Bruno | Roelants | Director-General | International Co-operative Alliance | Belgium |
| Damien | Rousselière | Agrocampus Ouest | Professor | France |
| Hermanus | Smith | Chief, National Account Section | UN DESA | USA |
| Theodoor | Sparreboom | Senior Statistician | ILO Statistics | Switzerland |
| Joann | Vanek | Director, Statistics Program | WIEGO | USA |
| Vic | Van Vuuren | Director | ILO Enterprises | Switzerland |
| Wenyan | Yang | Chief, Social Perspective on Development Branch | UN DESA-DSPD | USA |

## Annex 2. Guidelines concerning statistics on cooperatives (ILO, 2018a)

INTERNATIONAL LABOUR OFFICE

20th International Conference of Labour Statisticians

Geneva, 10-19 October 2018

# Guidelines concerning statistics of cooperatives

# Guidelines concerning statistics of cooperatives

## Preamble

The 20th International Conference of Labour Statisticians,

Recognizing the need to produce statistics on cooperatives in all countries of the world,

Recalling the resolution concerning further work on statistics of cooperatives adopted by the 19th International Conference of Labour Statisticians (2013),

Recalling the requirements of the Promotion of Cooperatives Recommendation, 2002 (No. 193), in particular the need for national policies to improve national statistics on cooperatives with a view to the formulation and implementation of development policies,

Recalling the existing international statistical standards contained in the resolutions adopted by the International Conference of Labour Statisticians, in particular the resolution concerning statistics of work, employment and labour underutilization adopted by the 19th International Conference (2013) and the resolution concerning statistics on work relationships adopted by the 20th International Conference of Labour Statisticians (2018),

Recognizing the need for coherence with other existing international statistical standards, in particular regarding the System of National Accounts (SNA),

Endorses the following guidelines and encourages countries to test the conceptual framework on which they are based.

## Objectives and uses

1. These guidelines aim to facilitate the development of a set of statistics on cooperatives that will provide an adequate information base for a wide range of descriptive, analytical and policy purposes, taking specific national needs and circumstances into account.

2. Statistics on cooperatives should in particular:

   (i) allow for monitoring of the contribution of cooperatives to labour markets and the economy;
   (ii) inform the design, implementation and evaluation of economic and social policies and programmes;
   (iii) facilitate analysis of groups of workers or members such as women and men, young people and other groups of particular concern.

3. In order to achieve these objectives, the set of statistics should, to the extent possible, include statistics regarding:

   (i) the number and type of cooperatives;
   (ii) members of cooperatives;
   (iii) work generated in cooperatives, including employment and other forms of work defined in the resolution concerning statistics of work, employment and labour underutilization adopted by the 19th International Conference of Labour Statisticians (2013);
   (iv) the economic contribution of cooperatives.

4. Statistics on cooperatives should be developed in consultation with the various users of the statistics, in harmony with other social and economic statistics and in accordance with international standards. These guidelines should serve to facilitate the production of statistics on cooperatives for different purposes as part of an integrated national system that is based on common concepts and definitions.

5. In developing their statistics on cooperatives, countries should endeavour to incorporate these guidelines in order to promote international comparability and to permit the evaluation of trends for the purpose of labour market and economic and social analysis.

## Reference concepts and definitions

6. A cooperative is defined as an autonomous association of persons and/or legal entities united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

7. Members set up or join a cooperative to benefit from the usage or transactions they have with it. Members have double status as both owners and users of goods and services provided by cooperatives.

8. In accordance with national legislation, members of cooperatives may be persons or legal entities and membership should be open to all persons and entities able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

9. In the SNA, cooperatives are institutional units which are part of non-financial corporations, financial corporations or non-profit institutions (NPIs). If the articles of association of a cooperative prevent it from distributing its profit or surplus, then it will be treated as an NPI; if it can distribute its profit or surplus to its members, it is not an NPI.

10. Cooperatives differ from other corporations in that they are democratically controlled by their members according to the principle of one member, one vote.

11. Cooperatives that are non-profit also differ from other non-profit institutions in that members are the users of goods and services provided by cooperatives and each member contributes to the capital of the cooperative.

## Types of cooperatives

12. Based on the main interest of the members of cooperatives, four main types of cooperatives can be distinguished (diagram 1):

    (i) producer cooperatives;
    (ii) worker cooperatives;
    (iii) consumer/user cooperatives;
    (iv) multi-stakeholder cooperatives.

**Diagram 1. Types of cooperatives**

| Type of cooperative | Interest of members | Type of member |
|---|---|---|
| Producer cooperative | Production activity | Producer-members:<br>- enterprises such as small agricultural or craft producers<br>- may or may not be incorporated |
| Worker cooperative | Work | Worker-members |
| Consumer/user cooperative | Consumption | Consumer-members: clients, family of clients, non-profit institutions, producers, corporations |
| Multi-stakeholder cooperative | More than one interest | Producer-members<br>Consumer-members<br>Worker-members |

13. In a producer cooperative, the main interest of the members is related to their production activity as enterprises in their own right. The members typically comprise household market enterprises such as small agricultural or craft producers but may also include corporations.

14. In a worker cooperative, members share an interest in the work which is provided by or ensured through the cooperative. The members are individual workers (worker-members) whose jobs are directly assured through their cooperative.

15. In a consumer/user cooperative, members are the consumers or users of the goods or services made available by or through the cooperative. Financial service cooperatives are classified as part of consumer/user cooperatives even if these cooperatives also service producers.

16. A multi-stakeholder cooperative is a cooperative which has more than one type of member with significant involvement in the activity of the cooperative and in which:

    (i) more than one type of member is represented in the governance structure of the cooperative; and
    (ii) no type of member has a dominant position through a majority of votes in the governing body or an exclusive veto over decisions.

    Other types of cooperatives may also have more than one type of member but only one type of member is predominant in the governance of the cooperative.

