

This volume collects the outcomes of *Ali-Menti* (<https://alimenti.uniurb.it/progetto>) an interdisciplinary project aimed at investigating the issue of food security focusing on the meat industry. The book, in the part where it proposes a multi-voiced declination of the concept of food security, outlines an unprecedented path on a subject generally treated according to more classical approaches. Moreover, the analysis of the Italian meat supply chain allows to deal with a lot of current questions: from climate change to animal welfare to the health and safety of workers and consumers.

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TOWARDS SAFE FOOD
RIGHTS, RULES, VALUES IN THE MEAT VALUE CHAIN

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ALI-MENTI

Towards Safe Food

RIGHTS, RULES, VALUES IN THE MEAT VALUE CHAIN

edited by
Piera Campanella

EDITORIALE SCIENTIFICA

***TOWARDS SAFE FOOD:
RIGHTS, RULES, VALUES
IN THE MEAT VALUE CHAIN***

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EDITORIALE SCIENTIFICA

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PIERA CAMPANELLA*

INTRODUCTION

This volume, which I have the pleasure of introducing, collects the outcomes of *Ali-Menti*, an interdisciplinary research project financed by the University of Urbino Carlo Bo with the aim of investigating the issue of food security. The contributions collected herein commence from the definition given to “food security”, as a situation in which “all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (World Food Summit, 1996).

This is an apt definition to emphasise the double profile, material and socio-economic, of food security, applying it in all its “meanings”: sufficient availability of food (right to food); food security and quality (right to safe and quality food); generalised accessibility and freedom of choice in the field of food (right to safe and quality food for all and according to everyone’s preferences). Each of these raises multiple questions today.

The volume aims to respond to these questions, elevating the meat industry to a privileged observatory, all the more so since the pandemic and climate emergency have placed it at the centre of many questions: from the doubts of a possible correlation between pollution, intensive livestock farming and the pandemic, to the phenomenon of coronavirus infections in slaughterhouses throughout the western world, a phenomenon that adds to that of so-called zoonoses, including antibiotic-resistant infections.

This book, in the part where it proposes a multi-voiced application of the concept of food security, outlines an unprecedented path on a subject generally treated according to more classical approaches. The interdisciplinary methodology further enriches the analysis, proposing a comparison between different areas of the legal sciences and their contamination with other areas also belonging to social sciences or historical sciences.

The contents of the work are interesting, if one considers the chosen

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field of investigation, that of meat, which to date has been undervalued, especially by the national legal literature.

The specific and multiple meanings within which “food security” is articulated within the volume, on the one hand, question the ability of this industrial sector to sustain the growing global demand for protein products in a phase of great transformations, now also dramatically connected to war conflicts, and on the other hand, raise questions in relation to the entire supply chain, with particular regard to aspects concerning the organisation of the production process.

Furthermore, in assessing the prospects for the sector, the work also aims to verify the extent to which certain technological innovations, prompted by the need for sustainable production, are likely to have repercussions on employment and how these repercussions can be managed at a policy level.

1. *Right to food for all. Meatless farming? Ongoing transformations and prospects for the sector.*

The first meaning within which “food security” is applied is the sufficient availability of food. The objective of this first part of the book is to provide a representation of the future scenarios that will affect the meat food sector, in order to contextualise possible reforms that may affect the supply chain in Italy and Europe.

To do this, the book firstly analyses the meat supply chain in its complex articulations, especially in the light of the major and most recent transformations. This reconstruction, offered by the contribution of Daniela Freddi, *Global meat value chains: new challenges for Europe*, is useful, indeed, to better contextualise the analyses of regulatory and policy profiles concerning the sector.

These profiles are deepened by Paolo Polidori and Rosalba Rombaloni, under *The ecological transition in the meat supply chain in Italy: economic impact, the role of equity in individual choices and policy perspectives*. In that work, in the light of a comprehensive assessment of the supply chain’s dynamics, three possible lines of action are taken into consideration to encourage conscious and reasoned food choices: price policies, industrial policies and policies on consumption.

However, new and radical challenges for the meat business come from the production of the cultivated meat. In this regard, the regulatory landscape is rapidly evolving. The contribution of Francesco Cazzini and Edoardo Rossi, *The future of food safety: international policies and domestic legislations on cultivated meat*, aims to account for this, particularly exploring the current state of international policies and domestic legislations that govern the production, labelling and commercialisation of cultivated meat.

Certainly, these prospects of radical change in protein food production, further stimulated also by environmental sustainability policies, will put the issue of production reconversion in the sector on the agenda. The contribution of Chiara Lazzari, *Methodological considerations on green transition and social sustainability starting from the meat supply chain in Italy*, moves in this direction, focusing on the employment impact of such reconversion.

2. *Right to safe and quality food. “The Two Safeties”: quality product and decent work in the meat supply chain.*

The second meaning of “food security” is linked both to the interest of consumers in having a safe and quality product, and to the interest of workers in having safe and decent working conditions.

In this section, the book applies a legal-business perspective and, in an interdisciplinary framework, intends to propose a vision of “double safety” starting from the assumption that there is no safety (and sustainability) of the product without safety (and sustainability) of the process of production (therefore, also of the work).

From a business-economic perspective, the book mainly focuses on the study of the Italian meat supply chain. In particular, the contribution by Elisa Carloni and Alessandro Pagano, *Collaborative networks for innovation in the meat supply chain*, aims at verifying, also through two case studies, the propensity of companies to develop collaborative networks inside the chain. From a legal perspective, on the other hand, the book explores contractual relations within the chain. It focuses on the weak links of certain players, such as livestock enterprises. This is an issue investigated by Carlo Emanuele Pupo, *The livestock enterprise as a “weak*

link" in the agri-food chain. *Contingent safeguards and structural actions*, while the contribution of Elisabetta Righini, *The role of large companies and governance issues in the meat supply chain in sustainability regulation and social and environmental reporting*, investigates the dominant position of large retailers, as well as the contribution of corporate social responsibility and sustainability policies in combating multiple unfair practices in the chain.

Moreover, the contribution of Giorgio Remotti, *Signs of quality and blockchain technologies: new techniques to support sustainability and quality in the agri-food sector*, aims at taking into account possible tools for the sustainable redevelopment of the meat value chain. In particular, the author analyses the contribution that new blockchain technologies, applied to agri-food products, including meat, can offer in this regard.

The contributions of Piera Campanella, *Quality of the production process in the meat industry: weaknesses in the supply chain, impact on labour*, and of Ernesto-Marco Bagarotto, *Application of value added tax to unlawful contracting of workers*, conversely, analyse more in depth the most regrettable effects of contractual inequalities in the chain. These inequalities encourage companies belonging to the weakest links of the value chain, generally the slaughtering and meat-processing ones, to pursue labour cost reduction policies through an unscrupulous and systemic use of outsourcing. The latter worsens working conditions and not rarely results in illegal form of subcontracting, such as gangmaster practices, exploitation of workers, tax and social security frauds. Even the negative implications in terms of health and safety at work should not be underestimated, as is well underlined by the contribution of Stefania Battistelli and Luciano Angelini, *From the safety (and health) of producers to the (food) safety of consumers (and vice versa). The integration of organisational welfare (human and animal) protection in the (socially sustainable) meat supply chain*.

In particular, this contribution focuses on certain soft law tools to improving the standards of legality and quality of work in the supply chain, such as the compliance models of Legislative Decree No. 231/2001. Within the framework of a more overall critical assessment of crime prevention policies relating to the food supply chain, the contribution of Rosa Palavera, *Sure to eat? Food chain and penal system*, also deals

with compliance models pursuant to Legislative Decree No. 231/2001. In a sort of circularity of discourse, the contribution therefore ties in well with the analysis by Giulia Renzi and Massimo Rubechi, *Technical standards, food safety and regulation methods*, set at the beginning of this part of the volume, on the growing relevance of standards and technical norms in the food sector, as the most recent Italian legislative measure, taken on the subject of cultured meat, demonstrates.

3. *Right to food according to everyone's preferences. Equality and differences. Meat and social value of food.*

In its third meaning, “food security” evokes principles of equality in access to food, but also refers to the issue of freedom of choice of a diet. Thus, the cultural, symbolic and religious value of food, especially meat, strongly emerges, and the volume wishes to explore it in a historical and sociological perspective.

From a historical perspective, the contribution of Maria Luisa Biccari, *Food and the meat supply chain in ancient Rome*, proposes an analysis of the value of food in ancient Rome with specific analysis on meat as a symbol of social prestige as well as on the different valuation of types of meat between value of the product, role of the market and access to food.

Form a religious perspective, the contribution of Alberto Fabbri, *Technological innovation of cultured red meat and the role of religions, between market and food sovereignty*, starting from the new frontier of the cultured meat, analyses a series of issues linked not only to the business, but also to the ethical and value dimension.

Finally, a sociological perspective is offered by the contribution of Eduardo Barberis and Alberto Damiani, *Basics of a sociology of food. Meat and protein alternatives in contemporary societies*, that focuses the analysis on the symbolic value (red) meat in contemporary Global North as well as on the recent challenges at this regard. Drawing from an exploratory survey, the introduction of alternative proteins is debated in the contribution, with a special attention on their social acceptance and legitimacy.

4. Acknowledgements.

In closing this brief introduction, I can only hope that readers will appreciate the contents of the book and find points of interest in it. Certainly, the research background has been a great opportunity to delve into a topic that is fundamental to understand the serious criticalities that characterise the current model of food production.

As coordinator of the project, I would like to thank not only the entire group of scholars who took part in the journey up to the publication of their personal contributions to the book, but first and foremost those who made the research possible. I am particularly grateful to the University of Urbino Carlo Bo and Rector Giorgio Calcagnini as well as to the University's Department of Law and its Dean Licia Califano for their support. Thanks also to the University's Research Office, staffed by Sara Goderecci and Angela Mancini and to the Department's Secretariat, staffed by Joseph Fontana and Alessandra Cupparoni. I owe a lot to Joseph Fontana, who has always followed the progress of the project with great care and professionalism.

For communication, logo, and project website (<https://alimenti.uni-urb.it/>), I would like to thank the head of the communication staff at the University of Urbino, Donatello Trisolino, as well as Chiara Cassinerio, Rosa Palavera, and Lorenzo Riminucci.

My thanks go to Ires Emilia-Romagna for supporting the structural analysis of meat value chain in the global context. A word of gratitude also goes to all the colleagues, students and friends participating to the on-line seminars, workshops and conferences organised during the project.

I very much appreciated the translation and/or linguistic revision of this book by Lawlinguists and the great helpfulness of Paola Notarnicola. I would also like to thank the anonymous reviewers of this book. I could not have done without the invaluable assistance of Maria Luisa Biccari and Rosa Palavera, to whom I am truly grateful for their help in coordinating and editing the book, as well as the availability of Edoardo Rossi for contacts with the publisher, whom I thank in turn. Finally, thanks to all the partners of *Ali-Menti*, who devoted so much energy to the research project, as well as to this volume.

PART I

RIGHT TO FOOD FOR ALL

*Meatless farming? Ongoing transformations
and prospects for the sector*

DANIELA FREDDI*

GLOBAL MEAT VALUE CHAINS: NEW CHALLENGES FOR EUROPE

1. Characteristics and evolution of global food value chains.

1.1 Rise and evolution of Global Value Chains (GVCs).

The global context

Over the past twenty years, Global Value Chains (GVCs) have become a key analytical element for economists, in particular for those studying international trade. GVCs are all those service and manufacturing business activities – dispersed across different countries – that are used to design, develop, build and sell a product (see Gereffi et al. 2019).

According to the World Bank (2020: 5) “a global value chain or GVC consists of a series of stages involved in producing a product or service that is sold to consumers, with each stage adding value, and with at least two stages being produced in different countries. A firm participates in a GVC if it produces at least one stage in a GVC.”

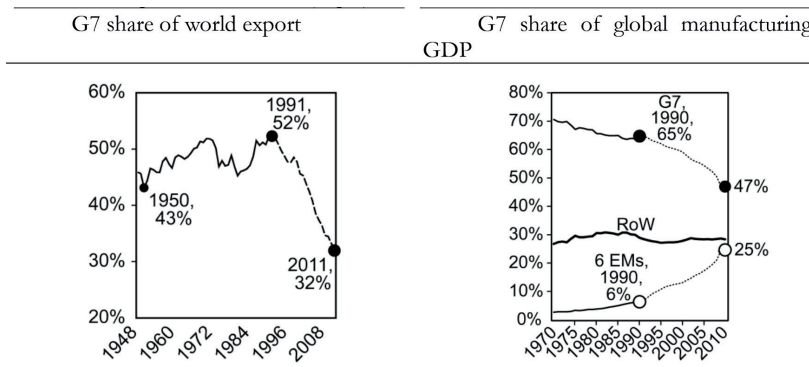
Attention towards GVCs is widespread in academic studies, extending far beyond scholarship on international trade. Starting in the early 1990s, after the fall of the Berlin wall, the world-wide economy experienced a radical transformation through a significant fragmentation in the production of goods and services and a deeper international division of labour, leading to a deep country specialisation. This radically influenced industrialisation processes across countries, in particular in relation to their position in GVCs. Belonging or not to GVCs, and the position within that structure as well as governance arrangements, have profound consequences on national economies (Krugman, Venables 1995), on the rate of growth, on the characteristics of the labour market, required skills (Baldwin et al. 2001; Brambilla et al. 2010; Fenstra et al. 1997), and the speed of technological and local development (Humphrey, Schmitz 2002).

As Richard Baldwin (2013) points out, GVCs have been built and

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transformed along with the globalisation of production, however major changes occurred during globalisation processes, in particular regarding the degree of participation of different countries in this process. Up to the late 1980s, globalisation was associated with rising G7 shares of world income. The radical reversal after 1988 suggests that globalisation started working differently. An equally profound shift was seen in the G7's share of world trade (Fig. 1 left).

Figure 1 – G7 share of world export 1948-2011 (Left) and G7 share of global manufacturing GDP 1970-2010 (Right)



Source: Baldwin 2013: 167.

* ROW: Rest of the world; 6 EMs: emerging markets (China, India, Indonesia, Thailand, Turkey, and Poland), Korea (which gained 3 points is in ROW).

According to Baldwin (2013: 166), until 2010, the last year of the period studied by the author:

These G7 facts reflect a reversal of fortunes rather than some structural break in global trends. [...] Until the mid-1980s, 'industrialized nations' meant 'high-wage nations.' Since then, some low-wage nations are industrializing faster than high-wage nations. But the share-winners are few. Just seven have gained more than 1 percentage point of world manufacturing GDP since 1970 – China, Korea, India, Indonesia, Thailand, Turkey, and Poland. All of the G7 are share-losers over this period. Apart from India, all of their manufacturing sectors are heavily involved in the international supply chains of Japan (the East Asians) or Germany (Poland and Turkey).

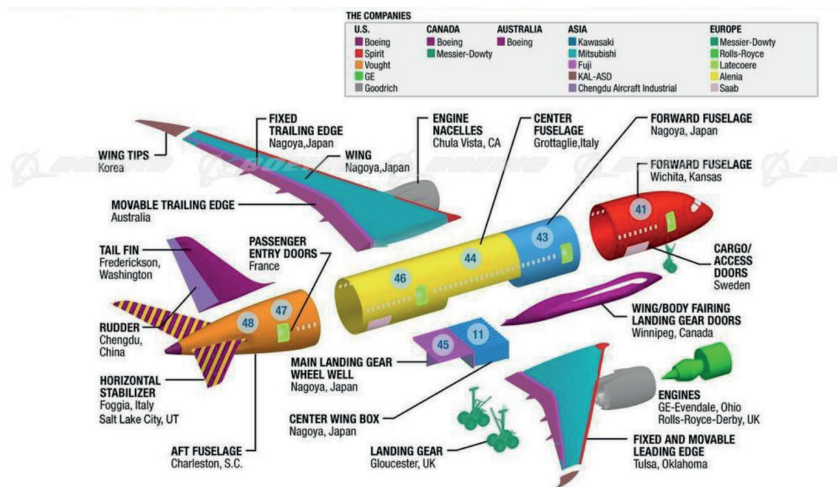
Overall, according to this author, two key phases of globalisation can

be identified between 1945 and 2010. During the first period, between 1945 and the mid-1980s, an embryonic globalisation in the form of international trade was necessary in order to gather production inputs. For this reason, Import Substitution Industrialisation (ISI) policies were adopted in different countries, particularly in the United States, Germany and Japan, as the efforts of the state were dedicated to industrialisation – which at that stage meant building the whole supply chain at home.

This took decades due to learning-by-doing in creating and coordinating the vast array of necessary competencies. Given the simple communication technology available at the time, extreme proximity was essential to coordinating sophisticated manufacturing processes. All the stages of production had to be inside a single factory or industrial district. Most of the necessary competencies had to exist domestically; no nation could be competitive without building a broad and deep industrial base – a hurdle that precious few nations could surmount (Baldwin 2013: 171).

Later, starting in the mid-1980s, a radical change in globalisation patterns occurred, mainly thanks to a further reduction in transportation costs and the Information and Communication Technologies (ICT) revolution. ICTs allowed the breaking down of production processes into

Figure 2 – Partners across the globe are bringing 787 together



Source: Rosello and Harm-Jan, 2018

different stages and their distribution across the globe. For low-tech, labour-intensive stages the driver for globalisation was wage differences. In knowledge intensive products and processes, on the other hand, the driver was a high a degree of specialisation in specific components by cities and regions around the world. An interesting example of this radical change is provided by Rosello and Harm-Jan (2018) who illustrate the number and location of all parties that contribute to the production of a complex, knowledge intensive product such as an aircraft.

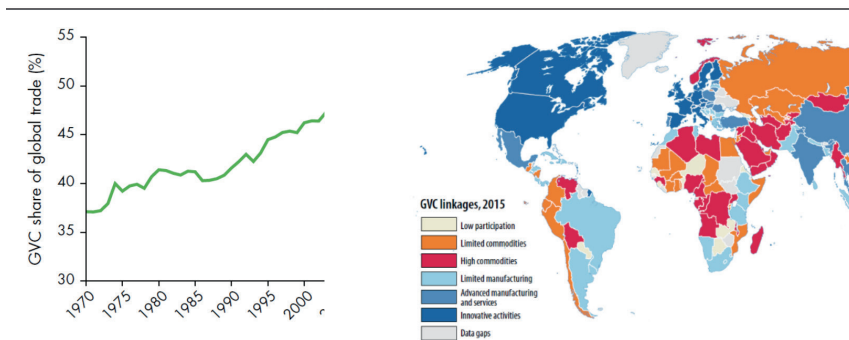
This radical change had two major implications. First, with globalisation operating at the level of production stages rather than at the level of sectors, industrialisation became easier, as nations could industrialise by joining a supply chain, specialising in one single production phase rather than in the whole sector. As will be illustrated later, this process occurred across all manufacturing sectors, including in food processing, and involved cooperation among nations in order to re-design the existing local value chain to be more competitive in globalised markets. This is the case of the European Union, which saw the complete restructuring of its internal value chains, with a process of deeper specialisation of the different countries across all manufacturing sectors and production stages.

The second major implication is related to GVC leaders. GVCs need to be coordinated both downward along the production network and upward in terms of selling markets. Often one country takes the lead in the re-design process, benefitting from internal, external, micro and macro factors. In the case of Europe, as will be illustrated in the following section, Germany is the leader across all manufacturing sectors that have been organised through GVCs, including food and meat production. As a consequence of these changes, the overall share of GVC participation in total world trade grew significantly after the mid-1980s to 2005, from 40% to 50% (Fig. 3, left). After 2005, though, GVCs and world trade entered a new phase, that scholars call de-globalisation, which will be addressed later in the chapter.

Before tackling the causes and consequences of the current phase of GVCs, it is important to underline how important it was to be part of GVCs for a nation's economic growth in the two decades between 1985 and 2005. The graph below shows how the expansion of GVC activity has occurred in an uneven way in the world. Regions such as Europe and East Asia are deeply involved in GVCs, while GVC participation is much

smaller in South America and Africa. It was important for single countries not only being part of GVCs but also the role and position undertaken within them. Some countries have largely specialised in agricultural GVCs (such as Ethiopia) or in the natural resource segments of GVCs (such as Chile or Norway) (Antras 2020). Other countries are largely involved in the manufacturing segments of GVCs, with relatively less developed economies (such as Tanzania) specialising in low-tech manufacturing, and more developed economies (such as Mexico, Slovakia or China) participating in advanced manufacturing processes. In addition, there is a subset of countries (e.g., India) that have largely specialised in the services embodied in GVCs, and a small set of very advanced economies (e.g., United States, Germany or Japan) playing a significant role in the provision of innovative goods and services and coordinating large business networks in GVCs.

Figure 3 – The importance of GVC trade in the world trade and the uneven sectoral specialization in GVCs



Source: Antras (2020) on Eora26 database

Several agreements for the liberalisation of trade and financial flows accompanied and supported the globalisation process described, as international commerce gradually saw a richer and more complex set of cross-border flows. Policy making had to change, in particular because the complexity and interconnectedness of supply-chain trade shifted world trade governance towards regionalism (Baldwin 2012).

Before the advanced stage of globalisation, which began in the mid-80s, most trade was simple and could be governed by the simple rules

of General Agreement on Tariffs and Trade (GATT) of 1947. Later the GATT rules became inadequate and insufficient to support the complex cross-border relations implied by supply chains. For this reason, North Atlantic nations set up more detailed technical rules related to different disciplines. Given the complexity of the exchanges, these were managed via multilateral agreements and the structure of value chains developed towards the so called “hub and spoke” model, with large companies located in a small number of countries that rule over the value chains. For this reason, a large part of the trade became regional rather than multilateral, so the detailed technical rules were placed in regional trade agreements. The regionalisation process was led by the impossibility of dealing with such complex cross-border relationships by means of GATT negotiations, which would become extremely complicated and slow.

As illustrated by Baldwin (2012), the nature of international commerce and related rules changed profoundly as the new phase of globalisation created a new type of win-win situation in international commerce. If the old type was “my market for yours,” the new type is “my factories for your reform.” Within this context the World Trade Organisation (WTO), in particular after the latest round of trade negotiations launched in 2001 – the Doha Round – aimed to achieve major reforms of the international trading system through the introduction of lower trade barriers and revised trade rules with a work programme that covers about 20 areas of trade. In parallel, as said before, regional areas have also developed specific internal rules and regional GVCs to compete on a global scale. The following section will illustrate how this process took place at the European level.

The European integration and restructuring of regional value chains

As we saw in the previous chapter, globalisation led to an increase in regionalisation due to the necessity of dealing with complex global issues. This is the reason why the European Union experienced a restructuring of its internal value chains. In particular, across the different industrial sectors, value chains were reshaped and the different countries changed their role, position and thus type of production within the different value chains. Although there are of course differences between industrial sectors, according to Simonazzi (2021) Germany played a key role in the restructuring process, determining the evolution of economic

development of other European countries. At the core of this change is the process of European integration, which aimed at creating a unified area for markets and economic exchanges. However, the economic integration process was not fully accompanied by a political one, leading thus some national interests to prevail over those of other nations and to a certain level of policy bias.

According to Simonazzi (2022: 83), the principles that guided the unification process were based on two critical assumptions. “Disregarding the peculiar problems of latecomer countries, the European Unions institutions were shaped on the premise that all its members were on a level playing field, except for certain ‘less modern’ institutions, individual values and attitudes”. The implicit assumption was that an austerity regime, associated with institutions close to those assumed to be prevailing in the ‘core’ countries, would create the ‘right’ environment for growth in the periphery. However, this policy line did not work, leading to an increase of divergence, instead of convergence, within the European Union.

If we consider, for example, that industrial policy during the crisis of the 1970s, which saw the saturation of the major mass consumer goods in the advanced countries and the beginning of globalisation, led to profound transformations in demand, production, and competition, which came to be increasingly dominated by the quality of differentiated products rather than price. These changes affected the core and peripheral economies in very different ways. The core succeeded in restructuring its industry, leveraging the solidity of its system of small and medium enterprises (the ‘Mittelstand’) and with the support of industrial policies, that continued to enjoy a very concrete and lively existence, as documented for example by Chang, Andreoni and Kuan (2013). The restructuring of the core deeply affected the countries of the periphery, which, in reorganising their economies, struggled to adapt to the new environment, dominated by disinflation and competition based on quality. The fall in the relative prices of flex-price items hit their economies harder; their basic industries and ‘mature’ products faced competition from the developing countries, leading to drastic cuts in production.

Several other examples like this can be found later in other crises. According to Simonazzi and Ginzburg (2015), in the process of European integration, the Southern peripheral countries were exposed to macroeconomic and industrial policy measures that, although apparently

neutral, generated asymmetric effects that increased regional disparities, both between core and peripheral countries and within countries. The institutional features of the euro area were not such as to sustain the capacity of the Southern European countries to achieve a sufficient level of diversification and specialisation in their productive structures: indeed, they may even have contributed to depleting it.

The fall of the Soviet Union and China's admission to the WTO (in December 2011), in particular, caused a deep and extensive restructuring in the hierarchical organisation of supply chains across Europe, the first leading to an eastward extension and redirection of German Foreign Direct Investment and trade towards Eastern Countries and, the second, a rapid expansion of markets for Germany while representing a formidable competitor for the products of Southern periphery.

This evolution brought to the emergence of two different peripheries in Europe according to Celi, Guarascio and Simonazzi (2019): the Southern one, made up of the Mediterranean economies, and the Eastern one, with the prominent role played by the Visegrad countries, which suffer from different fragilities, which descend from their common, albeit diverse, economic and financial dependence on the core (Germany). The core itself is dependent for its growth on the pattern of specialisation within the EU: the southern markets providing an outlet for its increasing manufacturing surpluses, the eastern countries supplying cheap inputs for its industries.

It is important to recall this evolutionary process because, as we'll discuss later in the paper, the food and meat value chains have also been affected by these structural changes and imbalances. Before addressing this, it is worth briefly summarising the more recent trends in the world economy, described by scholars as de-globalisation processes. Similar to what occurred during the expansion of globalisation, this trend, if confirmed, might have significant impact on food and meat value chain as well.

Towards de-globalisation of production?

The process of globalisation and regionalisation described above suffered a serious setback with the economic and financial crisis of 2008-2009. That crisis represented a real watershed compared to the trends in place since the fall of the Berlin Wall. For the first time the global capitalist system has suffered an endogenous crisis, caused by strong im-

balances and malfunctions within the system itself. Rather than a crisis with an exogenous cause, as had already happened previously, this was a real short circuit of the system itself, generated in particular within the financial economy.

Since then the globalisation process has slowed down, also due to the subsequent impact of the COVID-19 pandemic. According to some analyses a process of deglobalisation of production has occurred (Aresu 2022). This process is not driven by economic motivations, but rather by reasons of a political nature. Global political conflicts seemed to disappear after the fall of the Berlin Wall, and world trade had brought out the idea of a great unified action in the name of a supposed naturalness of the market. This rhetoric worked until a new political and economic force, competing with the dominant one, emerged on a global level and until capitalism enjoyed a high level of consensus among the population of the main world economic powers (Biasco 2012). The consensus was based on the willingness to participate in the capitalist system through working activity, as long as there was a return. The inequalities that emerged in capitalist countries have weakened the consensus among the masses, who have begun to demand protectionism and nationalism.

Existing political and social conflicts are reflected in the economic tools used by countries to protect their interests, showing how capitalism and politics are intertwined and how the former does not carry out its actions in a neutral political context. According to Aresu (2022) we are instead witnessing a political use of trade, finance, technology, state participation in companies, sanctions.

Still, according to other scholars (Antras, 2022b), it is premature – if not wrong – to talk about deglobalisation. Rather, they argue, we are witnessing a slowdown in the march of hyper globalisation that characterised the thirty years following the fall of the Berlin Wall. In essence, scholars agree in detecting a slowdown in global trade and a weakening of global value chains in this context, however opinions differ regarding what can be expected in the future. Certainly, broadening the analysis from a strictly economic perspective to a social and political one, the strengthening of political expressions of populism first, and of the far right in numerous Western countries, expresses a weakening of the social support which the globalised capitalist economy had enjoyed for a certain period.

In particular, looking at the main theme of this publication (food production), it is necessary to underline how in a context of rising populism and nationalism the idea of food sovereignty gained popularity interpreted, especially for propagandistic purposes, as the ambition to become more autonomous in national food production. In this context it is very difficult to make predictions on the future evolution of GVCs. On the one hand, the intense specialisation that the areas of the world have pursued with a view to the global division of labour, food sovereignty represents a very difficult path to follow backwards, once the countries have lost entirely certain production phases, investments and skills. On the other hand, nationalism, but more generally the change in food consumption, increases the demand for healthy food, with low environmental impact and therefore locally produced.

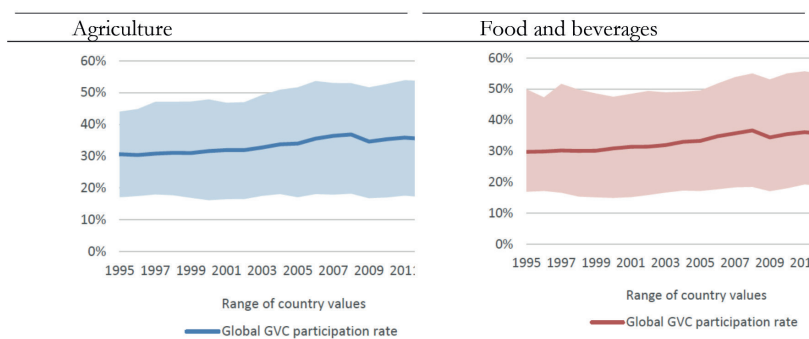
1.2 Structure and evolution of food value chains.

GVCs have been very relevant also in agriculture and food production. According to Nenci et al. (2022), although there were considerable regional variations, the global share of GVCs between 1995 and 2008 for both agriculture and food and drinks was between 30 and 35 percent. However, in more recent years, increased integration in both sectors effectively came to a standstill. This may be due to the fact that common factors influencing GVC involvement outweigh the effects of structural and sectoral changes. As a result, although agricultural commodities may be less complicated than items made in factories, fragmentation of the value chains that support them has also occurred in the agricultural industries. This has significant ramifications for emerging and less developed nations since, despite their inability to compete on a global scale in the production of finished goods, they can nevertheless take part in GVCs and boost exports.

In both sectors, the repercussions of the 2008 financial crisis are evident. Only 8% of economies, made up of a diverse mix of largely small nations, continued their integration into the world economy after 2008.

The long-term increase in GVC participation comes with the overall rise of gross exports of agricultural and food commodities. Figure 5 shows the composition of gross exports divided into: backward-linked

Figure 4 – Evolution of global GVC participation rates in Agriculture and Food sectors



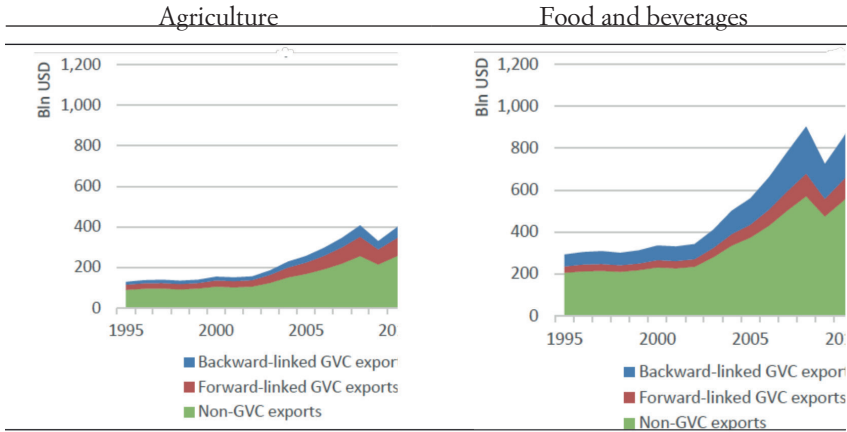
Source: Dellink, Dervisholli and Nenci (2020) in Nenci et al. (2022). Notes: the shaded areas show the range of country values.

GVC exports, that is the sum of the foreign value added (FVA)¹ across countries; forward-linked GVC exports, which are exports that will later be re-exported, aggregated across countries; non-GVC exports, which are exports that do not flow through GVCs but are absorbed in the destination country. The sum of the three components (plus some pure double-counting) equals gross exports.

According to Nenci et al. (2022), even though a not-GVC exports represents about two-thirds of the total export value, both backward and forward links have a substantial impact on export value. Food and beverage exports are almost twice as large as agricultural commodity exports globally, and the sharp rise in food exports after 2002 is noteworthy (see Figure 5 on the right). GVC links in agriculture are primarily forward connected, as would be expected given that agricultural goods are essential building blocks in other production processes. Food and beverage production involves processing agricultural inputs and is significantly more at the middle and end of the value chain. Food and beverage imports primarily come from agricultural commodities through backward linkages. In contrast, agriculture's backward connections pertain to im-

¹ The Foreign value added is the value added used in the production of a country's exports, that is, the share of value added provided by intermediate inputs imported from abroad and then exported in the form of final or intermediate goods. It measures the contribution of the foreign country to the country's exports.

Figure 5 – Composition of gross exports in Agriculture and Food sectors



Source: Dellink, Dervisholli and Nenci (2020) in Nenci et al. (2022). Notes: values calculated at the country level and then aggregated.

ports of agricultural supplies, and are associated with both growing economic servitisation and global trade in fertilizer and seeds.

The sector's exports of food and drink make up the majority of the forward links; agricultural commodities are lightly processed in one nation, then exported again to be further processed and disseminated. However, other downstream industries include value added produced in the food and beverage sector, for instance, sugar in cosmetics and pharmaceuticals (Dellink et al. 2020). It is important to underline that the exports of agriculture and food sectors can also stimulate value creation in other sectors, just as agriculture and food value-added can be part of the exports of another downstream sector. In both the agriculture and food sectors, the biggest share of sectoral FVA is provided by services (42 percent and 38 percent in 2015) as shown by Nenci et al. (2022: 102). This means that any boost to GVC participation in the two sectors leads to increased value creation in some foreign services sectors.

Moving on to the GVC analysis at the country level, Nenci et al. (2022) analyse GVC participation indicators for the agricultural sector for each country in the world in 2015. The European countries have, on average, the highest rate of GVC participation (about 40-45% of its total exports, considering both the foreign value added and its domestic

value added embedded in third country exports). There is a certain level of heterogeneity across European Countries, with Estonia and Latvia showing the highest share of GVC related trade in agriculture in Europe. A similar picture is related to GVC participation indicators for the food and beverages sector. In this case, apart from the usual heterogeneity by country, the European continent has a high degree of involvement in GVC trade (about 40% of total exports).

It's important to consider, along with the value of the countries' products within GVCs, the position they have along them, which is linked to the degree of the countries' specialisation. In general terms, upstream activities are more related to agriculture while food and beverages are closer to final demand. As GVCs and worldwide production have become pulled by market demand after the 1970s economic crisis, countries that coordinate and dominate GVCs are closer to final markets and, for this reason, are in a dominant position. Those located in upstream activities often suffer from internal, vertical, competition between customers and suppliers where customers can take advantage of their market power while suppliers of the knowledge incorporated in products, which can happen only in the case of complex manufacturing. Nenci et al. (2022) illustrate that, unsurprisingly, at the global level agriculture has a higher score on upstreamness (measuring the distance of the sector from final demand in terms of the number of production stages) than the food and beverages sector. While the median for agriculture is positioned more than 2.7 stages upstream of final demand, the median for food and beverages is constantly two stages lower. This positioning indicator is highly influenced by the length of the chains: between 2000 and 2008, the upstreamness of the two sectors rose modestly, but steadily, suggesting an increase in fragmentation in production.

Africa, America and Europe share the same average degree of upstreamness (about 3 stages of production from the final consumers), which is above the average world level of 2.25. At the country level, the most upstream countries in Europe are Serbia and Bosnia-Herzegovina (their agriculture production is, on average, concentrated in activities that are up to 5 stages away from the final consumers). With regard to the food and beverage sector, the average degree of upstreamness for Europe is lower than in the agricultural sector (less than 2 stages of production from final consumers). The most upstream country in Europe is

Moldova together with the small European States (about 4 stages away from final consumers).

1.3 *Meat production in Europe.*

Contemporary challenges for meat production in Europe

In this chapter we focus on meat production in Europe, which shares the structural characteristics and evolution of GVCs, in particular of those related to food production. However, meat production, as we will explore in detail in this book, has its own specificities and faces, at the moment, significant challenges which will have an impact on all aspects related to production: markets, organisation, structure of the value chain, and labour.

As explored by Polidori and Rombaldoni the strong interconnection between environment and food production places, or should place, the latter at the core of the attention and policies related to the green transition. On top of that, technology and science are offering new challenges and opportunities to the sector. Automatisation and digitalisation of production can contribute to transforming the sector, in particular production sites, the interconnections along the value chain and the relationship with final markets and labour organisation.

Science is also contributing to the transformation of the sector and will be further pressed to do so, in particular in relation to the European political strategy that aims at reducing the use of pesticides, antibiotics and natural resources. This of course will not happen without conflict and doubts regarding health consequences. For example, the use of *new genomic techniques* might represent an instrument for achieving greener food production but there are of course potential negative health consequences to be considered. Similar concerns affect so-called “cultivated meat.” In general terms, the investment in the research of sources of proteins alternative to meat is relevant and also follows changes in food consumption. These changes and new challenges will surely have an impact on global and European meat value chains, possibly seeing a decrease in meat consumption, but also a further restructuring of the value chains themselves.

The evolution of pork meat value chains in Europe

This chapter is based on the results of the Meat-up Ffire research pro-

ject (Campanella, Dazzi 2020), financed by the European Commission to investigate industrial relations and social dialogue in the European meat sector. The in-depth study on the pork meat sector shows how, similar to other manufacturing products, also pork production is organised in value chains, with the different European countries participating in the different, highly specialised stages, largely under the coordination of German multinational companies.

The European pork production system is characterised by different types of supply chains covering multiple processes: breeding, farrowing, fattening, slaughter, processing and retailing. Each company has specific quality systems, governance structures, and supporting technologies (Trienekens et al. 2009). Different processes are carried out by separate organisations, but in some cases there are also forms of integration (e.g. between farrowing and fattening or slaughter and processing). There are also stakeholders such as input providers (such as the feed industry and transporters), governments and industry associations. Certain challenges may arise along the value chain with respect to value chain structures, processes, and resources. For example, slaughterhouses tend to have excess capacity in terms of production technology but lack capacity in terms of labour, so they are not free from conditions of labour exploitation and employ workers from abroad for a certain period of time.

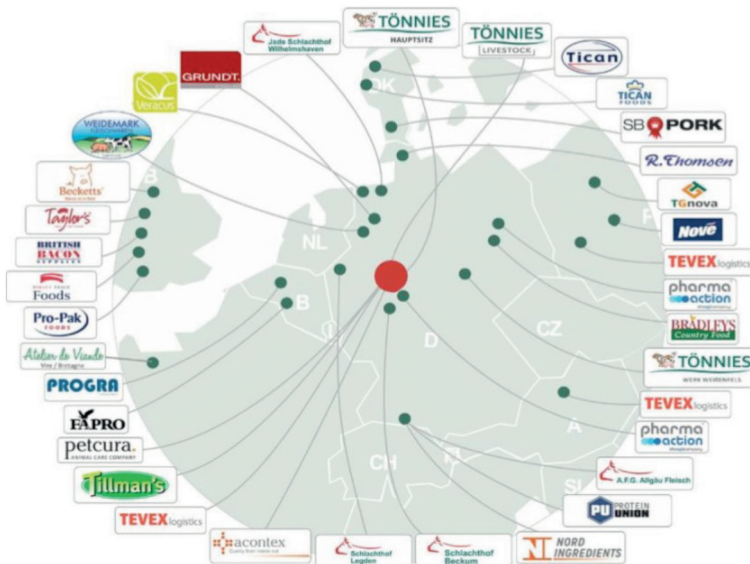
Additionally, retailers face several challenges, including: significant seasonal fluctuations in product demand, waste, and requirements for conditioned transportation and storage. For these reasons, a key concern of value chain management is to find the most effective and efficient way to create value at the lowest cost. In other words, the most important parameter of the competitive situation among European pork companies is considered to be the level of production costs (and not quality). Among others, this is well documented by Corrado et al. (2016) and Dorigatti (2018).

Therefore, in most of the European countries, a concentration and up-scaling trend in all steps of the chain is at play, starting with the feeding phase. For example, consolidation in the retail channel caused consolidation in the pork sector, with the up-scaling of slaughterhouses to counterweight retail power (Trienekens et al. 2008). In general, it is evident that Southern and Eastern European countries are following the same trend already experienced in Northern European countries like the

Netherlands, Germany, and Denmark. The concentration level differs across stages of the value chain and countries. In Northern and Western European countries, the five largest retailers have market shares of up to 90%, while Southern European countries still have more grocery shops. In other (e.g. Eastern European) countries supermarkets are emerging rapidly.

In most countries, large slaughterhouses have the biggest market share, or are growing rapidly, and concentration varies at the slaughtering stage. In the Netherlands the largest slaughterhouse company covers up to 60% of the pork market and in Germany ten companies dominate the slaughtering sector, with a market share of around 77% of slaughtered pork, and the top four firms control over 60% of the market. In the processing and farrowing/finishing stage concentration and up-scaling are also taking place, although many small, often specialised, companies remain, particularly in countries like France, Spain, and Germany. In the feeding industry, there is a strong concentration tendency in all countries (in Germany and the Netherlands the 10 largest companies have over 50% and 65% market share for feed respectively), just as in the breeding

Figure 6 – Tonnies production sites in Europe



Source: Tonnies 2018

stage, where mainly the Netherlands, Germany and Denmark have the largest companies, which deliver pigs all over Europe. In Southern Europe there is (still) much more fragmentation and competition between companies in different stages of the pork chains.

The evolution of the supply chain is strongly conditioned by the presence of large multinational companies. In the phase of slaughtering, we recall, for example, Tönnies Holding (the largest slaughter house in Germany, with a market share of just under 28%) and Vion Food Group, a Dutch Company with sixteen of twenty-five production sites based in Germany, both also specialised in the meat processing sector.

Another aspect to highlight is vertical integration. There are two main organisational solutions. In many European countries (Germany, Belgium, France), spot market transactions, informal long-term relationships, and marketing contracts that establish sale/purchase obligations remain the norm. In other major producing countries (Denmark, Spain), tighter vertical coordination has replaced less coordinated forms of production. In these cases, production contracts and contract farming predominate, both of which severely restrict farmers' entrepreneurial freedom and require centralized decision-making by processors, or farms owned by slaughterhouses that procure their own pigs for slaughter. will be more or less dependent on vertically integrated production systems. In some countries, such as Poland, contract farming is seen as a means of building modernised agricultural chains and food chains.

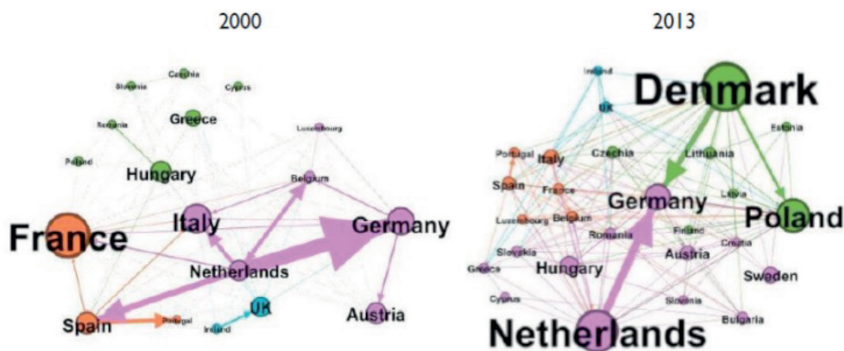
In large European chains, (formal) contractual relationships are relatively rare. Although most relationships are long-term, they are often not formalised in a written contract. This can lead to an imbalance of information and bargaining power between different groups. Instead of contracts, vertical coordination occurs through product and process standardisation. In Germany, for example, pork producers are independent from slaughterhouses and coordinated through quality and information systems. However, a notable development is that fattening and farrowing are being integrated into different value chains.

In order to investigate the trade relationships among the EU countries, Barberis et al. (2020) developed a social network analysis which is plotted below. Figure 7 analyses trade relations between EU countries related to live pigs. The size of the dots provides a measure of the centrality of the role in trade relations, with larger dots meaning that the

country has ties with a large number of other countries. The dimensions of the arrow indicate the trading volume, and the direction indicates the movement of the product (live pig). The colour of the circle indicates the existence of a “community”, and countries that belong to a community tend to have more interaction within the community than other countries.

Comparing the trade relationships of live pigs between 2000 and 2013, Barberis et al. (2020) shows that there is increased complexity in the networks, indicating amplified movements around the EU, with more countries joining the pork value chain. We can see significant changes in most countries, especially in terms of connections, rather than in the general volumes: for example, while France loses its importance in 2013, Denmark, the Netherlands and (to a lesser extent) Poland become extremely relevant. Germany continues to maintain its relevance. The directions of the arrows shows that Netherlands maintained its role of supplier of live pigs for Germany, but also extended its market to other countries (mainly Eastern EU countries). Instead, Denmark is mostly dedicated to Germany and Poland, plus some other smaller countries mainly located in the Northern EU, such as the Baltic States. Poland gains a central role, mainly receiving live pigs from a large number of countries. The Netherlands and Denmark have become, in the 13 analysed years, important producers and exporters (mainly to Germany and Poland) of live animals that are then fattened and slaughtered in other countries, for which the slaughtering phase is consequently particularly important.

Figure 7 - Trade relationships: live pigs (heads; 2000-2013)

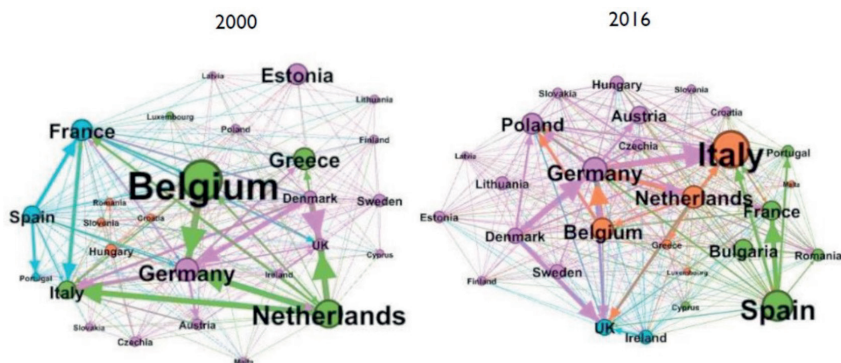


Source: Barberis et al. (2020)

Figure 8 shows the trade relationship between pork (fresh/frozen) and pork products (ham, bacon, sausage, etc.). Trade here is driven by two factors. One is fresh or frozen meat that comes out of the slaughter stage and is transported to other countries for processing, and the other is the import and export of finished meat products.

The value chains have become much more complex in the last 16 years. Countries like Belgium and Greece, playing a central role in the EU exchanges in 2000, are no longer predominant in 2016. Other countries, with a minor role in 2000, became highly central: this is the case of Italy and Spain, although their centrality in 2016 is due to different reasons. While both are key producers of Protected Designation of Origin-products (PDO) products, Spanish industrial production is more specialised in ham and pork at the same time. So, Spain keeps pig tights for the production of Jamon Serrano, but sells the rest of the carcasses to the rest of Europe for the transformation phase. As a result, in the picture Spain is interested by more arrows, which include the distribution of both pig meat products (mainly Jamon Serrano) and pork meat as an intermediate product. The case of Italy is somehow different as it imports a great amount of fresh/frozen pig meat (mainly from Germany and Spain) in order to produce various pig meat products (not only PDO), that are then exported. So, differently from Spain, Italy has a larger dot. The dimension of the arrows (the volume of trade) show volumes

Figure 8 - Trade relationships: pig meat and pig meat products (tonnes; 2000-2016)



Source: Barberis et al. (2020)

of pig meat and pig meat products (mainly the former) from Denmark to Germany and the UK, and from Germany to Italy.

Finally, Barberis et al. (2020), consider the different types of meat exported and show that Denmark, the Netherlands, Belgium and Spain mainly export fresh/frozen meat, having a strong specialisation in the slaughtering phase. Denmark and the Netherlands are also interested by live pig exports. Italy mainly imports fresh/frozen meat while Germany and Poland both import and export fresh/frozen meat. Germany is clearly the most diversified country, where there is relevant activity in all production phases (breeding, fattening, slaughtering and processing) due to the large dimensions of some German multinationals that integrate and control the entire value chain.

2. The evolution of the Common Agricultural Policy and possible impact on European meat value chain.

European policies should of course be considered when discussing the changes in the European meat value chains, both looking at the past and to the future. The most important European policy measure for agriculture is the Common Agricultural Policy (CAP) which has played a key role in sustaining and controlling food production in the EU and has seen significant changes over the years. Before looking at the current CAP 2023-2027 it is worth recalling some of the key evolutions through the decades. The Common Agricultural Policy represents not only one of the main policy interventions of the European Union, to which approximately 40% of the community budget is allocated (expected to decrease to less than 30% of the European budget in 2027), but also the main intervention to support agriculture in individual member countries.

The purposes of the CAP set out in the European Union Treaties are:

1. Increase agricultural productivity, developing technical progress, ensuring the rational development of agricultural production as well as better use of production factors, in particular manpower;
2. Thus ensuring a fair standard of living for the agricultural population, thanks in particular to the improvement of the individual income of those who work in agriculture;
3. Stabilise markets;

4. Guarantee security of supplies;
5. Ensure reasonable prices for consumers.

While the aims of the CAP have remained unchanged, over time the structural, productive and strategic changes of the Union have progressively caused this intervention scheme to change, as represented in the following figure. At the same time, the total expenditure allocated to the CAP from the 1980s to today has increased, exceeding € 50 billion per year, above all due to the enlargement of the European Union. At the same time, however, the share of GDP allocated to the CAP has decreased over time.

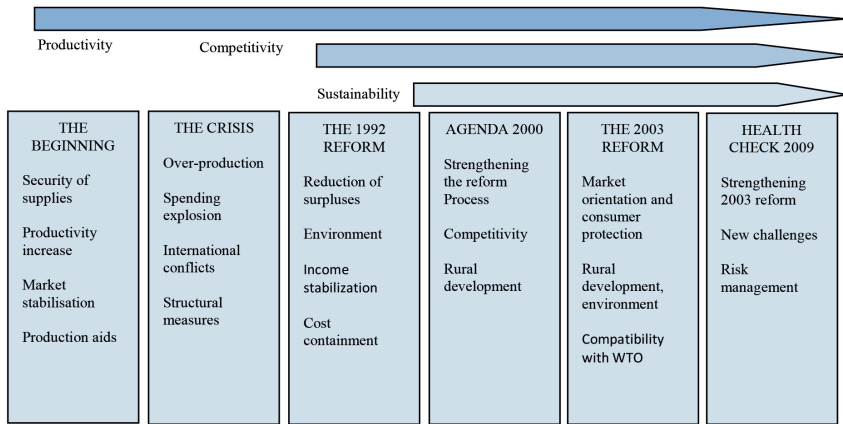
For more than twenty years, starting in 1992, the CAP has introduced successive reforms that have increased the market orientation of agriculture, while providing income support mechanisms and a safety net for producers, it has also increased integrating environmental needs into interventions, thus strengthening rural development across the EU. The 2014 and 2023 policies continue along this reform path, moving from product support to producer support and to a more “land” based approach.

This is in response to problems in the industry, many of which are driven by factors external to agriculture. These were identified as economic in nature (including food security and globalisation, declining productivity growth rates, price volatility, pressures on production costs due to high input prices and the deteriorated position of farmers in the food supply chain), environmental (efficiency in resource use, soil and water quality and risks to habitats and biodiversity) and territorial (rural areas are facing delicate demographic, economic and social developments, including depopulation and business relocation).

Since the role of the CAP is to provide a policy framework that supports and encourages producers to address these challenges, while remaining consistent with other EU policies, this translates into three long-term CAP objectives: productivity, competitiveness and sustainability.

To achieve these long-term objectives, existing CAP instruments had to be adapted. The reforms therefore focused on operational objectives aimed at providing more effective policy instruments, designed to improve the competitiveness of the agricultural sector and its long-term sustainability. In short, EU agriculture must achieve higher levels of safe, quality food production, while preserving the natural resources on which

Figure 9 - Evolution of CAP since the beginning to 2009



Source: own elaboration on Ministero delle Politiche Agricole Alimentari e Forestali

agricultural productivity depends. This can only be achieved by a competitive and viable agricultural sector operating within a well-functioning supply chain that contributes to maintaining a thriving rural economy. Furthermore, to achieve these long-term objectives, better targeting of the CAP resource budget was introduced.

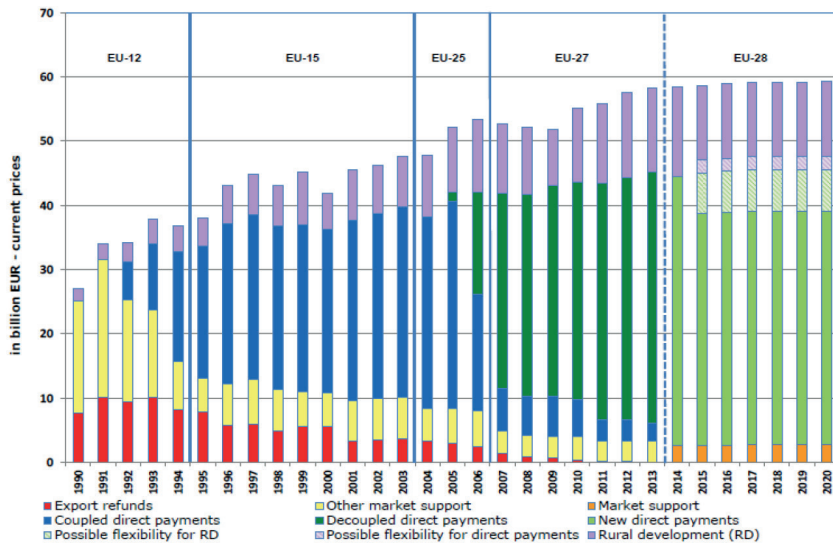
The radical change in the orientation of the CAP is demonstrated by the evolution of spending, which follows the change in policy line since 1992, in particular from product support towards producer support, and the inclusion of environmental issues, as shown in the following figure. In 1992, market management represented over 90% of total CAP expenditure, driven by export refunds and purchasing interventions to guarantee minimum prices. At the end of 2013, spending on market management had fallen to just 5% as market intervention has meanwhile turned into the implementation of tools that act as a safety net for times of crisis while direct payments have effectively become the main source of support, of which 94% are decoupled from production.

