Working Paper

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CIRIEC No. 2019/06

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Italian cooperatives: an analysis of their economic performances, employment characteristics and innovation processes based on combined used of official data*

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* This paper summarises the main results of an Istat-Euricse study "Structure and performance of Italian cooperatives" (Istat, 2019) edited by Carlo Borzaga, Manlio Calzaroni, Chiara Carini and Massimo Lori. Eddi Fontanari, Mauro Caramaschi, Carla Troccoli, Roberto Monducci and Stefano de Santis contributed to the report. The report is part of the research agreement "Dimensions, evolution and characteristics of the social economy" stipulated between the Italian National Institute of Statistics (Istat) and Euricse with the aim of providing a homogeneous statistical framework on organisations in the social economy. Euricse's researchers thanks the support received by the Autonomous Province of Trento in writing this report.

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Abstract

Researchers and policymakers have identified the need to accurately and quantitatively evaluate cooperatives and their economic, social and employment effects, as well as their evolution over time, in a way that is as reliable as possible and not subject to interpretation. This need was also manifested in the adoption by the 20th International Conference of Labour Statisticians of the Guidelines Concerning Statistics of Cooperatives, which aim to facilitate the development of a set of statistics on cooperatives that can be compared at the international level.

This study provides informative insights and analyses based on a unified statistical representation of the structure, economic performance and profiles of cooperatives—including cooperative groups— within the Italian economy. Through the integration of several official statistical data sources released by the Italian National Institute of Statistics with the Cooperative Register managed by the Ministry of Economic Development, on the one hand, the paper highlights the peculiarities of cooperatives compared to other companies; on the other hand, it analyses in depth the composition of the cooperative sector with respect to both economic and structural variables.

Keywords: Italy, Cooperatives, Statistics, Economic and employment size, Innovation and digitalization

JEL Codes: C81; J21; P13; J54

1. Introduction

In recent times, both researchers and policymakers have identified the need to accurately quantifying cooperatives and their economic, social, and employment effects, as well as their evolution over time in a way as reliable as possible and not subject to interpretations (Bouchard and Rousselière, 2015; International Labour Organisation, 2017a).

Indeed, cooperatives are organizations that have some features in common with conventional companies, such as conducting an economic activity, but are also characterised by some special features derived by the fact that the main aim of a cooperative is to satisfy the non-economic needs of their members who jointly own and democratically control the organization (Barea and Monzón, 2006; International Labour Organisation, 2017b). In addition, cooperatives often produce goods and services of general interest that public organisations and for-profit companies are not willing to or interested in generating, or cannot generate for various reasons, including low profitability, market failures induced by information asymmetries, and positive externalities (Borzaga, 2012).

These considerations reinforce the need to develop statistics on cooperatives: it is necessary to accurately evaluate the contribution of cooperatives to the economy of a country. It is also necessary to verify whether cooperatives behave differently from other enterprises and if so, whether they can make an additional contribution to citizens' wellbeing because of this (Stiglitz, 2009).

This need was also manifested in the resolution adopted at the 19th International Conference of Labour Statisticians (ICLS), held in October 2013 in Geneva, at which government representatives, workers, and employers reaffirmed the importance of having a more comprehensive and internationally comparable statistics on cooperatives (International Labour Organisation, 2013) and, more recently, in the adoption by the 20th ICLS of the Guidelines concerning Statistics of Cooperatives that aim to facilitate the development of a set of statistics on cooperatives that can be comparable at international level (International Labour Organisation, 2018).

Taking this into account, the Italian situation represents a "unicum" on an international level with regards to the acquisition and production of statistical data on cooperatives. Indeed, over the past decade, there have been a series of attempts to measure the diffusion, size, and impact of cooperatives utilising various data sources, both from representative associations as well as administrative sources (Bentivogli and Viviano, 2012; Borzaga, 2017, 2015; Istat, 2008). Though the results do not always match, these attempts have served to increase interest in evaluating the specific role and economic and occupational importance of cooperatives in Italy. This interest has been

reinforced by the recent economic crisis, which has highlighted that, in order to identify strategies that can put Italy on a pathway to growth, it is necessary to carefully evaluate the contribution that may derive not only from each institutional sector or public or private institution, but also from specific types of enterprises (Viganò and Salustri, 2015). The opportunity thus arose to go beyond the classification of economic and employment variables by institutional sector and by companies in 'non-financial corporations' and 'financial companies', and to give particular attention to the plurality of forms of enterprise and the nature of different business owners and their interests.
Having said that, this study takes a step forward by officially quantifying the size of Italian cooperatives, their behavior during the economic crisis and the characteristics of employment and innovation by combining, for the first time, several official data sources collected following international standards and administrative data. Moreover, the study broadens the boundaries of the cooperative sector also including cooperative groups.
The paper is structured as follows: section 2 presents the data used in the analysis. Section 3 presents the overall size of the Italian cooperative enterprises and groups; section 4 presents the main findings in terms of employment; sections 5 and 6 summarise respectively the main findings concerning the evolution of cooperatives during the economic crisis and the innovation processes within the organisations. Finally, section 7 articulates the main conclusions of the research.