## Statistical units

17. Different units are relevant to the production of statistics on cooperatives. The basic units are cooperatives; members of cooperatives; persons; jobs or work activities; and the institutional units defined in the SNA and the International Standard Industrial Classification of all Economic Activities, Revision 4 (ISIC, Rev. 4).

18. Membership is defined as the number of members of each cooperative.

## Operational definitions

19. The definition of cooperatives can be operationalized on the basis of four criteria:

    (i) A cooperative should be a formally established institutional unit (non-financial corporation, financial corporation or non-profit institution);
    (ii) A cooperative should be controlled democratically by its members according to the principle that each member has an equal vote;
    (iii) Membership of the cooperative should be voluntary and non-restrictive;
    (iv) Distribution of profits or surpluses among the members is not directly linked to the capital contributed by each member.

20. Unregistered cooperatives are enterprises operating in a similar way as cooperatives but are not registered as such. These cooperatives should be identified separately based on criteria (ii), (iii) and (iv) listed in paragraph 19 above.

21. Mutual societies, self-help groups or social ventures (as defined in the SNA) should not be counted as cooperatives.

22. Both persons and legal entities can be members of more than one cooperative. Cooperatives therefore have memberships that may not be mutually exclusive, but membership may be important for groups or types of cooperatives.

23. Statistics of cooperatives should include statistics on the persons and enterprises that are members of cooperatives and statistics on subsidiaries that are not cooperatives, such as incorporated enterprises which are owned or controlled by cooperatives.

## Work in cooperatives

24. Work performed in cooperatives can be undertaken by members and by non-members and may include all forms of work defined in the resolution concerning statistics of work, employment and labour underutilization adopted by the 19th International Conference of Labour Statisticians (2013).

25. Work within the scope of statistics on cooperatives includes work performed by members and non-members in:

    (i) Cooperatives;
    (ii) Economic units that are members of a producer cooperative or multi-stakeholder cooperative;
    (iii) Subsidiary enterprises owned or controlled by cooperatives.

    Statistics on work generated in cooperatives, in particular statistics on employment, should be compiled and tabulated separately or disaggregated for each of these institutional settings.

26. Worker-members of cooperatives by definition perform work in their own cooperatives. Producer-members and consumer-members may also perform work in their cooperatives. Work is also performed in enterprises that are members of cooperatives while using goods and services provided by or through cooperatives (in particular in producer cooperatives), as well as in subsidiary enterprises that are owned or controlled by a cooperative.

27. Work performed by members of cooperatives which is not related to the cooperative should be considered as work outside the scope of statistics on cooperatives.

28. Worker-members of cooperatives are dependent workers because they do not have the same degree of control over the operation of their enterprise as, for example, a majority shareholder. If these workers are paid a wage or salary for time worked or for each task or piece of work done in the cooperative, they should be classified as employees of their own cooperative; if they are paid only in profit or surplus or paid a fee per service, they should be classified as dependent contractors according to the resolution concerning statistics on work relationships adopted by the 20th International Conference of Labour Statisticians (October 2018).

29. Owner-operators of enterprises that are members of producer cooperatives should in general be classified as independent workers; they may be classified as dependent workers if their business depends significantly or entirely on the cooperative in terms of access to markets, organization or pricing of work (i.e., the cooperative implicitly or explicitly controls the activities of the members) and if they satisfy the criteria to be classified as dependent contractors that are specified in the current standards for statistics on work relationships.

30. Members of cooperatives may perform work in the management or administration of the cooperative. When such work is performed for pay from the cooperative by the owner-operators of enterprises that are members of producers' cooperatives, it should be considered for statistical purposes as a job in the cooperative. When members of producer cooperatives perform such work without pay from the cooperative, it should be considered as employment in the workers' job in the member-enterprise; when performed by worker-members of cooperatives, with or without pay, it should be considered as employment in their job in the cooperative. If consumer-members perform any type of work in their cooperative without pay it is volunteer work.

31. Non-members can perform work in all types of cooperatives, including as employees and as volunteers.

## Data collection, tabulation and analysis

32. To assess the economic contribution of cooperatives it is important to take the characteristics of different types of cooperatives into account. Different measures of this contribution may be needed depending on the type of cooperative (and thus the interest of the members). For this purpose, information should be collected on employment, revenue, value added, assets, liabilities, the use of profits or surpluses, investment and the earnings of workers within the scope of statistics on cooperatives. Information should also be collected on the (share of) transactions with members and non-members.

33. Comprehensive statistics on cooperatives, members of cooperatives and jobs or work activities performed within the scope of statistics on cooperatives should be published on a regular basis, if possible at least every five years. Such comprehensive statistics should preferably be based on a census of cooperatives but may also be based on periodic sample surveys.

34. To the extent possible, statistics should be compiled separately for cooperatives, enterprises that are members of cooperatives and enterprises that are owned and controlled by cooperatives.

35. Regular (preferably annual) monitoring of cooperatives can be based on administrative records if these are adapted for statistical purposes and on establishment surveys; data on persons who are members of cooperatives can also be collected through household surveys.

36. Statistics of cooperatives should be systematically tabulated, as follows:

    (i) By the four main types of cooperatives listed in paragraph 12 above, as well as by nationally specific sub-types where relevant and feasible;
    (ii) By branch of economic activity;
    (iii) By regions relevant to national purposes, including by urban and rural areas.

37. Statistics on persons who are members of cooperatives, including owner-operators of enterprises that are members of cooperatives, as well as statistics on employment in cooperatives, should be systematically disaggregated by significant characteristics of the person, in particular by sex, age group, geographical region and urban and rural area, and by type of member.

38. Statistics on employment generated in cooperatives should be systematically disaggregated by significant characteristics of the job, including status in employment, occupation and the economic activity of the cooperative, as well as by characteristics of the jobholder, including by sex and age group.

39. If possible, inactive cooperatives should be identified separately and excluded from statistics on cooperatives.

## Future work

40. The ILO, in collaboration with interested countries and institutions, should arrange for testing of the concepts and definitions presented in these guidelines.