Decoupling was introduced in the 2003 CAP reform to remove the link between the receipt of a direct payment and the production of a specific product. Before this reform, farmers received a direct payment only for the specific product to which the direct payment was associated. This meant that the profitability driven by the production of a good (ce-

reals, beef...) did not depend only on the price at which the farmer sold on the market, but on the amount of direct payment associated with that particular product.

The 2003 reform decoupled many direct payments from production, a process carried forward by the 2009 Health Check. The aim of decoupling was to move the agricultural sector more towards the free market and to give farmers greater freedom to produce according to market demand.

Figure 10 – CAP expenditure, billion of € di euro, current prices, 1990-2020



Source: European Commission, DG Agriculture and Rural Development

The last reform, 2023-2027, covers a shorter period and tries to achieve three main goals: simplification, increased subsidiarity, and increased environmental ambition (European Commission 2019; Chatelier et al. 2022). Given the relevant environmental impact of meat production (Polidori, Rombaldoni, this volume), it is worth reflecting, in particular, on the environmental objectives of the new CAP. These are not radically new objectives but have been gradually integrated into the CAP. Agri-environmental programs were made universal for all Member states in 1992, and in 2015, these programs became agri-environmental and climate programs (AECS) with a goal of lowering net agricultural greenhouse gas emissions. Setting the foundation for the greening of the

CAP was the conditionality of direct aid payments to the observance of environmental legislation and the application of best agricultural and environmental practices in 2003.

In short, the new CAP maintains the previous architecture of two pillars: the first, fully funded by the EU, covers direct aid; the second, jointly funded by the EU and the Member States, covers the so-called rural development tools, such as AECS, aids to regions with natural constraints, and aids to investments, rural development, and innovation.

Enhancing cross-compliance and implementing eco-schemes are the key ways that the environmental ambition will be strengthened. These eco-schemes mobilize 25% of the CAP's Pillar 1 funds to support more ecologically and climatically responsible practices. The Pillar 2 metrics are still fairly comparable to those in the 2014-2020 CAP. Thus, the EC framework gives member states the chance to develop their environmental and climate protection policies. The paths adopted by member states are varied, as seen by an assessment of 15 national plans, but many of them are derived from earlier environmental initiatives and/or AECS (Runge et al. 2022).

A decrease in the use of pesticides, fertilizers, and antibiotics by 50%, 20%, and 50%, respectively, is one of the ambitious aims for the European food and agricultural system in the European Green Deal, which the EC adopted in 2019 (EC, 2019). A quantifiable goal has also been established to raise the proportion of agricultural land used for organic farming (25%), agricultural land used for high-diversity landscape features (10%), and agricultural land used for protected areas. Some authors like Guyomard et al. (2020) believe that the new CAP 2023-2027 is not capable of achieving these aims because doing so would involve a fundamental reform of the agricultural and food systems.

According to Barral and Dessendre (2023) the Green Deal's credibility was damaged by the EC's failure to analyse any potential detrimental economic effects. Building appropriate policies to make the change acceptable and manageable requires addressing all negative effects and the ensuing unavoidable trade-offs. In addition to commerce and innovation, these policies should address agricultural productivity, nutrition, and diet. Therefore the new CAP is coming under more and more scrutiny in these times of social and environmental uncertainty, characterised by conflicting ideas on the ideal future.

3. Conclusive remarks.

The chapter illustrates how food value chains are organised in a global context and how they have changed over time, after the onset of globalisation. Even if it might seem counterintuitive, similar to other manufacturing sectors, food production is dispersed and fragmented around the world, both in terms of commodity production and industrial transformation. After an expansion phase of globalisation, in the thirty-years after the 1990s, which determined a parallel regionalisation process, in the last few years we have been witnessing a slowing trend in GVC expansion, named deglobalisation. These processes, as well as the profound crises that are influencing global exchanges, such as the Covid-19 pandemic and international regional conflicts impact the evolution of food GVCs and the role and position of Europe within them. As explored in the chapter, there are also other challenges for food and meat GVCs, in particular with regard to the policies related to green transition, technological change and new consumption trends.

Given this complexity and uncertainty it is very difficult to predict future trends in the evolution of food and meat GVCs. Meat consumption is expected to experience a significant, although slow, reduction at least in Europe, as a consequence of spontaneous changes in consumers' habits and possible policy initiatives. With regard to policy initiatives, in particular looking at CAP which is still the most important European policy dedicated to agriculture and livestock farming, they appear not to be a factor leading to changes in Europeans' diet and production, mitigating the risks and the conflicts that this transformation might determine. Rather, European policies for the Green Deal, while resolute in some sectors like for example the automotive, appears in agriculture and rearing to be more uncertain and thus possibly ineffective.

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PAOLO POLIDORI, ROSALBA ROMBALDONI*

THE ECOLOGICAL TRANSITION IN THE MEAT SUPPLY
CHAIN IN ITALY: ECONOMIC IMPACT, THE ROLE
OF EQUITY IN INDIVIDUAL CHOICES
AND POLICY PERSPECTIVES

1. Introduction: the possible interrelations between food and the environment.

Food production has always played a key role in humanity's development. Today, the entire sector is faced with major new challenges: the fight against malnutrition, the defense of health, the ecological transition, and respect for the dignity of living species used for food. All these issues are interrelated although with different accents in space, the different geographic regions of the planet, and in time, the different urgency of intervention policies. The perception is that the phase we are facing will force major changes especially because of the emergency dictated by a climate crisis that is probably inevitable¹.

The intervention policies possible to date can fall into two broad categories. Those of slowing down changes, for example, the attempt to decarbonize the economy quickly, and those of mitigating impacts due to dynamics already in place, such as actions to combat drought and water shortages on the one hand and policies to address hydrogeological crises on the other. One is most likely faced with the need to think about a new paradigm in industrial and agribusiness policies.

In this scenario, the food sector, precisely because of its strategic importance, will necessarily play a central role, as it has in the development of the planet over the past hundred years. According to FAO data, in 1950 the world population was about 2.5 billion. Sixty-five percent of these were malnourished. The percentage by 1970 had been reduced

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¹ See in this regard the Report of the UN International Panel for Climate Change 2023 (IPCC, *Sesto Rapporto di Valutazione sui Cambiamenti Climatici*, 2023, <https://ipccitalia.cmcc.it/>).

to 25 percent to 15 percent in 2000. Today, malnourished people are about 8-9 % of the world population, which reached 7.7 billion in 2019. Thanks to the development of the agribusiness sector, it has been possible over 50 years to feed 5 billion more human beings. Although the percentages show the reduction in relative terms of malnutrition in the world, the absolute numbers remain high. In 1950 there were 1.6 billion people with insufficient access to food; in 2019, these were still 700 million. Redistribution does not seem to have adequately accompanied growth².

This paper intends to address the issue of ecological transition with a special focus on the meat sector, both because of its importance over time in terms of food – at least in the most developed and affluent areas of the planet – and because of the weight that raising, slaughtering, processing and consumption of meat has on total climate-changing emissions (Polidori, Rombaldoni 2022). Indeed, if there is no doubt that feeding oneself is a necessity, being able to do so in a sustainable way is equally important.

One of the most often recalled actions to curb global warming is to reduce the use of fossil fuels until we reach the desired neutrality, that is, zero CO₂ emissions by 2050, at least as far as Europe is concerned. However, this is also a goal envisioned in the Paris Agreements³. On the food production front, can such a goal be considered plausible? The answer is not obvious, and it is undoubtedly a very ambitious and definitely challenging goal. If one takes into account three very important food productions for human nutrition such as cereals, chicken meat (more environmentally energy efficient than beef) and tomatoes, one finds that the fossil-derived “fuel” required for their production is much higher than one can imagine. These are, of course, average estimates that take into account the amount of energy needed to get to the production and distribution of the finished product⁴. The data clearly show how much,

² For an extensive discussion of the topics exposed here, see Smil 2022.

³ See the reference to the European Parliament note: <https://www.europarl.europa.eu/news/it/headlines/society/20190926STO62270/neutralita-carbonica-cos-e-e-come-raggiungerla>.

⁴ The estimates are always taken from the aforementioned Smil, *op. cit.*, the available data do not differ significantly from Smil's estimates which actually seem rather conservative compared to what can be found online.

as of today, our economies depend on coal, oil, gas and their derivatives. It is important to keep in mind that the calculations also contemplate the production of fertilizers used to be able to achieve today's yields per hectare. Fertilizers, which provide plants with the 3 macronutrients essential to their growth, nitrogen, phosphorus and potassium, require little energy per unit of final product but are used in large quantities to ensure high crop yields, so their production weighs heavily, in terms of fossil fuels, on the contribution that agribusiness has in CO₂ emissions.

In normal industrial grain production and sales processes, estimates show that, on average, it takes 200-250 milliliters of diesel fuel for one kilogram of bread. These take into account flour production, milling, baking distribution and sale. As for chicken, today it takes about 3 units of feed per unit of net weight (without feathers and bones)⁵. Considering the entire process of raising, slaughtering, and selling a chicken, it yields estimates ranging from 200 milliliters of diesel fuel to 1 liter per kilogram of product. On average, 300-350 milliliters per kilo can be considered. Comparing the cost per kilo of bread and chicken, one can see how the latter is particularly competitive and is becoming one of the foods with rapidly rising consumption levels. In the case of tomatoes for the entire production cycle, including the use of fertilizers, estimates give average values ranging from 500 milliliters of diesel fuel per kilo of product, in the case of tomatoes obtained in heated greenhouses, to 150 milliliters per kilo for open-air production. Obviously, the place of consumption greatly affects the transportation component. A kilogram of Spanish tomatoes grown in greenhouses and consumed in Scandinavia may require as much as 650 milliliters of diesel fuel per kilogram of product. These simple and concise data clearly show that intervening in the agribusiness sector with the aim of reducing its contribution to climate-changing emissions is an extremely complex activity that involves the entire supply chain, both on the production side and on the consumption side in terms of quality and quantity.

This paper runs along 5 key points: after the introductory section

⁵ That is, to obtain one kilo of chicken you need at least 3 kilos of feed (also considering the mortality that occurs during the breeding process). See: https://www.venetoagricoltura.org/upload/pubblicazioni_scientifiche_oea/Avicoli2005/Filiera%20Avicola_Cap4.pdf.

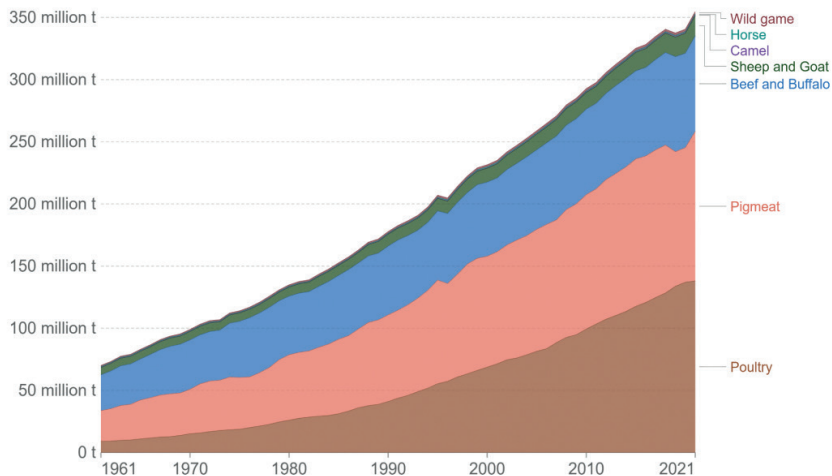
that aims to focus on the possible interrelations between food and the environment, the first paragraph attempts to outline the trends in meat production before and after the pandemic, highlighting the complexity of the supply chain, specific characteristics and critical issues. This is followed by a focus on consumption at the national level and then an analysis of the factors behind the change in consumption trends. The last part aims to investigate the relevance of information in building greater awareness in consumption, addressing issues strongly at the center of the debate, such as the use of labels and algorithms in directing individuals' purchasing choices.

2. Meat production in Italy, trends, supply chain characteristics and eco-efficiency aspects.

Before framing meat production at the national level, we shall recall trends at the international and European level, again having the pandemic shock as a watershed between the postwar decades and the very recent years. In the first period, an increasing trend is denoted for all the countries considered (USA, Russia, EU-28, India, Argentina, Brazil), markedly accentuated for China since the 1980s as a normal consequence of the economic boom that marked the growth of the Chinese giant. In the European context, Italy ranks after Germany, France, Spain and Poland, being overtaken by the latter as of 2015 (Meat Atlas 2021): this would infer a rather virtuous behaviour in terms of emissions, but this is only one aspect to be evaluated in conjunction with that of consumption in order to identify the right level of production with a view to sustainability. In the 1960s, average consumption of meat worldwide was less than 5 kg per year, settling around 60 in the present day. In Italy today, there is an average consumption of 79 kg compared to 90 for the EU average. In this regard, when supply and demand are considered together, global production and consumption volumes show a certain prevalence of low-income countries, with the poultry sector accounting for more and more of the total than the cattle and pork sectors. This is an increasing evolutionary trend for poultry meat, which is evident by analysing poultry meat production data over the past 60 years (Fig. 1). Although production of all major types of meat has increased in absolute

terms, in relative terms the share of the various types of meat globally has changed significantly over the past 50 years. In 1961, poultry meat accounted for only 12 percent of global meat production; by 2013, its share had roughly tripled to about 35 percent. In comparison, beef and buffalo meat as a share of total meat production has almost halved, now accounting for about 22 percent. The share of pork has remained fairly constant, standing at around 35-40%.

Figure 1. Meat production by type



Source: Food and Agriculture Organization of the United Nations
 OurWorldInData.org/meat-production • CC BY
 Note: Total meat production includes both commercial and farm slaughter. Data are given in terms of dressed carcass weight, excluding offal and slaughter fats.

Source: Our World in Data

Data from 2019 (Figure 2), prior to the pandemic shock, show that the largest producer for both chicken and beef turn out to be the U.S., while China leads in pork production with as much as 40 percent of the total value, followed by the U.S. (10 percent) and Germany (5 percent) (Meat Atlas 2021). That the pandemic shock represented a time of slow-down in meat production is clear in some major producers, such as China, India and the European Union (Figure 3). However, the trend, past the critical two-year period of 2020/2021, seems to resume an upward trend, already shown globally in Figure 1.

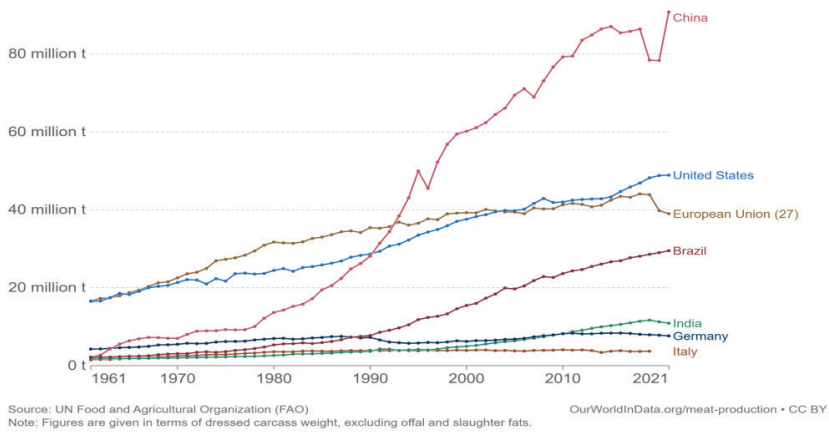
Within EU production (which over the past 20 years has showed a very similar trend to that of the U.S., both with 43 million tons in 2015),

Figure 2. World production of meat, in % (type of meat and main producers)



Source: Faostat

Figure 3. Evolution of world meat production, 1961 to 2021, major producers. (Beef, poultry, sheep/monkey, goat, pork and game)

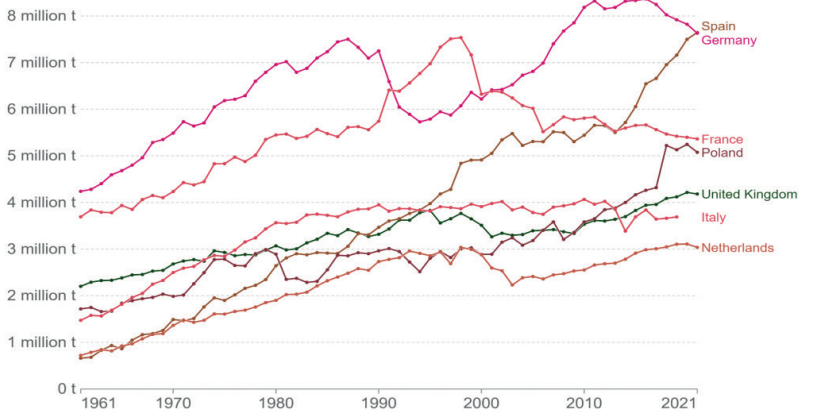


Source: OurWorldinData

Italy ranks after Spain, Germany, France, Poland and the OR (2021 data, Figure 4), with fairly stable levels over the past 30 years (around 4 million tons) and a slight decrease since 2017. Specifically, it is on the beef front

that there has been a decreasing trend since the 2000s, while for pork, the decrease can be observed since 2014. Clearly bucking the trend is poultry meat production, which, after an initial decline in 2002, resumes growth until the pandemic-induced halt (Figure 5).

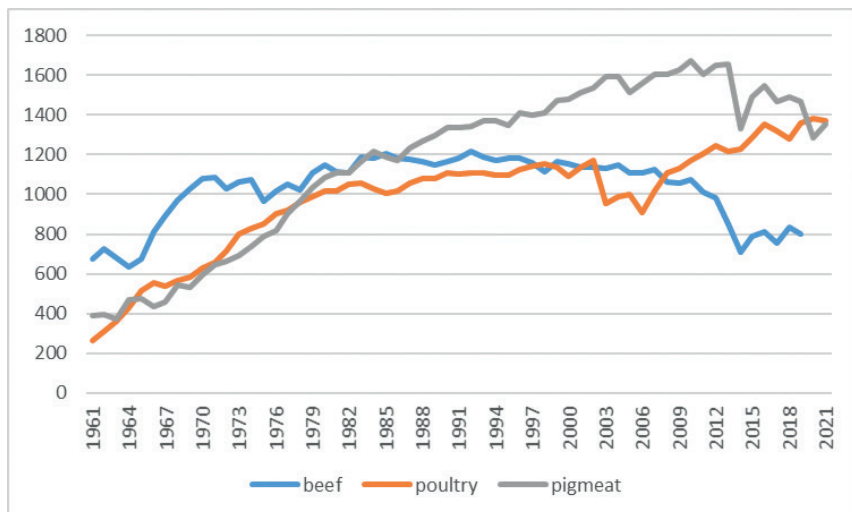
Figure 4. Trends in meat production in selected countries, millions of tons.



Source: UN Food and Agricultural Organization (FAO) OurWorldinData.org/meat-production • CC BY
 Note: Figures are given in terms of dressed carcass weight, excluding offal and slaughter fats.

Source: OurWorldinData

Figure 5. Evolution of meat production, Italy, 1961-2021.



Source: authors' elaboration on data from OurWorldinData

Looking ahead, the Organization for Economic Cooperation and Development (OECD) predicts that world meat production will continue to grow, albeit at a slightly slower pace. It forecasts an increase of another 40 million tons per year by 2029, one year ahead of 2030, tied to the Sustainable Development Goals. This would bring total production to about 366 million tons per year, barring policy changes. Although 80 percent of the growth is likely to occur in the Global South, the largest producers will remain China, Brazil, the United States and members of the European Union. In 2029, these countries could still produce 60 percent of the world's meat production.

Having defined the international and European context in which Italy is placed, it is as appropriate as ever to outline the main characteristics of the meat sector in our country and its impact on the agricultural and industrial fronts. By 2021, the sector's weight (calculated in output at basic prices) is 17 percent of the value of agricultural production (up to 25 percent if cow and buffalo milk are also included), with an equal share for beef, pork and poultry (about 5.3 percent) and a much smaller size for sheep and goat (0.3 percent). In terms of turnover at the industry level we find a similar situation, with 4.1 percent, 5.3 percent, 3.9 percent respectively to the considered sectors⁶.

Employment in the sector includes the agricultural phase (with beef farms specialising in meat production and mixed farms engaged in both agricultural crops and meat production), the industrial phase (slaughtering red meat and making meat products), and then the commercial phase (which includes wholesale and retail). According to 2021 data, the number of people employed in the sector is about 257,000⁷. It should be noted that these are variable figures depending on how one interprets the extent of the supply chain.

The meat industry is very complex, and the supply chain includes several stages that make it very long and articulated. Depending on the specifics of the type of meat considered, i.e., beef, pork, poultry and sheep and goat, there are differentiated stages with some clearly common ones. Upstream we find the feed companies (except for sheep and goat) with

⁶ The data is taken from the 2022 ISMEA Reports, for the cattle, pig, poultry and sheep-goat sectors.

⁷ These are Eurostat data.

mainly industrial connotations, then the breeding phase (fattening, extensive and breeding) and slaughtering, processing, and cutting. Finally, the last link in the supply chain in the domestic market is the consumer distribution stage, with packaging. There are also veterinary and pharmacological control services of the supply chain.

The Italian meat industry therefore accounts for more than 15 percent of the national agri-food value⁸. In addition, it is subject to Regulation (EC) 1069/2009, a complex legislative framework that offers interesting insights into the analysis of enhancing the circularity of the agribusiness sector. Among its main objectives, it stipulates that food waste must be used properly and must ensure public and animal health, the safety of the food and feed chain, and consumer confidence, while considering the socioeconomic impact, their economic value, and the environmental impact related to their disposal⁹ (OJEU 2009). Therefore, the EU stresses the importance of food waste valorisation, the role of veterinary control along the entire meat supply chain, from breeding to by-product processing, considering food waste disposal as an “unrealistic option” (a kind of *extrema ratio*) due to the unsustainable costs and environmental risks involved.

The Italian meat industry represents a core business for the national economy, with more than 20 billion euros (as mentioned above, 15 percent of the national agribusiness value), but it requires large amounts of energy and produces different types of waste, of which food losses and waste represent an ever-increasing share. Food waste is a global concern, contributing to social, environmental and economic losses. However, only a few studies have addressed food waste from production to consumption. Using a common methodology with minimum quality requirements for uniform measurement of food waste levels, some studies apply Material Flow Analysis (MFA) to the Italian meat industry, testing its reliability. In particular, the work of Amicarelli et al. (2021) aims to quantify and qualify food waste streams and calculate the related material cycles and eco-efficiency indicators, showing that in 2018, the Italian

⁸ ISMEA 2022, sheet relating to beef, pork, poultry and sheep-goat.

⁹ OJEU (Official Journal of European Union) 2009. Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009-laying Down Health Rules as Regards Animal By-Products as Derived Products Not for Human Consumption and Repealing Regulation (EU) No 1774/2002 (Animal By-Products Regulation).

meat industry processed more than 4.9 Mt¹⁰ to produce about 2.0 Mt of fresh meat, 1.9 Mt of co-products and by-products, 0.7-0.8 Mt of meat products, and more than 0.2-0.3 Mt of food waste at retail and final consumption. The material use efficiency was estimated to be around 0.95 (96%) at the time of slaughtering; it then decreases dramatically between 0.79-0.85 (82%) when food waste generated unknowingly is included, showing that it represents a significant variable mass for the calculation of the material cycle indicator. On the other hand, a strong increase in eco-efficiency indicators has been assessed with an average change of about 20% over the past ten years in terms of material input productivity.

Although the comparison between different studies/countries is somewhat challenging, due to different animal characteristics (e.g., species and breeding techniques), slaughtering techniques, consumer feeding behaviour, and methodological approaches to assess circularity, the results obtained are in line with other international realities (Desjardins et al. 2012; Kayikci et al. 2019), showing the Italian meat industry as an already virtuous sector. Despite the high perishability rate of meat products, the meat industry allows the transformation of various co-products and by-products into secondary processes, increasing the possibility of creating an industrial symbiosis inside and outside production facilities. In addition, in retail and final consumption, the economic, social and cultural values of Italian consumers mean that food waste is lower than elsewhere in Europe. In fact, Finnish households waste about 0.41 kg/day (Silvennoinen et al. 2015), followed by Croatian households with 0.21 kg/day and German households with 0.14 kg/day (Ilakovac et al. 2020). However, Italians' wastage is also considerable, with about 0.13 kg/day (Jorissen et al. 2015).

Hence, in summary, it can be stated that, although the meat industry is one of the least environmentally friendly sectors of agribusiness production, there are also significant opportunities to reduce the amount of its food waste and by-products, and this represents a great opportunity for a transition to circular models. As noted above, more than 2 million tons of edible meat is produced each year, accounting for about 40 percent of the total mass entering the meat industry. The remainder is made up of co-products and by-products, of which detailed knowledge

¹⁰ Mt stands for million tons.

(in terms of weight and composition) is needed to achieve an industry that is effectively circular.

Table 1. Average Material Use Efficiency (MUE) for beef, pork and poultry
Source: Amicarelli et al. 2021

MUE	At slaughtering (wasted co- and by-products)	At distribution (ad- ditional deboning)	At final consump- tion (wasted fresh meat)
Meat industry	0.95-0.97	0.86-0.91	0.79-0.85
Beef	0.93-0.89	0.74-0.63	0.64-0.54
Pork	0.96-0.97	0.90-0.91	0.85-0.86
Poultry	0.99	0.91-0.92	0.91-0.92

Table 2. Input eco-efficiency indicators (euro/t)
Source: Amicarelli et al. 2021

Type of indicator	Indicator	Euro/t (2008)	Euro/t (2018)	Var. % (2008-2018)
Input eco-efficiency indicator	TMIP* (meat in- dustry)	1517	1789	+17.9
	RP° (beef)	1789	2291	+28.06
	RP° (pork)	1297	1687	+30.07
	RP° (poultry)	1474	1528	+3.66

*Total Material Input Productivity, TMIP, measures the ratio between the Industrial output value and direct material input (DMI, Direct Material Input).

°Resource Productivity, RP, is defined by the ratio between the industrial output value (beef, pork and poultry) and DMI.

Analysis of material cycles and eco-efficiency indicators, based on AFM results, provides useful information for assessing the efficiency and circularity of agribusiness systems. For example, the direct material input indicator, i.e., DMI, (Direct Material Input) indicates resource input flows, providing data that could help with further environmental and/or sustainability assessments (such as emissions from the farm and livestock operation, energy required for stable procedures and transportation). Likewise, The Material Use Efficiency (MUE) value, which describes by-product recovery and waste prevention, considering that its value decreases dra-

matically when food waste (co-products, by-products, and fresh meat) is considered (82 percent), highlights how food waste is a significant variable in assessing the circularity of the agribusiness sector (Tab. 1). For this reason, it is essential to work for its reduction. Eco-efficiency¹¹, assessed for the entire meat industry turns out to be 1789 EUR/ton (+17.91% compared to 2008 data), with results providing optimistic prospects in every sub-sector of the meat industry (Tab. 2). This means that with the exception of the poultry industry, which shows only a slight increase, the beef and pork industries have strongly implemented the general concept of maximizing production and minimizing resource consumption.

In conclusion, meat can easily turn into unused waste if processes are improperly managed and implemented (poor management, storage, handling, and distribution) throughout the supply chain. Such inefficiencies can lead to high financial costs, nutritional losses and environmental impacts. However, the growing awareness toward circular models and food waste reduction, as shown by material cycle and eco-efficiency indicators, bodes well for transparency, safety, and economic benefits for the entire meat supply chain (Amicarelli et al. 2021).

3. Dynamics of meat consumption.

To well understand the evolution of consumption in the meat sector in Italy, it may be useful to divide the analysis into two periods: the trends before the pandemic crisis and the subsequent trends characterized by a significant change in trade, consumption and price levels (whose rise is only partly due to the pandemic issue, as it is also influenced by ongoing economic crises especially in the energy sector).

3.1 Trends in Italy through 2019.

Analysis of data on slaughtering and meat consumption in Italy over the period 2010-2019 shows three main dynamics¹²:

¹¹ It is the indicator referred to as Total Material Input Productivity, TMIP, described in table 2.

¹² See the report of the organisation Essere animali 2020, <https://www.essereanimali.org/dieci-anni-di-zootecnia-in-italia/>.

1. the decrease in consumption of red meat, with a consequent increase in consumption of white meat and fish;
2. the significant reduction in the slaughtering of some species;
3. the gradual but steady replacement of milk with plant-based alternative beverages.

As to consumption dynamics, these are greatly affected by changes in choices and lifestyles, especially for Western countries. In the case of pigs, cattle, sheep and calves, slaughtering numbers are declining. For some species this is a very sharp reduction, just think of -30% for cattle or even -50% for sheep (data refer to the 2010-2019 decade). It is likely that the health scare related to red meat consumption has greatly influenced dietary changes. Eating sausages or steaks is increasingly seen as a pleasure one indulges in rather than a healthy and necessary meal.

Trends are changing for so-called “white meat” animals. Chickens in particular have replaced other types of (red) meat partly as a result of consumers choosing to adopt a lighter, healthier diet. They are the only animals for which there has been a considerable increase in the number of animals raised and slaughtered. For other types of white meat, such as rabbits, the picture is substantially different: the number of animals raised and slaughtered has decreased over the decade, a dynamic that seems to be influenced in part by the fact that the rabbit, particularly in the West, is increasingly perceived as a domestic animal therefore for companionship and not for food.

Fish farming and consumption is also following the same trend as poultry. Per capita fish consumption continues to increase and in 2017 exceeded 30 kg per year, a 50 percent growth since 2010. This sector has two sources of production: fishing and farming. The amount of fish caught is in sharp decline (-16%), and this is mainly due to the depletion of fish stocks. Production from Italian aquaculture is stable while imports of aquaculture products from third countries have increased.

Meat consumption is certainly influenced by production and price factors but, especially for less income-constrained households, the issue of health and the empathy factor have affected the shift from red meat to white meat and fish. While sensitivity to farming conditions is growing for calves, cows, and pigs, this seems to be less the case for chickens and fish. In addition, new generations are eating less and less or no horse

meat and, as mentioned, rabbit. Although Italy was once a leader among European countries in terms of breeding and the use of meat from these two animals, the trend for the future seems to be that of a type of consumption destined to become a minority. If the trends that began in the pre-pandemic decade are confirmed, breeding and slaughtering of these species could in the not-too-distant future reach numbers near to zero.

A similar decline in consumption had clearly been triggered for lamb, at least in terms of direct consumption. However, another factor comes into play: in fact, raising lambs is necessary to produce the ewe's milk that is used for some types of cheese. It follows that the raising of these animals remains related to the consumption of cheese, so trends in the consumption of cheese inevitably influence the raising and export of lambs (if not consumed in the country).

In this regard, it can be noted that cheese consumption in the decade under consideration has remained stable while per capita milk consumption has declined by 15 percent, replaced by the explosion of plant-based alternative beverages whose supply has increased significantly within supermarkets and outlets. With more than 750,000 tons less milk and cream, there was a 33 percent drop in imports compared to 2010. Milk consumption decreased from 53.9 to 45.9 kg per capita while cheese consumption remained stable at about 23 kg per person. For health reasons and/or intolerances, Italians are consuming less and less cow's milk. One in four Italians have introduced into their spending alternative drinks to milk, which over time have also improved in quality and become more competitive in price. The future of the milk sector in Italy and Europe is uncertain and much will depend on the¹³ direction public policy takes (since it is, as is often the case in agriculture, a heavily subsidized sector).

Data¹⁴ for the interval from 2010 to 2019 show that annual per capita beef consumption decreased by about 6.5 kg (-28 percent) resulting in a decrease in slaughtering of more than one million animals (including calves). The largest decrease occurred between 2013 and 2014 when 500,000 fewer animals were slaughtered. Both calf slaughtering as well as meat imports from third countries decreased by 34 percent during the

¹³ See in this regard <https://www.beverfood.com/vola-il-mercato-delle-bevande-vegetali-in-italia-wd/>.

¹⁴ The reference is always the report *Essere animali* 2020.

period. On the other hand, organic farming has been on the rise since 2010, accounting for about 6.7 percent of the total. This is undoubtedly due to the fact that the consumption of beef, which is high in saturated fat, has been the subject of numerous studies highlighting its negative impact on health. Excessive meat consumption is linked to an increase in cardiovascular disease, the leading cause of death in Italy and the world, and the development of certain types of cancer (in 2015, the IARC, the WHO body responsible for cancer research, classified red meat as a human carcinogen). The number of dairy cows raised on the Italian territory remained almost unchanged in the decade under analysis with a decrease of 100,000 (-3%). The way of farming has changed: about 32% of farms have disappeared but the number of animals has increased due to the growth of the intensive model.

As for pork, which has always been extremely important in Italy's production and consumption dynamics, its use for food has remained stable on a per capita level, as has the number of animals per herd. However, the decade has seen a decrease in slaughtering perhaps due to the trend to raise heavier animals (over 110 kg). Pork imports also decreased by about 35 percent. The organic sector has grown, but it still accounts for a minority share of the total (less than 1 percent). Also, for this type of meat there is a reduction in the number of farms (1,500 in the decade) confirming the growth of the intensive model in this sector as well.

From a quick analysis of meat consumption trends in Italy in the pre-pandemic decade, some interesting considerations can be drawn. The dynamics indicate for Italy a downward trend in consumption for those types of meat considered particularly harmful to the environment and human health (Polidori, Rombaldoni 2022). These were associated with a fall in consumption of some types of production (such as rabbit and horse). However, this trend, which we could call virtuous and in line with EU green policies, has had a slow dynamic and is probably not sufficient to meet the needs of reducing the share of climate-altering emissions now attributed to the agri-food sector. Looking ahead, a crucial issue will be the contribution each single country shall make with respect to the EU targets. It will also be interesting to understand how the relevant positioning of the various member states has changed since the pandemic-induced shock. In fact, while on the one hand each single country will have to undertake policies to reduce its emissions, if neces-

sary even accelerating dynamics that are already in place, on the other hand it is advisable to work to ensure that the distribution of costs related to intervention policies is borne by each country in a balanced way, taking into account both the path that each member state has already taken and what is taking place after the pandemic.

3.2 *Recent changes in consumption induced by the pandemic and inflation.*

The pandemic first and the inflation explosion later, the latter linked to both the sudden recovery of the world economy after the lock-down and the cyclical crisis in the energy and commodities sector, mark an important caesura from the ongoing dynamics analysed in the previous section. The period of inactivity affected Italians' consumption, at least during the most acute phase, and then gave rise to diverse developments following the progressive reopening. Food prices were affected first by the supply- and demand-side shock produced by intermitting lock-downs, then by what happened internationally to the energy market both as a result of the marked restart of demand for goods at the national and international level and as a result of the effects induced by the war in Ukraine and the restriction of Russian gas imports. As is well known, for Italy, the dynamics of energy prices are fundamental to understanding the price trends of consumer goods, and whose performance is certainly a very important factor in determining consumption levels.

In this section we will particularly focus on the dynamics for 2022 with an indication of the changes from 2021¹⁵. It was chosen to omit from the analysis 2020, which is considered abnormal due to the pandemic.

The year 2022 saw an increase in value of Italians' spending for all food segments except for seafood and wine. This was mainly due to the increase in inflation even though it is fair to note that the beginning of 2023 is characterised by a deceleration of inflationary momentum as a result of the containment measures put in place by the Italian government to counter rising commodity prices. As already highlighted, in order to fully understand the dynamics related to the relationship between the meat sector and the environment, it is necessary to analyse not only the

¹⁵ Data Source Ismea 2023.

direct trends of this type of consumption but also the indirect ones, or those induced by the consumption of meat derivatives or complementary products such as milk and eggs. In particular, with regard to the meat sector specifically, 2022 recorded a marked increase in spending (+9.9%), which in value weighed about 10.6% of Italian households' expenditure against a slight decrease in the quantities purchased (by 1.6%). Consumers turned to more economically advantageous cuts and commodity categories. This has resulted in beef being penalised in favour of pork. This is only partly in line with the pre-pandemic trends shown in the previous section. In other words, the price factor seems to have influenced pre-pandemic consumption preferences.

If we go into the details of the various types of meat, beef experienced a marked increase in average prices (+9.7 percent) with a consequent containment of spending volumes by consumers; purchases in terms of quantity decreased by 4.4 percent but the effect on spending was still that of a 5.1 percent increase. In contrast, pork, despite a 7.1 percent increase in average prices, saw an increase in volumes purchased. This is probably due to the relative price effect compared to beef and some poultry cuts. Poultry is the type of meat that saw the largest increase in average prices during the period, at about 18.3 percent. The factors that affected the price increase were certainly the increase in energy costs, that of feed, but also the avian flu with consequent large culls that contracted the national supply. Interestingly, in line with what has been observed in the consumption trends of the 2010-2019 decade, despite the price increase, consumption of poultry meat in volume terms has remained almost stable compared to 2021 with a reduction of only 0.2 percent. In this case, the consumption preferences of Italians seem to be reconfirmed despite the increase in purchase price of the product¹⁶.

As for eggs, the increase in average prices was 12.5 percent, the result of a sharp rise in production costs and lower supply as a result of health restrictions affecting this sector. Nonetheless, volumes sold only slightly contracted by 1.6 percent in 2022. The resilience is probably due to the fact that this type of food is part of that basket characterised by ease of use and affordability; in fact, it remains the relatively least expensive of all animal protein foods.

¹⁶ Ibidem.

In the processed pork segment, 2022 spending on cured meats—which weighs 6.3 percent of the total food by value—shows a growth trend of 4.4 percent. Within this type of meat, which has seen rising prices on all products, consumer choices have been moving toward the least expensive products confirming the idea that the price of goods, in the food sector and with a few exceptions, remains the critically important variable in consumption dynamics, at least in times of shrinking household wealth. For example, cooked ham and mortadella saw their sales volumes grow by 3 percent and 11 percent, respectively, at the expense of products such as PDO raw ham, which, in the face of a 6.8 percent price increase, saw volume purchases fall by 11.4 percent.

Dairy products cover about 13.5% of Italian consumer spending, which increased by 8.6% in 2022. Spending increases of different magnitudes are observed for cheeses: “soft” cheeses grew by 4.8 percent, “industrial” by 11.4 percent. There is a counter trend with price increases associated with growth in volumes as well, due to the effect of relative prices of other goods. Spending on PDO hard cheese grew in volume by 3.8 percent against a price increase of 3 percent. Buffalo mozzarella against a price increase of 4.7 percent, although less than the average price of other similar products, sees volume sales increase more than proportionally (5.4 percent). Fresh milk consumption remains steady even in the face of substantial price increases (+9.3% on average).

Seafood products seem to be moving against the trend compared to other industries. The overall drop in spending is 3.4 percent. The sector that pays the most is fresh fish (minus 13 percent of total volumes against price increases in the range of 9 percent). Again, these are likely to be consumption choices driven by a reduction in the spending capacity of Italians in relation to the relative price trends of other foods.

The summary picture that rising from this brief analysis of Italians’ food consumption before and after the pandemic revolves around two main dynamics. The first has to do with cultural changes prior to the arrival of Covid 19, which showed a gradual reduction in meat consumption, particularly red meat, consistent with the requirements to reduce emissions associated with the production of certain foods. We could describe this as a virtuous cultural dynamic in the trend although probably too slow in relation to the needs associated with the climate abatement policies indicated in recent UN reports and European Environmental

Policies¹⁷. The second dynamic is one that discounts the impact that the pandemic and the energy crisis had on food prices. In fact, consumption was affected by the overall increase in inflation and changes in relative prices that revived the consumption of certain types of meat. The “price” factor was able to restrain pre-pandemic cultural changes although with significant differences in the types of meats consumed. It can be inferred that the cost of food remains a key element in the dynamics jointly generating important redistributive effects that will necessarily have to be taken into account in future national environmental policy choices.

4. What policies? The issue of conscious consumption and the role of information.

The preceding paragraphs show that several economic policy actions can be outlined that are useful in achieving meat sector transformation objectives that are compatible with the goals of the ecological transition. In particular, three will be discussed albeit briefly: actions on the price side, those on the production side, and finally, those on the consumption choice side. The aim of these policy actions should be to reduce the food sector’s contribution to climate-changing emissions while maintaining a necessary balance with both human health and supply chain protection aspects. As will be observed, the scenarios that arise are complex.

On the price side, economic theory tells us that these should incorporate the external costs of the production process and thus, as is the case with the carbon tax, account for the impact that farming, processing and consumption activities generate in terms of emissions. Since the agricultural sector has always been heavily subsidised, it is difficult to break down the components that these subsidies have on final prices, isolating the more properly environmental part. Just to give an example, subsidies to grain production lower the price of feed for livestock. Accordingly, in general, they lower the price of meat as does industrial-scale livestock farming. At the same time, however, the supply chain produces, albeit in a very di-

¹⁷ In this regard, see the Report of International Panel for Climate Change dell’ONU 2023 and the environmental policies of the European Green New Deal (<https://www.consilium.europa.eu/it/policies/green-deal/>).

verse manner by product type, an important impact on the environment in terms of, for example, climate-altering emissions and water consumption. Burdening meat with a specific “carbon tax” or “meat tax” (thinking also of the effect on water consumption) against subsidies allocated to one of the main production inputs risks creating a chain of distorting effects that is difficult to manage. The same can be said in the case of selective taxes by product type: for example, beef versus chicken meat. The risk is to achieve end effects that produce important changes in the production chain without generating equally important positive impacts on the environment. As the experience of the Common Agricultural Policy teaches us, managing a market without a structure of simple and above all clear and transparent interventions, risks producing uncontrollable long-term dynamics¹⁸. The alternative should be to rethink the whole system of aid to the agro-industrial sector from the perspective of environmental sustainability, but given the strategic weight of the sector, as we have also learned from the Covid experience, this seems rather difficult in perspective.

For these specific reasons, in the case of the agribusiness sector, relying on price policy alone is not possible, at least if results should be achieved within a reasonable time frame. This must be supported by an appropriate industrial policy that privileges plants and technologies characterised by a lower environmental impact. Policies in this direction cannot be based only on fiscal or monetary incentives. Indeed, they need strong scientific support free from ideological logic. Consider, for example, the enormous debate that is stirring up on the issue of cultured meat or the use of protein meals from insects.

Therefore, on the production side, there are certainly many paths to follow; they range from the enhancement of traditional plants that prove to be more efficient in an environmental sense or that specialise on types of meat production with less impact, to the exploration of new frontiers that could prove to be successful at least for some countries or markets. Here regulation must play a crucial role so that, on the one hand, research does not come to a halt and, on the other hand, non-transparent production processes are not generated that can bring potentially harmful products to the market. The current great debate on the devel-

¹⁸ In this regard, see the special report of the European Court of Auditors n. 16, 2021.

opment, introduction and use of Artificial Intelligence can only serve as a guide and example on the risks that can be taken with regulation (or speculatively lack of regulation) that does not pivot on knowledge.

The third line of action concerns policies on the consumption side. As described in the first part of this paper, before the pandemic, Italy experienced a tendency to reshape food consumption in the direction of less meat consumption. There can certainly be many factors, but undoubtedly information about the impacts of meat production and consumption on the environment and human health played a certain role. This trend, perhaps too slow with respect to environmental needs, has come to a halt as a result of the pandemic and the subsequent rise in inflation. Interpreting what happened is not easy, not least because the anomaly represented by Covid-19 and the lockdown certainly produced even behavioural changes that are not easy to read. Undoubtedly, however, the consumption choices of individuals and households will be the main tool to evaluate the entire food supply chain, and the freer and more conscious these choices are, the more linear the path toward ecological transition in food will be.

In a sense, it can be stated that if change takes place while maintaining the centrality and sovereignty of the consumer then it will be all the easier to witness a spontaneous path of evolution of the entire food chain in search of new balances. Hence the need firstly for conscious and informed consumption and secondly for a system of rules increasingly concerned with internalising and containing the social costs induced by production and consumption activities. The historical recipes of the economy remain unchanged. It is a matter of being able to dose them to achieve the desired results in the right time frame.

The issue of conscious consumption is central and not without its criticality because, in an increasingly urbanised society with little rurality, the information asymmetry between the production and consumption stages is very large. Individuals and families need, in order to choose, to understand what impact food has on their health and the environment. This requires increasingly transparent information coupled with appropriate food education. The pre-pandemic pathway must be resumed and accelerated.

Hence the need to work in two distinct directions: the first is that of product labelling in order to be able to give in an increasingly correct

and simple way information to the consumer about what they are buying and eating; the second, which will not be addressed here except briefly, is that of food education, which among other things is functional to the proper functioning of labelling systems.






Labelling systems have recently been the focus of debate especially with regard to the Nutri-Score project (SAFE 2022; Hercberg et al. 2021; De Temmerman et al. 2021; Peters et al. 2022). Nutri-Score is a traffic light food characterisation that allows for quick comparisons of the balance of a product's composition on a scale from A (coloured green) to E (coloured red) using letters and colours for better reading. The Nutri-Score label was developed in France where it has been used since 2017. In September 2019, the Swiss Federal Office of Food and Veterinary Safety SAV endorsed the Nutri-Score characterisation. Other countries where Nutri-Score characterisation is recommended by authorities include Belgium, Germany, the Netherlands and Spain.

Nutri-Score helps quickly compare similar foods and then choose the healthiest one. It marks foods with a coloured scale from A green (= balanced) to E red (= unbalanced). The score is determined by the computation of unfavourable (which add up) and favourable (which subtract) elements: the lower the final result, the better the Nutri-Score. Each unfavourable component is assigned a score from 0 to 10 based on the amount in 100g of food, compared with reference consumption, for a maximum of 40 points. While each favourable component is assigned a score from 0 to 5 (for beverages it ranges from 0 to 10), again based on the amount in 100g of food (for favourable foods we look at the percentage by weight of the total), for a maximum of 15 points (Fig. 6).

The final score is determined through a scientifically validated algorithm (a formula). Aspects considered positive and negative of the food are evaluated in a comparison of each other. The positive (green) ones include the content of fruits, vegetables, legumes, nuts, some oils, dietary fibre and protein. In contrast, the presence in a food of sugar, salt, saturated fatty acids and energy value shift the score to negative (and the colouring tends toward the red range). It is important to note that Nutri-Score is not an absolute rating; it can only be used to compare similar foods with each other. A box of cookies marked in green indicates a healthier choice than a box marked in orange. The same is true for a

Figure 6 The Nutriscore label*

Source: Lexfood, 2021

POINTS		LOGO
SOLID FOOD	BEVERAGES	
≤-1	Water	
0-2	≤-1	
3-10	2-5	
11-18	6-9	
≥19	≥10	

red yogurt that is less recommended than a yellow yogurt. However, two foods as different as cookies and yogurt cannot be compared using Nutri-Score. Therefore, the indication the consumer gets is not whether it is better to eat parmesan or a hamburger, if anything, the comparison can be between two different types of parmesan or hamburger. It can be used with due caution to compare two similar types of cheese.

The European Public Health Association (Eupha), which represents 39,000 health professionals from 47 countries, is calling for the Nutri-Score to be adopted as an official nutrition label in all EU countries. The International Agency for Research on Cancer (IARC) also advocates its adoption as a front-of-pack label as it has been shown to help consumers make healthier food choices. The Nutri-Score algorithm uses data on various nutrients present in 100g (or ml) of product as written in the nutrition declaration that refers to the product sold and ready for consumption (Art. 30.3, Regulation (EU) 1169/2011). A further possibility is to provide information about the food after it has undergone any

* Published by Galizia L. su <https://www.lexfood.it/category/attualita/>

preparation (e.g., hydration, cooking, etc.); of course, it is necessary that the method of preparation be described by the manufacturer in sufficient detail.

As it is easy to imagine, the proposal to introduce a Nutri-Score type labelling system in the European context gave rise to wide debate, including great criticism particularly in Italy because simulating the inclusion of the label for some typical Italian products, such as Parmigiano Reggiano cheese, revealed evaluations considered not to correspond to the organoleptic quality of the product. Thus, the model is thought to penalise Italian products especially PDO and PGI products. Specifically, Parmesan received ratings slightly higher than meat and lower than grain products. The fear is that the Nutri-Score will be perceived by consumers as an indication of what to buy: “buy products with green labels that are good for you and not those with red labels that are bad for you.” The issue has very interesting and far from trivial implications at least with respect to four profiles.

The first relates to consumer sovereignty and the possibility of distorting consumer choices. As mentioned above, the ecological transition in food, with specific reference to the type of consumption, cannot disregard, in democratic societies, the free choices of individuals. Among the various factors that drive such choices is certainly the price-quality ratio of food and, specifically with regard to this work, the price of meat. Since consumers are willing to pay according to the – both objective and subjective value – of what they buy, their choices can only be informed if they receive adequate information as to the characteristics of the good they are buying. In food, asymmetries between buyer and seller are high, especially in societies characterised by distribution chains in which the production stage is far (in time and space) from the consumption stage. It is for this reason that rules exist on the production and marketing side. In this area, labels, their correctness and, above all, clarity acquire a decisive role but one that cannot be exclusive. The Nutri-Score debate is useful in order to understand the usefulness and limitations of such a simple and straightforward information system that is certainly not immune to error. The idea of traffic light labelling, which, moreover, is particularly useful even for markets with low literacy levels, deserves to be thoroughly evaluated. It represents an avenue with great potential that certainly needs dynamic regulation but does not deserve to be dismissed.

Indeed, the limitations of current labelling systems are well known as is their unevenness, which in a globalised market is a strong element of weakness (Di Lauro 2015; Bairati, Grasso 2018).

The second profile of interest is closely related to the first. When we talk about labels, we should think not only about the need to provide information about the organoleptic components of foods but also about their environmental impact. As discussed in the first part of this paper, there is a close connection between food consumption and fossil fuel emissions, and these links are much deeper and more complex than one might think. The link between meat production and consumption and the impact these have in terms of emissions, land use and water consumption are recurring (Polidori, Rombaldoni 2023). Now, how can there be environmentally conscious consumption without adequate information about the environmental impact that products on the market have? The issue presents a certain complexity especially with consumer goods with divergent characteristics. The conscious consumer would need to know both what is the organoleptic composition of the good they are buying, such as in the case of Nutri-Score, and what is its environmental impact (measured in some way). That is, an Eco-Label should be created that can signal the degree to which the product is environmentally neutral. Now, assuming it is possible, there is nothing to ensure that the colour of such an eco-label would be positively correlated with that of its organoleptic content twin, to stay hooked on the example already discussed of traffic light labels. For that matter, there do not seem to be, on the consumption side, alternative paths to the sovereignty of the chooser. It can only be noted that, to date, while the legislation regarding the labelling of food products exists, no regulation on the reporting of their environmental impact has been established.

The third profile concerns the application of algorithms for the creation of information, of synthesis, to consumption. The topic is very broad and some insights will be provided here (Bar-Gill et al. 2022; Sunstein 2022a; Sunstein 2022b; Sunstein 2019; Kahneman et al. 2021). The issue is often approached with scepticism by those who believe that an algorithm cannot effectively synthesize complex information and thus be effective in guiding individuals' consumption choices. Let us assume that an algorithm is nothing more than an automated system that synthesises information into a single indicator. For example, in the case of Nu-

tri-Score, the letter is associated with a colour dependent on the scale of values that the algorithm returns once the formula to be used is defined. Both the input information and the formula are decided by the person who devises the algorithm, so if the former or the latter is imperfect, this is not attributable to the algorithm but to the operator who devised it.

Even a normal human decision needs information to be made and a synthesis process, a routine Kahneman would say, which can be more or less reasoned and therefore more or less fast. “Fast” routines produce decisions that are instantaneous but susceptible to errors of judgment while “slower” routines take longer but reduce errors¹⁹. The difference from an algorithm is that the latter uses a clearly expressed formula whereas in many human decisions the formulas used are unknown; however, while they exist, they are difficult to set out. Correcting one’s way of making a decision as a result of an overt error means nothing more than revising one’s algorithm of choice. Certainly, algorithms such as Nutri-Score produce errors (e.g., some healthy foods are not sufficiently valued because the processing and/or production process is not adequately evaluated), but errors can be corrected following a report and the algorithm transformed accordingly. As described by Cass Sunstein²⁰, human decisions are subject to errors generated by the scattering of results due to random context situations (noise) or persistent biases because, for example, they are dictated by prejudice (bias). A decision noise is what leads, for example, a radiologist to give different diagnoses when looking at the same X-ray. One can best explain this concept by resorting to the target image. Both biases and “decision noise” do not allow to hit the target (make the right choice). If for biases, however, the errors are persistent and concentrated in one direction, in the case of “decision noise” these show greater dispersion. An algorithm is not subject to “decision noise” because context situations do not influence the way it produces a result. There may be an error in its design but this is not causal. Once the error is detected the bias is corrected. Algorithms can reduce decision noise around choices. The same input repeated several times, given the same information, produces the same decision and not different decisions. The same

¹⁹ Reference is made here to the well-known book (the Italian edition is reported) by Kahneman 2012.

²⁰ See literature cited at note 18. More specifically, Sunstein 2022a.

can be said of biases. In an algorithm these come from the computational formula and if they are not “designed” (even if erroneously) they do not occur. For example, a human being may happen to negatively evaluate protein meals from insects not because they are scientifically proven to be dangerous but because of the disgust they feel at the mere thought of eating an insect. The algorithm does not feel disgust unless it is programmed to do so. So, it is one thing to respect individual choices that require the consumer to be informed that the product contains a certain element, it is a different thing to indicate the organoleptic characteristics of the product or its possible eco-sustainability.

The fourth profile is crucial to the functioning of any consumer-facing information system pertaining to the nutrition education of individuals or their education. No system can disregard the ability that consumers must have in ‘interpreting the signs placed on product packaging. These signs may be more or less complex as in the case of today’s classic (more or less) detailed labels or Nutri-Score, but they will always be more effective if the user has adequate food knowledge about both the relationship between food and health and the relationship between food and the environment. Only a trained consumer can understand the inherent limitations of an intuitive labelling system such as Nutri-Score and adjust accordingly according to their personal preferences. Once they have grasped the merits and shortcomings of the reporting system, however, it will be easy for them to identify which product to buy. This is the case even in the presence of dual labelling that signals, for example, the nutritional qualities of the product along with the eco-friendly qualities. In the presence of signalling going in opposite directions it will be the consumer who will have to choose. The lower the education of the consumer, the higher the degree of paternalism of the public decision maker.

Reference was made earlier to the role that traffic light labels can play in the presence of low-literate consumers. In such cases it is implicit that the public decision to use a certain indicator contains the implicit choice of the degree of paternalism that the regulator has assumed, and it could hardly be otherwise. It is true, however, that in the presence of informed consumers, simplicity of communication can function as a default rule in favour of healthier and/or less environmentally harmful products.