2. Data

The study combines several data sources released by the National Institute of Statistics (Istat).
The statistical basis from which the data on cooperatives was developed is the statistical business register of active enterprises (ASIA[5]), created according to the European regulation (EC No. 177/2008) governing the development of statistical business registers between Member States. Combined use of ASIA (that covers enterprises, local units, employment and groups) and economic

[5] ASIA register does not cover: agriculture, forestry and fishing (Section A, Statistical Classification of Economic Activities in the European Community, Rev. 2); public administration and defence; compulsory social security (Section O); activities of membership organisations (Division 94); activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (Section T); activities of extraterritorial organisations and bodies (Section U); units classified as public institutions or private non-profit institutes. As opposed to the annual Asia data, which takes into account businesses which are active for at least six months in a year, this study also includes cooperatives that have operated for less than six months.

microdata archives (SBS frame)[6], enables the monitoring of cooperatives, guaranteeing the availability of annual data on the locations of enterprises, groups of cooperative enterprises, their economic activity and employment.
ASIA register does not include information on the type of cooperatives, therefore it had to be combined with the data of Cooperative register managed by the Italian Ministry of Economic Development.[7]
Moreover, the previous data sources have been integrated with the database developed by ISTAT which includes the data of the structural surveys on information and communication technologies (ICT) and on innovation (CIS) in order to assess the level of innovation and digitization of Italian cooperatives. This database covers 185,000 economic units with 10 and more employees active in industry and services, of which approximately 10,000 are cooperatives (Istat, 2018).

3. Cooperatives in Italy

3.1 Cooperative enterprises

In 2015, there were 59,027 active cooperatives - equal to 1.3% of companies operating on the national territory – employing just over 1.1 million persons (employees and self-employers) in terms of yearly average of job positions[8], 33,000 outworkers[9] and 10,000 temporary workers (see Table 1), equivalent to 7.1% of the total employment rates for private enterprises. The cooperatives, excluding financial and insurance cooperatives[10], generated a Value Added (VA) of 28.6 billion Euros, equivalent to 4% of that generated by private enterprises (excluding credit and insurance companies).

[6] https://www.istat.it/it/archivio/216268

[7] https://www.mise.gov.it/index.php/it/impresa/cooperative/albo-delle-societa-cooperative

[8] There is an annual average job position of "1" when all weeks of the year have been worked.

[9] The following types of workers are classified as outworkers: i) non-member directors, ii) collaborators who have a contract of employment in the form of a project contract and iii) other contract and external workers (including, as defined by Istat, "*i prestatori di lavoro occasionale di tipo accessorio (voucher), gli associati in partecipazione che risultano iscritti alla gestione separata Inps, i lavoratori autonomi dello sport e spettacolo per i quali l'impresa versa i contributi all'ex-ENPALS*").

[10] Value added is calculated for all sectors of Asia business with the exception of financial and insurance activities excluded from structural business survey according to European Regulation (EC) No 295/2008. Therefore, the value added data produced by cooperative credit banks is not available.

Table 1. Cooperative, value added, persons employed, external and temporary workers. Year 2015

	No. of cooperatives	Value added (Euros)	No. of persons employed	No. of outworkers	No. of temporary workers
Total	59,027	n.a.	1,151,349	33,005	10,656
Financial and insurance sector	874	n.a.	93,320	2,301	552
Total (excluding financial and insurance sector)	58,153	28,613,181,131	1,058,029	30,704	10,104

Source: Istat data.

Worker cooperatives stand out amongst the active cooperatives - 29,414 cooperatives, 49.8% of the total, with social (14,263, i.e. 24.2%), users or consumers (3,844, i.e. 6.5%) and primary sector producers (1,791, equal to 3% of the total). Worker and social cooperatives, in addition to registering the largest number of enterprises, are also the two types of cooperatives that have generated the greatest VA (Table 2) – 12.9 and 8.1 billion Euros, overall 73.4% of the total VA generated by cooperatives in 2015. Amongst the remaining typologies, the contribution of primary sector producer cooperatives cannot be ignored. With 2.6 billion Euros of VA recorded in 2015, they contributed up to 9.2% of the total VA.

Table 2. Cooperative, value added (in Euros), persons employed, outworkers, temporary workers by cooperative type. Year 2015

Cooperative type	No. of cooperatives	Value added	No. of persons employed	No. of outworkers	No. of temporary workers
Primary sector producer cooperatives	1,791	2,636,313,496	52,329	1,057	312
Worker cooperatives	29,414	12,918,236,878	486,241	9,547	6,117
Social cooperatives	14,263	8,084,991,068	380,070	15,820	2,085
User cooperatives	3,844	1,481,906,768	38,114	960	496
Cooperative banks	321	n.a.	29,080	1,211	143
Others	5,265	1,935,112,453	50,410	2,964	507
Not classified	4,129	1,556,620,468	115,104	1,446	995
Total	59,027	28,613,181,131	1,151,349	33,005	10,656

Source: Istat data, MISE – cooperative register.

3.2. Cooperative groups

Aggregation between cooperatives is a widespread practice in Italy, as elsewhere. It is generally aimed at carrying out activities that, either individually or as a cooperative, the single cooperative would not be able to undertake entirely or efficiently. This practice tends to be most useful for expansion of single cooperatives through the exploitation of specific economies

of scale. Cooperatives generally carry out these aggregation processes in two ways – either by creating consortia or by creating and subsequently controlling capital companies.

There are multiple reasons for cooperatives to opt for the creation and control of one or more capital companies rather than forming a consortium. Firstly, this practice is common in capital-intensive sectors in which the difficulty of raising capital in a cooperative form, due to the limits imposed by law on its remuneration, can be resolved by using a format that is more suitable and functional in the recovery of financial resources. The establishment of a separate but controlled entity also lends itself to the efficient division of labour, because it allows for the creation of a subsidiary activity that complements the principal business and provides abilities that the controlling cooperative does not possess internally. This ability to obtain specialisations can increase the efficiency of the entire group. Another reason to opt for the creation of a subsidiary company is the necessity, if the cooperative intends to globalise its business, to open a secondary unit overseas (e.g. marketing and communications activities). In this instance, there would be no other solution than that of creating a capital company that is controlled by the cooperative (the cooperative alternative not being feasible).