41. The ILO, in collaboration with interested parties, should work on the development of measures to assess the economic contribution of cooperatives.

43. The ILO, in collaboration with interested countries and institutions, should continue methodological work related to these guidelines, and in particular with regard to cooperative-like and non-registered units.

# Annex 3. National typologies used for analysis

Cooperative typologies currently used for statistical purposes, at the time of our study, in 11 countries were analyzed. These 11 country studies were undertaken for the ILO between 2016-17. When the typology for statistical purposes did not exist or appeared too broad, the study referred to the types used for legal or administrative purposes. Indeed, five different ways of using cooperative typology for statistical purposes were identified in the studied countries:

- In countries where the types of cooperatives defined in legislation are used for statistical purpose: France, Spain, Philippines, the Russian Federation, Colombia, the Republic of Korea, Costa Rica.
- In countries where there is no legally defined type of cooperatives, typologies used for administrative purposes, particularly, for registration, might be used for statistical purpose: Italy, the Republic of Korea.
- In countries where cooperative movement organizations are the main producers of statistics on cooperatives, typologies used by cooperative movements are also used for statistical purposes: the UK, Brazil.
- In some cases, countries create certain types of cooperatives only for statistical purposes. This is either due to the absence of an official typology in legislation at the national (federal) level, or to the need for more simplified and clearer presentation of data: Canada, Costa Rica.
- There are countries where more than two of above ways are combined or at least, co-exist: Costa Rica, the Republic of Korea.

In these 11 countries, a total of 202 types of cooperatives were identified and their basic information (titles and official descriptions) were collected. Out of 202 types of cooperatives, six generic types in three countries were excluded (Russian Federation, Costa Rica and Canada). These generic types were replaced by types currently in use for legal or administrative purposes in each country.

The analysis was carried out mainly based on official descriptions provided, either as meta-data on statistics or as defined in legislation. When possible, authors' knowledge was also mobilized. However, in few cases, descriptions were not clear enough. Therefore, it should be noted that there are possible misclassifications of some examined types. Nonetheless, since the majority of information could be processed, the results of this analysis can be trusted as being significantly robust.

Following is a brief summary of typologies examined in the context of this study.

**Brazil**

The typology of the cooperatives was composed of 13 types ("*ramos do cooperativismo*") defined by the apex organization of the Brazilian cooperatives (*Organização das Cooperativas Brasileiras*, OCB) for administrative purposes.

**Canada**

The typology of the cooperative was composed of 4 types defined for statistical purposes by the Co-operatives Policy office of Innovation, Science and Economic Development Canada[63] considering types of cooperatives provided by the provincial cooperatives acts.

**Colombia**

The typology of the cooperatives was composed of 14 types, which were provided by Law 79 (1988).[64] However, this official typology is not used in compiling statistics on cooperatives.

[63] http://www.ic.gc.ca/eic/site/693.nsf/eng/h_00037.html

[64] http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=9211

**Costa Rica**

In the Law 4179 on cooperative, 15 types of cooperatives are defined. However, the cooperative census, main statistics on cooperatives in Costa Rica used a different typology. 10 legally defined types are integrated into an operational category of "traditional cooperatives" and two legally defined types are integrated into the other operational category of "school and student cooperatives". Together with these operational categories for statistical purposes, another three types defined in the legislation were used in the census: worker cooperative, co-management cooperative and secondary level associations.

**France**

According to the social economy parameter used by the national institute of statistics (INSEE), 54 different legal status of cooperatives are used for producing statistics on cooperatives.

**Italy**

A typology of cooperatives composed of 15 types defined by law and used in the ministerial list of cooperatives. However, this official typology is not used in the statistical register computed by the National Institute of Statistics (Istat).

**Spain**

Statistics published by the Ministry of Employment and Social Security (MESS) uses a typology composed of 14 types mainly defined in the federal law on cooperatives (*Ley 27/1999, de 16 de julio, de Cooperativas*). However, the data is compiled by the MESS in using data from regional registers which have slightly different classifications. Two types (educational cooperative, others) which are not defined in the federal law but used in the statistical information represent the difference.

**The Philippines**

The typology of the cooperatives was composed of 23 types, which were provided in the Philippine Cooperative Code of 2008 (R.A. 9520).[65] This official typology is used by the Cooperative Development Authority (CDA) in compiling statistics on cooperatives.

**The Republic of Korea**

Types of cooperatives are defined in two different ways. In the special law regime, eight types of cooperatives are defined and regulated by special laws respectively. In the Framework act on cooperatives 2012 regime, four types of cooperatives are legally defined: cooperative, cooperative association, social cooperative and social cooperative association. However, the cooperative baseline study which targeted only cooperatives in the Framework act regime used a typology defined by the administrative guideline. Together with three other types, four types of cooperatives replace the generic type of "cooperative": entrepreneurs' cooperative, consumer/user cooperative, worker cooperative, multi-stakeholder cooperative.

[65] http://www.cda.gov.ph/resources/issuances/philippine-cooperative-code-of-2008/republic-act-9520

**The Russian Federation**

The Russian National Institute of statistics (Rosstat) identifies the cooperatives by the legal structure of their business using the Russian Classification of Organizational and Legal Forms (OKOPF).[66] This classification has a hierarchical structure. For this analysis, the maximum levels of classification related to 20 cooperative types were considered.

**The United Kingdom**

The typology of the cooperatives was composed of 9 types defined by Co-operatives UK, the apex organization of British cooperatives and main data provider on cooperatives in the UK.
The classification was defined for statistical and administrative purposes to tease out the relationship between the members and the cooperative.