In summary, it can be said that with a nutritional algorithm, meat may never score the same as vegetables or grains, but the difference be-

tween meats of different quality will be immediate. The same with any algorithms related to the eco-sustainability of the product. Hence the difference in breeding and slaughter processes will emerge even more strongly. A trained and informed consumer will be instrumental in the transformation of the entire agribusiness sector.

5. Concluding remarks.

The issue of ecological transition, related with a focus on the meat sector, arises strongly because of its repercussions on human nutrition and at the same time because of the climate-changing effects caused by production and consumption. However, the intervention in the agribusiness sector is very complex: for 3 food products that are fundamental to human nutrition such as cereals, chicken meat, and tomatoes, fuel, in terms of fossil fuel, required for their production is much higher than one can imagine.

Meat production in our country shows a stable trend since the 1990s, but internal dynamics suggest an increasing trend only for poultry meat, thus confirming this trend highlighted globally. This is a very complex and articulated supply chain, accounting for more than 15 percent of the national agrifood value, but it requires large amounts of energy and produces different types of waste. However, some studies (Amicarelli et al. 2021) have attempted to quantify and qualify food waste streams through material-use efficiency and eco-efficiency indicators, showing quite high values along the various stages of the supply chain and an improvement of the latter in terms of material input productivity. An already virtuous sector is thus outlined within which the reuse of various co-products and by-products in secondary processes is possible, with a greater possibility therefore of creating industrial symbiosis inside and outside production facilities.

Consumption reveals distinctive aspects that should be placed in the periods before and after the pandemic shock. In Italy, the dynamics of the previous decade show a downward trend in consumption for those types of meat considered particularly harmful to the environment and human health; this behaviour is certainly virtuous in line with green policies, but its slow progression does not satisfy the reduction in the share of

climate-changing emissions. Subsequently, the inflationary phenomena brought about by the pandemic and energy crisis have led to a contraction in beef consumption in favour of pork, with a stable trend for poultry, despite the fact that the latter has experienced the greatest increase in price. It can be seen that the “price” factor was able to curb pre-pandemic cultural changes although with significant differences in the types of meats consumed. Thus, the cost of food remains a key element while also generating important redistributive effects.

Possible economic policy actions can have 3 directions: policies on price, policies on production and, finally, policies on consumption choice. The first two are already known and tested. Special attention should be paid on the third policy action: the consumption choices of individuals and households will be the main vector of the evolution of the entire food supply chain, and the more these choices will be free and conscious, the more linear will be the path towards the ecological transition in food.

Still with reference to actions on the consumer side, one topic of definite interest is that of product labelling with the aim of being able to give in an increasingly correct and simple way information to the consumer about what they are buying and eating; another topic is that of food education, which is functional to the proper functioning of labelling systems. The debate is mainly focused on the Nutriscore project, a labelling system that helps to quickly compare foods and thus choose the healthiest one. However, the conscious consumer needs to know not only the organoleptic properties of the product they are buying, but also its environmental impact, i.e., they should also be informed through an eco-label about the product’s ecological neutrality. The importance of proper nutrition education for any consumer-facing information system to work is clear.

The public entity responsible for the various policy actions must balance all the needs of the sector (essentially containment of the social costs induced by the process of change) without losing sight of the goals of the ecological transition, using and exploiting all the tools already at its disposal (taxation, subsidies and regulatory interventions for the re-conversion of production facilities). The success of this transformation depends crucially on the informational role of a food education system that keeps the role and sovereignty of the consumer at the centre.

The proposed topics, in particular that of the reuse and transformation of waste substances that accompany all phases of the production process of the supply chain, open up broad research prospects in the direction of circular models, which can generate safety, transparency and economic benefits for the entire sector.

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THE FUTURE OF FOOD SAFETY: INTERNATIONAL POLICIES
AND DOMESTIC LEGISLATIONS ON CULTIVATED MEAT

1. Introduction. A food safety-oriented regulatory framework in the European Union and other developments.

Throughout the 1990s, there were a number of food crises¹, including the bovine spongiform encephalopathy (BSE) crisis, which sparked strong public outrage over the European Union (EU)'s inability to guarantee food safety. Food safety concerns provided the political impetus required to unify the field of food law as a distinct and specific area of EU law, resulting in the General Food Law Regulation (GFL)².

However, the roots of the Community legislation concerning food safety can be found in the 'functionalist' approach of the Common Agricultural Policy (CAP) and the creation of the internal market. More specifically, the free movement of products and the requirement for product standardization and technical harmonisation served as the foundation for the Community's involvement in this area of law. The Commission has progressively acted to defend consumer rights and maintain public health while making sure that intracommunity trade has not been negatively impacted.

With the adoption of the GFL, the EU aimed to provide a comprehensive framework of EU food safety rules overseeing to food and feed products, consisting: in general principles of food law, a set of safety obligations, procedures, an updated legal basis for the Rapid Alert System for Food and Feed (RASFF) and for authorities for measures to be taken

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¹ Remarkably, a dioxin contamination problem in Belgium.

² Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

in a crisis or emergency, and the establishment of the European Food Safety Authority (EFSA).

While the GFL Regulation is the cornerstone for food safety issues, the EU legal framework in this field is complex and multi-layered. Together with the general principle which establishes that food that is deemed unsafe is prohibited from being placed on the market³, additional legislations that address transversal safety concerns elaborate on this broad clause⁴.

In recent times, together with the existing food safety emphasis, the debate around food law has been coloured by the sustainability component. In the EU agenda, the scenario changed in 2019, when the Commission adopted the European Green Deal⁵, with numerous policy initiatives in a wide number of sectors were drawn up, broadly implementing the aspiration of the EU to become more sustainable in many economic sectors. This paradigm embraced in the Green Deal is transversal and operationalised for the food sector through the Farm to Fork Strategy⁶.

Against this general EU background, looking at the specific case of cultivated meat, the regulatory landscape surrounding it is rapidly evolving on both the international and domestic levels⁷. This article explores the current state of international policies and domestic legislations that govern the production, labelling, and commercialisation of cultivated meat. Indeed, in November 2021, the Codex Alimentarius Commission (Codex) included cell-based food among the emerging food potentially helpful, as well as microalgae, edible insects, etc., to face challenges regarding food security, lack of food, and demand for proteins⁸. Codex

³ Regulation (EC) No 178/2002, art. 14.

⁴ In 2004, the EU adopted three legal instruments that were jointly identified as the 'Hygiene Package', Regulation (EC) No 852/2004, 853/2004 and 854/2004. These rules merged, harmonised and simplified previous legislation contained in different Council Directives, consisting in a hygiene regulation for all foodstuff including foodstuff of animal origin, a special hygiene regulation for foodstuff of animal origin only, and an official controls regulation.

⁵ COM/2019/640 final.

⁶ COM/2020/381 final.

⁷ For a general perspective on Food Policies at global level with some regional and national case studies see Steier, Patel 2016: 1 ff.

⁸ See <https://www.who.int/news/item/05-11-2021-fao-who-joint-media-advisory-codex-alimentarius-commission>. About these issues, from the general perspective of the WTO, see also Cazzini, Rossi 2022: 566 ff.

standards will be key to ensuring harmonisation and fairness for international alternative protein guidelines (Scaffardi, Formici 2023: 2 ff.).

Internationally, other key International Organisations such as the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) have begun to address the regulatory challenges associated with this emerging industry. Efforts are being made to establish harmonised guidelines regarding safety, quality, and labelling requirements⁹.

At the domestic level, various countries are taking steps to develop specific legislation tailored to cultivated meat or to apply existing legislation. We will look into the EU, US, and Singapore frameworks. Both the US and Singapore have seen cultivated meat products pass through their regulatory processes while in the EU a lively discussion about the authorisation of this product under existing rules is currently ongoing.

Overall, the regulatory landscape of cultivated meat is a dynamic field, with ongoing efforts to strike a balance between ensuring consumer safety, promoting innovation, and facilitating the growth of a sustainable and ethical alternative to traditional food (Sforza 2023: 59 ff.).

2. The EU Regulation on Novel Food.

The EU regulatory framework of novel food is an example of existing limits to the free movement of goods since pre-market restrictions are established, so that certain food products require a special pre-market authorisation. The reason for having this system in place is that certain categories of food and substances are considered to be intrinsically risky, and the law does not presumptively assume that these kinds of food are safe.

The Novel Food Regulation (NFR)¹⁰ of 2015 introduces a centralised

⁹ See the recent FAO expert meeting on cell-based food of November 6th, 2023 (report available at <https://www.fao.org/documents/card/en?details=cc4855en>). A previous expert meeting consultation on the same topic was held in Tel Aviv on September 7th, 2022: see the meeting report FAO, *Cell-based food: its safety and its future role*, Rome, 2023, available at <https://www.fao.org/documents/card/en/c/cc6967en>.

¹⁰ Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending Regulation (EU) No 1169/2011 of the Euro-

assessment and authorisation procedure that makes the overall process more efficient compared to the previous system. Since 1 January 2018, the European Commission has been responsible for authorising novel foods and, as part of the procedure, can ask EFSA to conduct a scientific risk assessment to establish their safety.

In order to qualify as novel food, both the ‘food’ definition under the GFL¹¹ and the ‘novelty’ aspect under the NFR must be met¹². The cumulative conditions of ‘novelty’ are: foodstuffs cannot demonstrate ‘human consumption within the EU to a significant degree’ before 15 May 1997; foodstuffs must fall under one of the categories of the NFR in Article 3¹³. In the case of cultivated meat, we are referring to ‘food consisting of, isolated from or produced from cell culture or tissue culture derived from animals, plants, micro-organisms, fungi or algae’¹⁴.

The general authorisation procedure is regulated under Article 10 NFR and the Commission adopted further guidance for applications¹⁵. It can either be initiated by the Commission or following an application by a food business operator to the Commission.

During the last few years, there have been discussions on how this legal framework may hinder innovation in the meat alternatives sector, including cultivated meat. From many perspectives, it can be argued that 2015/2283 may not fit for purposes when it comes to innovation, consumer protection or sustainability concerns. The safety assessment and product authorisation procedure for novel foods is currently considered as very lengthy, especially by the food industry. The EU NFR remains very safety oriented, while less politicised than other areas of regulation as genetically modified organisms, and quite technical in nature. Minor changes could lead to more innovation without hampering safety

pean Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001.

¹¹ Regulation (EC) No 178/2002, art. 2.

¹² Regulation (EU) 2015/2283, art. 3.

¹³ *Ibid.*, art 3(2)(a).

¹⁴ *Ibid.*, art 3(2)(a) (vi).

¹⁵ Commission Implementing Regulation (EU) 2017/2469 of 20 December 2017 laying down administrative and scientific requirements for applications referred to in Article 10 of Regulation (EU) 2015/2283 of the European Parliament and of the Council on novel foods.

requirements, such as an efficient distribution of the costs for safety assessments, a time reduction in the whole authorisation process. Moreover, at the moment, by looking at the general conditions for inclusion of novel foods in the Union list¹⁶, there is no ‘sustainability’ assessment included. This is particularly relevant for certain novel foods such as cultivated meat, with potentially relevant reductions in the use of resources or environmental impacts.

3. The cases of cultivated meat in Singapore and the U.S.

Two national experiences that deserve to be analysed in more accurate detail are the cases of Singapore and the USA.

After the first experiments in the 2000s, in Singapore, in 2020, for the first time a cell-based food product (chicken nuggets) has been approved and authorised to enter into the market according to the regulatory framework set out by the Singapore Food Agency (SFA)¹⁷.

In November 2022, in the USA, the Food and Drug Administration (FDA) completed the pre-market procedure for human beings food regarding cell-based products without objections on the safety, even if this could not be considered a proper approval process: indeed, differently from Singapore, in the US cell-based food products, although specifically addressed by the competent authorities, are not yet on the market.

One of the most problematic aspects that has been – and will be – faced by national authorities concerns the classification of cell-based meat. Indeed, the use of appropriate terminology is necessary to avoid problems related to, for example, EU legislations on consumers’ protection¹⁸ and to facilitate the elaboration of a clear regulatory framework using internationally harmonised notions.

According to FAO and WHO the most appropriate term shall be

¹⁶ Regulation (EU) 2015/2283, art. 7.

¹⁷ See <https://www.sfa.gov.sg/food-information/risk-at-a-glance/safety-of-alternative-protein>. *Amplius* on the current status of cultured food in Singapore see FAO & WHO 2023: 37 ff. and Miyake, Masashi, Kohsaka 2023: 4 f.

¹⁸ See the accurate section of the website of the European Commission on the consumer protection law https://commission.europa.eu/law/law-topic/consumer-protection-law_en.

“cell-based food”, because the terms “cultured” and “cultivated” can be confusing, considering that they are already used in other areas, in particular for seafood (FAO & WHO 2023: 2).

The problem is that the use of words such as “meat”, “chicken” or “fish” could still be misleading when placed alongside with the term “cell-based”¹⁹. However, the use of expressions such as “lab-meat”, “artificial meat” or “synthetic meat” could aggravate the contrast with traditional food requiring to specify in each label or document, e.g., “natural” meat (Bryant, Barnett 2019: 105 ff.), creating lack of certainty in distinguishing with vegetable products popular as substitutes for animal meat.

The term “alternative proteins” is generally used to indicate “proteins derived from sources other than animal proteins” (FAO & WHO 2023: 36), although with regard to cell-based meat there are much debated opinions, as many expressions have been proposed (Bryant, Barnett 2019: 104; Szejda, Bryant, Urbanovich 2021: 1050; Szejda, Allen, Cull et al. 2019: 13-15; Hallman, Hallman II 2021: 3799 ff.).

In Singapore, for instance, the term “cultured meat” is used, emphasising the origin from the culture of animal cells²⁰, although the terms “cultivated” and “cell-based” are also allowed in the labelling, insofar as they are considered sufficiently clear and transparent for consumers (Miyake, Masashi, Kohsaka 2023: 4-5).

In the US, competent authorities are still considering what is the correct term to identify cell-based foods in labelling, even if both the US Food and Drug Administration (US FDA)²¹ and the US Department of Agriculture Food Safety and Inspection Service (US FSIS)²² have used the term “cultured cells” derived from animals.

¹⁹ For instance, in the EU, the classification as ‘novel food’ (see above, para. 2) could limit or prevent the use of terms such as ‘meat’ (see Seehafer, Bartels 2019: 323 ff.).

²⁰ See Singapore Food Agency, *Requirements for the Safety Assessment of Novel Foods and Novel Food Ingredients*, July 30th, 2023, available at <https://www.sfa.gov.sg/docs/default-source/food-information/requirements-for-the-safety-assessment-of-novel-foods-and-novel-food-ingredients.pdf>.

²¹ US FDA, Labelling of Foods Comprised of or Containing Cultured Seafood Cells. Request for Information, 10/07/2020, <https://www.federalregister.gov/documents/2020/10/07/2020-22140/labeling-of-foods-comprised-of-or-containing-cultured-seafood-cells-request-for-information>.

²² US FSIS, Labelling of Meat or Poultry Products Comprised of or Containing Cultured Animal Cells, September 3rd, 2021, <https://www.federalregister.gov/documen>

In addition to terminological issues, the importance of an appropriate regulatory and procedural framework, including the crucial role of the competent authorities, clearly emerges to ensure consumers' health and safety.

In this regard, it is generally provided that cultured food products only enter the market after specific evaluations and controls relating to food safety assessments, nutrition and quality control, verification of protocols for the production process, and approval of labelling: only in this way health risks from the consumption of cell-based food can be avoided.

For example, according to Singapore's regulatory framework for novel foods (FAO & WHO 2023: 29), before the aforementioned cell-based chicken nuggets could be allowed to enter the market, manufacturing companies had to submit to the FSA safety assessments concerning possible risks for the safety and health of consumers and had to provide detailed information on materials and production processes²³.

In the USA, responsibility for the authorisation procedures of cultured food products is divided between the FDA and FSIS depending on the animal from which the cultured cells originate (FAO & WHO 2023: 37). These two authorities developed a common regulatory framework in 2019²⁴, allocating their competences according to the production stages (collection, banking, culture process, packaging and labelling) and the type of product.

Companies have to complete a pre-market consultation with the FDA on the safety of the products before starting the production of cell-based foods and have to undergo frequent FDA and FSIS inspections during production.

Concerning the labelling of cultured food, the two authorities have taken steps to collect pre-market public comments and indications²⁵,

ts/2021/09/03/2021-19057/labeling-of-meat-or-poultry-products-comprised-of-or-containing-cultured-animal-cells.

²³ See Singapore Food Agency, *Safety of Alternative Protein*, available at www.sfa.gov.sg/food-information/risk-at-a-glance/safety-of-alternative-protein; FAO & WHO 2023: 36.

²⁴ More details are available at <https://www.fda.gov/food/domestic-interagency-agreements-food/formal-agreement-between-fda-and-usda-regarding-oversight-human-food-produced-using-animal-cell>.

²⁵ See *FDA Seeks Input on Labeling of Food Made with Cultured Seafood Cells*, October 6th, 2020, <https://www.fda.gov/food/cfsan-constituent-updates/fda-seeks-input-la>

in order to elaborate clear and accurate legal definitions while avoiding negative consequences for consumers.

Within this general framework, it is worth clarifying which actors are involved at an institutional level and which role they play to assess whether the production and marketing of cell-based meat is suitable for achieving the goals of ethical and sustainable growth and ensuring consumer food safety.

We have already noted²⁶ that, both in Singapore and in the USA, there are competent authorities – the SFA in Singapore and the US FDA and US FSIS in the US – with duties of authorisation and management of control and supervision procedures. These authorities are also in charge of drawing up regulatory standards that must be complied with in the production and marketing of food, including cell-based meat.

However, these authorities, which generally come under the competent ministry, carry out their activities in cooperation with other bodies.

In Singapore the SFA cooperates, for instance, with the Economic Development Board (EDB) to encourage and support companies²⁷, with the Agency for Science, Technology and Research for research issues concerning food products development²⁸, with the Ministry of Health and with the Health Promotion Board (FAO & WHO 2023: 62-63).

The crucial nature of the FSA's dialogues with other bodies is already clear from the pre-market consultations where regulatory actors may intervene, as in the case of the FRESH (Future Ready Food Safety Hub) initiatives²⁹.

Also, in the USA, the competent ministerial authorities (US FDA and US FSIS) cooperate with other players and stakeholders, both on public

being-food-made-cultured-seafood-cells, and *Labeling of Meat or Poultry Products Comprised of or Containing Cultured Animal Cells*, September 3rd, 2021, <https://www.fsis.usda.gov/policy/federal-register-rulemaking/federal-register-rules/labeling-meat-or-poultry-products>.

²⁶ See above.

²⁷ See Netherlands Enterprise Agency, *The novel foods ecosystem in the Netherlands and synergy with Singapore*, October 2023, (available at <https://www.agroberichtenbuiteland.nl/documenten/rapporten/2024/01/09/report-novel-foods-ecosystem>) p. 15.

²⁸ *Ibidem*.

²⁹ About FRESH see <https://www.ntu.edu.sg/fresh> and <https://www.a-star.edu.sg/News/astarNews/news/press-releases/ntu-sfa-astar-launch-future-ready-food-safety-hub-fresh>.

and on private institutional level³⁰, thus assuming an important role on the development of cell-based food³¹.

The achievement of food safety and food security goals in the cell-based food sector cannot be achieved without an efficient synergy between all stakeholders, which include, in addition to the competent specialised technical authorities and governmental authorities, also private companies that have to act responsibly, as well as consumers that can influence market mechanisms, helping to increase the level of product quality.

4. Conclusions.

The progress in the discussion and start-up of cell-based food production processes worldwide, essentially based on the attempt to address innovation, a source of alternative protein and, broadly speaking, food security issues, stresses the need to balance two separate but necessarily connected aspects.

On the one hand, issues concerning sustainability, climate change threats, and production arise (Polidori, Rombaldoni, this volume).

On the other hand, the ethical and nutritional values associated with cultured food products cannot be neglected, requiring careful considerations on the need for food safety and quality, consumer preferences and labelling.

These key food safety aspects require States' authorities to set out appropriate regulatory frameworks, possibly internationally harmonised

³⁰ For instance, many private entities (trade unions and associations as the National Chicken Council, the National Cattlemen's Beef Association, the National Pork Producers Council and the North American Meat Institute) provided their comments concerning the labelling of cell-based meat products (see Congressional Research Service, *Cell-Cultivated Meat: An Overview*, September 19th, 2023: 12, available at <https://crsreports.congress.gov/product/pdf/R/R47697/2>). See also Failla, Hopfer, Wee 2023 (available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10514362/#sec9title>) and the contribution to the discussion on cell-based meat offered by the US Government Accountability Office: <https://www.gao.gov/products/gao-20-325>.

³¹ See, in this regard, the announcement of US FSIS, *Human Food Made with Cultured Animal Cells*, available at <https://www.fsis.usda.gov/inspection/compliance-guidance/labeling/labeling-policies/human-food-made-cultured-animal-cells>.

given the ease of circulation of products, considering the possibility of these new foods entering national markets. From the overview of the regulatory frameworks addressed, these are the key factors to take into account:

- Need for food safety assessment as part of an efficient authorization system.
- Internationally accepted and generally understandable by consumers scientific terminology.
- Other aspects of consumer preferences, such as ethical consideration.
- Need for clear and non-misleading labelling to distinguish cell-based food products from conventional meat and plant-based meat substitutes.

It is also necessary to be aware that currently there is a “limited amount of information and data on the food safety aspects of cell-based foods to support regulators in making informed decisions” (FAO & WHO 2023: 39).

These obstacles can only be addressed through an evidence-based approach, which can only be fully implemented at the international level, through dialogue with international organisations, which will facilitate global discussion and the sharing of experiences and good practices.

At the same time, science-based decisions, and conformity with EU law, have been questioned by recent ban in different EU countries³². The greater example in that sense was the adoption, by the Italian Chamber of Deputies (Formici 2023), of a law banning the production and marketing of cultivated meat and the use of meat-related names, such as “salami” or “steak”, for plant-based meat products³³.

³² After Italy, and the Romanian Senate that voted to ban the sale of lab-grown meat, France has become the latest country to consider placing restrictions on cultivated meat after parliamentarians presented a bill in the National Assembly that bans the commercialisation of cell-based meat. On the other side, the Netherlands has been at the forefront of cell-meat production, building on the research of Maastricht University Professor Mark Post.

³³ Disegno di Legge recante “Disposizioni in materia di divieto di produzione e di immissione sul mercato di alimenti e mangimi costituiti, isolati o prodotti a partire da colture cellulari o di tessuti derivanti da animali vertebrati nonché di divieto della denominazione di carne per prodotti trasformati contenenti proteine vegetali”.

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METHODOLOGICAL CONSIDERATIONS ON GREEN
TRANSITION AND SOCIAL SUSTAINABILITY STARTING
FROM THE MEAT SUPPLY CHAIN IN ITALY

1. The impact of the meat supply chain on the health of people and the planet. The potential implications for employment.

The issue of food security has come to the fore in the face of increasingly extreme climatic events, the spread of drought and the associated risk of desertification – an issue so pressing that it has even become the subject of a film¹ – and the wheat crisis triggered by Russia’s military aggression against Ukraine. According to the definition generally accepted at the 1996 World Food Summit (Giannelli, Paglialunga, Turato 2021 on its multidimensional nature: 49 ff.), food security exists when

all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

With specific reference to the meat supply chain, food security becomes particularly challenging and questions the current model of production and consumption. Indeed, after years of uncontrolled expansion of intensive livestock farming, the erosion of biodiversity, environmental degradation, impoverishment of soils and resources, exploitation of animals and the difficulty of feeding a growing population are there for all to see. Moreover, the pandemic crisis has also increasingly confirmed the link between deforestation, damaged ecosystems and zoonoses transmitted to humans (Pratesi, Alessi 2021), while sustainable growth is at the heart of the Next Generation EU’s recovery strategies.

All this would indeed require a radical change in production models and lifestyles, with a significant reduction in meat consumption by 2050, if the Green Deal target of carbon neutrality by that date (and the Farm to Fork strategy’s target of 50% reduction in pesticide use, 20%

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¹ The reference is to the 2022 film *Siccità* (drought), directed by Paolo Virzì.

reduction in chemical fertiliser use and 50% reduction in antibiotic use in livestock by 2030) is to be actually achieved. In fact, it is estimated that the agricultural sector accounts for one fifth of global emissions, of which 80% are from livestock, with beef having a greater impact (Polidori, Rombaldoni 2022: 189 ff.). Conversely, it is clear that the agri-food chain is itself one of the most vulnerable to climate change, with clear implications for the socio-economic system (Acciai 2023).

Therefore, the adoption of mitigation and adaptation policies aimed at reducing the concentration of climate-changing emissions and limiting the impact of anthropogenic activities on the environment is bound to affect the meat sector, even though little is currently being done in this area (Comito 2023: 145, 168). Although the Italian sector seems to be much more virtuous than others in this respect (Polidori, Rombaldoni, this volume)², a lively debate is also growing around this sector with a view to its possible reconversion, questioning variously organic production, agro-ecology, plant-based products, alternative protein sources, “in vitro meat” (Comito 2023: 152 ff.; Braga 2023)³. The latter, following the government’s crackdown on insect meal (Minciotti 2023), has recently been the subject of a specific bill⁴, banning its production and marketing, thus confirming a hostile attitude towards what Coldiretti characteristically defines as “Frankenstein meat”. However, this ban is of little practical use, since without the green light from the European Food Safety Authority, cultured meat products could not – in any case – reach our supermarkets. Moreover, with a positive opinion of said Authority, the principle of the free movement of goods would still allow them to be imported (for the regulatory framework on this issue, see Cazzini, Rossi, this volume). A different question, still being studied, is whether in-vitro meat is actually less polluting⁵.

² See also <https://www.ilsole24ore.com/art/allevamenti-nuovo-fronte-dell-italia-contra-ue-ecco-perche-AE4Q0F7C>.

³ See also <https://www.slowfood.it/slow-meat-2/sf-carne-coltivata/>; <https://www.altroconsumo.it/alimentazione/sicurezza-alimentare/speciali/carne-sintetica>.

⁴ I.e. law no. 172 of 1 December 2023, containing provisions on the prohibition of the production and marketing of food and feed consisting of, isolated or produced from cell cultures or tissues derived from vertebrate animals and on the prohibition of the use of the term meat for processed products containing plant-based proteins.

⁵ Cf. the study by researchers at the University of California (<https://web.archive>).

Whatever recipe (or mix of recipes) is chosen, there is no doubt that, ideological differences aside, the established model of production and consumption cannot last much longer. This is also confirmed by the new CAP 2023-2027 (Canfora, Leccese 2022; Freddi, this volume), since the so-called “eco-schemes” mechanism provides for 25% of each Member State’s direct aid to be granted to farmers who adopt practices with high environmental standards, such as organic farming, agro-ecology, water saving and improved animal welfare. In addition, there is a significant overlap between the indications resulting from the focus on environmental profiles and the guidelines on healthy and proper nutrition (Polidori, Rombaldoni 2022: 190 ff.; Braga 2023)⁶.

It follows that the drive to reduce meat consumption, which is already underway (for the period before and after the pandemic, Polidori, Rombaldoni, this volume), combined with technological advances that increase labour productivity, could in the long term lead to a significant reduction in the number of people employed in the supply chain, although this is currently difficult to quantify (Comito 2023: 165-166). This could be compounded by a further reduction linked to the application of organisational and production models inspired by the digitalisation of production processes to the agri-food sector (in general, Faleri 2022: 456 ff. and, specifically, Freddi, this volume).

It is therefore necessary to question the suitability of the tools available to the legal system, including the inter-union system, to accompany the ecological transition in order to ensure its social sustainability, bearing in mind that the complexity of the sector under review (Polidori, Rombaldoni, this volume) and, therefore, of the interests underlying it⁷, generally suggest a gradual approach and threading lightly. It should not be forgotten that by 2021 the sector will account for 17% of the value of agricultural production (up to 25% if cow’s and buffalo milk are included: Polidori, Rombaldoni, this volume). The Spanish case (mentioned by Comito 2023: 169) is emblematic of the extreme sensitivity of

[org/web/20230511102347/https://www.biorxiv.org/content/10.1101/2023.04.21.537778v1.full.pdf](https://www.biorxiv.org/content/10.1101/2023.04.21.537778v1.full.pdf)), not yet peer-reviewed.

⁶ See also the EAT Report, *Alimentazione Pianeta Salute*, https://www.puntosicuro.it/_resources/files/Summary_Report_in_Italian.pdf.

⁷ These include animal rights activists: with regard to animal welfare, which cannot be addressed here, Angelini, Battistelli, this volume.

the issue: in 2021, within the same government team, there was a fierce confrontation between the Minister for Consumer Affairs, determined to encourage people to eat less meat for the sake of their own health and that of the planet, and the Minister for Agriculture and Food, who was strongly critical of the initiative and supported by six business organisations that had signed an open letter accusing of orchestrating a smear campaign against a sector that employs 2.5 million people and exports EUR 9 billion a year. In Italy, the reactions of Coldiretti and Confagricoltura to the attempt to revise the Industrial Emissions Directive, with the rejection of the Commission's proposal (at present abandoned) to include livestock farms, are just as significant (Gaita 2023). And yet these reactions capture an undeniable fact: the issue cannot be viewed solely from a European (let alone national) perspective, at the risk of increasing dependence on imports from third countries with much lower environmental, food safety and animal welfare standards than those imposed on EU farmers, to the detriment of any notion of food sovereignty (on this concept, Zagrebelsky 2017) and, above all, with a boomerang effect in terms of global emissions.

2. Dimensions of sustainability and essential links between environmental, economic and social policy.

As stated in the presentation of Mission 5 of the National Recovery and Resilience Plan (NRRP),

in order to accompany the modernisation of the country's economic system and the transition to a sustainable and digital economy, employment support policies are central: training and retraining of workers, attention to the quality of jobs created, guaranteeing income during employment transitions.

In short, even for the NRRP, the link between Mission 2 (Green Revolution and Ecological Transition) and Mission 5 (Inclusion and Cohesion) – which remains an (implicit) declaration of principle in the plan, without being translated into concrete transversal projects – i.e. between environmental, economic and labour policies, so that the transition does not become a harbinger of further forms of exclusion and inequality

and, as indicated in the UN 2030 Agenda for Sustainable Development, “leaves no one behind” (on the relationship between the ecological transition and inequalities, Barbera 2022), seems inescapable.

This means that it must be underpinned by a process that is systemic in nature and, for this reason, necessarily multi-actor and multi-level in character, as a dynamic balance must be found between social, environmental and economic profiles (Gusmerotti, Apolloni 2022: 43-44; but see also Salomone 2023b: 33), so that the costs of change are not paid only by the most vulnerable. This is also important in order to avoid the risk of making access to food more difficult, as sustainable food products may be too expensive for people with a lower income. A substantial socialisation of sacrifice is essential if changes of this magnitude are to be supported by the necessary political and social consensus. The European Union appears to be well aware of this, as reflected in Regulation 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund (Bruti Liberati 2022: 551; Salomone 2023b: 38 ff.), designed to support the areas and workers most affected by transition and to promote a more socio-economically balanced transformation. It is true that, in Italy, these territories have been identified in the Sulcis Iglesiente and Taranto areas, which are called upon to break the close ties that bind them to fossil fuels. However, it is worth considering that while the Regulation does not explicitly mention the agricultural sector, it does refer to support for investments aimed at enhancing the circular economy, including through waste prevention and reduction, resource efficiency, reuse, repair and recycling, which could definitely affect the meat supply chain (Polidori, Rombaldoni, this volume).

Hence, the debate and politics seem to have now agreed to adopt an holistic and integrated approach (Caruso, Papa 2022: 11 ff.; Treu 2023c: 444). This started with the aforementioned UN 2030 Agenda, which not coincidentally considers the three dimensions of sustainability (environmental, economic and social) as interdependent, in full harmony with the European Green Deal launched by the Commission in 2019 with the aim of promoting a growth process aimed precisely at combining all the above profiles, thus explicitly recognising the interconnections between them (Sabato, Mandelli, Vanhercke 2021). If this is true, however, it remains that the dynamic equilibrium mentioned above requires a constant search for a balance between interests that do not always converge. This balanc-

ing act should be carried out considering that, as the new article 41 of the Constitution seems to indicate, economic initiative is to be considered a value not only to the extent that it does not harm social and environmental heritage, but, more radically, only if it contributes to their achievement by incorporating them into its own mission (on the nature of the internal limit of environmental sustainability, Bruto Liberati 2021: 419-420; with reference to health and safety Lazzari 2023: 31; on social utility as a strategic objective of the sustainable enterprise Speziale 2021: 513).

And, as noted above, there could also be a divergence between environmental and social objectives, as the green transition is not automatically equitable. It is no coincidence that the ILO⁸, while recognising its potential, highlights the possible social costs, related to reconversion and the quality of any jobs created. It follows that active policies and training alone do not seem to be enough, as workers need to be protected during the transition periods by systems that guarantee their income. Moreover, according to the ILO, in order to be equitable, transition cannot be a top-down process, but must be based on the broadest possible consensus. Social dialogue should therefore be ensured at all levels in the processes of formation, decision-making and implementation of strategy and policy (Sabato, Mandelli, Vanhercke 2021: 19-20; Zito 2022; Novitz 2023). Moreover, while it is true that the relationship between trade unions and the environment has historically been very problematic (Charter 2022: 311), the idea that the green transition must be “just” is precisely the conceptual tool through which the collective actor tries to influence these processes, seeking to include instances of social justice in the debate and promoting the involvement of workers and local communities (Centamore 2022: 137; most recently, on the concept of “just transition” Leonardi 2023).

In the following sections, we will look closely at these profiles, which outline the methodological framework within which the environmental transition can be socially sustainable, with reference both to the Italian context (§ 3) and to the specificities of the meat supply chain (§ 4).

⁸ The reference is to the 2015 Guidelines for a Just Transition to Environmentally Sustainable Economies and Societies for All.

3. The Italian legal system facing the challenges of ecological transition, between income support instruments and active policies.

In anticipation of conclusions that will be discussed shortly, it seems possible to say that the Italian model of active and passive policies, despite some important innovations introduced recently, still has persistent limitations that lead to serious doubts about its real capacity to guarantee a just transition.

The first concerns the interaction between the two sides under consideration. It is true that the components of the system of social shock absorbers, in terms of total expenditure and per beneficiary, are theoretically in line with those of the main European economies, and that the recent reforms of unemployment benefits have brought the Italian model closer to those implemented elsewhere, overcoming the previous segmentation based on different categories (Carta, Dalla Zuanna, Lattanzio, Lo Bello 2022: 6-7). However, the dialogue between active and passive policies still appears weak. In fact, while France, Germany and Spain have adopted the practice of the “one-stop-shop”, whereby the same body is responsible for both the payment of the subsidy and the provision of re-employment support services, in Italy, on the contrary, the INPS [Italian National Social Security Institute] is responsible for the management of the NASpI (New Social Insurance for Employment) and the Regions for that of the Employment Centres (Carta, Dalla Zuanna, Lattanzio, Lo Bello 2022: 7). This separation entails the risk that the principle of conditionality (on which Di Carluccio, Esposito 2023: 279 ff.), which requires benefit recipients to actively seek work, becomes ineffective. Moreover, the lack of mechanisms to evaluate the performance of the bodies responsible for active policies, as (for example) in France or Germany, does not help to improve the situation (Carta, Dalla Zuanna, Lattanzio, Lo Bello 2022: 7-8). Finally, the same shared competence between the State and the Regions in this matter, resulting from the reform of Title V of the Constitution (Padrin 2023), often leads to the adoption of measures that are poorly coordinated and homogeneous (Treu 2023c: 449). In this respect, the establishment of ANPAL (*Agenzia Nazionale per le Politiche Attive del Lavoro* – National Agency for Active Employment Policies) by Legislative Decree No. 150/2015, created to put an end to the fragmentation of regional policies and to guarantee the provi-

sion of essential services, has not had the desired effects, as confirmed by Article 3 of Law Decree 23 June 2023, no. 75, converted, with amendments, by Law no. 112 of 10 August 2023, formally certifying its end after a long agony (on the story of the Agency, Valente 2023a; Tiraboschi, Seghezzi 2023). However, deciding to backtrack by directly empowering the Ministry of Labour does not in itself seem decisive. On the contrary, it could be a further setback on the road to coordination, at least in the short term.

Anpal has also been involved in the implementation of the aforementioned Mission 5 of the NRRP (*supra*, § 2), which finances, among other things, the structural reform of active policies according to the strategic programme Gol (*Garanzia Occupabilità Lavoratori* – Workers' Employment Guarantee, on which, among all, Varesi 2022: 97 ff.). The programme envisages redefining the system for assistance to the unemployed and people in occupational transition, starting from their profiling, in order to create personalised pathways of qualification and accompaniment to work, with the aim of mobilising 3 million beneficiaries by 2025.

On the one hand, for the first time (the new elements of the system have been correctly illustrated by Salomone 2023b: 44 ff.) a national framework for active labour market policies, with specific intermediate and final objectives (milestones and targets), extensive monitoring by Anpal and unprecedented funding (the relevant chapter of the NRRP is worth almost EUR 5 billion) were established. On the other hand, the start of Gol has been rather stunted, the delays and territorial disparities considerable (Del Conte 2022) and the results achieved so far doubtful. It is true that Anpal Focus no. 158/2023, the latest available at the date of this paper, highlights the overachievement of the national target and the constant increase in the number of people involved in the programme. However, it is not clear which, if any, of the specialised services following the basic orientation have been activated in the various Regions, since it is not possible to distinguish the situations where information is lacking because the information system has not been fed from those where action is lacking because of the incapacity or inefficiency of the operators, in addition to highlighting deep differences at regional level (Valente 2023b).

The limitations also concern the role of private parties, who – on paper – were largely involved in Gol (Solomon 2023a: 201 ff.), since the structural weakness of employment centres (with different conditions in

the different regions, a lack of staff, not always adequate professionalism, insufficient equipment and a lack of resources), suggested to strengthen the cooperation between the public and private systems, even if it has traditionally been viewed with suspicion (Varesi 2023: 10; Sartori 2023: 253 ff.). However, deterred by the cumbersome mechanisms and low remuneration for services (Del Conte 2022), private parties have so far remained on the sidelines.

In fact, the bureaucratic-administrative approach – which, as mentioned above, also affect the Gol programme – continues to largely characterise active policies, which are often designed without taking into account what the labour market actually needs, so much so that the figures of the mismatch between supply and demand appear dramatic (Faioli 2023: 334; Ciucciiovino 2023: 309 ff.). This is compounded by a lack of capacity to use digital resources for the implementation of a more efficient job matching system. Suffice it to say that one of Gol's main criticisms was precisely the lack of a single database (Bozzao 2023: 273 ff.). In addition, the programme for the implementation of active employment policies resulting from the NRRP lacks a truly cutting-edge technological approach, whereas artificial intelligence could be profitably used to carry out (more effectively and quickly) activities still delegated to employment centre operators (Faioli 2023: 335 ff.; Ciucciiovino 2023: 321; Salomone 2023a: 206; Meloni 2022: 5-6).

With regard to the specific aspect of passive policies, there is no doubt that the reform of the social shock absorbers system in a more universalist sense, carried out by Law 234/2021 (Garofalo 2022: 149 ff.; Carchio 2022: 57 ff.), in conjunction with the intervention in the benefit quantification mechanisms carried out by the same law, helped to resolve some of the limitations of the model. For example, there are no longer any glaring gaps in protection (at least for employees) with regard to income support during employment⁹. The path to full inclusion is, however, not yet fully completed. Suffice it to say, for the purposes of our interest here, that with regard to protection against involuntary unemployment, since this law, the number of beneficiaries of the NASpI has been extended to

⁹ On the extension of CISOA (*Cassa Integrazione Salariale Operai Agricoli* - Wage Redundancy Fund for Agricultural Workers) also to workers in the fishing sector see Art. 1, par. 217, law no. 234/2021.

include permanent agricultural workers employed by cooperatives and their consortia that process, handle and market agricultural and zootechnical products, mainly their own or those of their members, pursuant to Law No 240 of 15 June 1984, while temporary or permanent agricultural workers remain excluded. On the other hand, the specific discipline of the agricultural unemployment allowance (in general Miscione 2023) seems particularly problematic, as it does not provide for any conditionality mechanism. This entails an intuitive risk of distortions and abuses that are not exempt from criminal infiltration, especially in the absence of adequate control systems by public structures (Taschini 2022: 646 ff.).

It is also interesting to note, for the purposes of this paper, that the aforementioned Law No. 234/2021 also provided for the extension of the Cigs (*Cassa Integrazione Guadagni Straordinaria* – Extraordinary Wages Guarantee Fund), linked to the “reorganisation of companies” in relation to the transition processes, also strengthening the role of the social partners, with a very relevant amendment to support the transformation and modernisation of companies in terms of eco-compatibility (Valente 2022: 2 ff.; Speziale 2023: 306 ff.). In fact, this reason, related to the green transition, is linked to further active policy measures to be set forth in a trade union agreement, precisely on “occupational transition”, governed by the new article 22-ter of Legislative Decree No. 148/2015, the conclusion of which allows workers benefiting from the wage supplement treatment for reorganisation or crisis to access the aforementioned Gol programme, with an extension of the allowance for a further 12 months. It is hoped that this provision will not simply result in another derogation from the duration of the Wage guarantee fund, but that the active policy side will be adequately strengthened.

With regard to this profile, the role of the social partners with regard to the ecological transition is thus clear, which is also reflected in other parts of the legislation (in this perspective, on the collective expansion agreement [i.e. an agreement to be applied in business reorganisations, which may include both new hires and retirement incentives for existing workers] and the agreement providing incentives for reintegration in the workforce, see Speziale 2023: 303 ff., 308 ff.), as in the management of the New Skills Fund, initially set up to enable the gradual resumption of activity (after the epidemic emergency) in companies affected by changes in organisational and production needs, by financing the cost of work-

ers' salaries for hours of training under agreements signed at company or territorial level with trade union organisations. Lastly, it is stipulated that, in order to receive the funding in question, these agreements must be aimed at promoting the upgrading of workers' professionalism as a result of the digital and ecological transition (Impellizzieri 2023: 216-217), with a strong involvement of the social partners in the design of active policies, although the agri-food sector does not seem to have taken this opportunity yet (see the review of the agreements concluded in Impellizzieri, 2021).

The role that trade unions can play, which we will return to in the next section with specific reference to the meat supply chain, is thus highlighted in all its importance.

However, it should be noted from the outset that trade unions have a knowledge of the labour market that workers lack, both in terms of the sectors that express the demand for new professionalism and in terms of the professionalism needed in each sector (Valente 2022: 5). Thus, the operation and management of active policies and vocational training in relation to occupational transitions should become central themes of collective bargaining and the activities of the bilateral bodies set up by it (Treu 2323a: 15; Id. 2023b: 8; for an analysis of contractual clauses on active policies see Impellizzieri, 2022).

4. Concluding remarks: challenges and perspectives in the meat supply chain between general issues and sectoral specificities. The role of trade unions (and other stakeholders).

The above brief summary reveals the general limitations of the system. Moreover, it must be said that they seem to be exacerbated by the specificities of the meat supply chain and, in particular, by the peculiarities of the labour market that characterises it (in general, for a reflection on what the labour market is in legal terms, see Canavesi 2018).

In fact, as research has shown (Battistelli 2020; Campanella 2020; Campanella, Dazzi 2020; Centamore, Dazzi 2020; on the agricultural market in general, Pettinelli 2022), this market is characterised by the use, often outside any legal framework, of widespread forms of precarious work and the outsourcing of segments of the production process

(even central ones), often to companies or cooperatives through a complex system of tenders and subcontracting (Campanella, this volume), as well as by the extensive use of underpaid and unskilled immigrant labour.

On the one hand, analyses have indeed shown that fixed-term workers, as observed in the meat industry in significant numbers, risk not being sufficiently covered by passive policies, with the consequence that they do not benefit from adequate economic support when participation in active policy initiatives requires remaining on the margins of the labour market for a long period of time (Carta, Dalla Zuanna, Lattanzio, Lo Bello 2022: 21).

On the other hand, historically, these phenomena correspond to a marked weakening of the representative capacity of the trade unions, which have made considerable efforts to reassemble the fragmented workforce and improve social dialogue throughout the meat value chain. This is also the case at supranational level, as evidenced by the start of cooperation between trade unions in the sector in Europe, with the creation of an EFFAT Meat Coordination Committee within the European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT) (Campanella 2020, 949 ff.). However, it would appear that this Committee has been inactive since 2019. Most recently, in June 2022 EFFAT, together with the International Meat Federation (IUF), launched a Europe-wide initiative (#MeatTheStandards) to raise awareness of the urgency of having a meat supply chain governed by fairer rules, including the recognition of greater trade union power.

In a paper that, like this one, is methodological, this last point seems essential, precisely because, as has already been pointed out (*supra*, § 2), the instrument of social dialogue is of fundamental importance in the management of processes related to the green transition. However, if the current labour markets call for a new centrality of the actors in the systems of industrial relations (Seghezzi, Tiraboschi 2023: 2; Casano 2021: 1008 ff.), in this case the desirable leading role of trade unions has to reckon with the above-mentioned difficulties of representation, which in turn can be seen in the context of a more general structural fragility of the social dialogue in the agri-food sector, as revealed by research (Porcheddu 2023). So much so, in fact, that there seems to be more than one doubt as to whether the green transition can also be just, especially in the

meat industry. In short, it already seems difficult to imagine a co-management with trade unions of systems (such as professional training and retraining) which would naturally be appropriate for experiences of co-determination, given that industrial relations systems – as mentioned above (*supra*, § 3) – are fundamental, especially in the identification of professional needs (Caracciolo 2022: 987). It is even more difficult to think about the construction of a real trade union countervailing power capable of negotiating the conversion processes that could affect the supply chain, intervening where economic choices are made, instead of merely being a merely passive and defensive actor (Marcianò 2022: 729).

Furthermore, it is fair to say that the effective management of the processes in question would seem to require the adoption of a collaborative approach, in a perspective of industrial relations that is more cooperative than conflictual (on this subject, see also Speziale 2023: 312), while in the meat sector the union has rightly waged a real fight for legality, in a strongly oppositional key, against unacceptable forms of labour exploitation.

However, it is equally difficult to imagine ecological conversion without the participation of trade unions, because it is not within the capacity of governments to support changes that will inevitably lead to restructuring and closures (Seghezzi 2022: 1; on the challenges posed to participation by environmental sustainability see, as the most recent, Corti 2023, who is pessimistic about the prospects of the same in our country).

The case of the Netherlands is also emblematic of the social conflicts that can be triggered by the green transition. This is evidenced by the countless and extremely harsh protests by farmers against government bills to reduce nitrogen pollution in the soil in order to comply with European regulations; protests that have been going on since 2019, until they found a political outlet in the new populist party BoerBurgerBeweging (BBB), the Farmer-Citizen Movement, which significantly had a resounding success in the March 2023 regional elections. In the latest development in a long-running affair, in May 2023 the European Commission has approved, under state aid regulations, two Dutch schemes (called LBV and LBV plus) with a total budget of approximately EUR 1.47 billion to be paid out in the form of direct subsidies to compensate livestock farmers for the voluntary and permanent closure of livestock farms in overburdened Natura 2000 areas, as defined by national

legislation, with the guarantee that this closure is irreversible and that the beneficiaries will not start up the same livestock farming activity elsewhere in the Netherlands or in the EU. But even the compensation route alone does not seem to guarantee the social acceptance that is indispensable for the success of environmental policies when the time to change course is short and the solutions drastic. Rather, this acceptance seems to depend on a mix of responses, including the ability to compensate for the loss of jobs in polluting activities – such as those that characterise the meat supply chain – by creating new jobs in green occupations (Marin, Vona 2023; Semenza 2022), without neglecting the possibility of facilitating a non-traumatic exit from work for those close to retirement age. All this involves, as mentioned (*supra*, § 2), a plurality of actors.

Therefore, in the search for balanced and necessarily composite solutions, one of the possible ways forward in Italy could be to revive the season of territorial pacts, with the trade unions as protagonists first and foremost, whom even European sustainability policies look to as the main actors involved in the implementation processes (Giovannone 2021: 641 ff.), but also including enterprises, institutions and all other stakeholders in the communities concerned. In fact, the conversion or closure of a livestock farm is a matter that affects territories as a whole, which are experiencing a profound change in the structure of its productive fabric. This is, moreover, a path already set out by the aforementioned Gol (*supra*, § 3) programme, within the framework of which Territorial Pacts for the Ecological and Digital Transition, i.e. agreements between local authorities, public and private entities, non-profit entities, trade unions and employers' associations, can be appropriately concluded in a perspective of negotiated planning. The purpose of such pacts is implementing training and job placement projects aimed at the unemployed and the inactive, or at the retraining and upgrading of the skills of workers already in employment (art. 1, paragraphs 249-250, Law no. 234/2021). Although it has been emphasised that the link between green transition and active policies in the Gol implementation pathways is weak (Salomone 2023b: 44-45), the above-mentioned provision seems to indicate a “working method” which, in the author's opinion, should be extended to the entire planning (upstream) and management (downstream) of transition processes, including in the

meat supply chain. Otherwise, there is a risk that the prospect of a more sustainable production and consumption model may lose the support of individuals and communities (albeit from a different perspective, on the fact that, in democratic societies, the ecological transition in the food sector cannot disregard the free choice of consumers and, therefore, ultimately their consent, which to some extent must be sought, see Polidori, Rombaldoni, this volume).

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PART II

RIGHT TO SAFE AND QUALITY FOOD

“The Two Safeties”:

quality product and decent work in the meat supply chain

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TECHNICAL STANDARDS, FOOD SAFETY
AND REGULATION METHODS

1. Foreword.

The relationship between science and law may seem antithetical to some. The former provides elements that allow us to understand the reality that surrounds us; the latter has the task of grading, regulating and bringing together the different interests that, in various ways, characterise social life (Cheli 2017; Veronesi 2009). However, it is accepted that both science and technique – to which the world of “facts” belongs – often provide the law with the material for the elaboration of ever new legal concepts, and it is equally accepted that the law is called upon to create the “environmental” conditions for science and scientific research (D’Amico 2005: 261).

After all, science and technology cover ever wider areas of knowledge. Some areas are physiologically related to scientific and technical knowledge – especially those related to the so-called “hard” sciences, such as mathematics and physics. And this interrelation also concerns other areas (such as electoral matters, economics, public finance and taxation) which – at first – may seem hardly connected with scientific and technical knowledge. Here, too, the technical-scientific data cannot be ignored, not least because they reflect the increasing sectoriality of technical-scientific knowledge in the general sense¹.

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¹ Scientific-technical knowledge touches upon areas that for a long time were entrusted exclusively to spirituality, myth and religion, so that even the answers that man seeks to give to the greatest historical questions – for example, about the origin and development of life and its end – are no longer based solely on the figure of god. The tension between science and religion is an old theme: think, for example, of the dispute between the followers of Charles Darwin – who published *The Origin of Species* in 1859 in England – and creationists in the United States (Okasha 2006).

This paper aims to reflect on the complex food regulatory framework, focusing first on a framing of food safety in relation to technical data and in the context of multi-level governance (§2). Secondly, the paper will thoroughly analyse how national policy-makers take account of scientific and technical evidence in their standardisation activities (§3), and how they are often called upon to confront ambiguous and uncertain technical and scientific knowledge with the possibility of using the precautionary principle. We will then focus on a particular case study which, in the context of the meat sector, provides an example of policy maker behaviour in cases of technical-scientific uncertainty (§4). Finally, we will mention the Constitutional Court's guidelines on the decision-maker's discretion in the face of technical-scientific data and how these guidelines may also apply to the food sector (§5).

2. The safety of food products between scientific and technical data and the levels of governance.

The food sector in general, and food safety in particular, is one of the matters for which it seems natural to combine technical and scientific knowledge with legal knowledge (Califano 2022; Morrone 2022). In fact, science and technology have progressively acquired a significant specific weight in this field, influencing the formation, adoption and implementation of the choices made by policy makers in this area (Mocchegiani 2022). The food sector therefore seems an interesting vantage point from which to observe how science and law interact and, above all, how policy-makers take technical data into account in their decisions.

One of the characteristics of science is that it is neither monolithic nor unchanging. Indeed, Karl Popper recognised the scientific nature of matter precisely in its possibility of being falsifiable, and thus comparable to experience; so that the real distinction between science and pseudoscience, according to the philosopher, lay in the fact that the former could be disproved by comparison with experience, whereas the latter would always remain true. Such fluctuations in technical and scientific knowledge are also observed in the field of food, to the extent that the technical and scientific knowledge used to justify a given choice often appears divided, similar to what happens in the field of medici-

ne, where knowledge is also often not unanimous and subject to doubt (Troilo 2020).

At European level, the response to scientific uncertainty in the food sector has been to apply the preventive and precautionary principles, typical of anticipatory regulation. Starting with Regulation No 178 of 28 January 2002 – which laid down the general principles of food law – the principle of prevention is applied on the one hand, based on the process of risk analysis, which is assessed, managed and communicated; on the other hand, the precautionary principle allows provisional measures to be taken to implement risk management. In the case of scientifically unclear phenomena or observations, where both the existence and the seriousness of an alleged risk have not been proven, temporary measures are permitted, provided that they are non-discriminatory, objective and proportionate (Ramaioli 2023).

Science and technology are now the real drivers of the food sector: they bear the greatest responsibility and expectation for the desired sustainable development of agricultural production and livestock farming. They will be responsible not only for meeting the ever-increasing demand for food, but also for reducing the impact of food production on the ecosystem (Scaffardi 2020: 737). In fact, approaching the subject of food without paying attention to so-called novel foods seems anachronistic today (Regulation (EU) No. 2015/2283), and in this context, it is up to the political decision-maker to “analyse, monitor and propose” (Id., 738), and to dose, particularly with regard to standardisation activities, the knowledge that science and technology bring to the table, without limiting themselves to conform with the technical-scientific positions, but guaranteeing that the latter have an appropriate place in the legislation processes (Penasa 2021).

The multiple needs that arise from food and the broadening of the purposes of food regulation (Ramajoli 2023: 126) makes it inevitable that such regulation involves different levels of governance, so that the boundary of standardisation and regulation extends beyond the state and regional level. On the contrary, food legislation – also in the light of technical-scientific innovations – finds new life in European and supra-national institutions.

Therefore, there will be several authorities with regulatory powers, between which a boundary will have to be drawn according to the rele-

vant competences (Rubechi 2022): the subject of “food” falls within the realm of concurrent legislative powers, as does “public health”. However, according to Article 117 of the Constitution the Regions are competent for “agriculture”, while the State for the “environment”, which is moreover cross-sectional and thus potentially justifies State intervention to protect any unitary need.