In 2015, there were 812 enterprise groups[11] (3.2% of the total number of enterprise groups) in Italy with a controlling cooperative[12] and, in addition to controlling cooperatives, they also included 1,971 non-cooperative companies and 47 cooperatives (Table 3). The average dimension (in terms of units) of the groups controlled by a cooperative (2.3) is slightly higher than that of the groups controlled by other forms of enterprise (1.8), however major

[11] According to Eurostat, a business group must be intended as: *"an association of enterprises bound together by legal and/or financial links. A group of enterprises can have more than one decision-making centre, especially for policy on production, sales and profits. It may centralise certain aspects of financial management and taxation. It constitutes an economic entity which is empowered to make choices, particularly concerning the unit it comprises"* (European Regulation n° 696/93).

[12] The identified cooperative groups are limited to those in which a single cooperative directly controls, through the possession of 50% plus one voting right, a company that is active for at least six months of the year and which does not operate in the following sectors: agriculture, forestry and fishing (section A of the Nace Rev. 2 classification); public administration and defense; compulsory social insurance (Section O); activities of associative organizations (division 94); family and cohabitation activities as employers for domestic staff; production of undifferentiated goods and services for use by families and cohabitation (section T); extraterritorial organizations and bodies (Section U). In addition to the limitation of the field of observation with respect to the business sector of the subsidiaries, groups with joint control by several cooperatives and those with one or more cooperative credit banks are excluded from this analysis.

differences are found in terms of number of employees (on average 96.6 for the former vs. 20.7 for the latter) and VA (on average 3.5 million Euros for the former and 1.7 million for the latter).

Table 3. Enterprise groups by legal form of the parent company. Year 2015

	Enterprise groups	
	Controlled by a cooperative	Controlled by a non-cooperative enterprise
No. of enterprise groups	812	25,168
No. of controlled enterprises	1,971	65,245
Average size of enterprises in the groups	2.3	1.8
Average no. of employees	96.6	20.7
Average value added	3,504,833	1,677,790

Source: Istat data.

With regards to geographical distribution, almost all cooperatives operate in a single region (99.6%). For enterprise groups controlled by cooperatives, this number falls to 84.7%, while it is slightly higher for groups controlled by a non-cooperative enterprise (Table 4). 35.9% of the groups controlled by a cooperative operate in one sector alone, i.e. where all the economic units of the group are active in only one sector as classified by Nace rev. 2.

Table 4. Sectoral division and regionalisation of enterprise groups and isolated cooperatives. Year 2015

	Enterprise groups		Isolated cooperatives
	Controlled by a cooperative	Controlled by a non-cooperative enterprise	
Operating in one sector only (%)	35.9	31.4	-
Regionalisation (%)	84.7	86.8	99.6

Source: Istat data.

Just under half (47.9%) of the groups are controlled by workers' cooperatives, which is the type of cooperative that most often opts for controlling a corporation. In fact, 1,124 enterprises, or 55.7% of all enterprises controlled by cooperatives can be found in this category (Table 5). Below are the "other" cooperatives, with 398 subsidiaries.

Table 5. Groups controlled by cooperatives - number of controlling and controlled enterprises by cooperative type of the controlling cooperative and Ateco category of the controlled enterprises. Year 2015

Cooperative type (controlling cooperative)	No. of controlling cooperatives	No. of controlled enterprises
Primary sector producer cooperatives	81	165
Worker cooperatives	389	1.124
Social cooperatives	112	175
User cooperatives	59	109
Others	155	398
Not classified	16	47
Total	812	2.018

Source: Istat data, Ministry of Economic Development – Cooperative register.

Summing up, when including subsidiaries, the economic and employment dimensions of cooperatives grow significantly, reaching 31.3 billion Euros of VA, 1.2 million persons employed and just under 50,000 outworkers and temporary workers (Table 6). Compared to the sole cooperatives discussed above, these numbers reflect an increase of 9.3% in VA, approximately 6% in terms of persons employed and outworkers, and more than 24% for temporary workers. The cooperative sector, when taking into account the subsidiaries, accounts for 4.4% of VA and 7.4% of persons employed with respect to total enterprises active in 2015.

Table 6. Cooperatives and subsidiaries, value added (in Euros), persons employed, outworkers and temporary workers. Year 2015

	No. of economic units	Value added	No. of persons employed	No. of outworkers	No. of temporary workers
Cooperatives, total	59,027	28,613,181,131	1,151,349	33,005	10,656
Isolated cooperatives	58,168	21,662,446,435	951,860	30,352	6,806
Enterprise groups					
Controlling cooperatives	812	6,868,850,770	197,742	2,610	3,838
Controlled non-cooperative enterprises	1,971	2,669,840,830	63,589	2,025	2,630
Controlled cooperatives	47	81,883,926	1,747	43	12
Total groups	2,830	9,620,575,526	263,078	4,678	6,480
Total cooperatives and subsidiaries	60,998	31,283,021,961	1,214,938	35,030	13,286

Source: Istat data.

4. The employment in the cooperatives

The employment tends to be homogenous, with employee percentages – with respect to other categories of workers – exceeding 85% for all cooperative types (Table 7). Moreover, the share of employees stands at below 80% for cooperatives that have up to a single worker and rise to 95% among those with more than ten workers and it is mostly larger cooperatives that have temporary workers (1%).