[66] http://www.gks.ru/metod/classifiers.html

# Annex 4. International Classification of Status at Work (ICSaW-18)

- Independent workers
  - 1 Employers *
    - 11 Employers in corporations *
    - 12 Employers in household market enterprises *
    - 13 Employers in own-use provision of services
    - 14 Employers in own-use production of goods
  - 2 Independent workers without employees *
    - 21 Owner-operators of corporations without employees *
    - 22 Own-account workers in household market enterprises without employees *
    - 23 Independent workers in own-use provision of services without employees
    - 24 Independent workers in own-use production of goods without employees
    - 25 Direct volunteers

- Dependent workers *
  - 3 Dependent contractors *
    - 30 Dependent contractors *
  - 4 Employees *
    - 41 Permanent employees *
    - 42 Fixed-term employees *
    - 43 Short-term and casual employees *
    - 44 Paid apprentices, trainees and interns *
  - 5 Family helpers
    - 51 Contributing family workers *
    - 52 Family helpers in own-use provision of services
    - 53 Family helpers in own-use production of goods
  - 6 Unpaid trainee workers
    - 60 Unpaid trainee workers
  - 7 Organization-based volunteers
    - 70 Organization-based volunteers
  - 9 Other unpaid workers
    - 90 Other unpaid workers

(Source: ILO, 2018c, Resolution concerning statistics on work relationships)
* Categories included also in the International Classification of Status in Employment (ICSE-18)

# Annex 5. Work and employment in cooperatives in existing statistics – Empirical test

Based on the ILO's "Mapping exercise on statistics on cooperative (Galhardi, 2015)", two sets of country case studies on national practices in developing statistics on cooperatives (11 countries in total) were conducted by the ILO (Carini *et al.*, 2017; Eum, 2016b). This annex will try to identify the proposed different forms of work and employment in the current statistics on cooperatives in order to check the relevance of the proposed different forms of work and employment in cooperatives and to understand difficulties in applying them into the current statistical systems.

In the studied countries, main data sources for work and employment in cooperatives and their main coverage are summarized in Table A below.

Table A: Main data sources in the studied countries

| Data source | Country | Producer of main reference statistics | Employment | | Volunteer work | Other work |
|---|---|---|---|---|---|---|
| | | | Member | Employee | | |
| Establishment census | Russia | NSO | | | | |
| Administrative records – social security data | Spain | Ministry | | | | |
| | Italy | Research institute | | | | |
| | France | NSO | | | | |
| Administrative records – cooperative | Philippines | Public agency | | | | |
| Cooperative survey/census | South Korea | Ministry | | | | |
| | Canada | Ministry | | | | |
| | Costa Rica | Public agency | | | | |
| | Brazil | Public agency | | | | |
| Cooperative movement | Colombia | Apex organization | | | | |
| | UK | Apex organization | | | | |

Source: Author's own elaboration based on Carini *et al.*, 2017 and Eum, 2016b.

: Concerning information is covered by data source

Two main information which can be immediately drawn from the table are as follows:

- Existing forms of survey/census conducted by NSO and administrative records based on social security data do not provide information on members of cooperatives. Administrative records on cooperatives, cooperative survey/census and data collected by cooperative organizations provide information on employment both of members and of employees.
- Existing statistics on cooperatives in the studied countries do not collect data on volunteer work except the cooperative census in South Korea.

Although main reference statistics in each country were analysed, in order to understand various ways of producing statistical information on work in cooperatives, secondary references in each country are also included in the following analysis. Some other examples from countries which are not among the 11 countries are also used for illustrating specific cases.

## Work and employment in cooperatives

### Worker members

Among 11 case countries, information on worker-members is available in eight countries. As data sources, administrative records from social security data (Spain and Italy), administrative records on cooperatives (Philippines and France),

cooperative censuses (South Korea and Costa Rica) and data collected by cooperative organizations (Colombia and UK) are used.

In Spain and Italy, social security data is used for information on employment in cooperatives (Eum, 2016b).

- In Spain, the Ministry of Employment and Social Security (MESS), which is in charge of cooperatives, produces statistical information on worker-members, based on the data from the social security system. In Spain, worker-members can choose one of two main social security systems: general regime for employees and autonomous regime for self-employed. MESS extracts data on cooperatives from both social security regimes and classifies them according to cooperative types including worker cooperatives and cooperatives for community exploitation of the land (*cooperativas de explotación comunitaria de la tierra*). Whereas information from the autonomous regime represents only worker-members, that from general regime cannot distinguish worker-members from non-member employees.

- In Italy, there is no data which shows information on worker-members at the national level. However, there are reports, produced by a joint-initiative of regional chambers of commerce and a consulting company, on cooperatives in Emilia-Romagna region, which produce the number of employees in worker cooperatives, differentiating worker-members from non-member employees (Gruppo CLAS and Unioncamere Emilia-Romagna, 2012, 2014).

- Spanish and Italian cases show that to use social security data for identifying worker-members, two conditions should be met.
    - Firstly, worker-members should be considered as employee or as a specific category of self-employed so that they can be identified in social security data with cooperative titles.[67] This means that in countries where worker-members are considered as self-employed in the legal sense, it may be difficult to use social security data to identify worker-members.
    - Secondly, a cooperative typology which allows to identify cooperatives in which members are worker-members should be available. These cooperatives are mainly worker cooperatives, but it is possible that there are different types of cooperatives as well. If the criteria of cooperative typology reflect this point, it can be used as a good proxy.

- However, it is difficult and even impossible to distinguish worker-members from non-member employees in social security data. Therefore, the information based on social security data need to be interpreted as an approximative estimate for information on worker-members.

In the Philippines and France, information on worker-members are produced directly by public authority in charge of cooperatives (Philippines) or through a mandate to cooperative movement (France) (Carini *et al.,* 2017; Eum, 2016b).

- In the Philippines, the Cooperative Development Authority (CDA) produces statistical information on cooperatives based on documents submitted annually by cooperatives. Worker-members can be identified as members in worker cooperatives and similar types of cooperatives. The data provides information which distinguish members from employees. However, as the criteria to define cooperative typology are not clear, it is difficult to know how many worker-members exist in which cooperatives types except worker cooperatives. For example, according to the description of cooperative types, besides worker cooperatives, worker-members might exist in producer cooperatives, service cooperatives, education cooperatives, labour service cooperatives and transport cooperatives. However, it seems difficult to extract accurate information on worker-members from these cooperatives.