Regulatory complexity is also exacerbated by problems related to the division of competences between the European Union and the Member States, which also entails the coexistence of different levels of jurisdiction, with the EU Court of Justice at the top of the system. With respect to the sector under analysis, the private sector has a significant influence, to the point that the “normal” trend is reversed and private parties become regulators instead of recipient of regulations (Iannuzzi 2020: 3279 making reference to Rodotà 1996: 56) by adopting a complex framework of technical rules capable of ensuring transnational effectiveness and thus enabling private parties not to be subject to heteronomous limitations.

3. Technical-scientific sources (outline).

The complexity of the relationship between science and law cannot be fully analysed in a few pages. Moreover, in particular as regards standardisation, it seems difficult (if not impossible) to identify a “gear” (Violini 2022: 25) that allows to regulate science and legal science at the same time. The links and mechanisms that make it possible to bring together the technical-scientific data and the legal data, and to understand how the political decision-maker implements the former in the standardisation activity, are diverse and difficult to summarise. In order to provide an overview that is as organic and systematic as possible, we could start by looking at technical standards. This issue, as we shall see, also leads to important observations about the levels of governance.

The definition aspect (what is meant by a “technical standard”) is a significant issue which is difficult to resolve. The definition of what technique is, in itself, has generated doubts within scholars first and the constitutional case law later (Salmoni 2001: 25). Such doubts have also been induced by the apparent interchangeability between the terms “techni-

cal standards” and “technical rules”, but then also partially resolved by European Community Council Directive No 83/189/EEC of 28 March 1983, which clarified the voluntary nature of the former and the binding nature of the latter. In fact, technical standards in the strict sense are produced by private regulatory bodies accredited by both European and national institutions. They are characterised by a particular specialised profile – as subsequently clarified by EU Regulation No 1025/2012 – as they aim to define voluntary technical or quality specifications that products, production processes or services can comply with. The regulation therefore reflects the rather broad scope of this type of standardisation, as it can cover different categories or different sizes of a particular product or technical specifications in product or service markets.

It is therefore clear that standardisation is not carried out solely by public bodies, but also by private ones: the so-called technical standardisation bodies. In fact, the difficult process of adapting technical standards to the constant evolution of scientific research has led to a situation in which, as the industrial sector developed, companies drew up their own technical specifications and then imposed them on their suppliers. Subsequently, as the industry became more complex, the number of stakeholders interested in technical specifications increased, so that standardisation activity was channelled through independent bodies, sectoral or national, with a mixed composition involving representatives of industry, public administrations and universities (Salmoni 2001: 229). Examples include the Italian Electrotechnical Committee (*Comitato Elettrotecnico Italiano*, CEI), the Italian National Unification Body (*Ente Nazionale Italiano di Unificazione*, UNI) (Iannuzzi 2020: 3280).

Thus, the aforementioned Regulation No 1025/2012 established a new framework for technical standardisation, responding to the need to extend it to areas of intervention that had previously been excluded, thus facilitating the free movement of goods and services, network interoperability, means of communication, technological development and innovation. The regulation defines three levels of technical standardisation – national, European and supranational – and attempts to achieve greater dialogue and “interpenetration” between them by means of, among other things, mechanisms for the transparency of standardisation programmes (Articles 3 and 4) and participation of stakeholders (Article

5), SMEs (Article 6) and public authorities (Article 7) in standardisation activities².

Despite the strong impact of technical standards on various social aspects, such as the welfare and safety of citizens, access to areas of public importance, as well as occupational safety and the environment, the voluntary nature of technical standards – which determines that compliance with them is not enforceable if they are not directly based on a legal rule – remains the weak point of this type of standardisation. In fact, the Regulation, having noted this, understands that the effectiveness and efficiency of the technical standardisation network depends on the consensus of all participants through the pursuit of a flexible and transparent standardisation platform (see Recital 9).

A second level that makes it possible to combine technical-scientific and legal data is represented by “technical rules” or “public technical standards”. While taking the form of sources of law (Iannuzzi 2020: 3283) these rules are characterised by a high specialised technical content, with a binding value, so that a sanction applies in the event of non-compliance.

However, there are no defined procedures for the adoption of this type of rules, which has given rise to various comments by some scholars (Cecchetti 2020; Iannuzzi 2018). This lack of codification seems to give the policy-maker complete freedom to dose the technical-scientific input into the policy-making process first, and into standardisation later. But it could also lead to political choices simply replicating the position of technical-scientific expertise or, conversely, a politicisation of the latter. The definition of procedures, on the other hand, could guarantee the reliability and neutrality of the scientific data used as a reference and the accountability and greater rationality of the political choices made by the decision-maker (Cecchetti 2020: 43).

The sad aftermath of the pandemic has at least made it possible to develop a reflection on the institutionalisation of technical-scientific in-

² This can be inferred from Chapter II of EU Regulation No. 1025/2012 on European Standardisation. Chapters III, IV and V, on the other hand, are specifically dedicated, respectively, to European standards and European standardisation products in support of Union legislation and policies, to ICT technical specifications and to the financing of European standardisation.

put, which in Italy seemed to be less diffused compared to other legal systems. This reflection entails the need to address certain issues, such as the nature and position (internal or external to the institution) of the advisory bodies, to identify the founding source of the collaboration and the composition of the body, as well as to define the limits and intensity of the contribution, in terms of analysis of technical-scientific data and evaluation, or a more incisive scientifically based proposal or recommendation (Penasa 2021). On the other hand, if the legitimacy of the decision-maker's choices during the period of restrictions was justified (or at least gained more or less strength) in view of the technical-scientific knowledge on which it was based (Del Corona 2022), this could entail reconsidering the appropriateness of introducing stable forms of participation of bodies from the technical-scientific sector in the shaping of decision-making processes (Penasa 2021:3).

However, even in the absence of a comprehensive procedure for defining the role of the technical-scientific sector, scholars (Predieri 1996; Iannuzzi 2020) identified a systemic organisation of the ways in which technical-scientific data is assessed by the policy-maker and, in particular, the way in which the technical standard enters the decision-making process.

A first model provides for the transposition (or even the so-called incorporation) of the private technical standard in a legal rule, which implies that the technical standard is reproduced in the legislative text and follows the legal rule that incorporates it, both from the point of view of the legal status and from the point of view of its compulsory nature. Consequently, transposition within an ordinary source of law, would determine that it may be the subject of an appeal to the Italian Supreme Court if it was violated, or of a review of its constitutional legitimacy by the Constitutional Court, or perhaps even of an abrogative referendum (Salmoni 2021: 163). If, on the other hand, the technical rule were to be incorporated in a lower-ranking source, it would necessarily be open to challenge before the administrative court, leading to possible annulment.

A further form of production again contemplates the direct participation of private bodies in the formation of technical rules, but through their direct involvement in the preparatory phase.

Finally, a further method lies in the attribution of legally relevant effects to technical standards. The technique of "rigid" or "flexible" incor-

poration by reference (i.e. reference to the original provision or to the provision as amended and supplemented) or the use of general clauses of a qualitative nature (e.g. the definition of hazardous substances) or the introduction of general clauses (such as those referring to “workmanlike standard”; “standard practices”) is not new to legal science (Violini 2022: 27)³.

The ways in which technical standards enter the mechanism of production of state regulations, in reality, interpenetrate and the above distinctions blur. Consider, for example, the regulatory chain that has been established in the field of animal welfare, which in fact contains several references to technical standards. Conversion Law No. 77 of 17 July 2020 – introducing Article 224-*bis* to Decree-Law No. 34 of 19 May 2020 – establishes the “National quality system for animal welfare” (*Sistema di qualità nazionale per il benessere animale*, SQNBA) adherence to which is on a voluntary basis. In short, this system is part of a broader strategy to move the livestock sector towards a sustainable livestock farming model that improves animal welfare while enhancing the quality and health of agri-food production, including by reducing antimicrobial resistance. Article 224-*bis*, on the other hand, provides that the SQNBA shall consist of a set of animal health and welfare requirements that go beyond the relevant European and national standards, “in accordance with technical standards relating to the entire management system of the process of rearing animals for food production, including the management of emissions into the environment, broken down by species, type of production and type of farming”.

However, the concrete regulation of the system is entrusted to another technical rule, specifically identified, namely the inter-ministerial decree enacted by the Ministry of Agricultural and Forestry Policies with the

³ A clear example of this is Presidential Decree No. 395 of 27 May 1991, the scope of which was to implement, pursuant to Article 17(1) of Law No. 400 of 1988, the now repealed Law of 9 December 1986, concerning the “Discipline of the research and cultivation of geothermal resources”. This decree, the content of which was highly specialised and of a strictly technical nature, is an example of a governmental act referring to both technical standards and general workmanlike manners. In fact, Article 64 – under the heading “Injections and re-injection of fluids” – prescribes the observance of the “relevant technical standards in force” for the performance of underground fluid injection and re-injection operations, while Articles 14 and 40 refer to the “workmanlike manner”.

Ministry of Health, dated 2 August 2022, no. 341750, which establishes the general rules for the organisation and operation of the quality system and establishes the Scientific and Technical Committee for Animal Welfare (*Comitato-Tecnico Scientifico per il Benessere Animale*, CTSBA), responsible for defining the certification requirements.

The last useful mechanism for the incorporation of technical and scientific knowledge into standardisation is the so called “laws with technical-scientific content”. In this case, the content of the law is drawn from the knowledge provided by science and technique. The model is therefore very similar to that of public technical standards, with the difference that technical standards are usually secondary sources, whereas laws with technical-scientific content are ordinary sources. The expansive capacity of such laws is proportionate to that of the science from which they draw their content: think, for example, of “bio-laws” – such as the law on medically assisted reproductive technologies, the law on abortion, or the law on vaccination – or even, in the not too distant future, on artificial intelligence. It is precisely on the paradigm expressed by laws with technical-scientific content (and, at times, also on other ordinary sources such as decree-laws and legislative decrees) that the Constitutional Court has attempted to warn the legislator to proceed with caution in exercising its discretion in enacting legislation, in order to ensure that the latter uses a “scientifically oriented” method (Penasa 2021: 830).

4. Public decision-making under uncertainty: the case of cultured meat.

It has already been mentioned how science and technology are often unable to provide answers with a single voice. After all, scientific and technical knowledge has nothing to do with infallibility and the finality and perpetual validity of one’s findings. In this context, the decision maker can only act in a state of doubt. Thus, if the dynamics of food safety are also characterised by scientific and technical uncertainty (and temporariness), decisions, often taken on an unstable scientific basis, are made according to the principle of *rebus sic stantibus* (as things stand).

The decision-maker therefore uses a universal procedural criterion for public decision-making in a state of uncertainty, namely the precautionary principle: this is an important approach, for example, in the pres-

ence of situation of scientific uncertainty that could lead to damage to consumer health. At the European level, risk management in the face of technical and scientific uncertainty is based on a three-stage process, as set out in the above-mentioned EU Regulation No 178/2002. The first stage involves the European Food Safety Authority (EFSA) conducting a preliminary investigation allowing to carry out a risk assessment. EFSA, therefore, provides an opinion – not independently appealable and exquisitely technical – that will form the basis of the risk management decision by the European Commission. Finally, the last level consists of risk communication by the Commission, national authorities and EFSA. This paradigm, which is not immune to the various criticisms raised by scholars, was revised with the EU Regulation No. 2019/1381 on the transparency and sustainability of the Union’s risk analysis in the food chain, which sought to strengthen the last level of risk analysis, i.e. that related to its communication.

Law No. 172 of 1 December 2023 on “Provisions on the prohibition of the production and placing on the market of food and feed consisting of, isolated from or produced from cell cultures or tissues derived from vertebrate animals, as well as the prohibition of the use of the name meat for processed products containing plant-based proteins” seems to be an interesting case that can summarise some of the peculiarities and critical issues that standardisation activity in the food sector can raise. The path leading to the introduction of this law was rather bumpy.

At the initial proposal of the Ministry of Agriculture, Food Sovereignty and Forestry, the Council of Ministers approved, at its meeting on 28 March 2023, a draft law on the prohibition of the production and placing on the market of synthetic food and feed. The aim is to ban the use, sale, import and production of synthetic food or feed, i.e. food or feed that consists of, is isolated from or is produced from cell cultures or tissues derived from vertebrate animals. In particular, as a result of the work of the Commissions and the two Houses of Parliament, the legislative text is divided into four sections: after recalling the precautionary principle (Art. 1), it introduces a prohibition on food and feed business operators “to use, sell, hold for sale, import, produce for export, administer or distribute for human consumption, or promote for these purposes, food or feed consisting of, isolated from or produced by cell or tissue cultures derived from vertebrate animals” (Art. 2); it establishes the prohibition

of meat-sounding for processed products containing plant-based proteins (Art. 3); it identifies the authorities responsible for controls and inspections leading to the imposition of sanctions (Art. 4), which are then described in Articles 5 and 6.

It was precisely in the light of the precautionary principle that the declared aim was to preserve human health on the one hand and the Italian agri-food heritage on the other, understood in its social, cultural and economic dimensions⁴.

The source of the technical and scientific data on which the regulatory intervention is based (as stated in the report accompanying the bill) is the research carried out by, among others, Sghaier Chriki and Jean-François Hocquette (2020). In particular, the Ministry highlights a paragraph on the possible risks of a possible “dysregulation” within the cell multiplication process, similar to what happens to cancer cells, which has not yet been clarified due to the embryonic stage of research. The study to which the report refers, with a link to the scientific journal in which it was published, and which highlights the pros and cons of cultured meat and the possible health risks (but also benefits), actually acknowledges that the research is not yet complete: *“In conclusion, it seems clear that research projects on cultured meat have had a limited scope as in vitro meat development is still in its infancy. The product will evolve continuously in line with new discoveries and advances that optimise the production, quality and efficiency of cell division. It remains to be seen whether this progress will be enough for artificial meat to be competitive in comparison to conventional meat and the increasing number of meat substitutes”*. Therefore, even the potentially positive aspects of cultured meat production, such as the reduced risk of contamination by pathogens, or the reduced likelihood of animal pandemics due to the elimination of farms where animals remain in close contact with each other, or the elimination of the problem of antibiotic resistance, or the possibility of controlling

⁴ Ministerial Decree No. 3424 of 2017 established at the Ministry proposing the bill the National Inventory of the Italian Agri-food Heritage with the main task of identifying, cataloguing and documenting the cultural elements pertaining to typical Italian agri-food traditions. Aim, that of pursuing the agri-food heritage, which is also the subject of other national disciplines, such as, for example, law 3 February 2011 No. 4 on labelling, later revised by Decree-Law No. 135 of 2018 (converted into law by law 11 February 2019 No 12).

the nutritional content of meat produced in this way, all of which were mentioned in the study, still need to be more fully verified.

The Minister's explanatory report thus supports the decision to impose the ban on the basis of a series of studies that underpin the legislative choice, in contrast to the approach taken in the United States, where the Food and Drug Administration has, on the contrary, issued two positive opinions, but where the product has not actually been placed on the market. As it stands, the deliberate purpose of the bill is precautionary: not only with regard to the declared risk profiles (preserving health and the integrity of the Italian food heritage), but the bill becomes preventive by banning a product that is not currently on the European market (nor in many other markets). This also raises a number of questions regarding the possibility that, following the outcome of an application for authorisation to place the product on the market, which in this case should be made in accordance with EU Regulation 2283/2015 regulating the placing on the market of Novel Foods (NF), the Italian State may activate the procedure provided for (Formici 2023: 17).

The bill, definitively approved by the Chamber of Deputies on 16 November 2023, was sent to the President of the Republic for promulgation, which occurred on 1 December 2023, together with a note from the Council of Ministers guaranteeing that the text of the bill had been submitted to the European Commission, with the commitment to comply with the indications that would be formulated in that process⁵. In fact, EU Directive 2015/1535 – which provides for an information procedure in the field of technical regulations and rules on information society services (codification) – requires Member States to notify the Commission of any draft technical regulation and the reasons why it is necessary, postponing its adoption so that the Commission and the other Member States can propose comments on barriers to trade in products that the State can take into account in the final draft. This is on the assumption that barriers to “[...] trade resulting from technical regulations relating to products may be allowed only where they are necessary in order to meet essential requirements and have an objective in the public interest of which they constitute the main guarantee” (Recital §4).

⁵ This was also made known by a Memorandum of the Presidency of the Republic published on 1 December 2023 on the Presidency of the Republic's website.

However, the European Commission's examination of the Italian law was closed prematurely because the text was adopted before the stand-still period provided for in Directive (EU) 2015/1535: the notification in fact concerned technical regulations that were still being drafted – since the Directive prevents their adoption for a certain period of time (Art. 2) – and not, as in this case, legislative measures that had completed their own process. The closure was accompanied by a request for an update on the development of the Italian measure, also in the light of the case law of the Court of Justice.

The Ministry, in a press release, interpreted the closure of the Tris procedure positively, arguing, in particular, the compatibility of the law with the principles of EU internal market law. However, there has been a considerable amount of criticism, for example in the national newspapers, pointing to the Italian government's carelessness in complying with the European procedure and the consequent infringement risks.

The ban on the production and marketing of synthetic foods has also attracted the attention of several organisations. In particular, nine reports commenting on the bill were submitted to the Commission during the procedure. Concerns have been raised not only about the impact of the project on the internal market or on consumer awareness (see, for example, the report by EAPF – The European Alliance for Plant-based Foods, *Unione Italiana Food*), but also on the technical-scientific level. On the one hand, it has been argued that the use of synthetic meat, banned by the measure, would have allowed a lower health risk for consumers and an environmentally friendly alternative to animal meat (*Associazione Luca Coscioni*, *Eurogroup for Animals*, *Aduc*): without a complete and transparent technical-scientific analysis to support the choice made by the legislator – in particular by disclosing the types of cultured meat studied and the subjects responsible for the analyses – the latter would have been based on the existence of a purely hypothetical risk, rather than on the precautionary principle. It would also have violated the right to the benefits of scientific progress, protected by Article 15 of the International Covenant on Economic, Social and Cultural Rights, since it would have impeded the actual conduct of scientific research in the field of synthetic meat, even if there was no actual ban.

This clarification is part of a wider debate, apparently still ongoing, on the issue of trade names for plant-based foods that refer to animal

products in order to define themselves, which could lead to confusion among consumers⁶: in fact, a preliminary reference to the Court of Justice by the French Council of State is currently pending. The French Council of State has been asked by the *Association Protéines Frances*, the European Vegetarian Union, the *Association végétarienne de France* and the company Beyond Meat to annul decree no. 2022-947 of 29 June 2022 on the use of certain names used to describe foodstuffs containing plant-based proteins.

5. Standardisation in the face of uncertainty: the decision-maker's discretion when dealing with scientifically controversial issues.

As has been pointed out, in the context of matters involving technical-scientific knowledge, the legislature is now required to “carefully consider” technical-scientific data in the exercise of its standardisation activity, and this also seems to emerge from a reading of constitutional case law which, from the very first years of its activity, dealt with questions involving knowledge that is not strictly legal.

Starting from early-stage technical-scientific knowledge, the Constitutional Court already dealt with the issue of food and free economic initiative in the now obsolete judgment No 137 of 1971. The question of constitutional legitimacy, which was raised within judicial proceedings, concerned the alleged infringement of Article 41 of the Constitution by the legislator's prohibition on the production of pasta using cereals other than semolina or durum wheat semolina (with the exception of authorised dietetic pasta). The claimants in the main proceedings, first, and then the judge presiding over said proceedings in the order for reference, argued that, on the contrary, the production of pasta using a different cereal, “rye”, should not only have been authorised but rather encouraged, since it would meet the different dietary needs of diabetics and obese patients.

At the time, the Constitutional Court dismissed the question on the ground that, in the case under review, the restriction on free economic initiative was consistent with social needs. Its reasoning did not address

⁶ See the judgment of the Court of Justice of the European Union of 14 June 2017 in Case C-422/16 (*Verband Sozialer Wettbewerb and V. v. TofuTown.com GmbH*).

the merits of the scientific evidence relied on by the claimants (i.e. the alleged “dietetic-therapeutic properties” linked to the “lack of nutritional power” of rye and its properties as an “adjuvant in the treatment of various diseases and physical anomalies, including obesity”), but merely contrasted them with other scientific findings: durum wheat has greater nutritional properties, so that “with price being equal, consumers should be assured of the greater and not the lesser nutritional value”. Therefore, a substantive profile based on technical data, i.e. the greater nutritional power of wheat on which the state defence relied, was taken “as a parameter” (Casonato 2016).

The case-law of the Constitutional Court can therefore provide guidance and describe the way in which the political decision-maker should exercise its discretion within the framework of its standardisation activity. However, as has been said, although we are still far from being able to draw up comprehensive governing rules from the law or from other sources with a technical-scientific content, case law has provided some constant guidelines which, in the author’s view, could also be applied in the field of food safety. This is all the more so as the latter, along with other constitutionally protected values, involves consumers’ health and welfare and (due to the technical-scientific uncertainty that often underpins the legislator’s decisions) the same reasoning could apply to it.

Specifically, it is possible to identify at least three constants. The first leads to the argument that legislative intervention in technical and scientific matters must provide for the development of guidelines based on scientific and experimental knowledge. This guideline, which was made explicit in Judgment no. 282/2002 – in which the Court was asked to rule on the legitimacy of the ban on the use of “electroconvulsive therapy” (ECT) and other psychosurgical procedures laid down in the law of the Marche Region – states that, as an essential condition for the adoption of laws on therapeutic choices and, more broadly, on matters concerning the health and physical and mental integrity of persons, it is necessary to verify the state of scientific knowledge through institutions and bodies designated for this purpose. Thus, a procedural mechanism is established for this area of standardisation, which makes it possible to control not only the way in which standardisation activity is carried out, but also its purpose.

It also seems possible to detect – in the case-law of the Court – a bias in choosing which science should be supported by policymakers.

Indeed, constitutional case-law, in the course of its activity, seems to have refined its understanding of what constitutes technical scientific knowledge. The concept of technical and scientific knowledge used as a reference in the Court's case-law has gradually progressed and improved, recognising the possibility of discontinuity and disagreement between scientific opinions, rather than claiming that science and technology can provide a compact source of knowledge that is not subject to change.

Indeed, the first references to technical and scientific knowledge seemed to recognise a rather uniform concept of science, so much so that reference was made to “certain scientific orientations or a strong correspondence with the reality of situations” (judgment no. 114 of 1998) and to the competences of “technical and scientific bodies” (judgment no. 121 of 1999 and judgment no. 188/2000), or even – as we read in one, albeit isolated, judgment on technical standardisation – with an explicit reference only to “the so-called exact sciences or the arts which constitute their application”. However, the Constitutional Court has gradually become aware of the uncertainty and variability of technical-scientific knowledge, particularly through judgments dealing with issues closely related to health and therapeutic treatments; therefore, the issue arose, albeit mainly indirectly, with respect to what knowledge should be taken as a reference, both in deciding issues and in the decision-making and standardisation process.

This issue seems to have been resolved by judgment no. 14 of 2023 on the mandatory vaccination of healthcare personnel against Sars-CoV-2 infection and the corresponding suspension from the practice of their profession as a consequence of failure to comply with this obligation. In fact, the Court pointed out that the exercise of the decision-maker's discretion must be circumscribed by the “best knowledge available at that historical moment”, as defined “by the institutionally designated medical and scientific authorities”. In fact, the choice of technical and scientific opinions to justify the standardisation option chosen refers to the report of the Italian Medicines Agency (AIFA), the National Institute of Health (ISS) and the Secretary General of the Ministry of Health, the General Directorate of Health Planning of the Ministry of Health, the General Directorate of Health Prevention. This expressly excludes the input of scientific data other than that coming from the main institutions in the sector.

It is true, as has been pointed out, that such a ruling has been affected by the peculiarity of the emergency situation that formed the background of the Government's regulatory activity, so it is not sure that the same reasoning can be smoothly applied in other cases. However, even in an analysis of previous case law, when the importance of technical-scientific bodies was reaffirmed (judgment No. 121/1999; judgment No. 188/2000), reference was apparently mainly made to technical-scientific data from institutionally appointed authorities (judgment No. 282/2002; judgment No. 5/2018).

Awareness of the mutability of technical and scientific conditions, moreover, seems to have led the Court to affirm – and this is the third profile recalled – that the standardisation power must preferably be exercised taking into account possible mechanisms to make the choice adopted more flexible, such as, for example, the periodic review of the conditions that justified it in the light of scientific knowledge (judgment no. 5/2018). In the absence of a mechanism that could adapt the law to the speed of new findings in the world of science and technology, the gap could be bridged, to be fair, by standardisation hypotheses that take into account the transitory nature of their effects (judgments No. 826/1988 and No. 85/2013) or by the elasticity and progressive reassessment of the solutions introduced (judgments No. 185 and 186 of 2023).

At present, therefore, it is not possible to identify comprehensive governing rules that could guide (almost like a “handbook”) the political decision-maker in their standardisation activity in matters where the technical-scientific findings are particularly doubtful, including the issue of food safety. Together with the careful balancing of the precautionary and preventive principles (§4) and the guidelines that constitutional case-law seems to have expressed in the course of its rulings, it therefore of course remains the responsibility of the legislature to choose between the various options offered by technique and thus to set its own path.

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COLLABORATIVE NETWORKS FOR INNOVATION IN THE MEAT SUPPLY CHAIN

1. Introduction.

In recent years the meat sector has been shaped by a variety of challenges and changes, as new actors, technologies, markets, and safety requirements have emerged (Maples et al. 2019; Golini et al. 2017; FAO 2017). Firms active in this industry are required to adapt strategies and organisational configurations to maintain their competitiveness and pursue new paths in their markets. This implies investing resources in innovative activities adopting new organisational forms and mechanisms and involving other actors in the supply chain. While large firms – often multinational – have developed over time adequate capabilities to cope with market uncertainty and changes, it could be argued that small and medium enterprises (SMEs) belonging to the meat supply chain and usually characterised by a strong “localised” dimension in terms of business operations in rural settings might face additional hurdles and suffer a negative impact due to such unexpected new evolutions (Peón, Martínez-Filgueira 2020). It is well known that SMEs might resort to networking and collaborative agreements with other firms and organisations to obtain access to resources and upgrade their innovative profile to remain competitive (Radas, Bozic 2012).

The main objective of this chapter is to gain a better understanding of the main processes concerning the development of innovation-related business relationships and networks by SMEs active in the meat supply chain. This analysis will place emphasis on two distinctive and inter-related aspects: i) the “contextualised” dimension of SMEs and of their entrepreneurial effort, with a focus on the arising of relationships also with non-business actors such as government organisations and Universities/research centres; ii) the main patterns concerning resource access, development, and combination, in the light of SMEs’ limited capabilities.

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The chapter has the following structure. The second paragraph provides an in-depth background analysis of the structure of the meat supply chain, with a focus on main phases, actors, underlying processes, challenges and on the nature of innovative activities and their “networked” dimension. The third paragraph presents an illustrative case in the context of the Marche region through the analysis of two different and complementary settings: i) the involvement of local SMEs in the “*Qualità Garantita dalle Marche*” (QM) certification process; ii) the evolution of the “*Suino della Marca*” innovative project. The final paragraph discusses the main results and outlines conclusive remarks.

2. Innovation dynamics in the meat supply chain.

2.1 Phases, actors, and dynamics of the meat supply chain.

Supply chains for specific meat products are highly varied. Nevertheless, a more general conceptualisation of the food supply chain can be articulated into three principal macro-phases (Fondazione ITS Puglia 2018; Canali et al. 2020). Each macro-phase and supply chain activity can be further divided into more specific activities, as depicted in Figure 1.

The agricultural phase constitutes the first part of the supply chain, providing the raw materials and primary biological inputs that underpin subsequent stages of the supply chain. This phase encompasses the production of feed by manufacturers that produce and sell the feed to farms and interact with local health companies performing controls over the feed. Due to recent EU orientations towards food safety and environmental protection, self-control systems and hygiene standards in feed production and formulation have been introduced, requiring increasing investments by feed manufacturers. This phase also includes the production of animals for fattening, namely raising animals for food production in either intensive or extensive livestock within registered farms. Specific activities concern surveying and labelling animals with a brand placed on the ear (in the case of cattle, sheep, and goats) for traceability purposes. Local health companies perform inspections in farms by sending veterinarians to control the presence of origin and health records of animals and their health status, and the possible administration of drugs or antibiotics dangerous

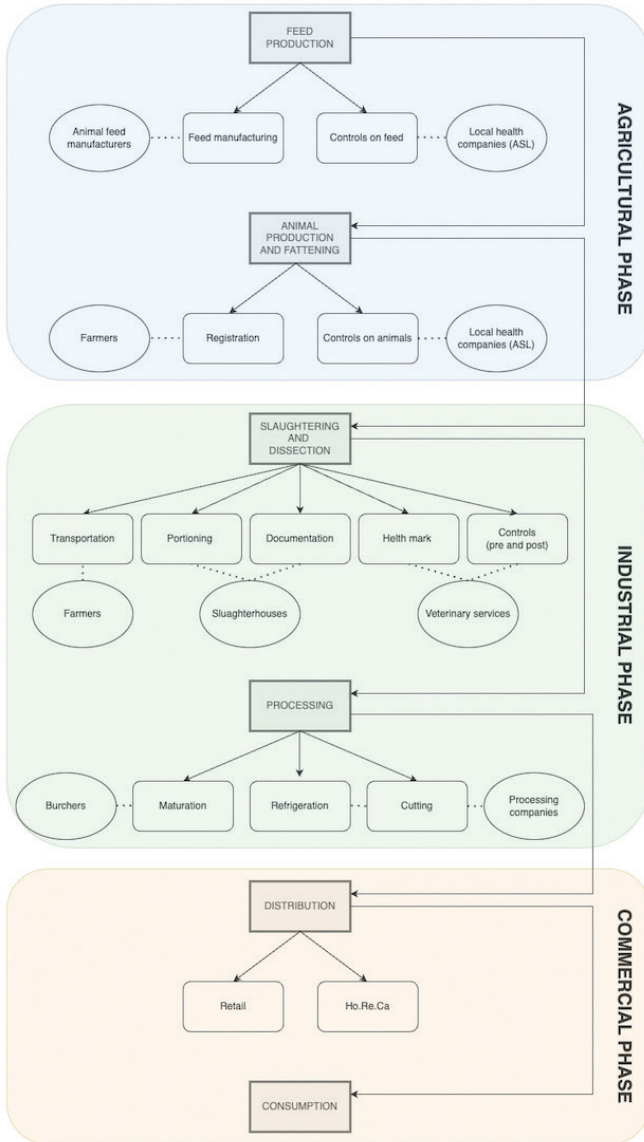
to human health. Feed is also subject to control along with the monitoring of the use of medications and the treatment of animals (Marozzi and Bozzano, 2015). In this first stage, one of the main challenges stems from the uncertainty created by the upward dynamics of feed prices and the increasing focus of European governments on animal protein and its sustainability, which could lead to further increases in costs for infrastructure investments and for complying with stricter government regulations¹.

The second phase is the industrial one, encompassing the activities of transportation, slaughtering, dissection, and processing. Animals are transported to slaughterhouses; during transportation, traceability is ensured through transport documents detailing their origin and destination (Fondazione ITS Puglia 2018). Slaughtering and dissection take place in facilities under the control of the veterinary service, which assesses the health status of the animals before the slaughter and the sanitary quality of carcasses (Marozzi, Bozzano 2015). Typically, the relationship between livestock farms and slaughterhouses is indirect and mediated by intermediaries and third-party agents; however, larger slaughterhouses are oriented towards establishing direct relationships with livestock firms, enhancing supply chain relationships with upstream operators, and reducing the role played by intermediaries in favour of direct on-farm sourcing. From slaughter plants the meat goes directly to distributors (butchers) or to cutting plants where it is portioned into smaller pieces. Product traceability is ensured in this phase, as slaughterhouses are obliged to document the origin of raw material and to identify all products through special documentation issued and enclosed to carcasses. At this stage, health authorities apply the health stamp or mark identifying the butcher or cutting plant (Marozzi, Bozzano 2015). In some plants, there is a high level of automation, and some companies have developed their patents. Boning and cutting are the most automated steps also to ensure higher hygienic and sanitary standards. At this point, the cuts obtained either remain on butchers' counters for direct sale to the public, are sold to restaurants or to other actors, such as industrial firms active in extremely diversified technological processes products like minced meat, sausages, salami, mortadella, hamburger. Technological and R&D investment represent in this phase a barrier that can be overcome only

¹ ISMEA Mercati <http://www.ismeamercati.it/>.

by industrial manufacturers and brands already established in other industries or productions.

Figure 1. The meat supply chain



Source: Authors' elaboration, adapted from Fondazione ITS Puglia (2018) and Canali et al. (2020).

In the last phase – labelled as commercial phase – meat products reach marketing and distribution through retailers, HO.RE.CA, and exports, and ultimately are purchased by final consumers. The Italian meat market is likely to split into two main segments, with consumers who are oriented to price convenience, and consumers aware of ethical and environmental issues related to food consumption who prefer locally sourced products guaranteeing quality, health, and ethical standards².

2.2 Main challenges for the meat supply chain.

Understanding the dynamics within the identified macro-phases helps identify the underlying interdependence and the challenges of each phase. The meat supply chain phases have been affected by several challenges, with significant crises mainly related to controls of the supply chain at all levels (Golini et al. 2017; Maples et al. 2019). Interdependence does not solely occur within the meat supply chain. The meat chain is also highly intertwined with other related supply chains, such as the milk and cheese production at the agricultural level, and the recovery and recycling of meat production materials such as bones and bristles for protein meal production or fats for cosmetic components³.

There has been an increasing interest in identifying and assessing the critical issues in the meat supply chain (i.e., Caccialanza et al. 2023; Maloni, Brown 2006). Most critical hotspots show interdependencies among actors and stakeholders operating at different stages of the meat supply chain, requiring innovative measures (at the product, process, and organisational level) for mitigation and implying the adoption of coordination structures and governance mechanisms within networks.

In this vein, criticalities can be assessed at the level of the individual stage of the supply chain or as cross-cutting challenges, simultaneously impacting many phases. For example, in the livestock feeding system phase, water use, emissions for animal feed production, and feed safety represent critical points that have been addressed and mitigated respectively through procurement policies oriented to minimising emissions using alternative protein sources for animal feed (Caccialanza et al. 2023),

² ISMEA Mercati <http://www.ismeamercati.it/>.

³ <https://www.digitalfoodecosystem.it/en/supply-chain/meats/>.

by promoting the use of novel feed sources and technologies, and by reducing food-feed competition (FAO 2023). When looking at the fattening phase, the outbreak of zoonotic diseases (i.e., African swine fever or avian flu) represents a threat to meat production and requires heightened traceability to isolate industry response to problems and control the spread of the disease, thus reducing impacts from tampering more rapidly and cost-effectively (Maloni, Brown 2006).

Major cross-cutting criticalities of the meat supply chain are related to the structure of the industry, marked by power imbalances within the supply chain. Large-scale distribution firms play a dominant economic role and hold significant negotiation power due to their purchasing volume, allowing them to rule over demand patterns and influence the supply chain (products, standards, etc.), thereby impacting smaller producers and retailers that are unable to compete while facing pressures to reduce prices, potentially leading to market concentration and antitrust issues. This power imbalance is further emphasised as large-scale retailers tend to lower consumer prices and, consequently, purchasing prices throughout the supply chain, reducing margins of the upstream segments of the supply chain (Piro 2019a). In the meat supply chain, profits are unevenly distributed, with large-scale retail and final processors (i.e., companies linked to Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) brands) yielding significant power and extracting the largest share of the value produced. On the other hand, actors in the upstream phases of the supply chain face high raw material purchase costs over which they hold no bargaining power (Piro 2019a). Market concentration could also lead to supply chain vulnerabilities with disruptions having widespread effects.

Second, the fragmentation and complexity of the meat supply chain have led to the emerging of traceability-driven issues and to the related false labels (i.e., incorrect country-of-origin labels, claims about the organic nature of products, among others), frauds (i.e., administration of substances with anabolic action or sale of meat treated with undeclared treatments, use of sulfites to improve meat appearance, among others⁴), and counterfeiting phenomena. Technological developments and innovations hold the potential for improving the compliance and usability

⁴ <https://www.itsagroalimentarepuglia.it/wp-content/uploads/7.-filiera-carne.pdf>.

of traceability systems (Shahbazi and Byun, 2020). Indeed, advanced technologies such as blockchain, machine learning, and radio frequency identification (RFID) can enhance traceability and verify the authenticity of products labelled with specific geographic origins (Alfian et al. 2020; Amani, Sarkodie 2022). At the same time, industry actors' collaboration (among producers, industry associations, and regulatory authorities) is crucial for addressing these challenges.

Third, a major criticality is represented by labour-related challenges and workers' skills and safety. The industry exhibits a variety of labour arrangements, including precarious employment, outsourcing of work, and migrant labour. Companies increasingly adopt outsourcing practices to reduce costs and increase production flexibility, resulting in labour-intensive service contracts for unskilled and mainly migrant workers (Battistelli et al. 2020). This trend has been further fuelled by regulatory interventions favouring contracting-out practices (De Blasis 2019). This shift is raising concerns about firms' accountability and the erosion of workers' rights and conditions due to an increase in the pace of work and higher risks of musculoskeletal disorders, exposure to psychosocial stressors, and to inadequate training (Piro 2019b; Battistelli et al. 2020).

Finally, the meat sector is currently facing a challenge related to the use of antibiotics. Indeed, because of a growing global demand for animal protein, a large quantity of antibiotics is used in animal production, which are administered to livestock as a precautionary measure against infections and to stimulate growth (Van Boeckel et al. 2017). Worldwide, around two-thirds of the global consumption of antibiotics is used in livestock, and, in particular, Italy registers one of the highest consumptions of antibiotics by animals in the EU (Waluszewski et al. 2021). This challenge has been further emphasised in the Italian context, which is characterised by a general lack of knowledge and of a domestic debate on the use of antibiotics and antibiotic resistance, and by a wide gap between evidence from academic research and the media interest in the topic.

2.3 The nature of innovation networks and their role in the meat sector.

Firms are increasingly pushed to become innovative. However, innovation has become a crucial challenge for firms belonging to more tradi-

tional sectors and being smaller in business size. Partnerships with other firms and organisations and access to networks represent a key strategy for pursuing innovations in terms of products, processes, and organisational solutions (Ortega-Argilés et al. 2009).

The literature on innovation networks has grown in recent years as scholars have started to tackle the analysis of novel and more efficient ways to set up and manage networks of firms and organisations where innovation takes place (Aarikka-Stenroos et al. 2014; Melander, Arvidsson 2022; Möller, Halinen 2017). A major distinction has been put forward between business networks and innovation networks (Mota et al. 2023). In the first case, firms gain access to networks to tap into new knowledge and innovative solutions, which are developed and spread in the networks by the main actors without any specific plan or ad hoc organisational configurations. This implies that innovation might be developed by any of the actors in the networks and that innovation processes might be more informal and unstructured. Instead, in innovation networks, the boundaries and features of innovative activities are more deliberate and formalised, as in the case of projects or other structured mechanisms. Innovation networks represent strategic initiatives where a group of partnering organisations – firms, institutions, and research centres – cooperate to develop innovative solutions according to a formalised plan and agreed expected outcomes (Mota et al. 2023). Therefore, innovation networks are the result of intentional behaviour, often by key actors playing an “orchestrator” role in the venture (Rubach et al. 2017; Andresen 2021).

The arising of innovative processes in business networks and innovation networks has various implications. Firstly, it is frequent the “intertwining” of innovation networks and business networks as each initiative requires specific resources or organisational settings to generate innovative outcomes (Rubach et al. 2017; Mota et al. 2023). It should be highlighted that such dynamics might result in frictions, as the mobilisation of resources implemented in networked contexts might be shaped by different logics and resource combinations (Mota et al. 2023). These initiatives are not promoted in a vacuum, but rather in an articulated networked resource structure and therefore might lead to regeneration processes based on new ways of combining existing and new resources (Håkansson 1992). In this vein innovation processes could be concerned

with different value chain processes, such as the developing, producing, and using settings (Ingemansson, Waluszewski 2009).

The implementation of innovation in the agricultural context has been extensively researched in the economics and management literature. Agricultural innovation has been defined as “the process whereby individuals or organisations bring newly developed or existing products, processes, or ways of organisation into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks, or environmental sustainability, therefore contributing to food security and nutrition, economic development, or sustainable resource management” (FAO 2019: 93). Innovation in the agricultural context is shaped by various processes: heterogeneous rural contexts for business-science interactions, the relevance of the regional dimension for innovation networks, involvement of a plurality of actors from business, government, and academia. Existing studies highlight the emergence of distinct innovation trajectories, such as sustainability-oriented innovation, digitalisation of agriculture, and optimisation of land use (Riccaboni et al. 2021).

Notably, innovation processes represent a feature of the recent evolution of the meat sector. Innovation in the meat sector is strongly related to the product and process dimensions, which are increasingly interdependent and require the emergence of a variety of innovation networks along the supply chain.

With regard to the product dimension, on the one hand, innovation is spurred by changing consumer preferences and tastes, causing shifts in the nature and relevance of quality cues, increasingly related to a variety of consumer preferences (Grunert et al. 2011; Busse et al. 2017). On the other hand, innovation is strongly linked to the R&D effort by firms and research centres attempting to address both consumer and societal needs and concerns, even though often such pressures have been contradictory. The main outcomes of this effort are the development of healthier meat products – such as those related to the bio sector – and of alternative kinds of meat – such as cultivated meat.

Concerning the process dimension of innovation, efficiency goals, quality, and safety concerns are increasingly combined by firms to remain competitive in the market. On the one hand, there is strong pressure for increasing automation (Barbut 2014) – in the case of industrial

transformers and producers – and for a better organisation – in the case of small niche producers – in production processes. On the other hand, there is a growing debate over healthier meat – as in the case of antibiotics use, and often abuse (Waluszewski et al. 2021) – and improved traceability along the whole supply chain, requiring investment in appropriate digital technologies (Costa et al. 2013).

In both product and process innovations firms are increasingly open to technological and scientific cooperation with a variety of actors, as they face challenging projects implying the involvement of institutions and organisations (Garcia Martinez et al. 2014). This pattern characterises both large multinational firms, acting on the innovation edge, and small local firms in the rural sector, which are more often pursuing, with mixed results, some kind of collective action while addressing resource shortages along the supply chain. Therefore, existing and prospective business networks and innovation networks might represent key sources of resources to face current and future challenges in the meat sector.

3. Regional innovation networks in the meat industry: the case of the Marche region.

Pursuing innovation in the meat sector requires companies to be active in gaining support from public authorities. In the light of the “rural” dimension of this industry, a key actor is the regional government. The Marche region represents a notable example as the regional government has been very committed to attempting to foster innovation in the local meat supply chains, while local firms have attempted to pursue upgrading processes using the limited available financial, technological, and organisational resources. In this paragraph two different meaningful settings are discussed: the “*Qualità Garantita dalle Marche*” certification and the “*Suino della Marca*” innovation project⁵.

⁵ The analysis is based on a qualitative empirical investigation based on the two case studies of the “*Qualità Garantita dalle Marche*” certification and the “*Suino della Marca*” innovation process. With reference to the two cases, semi-structured interviews were conducted. Interviews were conducted with various actors involved in the two initiatives and documentation was collected on the web (i.e., project factsheets, company’s websites, Marche Region official platform, articles from newspapers). The actors interviewed

3.1 The “*Qualità Garantita dalle Marche*” certification: objectives and innovative business practices.

At the end of the 1990s, the “mad cow” emergency pushed public authorities and firms to develop and introduce new criteria and practices to guarantee the safety and traceability of meat-based products. One notable initiative by the Marche regional government has been the launch of the “*Qualità Garantita dalle Marche*” (QM Marche) certification in 2003, by means of Regional Law⁶. The main goal of this program is to enhance safety and quality standards across all local agricultural value chains, including the meat value chains. The pursuit of safety and quality standards – through integrated innovative technologies and business practices – had to be combined with the promotion and exploitation of local food and cultural traditions.

The pillars of this initiative are mainly three. The first one is the electronic traceability system, named Si.Tra., supporting the QM Marche certification and ensuring transparency by allowing consumers to easily retrieve information about the origin of the meat. Bovinmarche – one of the main cooperatives in the beef sector – had already implemented this system, thus showing the process and the benefits. The second pillar is the quality content, which should be improved through compliance with the quality regulations of QM Marche and affecting the whole supply chain. The third one is the involvement of an independent public organisation – ASSAM (now AMAP) – in charge of the certification process together with other private control bodies.

Overall, the QM initiative has been implemented in several agricultural sectors (i.e., cereals and legumes, truffles, dairy products, bee products, fruits and vegetables, bakery products, and fisheries), even though with different degrees of application, involvement, and compliance by firms. In the meat sector, various firms have applied for and obtained the QM certification; however, the spreading over time has been lower than

are: (1) the two contact persons of the Marche Region for the QM certification; (2) the CEO of Prosciutteria Faleria, one of the companies that obtained the QM certificate; (3) the CEO of Baldi Carni and co-founder of Impronta Verde and the Project Manager in charge of the “*Suino della Marca*” project; (4) the Manager of Impronta Verde.

⁶ Marche Region Regional Law number 23 of 10 December, 2003.

expected, notwithstanding the effort in terms of marketing and promotion by the regional government. In the first phase, mainly large local firms have applied for and obtained the QM certification. Bovinmarche involved its own supply chain including its network of breeders and its 40 partner stores in the Marche region, while Latte Marche and Cooperlat have been involved as leading firms in their own local supply chains for milk production. These local supply chains were better organised and thus ready to obtain the QM certification.

By contrast, the pork sector has experienced more difficulties, related to the variability of animals' quantity and quality, and therefore, firms engaged in the processing phases have different sources within and outside the Marche region. One of the main challenges to obtaining the QM brand is to guarantee the non-GMO standard along the supply chain, including the feed used in farms. Upon farmers' request and to ensure flexibility, the QM production regulations for the pork sector have been drafted similarly to the recognised brands "Prosciutto di Parma" and "San Daniele", which represent the standard rules for high-quality pork-related cold cuts. Notwithstanding these obstacles, a few smaller firms have been able to obtain the QM certification in the pork-related segment, involving some of the partners in their supply chain. The main driver for their choice to pursue the certification stems from the push from large distribution chains willing to offer in their stores locally-sourced and high-quality food products. In one case, a small firm has exploited the QM certification to promote an innovative product while investing also in marketing activities. These initiatives undertaken by smaller firms have shown that upgrading processes in the meat supply chains is possible. However, these attempts have been also vulnerable in light of the changing evolution of the supply chains. The recent war in Ukraine has made non-GMO feed very costly and therefore it has become difficult for smaller firms to maintain compliance with QM standards and to keep business relationships with large distribution chains. For most of them, the main goal is to keep their competitiveness and survive in the market.

The Marche regional government has become aware of the difficulties and obstacles faced mainly by smaller firms. This has implied on the one hand promoting a continuous interaction with firms to monitor their evolution and assess possible changes in the regulations underlying the

QM certification; on the other hand, the regional government has revised the role of ASSAM – which has been transformed in AMAP in 2022 – from being the QM certification provider to becoming a key actor in the assistance to firms and their supply chains in the light of its strong technical expertise developed over the years. The main challenge in the current period is to simplify regulations and procedures while maintaining quality levels. This effort by regional public authorities is then to be combined with a stronger propensity by smaller firms to undertake collective initiatives to promote their products and quality certifications. Thus far – notwithstanding the calls by the regional government – smaller firms have not been able to create horizontal partnerships useful for innovating the over-product offer and the marketing effort. Small firms have devoted attention and resources mainly to upgrading their own supply chains, while less emphasis has been placed on cooperation among them. Coordination in terms of innovation and marketing has been instead easier in the case of cooperative actors – such as Bovinmarche – where the institutional configuration allows for a better alignment of goals and resources both horizontally and vertically across supply chain networks. The main goal – and hope – of the Regional Government is to develop new forms of cooperation among QM certification holders both within and across agricultural sectors.

3.2 *The “Suino della Marca” innovation project.*

The “*Suino della Marca*” project started in the early 2000s with the primary aim of creating an autonomous Marche genetic type, a new breed. The project has not followed a linear path over time. It started back in 2006, was almost abandoned shortly afterwards, right after the experimental phase, and is now back on track shifting towards full-fledged breeding. Overall, two main phases of the project can be highlighted: a first experimental phase from 2006 to 2009 and a second one from 2021 and still ongoing, where a new key actor, Impronta Verde, has taken the lead. This kind of project fits perfectly into the Region’s strategy towards the recovery of inland areas and livestock farming. To implement this project, the Region has named zootechnics as a priority in all calls related to the Marche Region Rural Development Programme 2014-2022, with the wider objective of enhancing the territory, qualifying a supply chain

that adopts sustainable farming practices, recovering disadvantaged inland areas at risk of depopulation, and providing the consumer with excellent meat⁷.

3.2.1 Phase I (2006-2009).

The project, sponsored by the Marche Region, was set up following the increasing requests of a producer associations (i.e., Consorzio del Salame di Fabriano) and aimed to create a new genetic line – a rustic pig since the region was lacking a native breed – possessing the characteristics of Italian breeds and good zootechnical performance. Funding was obtained thanks to the Regional Law 37/99, financing agricultural and zootechnical research and experimentation. The main partners of the project were the Marche Region, Università Politecnica delle Marche of Ancona, Università di Camerino, and Assam (now AMAP), which is the Agency for Innovation in Agribusiness and Fisheries “Marche Agricoltura Pesca”.

The first phase is characterised by the collaboration between the Marche Region and the local universities. The activities conducted in this phase concern mainly zootechnics. Indeed, the universities involved designed and conducted the “hybridisation plan” by developing a cross-breeding program aimed to maximise heterosis and the degree of combinability, using five Cinta Senese boars and twenty Italian Large White sows. The hybridisation plan and cross-breeding program eliminated any risk of inbreeding and provided a high degree of combinability⁸.

However, the hybridisation process and the overall project have been stopped due to bureaucratic hurdles, and especially due to the failure of the breeders’ association that was formally the owner of the animals⁹. The project therefore came to a halt in 2009 and remained at a standstill until 2021.

⁷ <https://www.regione.marche.it/News-ed-Eventi/Post/85406/Il-Suino-della-Marca-per-vincere-la-sfida-della-zootecnia-sostenibile-attraverso-il-recupero-della-biodiversit%C3%A0-II-progetto-presentato-in-Regione-Carloni-Prodotto-identitario-di-eccellenza-che-parla-delle-Marche-gi%C3%A0-nel-nome>

⁸ “Suino della Marca verso il definitivo rilancio” Suinicoltura n. 8 settembre 2022 di Ottavio Repetti.

⁹ “Suino della Marca verso il definitivo rilancio” Suinicoltura n. 8 settembre 2022 di Ottavio Repetti.

3.2.2 Phase II (2021-ongoing).

In more recent times, the owner of the sow farm, who preserved the animals but did not carry out the selection, decided to sell the facilities and to dispose of the animals. The Marche Region started to search for a firm or organisation willing to continue the genetic program already approved by the Ministry of Agricultural Food and Forestry Policies within the national register of hybrid producers of pigs.

Emiliano Baldi, owner of the company Baldi Carni, was willing to take the lead on the project as it was in line with the vision and needs of his company. Indeed, the *Suino della Marca* breed had “all the characteristics that Baldi would have liked to obtain in cattle breeding” (Interview with Emiliano Baldi). At the time, Baldi Carni was already active in the food service sector; therefore, the company could easily find a market for new product lines, and they already possessed the resources and know-how needed for pork processing. The company searched for a zootechnical entrepreneur and found Andrea Sgariboldi, located in the Piemonte region, with whom Baldi created the startup Impronta Verde, which owns the herd.

This opportunity helped Baldi to reach two main objectives. The first one is the opportunity to pursue the family and company’s vision to create a quality product from and of the Marche region. Indeed, Baldi had been so far keen on providing quality through the characteristics of the meat rather than creating a link to a specific local context. The company felt the need to create a product of proven, measurable, and objective quality that originated in the Marche region. The second objective is related to the intangible benefits that the project entails. Indeed, it envisages breeding in semi-wild conditions in those areas of the Marche region that are currently suffering from depopulation and hydrogeological problems, characterised by lands that are not in competition with human food production, with very limited use of drugs, and where animal welfare is ensured. This is particularly important at the consumer level, as the emphasis on rural contexts and the non-intensive character of the breeding is consistent with the consumers’ sensitivity and new market trends foreseeing a decrease in quantity and an increase in quality. Therefore, the “*Suino della Marca*” project also represents a way to start a new dialogue with consumers and with public opinion.

At the same time, embarking on such a project entailed major risks for Baldi due to the legacy of the project and of the sow farm and because it implied a substantial change and transition for the company, engaging in a new upstream phase of the supply chain, thus requiring comprehensive management of the pork supply chain. Impronta Verde had to face high costs and manage new assets still without a market presence, feedback, and economic return and with the need to enlarge the sow farm to reach the economic break even point.

This represented the starting point for the second phase of the project. The status of the inherited project consists of 1000 pigs (including boars and sows), the sow farm that is currently undergoing a biosecurity and restructuring project, an agreement with a company based in Terni (Umbria) in charge of the animal fattening phase, and an innovation journey to be completed as the “*Suino della Marca*” was at the time a genotype but not yet a breed. Impronta Verde has then signed a new agreement with the universities of Ancona and Camerino for the completion of selection and technical assistance in the early stages of breeding and has recently managed to involve two farmers for fattening located in the Marche Region.

Further activities concern various tests to understand the right sales and distribution strategy to be applied. To date, B2C channels (Baldi's shop, butcher's stores...) are providing a better response, probably due to the reputation and legitimacy that Baldi has gained in the territory. Also, marketing activities, and promotion activities (i.e., “*Si con te*” campaign) have been undertaken. The long-term objective for the project is to introduce the *Suino della Marca* as raw material in the production processes of other chains as well as to grow the genetics by creating a configuration to transfer the breeding while protecting the intellectual property and ownership of the genetics.

Baldi is a founding partner of Impronta Verde and aims to become the orchestrator of a network of breeders to create a collective reality that is also competitive in accessing public funding, participating in bids, and which can acquire critical mass and relevance in the eyes of the public stakeholders. With this objective in mind, Baldi has involved a consultant who has gained a key role in managing the creation of this network by setting up a cooperative organisation and actively looking for breeders in specific territories and marginal areas. The search for new partners is

implemented through the involvement of local producers in training sessions concerning key innovative themes in pork farming. This activity is carried out autonomously, together with the local veterinary services and the Zooprohylactic Institute, with positive results in terms of interest and public recognition in the local breeders' community.