Table 7. Employees, self-employers, outworkers and temporary workers for cooperatives by cooperative type, class of workers and turnover. Percentage values. 2015

	Employees	Self-employers	Outworkers	Temporary workers	TOTAL (=100)
Cooperative type					
Primary sector producer cooperatives	93,2	4.3	2.0	0.6	53,698
Worker cooperatives	95.2	1.7	1.9	1.2	501,905
Social cooperatives	93.8	1.7	4.0	0.5	397,975
Cooperative banks	91.0	4.6	4.0	0.5	30,435
User cooperatives	93.3	3.0	2.4	1.3	39,570
Other	88.0	5.6	5.5	0.9	53,881
Not classified	96.2	1.7	1.2	0.9	117,545
No. of workers*					
0-1	79.1	15.0	5.8	0.1	8,378
2-3	85.0	9.9	5.0	0.0	24,925
4-10	89.0	5.6	5.3	0.1	83,659
More than 10	95.0	1.6	2.5	1.0	1,078,048
Turnover (thousands of euros)					
0-19	93.8	3.3	2.7	0.3	96,424
20-49	83.0	9.7	7.1	0.2	12,035
50-99	85.0	9.0	5.9	0.1	21,871
100-199	87.7	6.3	5.9	0.2	38,502
200-499	89.5	4.7	5.6	0.2	85,465
500 and more	95.3	1.3	2.3	1.1	940,712
Total	94.2	2.1	2.8	0.9	1,195,010

Source: Istat data, Ministry of Economic Development – cooperative register.

* Workers include: Employees, self-employers, outworkers and temporary workers.

Employees in cooperatives (Table 8) are concentrated mainly in the 30-49 age group (58.5%), with 13.1% aged between 15 and 29 years and more than a quarter over the age of 50. The majority of employees are female (52.2%). Approximately 66% of employees have secondary school qualifications (lower and upper secondary school), and more than 15% hold a higher degree versus 5% with a maximum of primary school education. Just under 84% of employees have a permanent contract, and there is a rather large proportion of part-time workers (44.8%). In terms of professional qualifications, 64.8% of employees

are blue collar and 30.8% white collar. The remaining personnel are middle managers (3%), apprentices and executives (less than 1%).

Table 8. Employees by gender, age, professional qualification, occupation character, contractual working time, and educational level. Cooperatives vs other enterprises. 2015

	Cooperatives		Other enterprises
	Employees	%	%
Sex			
Female	588,276	52.2	39.1
Male	537,879	47.8	60.6
Age			
15-29 years	147,509	13.1	15.7
30-49 years	658,626	58.5	58.3
50 years and more	320,020	28.4	25.8
Not available	0	0.0	0.2
Professional qualification			
Apprentice	10,458	0.9	3.8
Blu collar	730,302	64.8	52.8
White collar	347,072	30.8	38.1
Middle management	33,243	3.0	3.8
Executive	3,417	0.3	1.0
Other employees	1,663	0.1	0.5
Occupation character			
Permanent employees	938,720	83.4	87.9
Temporary employees	187,435	16.6	12.1
Contractual working time			
Full-time	621,263	55.2	74.9
Part-time	504,892	44.8	25.1
Educational level			
No formal education and primary school certificate	55,425	4.9	3.7
Diploma of lower secondary education	374,713	33.3	30.7
Upper secondary school certificate	81,976	7.3	8.0
Diploma of upper secondary education	367,571	32.6	39.1
University degree (2-3 years) old programme, first degree, first level academic diploma	64,682	5.7	3.7
Master's degree (second level - old and new programme) and second level academic diploma	112,048	9.9	10.1
Research doctoral degree	1,264	0.1	0.2
Not available	68,476	6.1	4.5
Total	1,126,155	100.0	100.0

Source: Istat data.

5. Sectoral specialisations

Just under six cooperatives out of ten operate in five sectors: construction (8,794 cooperatives; 14.9% of the total), business support services (8,587; 14.5%), health and social care (8,280; 14.0%), transport and storage (7,628; 12.9%) and manufacturing activities (4,953; 8.4%)[13].

The VA data (Table 9) confirms the importance of four of these five sectors. Just under 70% of total VA is generated by cooperatives in health and social care (€ 6.27 billion, 21.9%), transport and storage (€ 5.87 billion, 20.5%), business support services (€ 4.57 billion, 16%) and manufacturing activities (€ 3.23 billion, 11.3%). In addition, cooperatives active in wholesale and retail trade, including cooperatives in retail or wholesale sale of foodstuffs as well as those operating in other commercial activities such as the supply of medicines or agricultural products, provide € 3.85 billion (13.5%). The construction sector, as outlined previously, comprises 8,000 cooperatives and generated a VA of just under 1.1 billion Euros, with an average value of 123,000 Euros[14]. Finally, the report revealed that 62% of persons employed by cooperatives can be found within three sectors: 24.6% in health and social care, 19.4% in business support services, and 17.9% in transport.

Table 9. Cooperatives by economic activity. 2015

Sector of economic activity	Number of cooperatives	Value added (Euros)	No. of persons employed	No. of outworkers	No. of temporary workers
Mining and quarrying	29	49,287,810	665	32	
Manufacturing	4,953	3,232,870,851	69,935	1,434	719
Manufacture of food products	*1,704*	*1,792,742,576*	*36,937*	*492*	*308*
Manufacture of beverages	*429*	*328,575,083*	*5,423*	*291*	*44*
Manufacture of fabricated metal products, except machinery and equipment	*557*	*169,219,500*	*5,194*	*104*	*61*
Electricity, gas, steam and air conditioning supply	144	87,939,518	806	155	3

[13] It should be noted that in the manufacturing sector there are many primary sector producer cooperatives active in the food and beverage industry.