- In France, the Ministry of Labour mandates a task of establishing a list of worker cooperatives to the French worker cooperative confederation (CG Scop). On an annual basis, CG Scop collects statistical information not only from their

[67] For concrete process for compiling data on worker cooperatives from two different social security systems in Spain, see Eum, 2016b (pp. 15-17).

member cooperatives but also from non-member cooperatives, whose number, however, is very small. Based on collected data, CG Scop produces detailed statistical information of various types on worker cooperatives in France.

In South Korea and Costa Rica, cooperative censuses produce high quality information on worker-members in worker cooperatives (Eum, 2017).

- In South Korea, the cooperative baseline studies were conducted in 2013 and 2015 by the Korea Institute for Health and Social Affairs (KIHASA) with a mandate from the Ministry of Strategy and Finance (MSF). The cooperative baseline study targeted all cooperatives registered according to the Framework Act on cooperatives 2012. Information on worker-members can be identified with information on members working in worker cooperatives, multi-stakeholder cooperatives and social cooperatives. Worker-members may be with or without the legal status of employee. Information on both situations are reported in detail.

- In Costa Rica, the cooperative censuses have been conducted every four years by a public agency in charge of cooperatives, INFOCOOP. The most recent one was organized in 2012 in collaboration with the National Council of Rectors (CONARE). Worker-members are identified with information on members in worker cooperatives.

In Colombia and the UK, cooperative movement organizations are only actors who collect and publish statistical information on cooperatives (Carini *et al.*, 2017).

- In Colombia, Confecoop, an apex-organization, has produced high quality statistical information on cooperatives, based on data from different administrative sources. In the statistical information produced by Confecoop, work relationship based on worker ownership (*trabajo associado*) is defined as a specific form of work relationship which may be found in every types of cooperatives. The number of worker-members based on worker ownership in different types of cooperatives is shown together with information on non-member employees. Information on worker cooperatives was published as a separate type until 2013 but in the annual report of 2014 (Confecoop, 2014), the category of worker cooperative disappeared and information on worker-members was dispersed within information on employment in different economic sectors. In the annual report of 2016 (Confecoop, 2016), even the distinction between worker-members and employees was replaced by a concept of "workplace".[68] However, in the original database, the categories of worker-members and worker cooperatives are still available.

- In the UK, Co-operatives UK, an apex-organization, established a database based on data from different sources. In this database, a classification by ownership is used to classify cooperatives. Ownership indicates who the cooperative's members are. "Workers" is one member type among nine.[69] Information on worker-members can be identified with information on members in worker cooperatives but also, probably, in community interest cooperatives and multi-stakeholder cooperatives. However, in the *Co-operative Economy 2017* report[70], information on worker-members is aggregated with that on members of the employee trust[71] and self-employed freelancers.

The employment performed by producer-members in collective-farm-style cooperatives still exist in spite of their limited numbers. It is identified in MESS's statistics on cooperatives in Spain. Although the number is not available, the study on

[68] It seems that this change was stimulated by a public policy which forbids an abusive use of the worker cooperative model for degrading workers' protection and rights at work. Due to this policy, the number of worker cooperatives and worker-members have significantly decreased in recent years (CICOPA, 2017).

[69] Nine member types are: cooperatives, community of interest, consumers, employee trust, enterprises, multi-stakeholder, self-employed, tenants and workers (Carini *et al.*, 2017).

[70] http://reports.uk.coop/economy2017/

[71] Members in an employee trust own shares of enterprises in which they work, through the employee trust but do not exert direct power of control on their enterprises. Voting power is not distributed based on persons but on shares. In this sense, this model is not considered as being based on worker ownership but as similar with Employee Stock Ownership Plan (ESOP) in the US. The same model is used by worker-shareholder cooperatives in Quebec, Canada, of which data are sometimes aggregated with that of worker cooperatives (Innovation, Science and Economic Development Canada, 2015). It is an important model for employees' participation but needs to be dealt with separately from worker cooperatives based on worker ownership.

Russia explained that productive cooperatives which are reported as having similar structures with collective farms (ILO, 2009; Lerman and Sedik, 2014) are identified in the SME census and the All-Russia agricultural census (Carini *et al.*, 2018). In the case of the Czech Republic, the number of members in agricultural cooperatives is not reported as members but as employees for the same reason (CACR, 2015).

Except for the Colombian case in which the category of worker-member itself can be identified across different types of cooperatives, worker-members can be identified only with additional information on the types of cooperatives which are defined as being based on worker-members.

*Employment performed by members in the management or administration of the cooperative*

Information on members in all types of cooperatives, who work in management or administration is available in cooperative censuses in South Korea and Costa Rica. A simpler form of information can be also found in a report on cooperatives in Emilia-Romagna, Italy which used social security data. Beside 11 case countries, statistical information on work for management and/or governance tasks was also identified in statistics on Japanese cooperatives, which is based on administrative records reported by cooperatives to concerning ministries.

In Italy, "jobs of cooperative members who actually work in the enterprise and are not registered in the payroll books" are considered as independent jobs (*indipendente*).[72] In the report on cooperatives in Emilia-Romagna (Gruppo CLAS and Unioncamere Emilia-Romagna, 2014), the number of workers (*addetti*) is reported as the sum of employees including worker-members in worker cooperatives (*dipendenti*) and independent workers (*indipendenti*) who might be cooperative members paid for their work in management and/or governance positions (ibid. pp. 11).

A more detailed information is found in the data from cooperative censuses conducted in South Korea and Costa Rica.