However, at this stage, the active involvement of farmers and breeders in the project is impaired by the uncertainties related to normative and bureaucratic hurdles at the local, regional, and European levels, the diffusion of the African swine plague which requires substantive investments in biosecurity, the changes in prices due to the exacerbated costs of the raw materials due to the war and to the post-COVID period and the significant changes in meat consumption.

The “*Suino della Marca*” innovation project also has synergies with other regional complementary projects, such as “*SAIMarche*”¹⁰, an itinerant slaughtering project, which solves the logistic problems of the lack of slaughterhouses in the Marche Region and of non-full loads. By addressing logistic relationships, it is aimed at small livestock farmers but also agro-tourism farms that want to take advantage of extensive breeding opportunities, but do not know how to transport the animals to slaughterhouses. The project solves the problem linked to the lack of a structured relationship between the various actors (extensive breeders, farms, transporters, slaughtering...) by means of a container to be transported to an area close to a small number of farms for slaughtering purposes. Finally, Impronta Verde is also promoting a project aimed at providing free veterinary services to small farmers to provide them with the requirements to get involved in the “*Suino della Marca*” project.

4. Conclusions.

This chapter aimed to enhance our comprehension of the main processes underlying innovation-related business relationships and networks of SMEs in the meat supply chain, using the context of the Marche

¹⁰ PSR Marche - 2014IT06RDRP008: Italy - Rural Development Programme (Regional) - Marche SAIMarche - Soluzioni innovative per l'allevamento e per una filiera agro-zootecnica più resiliente e più redditizia nelle Aree Interne Marchigiane.

region as an illustrative case. The development of this specific area of research seems appropriate in light of the increasing interdependence and newly emerging challenges (Golini et al. 2017; Caccialanza 2023).

This contribution, by examining two specific settings of the Marche region – that is, the “*Qualità dalle Marche*” certification process and the “*Suino della Marca*” innovation project –, brings to the forefront the co-existence of business networks and innovation networks, showing different characteristics and only partially overlapping and intertwining with each other (Mota et al. 2023). While the business network appears consolidated, particularly in the case of the QM certification process, the innovation networks surrounding the two initiatives under investigation struggle to emerge and develop. Such difficulties underscore the importance, on the one hand, of fostering SMEs’ propensity to undertake collective initiatives promoted by public institutions (as in the case of QM Marche) (Munksgaard, Medlin 2014), and, on the other hand, it is crucial for the regional government to include in its policymaking the formulation of a well-defined strategy that actively supports the establishment of both business and innovation networks.

Both “*Qualità dalle Marche*” and “*Suino della Marca*” innovation processes are shaped by the initiative of firms, supply chain stakeholders, and organisations of producers, with the aim to increase traceability, guarantee safety, and impose quality standards of local food production (in the case of QM) and to create a local quality product based on a genetic line from the Marche Region (in the case of “*Suino della Marca*”). The QM certification is a process deriving from product-related and process-related innovation needs, primarily aimed at increasing traceability and quality, but with the longer-term aim of creating vertical and horizontal alignment within and across supply chain networks. The underlying objective of the “*Suino della Marca*”, on the other hand, is to provide the region with its own genetic prototype, with the wider horizon to create a stable network of farmers around this new genetic line.

Two primary insights arise for further consideration. First, the analysis of the two initiatives provides insights into the characteristics of the innovation networks, especially in terms of the plurality of actors involved, from business to governmental institutions, and universities, and in terms of the arising of new actors (or rethinking of existing ones) for the purpose of innovation. This is the case of ASSAM (now AMAP),

which was initially involved in the QM certification process as an independent organisation overseeing the process and, later on, became a key actor in the assistance to firms and their supply chains in light of its strong technical expertise developed over the years. At the same time, this actor has been assigned an institutional role as supply chain coordinator and aggregator as, especially in the pork supply chain, the lack of a cooperative actor with a networked nature (as Bovincarne in the beef sector) has impaired the creation of a network of QM certified producers to combine their efforts in production and commercialisation activities.

A key actor in the “*Suino della Marca*” innovation project is Impronta Verde, an entrepreneurial initiative that formally owns the project, takes care of the brand management, and is committed to bringing the project to an end. This new actor, which interacts with larger firms (such as Baldi Carni), small farmers, and institutions such as public universities, is also in charge of the creation of a supply chain built around the new genetic line, the coordination of activity between supply chain actors and their aggregation under a common supply chain project. Impronta Verde represents a case of creative entrepreneurship in a complex supply chain context; this actor could play the role of orchestrator, effectively connecting business and innovation networks (Andresen 2021).

The second insight concerns the main patterns of resource interaction in place, in terms of access, development, and combination (or lack of integration). Small firms are upgrading processes in their own supply chains but are placing less effort and resources into establishing cooperation with other supply chains in the framework of innovation-related processes. When looking at resource development and access in SMEs active in innovation processes, the pivotal role of financial resources emerges. Indeed, the provision of financial resources by the regional government for undertaking such initiatives is pushing SMEs to enter innovation networks and represents an incentive, raising the interest of actors with limited resources. At the same time, financial resources have represented a hampering factor in reaching wide-ranging and collective aims, as firms are mainly focused on maintaining their competitiveness and surviving in the market. The costs of production which have lately increased have put a halt to the innovation attitude of those SMEs driven by market factors and looking for improvement. Also, the importance of organisational resources, in terms of human resources emerges, as shown

by Impronta Verde. Finally, synergies among projects and projects' resources develop, probably due to the high interdependence among the different phases and actors of the meat supply chain. Such interdependencies and synergies represent an opportunity for fostering collaboration among actors for the purpose of innovation.

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THE ROLE OF LARGE COMPANIES AND GOVERNANCE
ISSUES IN THE MEAT SUPPLY CHAIN IN SUSTAINABILITY
REGULATION AND SOCIAL AND ENVIRONMENTAL
REPORTING

1. Characteristics of the food and meat supply chain.

Corporate social responsibility and sustainability play a significant role in agri-food companies, including the meat and meat products sector.

Indeed, the competitive tensions that exist within the system can drive companies, particularly those at the top of the supply chain, to engage in forms of human rights abuses. These include the exploitation of workers and the use of illegal, child and servile labour; the exertion of overwhelming economic pressure on companies at the bottom of the supply chain; and the degradation of the environment and natural resources. The latter form of exploitation can favour both the impoverishment and decay of the soil and the occurrence of adverse and catastrophic weather events, which reduce the overall productive capacity of the agri-food system. Moreover, food fraud practices may be encouraged to the detriment of product quality, animal welfare and public and consumer health.

Therefore, the issues of socially responsible business, corporate social responsibility and social and environmental sustainability assume fundamental prominence in the agri-food sector, and meat in particular.

The industrial agriculture chain in Italy is composed of many small companies at the base of the manufacturing sector (Bubbico, Di Nunzio 2022; Fondazione Metes 2023), with a characteristic narrowing in the intermediate links of the chain itself due to the crucial role played by large-scale organised distribution and processing companies that are much larger than small agricultural companies. The mass of consumers purchasing industrial agriculture products at the other end of the business chain is also very fragmented.

This asymmetric composition of the supply chain results in an “hour-

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glass” shape, with a large number of players at the bottom and top and a narrowing in the middle due to the presence of large (or at least significantly larger) companies, able to exert intense competitive pressure and a dominant bargaining force against the players at the extremes of the chain. Therefore, this configuration of the production and commercial chain enables spreading of detrimental behaviour to weaker parties. It negatively affects both the conditions, including working conditions, of agricultural production and its environmental sustainability, the wholesomeness and quality of the product, and the interests and health of consumers.

These aspects are also confirmed for the meat chain, particularly the poultry and pork production chain, among the most widespread and essential for the Italian agricultural economy (Campanella, this volume).

The former is characterised by outsourcing the various steps of the breeding cycle by large breeding companies through *soccida* (agistment) with small farms. As a result of their unequal size and bargaining power, the latter are thus in a condition of actual economic dependence. Furthermore, this situation encourages the engagement in abusive practices by companies in a dominant position over weaker ones through the imposition of unfair and economically disadvantageous contractual conditions. Besides, this condition leads agricultural companies to resort to behaviour in breach of workers’ rights or dangerous to consumer health, animal welfare and environmental protection to reduce production costs as much as possible and thus comply with the unfair economic and contractual conditions laid down by the companies using outsourcing (for some references to proposals for the reform of *soccida* to protect farmers see Campanella 2023: 1 ff.).

In the pork sector, the supply chain is characterised by unequal economic strength, resulting in slaughtering, cutting and meat processing. These activities are often outsourced to companies that keep production costs as low as possible through contracting and indirect workers (Campanella, this volume), consequently leading to labour exploitation, violation of hygiene and health regulations and environmental damage. This has a negative impact not only on the health of the working conditions but also on the wholesomeness of the products and respect for the environment.

Additionally, in the pork production and processing sector, the possible dysfunctions are amplified due to outsourcing production steps,

which also occur through delocalisation and the creation of international value chains. As emphasised in other articles in this volume (Freddi, this volume), the pork production chain in Europe, like many other manufacturing sectors, is organised according to the global value chain model. Each country has a specialisation and specific competencies for various processing stages. Companies such as German ones dominate in a few countries with greater economic strength. These hyper-specialised supply chains focus on different processes such as breeding, fattening, slaughter, processing and distribution. The various processes are carried out separately and independently but somehow integrated. A unique feature of the European pork supply chain is the need to reduce costs as much as possible to counteract problems such as seasonal fluctuations in consumption, large wastage margins and complex storage and transport conditions. The need to contain expenses pushes towards concentrations in each stage of the production cycle. This is particularly remarkable in slaughtering and breeding, concentrated in Northern European countries, where large multinational companies dominate some supply chain hubs.

Regarding these dynamics, southern European countries were characterised by more significant fragmentation, resulting in less economic strength. As far as the vertical integration of the supply chain is concerned, in countries where it is solid, the contractual conditions in meat processing and animal breeding agreements considerably restrict the contractual freedom of farmers *vis-à-vis* the much more significant economic strength of large slaughter and meat processing companies. The agreements within the supply chain are often informal, which further worsens the position of the weakest links, who cannot expect specific recognition of their rights. Finally, within the European territory, international manufacturing specialisation means that some countries specialise in the manufacturing and export of slaughtered meat or live animals, which are slaughtered and processed in other countries, such as Italy, which specialises in advanced and sophisticated processing and export of finished products. However, this international fragmentation of production makes it more difficult to control the earlier stages of the manufacturing process, to the detriment of product quality, consumers and the environment. This control is also much more difficult when the imports come from third countries, which do not apply the strict EU standards (Lazzari, this volume).

The peculiar fragmentation of the supply chain and its extension to an international level, even within the EU itself, essentially increases the complexity of its governance and the interaction and protection of the weaker players in the supply chain.

2. The role of the agri-food sector for social and environmental sustainability.

The agri-food sector plays a crucial role in the social and environmental sustainability of the planet and economic and social systems.

This is particularly relevant for the meat sector's manufacturing and processing (Polidori, Rombaldoni, this volume). In fact, this sector is characterised by a higher level of climate-changing emissions, compared to other agricultural activities, due to the consumption of fossil fuels needed throughout the entire process, from breeding onwards, but also including the preliminary phase of cereal production, necessary for the preparation of feed. The latter, in fact, is based on the extensive use of petroleum-derived chemical fertilisers. Their production involves energy consumption and CO₂ emissions that, although limited in terms of the individual production unit, take on very high values considering the massive use required for high-yield crops. Furthermore, the emissions resulting from the consumption of fossil fuels for all stages of livestock breeding, slaughtering and industrial production are significantly higher for meat production than for the production of purely vegetable products. The environmental issues determined by meat production also relate to the high risk of wastage at all production stages. Indeed, inefficiencies in the processing and preservation of both the raw material and the final product and semi-finished products result in much greater wastage and are more difficult to manage than in other agricultural productions. While this negative environmental impact is not equally widespread among all types of production, being much smaller for poultry production, which is becoming increasingly popular for various reasons (cost, wholesomeness of consumption and environmental) at a global level, but even at best this impact is still much higher than that of any vegetable agricultural production.

The use of intensive livestock farming also causes serious negative

effects, such as loss of biodiversity, environmental degradation and pollution, soil depletion and destruction of natural resources, exploitation of animals, and the spread of dangerous zoonoses (Lazzari, this volume).

The environmental impact of agriculture as a whole is therefore very significant, considering that it contributes about one fifth of the total global amount of climate-changing emissions, of which eighty per cent derive from livestock farming (Lazzari, this volume; Polidori, Rombaldoni 2022: 189 ff.).

This situation led the European Union to include the agricultural sector in the New Green Deal, which envisages zero net greenhouse gas emissions in Europe by 2050, economic growth decoupled from the use of natural resources, without disregarding any person or place. To achieve these targets in the agri-food system, the European “Farm to fork” strategy was prepared. It includes six macro-objectives, covering sustainable food production, food security, sustainable food processing in the post-farm food supply chain stages, sustainable food consumption, reducing food loss and waste and combating food fraud along the food supply chain.

More specifically, according to the “Farm to fork” strategy, reducing ecological impacts and emissions in agriculture by improving soil quality will improve soil fertility and productive capacity. As a consequence, this would benefit farmers and producers, lead to the production of more sustainable goods with higher added value, improve the functioning of markets, and enable global warming mitigation.

Furthermore, following the approval, in 2021, of the “EU Soil Strategy for 2030. Reaping the benefits of healthy soils for people, food, nature and climate” (COM (2021) 699 final) a number of key objectives for sustainable soil management were identified. In several respects, they concern the agricultural business, also involving public policies such as the Strategic Plan of the CAP 2023-2027 (Altobelli, Monteleone 2023: 51).

From this perspective, the agri-food sector and agricultural business could also play a fundamental role in realising an innovative model of sustainable economic production, promoting a “new circularity between agriculture, society and nature” concentrating on landscape, biodiversity and food quality, combining production and environment, local and global focus, business and democracy, in a logic where solidarity and cooperation replace competition (Pazzagli 2023: 65).

The importance of this transition, as we have seen, is widely recognised at European level. Its implementation rests not only on public policies, as mentioned above, but also on the creation of a new model of responsible business, inspired by principles of equity, environmental sustainability and social responsibility.

Reference is therefore made to corporate social responsibility and corporate sustainability.

This model is increasingly attracting the interest of companies, also in light of new consumer behaviour, at least of those belonging to the groups which are most sensitive in respect of ecological, environmental and social issues. The rejection, by these consumers, of products that do not respect the environment, health, workers' and people's rights, can result in reputational damage for companies, causing losses in turnover and disaffection also on the part of potential investors and lenders, due to the consequent lower profitability and equity strength of the companies in question.

Moreover, failure to comply with best social and environmental sustainability practices may lead to a reduction in customers and turnover. Additionally, it can determine a greater risk of sanctions and litigation for failure to respect the environment and workers' and consumers' rights, and to worse business risk management. As a result, non-socially responsible companies become less attractive to possible lenders, also in light of the increasingly widespread sustainable finance. This sector is aimed at directing investments towards companies that abide by these good principles, something which is also encouraged by the European Union (Molinero Gerbeau, Avallone 2016: 68 ff.; Oxfam International 2018).

3. European policies for the development of agriculture and rural areas.

As mentioned above, the European Union has devoted special attention, over the past few years, to implement public policies aimed at developing the agricultural economy, also in terms of environmental protection and rural areas. Indeed, the idea is that promoting rural development is an important factor for territorial and social development in general, as it generates economic and social value also for consumers and citizens in a broader sense. Specifically, rural development policies are

significantly capable of fostering new forms of entrepreneurship, where economic and market reasons are favourably combined with the creation of social value. As a consequence, profit goes hand in hand with environmental and social benefits for the population.

In turn, this encourages the spread of “hybrid” economic organisations, which combine the pursuit of profit with that of a positive social impact by adopting a social or environmental mission. Agricultural business, in the age of industrialisation, has been steadily losing its relevance to the economic system as a whole. Indeed, labour, capital, and entrepreneurial skills have been transferred to industrial economy. Agriculture itself, at this stage, has become industrialised agriculture. It is based on the concentration of capital, production specialisation, monocultures and the loss of biological diversity, the standardisation of processes to the detriment of human and animal welfare and environmental protection. In the post-industrial phase, the preservation of environmental integrity and landscape, food safety and food quality play a crucial role. Different business, territories, environmental and social elements, and local and global markets and dimensions are more and more integrated.

Sustainable rural development therefore offers a chance of bringing forth a new economic model where multiple levels, actors, functions and activities are connected. Indeed, agriculture is by its very nature a multifunctional activity, which also involves local communities. Not only is it directed to the production of food, but it also has an impact on the entire natural environment, the landscape, the protection of biodiversity, and the living conditions of people and society in the broadest sense. Multifunctionality in agricultural business, in its productive, social and environmental characteristics, balances competitive efficiency targets with social and environmental sustainability. It entails the integration of agricultural production of plants and animals with the protection and sustainable management of natural resources such as water, soil, atmosphere, landscape and cultural and social traditions. This element of multifunctionality in agriculture may be relevant in different situations: at farm, local, and overall economic system level, involving public health, the protection of the landscape and the tangible and intangible cultural heritage, the satisfaction of the population’s food needs, and the protection of the territory in the prevention of natural and environmental disasters. This multifunctional character also highlights the multiple eco-

conomic, social and environmental effects of agriculture in terms of the environment, cultural heritage, food safety, protection of the landscape and natural beauty, protection of biodiversity and animal welfare, land management and prevention of hydrogeological instability, and economic development in the broadest sense.

Thus, these elements are specifically relevant to public economic policies, the preservation of the territory's natural heritage, the support of small family farms, the fight against excessive productivism and the impoverishment of the natural and social environment. New institutions and rural development plans marked by multifunctionality are needed. Therefore, public policies must encourage the creation of new public and private aggregation networks, which in turn require a transformation of the relevant companies in order to emphasise their multifunctionality (Van Huylenbroeck, Vandermeulen, Mettepenningen, Verspecht 2007: 1 ff.).

As mentioned above, the European Union has for some time been focusing on agricultural policy and rural territories, not only as far as food production is concerned, but also for their compelling role in the production of renewable energy, aquatic resources and the preservation of biodiversity, in the abovementioned context of multifunctionality.

This focus can be traced back to the first formal declaration on rural policy (Com 1988), and was later reflected in the Cork Declaration in 1996, incorporating the multi-sectoral approach mentioned above. Subsequently, the EU's Agenda 2000 acknowledged the environment and the role of farms as significant targets of the European agricultural policy. Thus, the sustainable development of European agriculture became one of the objectives of the Common Agricultural Policy (CAP), both in the supporting rural development policies for the period 2007-2013 (Regulation (EU) No 1698/2005) and for the period 2014-2020 (Regulation (EU) No 1305/2013).

This perspective also redefines the shape of agricultural companies in Europe, through a close connection between the social and rural contexts. It reconsiders the socio-economic role of agricultural companies and the agri-food sector, in its multifunctional character, as opposed to the traditional single-function approach, aimed exclusively at production and profit. Indeed, rural development policies for multifunctional agriculture require that the pursuit of profit and business be combined

with territorial identity, in order to create social value for the benefit of communities. This also favours the spread of hybrid companies, which apply multiple logics at the same time in their operation and combine business, profit-seeking and the social and environmental impact (Romanelli 2016).

As we have seen, this specific multifunctional element, which combines economic and productive aspects with social and environmental characteristics, is particularly suitable for the agricultural and agri-food sector. Therefore, it directly connects to corporate social responsibility and the social and environmental sustainability of business, and appears to be fundamental in the meat sector. Indeed, compared to other agricultural businesses, this sector has a particularly significant impact on the environment and on the health of communities, workers and consumers.

4. Corporate social responsibility and sustainability.

In light of the above, when analysing the role of corporate social responsibility and sustainability in the agri-food industry, and with reference to the meat sector in particular, we must not disregard the specific structure of the supply chain described above. It includes large companies with greater economic and bargaining strength, placed at higher levels of the production and distribution chain. These companies are in a dominant position and can directly use their economic strength to incentivise the adoption, by companies placed lower down the chain, of unfair practices, unsustainable from a social and environmental perspective. These practices may involve labour exploitation, the use of methods that do not respect the natural environment, soil and animal welfare, or the quality and wholesomeness of the final product. They may be stimulated precisely by the demands of large commercial distribution or processing companies to obtain excessively low prices, unreasonably short delivery times, or sudden changes in contractual conditions.

Taking a closer look at corporate social responsibility (CSR), the European Union's 2001 Green Paper (*Promoting a European framework for Corporate Social Responsibility*, Green Paper, 18 July 2001, COM(2001): 68 ff.) officially defined it as "a concept whereby companies integrate social and environmental concerns in their business operations and in

their interaction with their stakeholders on a voluntary basis”. The aim is to produce value shared with shareholders, stakeholders and civil society by identifying, preventing and mitigating possible adverse effects. These further elements were specified by the European Commission in its Communication of 22 March 2006 and its Communication of 25 October 2011.

Indeed, the European Union has devoted special attention to the issues of corporate social responsibility and sustainability, not only from an economic, but also from a social and environmental perspective, of business.

This approach to business diverges from the traditional common law principles on corporate law and finance, specifically those expressed by Berle and Means in 1932 (Berle, Means 1932). According to these principles, the maximisation of profit and the pursuit of the exclusive interest of shareholders constitute the essential purpose of corporations and their directors. In contrast, corporate social responsibility aims at reconciling the interests of the latter with those of all stakeholders, both inside and outside the company (such as workers, suppliers, consumers, representatives of civil society, etc.). This does not constitute a breach of directors’ fiduciary duties towards the shareholders. Rather, it enables better company management and guarantees the social utility of the business. Thus, it meets the social consensus on which business itself is based.

From the perspective of management, the adoption of sustainability and social responsibility practices seems to result in better performance in terms of capital/liquidity ratios, payroll and job performance, and ensure better governance and more balanced relations with minority shareholders. CSR policies can thus determine greater value creation, in addition to a fairer distribution of value among the various actors in the economic process and the surrounding social context (Ferrell, Liang, Renneboog 2016).

5. The EU sustainability legal framework: the directive on non-financial information.

The European Union’s focus on corporate social responsibility has resulted in a series of measures with the purpose of introducing some

typical CSR tools within the legal systems of European countries, making them mandatory for at least some categories of companies.

The introduction of mandatory “non-financial reporting” through EU Directive No. 95/2014 of 22 October 2014, on non-financial disclosure and diversity policies in the composition of corporate governance and control bodies, represents a first step in this direction. This directive was implemented in the Italian system by Legislative Decree No. 254 of 2016, which introduced an obligation to prepare non-financial reporting for private sector companies with reference to disclosure relating to financial years after 1 January 2017. This obligation applies to companies qualifying as “public interest entities”, *i.e.*, banks, insurance companies and listed companies, which have at least 500 employees and exceed the size limits, at least for one parameter, of total assets of EUR 20 million or net revenue from sales and services of EUR 40 million. This obligation also applies to holding companies which are public interest entities, and whose group as a whole, according to the consolidated financial statements, meets the minimum size requirements.

In addition to this mandatory provision, the Decree also allows other companies to voluntarily draw up their disclosure in accordance with the criteria set out therein. Thus, they may also achieve “compliance” with this regulation within the meaning of the Decree.

In practice, the structure of the document follows the forms of “sustainability report”, “social report”, “mission statement”, “environmental report”. In other words, it constitutes a document disclosing financial and non-financial information. The document may also contain non-financial information only, if it is combined as a separate document with the annual report or financial report. This information refers to economic, social and environmental activities and/or the social and environmental sustainability policy/strategy pursued by the company (Italian Association of Chartered Accountants and Independent Auditors, 2017, *Disclosure of non-financial information, International and national trends on reporting and certification*, December; Baldi, Magrassi 2017).

More specifically, the non-financial statement must contain social and environmental information on a number of sensitive points. These include personnel management, indicating actions for gender equality, compliance with national and supranational directives, discussions with trade unions and employers’ representatives; the protection of human

rights, specifying measures taken to avoid violations and prevent discriminatory conduct and measures to combat active and passive corruption.

All information must be reported in accordance with the materiality principle. This entails that it must only be reported based on its relevance to the company's concrete business. Any information that is not implemented because it is irrelevant to that business should be excluded. In that case, however, in accordance with the "comply or explain" principle, it will be necessary to expressly specify in the statement why such information is irrelevant.

In order ensure that business is properly conducted, information on future or ongoing business may be omitted, subject to expressly declaring the exercise of this right with reference to Article 3, paragraph 8 of the Decree. It is understood that this must not prevent an accurate and balanced understanding of the company's performance and the effects on its business.

The statement must describe the company's management, organisation and control model (including that under Legislative Decree No. 231 of 2001), the policies applied by the company, its results and key non-financial indicators, and the main risks, caused or suffered, in the areas covered by the Decree.

Formally, the regulation does not provide for a predefined and predetermined form. Companies are free to choose from the various forms developed in practice the one that best suits the specific characteristics of each company, taking into account the type of business, the specific risks and the specific nature of its stakeholders. In fact, the non-financial statement need only include a minimum content covering the above-mentioned points, i.e. the company's management and organisational model, the company's policies, including due diligence policies, the results achieved and the key performance indicators of a non-financial nature, and the main risks, related or suffered, concerning sustainability, taken into account by the Decree. Essentially, these include environmental and social aspects, personnel, human rights and combating active and passive corruption to the extent relevant, considering the company's business, products, services and business relations, including supply, distribution and sales chains and subcontracting, if relevant.

Reference to the commercial and production chain implies the involvement, apart from the existing legal obligations, of the reporting

company, in order to eliminate all risk factors that refer to the lower levels of the production chain, even if they are not directly legally attributable to the company.

This is fundamentally important because, regardless of the fragmentation of legal responsibility among the various actors in the supply chain, it recognises the role and decisive impact that the most important companies in the supply chain can exert on the weaker and smaller ones, inducing them to behave in a way that is detrimental to the environment, the protection of workers and human rights. Within the agri-food chain – and meat in particular, where the industry issues are significantly more serious – this is especially relevant. Indeed, as observed above, the economic and size disproportion of large distribution and processing companies can exert competitive pressure on farms, which are much smaller in size and have much less economic strength. The former may induce the latter to behave in an environmentally harmful and exploitative manner, in order to reduce the production costs charged to the buyer and principal at the highest level of the chain.

In this manner, the latter becomes accountable not through a specific legal obligation to prevent such conduct, but due to the need to publicly disclose the strategies and actions adopted to avoid such danger. This exposes the company to the judgement of stakeholders and public opinion, and the consequent reputational damage. The latter, in turn, can cause financial damage when it leads to a loss of attractiveness and confidence in the company on the part of consumers, lenders and other potential contractual parties. Indeed, a socially irresponsible company may appear undesirable to potential customers, especially those who are more sensitive to social and environmental issues. These are increasingly common, particularly among the younger generations. In addition, such a company may be perceived as unreliable by lenders due to the greater economic risk associated with such a condition, consisting of the incurrance of penalties and the loss of assets and contractual opportunities.

The statement, according to the Decree, may be included in the report to the financial statements issued by the managing body, or may be drafted as a separate and distinct document. In any case, it must be attached to the annual financial statements, and is therefore subject to the approval of the management body, and to examination by the supervisory body and, finally, by the auditing body itself. The latter must

certify its compliance with the criteria, principles and reporting methods provided for in the Legislative Decree implementing the Directive. However, this external control function can also be assigned by the company to a different auditor, usually one having a special expertise in CSR and corporate sustainability.

Finally, the directors must register the non-financial report with the Companies' Registry, jointly with the management report. The same rules apply to the consolidated non-financial report, prepared in accordance with the rules on consolidated financial statements (Articles 40 of Legislative Decree No. 127 of 1991, 41 of Legislative Decree No. 136 of 2015 and 100 of Legislative Decree No. 209 of 2005).

As mentioned, the introduction of Legislative Decree No. 254 of 2016 made the preparation of non-financial reporting mandatory, and no longer optional, for certain companies. Additionally, it set forth sanctions for non-compliance with the rules established in the Decree, to be borne by directors, members of the supervisory board, those responsible for the statutory audit of the financial statements and for assuring the compliance of the non-financial statement with the Decree.

The body in charge of applying these sanctions is the Italian Financial Market Authority (CONSOB), and the sums collected following their payment are paid to the Treasury. Sanctions apply in the event that untrue material facts are included in the report, or in case of failure to include any of the material facts listed in Articles 3 and 4 of Legislative Decree No. 254 of 2016. In this case, a fine ranging from EUR 50,000 to EUR 150,000 shall be imposed on directors and members of the supervisory body, provided that no offence is committed.

In the event that the non-financial report is voluntarily prepared by entities for which it is not mandatory, and a report containing false information is disclosed, the administrative monetary sanction applies equally, albeit in a reduced amount.

The modest amount of the sanctions, compared to the monetary benefit that the company could derive from false information in its favour, could raise some doubts about their effectiveness. However, the deterrent effect of reputational damage should also be considered. Indeed, it entails financial consequences in terms of loss of trust on the part of the public, consumers and potential customers, should the violation become public knowledge. In light of the above, it is clear that the voluntary de-

cision to disclose the report by companies that are not required to do so, in the logic of the Directive and the Legislative Decree, an important element of attraction for those companies that are interested in embarking on a sustainability journey. This is also in order to benefit from the consequent positive reputational impact, or to highlight and publicise best practices in sustainability that have already been voluntarily adopted. Additionally, the mandatory application of non-financial reporting rules to large companies, such as public interest entities, is the result of a legislative policy aiming at making such best practices binding at least for larger companies.

The rationale behind this policy is not to directly force companies to behave in a virtuous manner with regard to sustainability, but rather to oblige them to disclose the policies they voluntarily decide to adopt in the relevant matters depending on their business and the operating model they have adopted, causing them a negative reputational effect if they are inactive in this regard. In other words, the rationale underlying the Directive and Legislative Decree No. 254/2016 implies that a company may decide to disregard social responsibility and social and environmental sustainability policies provided for in the Decree. However, if it is required to prepare non-financial reporting, this will be disclosed and could have a negative reputational impact on its image and commercial brand, which constitutes an indirect incentive for the dissemination of such best practices.

6. The new sustainability reporting directive.

Following the first experience with the aforementioned Directive No 95/2014, European institutions have gradually increased their interest in sustainability, leading to the need to substantially update and fully implement the existing legislation.

First of all, with regard to sustainability reporting, the existing legislation was reviewed through the new Corporate Sustainability Reporting Directive (CSRD - EU Directive 2022/2464), which, among other things, broadens the scope of application of these provisions, as well as improving and implementing it.

This renewed and strengthened interest of institutions in sustaina-

bility and the relevant reporting derives from the abovementioned (see sub-section 2) greater relevance recognised also at European level to environmental sustainability issues, and the role that companies themselves are increasingly required to play in achieving this goal. Specifically, the issue is included in the debate on how companies identify and manage environmental, social and good governance impacts and variables, factors generally referred to by the acronym ESG.

The Global Reporting Initiative (GRI) was the first entity to express sensitivity to the issues of non-financial corporate reporting. This organisation deals with the development of a social reporting model and issued some of the most important and widely applied standards in this respect. Indeed, the directive on non-financial reporting, and the relevant national implementing legislation, do not impose the adoption of a rigid and predefined reporting model, but leave companies free to choose from the variety of models and forms developed in practice, provided that they comply with the materiality principle.

With regard to the drafting of ESG principles, the GRI amended the wording of the GRI Universal Standards in the new 2021 version, effective from 1 January 2023. Moreover, the European Union introduced a new directive on social and environmental reporting, the Corporate Sustainability Reporting Directive (CSRD - EU Directive No. 2022/2464), which will now have to be transposed into national law.

The new directive on the auditing of non-financial information appears to be drafted with an eye on investors who prefer sustainability policies adopted by companies. This not only out of personal sensitivity, but also because the adoption of sustainable practices and policies appears to guarantee better financial management of the company, while also reducing the risks arising from social and environmental violations and disputes, which negatively affect the company itself. Furthermore, the directive aims to foster a positive acceptance of reporting by civil society and consumers.

Thus, the new wording of the directive mostly aims at meeting the needs of sustainable finance, which promotes investments in companies that consistently demonstrate the application of ESG principles and operate in a sustainable and socially responsible manner.

However, the new legislation is also directed to ensure that accurate information is provided to all users of the company and its stakehold-

ers, seeking to eliminate the risks arising from so-called greenwashing. As is well known, untrue information can have the opposite effect and undermine public confidence in companies that falsely claim to follow sustainability best practices.

Additionally, the Directive, including in relation to the focus on possible investors and sustainable finance, incorporates the need to adopt uniform reporting rules on mandatory matters. Therefore, it abandons the previous model, based on total flexibility, and provides for defined and mandatory environmental, social and governance areas, including employee participation and the allocation of sustainability responsibilities, on which reporting will be required.

In accordance with the aforementioned ESG principles, the new Directive also includes an obligation to outline how sustainability policies are integrated into management strategies, corporate policies and the company's overall governance system. It is also established that the relevant documents be subject to independent audit by a third party. However, a similar provision was already included in the first implementation, by Italian law, of the directive on non-financial information.

Thus, the regime of general compliance with the rules envisaged by the previous directive is replaced by a regime of strict compliance with the contents of the new framework.

While revising the legislation on sustainability reporting, the European Union was also in the process of introducing specific new provisions on due diligence, with reference to obligations under international human rights conventions and those arising from the need to prevent climate and environmental change. The companies' due diligence obligations extend to parties in the company's chain of activities. Nonetheless, it was very controversial, during the process of adoption of the regulation, whether this due diligence obligation was also to be extended to the entire value chain.

The approach of the Due Diligence Directive is specifically based on the company voluntarily applying general principles and objectives set by law. Moreover, a duty to independently ensure compliance is provided on the part of the company itself, as the adoption of due diligence best practice will determine a presumption of compliance with the rules and principles. However, complaints and claims in the event of violation shall not be excluded. Due diligence, in particular, requires a complete map-

ping of possible and potential negative social and environmental impacts in the company's different operational areas, including the relevant probability estimates and preventive policies for adverse impacts through the adoption of appropriate codes of conduct.

In order to carry out a more detailed reading of these provisions¹, the CSRD (Corporate Sustainability Reporting) Directive No. 2022/2464 was published in the Official Journal of the European Union on 16 December 2022 and introduces significant changes to the previous legislation, also amending the regimes set out in the Accounting, Transparency and Audit Directives and the Audit Regulation. Indeed, the accounting regulations of the companies concerned were amended on several points.

Indeed, one of the most relevant elements of the new legislation is that it discontinues the terminology used by the previous NFRD (Non-Financial Reporting Directive), which referred to “non-financial statements”, in favour of a different terminology, that of “sustainability information”.

This is intended to underline how this information is in fact precisely relevant to the financial condition of the company and therefore cannot be defined as “non-financial”.

Consequently, under the new legislation, it will no longer be possible to disclose sustainability information in a separate document from the management report. It will instead become an integral part of that report and of the company's financial reporting. ESG documents are thus fully absorbed within financial and accounting reporting.

To this end, the CSRD Directive amended the previous Transparency Directive by providing that the delegated managing bodies and the Manager responsible for preparing the company's financial reports, (i.e., according to EU terminology, the person responsible for this purpose at the issuer pursuant to Article 154 bis of the Italian Consolidated Law on Finance) must also include in their assurance opinion the part concerning sustainability information, confirming that it has been prepared in

¹ For an analysis of the CSRD and the new framework, see Baumüller, Grbenic, 2021: 369 ff.; Primec, Belak, 2022, 16648; Zülch, Ottenstein, Schneider 2021: 345 ff.; Santilli 2023: 129; Odobaša, Marošević 2023: 593 ff.; Iozzelli, Sandoval Velasco 2023; Staudt, Bloem, Steege 2023; Dolmans, Bourguignon, Assereto, Dictus, 2021; Yosifova, Petrova-Kirova 2022: 85 ff.; Ottenstein, Erben, Jost, Weuster, Zülch 2022: 55 ff.; Di Sarli 2021: 1561 ff.; Coppotelli 2022: 293 ff.; Milone, Petruzzelli 2023; Pellegrini 2023; Alpa 2022: 42 ff.; Strampelli 2022: 145 ff.

a manner that complies with the principles laid down for sustainability reporting in the CSRD and Article 8 of the EU Taxonomy Regulation.

Sustainability reporting is assimilated to financial reporting by making the former also available in a machine-readable digital format, like the latter, that it is marked in accordance with the ESEF Regulation, and is audited by a third party, echoing the model of the audit of financial statements. In this latter respect, Italian law had already provided for such an obligation for non-financial reporting in Legislative Decree No. 254/2016. Therefore, this is not something new for our system.

Another specifically relevant element, with regard to bringing financial and sustainability statements closer together, is the principle of “double materiality” expressed in the CSRD.

Materiality is one of the fundamental principles of sustainability reporting. It requires a detailed analysis of whether and how certain information is relevant to the company, taking into account its specific business, context and sector-specific issues. The CSRD Directive requires that sustainability reporting should make explicit reference to the reasons why certain information is relevant to the company. In addition, it should provide an integrated view of how responsibility issues affect the company’s economic performance and how the company’s activities affect the social and environmental context. This integrated perspective, taking into account elements of a financial nature and ESG principles, is defined by the Directive as “double materiality”. It supersedes the previous approach according to which the social/environmental and the financial aspects were as clearly distinct and separate.

The Directive also broadens the list of companies subject to sustainability reporting from the larger listed companies defined in the previous Directive as “public interest entities”, which are only relevant if they exceed certain size thresholds or operate in certain sectors, such as banking and finance. It is extended to all large unlisted companies and all listed companies. Only micro undertakings are excluded from this obligation. In addition, the Directive also applies to non-European companies (so-called third country undertakings) that generate net revenues in the territory of the European Union of more than EUR 150 million.

A broader scope of application of the Directive necessarily affects the agri-food sector, including the meat production sector. Indeed, the companies in this industry, although large in size, did not always fall within

the size limits and requirements for the application of the provisions on non-financial information. Moreover, the new Directive, by making the application of ESG principles mandatory for reporting purposes, discourages major companies, in sensitive supply chains such as the meat industry, from applying exploitative corporate policies. Thanks to transparency of information, any improper behaviour, albeit formally lawful, is brought to the attention of customers, lenders, public opinion and social and environmental protection organisations.

In addition to broadening the scope of the Directive in terms of the companies required to prepare and disclose the sustainability report, the CSRD also significantly extends the range of recipients of this information. In particular, it includes investors who are interested in sustainability issues for the purposes of their investment decisions. In line with the European Union's focus on sustainable finance, it is emphasised that sustainability issues are also of interest in the financial sector. Indeed, they have an impact on the company's operating conditions and returns, with a view to integrating these issues into corporate management and governance in line with ESG principles.

In addition to the focus on the financial sector, the Directive mentions as a second category of possible stakeholders civil society actors such as NGOs, trade unions and employers' representatives. They have traditionally been the main recipients of this type of information due to the direct environmental and social impact of companies' activities. Finally, the last category includes "other stakeholders". Although it might appear residual, it actually involves possible customers, suppliers and, in general, the economic partners of the company, who can assess the sustainability impacts of the company for the purposes of their economic choices.

The content of the sustainability report is also expanded and updated. Management and strategic aspects are emphasised and thus seen as an integral part of sustainability, which in turn depends on them. Therefore, the sustainability report must now also contain information on the business model, the corporate strategy and the so-called transition plan. The latter indicates the description of the path chosen by the company to achieve sustainability and the relevant steps taken. Additionally, the report must include information on the skills, knowledge and capabilities of the board of directors, management and supervisory bodies with

regard to ESG factors, as well as on the existence of financial incentives linked to sustainability performance for top management. In addition, information on the most significant factors likely to cause negative social and environmental impacts of the company and its value chain will obviously be of great relevance. Initiatives taken to mitigate risks should also be described. This is particularly compelling because it extends the description of the risks and negative effects of the company's activities to the entire production chain. Moreover, in the agri-food industry, including the meat sector, the worst human rights, environmental and animal welfare abuses often occur not at the top of the chain, where the companies required to report on sustainability are located, but at the bottom, in smaller companies that would not be subject to reporting requirements.

However, these companies are also indirectly affected by the disclosure and transparency requirements that larger companies higher up the chain have to comply with, even if they are not directly imposed on them at a formal level.

In this sense, the Directive also requires adequate disclosure of due diligence activities related to risks associated with ESG factors. In other words, the measures taken must be specified and companies at other levels of the supply chain must be involved in identifying these social and environmental risks. These risks, as we have seen, often arise precisely within these levels of the production chain. As such, in the absence of this provision, they might not be adequately highlighted. Finally, the sustainability report should illustrate the process followed to identify issues that are material, *i.e.*, relevant, for the purposes of sustainability, thus ensuring transparency in this process as well.

In addition to broadening the scope and impact of sustainability reporting, the Directive aims to harmonise the European legal framework for sustainability reporting. To this end, it introduces new uniform rules to prevent the proliferation of different reporting models. In the past, this had made it difficult to compare companies and groups from different countries that followed different reporting principles and criteria. To this end, the Directive delegates to EFRAG the issuance of uniform Sustainability Reporting Standards to be applied by all entities required to prepare sustainability reports, regardless of their country of origin. The issuance of these principles envisages two different deadlines: the first is 30 June 2023 and the second is 30 June 2024.

The entry into force of the Directive also envisages staggered deadlines depending on the entity concerned. In particular, the new rules will apply to 2024 statements for entities required to prepare the non-financial statement under the previous rules, to 2025 statements for large companies that do not fall under the previous provision, to 2026 statements for listed SMEs and to 2028 statements for non-EU companies operating in Europe.

The deadline for Member States to implement of the Directive has been set for 6 July 2024.

7. The Due Diligence Directive.

Another important piece of EU legislation that will strengthen the regulatory framework for sustainability and corporate social and environmental responsibility is the Directive on human rights and environmental protection due diligence. The proposal for a directive on Corporate Sustainability Due Diligence (CSDD), was firstly included in a resolution of the European Parliament on 10 March 2021, which was followed by the publication of the Commission's proposal on 23 February 2022. The EU Council then gave its opinion on the text at the end of 2022, followed by the European Parliament's opinion via the Committee on Economic and Monetary Affairs on 30 January 2023, and the Parliament's final position on 1 June 2023. The final text was adopted in the first half of 2024, when, on 15 March 2024, the Council of the European Union approved its proposal for a directive regarding the due diligence of companies in matters of sustainability and subsequently, on 24 April 2024, the European Parliament adopted the definitive text (on the CSDD see de Kluiver 2023: 203 ff.; Jurić, Zubović, Čulinović-Herc 2022: 1 ff.; de Gioia-Carabellese, Macri, 2023; Campbell, Kraten 2022: 6 ff.).

The Directive sets out the obligations and responsibilities of large companies in relation to negative impacts on human rights and the environment caused or likely to be caused by their operations, whether carried out directly, through subsidiaries or through third parties that are in any case business partners. In addition, the Directive provides for specific sanctions and civil liability for breaches of the relevant obligations. Furthermore, the companies are required to adopt a plan to ensure

that their business models and strategies comply with the Paris Climate Agreement. The aim is to make a greater contribution to achieving the objectives of the European Green Deal and the UN Sustainable Development Goals, including through corporate social and environmental responsibility. Indeed, agriculture, including meat production, has an important role to play due to its significant climate impact.

Again, the Directive's provisions shall directly apply to large EU companies (identified by the number of employees and worldwide net turnover) and non-EU companies operating in the European Union, with a minimum net turnover from EU business, either directly or through subsidiaries or branches, above certain thresholds.

Specifically, the proposed Directive would require the companies to which it applies to prevent negative impacts on human rights and the environment resulting from their business activities by identifying risks in advance or, where this is not possible, by eliminating or mitigating them. Thus, the directive aims to combat violations such as child labour exploitation, the abuse of workers, the spread of environmental pollution, the production of harmful emissions, and the loss of biodiversity, all of which, as we have already seen, are particularly relevant to the sector in question.

The Due Diligence Directive therefore aims to reinforce the impact of the Sustainability Reporting Directive by further increasing transparency for the various stakeholders and by introducing uniform rules for all companies concerned.

From an operational point of view, the proposed directive stipulates that each member state shall appoint a national supervisory authority responsible for ensuring compliance with the relevant rules, which shall be able to impose sanctions for infringement of the relevant provisions.

The Directive, in its final form, concerns large companies with more than 1000 employees and a turnover of more than EUR 450 million, companies that are the ultimate parent companies of a group that has reached those thresholds, franchises operating in the Union with a turnover of more than 80 million euros of which at least 22.5 million come from licensing fees, and third-country parent companies, businesses and franchises, reaching the same turnover thresholds in the EU.

The final version of the directive eliminated the reference to companies that operate in high-impact sectors and have at least 250 employees

and a turnover of EUR 40 million. More specifically, for high-impact sectors, the proposed Directive identified three categories of manufacturing activities, the first of which included the manufacture of textiles, leather and related products and wholesale trade in textiles, clothing and footwear. The second, which was particularly interesting for our purposes, included agriculture, forestry, fishing, manufacturing of food products and wholesale trade in agricultural raw materials, live animals, wood, food and beverages. Lastly, the third concerned the extraction of mineral resources irrespective of where they are extracted (including crude oil, natural gas, coal, lignite, metals and metal ores, as well as all other non-metallic minerals and quarry products), the manufacture of basic metal products, other non-metallic mineral products and metal products (except machinery and equipment), and wholesale trade in mineral resources, basic mineral products and intermediate products (including metals and metal ores, construction materials, fuels, chemicals and other intermediate products). In this case too, foreign companies could be subject to the Directive as long as the turnover produced in the European Union exceeded the required minimum thresholds.

The elimination of this provision, relating to sectors with a high environmental impact, where even smaller companies can produce significant adverse effects, concerning the environment and workers' conditions, significantly reduces the scope of protection offered by the legislation. Indeed, as we have seen, the Directive does not directly cover small and medium-sized enterprises, and a fortiori micro undertakings, as the direct application of these procedures to them would be too complex and burdensome. However, since the checks and assessments to be carried out by companies as part of mandatory due diligence also concern the companies in their chain of activities, the latter must comply with the requirements of the Directive as well.

In addition, the Directive's requirements for companies subject to due diligence include the obligation to integrate due diligence into all company policies, to identify potential or actual adverse impacts of their operations on human rights and the environment, to take steps to prevent or mitigate potential adverse impacts, to eliminate or minimise actual impacts, to establish appropriate reporting procedures, to review and monitor the impact of the measures taken, and to disclose these measures to the public as appropriate.

The EU Council has made significant changes to the original text of the directive. Many of its provisions have been relaxed. Specifically, with regard to the entry into force of the legislation, the new text provides for a gradual approach. Accordingly, the entry en force will be gradual and will concern companies with over 5,000 employees and a turnover exceeding 1,500 million euros starting from 2027; companies with over 3,000 employees and a turnover exceeding 900 million euros starting from 2028; all other companies that fall within the scope of the directive (i.e. those with over 1,000 employees and a turnover exceeding 450 million euros) starting from 2029.

One of the most controversial aspects of the directive's approval process concerns the extension of the directive to the chain of companies subject to it. Indeed, among the changes made to the text adopted by the Council, the scope of the chain of companies covered by due diligence obligations is particularly important. In fact, the Council's text refers to a company's "chain of activities", which covers a company's upstream and in a limited manner also downstream business partners as it leaves out the phase of the use of the company's products or the provision of services. In addition, the emphasis is placed on prevention and risk management rather than remediation, in order to reduce the burden on companies. The text also clarifies the rules on compensation and civil liability for breaches of due diligence obligations.

However, Parliament subsequently amended the text of the Directive and reintroduced the stricter approach proposed by the Commission. For example, the crucial requirement to identify the scope of the supply chain were extended to cover the entire value chain, rather than just the supply chain. Similarly, financial sector entities, whose inclusion was previously left to the discretion of Member States, were brought back within the scope of the Directive and its obligations. Finally, the text confirmed the role and consequent responsibility of directors with regard to the duty to oversee due diligence procedures by integrating them into the company's strategy.

The Directive's complex approval process reached a compromise between the different approaches following the provisional agreement between the Council and the European Parliament of 14 December 2023, which lead to the final adoption of the Directive in early 2024. The agreement built on the approach of imposing due diligence obli-

gations on large companies in relation to the environment and human rights in the chain of activities. It extended from upstream partners in the supply chain to certain downstream activities, such as distribution and recycling, and set out sanctions and compensation obligations. It also required the adoption of a due diligence plan to ensure that the activity is consistent with the climate goals of limiting the temperature increase to 1.5°C by 2050.

The agreement confirmed the application of the directive to large companies. The agreement, which temporarily excludes the application to financial services, subject to a possible future revision of the Directive, strengthens the provisions on the civil liability of large companies for damage caused by the activities of the industry, excluding that of the directors. It provides for a five-year time limit for exercising the relevant legal action, which may also be brought by trade unions and civil society associations. Moreover, the agreement includes specific provisions on evidence, injunctions and legal costs.

The most important provisions include the obligation for companies covered by the Directive to cease doing business with their counterparts if there is no other way of eliminating the negative effects of their activities. In the case of infringements, sanctions are applied in proportion to turnover. If they are not paid, companies may be subject to commercial injunctions and may also be excluded from public procurement and concession procedures. It then becomes mandatory to consult and actively involve stakeholders in the due diligence process.

The imposition of specific obligations on companies is of particular practical importance. It includes a list of human rights abuses, referring to international treaties ratified by all Member States that set out clear and directly applicable obligations. This list extends the previous one and includes ILO (International Labour Organisation) Conventions, the UN Covenants on Civil and Political Rights and on Economic, Social and Cultural Rights, and the Convention on the Rights of the Child. Environmental impact is also expressly defined to include any measurable environmental degradation, such as harmful soil change, water or air pollution, harmful emissions or excessive water consumption or other impacts on natural resources.

The approval of the CSDD is an important step forward in the adoption of sustainability policies by companies. The largest companies will

be jointly liable for any violations committed within their supply chains, which are facilitated by their economic power. In addition, large multinationals will take responsibility for the risks to individuals and the environment caused by their economic activities. Indeed, it will be possible to take legal action against them in the EU courts, claiming civil liability for the damage they have caused.

Despite these positive aspects, the Directive nevertheless contains some significant weaknesses and loopholes. For example, the scope of environmental damage is incomplete, and the power of public authorities to enforce companies' climate transition plans appears to be uncertain. Moreover, private organisations and citizens are not given the right to take legal action against companies for violations that do not result in damage and consequent civil liability.

Notably, the exemption of the financial sector from the application of these provisions is a weakness. This will allow financial institutions to support investments and companies without having to assess their sustainability and respect for human rights, while at the same time continuing to unrestrictedly finance even the activities with the greatest environmental impact, such as industrial agriculture and, in particular, the meat industry.

However, the last word has not yet been said on the exclusion of the financial sector from the application of the legislation to its downstream customers for the financing of activities in conflict with the directive.

In fact Article 29 and Recital 70 thereof establish that the Commission will have to submit a report to the European Parliament and the Council – as soon as possible and in any case within two years from the date of entry into force of the Directive – on the need to establish further due diligence requirements on sustainability appropriate to regulated financial undertakings, with respect to the provision of financial services and investment activities. The report may be accompanied, if appropriate, by a legislative proposal.

8. Final remarks.

The European Union is focusing on corporate sustainability policies, and both its current and forthcoming legislation highlights the fundamen-

tal role of large companies in this area, not only through reporting but also through monitoring and controlling potential risks throughout the supply chain. This demonstrates their importance in managing production chains, especially those with a high environmental and social impact, such as the industrial agriculture sector and the meat chain in particular.

In fact, the dominant role of large companies over smaller ones within the production chain is particularly evident in the agri-food sector, including first and foremost the meat sector. This is due to the disparity in size and economic power between large companies and organised distribution and industrial processing groups and the small farms scattered throughout the territory, which can be crushed and damaged by such economic power. In addition, they may be induced to behave in ways that are contrary to social and environmental sustainability, product wholesomeness, protection of workers' rights, animal welfare and land conservation.

In particular, agriculture plays a key role in preserving territorial integrity from an environmental and social perspective, while at the same time being a primary economic sector. This is why the proposal of Due Diligence Directive, recently adopted, considered agriculture as a business with a high risk of negative impacts. These considerations are amplified for the meat sector, due to its peculiar environmental and social impact compared to other sectors of the industry, for the reasons outlined above.

EU lawmakers are aware of the difficulties for small and medium-sized companies in the sector to fully implement socially and environmentally responsible policies due to pressure from large companies, as well as to comply with formal sustainability disclosure requirements, such as the preparation of social statements, sustainability and environmental transition plans, etc. They have therefore assigned responsibility for these tasks to the largest companies at the highest level of the chain. This recognises their dominant role, but also increases their responsibility, as it also extends to the actions of the smaller and weaker players in the production chain.

However, the choice has been made not to impose further conduct obligations rigidly described by law, in addition to those already existing, but to leave it to the companies themselves to plan and monitor their activities and to prevent and eliminate their risks and negative effects.

This greater flexibility can certainly ensure that companies adopt initiatives that are more targeted and adapted to the specific production, organisational and market situations and conditions in which they operate. At the same time, it exposes them to a greater risk of greenwashing and the adoption of fictitious practices that reveal an illusory social and environmental sensitivity.

While the legislation places the formal burden on the largest companies at the top of the chain, smaller companies at the bottom of the chain are also required, albeit indirectly, to make a significant social and environmental commitment, which may in any case involve some organisational and economic effort.

Given the social and environmental principles at stake, it is therefore crucial that none of the actors involved neglect their commitment to sustainability. In particular, small businesses, such as those in the agricultural and meat sectors, must be given appropriate support and assistance whenever necessary to enable them to adequately fulfil their obligations, including in terms of sustainability.

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THE LIVESTOCK ENTERPRISE AS A “WEAK LINK”
IN THE AGRI-FOOD CHAIN. CONTINGENT SAFEGUARDS
AND STRUCTURAL ACTIONS

1. Introduction: the imbalance of agri-food supply chains.

The study postulates that the livestock enterprise operates within a supply chain that penalises its business.

This situation is mainly common to all primary agricultural enterprises, i.e. those whose objective is to produce a food product, and is due, among other things, to the phenomenon of the so-called “atomization” of supply. That is, the enterprises in question are structurally weak (Asenza 2022: 39), as they are fragmented into a myriad of small and micro enterprises¹, which are therefore easily replaceable both by suppliers (Jannarelli 2021: 747) and by customers.