[14] This value is to be interpreted considering the double nature of cooperatives that are counted within the sector. If on the one hand the sector includes production and labour cooperatives dedicated to the construction of real estate on order or to be sold to third parties, on the other it consists of housing cooperatives that constitute themselves as user cooperatives in order to guarantee house purchases by their members (or possession by lease) at prices and conditions more advantageous than those of the market. Housing cooperatives act as intermediaries between their members and builders in the construction phase of the housing units and, subsequently, as managers of the properties assigned to their members. Given their nature, they may remain inactive for years until the conditions are appropriate to start building.

Water supply sewerage, waste management and remediation activities	471	372,697,378	11,792	196	237
Construction	8,794	1,083,875,122	33,926	1,109	239
Wholesale and retail trade repair of motor vehicles and motorcycles	4,006	3,853,219,620	89,683	1,598	1,179
Transportation and storage	7,628	5,870,692,196	205,952	2,108	2,305
Accommodation and food service activities	2,724	965,562,987	42,765	558	858
Information and communication	2,386	360,133,929	11,606	683	78
Financial and insurance activities	874	n.a.	93,320	2,301	552
Real estate activities	1,145	64,242,396	914	171	2
Professional, scientific and technical activities	2,395	495,846,206	18,021	1,538	48
Administrative and support service activities	8,587	4,573,324,186	223,672	4,404	2,779
Education	2,204	420,247,243	20,987	2,217	36
Human health and social work activities	8,280	6,267,010,041	283,766	12,013	1,445
Arts, entertainment and recreation	2,075	305,880,537	12,786	950	9
Other service activities	2,332	610,351,111	30,754	1,541	167
Total	59,027	28,613,181,131	1,151,349	33,005	10,656

Source: Istat data.

Looking at the rate of cooperatives on the total of enterprises (Table 10), the health and social care sector is the one in which cooperatives have contributed the greatest amount of VA and overall employment, although the number of companies is lower than in other sectors. Cooperatives, which represent 2.9% of enterprises in this sector, generated 21.6% of the total VA and employed 34.4% of the total employed by cooperatives. This is not the only sector in which cooperatives contribute in a meaningful way in terms of VA and employment. Education – another typical sector of type A social cooperatives[15] - business support services and transport services also have significant employment shares (between 19% and 22%) and VA (between 10% and 19%).

Table 10. Economic sectors by number of active cooperatives, value added and persons employed on total active enterprises. Percentage values. 2015

Sector of economic activity	Economic units	Value added	Persons employed
Mining and quarrying	1.3	1.4	2.1
Manufacturing	1.2	1.5	1.9
Manufacture of food products	3.1	8.8	9.4
Manufacture of beverages	13.2	8.7	14.5
Manufacture of fabricated metal products, except machinery and equipment	0.9	0.7	1.0
Electricity, gas, steam and air conditioning supply	1.3	0.4	0.9

[15] The Law 381/1991 introduced into the Italian law social cooperatives, whose purpose is to "pursue the general interest of the community in the human promotion and social integration of citizens". Specifically, the law introduced two types of social cooperatives: health, social, and educational cooperatives (A-type) and social cooperatives providing other activities for the work integration of disadvantaged persons (B-type).

Water supply sewerage, waste management and remediation activities	5.0	2.8	6.3
Construction	1.7	2.3	2.6
Wholesale and retail trade repair of motor vehicles and motorcycles	0.4	3.1	2.7
Transportation and storage	6.1	10.2	18.9
Accommodation and food service activities	0.8	3.3	3.2
Information and communication	2.4	0.8	2.1
Financial and insurance activities	0.9	n.a.	16.3
Real estate activities	0.5	0.4	0.3
Professional, scientific and technical activities	0.3	0.9	1.5
Administrative and support service activities	6.0	12.6	19.2
Education	7.3	18.7	21.7
Human health and social work activities	2.9	21.6	34.4
Arts, entertainment and recreation	3.1	3.8	7.8
Other service activities	1.1	7.5	6.8
Total	1.3	4.0	7.0

Source: Istat data.

6. Cooperatives in the years of economic crisis

Since 2008, the Italian economic cycle has shown a downturn with a marked slowdown in GDP (Istat, Annual Report 2012). A sharp slowdown in the economy was a consequence of the decrease in demand for goods from abroad, most noticeably impacting the manufacturing sector. Overall, the crisis led to a decline in employment, a decrease in household purchasing power and a general stagnation of consumption in real terms.

Some studies have already highlighted how the reaction of cooperatives to the economic crisis differed from that of other enterprises. Cooperatives maintained, and even increased, their levels of production and employment, in order to ensure their members' needs were satisfied, even when this was to the detriment of the organisation's operating results (Borzaga, 2017).

These results are corroborated by ASIA data from 2007, the year before the crisis; in 2011, the year in which the financial market crisis was fuelled by the sovereign debt crisis; and in 2015, the last year for which data is available. Data on cooperatives show a positive trend against negative figures for non-cooperative enterprises: in 2007 there were 50,691 cooperatives, 56,946 in 2011 (+12.3% compared to 2007), and 59,027 in 2015 (+3.7% compared to 2011; +16.4% compared to 2007). The figure is even more interesting looking at the number of employees[16] (+17.7% between 2007 and 2015) against the decline recorded for other enterprises (-6.3%).

[16] It is worth noting that the estimate of employees for 2007 is overestimated with respect to the figures calculated for 2011 and 2015. This is because the 2007 figures were based on a worker's monthly presence (at least one day), whereas from 2011 onwards the weekly

Focusing only on the active cooperatives in the years 2007 and 2015 provides a unique view of how the economic system has evolved (Table 11). Data highlights the positive balance between employees of cooperatives active only in 2015, and those of cooperatives active only in 2007 (+45,249 employees), as well as employment growth in cooperatives active in both years (+124,071 employees vs -257,333 employees for non-cooperative enterprises).