- In the cooperative baseline study (Lee *et al.*, 2015), information on persons paid in four types of elected positions (president, full-time board members, part-time board members and auditors) was collected. A question on whether or not they have employment contracts was added to each position.
- In the cooperative census produced by INFOCOOP, Costa Rica (INFOCOOP and Estado Nacion, 2012), information on "persons constituting leading bodies of cooperatives" is presented with their distribution by gender. Leading bodies include board of directors, audit committee and committee of education and welfare. Additionally, distribution by gender of CEO and presidents of board is also presented (ibid. pp. 25)

Japanese statistics on several types of cooperatives based on administrative records provide very detailed information on officers. In the case of agricultural cooperatives (2014 Business year), statistics provide information on officers according to different elected or appointed positions and membership. However, there is no information about how many are paid positions and how many are volunteering ones.

Table B: Statistical information on officers in Japanese agricultural cooperatives (2014)

| Business Management Commissioner | | | Full-time Directors | | | Part-time Directors | | Directors Sub-total | Full-time Auditors | | Part-time Auditors | | Auditors Sub-total | Officers Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | of which full-time employ-ment | of which outside of regular member | | of which president | of which outside of regular member | | of which outside of regular member | | | of which outside of regular member | | of which outside of regular member | | |
| 1018 | 18 | 13 | 2563 | 683 | 191 | 11244 | 45 | 13807 | 584 | 150 | 3007 | 557 | 3591 | 18416 |

Source: Website of the Ministry of Agriculture, Forestry and Fisheries (www.maff.go.jp/)

[72] ISTAT Glossario (2006) http://www.istat.it/it/files/2011/01/glossario10.pdf

- Differently from Italian, South Korean and Costa Rican cases, in this table, information on non-members is available. Supposing that they are all paid positions, 18,416 officers might be divided into who are members of cooperatives and who are not members. Whereas the former (17,460 persons) might be classified as members who work for management and/or governance works, the latter (956 persons) would be classified as (non-member) employees. This is because, although they may have authority over aspects of the operations of economic units as employees with management responsibilities, they do not hold controlling ownership of the cooperative.

*Employment performed by employees*

Among different forms of work, employment performed by employees in cooperatives is the most identifiable category in existing statistics.

When social security data are used, more detailed information, such as gender, age, contract forms etc. are also available (Italy, Spain and France). However, as examined above, there is no way to distinguish between worker-members with the legal status of employee and non-member employees. It is particularly problematic in worker cooperatives, because these two categories of work are substantially different from each other in spite of the same legal status of employee.

- Without a clear distinction between worker-members and non-member employees, the same difficulty can be found in administrative records on cooperatives. For example, data collected by the Iranian Ministry of Cooperatives have information on the number of members and that of employed persons. In the case of manufacturing cooperatives in operation in 2014, the number of members was 147,811 and that of employed persons was 124,122. However, whereas the number of members may cover 1) members who are employed (worker-members) and 2) members who are not employed (non-worker members), data on employed persons may cover 3) employed persons who are members (worker-member) and 4) employed persons who are not members (employee). However, due to the lack of appropriate categories, detailed information on these different statuses is not available (Ministry of Cooperatives, Labor & Social Welfare, n.d.).

The cooperative census of South Korea includes some detailed information on employees. It shows a complex reality of employment in cooperatives caused by the fact that worker-members may have the legal status of employee. The legal status of employee can be found in different categories of persons, such as members in management and/or governance positions, members and non-members with a permanent contract, and members and non-members with a temporary contract. As examined above, without sufficient information on the types of cooperatives, it is difficult to distinguish worker-members from employees who are also members in cooperatives only for using goods and services provided by cooperatives.[73]

Other data sources, at least in their published information, have limited number of information on employees, such as only number of employees.

**Volunteer work**

There are few cases of data collection on volunteer work in cooperatives. However, they show the potential importance of volunteer work in cooperatives which has not been sufficiently acknowledged.

The cooperative baseline study of South Korea includes questions on volunteers in cooperatives. The result of the census reports that there were 3,186 member-volunteers and 8,032 non-member volunteers in 2,257 cooperatives which answered the census (Lee *et al.*, 2015).

[73] In turn, in the cooperative census of Costa Rica where worker-members do not have the legal status of employee, the information on employee is clearly distinguished from that on worker-members.

An Italian report "Cooperative, non-profit and social entrepreneur: economy and labour" (Unioncamere and Si.Camera, 2014) reports the information on volunteers in social cooperatives. The data source is "the general census on industry, service and non-profit entities (reference year 2011)" conducted by Istat, the Italian NSO. In this general census, whereas cooperatives in general except social cooperatives were included in the category of private for-profit enterprise, social cooperatives were included in non-profit institutions. The report provides information on volunteers in non-profit institutions including social cooperatives. According to the report, 42,368 volunteers were identified in 11,264 social cooperatives. This represents a very small portion compared to non-profit institutions in general (0.9% out of 4,758,622 volunteers in all non-profit institutions) but compared to previous census (reference year 2001), it represents a growth of 61.5%.

## Work and employment performed in other economic units but within the scope of cooperatives

**Economic units that are members of a producer cooperative or multi-stakeholder cooperative**

In the studied countries, establishment survey/census and social security data do not provide information on members of cooperatives except worker-members who, as examined above, are only indirectly and incompletely identified with certain conditions. The information on members is only available in cooperative-specific statistics, such as administrative records on cooperatives, cooperative surveys/censuses and data collected by cooperative movements. However, even in these data sources, if the used cooperative typology does not reflect different relations of cooperatives to members' employment, it is difficult to identify information on producer-members in their own economic units.

Among main statistics on cooperatives in which information on members is available, statistical information in Canada, Colombia and Costa Rica classify cooperatives according to the economic sectors in which cooperatives are active. The classification by economic sectors might be used as a proxy for different relationships between members and their cooperatives. For example, it is probable that cooperatives in the agricultural sector might be mainly composed of producer-members and those in the wholesale and retail sector might be based on consumer-members. However, this is a highly uncertain assumption.

In the Philippines, statistics on cooperatives produced by CDA uses a cooperative typology which is defined by the Philippines Cooperative Code (Carini *et al.,* 2017). However, this typology is based on mixed criteria, such as members' relations to cooperatives (consumer cooperative, worker cooperative), nature of members' activity (producer cooperative, fishermen cooperative), nature of cooperatives' function in relation to members' production activities (marketing cooperative) and economic activities (transport cooperative, insurance cooperative, housing cooperative, cooperative bank etc.). Although the descriptions of each type are useful to understand the role of cooperatives concerning members' employment, they do not provide sufficient information.