With regard to the latter in particular, it should be noted that in almost all EU Member States, the distribution phase has been underway at least since the beginning of this century (Canfora 2022: 5). It is in the hands of a small number of companies – an oligopsony² – which inevitably has to be large, so much so that we commonly speak of large-scale distribution (GDO).

It inevitably follows that in negotiations between production and distribution companies, bargaining power is far from evenly distributed, and instead falls mainly on the demand side (Imbrenda 2019: 1136-1137). Competition among buyers is indeed limited, and not only because we are talking about a few operators, but also because the demand (and supply!) of agricultural products is characterized by a unique inelasticity

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¹ See on this point, among many, Russo 2020: 225, which, among other things, notes that “the inherent fragmentation of the agricultural sector makes it essentially impossible for any agricultural enterprise, no matter how large, to hold a dominant position in its relative market”.

² A recurring expression in studies on the subject: see, for example, Barone 2022: 589.

(Jannarelli 2018: 114), which, among other things, means that supply chain relationships are almost always centred on long term contracts.

The strong position of the distributors is also linked to their “proximity” to the consumer, which enables them to direct, at least in part, the consumer’s choices and thus to influence the decisions of the operators in the production sector (Lucifero 2021: 388-389). In such a context, it is therefore not surprising that the manufacturer very often undertakes not only to sell its product but also to “modify” it according to the conditions set by the buyer, which often entails, at the expense of the former, major investments that can only be amortized in the long term (Imbrenda 2019: 1136-1137).

However, the most important consequence of the power relations so created seems to be that they create the conditions for ultimately passing the costs down the chain on farmers and livestock farmers (Russo 2019: 1426-1427)³, and this happens in particular when the seller is now inextricably linked to a specific buyer (Imbrenda 2019: 1138).

The part of the agricultural sector consisting of livestock enterprises for meat production, is also characterized by other obvious features. This is not surprising: as has long been pointed out, the agri-food industry is ultimately made up of as many supply chains as there are raw materials “processed” (Spoto 2022: 195-196); and indeed, the chain focus of this work is characterized, among other things, by an obvious uniqueness. The point is that agricultural producers can, in principle, escape the greater bargaining power of large retailers by selling agricultural products directly. On the other hand, it is clear that shortening the supply chain and thus reducing the number of intermediaries increases the share of value going to them (Righini 2018: 329).

However, this option is not available to livestock farmers, who are referred to as producers “far” from the consumer, because the final product of their activity, i.e. the meat animal, is not immediately available for consumption but necessarily requires a processing phase: it could be said that it is ultimately a “semi-finished product” which, as such, requires further “processing” in order to become a finished product.

The “processing” in question is, obviously, slaughtering. In most cas-

³ See also Barone 2022: 955, who warns that “each actor in the chain will act in recourse to the comparatively *weaker* link”.

es, the slaughtering is followed by the sale of the product to the distributors; however, it is also possible for the slaughterer of the animal to sell the resulting meat to the retail market himself – and in these cases, the term “integrated supply chain” is used – just as the distributor can take over the slaughtering of the animal, as it operates its own cutting plant.

2. Abuses in the meat supply chain and regulation of abuses of economic dependence.

Given the above mentioned structure of the market, the overall result is usually a huge gap between the price received by the producer and the final price, with the former relying on extremely small margins to survive in the market.

These margins, on the other hand, can also be further reduced.

The point is that the characteristics of the market in question – which, as we have seen, result in a marked imbalance of bargaining power in favour of the supply side – inevitably favour, with a frequency that has been described as systematic, a whole series of abuses to the detriment of producers. It is not uncommon, in other words, for real expropriations to take place, which further reduce the perceived profits of the farmers⁴ and which the latter are nevertheless forced to tolerate, even though they are well aware of their inherent injustice, if not outright illegality. For example, the fact that the seller is usually inextricably linked to the buyer may lead the former not to react to an objective default on the part of the latter, such as the demand for a fee for advertising services that are then not carried out.

Since the legislator is aware of this problem, several instruments (which we will now analyze) have been in place for some time to suppress and, as far as possible, prevent the abuses in question.

First, it is worth mentioning the protection offered by Article 2598 of the Civil Code when the abuse of the distributor is relevant in terms of unfair competition. This can happen, among other things, when large retailers decide to become producers themselves in order to use the private

⁴ However see Pennazio 2022: 839, which underlines how “abusive” conducts often harm processing companies as well.

label trade technique to become the sole distributor of products under their own brand name⁵.

Then, given that we are talking about dynamics resulting from a significant asymmetry of contractual power – and we will return to this point in detail below – we shall recall the rules which, by definition, are generally aimed at preventing the excessive concentration of such power or, in any case, its exercise, and the reference is, of course, to antitrust regulations and, therefore, to the limits of concentrations and the prohibitions of restrictive agreements and abuses of dominant position.

However, it has been rightly pointed out that in practice it is unrealistic to think that the regulation in question will be able to curb large-scale retailing effectively: we are talking about a market in which cartels, absolute dominance or even, essentially, situations of “relative dominance” hardly ever arise.

It is the latter phenomenon, however, that is of greater interest to us.

In fact, as is well known, since 1998, the Italian legal system has had rules on subcontracting that not only intervene in the form and content of the contract in question, but also aim to repress abuses by the contractor when it is in a position of objective “dominance” over the subcontractor to whom it has entrusted the work.

The reference is obviously to Art. 9 of law no. 192 and in particular the first paragraph of that provision, pursuant to which

The abuse by one or more undertakings of the situation of economic dependence in which a customer or supplier undertaking is in relation to it or them is prohibited. Economic dependence is defined as a situation in which an undertaking is in a position to create an excessive imbalance of rights and obligations in its business relations with another undertaking. Economic dependence is also assessed by taking into account the real possibility for the abused party to find satisfactory alternatives on the market.

Legal science has long been aware that the importance of the precept in question is primarily to be attributed to the fact that, although it is placed in a special law, it has a general scope (Albanese 1999: 1182), i.e.

⁵ And see, in this regard, Biferali 2015: 615 footnote 4, where it is noted that “[t]he expansion of private label products has turned some distributors into direct competitors of suppliers”.

it aims to penalize any abuse by a dominant undertaking of an economically dependent undertaking, irrespective of the nature of the contract from which such dominance stems.

The legal provision attributes the situation of “*economic dependence*” to the ability of the “dominant” undertaking to impose on the “dependent” undertaking “*an excessive imbalance of rights and obligations*”⁶ in the commercial relations between the two parties and, in order to determine whether this ability exists, one of the requirements is to verify whether the “abused” party had a real possibility of procuring what it needs⁷ from an alternative business partner.

This is, in principle, a rather heavy burden of proof (Carli 2016: 191), but this does not mean that the discipline in question has rarely been applied.

With regard to sanctions, the framework created by the above-mentioned legislation is characterized by a certain complexity, since the cases of abuse can be very different (Biferali 2015: 643).

In general, four cases can be identified.

The first, which is precisely one of those specifically identified, consists of a “*refusal to sell or refusal to buy*” or a refusal to contract.

Since in such a case there is already a relationship between the undertakings involved, it entails contractual liability from which derives the obligation to compensate for the damage caused, whereas in my opinion it is doubtful that, in such a circumstance, it is possible to request the issuance of a constitutive judgment pursuant to Article 2932 of the Civil Code. Secondly, there are abuses which take the form of one or more contractual clauses and thus, *inter alia*, “*impose unjustifiably onerous or discriminatory contractual conditions*”.

⁶ The interpretation of Natoli 2010: 526, according to which Art. 9 prevents “obtaining from the commercial relationship further and different utilities with respect to those which, in accordance with the economy of the relationship, would accrue to it” seems too restrictive. Moreover, this approach is also unconvincing when it states that, in the case of abuse of economic dependence and, more generally, in any abuse of rights, what is relevant is the “lawfulness of the interest in view of which the conduct was carried out” and, before that (at 524), that what is decisive in this respect is “not *whether* a certain conduct has been carried out, but *why* that conduct has been carried out”: in fact, the interest in greater profit is in itself lawful.

⁷ Understood as “the undertaking’s ability to remain competitive in the market when forced to change partners” (see Maugeri 2022: 303).

For such cases, the third paragraph of Art. 9 provides for nullity and compensation for damages, and since the “dependent” undertaking usually has a significant interest in the continuation of the relationship at such times, we are faced in this case with a relative nullity (*nullità di protezione*) (Pinto 2000: 411), which, as such, is partial – unless there is no way around the nullity of the specific clause or the abuse is not realised by the contract as such (Albanese 1999: 1195 ff.) – and can only be established at the request of a party or even *ex officio*, but only if this is in the interest of the “weaker” party (Prosperi 2015: 368-369). An injunction may also be sought to prevent the dominant undertaking from implementing the abusive clause.

The third case is that of breach of contract, which can only be addressed with the ordinary means provided by the legal system, just as the abuses constituted by the torts referred to in article 2043 of the Civil Code – and we have arrived at the fourth case, against which it is again possible to seek an injunction – are addressed with the ordinary means.

Given this overall picture, it does not seem possible to maintain that abuse only occurs when there is a real imbalance between rights and obligations: it is clear that such an eventuality can only occur in the second case, whereas in the other three cases, in order to identify unlawful conduct, one must refer to the explanations on pre-contractual, contractual and, finally, in tort liability, taking into account, more than in ordinary cases, the interests of a party who is ultimately a “prisoner” of a commercial relationship. This does not mean, however, that the discipline under consideration does not suffer from poor legislative drafting, which gives rise to undeniable critical aspects: for example, it is not clear why conduct consisting in “*demanding excessive unilateral services not justified by the nature or content of the activity carried out*” or in preventing or hindering “*the use of another supplier for the same service*” constitutes “*abusive practices*” only when carried out by “*digital platforms*”.

Finally, the legislation also reserves a role for the Italian Competition Authority. Paragraph 3-bis of Article 9 first states that the discipline contained therein is without prejudice to the case where the dominant undertaking is so in an absolute sense and not only relative and that it is therefore punishable under Article 3 of Law No. 287 of 10 October 1990. In addition, the Italian Competition Authority may apply the

injunctions and fines provided for in Article 15 of the above-mentioned law no. 287 whenever it finds that “*an abuse of economic dependence is relevant for the protection of competition and the market*”.

3. Cont.: remedies provided by the Code and by other sources.

In the hypothesis – far from unlikely, as has been said – that the livestock farming undertaking could be classified as a “micro-business”, i.e. it carries out its activity “*with fewer than ten employees and with an annual turnover or balance sheet total not exceeding EUR two million*” (art. 18, first paragraph, letter *d-bis*), Title III of Part Two of the Consumer Code (Legislative Decree no. 205/2006) on “*aggressive commercial practices*” is also applicable. Therefore, it becomes possible to use the remedies regulated therein.

Concretely, moreover, it is generally rather unlikely that the abuse to the detriment of a primary agricultural undertaking can be brought under the concept of “deceptive” practice referred to in the first Section of the second Chapter of the aforementioned Title III, since for this purpose it is precisely an adverse consequence resulting from a “deception” that is required (Righini 2018: 344).

However, it is quite possible that the farmer undertaking may be the victim of an “aggressive” commercial practice, i.e. one that is “*capable of appreciably restricting freedom of choice or conduct*” and thus of inducing the undertaking “*to take a commercial decision that it would not otherwise have taken*” (Art. 24); in particular, it is quite conceivable that a micro-enterprise in the sector may be subject to “*undue influence*”, understood as

the exploitation of a position of power... in order to exert pressure, even without the use of physical force or the threat of such use, so as to significantly limit the ability... to make an informed decision (Art. 18(1)(l)).

In such a situation, it is possible once again to complain with the Italian Competition Authority, which “*prevents the continuation of unfair commercial practices and eliminates their effects*” (Art. 27(3)), and also imposes a fine. Moreover, pursuant to Art. 27(15-*bis*), there is also the possibility of bringing an action before the ordinary courts in order to

claim, inter alia, damages, termination of the contract, or reduction of the agreed fee.

Even with regard to aggressive practices, the abuse does not necessarily result from the conclusion of a transaction: for example, as provided in Art. 26(1)(c), the case of “*repeated and unsolicited commercial solicitations*” also constitutes abuse.

If, instead, we consider only the possibility that the livestock farmer may need to seek protection against a completed transaction, there are again four rules that seem most worthy of attention.

Firstly, if there is an imbalance between the agreed performances, so that the value of one is greater than twice the value of the other – the so-called “*ultra dimidium*” damage – and this anomaly of the contract is “*due to the state of need of one party, which the other has taken advantage of*”, it is possible, as is well known, to request the rescission of the contract pursuant to Art. 1448 of the Civil Code.

Mention should also be made of the protection afforded by Art. 1341 of the Civil Code, i.e. the need for certain clauses to be “*expressly approved in writing*” if they are to be considered “*general terms and conditions*”, as otherwise they would not be effective.

As is well known, one of the characteristics of the two above-mentioned rules is their general scope, in the sense that they do not require the possession of a specific “qualification” on the part of the person invoking their application.

However, this is not the case, with regard to the two rules that remain to be examined. The first is that set out in legislative decree 231/2002, applicable whenever there is a payment made by way of consideration in a commercial transaction (so Art. 1(1)), the expression “commercial transactions” being understood, pursuant to Art. 2(1)(a), as

contracts, however denominated, between undertakings or between undertakings and public authorities, involving, exclusively or mainly, the delivery of goods or the provision of services against payment of a price.

As is well known, this rule introduced a substantial automatism in the payment of default interest whenever delays occur with respect to the agreed payment terms and at the same time sought to limit the possibility of establishing excessively penalizing payment terms for the non-defaulting party. It is also noteworthy that systematically violating the discipline

in question amounts to an abuse within the meaning of the aforementioned law no. 192/1998 even if there is no situation of economic dependence (in this sense, see Art. 9(3-*bis*) of law no. 192).

Finally, it is necessary to consider law no. 129/2004, i.e. the legislation governing franchising, i.e. perhaps the most recurring type of contract between producers and distributors in the agricultural sector. In particular, the precepts conveyed by Articles 3, 4 and 6 of law no. 129 are relevant here. In particular, Art. 3 imposes the written form under penalty of nullity and a minimum duration of the relationship of three years, and also provides that the contract must contain several elements – such as “*the conditions of renewal, termination or possible assignment of the contract itself*” [paragraph 4(g)] – which are mostly functional to protect the franchisee. Articles 4 and 6, on the other hand, provide for extensive pre-contractual disclosure obligations to be borne by the franchisor.

4. The discipline of unfair commercial practices in the agri-food chain.

At this point, however, it is impossible to ignore the fact that the system of protection in question has been radically altered, as of 2021, by the entry into force of Legislative Decree No. 198, implementing EU Directive 633/2019 on the subject of on unfair trading practices in business-to-business relationships in the agricultural and food supply chain.

The purpose of the above-mentioned EU Directive was to establish a minimum level of protection – also for the benefit of purchasing companies, as can be seen today from some of the cases listed in Article 5 of Legislative Decree No. 198 – which the various Member States could increase⁸ by introducing or maintaining more stringent measures.

Italy has used this option: as has been noted, the “*hard core of the directive has been significantly expanded*” (Russo: 2019: 1435), even though some of the choices made – such as that of allowing the public administration longer payment periods – may be unlawful⁹, precisely

⁸ See, on this point, Canfora 2022: 16, which considers it the real disruptive factor of the directive.

⁹ See Pagliantini 2022: 401, according to which the immunity of purchasing public administration agencies carries with it “a suspicion of incompatibility with EU law”.

because they are less stringent than those made in the European context.

The discipline introduced by Legislative Decree no. 198 is, of course, well known to any expert in the field, and it is therefore not necessary to dwell too long on the list of practices considered “unfair”.

It should therefore only be recalled that the long list of conduct considered to be abusive includes both precisely defined practices and cases of a more general nature and therefore having a considerably broad scope.

It may be added that once again the attention of the European legislator, and consequently of the Italian legislator, has been focused not on specific transactions, but on the much broader case of “*commercial relations*”, so that the list also includes conduct prior to the conclusion of a transaction or following the termination of a contractual relationship.

Prohibited conduct is then divided into two categories.

On the one hand, we have those that must not be carried out in any case (so-called blacklist). On the other hand, those that can be carried out as long as they are agreed “*in clear and unambiguous terms*” (so-called grey list)¹⁰, and in this regard several authors held that it is possible to consider a practice as “agreed” only when it has been preceded by an effective negotiation (Angiolini 2022: 703), and terms are with “*clear and unambiguous*” only if it is possible to foresee the economic consequences of the agreed conduct (Angiolini 2022: 704-705). Moreover, the grey list – which was not provided by the previous legislation on the subject, i.e. Article 62 of law decree 1/2012¹¹ – has been criticized, as it has been noted that the weak position of producers will inevitably lead them to “agree” to the practices on that list (Russo 2019: 1436-1437), although it must be considered that the large-scale retail trade shall have the

burden of proof that the seller, either because of the quantity of the goods supplied or because of his economic power, was in a position to negotiate (Pagliantini 2022: 398).

¹⁰ And see Barone 2022: 605, who speaks of “*conditionally* unfair commercial practices”.

¹¹ And see how Pagliantini 2022: 399, speaks in this regard of a “protection downgrade”.

Finally, the introduction – similar to what is already provided for in other EU countries – of the prohibition of “double low-bidding electronic tenders and auctions”¹² [see Article 5, paragraph 1, letter a)] was noteworthy. Said practice is particularly despicable as it can lead to a selling price that is significantly lower than the cost of production, and it is often able to set the benchmark for the entire market (Righini 2018: 334).

5. Cont.: protection of a public nature.

With regard to the instruments for responding to the aforementioned “unfair” or, if you prefer, abusive conduct, the framework we are faced with is also particularly complex. However, more than one author has found it unsatisfactory, going so far as to state that

remedies...constitute, perhaps, one of the least convincing parts of the decree that implemented Directive 2019/633 in our legal system (D’Amico 2021: 47).

However, I cannot say that the legislator, having to decide between public and private enforcement has undoubtedly opted for the first path, essentially because this allows the identity of the aggrieved entrepreneur to be kept secret and thus prevent him from being subjected to retaliation. In general, in fact, in the event of a breach of the rules set out in Legislative decree 198/2021, it is always permissible to bring an action before the ordinary courts (Jannarelli 2021: 792) and producer organizations and associations of organisations (i.e. second-level organizations) are also entitled to do so.

As already mentioned, then, if the abusive conduct falls within the “aggressive” category and involves a micro-business, in addition to the ordinary judicial authority, the Italian Competition Authority also has jurisdiction. The antitrust authority has also jurisdiction in matters of sales below cost (Art. 8(5)) – in relation to which Art. 7 also refers to the sanctions provided for in Presidential Decree 218/2001 – just as it continues

¹² This mechanism is described, among others, by D’Amico 2021: 43 footnote 32.

to have jurisdiction under antitrust law if this is violated through any of the conduct identified in the legislation now under review.

Apart from this, the Italian legislator – and here too we have a repetition of what has happened in all the other EU Member States – has chosen to rely on an administrative law enforcement authority such as the ICQRF, i.e. a department of the Central Inspectorate for the Protection of Quality and Fraud Repression of Agri-Food Products of the current Ministry of Agriculture, Food Sovereignty and Forestry, which can order, whenever it ascertains a violation, the interruption of the unfair practice, plus impose – in compliance with the procedures set out in law no. 689/1981 – a pecuniary sanction proportional to the turnover of the offending party, subject to a minimum fine of between EUR 1,000 and EUR 30,000. All pecuniary sanctions are newly introduced and replace those in Article 62, Decree-Law no. 1/2012. The legislative decree in question then sets out a list of aggravating factors in the event of a repeat offense and always leaves open the possibility for the injured party to claim compensation for the damage suffered. Finally, complaints of unfair practices may also be lodged with the law enforcement authority of the Member State where the offender is established, if it is not established in Italy.

The administrative judge has jurisdiction over the sanctions imposed by the Italian Competition Authority, whether they are pecuniary or non-pecuniary, while with regard to the measures taken by the ICQRF, a distinction must be made between pecuniary and non-pecuniary sanctions, as the ordinary courts have jurisdiction with regard to the former, while the administrative judge has jurisdiction with regard to the latter¹³.

The attribution of the aforementioned role to the ICQRF was, moreover, strongly criticized, as it was noted that

it is difficult to deny that in its current form and composition... it does not have the necessary legal expertise for the complex assessment that the cases referred to above require, nor can it procure it by adopting a different structure (Jannarelli 2022: 22).

¹³ See Francario 2021: 275-276 and 282 (where it is also argued that it would be appropriate that the ordinary judicial authority has jurisdiction concerning the protection against any sanctioning measure adopted by the ICQRF).

However, it should be mentioned that also during the period in which Art. 62, law decree 1/2012 was effective, i.e. when the enforcement activity was delegated to the Italian Competition Authority, the latter proceeded either *ex officio* or – precisely – on the ICQRF’s report – so that the latter in 2012 had already taken on a central role in the controls aimed at repressing unfair practices – and that furthermore, in that regulatory context, very few sanctions were imposed by the Italian Competition Authority (Mancaloni 2020: 503-504). In any case, the figures for 2022 are as follows: in that year, the ICQRF opened 53 investigations and closed 48, carried out 139 inspections but filed only 15 complaints; in the meat sector in particular, 37 inspections were carried out on a total of 11 operators, against whom 3 complaints were filed.

6. *Cont.*: remedies of a private nature.

With regard to protection of a private nature, however, it may be added that the directive did not provide national legislators with any guidance as to the applicable civil law remedies.

In general, Art. 1(4) imposes the sanction of partial nullity – and as has been observed, this is a relative nullity (Jannarelli 2021: 792-793) also detectable *ex officio* although only in the interest of the damaged party (Mazzamuto 2005: 57-58) – and Article 10(14) provides for the possibility of claiming compensation for damage, also allowing producer organizations and their associations to bring an action in court.

Then, as noted immediately, it is clear that the sanction of nullity can only be imposed if the offense is connected to a contract or, in any case, to a contractual clause (Russo 2020: 225), while in other cases – thus, for example, pursuant to Art. 4(1)(h), where there has been an “*unlawful disclosure by the buyer...of the supplier’s trade secrets*” – it is only possible to seek compensation for damages.

Having said that, however, if one considers the many different ways “unfair” conduct can materialize, it becomes evident that other means of protection can also be used. In this respect, it is indeed sufficient to consider the following hypotheses:

- if there is a cancellation of an order by the purchaser at an unreasonably short notice [see Art. 4(1)(b)]. In this case, it is necessary to

ascertain whether or not such an eventuality was provided for in the contract: if yes, one can (also) claim the nullity of the clause mentioning it, otherwise the recommended course of action would be to send a default notice to the party placing the order, obliging them to pay what was agreed;

- in case one is subjected to “*commercial retaliation*” [cf. Art. 4(1)(i)], one may of course claim damages, as well as an injunction pursuant to Art. 10(14); an action for performance could also be possible if the retaliation took the form, for example, of the interruption of *marketing services*;
- if a default interest lower than the statutory one has been agreed upon (see Art. 4(2)), it shall be automatically replaced¹⁴;
- similarly, in the case of a sale below cost, “*the price agreed upon by the parties shall be automatically replaced, pursuant to Article 1339 of the Civil Code, by the price resulting from the purchase invoices or, if no comparison with the purchase invoices is possible, by the price calculated on the basis of average production costs*” (Art. 7(3));
- finally, automatic replacement will also occur if it is necessary to ensure that the assignment contract does not last less than the statutory term of twelve months (Art. 3(4)).

We can conclude the examination of remedies by focusing on the requirement of written form for the transfer of agricultural products set out by Art. 3(2). It has been observed, for example, that the form in question would not be provided for the contract to be valid (*ad substantiam*) and that therefore, in absence of a contract in writing, it would not be possible to bring an action for the restitution of what has already been paid. And indeed, both the wording of Directive 633/2019 and the possibility of having to confirm “*in writing*” [within the meaning of Art. 4(1)(g)], since it is, after all, only possible to “confirm” an already existing contract. We are therefore faced with a mere “documentary” nullity [i.e. which does not entail that the entire agreement is void] (Pagliantini 2022: 405), against which it is only possible (D’Amico 2021: 45-46) to claim compensation for the damage suffered.

¹⁴ See, in this regard, Angiolini 2022: 692 ff. and in particular 694, where it is noted that with respect to late payments, termination would not appear to be of much use given the oligopsonic context.

7. “Third contract” and abuse of contractual “power”.

On a systemic level, the impact of legislative decree 198/2021 was undoubtedly remarkable and, therefore, worthy of some comment.

In particular, the question is how it fits with the disciplines already in place at the time of introduction.

Hence, with regard to the eventuality of “late payment”, Article 4(2) allows the supplier to use the remedies provided for by Legislative Decree No. 231/2002, also providing for a surcharge of 4 percentage points on the default statutory interest. On the other hand, as far as the relationship with the legislation on subcontracting is concerned, it must be held that the legislative decree 198/2021 constitutes a special discipline with respect to that dictated by Art. 9, law no. 192/1998, because the scope of legislative decree no. 198 includes all the cases considered by Article 9 (Pagliantini 2022: 399.) but does not require a situation of economic dependence in order to apply (Maugeri 2022: 307-308), so that it is also unlikely that a breeding company would turn to the Ordinary Judicial Authority to complain of a violation of Article 9. However, the Italian Competition Authority can continue to “act, in the event of violation of the regulations on abuse of economic dependence, also in the agri-food sector” (Maugeri 2022: 308).

A similar consideration may also be made with regard to the discipline of rescission for imbalance of performance. Since protection against an unfair practice is granted even in the absence of a state of need and an *ultra dimidium*, damage, it is evident that in dealing with a case considered by legislative decree no. 198 the remedy under Art. 1448 of the Civil Code is superfluous.

What has been observed so far then suggests a systemic and, consequently, taxonomic consideration.

A well-known exegetical work has sought to group all the disciplines aimed at protecting the weak entrepreneur in the context of b2b relationships in a unitary figure named the “third contract” (Pardolesi 2012: 1169-1170). Irrespective of the denomination adopted, a significant part of scholars has held that these disciplines are inspired (also) by a unitary logic (Pinto 2000: 393-394) and, therefore, allow us to consider that a “general prohibition of the party with greater bargaining power from abusing its freedom to determine the content of the contract to the detriment of the other” (Prosperi 2015: 334) is part of our legal system.

However, I do not find either of these arguments convincing.

With regard to the term “third contract”, it has been correctly pointed out that by using it one starts a series whose conclusion cannot be predetermined. On the other hand, it is perhaps even more relevant that the starting point of this series does not appear to be correctly identified. In fact, the starting assumption is that the “second contract” is the one concluded by the consumer, i.e. by an equally “weak” contracting party (Prosperi 2015: 322), as it is by definition less informed (Mazzamuto 2016: 349) and therefore protected even with respect to a contract supported by his will¹⁵. It should be noted, however, that this does not take into account the precedent, already mentioned, of the contract subject to rescission, which is such because it is concluded by an essentially weaker party¹⁶, provided that there are two differences in this respect. The first is that, in the latter case, the “weakness” is not due to an asymmetry of information, but to a state of necessity; the second – and we shall return to this point shortly – is that this “state”, and therefore the “weakness”, of one of the parties to the contract must be proved if the contract is to be rescinded. Finally, it should be noted that the expression “third contract” – but the issue remains the same if one uses, for example, the expression “asymmetrical contract” (Roppo 2009: 281-282) – places emphasis on the negotiation structure when this, in its objectivity, presents, in principle, nothing abnormal or even peculiar.

Nor is it possible to escape this criticism by renaming the contract

¹⁵ On this particular point, however, there is no unanimous consensus: see, for example, Masini 2029: 276, who considers that the “weak” party is specifically protected also because they “have not shown a conscious adherence to the arrangement of interests set out in the contract”; then Camardi 2008: 845, according to which in such circumstances the agreement is not referable “to the full and free determination of both parties”.

¹⁶ And see Romano 2012: 302, who observes how the discipline on “economic dependence” seems to borrow the rationale of the remedy of rescission; then Prosperi 2015: 355, according to which “the observation that the regulation of the abuse of economic dependence is inspired by logics and principles not dissimilar to those that characterise consumer legislation makes it legitimate to refer to the latter in order to clarify the interpretation doubts of the former”; Roppo 2009: 280, which also connects the discipline of rescission to the asymmetrical contract; finally Camardi 2008: 836, according to whom “the issue of remedying a situation of weakness or inferiority, which could jeopardise the implementation of the model of contractual relations based on *parity* established by the Civil Code, has already been explicitly considered by the legislator in the discipline of rescission”.

type after it has been extended: and the reference is to expressions such as “contract with asymmetry of bargaining power” (Mazzamuto 2016: 353) or, indeed, “contract with a weaker party”.

In fact, in this case, the attempt is aimed at defining a concept that includes at the same time the disciplines on unfair commercial practices, subcontracting, that contained in the Consumer Code and, ultimately, the provision of Art. 1341(2) of the Italian Civil Code on unfair clauses in general terms and conditions¹⁷: indeed,

[t]he party, which adopts standard contractual forms, refuses and denies dialogue: it does not ask and does not receive questions, it does not give and does not await answers: or rather, it asks a single question and awaits a single answer ... Adherence is not the outcome of dialogue (Irti 1998: 351).

However, three different considerations prevent the construction of such a far-reaching notion.

The first is that a difference in bargaining “power” between the contracting parties is, to a certain extent, physiological. (Natoli 2010: 525): in other words, it is almost inevitable that one of the two parties must be considered “weak” in relation to the other (Roppo 2009: 280).

Second, it is confusing to conflate a weakness due to information asymmetry, such as that suffered by the consumer, with situations where the lower bargaining “power” is due to the size of the company or, in any case, the profitability of the business.

Finally, it should be noted that in the discipline of subcontracting (and in the case of rescission of a contract) the state of “weakness” must be proven, whereas this is not required by legislative decree 198/2021, by Article 1341 of the Civil Code, nor by the Consumer Code.

More specifically, as regards the legislation on the agri-food chain, it has been said that it is based on an abstract presumption of weakness, independent of the subjective characteristics of the parties and of the verification of the existence of a concrete gap in bargaining power. However, on closer examination this means nothing more than that the restrictions on private autonomy (of both parties to the contract) are ba-

¹⁷ And see, in this respect, Camardi 2008: 839, according to whom the figure of the “weak” party is provided, quintessentially, in the rules governing general terms and conditions.

sed here on the mere fact that the addressees of such restrictions operate in this specific chain and independently – a not insignificant difference with Art. 9 – of the fact that there are commercial alternatives and, more generally, of the fact that one of the two operators is “weaker” than the other. Paradoxical as it may seem, the above-mentioned restrictions also benefit companies which result in being “strong” rather than “weak”, which makes it clear that the provisions of legislative decree 198/2021 is nothing more than a regulation governing the agri-food market, in the sense that behaviour that might be considered lawful in other, different markets cannot be tolerated in the agri-food market.

In the light of the foregoing, the conclusion to be drawn is that the limits to private autonomy of the various regulations mentioned ultimately respond to different logics, and this ultimately precludes finding a general principle of non-abuse of a greater bargaining “power” underlying them.

This also responds to a frequently expressed need, namely the need to prevent the protection of the weaker party from becoming an expression of paternalism imposed on the free autonomy of the parties (Palmieri-Pardolesi 2010: 97). In other words, as has been pointed out,

legal intervention should be limited to cases in which the inequality (of whatever nature) has consequences so serious as to jeopardize the ability of the losing party to participate in the determination of the arrangement of interests set out in the contract (Pardolesi 2020: 211).

8. Imbalance in the meat market and legislative decree 102/2005.

The above has shown that the legislation on unfair trading practices (also) aims to bring the meat market in line with other agri-food markets.

Indeed, it is undeniable that by banning double low-bidding auctions and regulating sales below cost, there has been an intervention in practices that “*directly affect pricing and thus the distribution of value in the supply chain*” (Canfora 2022: 15).

In general, however, we are still talking about protective instruments designed to counter “abusive” practices – including, as mentioned above, those of livestock farmers – but which are not capable of significantly changing the structure of the meat market (Canfora 2022: 14) and

in particular to remedy the structural unfair distribution of value to the detriment of production companies that characterizes the entire sector.

The point, in other words, is that “unfair” practices only make an already structurally unsatisfactory market structure worse, so that the need to try to “rethink” that structure remains.

Of course – it is worth repeating – intervening by limiting the autonomy to negotiate and, more generally, the independence of operators in the sector also means intervening in the market, and in this sense, it is undeniable that EU Directive 633/2019 already had both objectives. However, this does not alter the fact that, as has been pointed out from the outset, this Directive “has not been able to provide a response to the fundamental problem facing agricultural operators, which is the low profitability of the prices of agricultural products due to their structural bargaining weakness” (Jannarelli 2022: 23).

In short, given that we are analyzing a structural imbalance, the only appropriate response is to try to rebalance the market in question, and if it is true that the “predominance” of “demand” in the latter is due to the concentration that has taken place on that “side”, it is surely already a priori appropriate to try to encourage a similar focus on the symmetrical supply side, and thus specifically to facilitate a “strengthening of collective bargaining, entrusted primarily to producer organizations” (Jannarelli 2022: 23).

In other words, what we want to emphasize is that, in recent decades, the sector has become aware of the importance of the various forms of association between livestock farmers and, first and foremost, of those that take the form of the aforementioned producer organizations, which can perform such a wide range of functions that it is even difficult to make a list of them. They can, for example, ensure the location of their members’ products, control and improve their quality, promote more sustainable cultivation and breeding techniques, guarantee that their members receive the payments they are due, provide facilities for the production, storage, and processing of products, provide information services, manage labeling systems and quality labels, and coordinate or initiate the direct sale of the products of their members’ activities.

All this helps to explain why, for some time now, these association structures have increasingly played the role of supplier to large retailers, who also like having a single point of contact for each product. In short,

we are faced with an evident “bottom-up” process, but one that will need significant “top-down” support to reach the hoped-for levels of size and functionality, given, among other things, the limited capacity of producer organizations to conclude agreements capable of dealing with macro-phenomena such as globalization (Spoto 2022: 186).

It is precisely from this perspective, therefore, that legislative decree 102/2005 should be read, even though it is a set of rules that has been severely criticised as being “aimed at favouring a macroeconomic view of the contractual relationship, mainly to guarantee continuity of supply” (Canfora 2022: 6).

The decree in question first of all provides, in Article 9, for “supply chain agreements”, i.e. agreements concluded between the most representative bodies of the production, processing, and distribution sectors of agri-food products at national level. These agreements aim to “foster the integration of the supply chain and the valorisation of agricultural and agri-food products, taking into account the interests of the supply chain and consumers”. To this end, they may define, among other things, measures to improve knowledge and transparency of production and the market, ways of enhancing the value of quality products, environmentally friendly production methods and, finally, measures to achieve market balance and stability. In principle, the agreements in question cannot generate restrictions of competition within the market, but

[w]here the market for a product manifests, or may manifest, generalized imbalances of a structural nature which have, or may have, serious consequences for prices and incomes received by producers, producer organizations, and the relevant associations which have set up the operational fund shall have the right not to market the product in question contributed by their members, for such quantities and for such periods as they deem appropriate (Article 8(1)).

Article 10, on the other hand, regulates the “framework contract”, which “*defines the product, the activities and the geographical area to which it is applicable*” (Art. 11(1)). These contracts are concluded for each product by producer organisations – whose main purpose is to market the agricultural products resulting from the activities of their members (as stated in Article 2(1)) – and by organizations of processing, distribution, and marketing companies.

These contracts also have several other objectives, such as developing trade opportunities on domestic and foreign markets, bringing production into line with demand, reaching balance and stability in the market, ensuring security of supply, improving product quality and reducing price fluctuations. In principle, these contracts require a supply chain agreement, but in the absence of such an agreement, they can be concluded by means of a ministerial decree regulating the relevant general aspects.

The conclusion of a framework contract obliges purchasers to source the product by means of a downstream contract that complies with its content, and this provision also applies to livestock farmers who are not members of the organizations who concluded such contracts; in particular, the parties must also comply with the framework contract also in respect of trade partners who did not adhere to it, although the latter may nevertheless request the application of the favourable rules contained in such agreements when they conclude contracts for the product covered by the framework contract.

Within the framework agreements there are the “standard contracts”, referred to in Art. 11(5), which states that “*framework contracts shall establish the standard contract to be used for the conclusion of cultivation, livestock farming and supply contracts*”. Standard contracts are in essence contractual models of a heterogeneous nature, which are to be adopted in the conclusion of cultivation, livestock farming, and supply contracts: in other words, “individual” contracts are expected to be in line with the standard contracts.

Finally, it should be added that Art. 3, legislative decree no. 198/2021 states that the contractual terms and conditions defined within framework contracts may even derogate from the “*Principles and essential elements of transfer contracts*”¹⁸, while under the subsequent Art. 6(1) “*those supply chain agreements and contracts which have a duration of at least three years and contracts... which comply with the contractual conditions defined in the framework agreements or which are concluded with the assistance of the respective professional organizations*” are considered

¹⁸ However see Jannarelli 2021: 763 (above all) and 764, where it is noted that Article 3(5) constitutes a provision “in clear conflict with existing national and European competition law”.

as “*implementing the principles of transparency, good faith and fairness in commercial relations between purchasers and suppliers of agricultural products and foodstuffs*”.

9. EU Regulation 1308/2013 and agricultural associations.

Again with regard to association structures – in this case including not only producer organizations, but also associations of producer organizations and interbranch organizations – European Union law is also extremely important, and the reference is in particular to EU Regulation No 1308/2013 on the “*common organization of the markets in agricultural products*”. On the contrary, it has been frequently observed that European discipline in this area is the main response to the need to re-establish a fair distribution of value within the agri-food chain.

In particular, Regulation No 1308/2013 is a regulation that, among other things, makes use of the possibility to derogate from the competition rules granted by Article 42 TFEU; it follows that, under it, recognized POs may benefit from such derogations with regard to certain activities, such as collective bargaining on behalf of their members, production planning and also with regard to certain supply management measures.

The provision of Article 152(1-bis) is particularly relevant. It allows a recognized producer organization, by way of express derogation from the prohibition of restrictive agreements under Article 101 TFEU, to plan production, optimize costs, and negotiate contracts for the supply of products on behalf of and in the name of its members for all or part of their total production.

It is also worth mentioning Article 209(2), according to which, in principle,

Article 101(1) TFEU shall not apply to agreements, decisions and concerted practices of farmers, farmers’ associations, or associations of such associations, or producer organisations recognised under Article 152 or Article 161 of this Regulation, or associations of producer organisations recognised under Article 156 of this Regulation, which concern the production or sale of agricultural products or the use of joint facilities for the storage, treatment or processing of agricultural products.

Finally, Article 222, according to which, “[d]uring periods of severe

imbalance in markets”, it is openly in the spirit of market intervention; the EU Commission may decide that Article 101(1) TFEU does not apply – but any agreements providing for such derogation will be valid for at most one year – to certain

agreements and decisions of farmers, farmers’ associations, or associations of such associations, or producer organisations recognised, or associations of producer organisations or interbranch organisations recognised... provided that such agreements and decisions do not undermine the proper functioning of the internal market, strictly aim to stabilise the sector concerned.

On the other hand, Art. 8, legislative decree 102/2005, provided and provides that

[w]here the market for a product manifests, or may manifest, generalised imbalances of a structural nature which have, or may have, serious consequences for prices and incomes received by producers, producer organisations... shall have the right not to market the product in question contributed by their members, for such quantities and for such periods as they deem appropriate.

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PIERA CAMPANELLA*

QUALITY OF THE PRODUCTION PROCESS
IN THE MEAT INDUSTRY: WEAKNESSES
IN THE SUPPLY CHAIN, IMPACT ON LABOUR

«Mikolas (...) is a beef-boner, and that is a dangerous trade,
especially when you are on piecework and trying to earn a bride.
Your hand are slippery, and your knife is slippery,
and you are toiling like mad, when somebody happens
to speak to you, or you strike a bone. (...)»

«Jurgis talked lightly about work, because he was young.
They told him stories about the breaking down of men,
there in the stockyards of Chicago, and of what
had happened to them afterward –
stories to make your flesh creep (...)»

(Upton Sinclair, *The Jungle*, 1st ed.,
Doubleday Page & Company, New York, 1906,
reprinted by Ingram Content Group,
Milton Keynes, pp. 8 and 12)

1. “Weak” agri-food chains: the case of the meat industry.

It is true, “*The jungle of yesterday (...)* speaks to us of a clearly visible today (Maffi 2019: 19)”. This has been particularly evident after a disease such as Covid-19, which most experts consider to be a zoonosis (Worobey et al. 2022; Worobey et al. 2024), has entered meat slaughter and processing plants, which were already at risk of zoonoses (Angelini, Battistelli, this volume), exposing all their flaws (Effat 2020; Mc Sweeney, Young 2021).

With its violent expansion, Covid-19 has shattered the veil of invisibility that has always surrounded work in the sector, due to the spatial peripherality of the production sites (Lever, Milbourne 2017: 306

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ff.; Urbinati 2017-2018) and the social marginality of the largely foreign workforce (Campanella, Dazzi 2020). Unfortunately, even trade union mobilisation over time has not diminished this invisibility.

“Making the invisible visible”: this has been said – paraphrasing an effective Latin American trade union slogan (Perini 2024) – to express what collective action should aim to achieve. And that was the aim of the meat workers’ initiative as well. Indeed, with reference to the USA (Freshour 2019: 124), the country where the large-scale combination of meat consumption and industrial production of the product was first experienced, it has been observed that *“the history of the (...) poultry industry is a history of class struggle”*.

In such a context, there is no doubt that organised protest has made it possible to expose and combat the most extreme forms of exploitation in the sector. However, it has not succeeded in eliminating them completely, nor in freeing working conditions in the sector from the particularly distressing features that characterise them, due to the objective brutality of an activity involving the mass killing of living beings and the inevitable heaviness of a work organisation designed to guarantee such productive result.

This heaviness – expressed in the constant intensification of production rhythms (Fontana 2018; Angelini, Battistelli, this volume), combined with a policy of low wages – has tended to increase as a result of competitive pressures within the supply chain and some difficulty for trade unions in organising a workforce that is increasingly segmented by the extensive use of outsourcing and flexible contracts (Effat 2013; Wagner I., Refslund 2015: 335 ff.; Wagner I. 2015: 201 ff.; Lillie, Wagner I. 2015: 157; Wagner B., Hassel 2016: 1 ff.; McGauran 2016: 19 ff.; Dorigatti, Mori 2016: 190 ff.; Carchedi, Franciosi 2016: 141 ff.; Dorigatti 2019: 51 ff.; Campanella, Dazzi 2020; Campanella 2020: 935 ff.; Battistelli 2020: 974 ff.; Battistelli, Campanella 2020: 135 ff.; Battistelli et al. 2020a: 1 ff.; Piro 2020: 53 ff.; Piro, Sacchetto 2020: 515 ff.; Franciosi 2022: 51 ff.; Piro 2022: 446 ff.; Theunissen, Zanoni, and Van Laer 2023, 934 ss.; Campanella 2024: 332 ff.; Terra! 2024: 50 ff.), as well as by the policy of “compartmentalisation” on the basis of nationality (Lever, Milbourne 2017: 308; Piro 2020: 53 ff.). It is therefore undeniable that the meat chain is not only a context of death and pain for animals, but also a situation causing much suffering and devastation for human beings

(García Pereira 2019; Di Fiore 2021)¹. This, even without taking into account the damage to the environment (IPCC 2023; Altreconomia 2019; Terra! 2018) and to consumers, would be enough to suggest a change in the current situation.

The explosion of the pandemic emergency in the sector's companies has also highlighted the very precarious situation of workers: the pandemic has hit the meat industry in the United States (Press 2023: 194 ss.; Douglas 2020; Freshour 2020), Brazil (Mano 2020), Australia (BIS Oxford Economics 2021), but also in Europe (Mc Sweeney, Young 2021; Stolton 2020; Effat 2020). In particular, countries such as Germany (Ban, Bohle, e Naczyk 2022: 101 ss.)² and the United Kingdom (Chen et al. 2023), where large production plants acted as vectors for the spread of the virus, have been most significantly affected. In contrast, the impact of Covid-19 on the Italian labour force employed in the sector was less significant (Terra! 2024: 52). The reason for this may lie in the greater organisational fragmentation of certain supply chains (Freddi, this volume; Barberis et al. 2020: 41 ss.; Terra! 2024: 52), with a predominance of small companies (Comito 2023: 143; Battistelli et al. 2020b: 143) that are less exposed to the spread of the virus, and certainly not in the organisational model of work that the meat industry in our country shares with the rest of the Western world. The “subcontracting model” has been rightly identified as the main cause of the poor working conditions and health of workers, and therefore of the uncontrolled spread of infection in meat production lines (Mc Sweeney, Young 2021; regarding Italy, Terra! 2024: 54 ff.).

In a context such as Italy's, where the supply chain is fragmented (albeit with some emerging practices of networking: see Carloni, Pagano, this volume) and dominated by large retailers, such a model guarantees significant savings in labour costs. It is undoubtedly the “upstream” segment, the livestock sector, that suffers from the unequal distribution of value along the production chain, squeezed as it is between rising production costs (feed, animals, energy supply) and low prices in the

¹ On the consequences in terms of labour shortages in the sector, see Evans 2021 especially referred to the English case.

² On the phenomenon of gangmastering in Tönnies factories involving Romanian workers, see G4Media.ro 2020; AK-24 2020.

processing industry and the large-scale retail distribution³. The latter, through the system of private labels (Campanella 2024: 327), has taken over the production stage itself in order to increase its power in a context of fierce internal competition, all the more so since the rise of discounters, often belonging to large multinational groups.

Therefore, it is understandable that reducing production costs has become an imperative in the meat supply chain. And the pressure in this direction can be so strong as to have serious harmful consequences, leading to blatant breaches of tax (Bagarotto, this volume), social security, commercial and labour law (“carousel fraud”, evasion of contributions, “gangmaster system”, non-compliance with health and safety legislation, false labelling of PDO products) in the most vulnerable segments of the value chain.

2. Italian meat supply chain, contractual integration and decent work.

As far as work organisation is concerned, outsourcing is in the dock, especially in those segments of the chain that are more squeezed than others by the low-cost regime of large-scale retail distribution. In this respect, it may be important to examine the bargaining mechanisms – pathological and/or physiological – through which this technique is usually expressed, bearing in mind that a reduction in the above costs is achievable even when outsourcing remains within the limits of legality, thus also contributing to the growth of “bad work”.

On the other hand, as far as the organisation of the chain is concerned, the focus has been on those forms of vertical integration that allow some players in the chain to acquire most of the value of the product at the complete expense of others, who are therefore destined to a “marginal” status in the production chain.

More generally, it is striking that, within such organisational models, which are typical of today’s economic enterprise, we witness – as was cle-

³ Moreover, these prices have been little affected by the innovative Legislative Decree no. 198/2021, which outlawed certain harmful commercial practices but did not affect the asymmetric business-to-business dynamics (Jannarelli 2021; see also Campanella 2024: 331 and Pupo, this volume).

arly observed a long time ago (Del Punta 2002: 289) – such a “complex interweaving of systematic relations” between certain contracts, such as *interposizione di manodopera* (contracting of third-party workers), employment, “and others (...) even not strictly labour-related”: in our case, procurement contracts, agricultural association contracts, subcontracting and the provision of work. The extreme contiguity of these contracts, the difficulty of distinguishing between genuine and fictitious contractual arrangements, made extremely hard by the deregulatory changes of the legislator or, in contrast, by its deliberate inertia, are also highlighted.

2.1 *Breeding, contractual integration and decent work in the poultry industry.*

With a high territorial concentration (Giacomini, De Francesco, Rossetto 2004, 75 ff.) and an essentially self-sufficient market (Giacomini, De Francesco, Rossetto 2004: 129; Piro 2019: 13), the poultry sector is essentially divided between three players – Aia, Amadori and Fileni. These are large groups, whose history is rooted in the most “upstream” segment of the chain, the feed and livestock industry, with which all three have very close links. This is made possible by the close vertical integration of the supply chain and also by the peculiar structural features of some of these corporate groups, which consist of a large and diverse number of agricultural cooperatives. This allows them to be classified, at least formally, in the primary sector, as direct producers of chickens and turkeys, rather than in the industrial sector, where they operate as processors of raw materials⁴.

This also confirms what has already been stated by scholars on the reference collective bargaining agreements in the sector: as a rule, the agricultural cooperative collective bargaining agreement is applied to production staff⁵, if not the agricultural workers’ collective bargaining agreement⁶, which is even less favourable in terms of wages and regulation⁷. On the other hand, the fact that such collective agreements allow

⁴ As is the case with the Amadori group.

⁵ This is again the case with the Amadori group.

⁶ This is the case of the Fileni group workers.

⁷ This is not the case for the Aia group, which has long applied the more favourable

to recruit a large proportion of “casual” and “seasonal” workers grants companies important margins of flexibility (and savings) and explains why the use of outsourcing as a cost-cutting measure is marginal here (Piro 2019a: 30).

The link between the large poultry groups and the primary production sector in turn gives rise to another peculiarity of the chain in question. Indeed, these groups – which are active in the slaughter and processing of meat, but also control the “upstream” production of feed and the selection, reproduction and incubation of eggs – often use vertical integration contracts, formally known as *soccida* (agistment), concluded with the fragmented myriad of farmers “upstream” in the chain. These association agreements, used mainly in the poultry sector, but now also in the pig and cattle fattening sectors, have survived the special legislation on agricultural contracts, at least in the form of ordinary *soccida*, the purpose of which is to allow a *soccidante* (who provides the cattle for use) and a *soccidario* (who undertakes to breed them according to the *soccidante*’s instructions) to join forces in order to breed and use the animals, sharing the growth and other products and profits derived from them.

In fact, the qualification of such agreements as *soccida* has at least two advantages: from a tax point of view, the applicable regime follows the more favourable agricultural taxation rules; from a civil law point of view, since the contract concerns breeding activities without transfer of ownership of the animals, it remains subject to the rules of the Italian Civil Code (Article 2170 ff. of the Italian Civil Code), without any relevance, for example, of all the binding legislation which, in order to protect the “weak party” agricultural producer, has gradually sought to impose restrictions on cultivation, breeding and supply contracts⁸.

It is therefore not surprising that *soccida* is so widespread in business practice. From the point of view of the “strong” party, i.e. the processing

food industry collective bargaining agreement to its employees: Pellizzon 2017: 12; Campanella 2024: 339.

⁸ See, for example, the former Article 62 of Legislative Decree no. 1 of 2012, converted into Law no. 27/2012 – but now repealed by Article 12 of Legislative Decree no. 198 of 2021 – on the prohibition of unfair commercial practices along the agri-food chain – which subjected cultivation, breeding and supply contracts to similar restrictions, but only if they involved the transfer of ownership of the goods.

company, the contract appears to be highly flexible in terms of content, thanks to its considerable “freedom” of regulation. Therefore, it is able to fully meet all the needs of guaranteeing a constant flow of products, strictly controlled in terms of quality and costs in relation to the price of meat on the wholesale market. From the point of view of the “weaker” party, i.e. the farmer, the contract does indeed reduce autonomy and profits, but at the same time it reduces the market risk by guaranteeing, for a certain period of time, the placement of production with the processing companies, at a pre-established price.

In the relationship between processors and farmers, *soccida* has also promoted technological innovation in the supply chain, an innovation that currently seems to be a harbinger of dramatic problems in terms of animal, human and ecosystem health. In fact, since the *soccida* contract links the value of poultry meat “to a basic price which may vary within a range defined by the farmer’s performance in terms of feed conversion ratio and animal mortality” (Rossetto 2004: 75), farmers/*soccidari* have focused on reducing this conversion ratio and animal mortality in order to increase their remuneration. Thus, as early as the 1980s of the last century, they welcomed the pressure from processors/*soccidanti* for process innovation – later accompanied by the selection of fast-growing poultry species – for the most intensive exploitation of chickens and turkeys, especially in northern Italy. These processors/*soccidanti*, eager to increase productivity and facilitated by the absence of administrative constraints on the construction of large plants, ended up encouraging the creation of landless herds precisely through *soccida* contracts. Not only did they guarantee the price and placement of the product, but they also provided technical assistance and economic support to breeders/*soccidari* who were willing to switch to intensive breeding models (Rossetto 2004: 75).

More recently, the *soccida* has also promoted the spread of organic production (Rossetto 2004a: 102) within the large industrial groups in the sector: it is in fact a contractual system that allows “rationalisation of feeding and feed supply”, in this case organic, because it provides that the *soccidante* guarantees, at his own risk and expense, not only the supply of the animals to be used for breeding, but also the feed itself, as well as pharmaceutical products and the technical and health support necessary for the functioning of the production.

Ultimately, however, the economic performance of livestock farmers

based on the above-mentioned production “efficiency” strategies suffered a setback due to new contextual factors. Meanwhile, the increase in production costs (energy, grain, feed, pesticides, chicks, etc.) weighed heavily. Then there was the “crisis” of the technology used (intensive livestock farming), which, having achieved maximum productivity gains⁹, began to suffer severely from its own “negative externalities”. On the one hand, there is the spread of epidemics such as avian influenza, with animal mortality rates that have a dramatic impact on costs (Rossetto 2004: 96) and productivity itself – in a context, moreover, characterised by the need to comply with strict product quality standards – with (in addition) an increasingly worrying risk of zoonoses. On the other hand, there are the wider environmental consequences of intensive production, which have led public institutions to restrict it to some extent, but (again) increasing the above-mentioned costs¹⁰.

Finally, the changing dynamics of the business and the evolution of supply chain relationships themselves have counted, with a tendency towards a marked compression of the breeding phase in terms of value with respect to other segments of the chain. In particular, since the early years of the century there has been a “progressive increase in domestic and international supply”, which “has improved the self-sufficiency” of the poultry industry, but to the detriment of local producers (Rossetto 2004a: 99). At the same time, the increase in production has led the sector to become self-sufficient in relation to demand, with “a progressive overloading of the market” (Rossetto 2004: 75) which has been detrimental to livestock farmers in their relations with large processors. The latter were thus able, partly because of their oligopoly on the market, to impose their own contractual conditions on the former, which were, moreover, negatively affected by the need to transfer the risks associated with the large-scale retail distribution’s preponderant weight (Giacomini 2004: 125) to the “upstream” phase.

⁹ Concerning productivity, see the new frontier of genetic editing – Sanchez Manzano 2024 – critically examined in *Food for Profit* (2024), a documentary by Giulia Innocenzi and Paolo D’Ambrosio.

¹⁰ But on the uncertain fate of the Green Deal (Polidori, Rombaldoni 2023: 181 ff.) after the so-called tractor protest, which was merely an opportunity to postpone climate action without addressing the issue of economic and social inequalities in agriculture, see Piketty 2024.