Table 11. Cooperatives, enterprises and employees by activity status. Years 2007 and 2015

	Cooperatives			Other enterprises		
	Unit	Employees 2007	Employees 2015	Unit	Employees 2007	Employees 2015
Active in 2007 only	26,320	302,771	-	1,955,904	2,734,080	-
Active in 2015 only	34,656	-	348,020	1,809,934	-	2,303,329
Active in both 2007 and 2015	24,371	654,064	778,135	2,547,503	8,250,741	7,993,408

Source: Istat data.

Moreover, data[17] shows that the largest contribution to employment growth comes from cooperatives with less than 50 employees, (+68,951; +43.2%), while cooperatives with at least 50 employees registered an increase of 55,120 employees (+11.2%).

Table 12. Employees of cooperatives and non-cooperative enterprises active in 2007 and 2015 by class of employees

	Cooperatives			Other enterprises		
	Unit	Employees 2007	Employees 2015	Unit	Employees 2007	Employees 2015
0 employee	6,068	121	13,558	1,646,380	15,028	368,417
1 employee	2,261	2,178	8,617	312,664	300,684	339,926
2-9 employees	8,320	37,044	56,590	460,588	1,751,398	1,611,122
10-49 employees	5,531	120,400	149,929	110,713	2,042,988	1,807,359
50 employees and more	2,191	494,320	549,440	17,158	4,140,642	3,866,584
Total	24,371	654,063	778,134	2,547,503	8,250,740	7,993,408

Source: Istat data.

Looking at the sectoral trends (see Table 13), the number of cooperatives strongly increased in accommodation and food service activities (+51.6%), education (+51.3%), health and social care (+40.9%) and finance and insurance (+39.0%). Moreover, in these sectors, the increase in the number of employees was equal to or above 25%.

presence of workers was considered (at least one day). Therefore, employment growth in the cooperative sector between 2007 and 2015 would be even greater.

[17] Enterprises with an average annual rate of less than 0.5 employees were rounded to zero, therefore, in Table 12 they were counted together with those with no employees.

Rentals, travel agencies and business support services (10.2%), construction (9.1%), information and communication services (5.9%) are the sectors with the lowest growth in the number of cooperatives, while artistic, sports, and entertainment activities (-16.3%) and professional activities (-22.7%) declined both in the numbers of cooperatives and employees.

Overall, the sectoral variations (positive or negative) evidenced by cooperatives can also been seen in non-cooperative enterprises, with declines, at least in terms of employees, in manufacturing and construction and, on the contrary, the expansion of the welfare services such as health and social assistance, education, finance and insurance, accommodation and food service activities.

Cooperatives appear to be more resilient than other enterprises in the administrative and support services sectors, as well as in the transport and storage sectors. Further analysis into the reasons for this resilience in the later sector would be useful, especially in light of the recent debate on the diffusion of the so-called "false cooperatives" within the sector. In contrast, cooperatives were less resilient in the areas of professional activities and artistic, entertainment and recreation activities.

Table 13. Change in the number of cooperatives and employees by sector of activity (Ateco). Percentage changes. Years 2007, 2015

Sector of economic activity	Cooperatives		Other enterprises	
	Enterprises	Employees	Enterprises	Employees
Manufacturing	23.6	-2.8	-17.9	-17.5
Construction	9.1	-26.6	-18.9	-36.5
Wholesale and retail trade repair of motor vehicles and motorcycles	14.9	1.6	-10.2	3.0
Transportation and storage	14.7	10.4	-13.7	-0.5
Accommodation and food service activities	51.6	24.7	13.3	17.9
Information and communication	5.9	-13.3	-3.0	1.8
Financial and insurance activities	39.0	44.4	33.9	-13.2
Real estate activities	-22.7	-36.9	4.2	8.3
Professional, scientific and technical activities	10.2	14.1	-9.4	14.5
Administrative and support service activities	51.3	54.8	22.9	22.5
Education	40.9	44	26.7	23.2
Human health and social work activities	-16.3	-26.4	7.9	20.8
Arts, entertainment and recreation	27.6	137.3	5.8	22.6
Other service activities	39.9	70.3	24.6	5.9
Total	16.4	17.7	-3.2	-6.3

Source: Istat data.

7. Innovation and digitalization

Innovation and digitalization are important competitive elements for enterprises, especially in a global context. However, for digital innovations and technologies to be pervasive in particular context of the Italian economy they must be accessible to economic units that are relatively simple from an organizational standpoint, small in size and with limited economic and managerial resources.

Even for cooperatives, these factors have great importance, especially in terms of valuation of work, as well as the effectiveness of activities. An integrated analysis of this may enable the strengths and weaknesses of cooperatives and the factors influencing their positioning in the production system to be identified with greater precision.

Data shows that some cooperatives have low levels of digitalization (Table 14)[18]. The number of cooperatives for which the ICT use indicator is close to zero is more than triple with respect to non-cooperative enterprises. Specifically it is more than a third of the cooperatives versus one-tenth of other enterprises. Furthermore, the distribution of cooperatives by degree of digitalisation is consistently decreasing as the complexity of ICT activities increases.

As for the innovation indicator[19], cooperatives and non-cooperative enterprises show fewer differences (Table 14). More than half of non-cooperative enterprises and just under two-thirds of cooperatives show little innovative propensity. The share of moderate innovators is almost the same (about one-fifth), while, as the value of the composite indicator increases, the number of non-cooperative enterprises that fall into these segments is higher than those recorded for cooperatives.