Data collected by cooperative organizations provides clearer information on the types of cooperatives so that producer cooperatives might be identified more easily. However, the quality of data is not always sufficient. Published information has often limited items with little detail. The ways of illustrating information and explaining details are not sufficiently analytical but strongly influenced by a promotional approach.

However, at the sectoral level, it is possible to find comprehensive statistical information on producer cooperatives. For example, in the agricultural sector in which cooperatives have played significant roles in many countries, a high quality of statistics is produced, often with strong support from, and coordination with governments. In South Korea and Japan, cooperatives in the agriculture, fishery and forestry sectors have developed with strong support as well as supervision from governments. As a consequence, statistical systems based on data elaborated through hierarchical structures in cooperatives (central union-regional unions-individual cooperatives) have developed and they are often integrated into official statistics. In Italy, through collaboration between cooperative organizations and the government, the Observatory of the Italian Agricultural Cooperatives was established and has produced comprehensive statistical information on

agricultural cooperatives (Osservatorio della Cooperazione Agricola Italiana, 2015). In the USA, the US Department of Agriculture has produced the annual report "Agricultural cooperative statistics" (USDA, 2017).

As such, it seems difficult to identify information on producer-members in current statistical systems. However, as important evidence of cooperatives' impact on people's work, employment and production activities, it would be crucial to develop statistics on producer-members of cooperatives. To develop such statistics, it would be important to elaborate appropriate methods for producing information on members of cooperatives and cooperative classifications.

**Employees in non-cooperative enterprises owned or controlled by cooperatives**

Annual fact sheets produced by Coop FR, the French cooperative apex organization report information on employees in enterprise-members of retail cooperatives (about 510,800 employees). This information is a main factor in making a difference between the employment numbers (employees and worker-members) reported by Coop FR (1 million)[74] and that of INSEE, the French NSO (300,000).

[74] For defining the scope of statistics on cooperatives, Coop FR established their own Cooperative parameters. The Cooperative parameters include "enterprises with cooperative status", "cooperative groups composed of a set of cooperatives" and "enterprises controlled by one or a set of cooperatives including corporations controlled by one or several cooperatives with over 50 per cent of capital and voices" (Coop FR, 2014). This approach allows to evaluate more appropriately the impact of cooperatives on employment. However, to avoid possible confusion, when the result is used, its difference from conventional statistical system needs to be explicitly explained.

# Annex 6. Suggestion of variables to add to household-based surveys for collecting information concerning the impact of cooperative on work, employment and production activities

With the addition of some variables, household-based surveys might collect information concerning the impact of cooperatives on work, employment and production activities. Concerning employment, three questions might be useful to identify how many jobs are related to cooperatives and to understand the characters of relations.

Q 1) Is your main job (or second job) related to any kinds of cooperatives?
(*If "Yes", go to the next question, If "No", out of scope*)

Q 2) What is your relation with cooperative(s)?
1) Member (-> *go to the next question*)
2) Non-member employee (-> *end*)

Q 3) How is your job related to cooperatives?
1) Work and paid in the cooperative
2) Sell products to cooperative(s)
3) Purchase goods and services for production from cooperative(s)
4) Other
5) Combination of more than one option above

The response to these questions might provide an estimate of the general impact of cooperatives (Q 1), different categories of persons (Q 2) and different forms of employment (Q 3). The information on ISCO-08 might be combined with Q 3 for identifying members in management positions. Each forms of employment in cooperatives might be identified through these questions as follows.

However, information from Q 2 and 3 might be over or under-estimated due to the representativeness problem mentioned above. Therefore, only the result of Q 1 might be used as a proxy of the impact of cooperatives on work, employment and production activities in the national economy. Information from Q 2 and 3 might be used only as references.

Table: Proposition of variables for identifying different forms of work in cooperatives

| Q 1 | Q 2 | Q 3 | ISCO-08 | Employment in coop |
|---|---|---|---|---|
| Yes | Member | Work and paid in cooperative | Manager | Worker-member or member working in the management or administration (depending on whether it is worker coop or not) |
| | | | Non-manager | Worker-member |
| | | Sell products to cooperative(s) | - | Producer-member in its own economic unit |
| | | Purchase goods and services | - | Producer-member in its own economic unit |
| | | Others | - | Need to be verified |
| | | Combination with 1) work and paid | Manager | Worker-member or member working in the management or administration (depending on whether it is worker coop or not) |
| | | | Non-manager | Worker-member |
| | | Combination without 1) work and paid | - | Producer-member in its own economic unit |
| | Non-member employee | - | - | Non-member employee |
| No | - | - | - | - |

Source: Elaborated by author.