From a legal point of view, it was the *soccida* that came under the spotlight, as it could legitimise such a serious imbalance between the parties.

In a perspective considering possible future reforms, this has led to the spread of various bills, some of which are aimed at reforming *soccida* to adapt it to the changed economic context of reference¹¹, others of which are aimed at proposing, on the contrary, its total abolition in order to promote new contractual models more sensitive to the needs of the internal balance of the supply chain¹².

In contrast, considering the law currently in force, many scholars have stated that qualifying such agreements as *soccida* would be inappropriate, as it is typically an agricultural association contract according to the Italian Civil Code (Canfora 2012: 16). They would in fact be vertical integration contracts, different from that model (Tedioli 2021: 46). Some scholars, for the sake of distinction, have dwelt on the characteristics of the contracting parties, emphasising the essentially industrial (rather than agricultural) nature of integrating parties¹³. In contrast, some have focused on the nature of the contributions made by each party, sometimes qualifying the transaction as *associazione in partecipazione* (profit sharing agreement, Article 2549 of the Italian Civil Code) (Ferrucci 1989: 138), since the integrated party does not only provide labour but also facilities, and the integrating party does not only provide livestock but also raw materials and technical and veterinary assistance (Tedioli 2021: 46)¹⁴. Others have emphasised the absence of a joint business (Germanò 2010: 369) and the absence of the same business risk, particularly when the agreements provide for the grant of cash advances to the integrated party for the growth¹⁵ or marketing of the product, resulting in the contract being reclassified as a service contract (Iannarelli 1984: 271; Romagnoli 1995: 73

¹¹ See, for example, Bill AC No. 1768 of the 17th Legislature, submitted on 13 November 2013.

¹² See Dozzo bill of 13 May 2008 and the bill S. 1592 of 18 December 2022.

¹³ This is emphasised, for example, by the same and the bill S. 1592 of 18 December 2022.

¹⁴ However, according to Italian Supreme Court, 29 August 2013, no. 19738, the full payment of the feed by the *soccidante* does not jeopardise the socio-economic rationale of the contract.

¹⁵ However, the case law considers this provision to be compatible with the *soccida* system: Italian Supreme Court, 11 December 2013, no. 2769.

f.; Pisciotta 1998: 561)¹⁶. Generally speaking, since, as we have seen, the integrated party is often in a position of economic dependence *vis-à-vis* the integrating party, rules applicable to industrial subcontracting (Law no. 192/1998) have sometimes been invoked on the assumption that they are also applicable to contractual relations of vertical integration in agriculture¹⁷. Indeed, we are dealing with transactions which usually imply an extremely asymmetrical relationship between the parties: “all decisions of a strategic-entrepreneurial nature are the prerogative of the *soccidante*”, so that, according to another opinion, the farmer even loses their entrepreneurial nature and becomes a “worker for “third parties” who is neither required nor allowed to have any decision-making autonomy”¹⁸.

Finally, all these uncertainties have affected the tax matter, which is absolutely crucial to the economics of the matter, especially with regard to the VAT regime. In this perspective, the Tax authority went to great lengths to re-qualify the contract, which was quickly submitted to the courts. The latter have favoured a case-by-case analysis of the *soccida* agreement in order to ascertain, from time to time, its genuine or, on the contrary, simulated nature¹⁹.

2.2 *Slaughtering and meat processing, outsourcing of production functions and decent work in the pork sector.*

In contrast, in the pork sector, the imbalances between companies mainly concern slaughtering and cutting. In this context, they reflect the high cost of raw materials and animals, all the more so at a time when diseases such as African swine fever are spreading, together with the power of large cured meat companies to set prices, which in turn is influenced by the low-cost policy of large-scale detail distributors (Terra! 2024: 53 ff.; Campanella 2024: 322 ff.).

¹⁶ Italian Supreme Court, 10 March 1982, No. 1540; Italian Supreme Court, 8 November 1986, No. 6555; in contrast, Italian Supreme Court, 11 December 2013, No. 27679, cited above; on the issue see also Gioia 2016: 51.

¹⁷ Biscontini 2013: 28, following Italian Supreme Court, Joint Divisions, 25 November 2011, no. 24906.

¹⁸ See Dozzo bill of 13 May 2008.

¹⁹ Italian Supreme Court, 6 November 2013, no. 24914 on the subject of monetised *soccida*; see also Italian Supreme Court, 11 December 2013, no. 2769, quoted above.

Cost-cutting policy mainly concerns the labour side and is implemented through a complex system of contracting and subcontracting of mainly internal, low-capital and labour-intensive services, including core activities such as slaughtering, cutting and boning, preparation for meat processing and packaging (Battistelli 2020: 974 ff.; Dorigatti 2018: 51 ff.; Dorigatti, Mori 2016: 190 ff.). In this way, activities of low professional content and high health risk (Angelini, Battistelli, this volume) are entrusted to indirect workers, mostly migrants, employed by logistics or multi-service cooperatives²⁰ – themselves part of special consortia – or, more recently, to simplified limited liability companies.

Cooperatives are not chosen as a legal form by accident, but based on a series of economic advantages provided for by law (Law no. 142/2001).

Even the choice of “logistics” as the reference sector for the slaughtering and meat processing business appears to be the result of very precise choices made in light of the regulatory reference framework. On the one hand, Presidential Decree no. 602/1970 expressly includes portering cooperatives among those eligible for the above-mentioned social security advantages; on the other hand, the Ministerial Decree of 3 December 1999, in specifying what is meant by “portering” within the meaning of that Presidential Decree, also includes “slaughtering, skinning, dressing and butchering”, which are included in the “ancillary and complementary activities to the handling of goods and products” (Battistelli 2020: 984 f.; Centamore, Dazzi 2020: 66; De Blasis 2019: 26). In light of the above, it was easy for the contracting companies to obtain another advantage: the application of collective bargaining agreements, such as those for “logistics” or “multi-services”, to their staff, with the associated reduction in labour costs. At times, “pirated” collective bargaining agreements were also used, signed by trade unions representing a dubious amount of workers or even by *ad hoc* collective bodies set up precisely for the purpose of introducing “downward” labour provisions compared to the usual standards in the category. Moreover, it is no coincidence that the legislator, aware of the need to at least mitigate this phenomenon, has at some point established that “where there is a plurality of collective bargaining agreements belonging to the same category, cooperatives (...)

²⁰ A similar phenomenon can also be found in the Spanish meat industry: see Riesco-Sanz 2021: 63 ff.

shall apply to their worker members (...) general economic treatment that is not inferior to that provided for in the collective bargaining agreements of the employers' and trade union organisations that are comparatively more representative in the category at national level" (art. 7, para. 4, Law no. 248/2007 converted into Law no. 31/2008).

It is also not uncommon for outsourcing processes to give rise to pathological situations on the part of the company itself. This is the case, for example, with sham companies (Eurofound 2017): bogus worker cooperatives or, more recently, simplified limited liability companies with no real business structure, or, in any case, consortia set up with the main aim of obtaining a series of illegal economic advantages at social security and tax level (Gragnoli 2018: 341 ff.; Greco 2017: 367 ff.). This is the case when a slaughterhouse/meat processing company outsources its production activities in order to obtain labour at very low prices from contractors who are able to secure this through fraudulent operations. In particular, after failing to pay VAT, Regional Production Tax and social security contributions, these companies are then wound up so that they can disappear from the scene as veritable "empty boxes", set up to defraud the State and leaving a not inconsiderable set of debts, including to employees. The latter then bear the full brunt of the illegal activity, as it is difficult to recover their wages and social security contributions, as well as the contributions they have paid as worker members (Franciosi 2022: 51 ff.; Centamore, Dazzi 2020: 65 f.).

Such mechanisms can still be found in many Italian cooperatives. Recently, the case of the sale of a slaughtering company in the province of Asti (Ruggiero 2023) made the headlines, followed by all-out strikes to oppose yet another change in the national collective bargaining agreement, this time from the "multi-service" national collective bargaining agreement to the "agricultural" national collective bargaining agreement, after the workers had already been covered by the "agricultural cooperative" national collective bargaining agreement and previously by the "craft" national collective bargaining agreement.

The Italian Financial Police also intervened in this case. Right in the middle of the days of protest – which culminated in a victory for the workers and a trade union agreement on the application of the national collective bargaining agreement for the "food industry" (Ravarino 2024) – the Italian Financial Police closed its investigation, accusing the origi-

nal owner of having hired workers from fake contracting companies set up for the sole purpose of circumventing the law (known as industrial “gangmaster system”).

Moreover, in 2018, similar situations have already been at the centre of a series of protests by workers in the pork sector in the province of Modena, sometimes led by Flai-Cgil (Carchedi, Franciosi 2016: 141 ff.; Franciosi 2018: 127 ff.), sometimes by SiCobas (SiCobas 2017: 63 ff.), and culminating in hunger strikes and painful court cases for the workers (Battistelli et al. 2020b: 139 ff.). At the time, the workers were able to expose the illegal system to the extent that they were able to demonstrate the existence of real contracting relationships between companies in the supply chain aimed at exploiting workers²¹. Thanks to trade union mobilisation, the issue of procurement contracts was also brought to the attention of local institutions, which led to the restoration of legality in the local meat industry, but only after the creation of a special Commission of inquiry²² (Centamore, Dazzi 2020: 67 ff.) and the enactment of a regional law to combat the phenomenon (Emilia-Romagna Regional Law no. 18/2016).

However, even in the case of genuine outsourcing, the reduction in labour costs seems to be guaranteed by the legislation in force. On the one hand, there is the broad and “dematerialised” definition of contracting, which, introduced by Legislative Decree no. 276/2003, has “shifted the boundary” between the two concepts, in favour of the former (Del Punta 2008: 144). On the other hand, the abolition of the principle of equal treatment between direct and indirect workers, which was once enshrined in the previous Law no. 1369/1960 for internal company contracts, stands out. Overall, such provisions have paved the way for “forms of outsourcing aimed solely at reducing labour costs” (Speziale 2024: 10), making the management of the “change of procurement” even more problematic. At this stage, outsourced workers are caught between the risk of losing their jobs if there are no “social clauses” and the

²¹ V. Court of Modena, 14 February 2022, on the Castelfrigo case, which ended, after many years, with the conviction of the company for illegal contracting of third-party workers.

²² Special Commission of Research and Inquiry on the Phenomenon of “Sham Cooperatives”: Regional Resolution No. 133 of 21 December 2017.

prospect of a deterioration in their working conditions as the successor contractor applies a different national collective bargaining agreement, worse than the previous one. This may be the case when the outsourcing of labour-intensive services responds to the need to ensure cost containment through a regime of high productivity and low wages²³.

In certain situations, when workers decide to go on strike, the practice of replacing strikers with external workers to ensure continuity of production may occur. The lawfulness of such actions under our legal system is at least dubious, given their potential ability to undermine the right to strike (Article 40 of the Italian Constitution)²⁴. However, the existence of a procurement contract makes this conclusion even more dubious, at least when the contracting company, instead of recruiting the staff it needs, decides to use the staff it already has (perhaps normally employed on other procurement contracts), thus creating an internal scab, which, however, is considered legal by our legal system²⁵.

3. Supply chain governance to protect decent work: perspectives and limits.

Put in the dock, the procurement system has also been the subject of a number of interventions, first and foremost by the trade unions. Meanwhile, attempts are being made, albeit with uncertain results, to develop forms of coordination between trade unions within the meat production chain in order to experiment with new supply chain agreements. Then

²³ This is the case, for example, when production agreements require the contractor to supply large quantities of processed meat (Rete Nazionale Lavoro Sicuro 2023), so that, for example, two thousand hams have to be unloaded in about 80 minutes by just two workers, so that two other workers can then proceed to make a thousand cuts on these pieces and finally place them on the conveyor belt (Rete Nazionale Lavoro Sicuro 2024).

²⁴ Court of Milan, 13 March 2012; Italian Supreme Court, 9 May 2006, no. 10624; in contrast, Court of Florence, 9 July 2018; Italian Supreme Court, 29 November 1991, no. 12822; Legislative Decree no. 81/2015 prohibits in any case the conclusion of fixed-term, intermittent and temporary agency contracts for the purpose of replacing striking workers.

²⁵ Already since Italian Constitutional Court, 23 July 1980, no. 125, see, among others, Italian Supreme Court, 26 September 2007, no. 20164; Court of Udine, 7 February 2024.

there was a restrictive intervention “upstream” of outsourcing by national collective bargaining itself, which in the food industry introduced collective bargaining clauses aimed at prohibiting the outsourcing of certain work in order to protect decent work.

However, it is clear that, in the face of such broad and unconditional legislative support for outsourcing, contractual clauses can do little to curb the phenomenon (Battistelli 2020: 989 ff.; Campanella 2020: 952 f.; Pigliararmi 2020: 4 ff.; Speziale 2024: 32 ff.). Nor does the use of soft law instruments, inspired by the logic of self-regulation (Bianchi 2022), seem destined to be more successful, such as the certification of procurement contracts, codes of conduct, quality certifications developed on the basis of technical standards (Iannuzzi 2018; Renzi, Rubechi, this volume), organisational and management models (Palavera, this volume; Ascani 2023, 161 ff.), which are being questioned as exemptions from the criminal liability of companies that consider the exploitation of labour (Article 603*bis* of the Italian Criminal Code) to be one of their predicate offences (Campanella 2023: 1 ff.; Inversi 2023: 204; Peruzzi 2020: 141 ff.).

However, different signals seem to be coming from Germany, where the explosive pandemic emergency in the meat industry has prompted the federal government to intervene in the sector with an occupational health and safety law. As well as increasing the number of inspections in all areas of production, the law is centred on a ban on the use of subcontracted staff for slaughtering, cutting and processing. The use of temporary agency workers has also been drastically restricted and will only be allowed until 2024 for the meat processing stage, up to a maximum of 8% of the annual workload and in accordance with the principle of equal treatment (Erol, Schulten 2022).

However, legislative intervention – which also covers other aspects such as working hours and workers’ housing conditions – has not completely put an end to exploitative situations (Aigner 2023). Finally, there was an operation to search a dozen chicken slaughterhouses, part of an illegal and mafia-like network that employs foreigners illegally and inflicts brutal suffering on animals (Schönherr 2023). However, the balance of the law is not irrelevant as a whole (Faire Mobilität 2021; Decker 2022). This was particularly true given that many workers were directly employed by the large meat companies, and the union itself was able to

strengthen its position indirectly. This is evidenced by the fact that a national collective bargaining agreement has been signed in the sector after years of total impasse and rampant corporatisation of industrial relations which almost resulted in a unionism of convenience (Effat 2023).

In Italy, on the other hand, a series of dramatic news stories about irregular outsourcing and related deaths at work prompted the legislator to intervene on the conditions of contract workers. This opportunity was provided in particular by the recent “NRRP Decree”, which included a provision that, by reforming the existing legislation (Article 29 of Legislative Decree no. 276/2003), established the obligation to “grant to the personnel employed in the contracting of works or services and in the subcontracting (...) an economic and regulatory treatment that is not inferior in total to that provided for by the national and territorial collective bargaining agreement concluded by the trade union organisations of workers and employers that are comparatively more representative at the national level, applied in the sector and in the field closely related to the activity that is the subject of the procurement contract and of the subcontract” (new Article 29, paragraph 1-bis, Legislative Decree no. 276/0023, introduced by Article 29, paragraph 2, Legislative Decree no. 19/2024, converted into Law no. 56/2024).

This provision is not insignificant because it seeks to curb the deplorable phenomenon of contractual dumping, which, as we have seen, is based precisely on the application to indirect employees of national collective bargaining agreements that are far removed from the activities that are the subject of the contract, in order to reduce labour costs.

However, a number of questions remain in the face of this new regulatory framework. This holds true even if we disregard the more complex questions of constitutionality raised by the provision under Article 39, second part, of the Italian Constitution – for its reference to treatments that are not only economic but also regulatory, on the whole not inferior to those of the leading collective bargaining agreements – (Tufo 2024: 7 ff.) and even if we wish to overlook certain interpretative uncertainties linked to the concepts of “sector” and, above all, “territory” used by the legislator in this regard (Poiani Landi 2024; Falasca 2024).

First of all, it should be made clear that the provision does not in any way restore the principle of equal treatment, which has been invoked by several parties as necessary within the procurement chain (see Bellavista

2022: 178; for problematic remarks, Bonardi 2018: 35). In fact, it is limited to restricting the contractor's/subcontractor's freedom of choice as regards the minimum standards applicable to its personnel in order to ensure that they comply with the standards laid down in the main collective agreements for the activities covered by the contract/subcontract. In fact, there is nothing to prevent the collective agreement applied, or in any case relied upon by the contractor, from being different from the one referred to in Article 29, paragraph 1-bis, of Legislative Decree No. 276/2003, given that this article is concerned with imposing obligations only on contractors and subcontractors, and certainly not on the contracting party (Tufo 2024: 8).

More generally, the technique of referring to the leading collective bargaining agreement, which is strictly linked to the activity that is the subject of the contract/subcontract, does not seem to be able to guarantee with sufficient certainty the objective sought by the legislator. This can be seen, for example, in the meat chain, where, as we have seen, the application of the national collective bargaining agreement for goods and logistics to workers involved in slaughtering and processing the product is justified precisely because of the reclassification of "slaughtering, skinning, dressing and butchering" as "ancillary and complementary activities to the handling of goods and products".

Finally, this technique leaves the field open to the phenomenon of social dumping, i.e. contract shopping, which is made possible by the constant proliferation of national collective bargaining agreements in the various sectors. If by "sectors" we mean those defined by the National Council for Economics and Labour (Cnel) for the reorganisation of the archive of national collective bargaining agreements, thus elevating them to the status of leaders, we will notice the existence within them of a plurality of texts, with differentiations both in terms of signatories and in terms of categories and/or scopes of application. In addition, many of these agreements appear to be signed by the same leading trade unions. The same happens, in the agricultural sector, for the national collective bargaining agreement for agricultural and floricultural workers and the national collective bargaining agreement for workers in agricultural cooperatives and consortia, or, in the food industry, for the national collective bargaining agreement for the food industry and the (weaker) national collective bargaining agreement for the small and medium-sized food in-

dustry (Recchia 2023: 568). All of these agreements, as we have seen, are unfortunately at the centre of complex “change of procurement” events in the meat industry; and this confirms that labour cost compression can also be achieved by competing with the national collective bargaining agreements of the most representative trade unions. In this context, the imposition of minimum wages on contractors and subcontractors, in accordance with the leading collective bargaining agreements in the sector (and territory) in which the contracted work is carried out, is a blunt weapon in the fight against poor and insecure work. It would have been better to seize the opportunity for a legal reform, if not in the area of collective bargaining, then at least in the area of fair pay, which would certainly have been able to put a minimum brake on the proliferation of collective agreements. In this respect, it would have been a meritorious change, apt – as was observed years ago – to favour rather than harm the action of collective bargaining, “at the same time as better protecting certain weak or very weak sections of the labour market” (Del Punta 2019: 140).

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APPLICATION OF VALUE ADDED TAX
TO THE UNLAWFUL CONTRACTING OF WORKERS

1. Introduction.

One particularly sensitive issue in the meat sector is the massive recourse to outsourcing of certain services to third party companies by means of contracts that sometimes conceal irregular forms of contracting of workers¹.

This phenomenon is relevant not only from the point of view of labour law, where it deserves to be studied in depth in terms of its consequences for product quality and safety, but also from the point of view of tax and criminal law.

This is particularly true in cases – which are common in practice – where the contractor/supplier² charges particularly low prices (even lower than the “labour costs” incurred) thanks to the non-payment of taxes, and in particular the VAT paid to it by the principal/client³ (and possibly the withholding taxes and social security contributions due on

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¹ The distinction between a contract for the supply of goods and/or services under Article 1655 of the Civil Code and a case of (unlawful) contracting of workers can be difficult in practice: on this issue, see, among many, Council of State judgment No. 1571 of 1 March 2018: “The distinctive features of the contract for the supply of goods and/or services with respect to an unlawful contracting of workers are the following: (a) the power to organise the means necessary for the performance of the activity required; (b) the power to manage the workers employed in the same; (c) the business risk; through the supply of works of services, in fact, one party assumes, with the organisation of the necessary means and with management at its own risk, the performance of a work or a service in return for a monetary consideration, according to the scheme of the obligation of results; in the temporary agency work contract, on the other hand, the agency sends workers to carry out a mission, who perform their activity in the interest of and under the direction and control of the user, according to the scheme of the obligation of conduct” (on a similar note, see Italian Supreme Court, labour division, 7 February 2017, no. 3178 and 22 March 2017, no. 7796).

² Hereinafter also referred to as the contractor (company).

³ Hereinafter also referred to as the user (company).

wages paid to workers), as a result of the relationship being classified as a contract for the supply of goods and/or services⁴.

In this respect, according to the position taken by the majority of case-law, the “user company” would not be entitled to deduct the VAT paid on the consideration paid to the “contractor company”, nor would it be entitled to deduct the expenses incurred for IRAP (Regional Tax on Productive Activities) purposes⁵.

There is more: on the criminal-taxation side, the invoices issued by

⁴ And, in particular, of a contract in respect of which Article 17 of Presidential Decree No. 633 of 1972, which prescribes the application of the so-called reverse charge to the provision of services effected by means of “contracts, subcontracts, entrusting to entities in a consortium relationship or contractual relationships, however named, characterised by the prevalent use of labour at the principal’s places of business with the use of capital goods owned by the principal or available to the latter in any form whatsoever” does not apply. For the latter transactions, in fact, the contractor does not collect the VAT from the principal and it is the latter who applies the tax by accounting for “input” and “output” VAT.

⁵ According to a certain approach followed by the Tax authorities, the deductibility of the cost incurred by the principal could also have been challenged. This approach was probably based on the former Article 14 of Law No. 537 of 1993, according to which negative income components “attributable to facts, acts or activities qualifying as an offence, without prejudice to the exercise of constitutionally recognised rights” were non-deductible. The employment of workers through irregular forms of labour, if aimed at circumventing the mandatory provisions of the law or collective agreement applicable to the worker, constituted an offence, albeit a minor one, as it was a misdemeanour punishable by a fine (Article 38-bis of Legislative Decree No. 81 of 2015). Strict application of the above-mentioned provision would therefore have resulted in the costs concerned becoming non-deductible. However, Article 14(4-bis) of Law No. 537 of 1993 was amended by Article 8 of Decree-Law No. 16 of 2012 and now provides for the non-deductibility of the costs and expenses of “goods or services directly used for the performance of acts or activities qualifying as a felony committed with intent for which the public prosecutor has commenced criminal proceedings... “. It is a provision with a more restricted scope, since it refers only to felonies and because it requires not only the commencement of criminal proceedings, but also the direct use of the goods or services obtained by incurring the negative income component for the commission of a felony with intent, its *instrumentality* to the realisation of unlawful conduct (on this topic see also Frasoni 2012: 1427 and Carinci 2012: 1465). The scope of this provision does not include the case of the use of labour in the context of unlawful contracting of workers, since the latter is a misdemeanour. Even if one wanted to emphasise that this is a tax offence under Article 2 of Legislative Decree No. 74 of 2000 (fraudulent tax return through the use of invoices or other documents for non-existent transactions), it must still be noted that in the cases in question, the employment of workers, albeit on the basis of irregular contracts, is aimed at carrying out a business activity and not at committing an offence. It is therefore correct that the cost incurred by the “user” is deductible for income tax purposes. The same conclusions have been reached by case law with regard to

the “contractor company” could be considered non-existent from a “subjective” or “legal/qualitative” point of view (since they contain the indication of a service provider and/or a service other than that actually rendered), resulting in the perpetration of the offences referred to in Article 2 (for the latter) and Article 8 (for the former) of Legislative Decree No. 74 of 2000, offences which, moreover, do not provide for any minimum threshold in order for them to be ascertained⁶.

As illustrated below, such an approach may be understandable in fraudulent and pathological cases where the “contractor company” does not pay taxes to the Treasury and at the same time the “user company” has directly benefited from the non-payment of taxes by the “contractor company” by obtaining labour at reduced prices.

At the same time, however, there is a real risk of causing incoherent consequences from a systemic point of view and, in particular, of failing to ensure the effective application of the principle of VAT neutrality also with regard to (and of imposing serious penalties, including criminal ones, against) operators who have acted in good faith without taking advantage of any tax infringements committed by the “contractor company”.

This is a particularly interesting topic, which will provide an opportunity to address not only the specific case of unlawful contracting of workers, but also key issues in the field of VAT, first and foremost the principle of neutrality.

2. The arguments supporting the non-deductibility of VAT: from Law No. 1369 of 1960 to Legislative Decree No. 276 of 2003 and Legislative Decree No. 81 of 2015.

The non-deductibility of VAT incurred in the context of unlawful contracting of workers was, at first, argued by relying in particular on the content of the former Article 1 of Law No. 1369 of 1960.

costs documented by invoices issued by parties who did not provide the relevant services (most recently see Judgment No. 25473 of 29 August 2022).

⁶ On this point, see, most recently, the judgment of the Italian Supreme Court, Criminal Division, 28 November 2022, no. 45114, which justifies its decision by pointing out that the invoices relate to an “apparent legal transaction, different from the one actually carried out by the parties, concerning a transaction entailing significant tax consequences” (in the same sense, see the previous judgment of 10 May 2023, no. 19595).

This provision included a prohibition on contracting out or subcontracting “mere labour services through the use of workers hired and paid by the contractor or intermediary, irrespective of the nature of the work or service to which the labour services relate”. The last paragraph of this provision then stipulated that workers employed in violation of the above prohibition are to be considered “to all intents and purposes as employed by the employer who actually used their services”.

It should immediately be recalled that the aforementioned Article 1 of Law no. 1369 of 1960 was repealed by Legislative Decree no. 276 of 2003, which implemented the so-called Biagi Law (and provided for the expansion of the forms of temporary agency work) and whose Article 27 was in turn repealed by Legislative Decree no. 81 of 2015 as part of the so-called Jobs Act.

Prior to these amendments, the non-deductibility of the VAT paid by the “user companies” was upheld, also on the basis of Article 1 of Law No. 1369 of 1960, in so far as it provided that workers employed in breach of the prohibition on contracts for the mere supply of the activity of workers were to be considered “to all intents and purposes” as employees of the user of the services in question (a provision which was maintained in the subsequent provisions cited above, but which limited this effect to the cases of null and void or irregular forms of contracting provided for therein).

According to this argument, the “user company” should have been subject to the tax regime to which it would have been subject if it had directly employed the workers supplied by the “contractor company”.

Consequently, the consideration paid by the former to the latter would, in reality, constitute the actual remuneration of the workers (and not the price paid for the provision of a service), with the result that: on the one hand, the VAT paid would not be deductible since, as is well known, labour services are not subject to VAT; on the other hand, the costs incurred would not be deductible for IRAP purposes under the provisions of Article 5(3) of Legislative Decree No 446 of 1997.

It is true that, at first glance, Article 1 of Law No. 1369 of 1960 (and currently Article 38 of Legislative Decree No. 81 of 2015) seems to leave little room for interpretation, since the legislator has taken care to specify that workers employed in violation of this provision are considered to be employed “to all intents and purposes” by the user. It would therefore

be possible to apply this provision in the tax field, with the consequences for VAT and IRAP described above.

However, there seems to be room to argue the need to limit the effects of the rule by emphasising its rationale and, in particular, the circumstance that it was introduced with the aim of “protecting workers from forms of exploitation resulting from the dissociation between the formal and actual relationship, i.e. between the formal employer and the actual beneficiary of the work services”⁷.

The scope of the phrase “to all intents and purposes” could therefore be limited to the multiple effects connected to the elements of the employment relationship (in terms of remuneration, contributions, etc.) and not also to those outside the “system of interests” protected by said rule⁸.

Moreover, as will be seen below, it does not seem correct in any case to start from the assumption that the workers employed under irregular contracts for the provision of workers are “to all intents and purposes” employed by the “user company” and to conclude simply that what the latter pays to the “contractor company” constitutes “labour costs” not subject to VAT.

3. (cont'd) The nullity of the contract entered into between the “contractor company” and the “user company”.

Case law on the subject has evolved, continuing to endorse the argument of the non-deductibility of the VAT paid by the “user company”,

⁷ See Italian Supreme Court, labour division, 13 November 2007, no. 23569 and 15 February 2008, no. 3861. In the same sense, see. Italian Supreme Court, Joint Divisions, 26 October 2006, no. 22910, which refers to the need to prevent that the employee from being treated unfairly, from an economic and regulatory point of view, since it does not correspond to the services rendered and is not in line with the services actually performed in the production organisation.

⁸ So much so that the provisions in question do not entail the release of the “contractor company” from the obligations arising from the employment relationship “since, on the contrary, the liability of such persons, who are still formally the employers as it would appear to third parties in good faith, remains and it is additional to – and autonomous from – the principal’s liability, without prejudice to the latter’s separate and independent liability for the violations committed” (thus Italian Supreme Court, labour division, 3 February 1993, no. 1355, referring to the previous art. 1 of Law no. 1369 of 1960).

placing greater emphasis on the nullity of the contract entered into between the latter and the “contractor company” and recalling the provision of Article 21(4) of Legislative Decree No. 276 of 2003, now merged in Article 38 of Legislative Decree No. 81 of 2015⁹ 10.

The aforementioned Art. 38 provides for the nullity of the temporary agency work contract if it is not in writing (paragraph 1). The rule also addresses the issue of unlawful case, which, in addition to cases of contracts which are not in writing¹¹, occurs when temporary agency work is used in excess of the quantitative limits provided for in Article 31(1) and (2) or in the cases prohibited by Article 32¹². In such cases, the employee

⁹ On the other hand, it does not seem correct to invoke the unlawfulness of the conduct, as the EU Court of Justice has recognised that in the field of VAT there is a prohibition on distinguishing between lawful and unlawful transactions (see, in particular, judgment 29 June 1999, Case C-158/98, paragraph 14). It should be noted, however, that precisely in a case of unlawful contracting of workers, the Italian Supreme Court, in its judgment of 7 December 2018, no. 31720 – following the guidance provided by the Court of Justice of the European Union in its judgment of 6 July 2006, C-439/04 – stated that an exception to the prohibition on distinguishing between lawful and unlawful contracts would be the case where “the particular characteristics of the scope of the contract or service exclude any competition between a lawful and an unlawful economic sector”, which would be the case of unlawful contracting of workers, since “the prohibition of dissociation between the formal qualification of employer and the actual use of the employee’s activity means that, beyond the cases of lawful temporary agency work, the supply of mere labour services is excluded from the economic circuit”.

¹⁰ Nor does it seem right to invoke the notion of abuse of rights, although this has often – and erroneously – been superimposed on the notion of sham transaction (*simulazione*). True, it could be argued that the “user company” has *abused* the service contract it has entered into in order to obtain an *undue* advantage (i.e. not having to hire the staff it has used, and that the Tax Authority could therefore recover the tax due in the case of existence of an employment relationship rather than a supply of services. However, in order for there to be an abuse of rights, the transaction must be “essentially aimed at obtaining undue tax advantages”. On the other hand, in the case of unlawful contracting of workers, the principal essentially does not obtain an unjustified tax advantage, since it has to pay and deduct VAT that would not have been deducted but that would not have been paid in the first place if he had hired the workers directly.

¹¹ The essential elements that the contract must contain (listed in Article 33 of Legislative Decree No. 81 of 2015) also include are the details of the authorisation granted to the contractor, details that are, of course, systematically absent in cases of contracting of workers “disguised” as a service contract.

¹² Replacement of workers exercising the right to strike; use in production units where collective redundancies have taken place in the previous six months; use in production units where work has been suspended or working hours reduced under the redundancy fund system (*cassa integrazione*); replacement by persons who have not carried out a risk

has the right to claim that an employment relationship is established with the user, with effect from the start of work (paragraph 2)¹³.

Even after the repeal of Law No. 1369 of 1960, the case law of the Italian Supreme Court therefore continued to consider the VAT paid by the “user company” to the “contractor company” as non-deductible (and the cost non-deductible for IRAP purposes)¹⁴.

See, in this regard, the judgment of the Italian Supreme Court no. 34727 of 30 December 2019, according to which the provisions contained in Article 29(3-*bis*) of Legislative Decree no. 276 of 2003 in any case entailed the nullity of the contract entered into between the “user company” and the “contractor company”¹⁵. Previously, judgment No. 31720 of 7 December 2018 stated that “in the case of unlawful contracting of workers, disguised by a contract for the provision of services, the right to deduct staff costs must be excluded due to the invalidity of the legal title from which they arise, since these are not contractor’s services taxable for VAT purposes”¹⁶.

The Court went on to state that the employee’s claim to “establish” the employment relationship with the “user company” (as the “real” em-

assessment in application of the legislation on the protection of the health and safety of workers.

¹³ The nullity of contracts for the mere supply of the activity of workers had already been upheld in case law by the Italian Supreme Court due to the socio-economic rationale (*causa*) and scope being unlawful. Among others, see judgments of 10 May 1982, no. 2898; 6 November 1982, no. 5849; 20 December 1982, no. 7017; 13 January 1983, no. 228; 19 June 1985, no. 3686; 14 June 1999, no. 5901; 16 February 2000, no. 1733; 21 January 2004, no. 970.

¹⁴ The conclusion of non-deductibility for the purposes of IRAP should perhaps be reviewed in the light of the introduction of paragraph 4-*octies* of Article 11 of Legislative Decree No. 446 of 1997, which allows for the deduction of “the total cost of staff employed on permanent contracts”. This is all the more true in cases where workers effectively exercise their right to a permanent employment relationship with the “user company”.

¹⁵ On this point, the Supreme Court recalls its previous judgments 28 July 2017, No. 18808; 17 January 2018, No. 938; 27 July 2018, No. 19966; 12 November 2018, No. 28953;

¹⁶ The Italian Supreme Court, Criminal Division, in its judgment No. 33994 of 15 September 2022, also emphasised the possibility of assimilating the payment made by the “user company” to a refund of the expenses incurred by the “contractor company” to pay the workers and, therefore, to a transaction that would be excluded from VAT under Article 15 of Presidential Decree No. 633 of 1972.

ployer) would be irrelevant and that the non-deductibility of VAT would be systematic.

To justify this position, the Supreme Court emphasised that the employee's right to establish an employment relationship with the "user company" presupposes the nullity of the commercial contract (and, consequently, of the employment contract between the employee and the "contractor company"), a nullity that can be ascertained *ex officio* and asserted by anyone with an interest, including the Tax Authority. On the other hand, it would be unreasonable to make the VAT regime applicable to the present case dependent on the "identifiable and imponderable" decision of the employee to bring an action for the establishment of the employment relationship with the "user company".

Nor can it be argued that the use of the term "establishment" of the employment relationship is merely a matter of annulment, given that the employee can only bring an action directly against the "user company"¹⁷.

4. The applicability of the provisions on fictitious intermediation.

As seen in the preceding section, the deduction of VAT in the context of unlawful contracting of workers has been denied on the basis of the nullity of the contract between the service provider and the principal, ultimately considering as relevant the tax implications that would have arisen if the principal had directly employed the workers involved in the unlawful contracting.

This line of argument is reminiscent of a sham transaction and, in particular, of fictitious intermediation, so much so that case law has defined the "user company" as the effective party to the relationship and the "contractor company" as the intermediary¹⁸.

¹⁷ On this point, reference is made to the Supreme Court's own ruling, 1 August 2014, No. 17540.

¹⁸ Among all, see Judgment No 21634 of 26 October 2016. It is worth noting, however, that this judgment did not assess whether the workers (third parties) participated in the alleged sham agreement. This is a significant fact, given that the Supreme Court itself has on certain occasions (albeit in cases other than contracting of workers) held that such participation would be a necessary condition for the purposes of establishing the exi-

The consequence of this approach is the application of the tax treatment resulting from the transaction deemed to be disguised (the direct employment relationship between the “user company” and the employees) instead of the tax treatment applied by the taxpayer to the transaction deemed “apparent” (the supply of services between the “contractor company” and the “user company”).

Now, with regard to income tax, the legislator has regulated sham transactions in a clear manner, taking care to regulate the position of the various parties involved.

Article 37 of Presidential Decree No. 600 of 1973, in fact, provides for the imputation to the taxpayer of income which, apparently, belongs to other persons, when it is proven that it actually belongs to said taxpayer through an intermediary; but, at the same time, it grants the intermediary the right to a refund of any taxes paid, provided that the assessment against the effective owner of the income has become final and in an amount not exceeding the tax actually received by the Treasury as a result of that assessment.

This rule is consistent from a systemic point of view and with the common discipline of sham transactions: in accordance with the necessary effectiveness that must characterise taxation and with the content of articles 1414 and 1415 of the Civil Code, the sham transaction is in fact not enforceable against the Tax Authorities and taxation is focused on the effects of the disguised transaction¹⁹.

Indeed, there is no regulation in the VAT field containing a provision similar to Article 37(3) of Presidential Decree 600/1973.

Nevertheless, settled case law has held that it is impossible, even for VAT purposes, to claim the effectiveness of the sham transaction vis-à-vis the Tax authorities. For example, in the well-known case law on so-called

stence of fictitious intermediation (see judgments no. 8843 of 13 April 2007 and no. 12788 of 10 June 2011).

¹⁹ On this subject, see Italian Supreme Court judgment no. 5582 of 18 April 2002, according to which the ineffectiveness vis-à-vis the Tax authorities of sham transactions would simply derive from the content of Articles 1414 and 1415 of the Civil Code (see similarly the subsequent judgment no. 11676 of 5 August 2002). Among legal scholars, on the need for “reality” to prevail over “fiction”, see, among all, Falsitta 2010: 349; similarly, see. Fedele 2010: 1093 and Beghin 2010: 220; Fransoni 2011: 13. Most recently, on this subject, see Montanari 2019.

subjectively non-existent transactions (aimed at dealing with the tax evasion effects of the conclusion of fraudulent transactions), the divergence between the commercial reality and the representation thereof on the transaction documents (in particular from a subjective point of view) was remedied²⁰.

From this point of view, therefore, the disallowance of the VAT deducted by the “user company” could be considered to be consistent, since it denies the deduction of VAT that would not have been charged (and therefore not been deductible) if the concealed transaction had taken place.

In other words, the tax effects of the sham transaction are disallowed and the effects of the concealed transaction are restored, consisting of the payment of a consideration for a service (that of an employee) that would not be relevant for VAT purposes.

This point needs to be carefully considered.

In Article 8(35) of Law No. 67 of 1988, the legislator decided that lending or secondment of staff is not relevant for VAT purposes, on condition that “only the reimbursement of the relevant costs” is paid²¹. In the same vein, the subsequent Article 26-*bis* of Law No 196 of 1997 confirmed the exclusion from VAT of the reimbursement of wages and social security contributions which the user of temporary workers is obliged to pay to the contractor company and which the latter has actually paid for the benefit of the temporary worker²².

The logic of these provisions is essentially to ensure that VAT is charged only on the “intermediation margin due to the contractor for the service provided”²³.

²⁰ In these terms see, for example, Italian Supreme Court 5 February 2009, no. 2779.

²¹ This rule confirmed the orientation of the Tax authorities as expressed in Ministerial Resolution No. 502712 of 5 July 1973.

²² Similarly, in the context of IRAP, see Circulars Nos. 141/E of 1998 and 263/E of 1988, as well as Resolution No. 2 of 2008.

²³ See also Resolution No. 384/E of 2002. On the non-taxability only in the case where “the consideration paid by the company receiving the secondment consists in the reimbursement of an amount exactly equal to the wages and other social security and contractual charges borne by the company making the secondment”, see the judgment of the Italian Supreme Court, Joint Divisions, 7 November 2011, no. 23021 and the commentary by Marini 2012: 477.

However, the EU Court of Justice declared the above-mentioned Article 8(35) of Law No. 67 of 1988 incompatible with the VAT system²⁴.

The Court of Justice has stated that all supplies of services are taxable for VAT purposes if they are made for consideration and that a supply of services is made “for consideration” “if there is a legal relationship between the provider of the service and the recipient pursuant to which there is reciprocal performance, the remuneration received by the provider of the service constituting the value actually given in return for the service supplied to the recipient”. That condition is met when there is a “direct link between the service supplied and the consideration received... In the present case, it appears from the documents before the Court that the secondment was carried out on the basis of a legal relationship of a contractual nature between... (the company making the secondment, Ed) and... (the company receiving the secondment, Ed). It also appears that, within the framework of that legal relationship, reciprocal services were exchanged, namely, on the one hand, the secondment of a manager from... to... and, on the other hand, the payment by the latter to... of the sums invoiced to it”²⁵.

In addition, the argument of the non-deductibility of VAT tends to reclassify the legal relationship under which the payment is made (from a – taxable – cost of services to a remuneration not subject to VAT), regardless of the concrete assessment of the relationship between the parties, which is, on the other hand, a central aspect in the context of sham transactions.

Indeed, it cannot be overlooked that Article 38 of Legislative Decree No. 81 of 2015 does not state that what is paid by the “user company” to the “contractor company” is to be considered as employee remuneration. On the contrary, it could well be that the “contractor company” does not pay the workers (in whole or in part) what the “user company” paid to it, and that the latter shall consequently pay the workers²⁶.

²⁴ Judgment 11 March 2020, C-94/19, *San Domenico Vetraria*.

²⁵ For the application of this principle in our system, see the judgments of 2 March 2021, nos. 5601, 5602, 5609 and 5615.

²⁶ Indeed, the aforementioned Article 38 stipulates that “all payments made by the employer, whether by way of remuneration or social security contributions, shall discharge the person who actually used the service from the corresponding debt, up to the amount actually paid. All acts done or received by the contractor company for the

The argument of the non-deductibility of the VAT borne by the “user company” therefore appears – from this point of view – to be a stretch, since it is based on the existence of a direct contractual relationship between the “user company” and the employees, *completely* ignoring the role of the “contractor company” and the fact that what the former pays to the latter can never correspond to the costs borne by the “contractor company” as “labour costs”. This is contrary both to the case law of the ECJ and to the content of Article 8(35) of Law No. 67 of 1988, which requires – for the purposes of non-taxability – that the sums paid by the “user company” correspond to those received by the workers, and which has in any case been declared incompatible with EU law.

From this point of view, therefore, the logical path described by the Italian Supreme Court case law is not entirely linear. This is even more the case if one considers that, as seen above, the provision according to which the leased workers are considered to be employed “to all intents and purposes” by the user is clearly aimed at guaranteeing the position of the employees and certainly not at regulating the relations of the Treasury.

5. The deductibility of VAT paid in relation to the invoice issued by the contractor.

As seen, in cases of unlawful contracting of workers, the “user company” pays VAT to the “contractor company”.

Therefore, it could be questioned whether this VAT, simply because it was actually paid and shown on an invoice (the one issued by the “contractor company”), should nevertheless be deductible for the person who received the invoice. And, consequently, regardless of whether the transaction concluded can be considered as a sham transaction, if the Tax authorities can (or cannot) claim anything from the “user company” that has paid VAT to the “contractor company” in error.

Clearly, the right of deduction could not be recognised in the context

establishment or management of the relationship shall, for the period during which the temporary agency work took place, be deemed to have been done or received by the party who actually used the service” (paragraph 3).

of fraudulent mechanisms (in particular mechanisms where the issuer of the invoice or other “upstream” party does not pay the VAT to the Treasury). Moreover, these cases can also be found in the area of unlawful contracting of workers, where some contractor companies offer their services at particularly low prices (lower than the wages due to the hired workers) because they do not pay the VAT they collect from their “user companies” (and/or the withholding taxes and social security contributions due on the wages paid).

In such cases, the recovery of the VAT deduction can in any case be justified – in line with the conclusions reached by the case law in relation to subjectively non-existent transactions – by classifying the VAT charged as “off the books” and, consequently, considering the relative obligation as “isolated” and extraneous to the mechanism of recourse-deduction²⁷.

However, the question arises as to what happens in situations where there is no need to protect and “restore” the Treasury’s position, i.e. in cases where the “contractor company” has duly paid the VAT it received from the “user companies”.

It is clear that, in such cases, the non-deductibility of the VAT actually paid by the “user company” and paid to the Treasury by the “contractor company” risks undermining the neutrality of the tax.

This issue is part of the broad topic of the deductibility of VAT wrongly charged by the seller/supplier²⁸.

Now, as a result of Article 203 of Directive 2006/112/EC, the VAT shown on the invoice is due to the Treasury regardless of the correctness of the behaviour. This provision, in fact, states that “VAT is payable by

²⁷ Among the many judgments on the subject see, for example, Italian Supreme Court No. 11396 of 3 June 2015: according to this judgment, in non-existent transactions “the corresponding tax is considered “off the books” and the obligation in question remains “isolated” from that resulting from the mass of transactions carried out, without the application – in that circumstance – of the mechanism of set-off between “downstream” VAT and “upstream” VAT, which governs the deduction of tax under Article 19 of the aforementioned Presidential Decree, and this also in view of the criminal relevance of the conduct consisting in issuing invoices for non-existent transactions...”. These are cases where the neutrality of the principal/purchaser’s VAT position is protected only if the purchaser is in good faith, since it is necessary to compensate for the loss of tax revenue resulting from the fraudulent mechanism. On the subject of “off the books” VAT see, for all, Giovanardi 2013.

²⁸ On this topic see also La Rosa 1999: 194; Greggi 2007: 285; Saponaro 2006: 1267; Menti 2014: 1028; Procopio 2013: 51.

anyone who indicates this tax on an invoice”. Similarly, Article 21(7) of Presidential Decree 633/1972 stipulates that “if the supplier issues an invoice for non-existent transactions, or if it indicates on the invoice the consideration for the transactions, or the taxes relating to them, in an amount that exceeds the actual amount, the tax shall be payable on the full amount indicated or corresponding to the amounts indicated on the invoice”.

This provision is clearly aimed at protecting the Treasury and is based on the assumption that the charging of VAT on the invoice by the seller/supplier can be offset by the exercise of deduction by the purchaser/user, with a consequent reduction in the VAT owed by these parties.

However, the tax erroneously charged by the seller/supplier is not deductible by the purchaser/client, even though it is owed by the seller/supplier to the Treasury.

The EU Court of Justice²⁹ has ruled that the right of deduction does not extend to tax due simply because it is shown on an invoice, since the right of deduction is limited to “only the tax due, i.e. the tax corresponding to a transaction subject to VAT”³⁰.

In the same vein, the Italian Supreme Court stated that, in the case of erroneous application of VAT, there would be transactions that were “extraneous to the whole system in which VAT is regulated”, so that “the issue of deductions does not even arise”. Consequently, the undue payment of VAT by the purchaser/client cannot be recovered through deduction by the purchaser/client³¹. The Italian Supreme Court therefore concluded by recognising that there was not “complete symmetry

²⁹ Judgment 13 December 1989, C-342/87, *Genius Holding BV*.

³⁰ More recently, see the judgment of 18 March 2021, C-48/20.

³¹ In support of the non-deductibility of the erroneously charged VAT see also the judgments of the Italian Supreme Court 2 September 2002, No 12756; 27 June 2001, No 8786; 16 July 2003, No 11110; 5 June 2003, No 8959; 26 August 2015, No 17173. An earlier, apparently less rigorous, position of the Tax authorities should be mentioned: in its memorandum of 5 January 1982, no. 334298 of 5 January 1982, the authority argued that an unjustified deduction was possible “in all cases where the fraudulent or at least unlawful exercise of a non-existent right to deduct can be established (such as, for example, in cases in which the transaction was not performed, the purchase was not connected to the business activity, and there were legal prohibitions for the deduction to be allowed” and that “in cases in which, on the other hand, an invoice was issued, duly registered by the purchaser, at a higher rate than that due and also shown on the copy in

between the obligation to pay the tax, because it is shown on the invoice, and the right to deduct” (judgment 25 January 2008, No. 1607)³².

In line with this, the subsequent judgment no. 4020 of 14 March 2012 ruled that when a transaction is erroneously subject to VAT, the Tax authorities have the power and the duty to exclude the deduction of the tax by the client/purchaser. The latter has the right to request to the seller/supplier a refund of the VAT paid; the seller/supplier has the right to request a refund of the VAT unduly paid from the Tax authorities^{33 34}.

The need to allow the application of this mechanism has also been

the issuer’s possession, and the tax is deducted, there is no undue deduction...” (in the same vein, see also the Italian Supreme Court’s ruling No. 1348 of 18 February 1999).

³² The Court of Justice, in its judgment of 18 June 2009, C-566/07, *Stadeco*, pointed out that the mechanism described is intended to eliminate the risk of loss of tax revenue which may result from the exercise of the right to deduct.

³³ The Supreme Court has repeatedly emphasised the autonomy of relations between the Tax authority and the seller/supplier, on the one hand, and between the latter and the client/purchaser, on the other, stating that “*the seller cannot claim vis-à-vis the purchaser, who is requesting the repayment of the tax, that said tax (that the purchaser cannot claim vis-à-vis the Tax authority excluding the deduction) has been paid by way of recourse and paid to the same Tax authority. Finally, the seller alone is entitled to bring an action for refund against the Tax authority*” (judgment 22 April 2003, No 6419 and, similarly, 6 August 2008, No 21214; 13 December 1991, No 13446; 2 November 1991, No 12590). This approach was also endorsed by the Court of Justice of the European Union in its judgment of 15 March 2007 in Case C-35/05 *Reemtsma Cigarettenfabriken GmbH*, which, however, stated that where refund of the VAT “would become impossible or excessively difficult, the Member States must provide for the instruments necessary to enable that recipient to recover the unduly invoiced tax in order to respect the principle of effectiveness” (see also the judgments of 11 April 2019, C-691/17 and 13 October 2022, C-397/21, as well as the judgment of the Italian Supreme Court no. 27649 of 3 December 2020). On the contrary, the Joint Divisions of the Italian Supreme Court, in a particular case of purchasers/clients subject to VAT who had paid to the supplier a VAT not due that they had not been able to deduct (due to the pro-rata system), held that, precisely because they were subject to VAT, they could request directly from the Treasury the refund of the sums unduly paid (judgment 31 July 2008, no. 20752; similarly judgment 18 February 2009, no. 3817). Thus, certain scholars held that, in the case of deduction of VAT paid but not due, no assessment problems should arise, since “the obligations of the customer and the Tax authority should be extinguished by offsetting in accordance with Article 8 of the Taxpayer’s Statute” (Giorgi 2008: 3317).

³⁴ In its judgment of 11 April 2013, C-138/12, *Rusedespred*, the Court of Justice ruled that, in cases where the Tax authorities contest the erroneous charging of VAT, it would be contrary to the principles of neutrality and proportionality to deny the deduction of VAT to the principal and, at the same time, not to allow the supplier to regularise the invoice issued and obtain a refund of the VAT unduly paid (see also judgment

recognised by the EU Court of Justice in the context of non-existent transactions, provided that the issuer of the invoice, even if not in good faith, has “in good time completely eliminated the risk of loss of tax revenue”³⁵.

This ruling gives the company that issued the invoice that was deemed to be non-existent the right to claim its refund if the transaction did not result in a loss of revenue for the Treasury.

However, the ruling was not interpreted as implying that the Tax authority could waive the right to recover the VAT deducted by the “user company” and at the same time deny the company issuing the disputed invoice the right to a refund³⁶.

In order to overcome the serious problems of application, particularly in terms of timing, which resulted from the above approach, the legislator intervened by introducing Article 30-ter in Presidential Decree No. 633 of 1972.

Paragraph 2 of this provision reads as follows: “*In the case of the application of an undue tax on a sale of goods or a supply of services which has been definitively established by the Tax authorities, the seller or supplier may apply for a refund within two years from the date on which the amount paid by way of compensation was refunded to the purchaser or principal*”. All this provided that, according to paragraph 3, “*Refund of the tax is excluded if the payment was made in the context of tax fraud*”³⁷.

of 23 April 2015, C-111/14, *GST - Sarviz*). Member States must therefore not make it impossible or excessively difficult for a supplier who has erroneously charged VAT on a transaction to obtain a refund of the tax wrongly invoiced, once the Tax authorities have refused to allow the principal to deduct the tax (see also Mondini 2014: 453).

³⁵ See the judgment of 8 May 2019, C-712/17, *En.Sa*. Some scholars argued in favour of the deductibility of erroneously charged VAT (provided that it is not fraudulent) see Tesauro 1996: 83-84; Logozzo 2011: 301; La Rosa 1990: 4658; Id., 1999: 197; Lupi 1991: 302; Messina 1991: 944; Randazzo 2012: 1763. Arguing the opposite, with specific reference to transactions outside the scope of VAT, Fransoni 1994: 29 ff.

³⁶ In this vein, and specifically in relation to a case of unlawful contracting of workers, see the judgment of the Italian Supreme Court, Criminal Division, 30 March 2022, n. 11633, according to which “national legislation which provides for the non-deductibility of VAT, albeit paid by the issuer, in the presence of invoices for non-existent transactions is not contrary to EU law if, at the same time, the possibility of correcting the wrongly invoiced tax in the presence of good faith on the part of the issuer is guaranteed”.

³⁷ On the fact that the case law of the EU Court of Justice allows for additional me-

The problems that arose in the past regarding the timing and conditions³⁸ under which the issuer of an invoice in which VAT was erroneously charged could recover it from the Treasury have largely disappeared³⁹.

6. The concrete neutrality of the tax and the related criminal-tax issues.

It follows from the previous section that the rationality of the VAT system, in cases of unlawful contracting of workers, could be guaranteed by the possibility granted to the “user company” of invoking the nullity of the contract concluded, the non-taxability of the agreed consideration (which is due to its nature as a labour cost outside the scope of VAT) and the payment of an undue payment pursuant to Article 2033 of the Civil Code.

Then, once the VAT has been refunded to the “user company”, it should be the “contractor company” that requests refund of the VAT from the Treasury, thereby restoring the neutrality of the tax and proving that it is not a case of tax fraud.

Such a system certainly has the advantage of avoiding the risk of a loss of revenue for the Treasury, in particular because it “anticipates” its protection (consisting in the Treasury collecting the recovery of the

chanisms, other than a request for refund by the seller/supplier, to safeguard the neutrality of VAT in the event of its improper application, see Comelli 2022: 237.

³⁸ On this point, see the judgment of the Court of Justice of the European Union of 15 December 2011, C-427/10, *Banca Antoniana Popolare Veneta SpA*, which clarified that the seller/supplier must be given the real possibility of obtaining refund of the VAT not due – which it has reimbursed to the purchaser/principal – from the Tax authorities. However, according to the judgment of the Italian Supreme Court of 20 July 2012, no. 12666 of 20 July 2012, a refund beyond the normal two-year period would be possible only for the tax that the supplier “had to repay to the principal” ... i.e., for the tax actually refunded in favour of the “principal” in performance (also spontaneously) of a compulsory measure of reimbursement to his detriment and in favour of the “principal” (in the same vein, see judgments no. 6600 of 15 March 2013 and no. 6600 of 24 February 2015, no. 3627).