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[18] Regarding the use of ICT (2017 data), a synthetic indicator ("Digitalisation"), promoted by Eurostat, was used, which defines the level of digitalisation of individual economic units based on the number of activities performed related to the use of technologies. In particular, the level of digitalisation is defined as "very low" if the companies perform between 0 and 3 activities, "low" if they are between 4 and 6, "high" if activities are between 7 and 9, and "very high "between 10 and 12.

[19] The innovative profiles of the units, deriving from CIS data (2014-16), were measured through a synthetic indicator ("Innovation") built specifically for this study, based on the presence/interaction of different types of innovation in the CIS survey (process, product, organisational and marketing). Specifically, an "Innovation" variable was created on the basis of factorial analysis, through the dimensional reduction of the four types of innovation previously mentioned in a single variable and linear combination of the starting variables. The factor thus created correlates strongly with the starting variables and can be used, similarly to the "Digitalisation" index, to define the position of the single economic units in a synthetic manner, in this case with regard to the introduction of innovations.

Table 14. Digitalisation and innovation indicators. Years 2014-17. Average values

	Digitalisation	Product innovation	Process innovation	Organisational innovation	Marketing innovation
Cooperatives	0.17	0.14	0.14	0.21	0.21
Other enterprises	0.33	0.28	0.28	0.29	0.23
Total	0.32	0.27	0.27	0.28	0.23

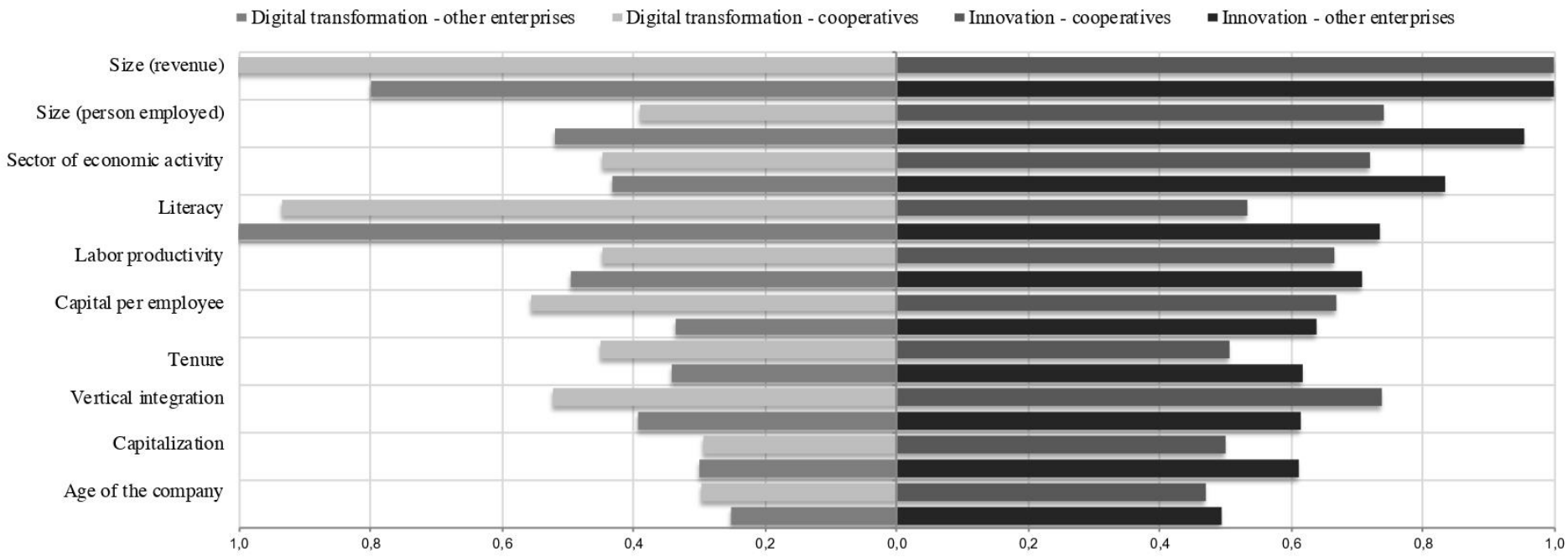
Source: Istat data.

Moreover, using random forest techniques (Breiman, 2001) to identify the most relevant factors in determining higher or lower levels of digitalization and innovation provides potential guidance elements for a faster transition to more complex digital and innovative profiles.

The economic dimensions and human capital emerge as the main determining factors in the digitalisation of cooperatives. Indeed, the analysis shows that the factor with the strongest impact is the economic size of the enterprises, measured by its turnover; followed by the educational level of the employees, capital intensiveness, the degree of vertical integration, and employee tenure.

As for innovative propensity, for cooperatives, the main factor is economic size, followed by degree of vertical integration and number of employees while, unlike the digitalization, the role of human capital and corporate tenure appear to be greatly reduced.

Figure 1.


Digital transformation - other enterprises
Digital transformation - cooperatives
Innovation - cooperatives
Innovation - other enterprises
Size (revenue)
Size (person employed)
Sector of economic activity
Literacy
Labor productivity
Capital per employee
Tenure
Vertical integration
Capitalization
Age of the company
1,0
0,8
0,6
0,4
0,2
0,0
0,2
0,4
0,6
0,8
1,0

Conclusions

The study has enabled the size of the Italian cooperative sector to be quantified in terms of the number of cooperative enterprises and groups, VA and employees, both through comparative analyses with other companies and by observing the changes during the recent economic crisis. It therefore defined the weight of the sector within the national economy and identified the sectors in which cooperatives have the greatest importance and are more dynamic, highlighting their specific characteristics and competitive benefits, especially when compared to other types of business. The report made headway in analysing the size of the sector, including in an official manner cooperative groups, meaning taking into account also corporations controlled by cooperatives. Including subsidiaries, the sector totalled 31.3 billion Euros in VA in 2015, 1.2 million employees and just under 50,000 external workers or temporary workers, thus representing 4,4% in VA and 7,4% of the total number of employment active in 2015.