# Annex 7. Methods for estimating economic contributions

| | Objectives | Data | Sources | Interests | Limits |
|---|---|---|---|---|---|
| **Macroeconomic methods** | | | | | |
| Headcount models | Inventory of the relative size of the cooperative sector | Depending on the comparison (value added, assets, revenues, employees…) | Survey, administrative registries | Simplicity / inexpensive data collection | Measuring economic contribution (no multiplier effects)<br>Static measurement |
| Input output models (partial SAM) | Measuring economic impact (direct, indirect and induced effects) | Value added, patronage refunds.<br>Purchasing and selling of goods and savings | Survey, administrative registries<br>Hypothesis are made in the absence of data on the behavior of cooperative | Known and widely used methods (building on previous estimations) | Implicit hypothesis on the absence of macroeconomic effects of cooperatives<br>Hypothesis can be unrealistic for the economic behaviors or on market structures (see Uzea 2014)<br>Static measurement |
| Full SAM (Social Accounting Matrix) | Analyzing distributional aspects of cooperative | Value added, patronage refunds.<br>Purchasing, savings, investment<br>Economic Information on members | Survey, administrative registries<br>Hypothesis are made in the absence of data on the behavior of cooperative | Known and widely used methods. More realistic than previous methods (distributional aspects) | Implicit hypothesis on the absence of macroeconomic effects of cooperatives<br>Hypothesis can be unrealistic for the economic behaviors or on market structures (see Uzea 2014)<br>Static measurement |
| CGE (Computable General Equilibrium) | Measuring a net economic impact (take into account macroeconomic effects)<br>This impact can be forecasted | Data needed to calibrate the model for the various economic agents and the various market | Survey, administrative registries<br>Hypothesis are made in the absence of data on the behavior of cooperative | Dynamic measurement. Non-linear effects | Academic consensus is needed (no attempt at this stage on the cooperative sector)<br>Hypothesis on the homogeneity of the cooperative sector. |
| Microsimulation | Measuring a net (heterogeneous) economic impact (take into account macroeconomic effects) | Data needed to calibrate the model for the various economic agents and the various markets | Survey, administrative registries, experimental data, auxiliary data (on the socioeconomic environment)… | Realist modelling (take into account the heterogeneity of the cooperative sector) | Academic consensus is needed (few attempts for the cooperative sector) |

| | **Objectives** | **Data** | **Sources** | **Interests** | **Limits** |
|---|---|---|---|---|---|
| Agent-Based Modelling | Two different objectives: theoretical models (testing theory) or evidence based models (providing forecasting estimates for various alternatives). | Data needed to calibrate the model for the various economic agents and the various markets | Survey, administrative registries, auxiliary data (on the socioeconomic environment) | Take into account non-linearity and threshold effects in the economy.<br>Accommodate various nature of indicators (economic, social and environmental) | Academic consensus is needed (few attempts for the cooperative sector) |
| **Microeconomic methods** | | | | | |
| Econometrics of causal inference | Net impact of a cooperative on its members. | Depending on the nature of the impact.<br>Data on members and non-members (control sample) | Survey, census, experimental data | Known and widely used methods (implemented in proprietary and open source software) | Absence of indirect effects (SUTVA hypothesis) and macroeconomic effects. |
| Farm / entreprise simulation | Economic impact of a decision on the organization | Comprehensive dataset on the organization (bioeconomic model for agricultural cooperatives) | Accounting database, survey, auxiliary data | Known and widely used methods in agricultural economics | Ad hoc modelling. Problem of micro/macro bridge<br>At this stage, only for producer cooperatives. |
| Cost Benefit Analysis | Interest of a decision (and eventually ranking among alternatives) | Depending on the decision evaluated (at the organization and/or at the individual level)<br>Data on economic activity and public transfers and savings | Accounting database | Computational simplicity. Known and widely used methods | Explicit absence of indirect and macroeconomic effects |
| EVAS | Account for monetized and non-monetized factors to provide a better picture of economic contribution | Data needed on the various stakeholders | Accounting database, economic informations on stakeholders | Comprehensive approach<br>Including social, environmental and economic impacts | Costs for collecting data.<br>Problem of micro/macro bridge |

Source: Authors based in part on Uzea (2014)

# Annex 8. Economic indicators

| | **Data** | **Interests** | **Limits** | **Best for…** |
|---|---|---|---|---|
| Value Added | Available in most accounting databases or surveys.<br>Available in few case in census (questions on intermediate consumption are needed) | No double counting<br>Direct estimation of the cooperative sector as a share of GNP | May only reflect internal strategies (payment policies or prices policy) and not real economic contribution as a share of value added may only be transferred to members | Workers cooperatives |
| Turn Over | Available in most accounting databases, surveys or census | Information easy to collect<br>Use in econometric comparison studies between cooperative and non-cooperative enterprises | Double counting<br>The estimation may be ambiguous for cooperative banks | Producer cooperatives |
| Total Costs | Available in most accounting databases, but not in survey or census (special questions are needed) | Use in econometric comparison studies between cooperative and non-cooperative enterprises<br>Reasonable hypothesis that most organizations have the objective to minimize costs | Not suitable for producer cooperatives as payments to the members are incorporated into costs. | Consumer cooperatives and cooperative banks |
| Coop Added Value | Comprehensive accounting databases are needed (patronage refunds, difference in intermediate consumption paid to members and non-members…) | Straightforward extension of value added calculation (to include some specificities of cooperatives)<br>Take into account non-monetized value of the service exchange between members of the same cooperative | Limits of traditional value added still hold (may not be suitable for all the cooperatives) | Cooperative sector (in fact workers cooperatives) |
| Deshayes financial concepts (value received / value shared) | Comprehensive accounting databases are needed (patronage refunds, difference in intermediate consumption paid to members and non-members…) | Reflect the ability of the cooperative to generate enough cash flows (value received) or to renew its assets (value shared) to satisfy the needs of its members | Specific data (costly to collect)<br>Double counting | Cooperative sector |

Source: Authors

**Advancing social justice, promoting decent work**

The International Labour Organization is the United Nations agency for the world of work. We bring together governments, employers and workers to drive a human-centred approach to the future of work through employment creation, rights at work, social protection and social dialogue.

This book on statistics of cooperatives is a joint initiative of the International Labour Office (ILO), Committee for the Promotion and Advancement of Cooperatives (COPAC) and the International Centre of Research and Information on Public, Social and Cooperative Economy (CIRIEC). It brings together updated versions of four background studies produced for the ILO and COPAC in the process leading up to the adoption of the Guidelines concerning statistics of cooperatives at the 20th International Conference of Labour Statisticians (ICLS) in October 2018. Together with the guidelines, the book is intended to help statisticians to capture more information on key trends and challenges in the world of cooperatives. Generating and compiling such comparable statistics will also enable public policy makers to better assess and evaluate the outputs and outcomes of their policies related to cooperatives.

**ilo.org**

**International Labour Organization**
Route des Morillons 4
1211 Geneva 22
Switzerland

**ISBN 9789220331361**