Moreover, the report provided insights into the distribution and relevance of cooperatives by geographical area and economic sector, considering as well the prevalence (and significance) of the different types of cooperatives (agricultural, consumer, etc.).

Along with this line of research, the definition of the consistency of Italian cooperatives in 2015 is accompanied by an analysis of their performance during the economic crisis and the characteristics of employment within these cooperatives. This first analysis is useful in determining, empirically speaking, whether the different nature of cooperatives has also determined different levels of stability and resilience to the advantage of the entire Italian economic system. The second analysis seeks to investigate employment traits within cooperatives, with regards to both worker profiles and the type of contract offered. Finally, the analysis on digitalization and innovation shows strengths but also the challenges that the cooperatives have to face in order to be competitive.

The analysis proposed in this study can be considered an essential step towards the analysis of the size on the social economy in Italy. Indeed, despite the growing interest in the size, characteristics, and therefore, the potential of the social economy, the availability of data is still limited. Therefore, starting from the results of this study, next steps of research will focus on operationally identifying the perimeters of the Italian social economy and computing an overall and unitary picture of the social economy.

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ISSN 2070-8289
ISBN 978-2-931051-05-4
EAN 9782931051054
http://doi.org/10.25518/ciriec.wp201906
D/2019/1406/6-d

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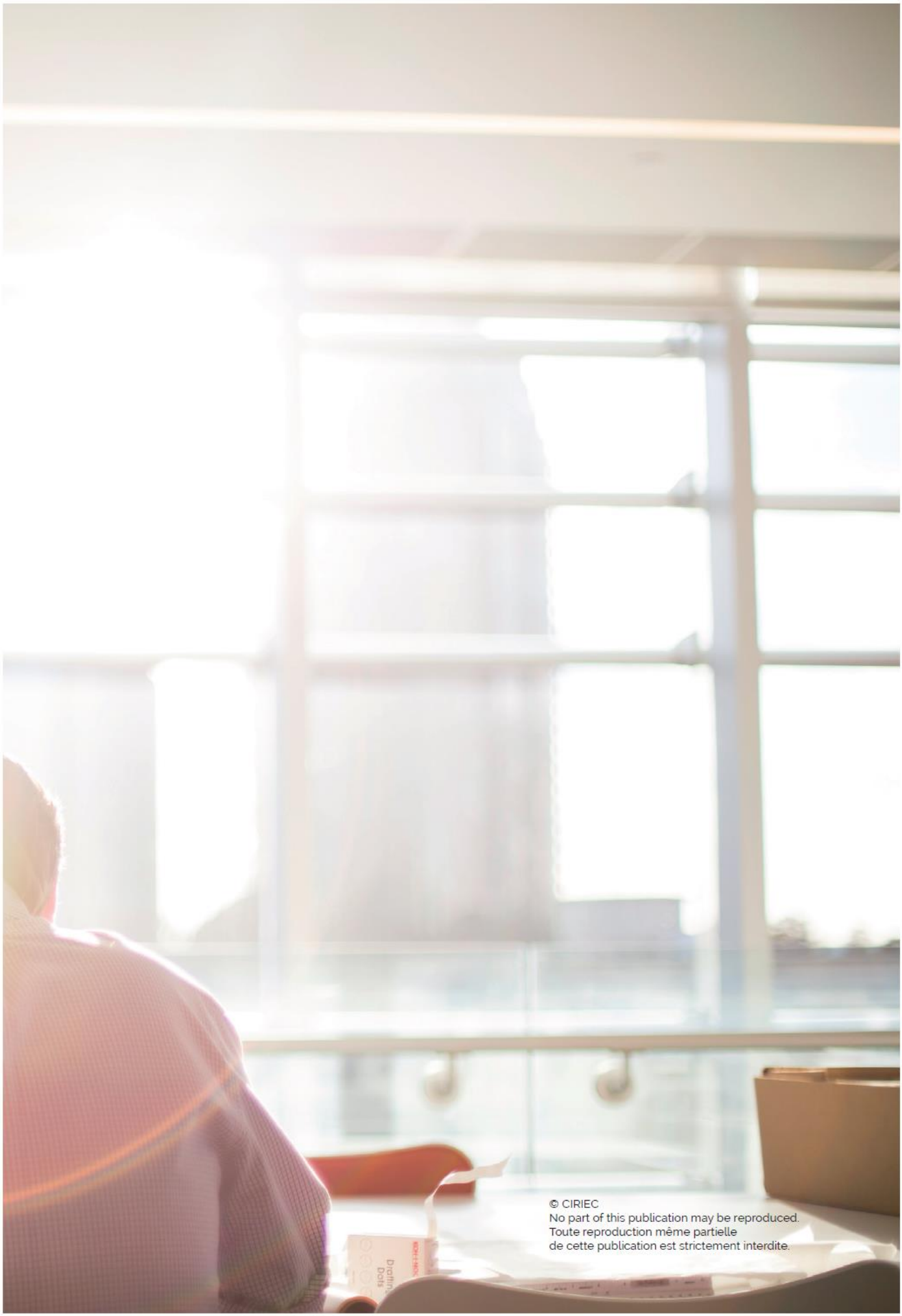

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