³⁹ However, it should be noted that the Tax authority has a restrictive attitude towards the applicability of this procedure: for example, in its Answer no. 269 of 30 March 2023, it was stated that the refund request would only be available in the case of “non-culpable inertia” with regard to the possibility of issuing an amendment note pursuant to Article 26 of Presidential Decree no. 633 of 1972 (which is valid for one year from the date of the transaction).

deduction before returning the unduly received VAT) and because the “contractor company” can only obtain the refund by proving that it has actually paid the VAT claimed.

However, this is a solution that is open to criticism.

Firstly, the fact that VAT remains non-deductible by the “user company” and the qualification of the transaction as non-existent could – theoretically – constitute the offences referred to in Articles 2 and 8 of Legislative Decree No. 74 of 2000⁴⁰. This consequence seems disproportionate in all cases where the “user company” has paid the VAT to the “contractor company” and the latter has fulfilled its tax obligations. Or, in any case, in line with the case law on invoices for non-existent transactions, where the former acted in good faith and had no reason to doubt that the latter had paid the tax.⁴¹

Moreover, these are cases in which, as – if looking at the position of the “user” and “contractor companies” as a whole – there is no loss of revenue for the Treasury, it seems very difficult to consider that the specific intent to evade, which is a necessary condition for the commission of the offences referred to above, has been present.

Looking only at the tax point of view, therefore, the solution described does not solve the problem but shifts it from the “user company” (assuming that it receives the refund) to the “contractor company”, which would find that it had paid VAT to the Treasury that was actually collected but then refunded to the principal.

An alternative solution could be to apply Article 26 of Presidential Decree no. 633 of 1972, in so far as it provides that “if a transaction for which an invoice has been issued after the registration referred to in Articles 23 and 24 is wholly or partially invalidated, or if the taxable amount is reduced as a result of a declaration of nullity, annulment, cancellation, termination, hardship etc., or as a result of the application of rebates or discounts provided for in the contract, the supplier of goods or servic-

⁴⁰ On this point, see, for example, the judgment of the Italian Supreme Court no. 20901 of 15 July 2020, according to which the aforementioned offence can – theoretically – occur “in light of the difference between the person who issues the invoice and the person who provides the service” (in the same vein, see the subsequent judgment no. 11633 of 30 March 2022).

⁴¹ This, in particular, could happen in cases where the price paid to the “contractor company” is higher than the wages to be paid to the workers.

es shall be entitled to deduct the tax corresponding to the change, in accordance with Article 19, by registering it in accordance with Article 25”⁴².

Such a procedure would indeed lead to a refund of VAT from the “contractor company” to the “user company”, but could avoid the need for a subsequent refund claim.

If an amendment note is issued, in fact, the “contractor company” would return the VAT previously received (and paid to the Treasury) and should be able to deduct that tax, thus neutralising its position.

However, certain problems arise in the application of this rule.

Firstly, once the supplier has received the refund of VAT previously paid and the corresponding credit note, the purchaser should register this VAT “debit”.

In this case, the Tax Authorities could still dispute the deduction made at the time (with the consequent recovery of the tax deducted and imposition of penalties).

This would, moreover, risk distorting neutrality once again, nullifying the refund obtained and guaranteeing an unjustified enrichment of the Treasury.

The “debit” VAT resulting from the amendment note would in fact correspond to the VAT payable to the Treasury in the event of an assessment.

Secondly, there is the problem of timing⁴³.

Article 26 of Presidential Decree 633/1972 provides that the *dies a quo* for the issuance of the amendment note (except in cases where the variation takes place within one year of the execution of the transaction) is the moment when the nullity is the subject of a “declaration”, i.e. a “finding resulting from an assessment”⁴⁴. In order to initiate the proce-

⁴² Moreover, making a downward variation, unlike an upward variation, is considered a “right” of the taxpayer (for all, on this point, Comelli 2000: 836).

⁴³ This problem would not arise if the credit note were issued within one year of the transaction being carried out. In fact, Article 26(3) allows the credit note to be issued even if the transaction does no longer take place because of an agreement between the parties or because of the correction of invoicing inaccuracies which have led to the application of Article 21(7), i.e. the provision establishing the obligation to pay the tax in the event of the indication of a consideration or tax in excess of the actual amount.

⁴⁴ In this vein, see Italian Supreme Court judgment No 5568 of 17 June 1996, as well as Tabet 1999: 79.

cedure provided for in Art. 26, a judgment handed down to the parties declaring the contract null and void would be required⁴⁵, as an assessment of nullity out of court would not be sufficient⁴⁶.

In the absence of a declaration of nullity in court, the “user company” would therefore have no choice but to request reimbursement from the “contractor company” (although it would remain exposed to the consequences of the non-deductibility of the VAT paid). The latter, in turn, would have to request reimbursement from the Treasury pursuant to Article 30-*ter* of Presidential Decree 633/1972⁴⁷.

7. Conclusions.

In the light of the above, it is clear that considering a supply of labour as a service contract can have serious consequences, not only in terms of employment law, but also in terms of tax and criminal law.

While such consequences are understandable in cases where this configuration is exploited to reduce labour costs by avoiding taxes, they seem excessive in cases where the “user company” has paid VAT to the “contractor company”, which in turn has paid taxes to the Treasury (and, more generally, in all cases where the “user company” has acted in good faith).

In fact, these are cases in which, on the one hand, there is no concrete damage to the Treasury and, on the other hand, there is not even the specific intent to evade required by Article 2 of Legislative Decree No. 74 of 2000 in order to commit the offence of fraudulent tax return through the use of invoices or other documents for non-existent transactions.

Similarly, the mechanism provided for in Article 30-*ter*, which main-

⁴⁵ See Filippi 1993: 169.

⁴⁶ In this sense Carinci 2001: 711.

⁴⁷ The impossibility of adopting the mechanism of upward variations is sometimes argued by referencing the case-law that has limited this procedure to cases in which “through the examination of the parties’ contractual will and in relation to the factual elements inherent in the phase of the definition and performance of the agreement, the elusive nature of the transaction (absolute sham transaction) or the fraudulent intent of the parties, insofar as it is aimed at dissimulating a subjectively or objectively non-existent transaction emerges” (Italian Supreme Court, 6 November 2013, no. 2492).

tains the recovery of the VAT deducted by the “user company”, with the consequent imposition of heavy administrative penalties and the initiation of the relevant criminal proceedings. Said mechanism also carries the risk that the “contractor company” may not actually be able to repay the VAT, since it has already been paid to the Treasury and can only be recovered if it is first refunded to the “user company”, does not seem entirely satisfactory.

This situation highlights the serious shortcomings of the VAT system and, in particular, the excessively wide gaps in the tax’s operating mechanism, within which there is the risk of not guaranteeing the effective application of the principle of neutrality.

A solution in accordance with applicable law is the definitive recognition of the taxability of cases of unlawful contracting of workers, without prejudice – in line with the case law of the Court of Justice of the EU and the Italian Supreme Court on VAT fraud – to the possibility of recovering the VAT deducted by the “user company” in cases of non-payment by the “contractor company” and knowledge of the fraud on the part of the “user company”. This is a solution that would be in line with the case law of the European Court of Justice on the secondment of workers and the impossibility of automatically considering as “labour costs” what is paid by the “user company” to the “contractor company”. With respect to a possible introduction of new legislation, two possible alternative solutions could be envisaged: on the one hand, significantly reduce the penalties provided for in the event of undue deduction of incorrectly applied VAT (provided that this does not constitute fraud)⁴⁸ and, on the

⁴⁸ Indeed, Art. 6(6) of Legislative Decree No. 471 of 1997, in lieu of a penalty equal to 90% of the tax deducted, provides that “in the event of the application of tax in excess of the tax actually due, erroneously paid by the seller or supplier, without prejudice to the deduction right of the purchaser or principal pursuant to Articles 19 et seq. of Presidential Decree 26 October 1972, No. 633, the aforementioned purchaser or principal shall pay an administrative penalty of between EUR 250 and EUR 10,000. Refund of the tax is excluded if the payment was made in a context of tax fraud”. This provision seems to grant the right to deduct VAT incorrectly paid and deducted: however, the Italian Supreme Court, in its judgment no. 10439 of 21 April 2021, ruled otherwise. According to said judgment, the provision – in so far as it does not affect “the right of the purchaser or customer to deduct” – does not entail that the deduction of VAT unduly paid is legitimate, but should rather be interpreted as “recognition of the right to deduct VAT within the limits of what is due under the abovementioned provisions which, for the rea-

other hand, introduce a mechanism for the adjustment of VAT deductions which would make it possible, by involving both the issuer and the user of the invoice on which the tax was incorrectly applied, to avoid the recovery of the incorrectly deducted VAT in the event that the “contractor company” pays it and waives its right to a refund⁴⁹.

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sons outlined above, do not allow the full amount of the tax paid to be deducted where it is not due in full or in part, and therefore within the limit of the tax actually due by reason of the nature of the transaction carried out”.

⁴⁹ On this subject, see. Comelli 2022: 237, who recalls the invoice self-adjustment procedure.

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FROM THE SAFETY (AND HEALTH) OF PRODUCERS TO THE
(FOOD) SAFETY OF CONSUMERS (AND VICE VERSA).
THE INTEGRATION OF ORGANISATIONAL WELFARE (HU-
MAN AND ANIMAL) PROTECTION IN THE
(SOCIALY SUSTAINABLE) MEAT SUPPLY CHAIN

1. Towards a “real” integrated prevention system. The constitutional reform (Law No. 1/2022).

Thanks to the decisive contribution of European law, which has created a dense network of regulatory provisions included both in the Treaties and in secondary legislation, health protection, particularly the protection of the health of workers and consumers (of food and/or products in general), has reached a high level of harmonisation. This is true in terms of both prescriptions and regulatory models, with the exception of a few sanction provisions that remain distinct. The Constitutional Treaty itself contains a long list of provisions specifically aimed at workers and consumers. In their capacity as European citizens, they are the privileged beneficiaries of an integrated health protection. This protection allows for a significant degree of safety of both workplaces and “products” (Di Lernia 2015: 147 ff.; Donini, Castronuovo 2007: 3 ff.), also through recourse to the fundamental precautionary principle, initially applicable only to environmental issues (Buoso 2022: 275; Genesin 2020: 317 ff.; Malzani 2023: 84)¹. Moreover, the necessarily integrated organisation of

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¹ Although they are separate concepts, there seems to be a quantitative relationship between precaution and prevention. In particular, precaution (for unknown risks) tends

(European) public health systems reveals its greatest potential not in its static dimension, but in the analysis of the dynamic relationships that are activated between the systems themselves. This is true both in terms of the contribution that each of them can make to the achievement of the common objective (improving the public health of citizens) and in terms of the virtuous interplay that can result in a mutual reinforcement of the effectiveness and efficiency of their respective actions.

Recently, the text of the Italian Constitution was amended to include health and the environment, both as primary values and as limits to economic freedom (Article 41, paragraph 2 of the Constitution). As far as the latter is concerned, the explicit reference has been placed even before the previously mentioned values of security, freedom and human dignity. In this way, the Italian legal system has taken a further step towards strengthening a truly integrated strategy for the prevention of risks associated with production (Pascucci 2022: 335 ff.; Rubechi 2022: 57 ff.; Cassetti 2021; Pinardi 2023a:21 ff.; Di Salvatore 2022; Groppi 2023: 459 ff.)².

As is well known, Constitutional Law No. 1/2022, also amending Article 9, introduced a new paragraph stating that the Italian Republic protects the environment, biodiversity and ecosystems, also in the interest of future generations. Furthermore, the Constitution recognises (for the first time) the protection of animals, requiring the law to determine how. We have thus moved from an exclusively anthropocentric view of preventive protection to a more ecocentric/biocentric one, in which the health of the environment is considered not only in relation to human health, but also to the preservation of entire ecosystems. The latter refers to nature itself, including animals, which are still not directly protected

to maximise the scope of prevention (for known risks) to the extent that it inevitably leads to an increase in the employer's liability. Without prejudice to the express reference to environmental protection only, the summary of the Communication from the Commission on the precautionary principle – (COM(2000) 1final) – already argued that the precautionary principle was broader in scope. Furthermore, it found practical application in all cases where, following a preliminary objective scientific assessment, there were reasonable grounds to fear harmful effects on the environment and the health of humans, animals and plants.

² The reform of Article 9 represents the first amendment made by Parliament to the provisions included in the first part of the Constitution, which represent the fundamental principles of the Italian Republic.

as per Article 13 TFEU. Indeed, when defining, for example, agricultural and fisheries policies, this provision calls on states to “take full account of the welfare requirements of animals as sentient beings” (Gjomarkaj 2022: 533 ff.).

We should leave aside any opinion on the value and actual scope of the recent constitutional reform, which certainly does not provide all the expected answers to the complex environmental, climate and food issues at the centre of the current debate. Nonetheless, we must appreciate the attempt to combine the primacy of human beings with an integrated vision capable of providing a unified legal approach to fundamental subjects and values, potentially able to “open the doors” to effective ecological, ethical, environmental and social transition policies (Salomone 2023: 29 ff. Novitz: 2023, 55 ff.; Malzani 2023: 75 ff.; Lombardi 2023: 99 ff.; Tarquinio 2023: 123 ff.; Conti 2023: 143 ff.; Pinardi 2023a: 51 ff.).

2. Food safety and “virtuous contamination” of protection systems: from producer to consumer (and vice versa).

With respect, more specifically, to food safety, the interest of consumers in having safe and quality products (including food) seems to go hand in hand with the interest of workers (engaged in the supply chain) in having safe and decent working conditions. The objective “contamination” between consumer and worker protection outlines a kind of “circular model” in which product safety guarantees cannot really be separated from the effectiveness of the rules that ensure the safety of the process. This is where the focus on workers is fundamental (Toteda, Facciolongo, Nicastro 2009: 98 ff.).

This is not the place to directly investigate to what extent the current “consumer market” (especially the one of large-scale retail trade, to which several articles published in this volume are dedicated, including those by Righini, Freddi, Campanella, Remotti and Lazzari) is really able to impose quality criteria in production processes. Indeed, this also appears from the results of the fact-finding investigation (ic43/2013) carried out by the Italian Competition Authority (see: Inversi 2023: 201 ff.; Faleri 2019a). Nor is it the place to “weigh” how much the negative characteristics of the supply chain subject to the imperative of cost re-

duction really affect the main organisational factors affecting work performance, such as working hours, salary, training, health and safety, and organisational well-being (Dorigatti: 2018, 51 ff.); Canfora: 2018a, 259 ff.; Canfora: 2018b; Campanella, Dazzi: 2020; F. Zecchin: 2017, 1407 ff.; Battistelli, Bonardi, Inversi 2022: 241 ff.; Pinto 2019: 7 ff. With specific reference to network contracts: Lucifero: 2021, 355 ff.; Fontefrancesco, Zocchi: 2023, 85 ff.)³. That notwithstanding, it is certainly worth examining in more detail how the abundant legislation on health and safety at work is inextricably linked to the organisation of the company and requires the implementation of a system providing for the “necessary cooperation” between management, workers and their representatives (general and specific). It also helps to improve the quality of production processes, particularly at the animal breeding and meat processing and distribution stages. It can also contribute, directly and/or indirectly, to improving the quality and safety of food products⁴ (on the role of collective bargaining, starting with social responsibility clauses for the promotion of quality work, see: Bonardi 2023: 177 ff.; Senatori 2019: 593 ff.; Urbisaglia 2022: 223; Credico, Valente, Roesel, Bergamaschi: 2022; Porcheddu, Della Sega: 2023; Leccese: 2018, 254-255; Rovati: 2022; Campanella: 2020, 935 ff. On the role historically played by trade unions in the field of prevention, see: Delaria, Di Nunzio: 85 ff. On the subject of health and safety protection of migrant workers in agriculture, see Calafa, Iavicoli, Persechino 2020: 135 ff.)

The Italian Institute for Insurance against Labour Accidents (Inail) has conducted significant studies on the particular risk conditions (to be assessed and managed) affecting the performance of agro-livestock activities, focusing especially on the presence of biological risks (Pietrangeli:2008, 60 ff.; Fontana:2018, 18 ff.; Inail:2011). Indeed, several factors can favour the development and spread of biological agents in the agro-livestock and forestry sector. These include the type of activity, the work process, the raw materials used, the malfunctioning and poor

³ On the effectiveness of workers’ and producers’ rights, ETUC, *Securing workers’ rights in subcontracting chains. Case studies*, Brussels, 2021.

⁴ European Commission, *Protecting health and safety of workers in agriculture, livestock farming, horticulture and forestry. A non-binding guide to best practice with a view to improving the application of related directives*, Luxembourg, 2015.

maintenance of ventilation systems, the microclimate, poor hygienic-environmental conditions, direct contact with biological animal fluids, and the presence and number of professionally skilled workers.

There are several reasons for the lack of adequate prevention of occupational hazards. Many agro-livestock farms are family-run and struggle to obtain the necessary financial resources, to obtain the support of professionals trained in the management of prevention and to find information/training channels suitable for the best implementation of immunoprophylaxis programmes. Additionally, “individual” factors – such as lifestyles, previous or current pathologies, age and gender – make the subject particularly susceptible to certain types of infections. As such, they do not allow for the activation of standardised health surveillance. This is also true in the face of other significant variables, such as seasonal work, the presence of significant percentages of non-EU workers and/or illegal workers (Inail: 2022a, 7 ff.; Inail 2016. For more see: Calafà, Protopapa 2020: 9 ff; Di Carluccio 2017: 45 ff; Nunin 2017: 614 ff).

Activities on livestock farms expose workers to various types of biological risks mainly due to infections associated with frequent contact with a wide variety of animal species. These are the so-called zoonoses, the definition of which has evolved over the years from the one originally adopted in 1959 by the WHO (which assumes close cooperation between human and veterinary medicine). In addition to ordinary transmissible diseases, zoonoses also include allergic diseases caused by contact with animals or ingestion of food of animal origin, those caused by the use of chemicals (including antibiotic resistance) in food of animal origin, and those caused by snake bites or arthropod stings.

On livestock farms, the close link between biological risk and the health status of the animals is very clear, and operators must pay the utmost attention to this. In particular, they must comply with the regulations in force and make proper use of all the prevention tools available (Inail: 2022b; Inail: 2017).

Indeed, compliance with vaccination and treatment protocols, adequate maintenance of the shelters and timely planning of the operating methods are fundamental prevention factors for the proper management of livestock farms. In particular, excessive housing density, poor hygiene and quality of bedding, injuries due to aggressive or improper behaviour of the operators can increase the risk for animals to contract potentially

transmissible diseases. In particular, as far as the use of antibiotics is concerned, only use that scrupulously respects the limits imposed by current regulations can truly guarantee animal wellbeing. And if the animals are healthy, the food (of animal origin) on our tables is safer, food waste in the supply chain is reduced and the health of farmers, who would otherwise be at high risk of contracting zoonotic diseases, is protected.

Controlling zoonoses is part of biological risk prevention and management and is regulated by the provisions of Legislative Decree No. 81/2008, Title X. These provisions apply to all activities where there is a risk of exposure to biological agents, not only when there is a deliberate use of microorganisms but also in all cases where there is a potential risk of exposure. The activity on livestock farms falls under the latter (under Annex XLIV of the aforementioned Title). Hence the employer's obligation to carry out a risk assessment (pursuant to Article 271 of Legislative Decree No. 81/2008) actually present on the farm and to draw up the risk assessment document.

In addition to biological risks, agro-livestock production is also a particularly stressful activity. The main factors generating work-related stress include: financial constraints, the lack of time to satisfy personal and family life needs, geographical isolation, difficulties in having socially fulfilling relationships, excessive bureaucratic procedures, unfavourable weather conditions affecting the quality and quantity of production, too intense working hours also due to the need to make up for structural deficiencies in the workforce actually employed (Fontana: 2018, 39 ff.; Faleri 2019b. On the assessment of work-related stress, in general: Nunin: 2012; Angelini: 2014; Rosiello: 2018, 1 ff.; Servadio: 2018, 22).

3. Integrated protection system and sustainable development. Decent work.

Considering the whole food sector, the dynamic relations between the various systems of health and safety protection for workers and consumers have a great potential. The perception of such potential is recently appreciated in the context of the intense debate on the concept of sustainable development, in which all its dimensions – the environmental, the economic and the social – are also expressed as strongly integrated

(Speziale: 2021, 494 ff.; Mio: 2021, VI ff.; Bevivino 2023: 479; Faleri 2023c: 545-548)⁵.

For our purposes, reference can certainly be made to the contents of the European Green Deal. Its stated aim is to transform the EU “into a fair and prosperous society, with a modern, resource-efficient and competitive economy”. Among its actions, there is the design of a healthy and environmentally friendly food system. At the heart of the Green Deal is the “*A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system*”, developed in the Communication from the European Commission of 20 May 2020 (COM (2020) 381 final). This document, among other things, recognises that the Covid 19 pandemic itself has certainly contributed to increasing awareness on the many connections between our health, supply chains, consumption patterns, and the health of the planet (Briamonte, Pergamo: 2009). Unfortunately, this strategy does not include, among the sustainable development goals/tools that it clearly pursues – among which the food supply, the safety of the food itself and the improvement of animal safety stand out above all – the due attention to the protection of the health and safety of workers involved in the production, processing and distribution (of food)⁶. This would have been important both as an objective in itself, given the notoriously hazardous nature of agricultural and livestock farming pro-

⁵ As part of a survey conducted by the Italian Institute of Statistics (ISTAT) on the dimensions of sustainability (environmental, social and economic), a significant percentage of our companies stated that they had adopted behaviours to improve the working wellbeing of their workers, to reduce the environmental impact of their production processes and to increase the level of safety both internally and in the territory in which they are located (www.istat.it/it/file/2020/06/Sostenibilita-nelle-impres.pdf).

⁶ Except for a brief reference to paragraph 2.2. *Ensuring food security*, which acknowledges how important it is to “...mitigate the socio-economic consequences impacting the food chain and ensure that the key principles enshrined in the European Pillar of Social Rights are respected, especially when it comes to precarious, seasonal and undeclared workers. The considerations of workers’ social protection, working and housing conditions as well as protection of health and safety will play a major role in building fair, strong and sustainable food systems”. Another important document prepared for the hearing at the Committee on Agriculture and Agri-Food Production by the Advisory Committee “Livestock and Animal Products” of the Accademia dei Georgofili (2 February 2021) on “Livestock farming, environmental sustainability and climate change” bears no explicit reference to the protection of the health and safety of producers/workers.

cesses (with a high rate of occupational accidents and illnesses), and as a strategic resource to support the better achievement of the other shared objectives (on the role that consumers could play in this context, see: Bolognini; 2021, 213 ff.; Mio: 2021, 61 ff.)⁷.

This does not in any way invalidate, nor should it constitute an (awkward) attempt to fail to recognise, the importance of the multi-level structure of the governance of preventive systems for the protection of workers' health and safety. Such importance is apparent both under European Union law and the laws of Member States, thanks to a process of cohesive harmonisation. This was mainly achieved through directives – which have focused on enhancing organisation, intra-company relations and industrial relations – but also through strategic programmes. In the past, doubts had indeed been raised as to whether the European institutions had actually made an effort in this regard, mostly due to a prolonged failure to propose new directives to broaden the risk factors to be considered (Angelini: 2021, 142 ff.; Angelini: 2015, 48 ff.).

However, it is hard to dispute that the governance of workers' health and safety prevention systems has achieved a stable (and appreciable) structure. Indeed, it could be even considered as a model for the implementation of policies or socially relevant principles. Rather, the recent sustainability programmes appear to represent an old issue that is especially evident when the European dynamics of political, institutional and social integration are at stake. Indeed, they call for increasingly broader, shared and participatory decision-making processes, which are the only ones truly capable of ensuring the best composition and optimal balancing of all the powers and interests involved (Angelini: 2021, 155-156).

With specific regard to work sustainability, only a job that is truly decent can really guarantee it! Moreover, providing an appropriate description of decent work is not particularly difficult, as we have both the definition and the contents included in the ILO *Decent work Agenda* (Biasi 2022: 1 ff.; De Mozzi, Mechi, Sitzia 2019: 1 ff.; Borzaga 2021: 221 ff.; Hepple 2001: 5 ff.; Maupain 2005: 439 ff.). Indeed, since 1999, the Organisation's strategic objective has been to provide a universal and

⁷ The main initiatives under the "Farm to Fork" strategy are the strengthening of organic farming, the preparation of plans to secure the food supply and the security of international trade.

shared definition of decent work, accompanied by reliable indicators through which to assess the actual conditions of freedom, equality and security in which the work is performed (Angelini: 2019, 290, De Simone 2019: 633 ff.)⁸.

Decent work has since become some kind of universal paradigm, broken down into four functionally interconnected pillars, *i.e.*, freedom of choice, promotion of workers' rights, social protection and social dialogue. Its ethical-legal basis is represented by the rights of workers as recognised by laws and contracts (Maupain 2020: 291 ff.; Maupain 2009: 823 ff.; Hepple 2005); De Mozzi, Mechi, Sitzia 2019: 28)⁹. Obviously, these include protective provisions on the maintenance of health and safety conditions which create specific obligations for employers (starting with Article 2087 of the Italian Civil Code). Furthermore, they include the risk assessment in the workplace (including those of a psycho-social nature from work-related stress, pursuant to Articles 28, 29 of Legislative Decree No. 81/2008), especially when they concern groups of highly vulnerable, weak and fragile workers due to their pregnancy, gender, age, origin from other countries, and contract type.

Therefore, it can be safely said that the regulations on the protection of workers' health and safety have strengthened the tools provided to protect the dignity of workers. In particular, they have a significant

⁸ As far as the promotion of decent work conditions is concerned, the United Nations, through the UN 2030 Agenda, and the ILO, by implementing the principles contained in the Decent work Agenda, have shared the role of main guarantors for their concrete achievement. While the ILO has contributed to outline of some of the goals of the UN Agenda (in particular no. 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all), the implementation of the 2030 Agenda is similarly conditioning (in a positive way) ILO's action. This not only thanks to its natural "bending" on its contents, but above all committing the Organisation to deploy its proven "global governance" and its undoubted capacity to enhance local/territorial projects and partnerships.

⁹ The importance of confirming the connection between dignity and rights was also strongly emphasised by the *Declaration on Social Justice for a Fair Globalisation* approved by the ILO in 2008. This document focuses specifically on the consequences of globalisation processes on forms of production and work organisation, which have fuelled truly downward drifts with respect to the rights previously recognised. The ILO Centenary Declaration (2019), while confirming again that work is crucial, proposes a compelling plan focused on investing in human resources and labour market institutions to ensure adequate wages, limited working hours, safety and health and fundamental (labour) rights.

impact on company organisation, so that the latter must adapt to the fundamental needs of workers and not the other way around. This was achieved by enhancing social dialogue, both through concretely involving workers and their representatives in production dynamics and company decisions – always by recognising rights, particularly information, consultation and participation rights – and by recognising the role assigned to business owners and management. Indeed, the latter must decipher the complexity of doing business by ensuring the full human and professional realisation of the people involved in production processes.

Ultimately, it is a matter of identifying an approach that can best serve, also in the long term, the reasons for work and the economy and achieve a fair and sustainable balance between the opposing interests of work and business, in a common context. Such context requires ecological protection of the planet and its extinguishable resources, where growth is measured on the ability to ensure the provision of all the tangible and intangible assets necessary for the well-being and quality of individual and collective life.

The case of the *Humus* network contract (a national network, but organised in territorial groups) is particularly interesting with regard to the issue of sustainable work. Its goal is to create a virtuous model of cooperation between “ethical” agricultural undertakings that, while maintaining their independence, autonomy and speciality, allows them to implement projects, pursue objectives and socialise services. The Network is based on the respect for the environment, social, environmental and economic sustainability, but also on the alliance between producers and consumers, all of whom are committed to achieving a cultural change in the perception of quality agricultural work. This is done without damaging small producers, protecting the health of consumers, enhancing sustainable work and by ensuring human and social rights, animal welfare and environmental safety. Respect for such values constitutes an unavoidable commitment. Indeed, membership of the network is subject to the companies formally signing a set of disciplinary rules, mainly focusing on contractual compliance and respect for the dignity of the workers employed. This entails combating illegal/irregular labour and all possible consequences of “gangmaster systems”. Additionally, these rules require the application of protective legislative provisions and provisions included in collective bargaining agreements and, for our purposes, of all the

regulations protecting the health and safety of workers. Particular care is required to ensure workers access to the necessary training, the availability of suitable hygiene and sanitary infrastructures, as well as accommodation premises and canteens (Paoloni 2020: 657 ff.)¹⁰.

4. From animal welfare to worker welfare (round trip).

The protection of the health and safety of workers provides a fundamental contribution in ensuring an effective and correct *one-health* approach – which, above all, should abandon any absorbing anthropocentric connotation – in the processes aimed at preventing any risk to food safety throughout the supply chain (on which we will elaborate further). That being said, we can already point out the prominent place of animal welfare with respect to the completeness of this approach. Indeed, ensuring that animals are in good psycho-physical health is the best guarantee for the safety and quality of the food derived from them (Balduzzi, Favretto: 2022)!

The guarantee of adequate animal welfare, however, goes beyond the albeit essential sphere of control of contamination caused by the use of drugs in livestock farming – in particular, antibiotics and hormones (Leone, Torre: 2020, 1143 ff.; Inail: 2022b) – or verifiable in the production of animal feed, as in the final stages of the supply chain (those of slaughtering, processing and distribution of meat). Rather, it must extend to include everything that can actually support the realisation of more favourable conditions (Stefanon, Pirisi, Farinacci, Sgorlon, Nudda: 2005, 83 ff.; Macrì: 2017, 89 ff. On the extent to which animal welfare can

¹⁰ All documents can be found by accessing the Humus job site(<https://humusjob.it/>). On this topic, also see the website of the French inter-professional organisation Interbev(www.interbev.fr), paying particular attention to the document “The French meat and livestock industry committed to sustainable development” (2017). In line with the sustainable development goals of the UN 2030 Agenda, through the signing of the “Pacte pour un engagement societal”, the Interbev Organisation expresses its commitment to the sustainability of the meat and livestock sectors. This includes enacting measures on the environment and territory, animal welfare and protection, fair remuneration for operators and the promotion of their professionalism, as well as ensuring quality, healthy and sustainable products.

really affect consumers' purchasing choices, Miele, Parisi: 2001, 81 ff.)¹¹. Likewise, it is necessary to reflect on how animal welfare interacts with the organisation of work during the different stages of the production chain¹² (Mauro: 2023, 122 ff.)¹³ – in particular, how much it affects the very welfare of the workers involved in breeding and meat processing (In this sense, Bernardi, Capri, Pulina: 2018, 155 ff. Regarding the effects that intensification of livestock farming may have on the interaction between animals and their caregivers, Musto: 2003, 3 ff.). Moreover, when making purchasing choices, food consumers tend to pay more and more attention to animal welfare, considered in the context of a production chain that enhances its sustainability thanks to a focus on the environment, on the protection of labour relations (the protection of workers' health and safety, *first and foremost*) and product quality (Miele, Parisi: 2011, 81 ff.; Paoloni: 2020, 635; Canfora, Lecce: 2021, 39 ff.)¹⁴.

With respect to the complex international and European regulatory framework on animal welfare, which we cannot fully outline here (Mauro: 2023, 99 ff.; Gjomarkaj: 2022, 511 ff.), the most widely held view is

¹¹ Slow Food's position paper is particularly interesting as far as the management of livestock farming is concerned: Slow Food 2022.

¹² The protection of animal welfare entails the provision of duties imposed first and foremost on the breeder. Indeed, the law uses animal welfare as a tool to regulate livestock farming and better take into account the expectations of institutions and the public. In this sense, organic certification, which raises the minimum standards of protection, can also play a relevant role. Several studies have recognised the importance of the farmer's managerial skills in addressing animal health and welfare issues. The characteristics of farmers that can have a positive impact on animal welfare standards include their knowledge and ability to use the best processing techniques, their motivation and overall satisfaction with a job well done.

¹³ The various European regulations progressively enacted to protect animal welfare have inevitably affected the development dynamics of farmers' business organisation. In a nutshell, after an initial directive of general scope on the protection of animals kept for farming purposes (Dir. 1998/58/EC), several specific regulations came into force to ensure the welfare of laying hens (Dir. 1999/74/EC), chickens (Dir. 2007/43/EC), calves (Dir. 2008/119/EC), and pigs (Dir. 2008/120/EC). Animal welfare has also been given substantial consideration in the organic agriculture regulation, whose standards are certainly more demanding than those for general livestock farming (Reg. EU 2018/848).

¹⁴ Experts point out how consumers, in their increasing awareness of the need for a sustainable agro-food supply chain, believe that labour matters also contribute to its realisation. Additionally, they are also willing to recognise the added value which ethical certification itself can provide to the production process (legal labour, respect for workers' dignity and health, responsible behaviour of the producer).

that it is outdated, it contains too many exceptions which are expressed too vaguely, and is unable to ensure specific guarantees and adequate levels of protection. The European Parliament recently expressed this position in a communication of 16 February 2022, in which it asked the European Commission to make proposals for a revision of the rules governing the protection of animals during farming. In particular, the communication focused on a ban on cages by 2027, an increase in the space available for animals, a ban on the systematic slaughter of chickens and the stunning of fish. Unfortunately, the intention, that the Commission itself has expressed on several occasions, has been to regulate only (at least for now, i.e. by 2023) animal transport, but not on the modes of breeding and slaughter. Indeed, the situation of member states in these respects is characterised by considerable complexity and marked fragmentation.

On the specific subject of the professional welfare of livestock farmers, to be assessed in the context of the growth of production activity and, above all, the welfare of the animals, the results of a recent survey are available. It collected the opinions of 914 Norwegian farmers who were asked to report on their quality of life, work situation and psycho-physical health. The analysis describes the welfare and work-related stress condition of dairy farmers engaged in milk production and investigates in depth the connection between worker and animal welfare through the use of several indicators defined in the international standard set by the Norwegian Animal Recording System (Hansen, Østerås: 2019).

The findings of this research confirm the existence of a strong link between farmer/breeder welfare and animal welfare. Indeed, high operator welfare and low levels of work-related stress generate positive effects on key animal welfare indicators. Satisfaction with the income conditions, the motivation to profitably continue the breeding business and its possible improvement are also factors that can be positively associated with the consolidation of improved welfare conditions of producers (and animals: Musto: 2003, 6 ff.)¹⁵.

¹⁵ Indeed, some issues are due to the insufficient knowledge of ethological principles or, in any case, to the failure to comply with them, undoubtedly also because of the inadequate “cultural” background of the workers employed in the care and breeding of animals. In this respect, it would certainly be appropriate for them to receive more assi-

The contents of another research conducted by a group of scholars from the University of Zaragoza on workers engaged in animal slaughter are similarly interesting (Pastrana-Camacho, Estevez-Moreno, Miranda-de la Lama: 2023). Their aim was to profile the workers based on their attitude towards the animals, their way of managing them and their overall perceived job satisfaction. The survey involved 171 workers employed in 12 Colombian pig slaughterhouses. It led to identify different profiles, referring distinctly to workers who relate to the animals and their work in a mechanical way, to workers who are emotionally close to the animals, and to workers who are scarcely involved with both the condition of the animals and the work as a whole. Thus, the human-animal relationship in the context of slaughter also takes on very different forms. It is influenced by both satisfaction with the work actually done and the degree of empathy felt for the animals being treated¹⁶.

The study confirms that work in slaughterhouses is characterised by high staff turnover, frequent absenteeism, strict disciplinary measures and demanding working hours. These factors can generate strong psychological pressure leading to high work-related stress, burnout and post-traumatic stress (Lebwohl: 2016); Di Fiore: 2021). These conditions can result in anxiety, irritability, sadness, fatigue, disinterest and attitudes of excessive acceptance of violence in handling animals. The latter can aggravate the stress suffered, brought about by the perception of a threat to which they instinctively react. Moreover, as far as the slaughter of pigs is concerned, the very nature of these animals constitutes an additional challenge for the operators. Indeed, they are particularly complex from a cognitive point of view, besides being emotionally excitable and vocally expressive “sentient beings”. They are highly exposed to potential stress factors related to fear and pain caused not only by human presence and

stance from experts, to have targeted information available and to participate in specific training activities capable of simultaneously increasing organisational well-being and productivity.

¹⁶ Only a few studies had so far examined human-animal interactions in depth from the workers’ point of view. Additionally, when the focus was on animal welfare, the surveys had only covered aspects relating to the influence of farmers’ behaviour on certain pre-slaughter processes. Based on these premises, this specific research on slaughterhouse workers chose to focus on the management practices adopted and the types of human-animal relations that can be established in that very special context, profiling workers according to their individual attitudes.

action, but also by changes in their thermal microenvironment, weather conditions, food and water deprivation, and conditions experienced during transport.

5. The integrated safeguards in management systems and models.

Legal scholars, when analysing Legislative Decree No. 81/2008 in a difficult attempt to identify the legal basis of a prevention system integrating the environment inside and outside the company (Lassandari: 2022, 7; Lazzari: 2020, 136 ff.; Malzani 2023: 81 ff.; Pascucci 2023: p. 46 ff.; Tiraboschi 2022: p. 148 ff.) admitted that, from a formal point of view, companies continue to be confronted with autonomous and distinct regulatory apparatuses. That being said, it has been acknowledged that environmental protection and occupational safety are somehow integrated. This results, in particular, from the method used by the company to correctly apply legislative provisions. This involves the adoption of management systems/models that, sharing the same inspiration and approach – with regard to traceable procedures and processes, monitoring of the system’s implementation path and adoption of appropriate corrective measures in the event of critical issues – can (only) by virtue of this effectively integrate with each other, producing effects also within the scope of administrative corporate liability under Legislative Decree No. 231/01 (Pascucci: 2022, 343 ff.; Pascucci: 2021, 537 ff.; Di Nunzio: 2012, 178 ff.)¹⁷.

In this specific respect, systems and organisation and management

¹⁷ For environmental safety management, most companies apply the UNI EN ISO 14001:2015 standard. Management system methodologies have been extensively tested in the context of occupational safety, starting with the UNI-INAIL Guidelines of 2001 and including the British Standard OHSAS 18001: 2007, up to the current UNI ISO 45001: 2018. Recently, in 2023, Inail published the new *Guidelines for the monitoring and assessment of the risk of the commission of offences relating to health and safety at work referred to in Article 25 septies of Legislative Decree No. 231/01* (drawn up in compliance with UNI ISO 45001:2018): they follow an approach compatible with the steps required to obtain certification and adopt an organisational and management model that meets the requirements of both Legislative Decree No. 231/2001 and Article 30 of Legislative Decree No. 81/2008. The aim is undoubtedly to assist companies in identifying the most appropriate ways of correctly organising safety. This is achieved by creating a model that is as adequate as possible to the organisational context, capable of evolving

models are not *exactly* the same. This is apparent from a reading of Article 30 of Legislative Decree No. 81/2008, which excludes administrative liability where the company proves that it has adopted and effectively implemented a management and organisation model which ensures that all main legal obligations laid down by the aforementioned decree are complied with. Furthermore, the model must envisage adequate systems for recording the performance of activities, an articulation of functions that guarantees the technical competences and powers necessary for the identification, assessment, management and control of the risk and an appropriate disciplinary system to sanction non-compliance with the measures. Finally, it should provide a control system on the implementation and maintenance of suitability conditions over time (on the use of the management and organisation model for the protection of the health and safety of migrant workers, see Peruzzi 2020: 135 ff.).

For the purposes of our study, it is especially interesting to consider that, considering their nature and functions, all management systems (regardless of their objectives) are applicable to any organisation (regardless of size, type and nature) and that their effectiveness requires careful consideration of the characteristics of the specific (organisational) context in which they will be implemented. A single common approach must be used, *i.e.*, risk-based, thanks to which all relevant external and internal factors can be identified with respect to the objectives pursued (Pascucci: 2022, 347 ff.)¹⁸. Thus, the prevention ensured by management systems is planned and organised in compliance with the international regulations specifically applicable to them. Indeed, it is by its very nature a prevention subject to “ontological” integration, particularly with respect to how the most strategic company policies are addressed and managed (Lazzari, Pascucci: 2023, 47-48)¹⁹.

and changing with it, and making it a strategically functional “tool” for reducing the accidents and improving the overall management of company business.

¹⁸ In this sense, the role of top management is crucial. It must clearly establish the system’s policy and objectives and ensure that they are compatible with the strategic business guidelines, the organisational context and the availability of the resources necessary to achieve the expected objectives in a logic of continuous improvement.

¹⁹ Management systems could constitute an interesting response to the suggestion resulting from the new wording of Article 41 of the Constitution. Indeed, it requires companies to adopt, right from the establishment of their organisation, principles/methods that prevent upstream the occurrence of injuries to health and the environment,

Besides, integrated prevention of management systems is not only possible, but also easily achievable. This is thanks to the envisaged “common” and, above all, cost-effective structure. Integrating quality, environment and health and safety systems avoids duplication, improves efficiency by rationalising and streamlining management, and standardises procedures²⁰. In addition, it prevents or eliminates possible conflicts between separate regulations, creates synergies with respect to multiple management steps (information, training, recording), unifies improvement objectives, outlines decision-making criteria and implementation programmes, engages human resources and raises the company’s rating *vis-à-vis* the market, customers and all stakeholders.

As is well known, a specific international standard for food safety management throughout the entire supply chain exists in the agri-food sector²¹. These are the ISO 22000:2005. They provide for the evaluation and proof of product conformity in relation to safety through the control of potential food safety hazards, with a focus on consumer satisfaction. Besides greatly assisting in applying the HACCP system for food hygiene, ISO 22000:2005 is perfectly compatible with ISO 9001:2008 (Quality) and (consequently) with all other international standards, which have already been established as integrable. In addition, the ISO 22005:2008 system for food and feed traceability must be considered (Peira, Soster: 2016; Guidi, Albonetti: 2011, 291 ff.)²².

In light of the above, with respect to the arguments made above on

consistently with the organisational philosophy underlying Article 2086 of the Italian Civil Code.

²⁰ The “common structure” concerns all ISO standards: 9001 on quality, 14001 on the environment, 45001 on occupational safety, but also, with respect to the agri-food sector in particular, 22000:2005 and 22005:2008.

²¹ The ISO 22000:2005 standard is intended for producers of (animal) feed and raw materials, food manufacturers, transport and storage operators, and retail suppliers, as well as manufacturers of machinery, packaging materials and cleaning supplies.

²² ISO 22005: 2008 transposes the Italian standards UNI 10939:01 (traceability system in agri-food supply chains) and UNI 11020:02 (traceability system in agri-food companies). Regarding the implementation of an Environmental Management System (EMS) compliant with the international standard UNI EN ISO 14001:1996 in pig farms in the Umbria Region, see the *Guidelines for the implementation of the ISO 14001 Environmental Management System in pig farms* developed by the Umbria Regional Agency for Development and Innovation in Agriculture (A.R.U.S.I.A.), the Umbria Regional Environmental Protection Agency (A.R.P.A.) and the Umbria Region.

the importance of strengthening the integrated framework of public health protection (derived by European law), the results so far seem to confirm how strategic (with respect to the achievement of this objective) it can be to promote and enhance the use of integrated management systems for quality, the environment, worker safety and food safety²³. This is perfectly consistent with the need to enhance a correct holistic approach to health, which guarantees a harmonious balance of each person with respect to the environment in which they work and live (on the holistic concept of health, cf. Aperio Bella 2022; Balduzzi, Favretto 2022; Latino 2022; Angelini 2024). This is in accordance with the far-sighted intuition that had inspired the 1978 health reform (establishing the National Health Service), in which a global concept of health is envisaged, to be applied “without substantial variations wherever each citizen expresses and develops their personality” (Pascucci, Angelini, Lazzari: 2015, 621).

6. Possible means to protect security other than hard law.

While it is true, as scholars have repeatedly affirmed, that effective safety derives from adequate company organisation (Montuschi 1989; Pascucci: 2011, 19 ff.; Natullo: 2015, 20 ff.), it goes without saying that an integrated prevention system, such as the one outlined so far, cannot merely apply legal provisions, which have a rigid and pre-established content. Rather, it must take into account “techniques, both voluntary and not, capable of improving the efficiency of corporate prevention systems” (Pascucci: 2017, 27 ff.).

This is all the more so in the meat sector, where food law, characterised by a complex set of national, Community and international regulations aimed at protecting the end consumer, seems to have overcome the limit of provisions imposed by external authorities, recognising more and more room for soft law regulatory techniques (Morrone 2022). On

²³ See, for example, the Sgi-Ae Inail Guidelines of 2021 on the Integrated Management System for Health, Safety and the Environment in Energy Companies, which, starting from the UNI ISO 45001 certification standard, assert that different management systems (for health, safety and environmental protection, in particular) should be integrated, emphasising both the overlapping of procedures and the similarity of topics and legal assets protected.

the other hand, it is well known how European food safety legislation not only includes provisions on production, but also preventive rules concerning the way of doing business and its organisation (Torre: 2014, 507 ff.).

In this respect, typically managerial tools such as organisational and management models and occupational health and safety management systems are particularly relevant²⁴. Furthermore, promotional mechanisms – such as rules of conduct and practices in use, disciplinary rules and codes of ethics – often also referred to within organisational and management models and management systems themselves, which are functional to safety in its dual meaning of protection of labour and consumer protection, are also relevant (Barboni, Bizzarro, M. Giovannone, Pasquini, Tiraboschi: 2009, 7 ff.; Benatti: 2015, 253 ff.).

In a logic of corporate social responsibility involving the entire supply chain, the question arises as to whether these techniques are capable of reflecting a company's real ability not only to produce a safe product, but also to build a safe environment for its workers, helping to strengthen the company's organisational system. In other words, and as will be seen below, in the context of a reflection focused on the actual effects of these techniques, we ask ourselves whether, and to what extent, they become a valid tool for improving the fairness, transparency and sustainability of the meat industry in the face of a fragmenting or (less frequently) aggregating business. The consequences could be beneficial for workers, consumers and product quality.

7. The Italian Consolidated Law on Safety and the tools of corporate social responsibility.

As said above, the Italian Consolidated Law on Safety is rather broad with respect to protection models. Indeed, it refers to corporate social responsibility (CSR), which is defined by Article 2, paragraph 1, letter ff

²⁴ In addition to organisational and management models, Article 30, para. 5 of Legislative Decree No. 81 of 2008 expressly mentions health and safety management systems developed and, in some cases, certified by private bodies and organisations, the 2001 UNI-INAIL guidelines and the British Standard OHSAS 18001:2007.

of Legislative Decree No. 81/2008 as “the voluntary integration of the social and ecological concerns of companies and organisations in their business activities and in their relations with their stakeholders” (Ricci 2006: 459 ff.; Sitzia, Segà 2011: 251 ff.). Additionally, the Italian Consolidated Law on Safety also refers to the concrete application of CSR, through appropriate tools such as best practices (Article 2, paragraph 1, letter v), trade union agreements, codes of ethics and conduct (Article 6, paragraph 8, letter h) and organisational and prevention models (Article 30) (Capece: 2009, 1026 ff.).

These tools can be implicitly traced back to Article 2087 of the Italian Civil Code, when the rule requires employers to “keep up to date and take into account the findings of technical and scientific research having a sufficient margin of soundness, experimentation and effective possibility of knowledge beyond scholars, considered in their strict sense” (Smuraglia: 2002, 190 ff.; Tullini: 2010, 37 ff.; Vincieri 2017.). According to this provision, employers, in fulfilling their general prevention duty, must choose the most appropriate solution to address a specific risk situation, including the possible adoption of measures that may not be explicitly mentioned in the law but are commonly used in manufacturing practice.

In this perspective, as long as they are consistent with the currently applicable legal provisions on safety at work, the tools in question can be considered “criteria for measuring the due performance of the contract and, in particular, the level of diligence applied in protecting worker’s psycho-physical integrity” (Tullini: 2010, 37 ff.).

This is particularly true in the meat sector. Indeed, the coexistence of several competent bodies requires tools aimed at constantly adapting the business to scientific and technological progress (Montuschi: 1995, 405 ff.; Romei: 1997, 64 ff.; Natullo: 2008, 77 ff.).

Within this framework, Article 2, paragraph 1, letter v, of Legislative Decree No. 81/2008, defines best practices as “organisational or procedural solutions in accordance with the regulations in force and with the standards of good practice, adopted voluntarily and aimed at promoting health and safety in the workplace through risk reduction and the improvement of working conditions”. Best practices are drafted and collected by the Regions, Inail or joint bodies. Once validated by the Permanent Advisory Commission on Health and Safety at Work, they are publicly disclosed and, therefore, may be potentially applied to different

work contexts and industrial sectors (Berti, Salvato: 2009, 503 ff.). An example can be found within the meat industry, in the processing sector. The “Impresa Sicura” multimedia project was prepared by the Bilateral Agency for Craftsmanship in Emilia-Romagna (EBER), the Bilateral Agency for Craftsmanship in Marche (EBAM), the Marche Region, the Emilia-Romagna Region and Inail, and was validated by the Permanent Advisory Commission as a best practice on 27 November 2013. Its focus is on the different steps of meat processing, highlighting the safety risks present in the sector, from repetitive movements to microclimate to exposure from biological agents. Furthermore, it outlines the main pathologies, as well as the measures to be taken in order to plan, organise activities and define working methods, with a view to integrating manufacturing and prevention requirements (work organisation, environmental factors, etc.)²⁵.

Also taking into account the occupational and economic weight of meat processing within the agro-food sector, the project emphasises the importance of safety in a twofold sense: the safety of workers during manufacturing and processing, in line with the provisions of Legislative Decree No. 81/2008, and food safety, *i.e.*, the procedures ensuring full compliance of the product with the provisions of Legislative Decree No. 155/1997 as subsequently amended and supplemented (food hygiene). Therefore, guaranteeing food safety on the product without complying with general work safety regulations is impossible.

When best practices are not validated, they cannot be disclosed to the public and are prevented from becoming a generalised (implicit) duty on the employer with respect to their adoption (Berti, Salvato: 2009, 503 ff.). Nevertheless, best practices certainly have a positive impact on promoting preventive protection within companies, as they make it possible to constantly and extensively monitor their preventive action (Sammacco: 2009, 514 ff.). This is confirmed by the fact that such practices are mentioned in the risk assessment documents themselves²⁶. In this sense,

²⁵ The best practice under review can be found on the website of the Italian Ministry of Labour and Social Policy, at <https://www.lavoro.gov.it/temi-e-priorita/salute-e-sicurezza/focus-on/buone-prassi/pagine/buone-prassi-validate-dalla-commissione-consulti-va-permanente>.

²⁶ The Consolidated Law itself creates a connection between risk assessment and best practice. Indeed, under Article 181, paragraph 1, employers, in assessing all risks

a more frequent combination of best practices in both occupational and product safety would be desirable.

The aforementioned codes of ethics and conduct, as well as trade union agreements, are also part of the same framework. The Consolidated Law involves trade unions and employers in several instances to enter into trade union agreements to improve protection against accidents (Salvato 2009). Given the limited number of trade union agreements, company collective bargaining should play a proactive role.

In contrast, codes of conduct are frequently adopted by meat companies, particularly the largest ones.

These mainly contain policy statements and/or references to legislative provisions extending compliance with the same safety standards to related suppliers, governmental entities and third parties. However, it often remains unclear how these should be enforced, and whether any sanctions apply in case of violation. For example, see the code of ethics adopted by the joint-stock company Inalca, operating in the meat slaughtering and processing sector, the code of ethics implemented by the Salumificio Fratelli Beretta s.p.a., or the Levoni group, which includes a number of companies specialised in the slaughtering and cutting of pork. Although having substantial and articulate contents, they contain little provisions on implementation and control methods concerning the fulfilment of the commitments made²⁷.

While these tools certainly combine work safety guarantees and standards with the quality of manufacturing processes, some doubt remains as to their effectiveness.

arising from exposure to physical agents, are obliged to take into account the rules of good technical practice and best practice in order to adopt the most appropriate prevention and protection measures. Additionally, Article 168, paragraph 3 provides that, if the aforementioned rules of good technical practice are not applicable, “reference may be made to best practice and guidelines”.

²⁷ For Inalca, <https://www.inalca.it/it/codice-etico-e-di-condotta-commerciale/>; for Fratelli Beretta <https://www.fratelliberetta.com/wps/wcm/connect/www.fratelliberetta.com-26416/7d9bc9ec-22c2-4ca2-b831-2b9bff202538/Codice+Etico+e+di+Comportamento+vs+2.0.pdf?MOD=AJPERES&CVID=o6m6R0m&CVID=kRml7Br>; for the Levoni Group https://www.levoni.it/ContentsFiles/Codice%20Etico%20e%20Comportamentale%20231%20Gruppo%20Levoni_REV1.pdf.

8. Food companies *vis-à-vis* organisation and management models.

With a focus on protocols, codes of ethics and best practices, CSR can also be an effective promotional tool in relation to the activation of organisational and management models under Article 30 of the Italian Consolidated law on Safety at Work. Subject to effective implementation and constant monitoring, these models may be taken into account to exclude corporate administrative liability under Legislative Decree No. 231/2001, in relation to many different offences (Amati 2007; Presutti, Bernasconi, Fiorio 2008; Corso 2015.). With regard to manslaughter and injuries due to negligence committed in breach of accident prevention legislation, in order for an organisational and management model to exclude liability, it must be as comprehensive as possible and ensure a company system that complies with the relevant legal obligations, pursuant to Article 30, paragraph 1, of Legislative Decree No. 81/2008, as well as with the requirements identified pursuant to Article 30, paragraphs 2-4, of the same²⁸. Based on this structure, the organisation and management models represent tools potentially attentive to the company's organisational structure and the organisational structure of safety at work. This is especially true as they include specific solutions that are innovative and additional with respect to those provided by law, such as those outlined in the previous paragraph. In addition to protocols of conduct, codes of ethics and best practices aimed at implementing the principles of legality and fairness of the company, organisational and management models can also contribute, from a compliance-oriented perspective, to developing and conveying better solutions with respect to the safety organisation of the company itself, taking into account the specific needs and characteristics of the relevant manufacturing sector (Peruzzi: 2016, 135 ff.).

Indeed, as stated in the organisational and management model of one of the most representative companies in the food industry, Fratelli Ber-

²⁸ Reference is made to the creation of adequate systems for recording the performance of the various activities, to the organisation of functions that guarantee the technical competences and powers necessary for the verification, assessment, management and control of the risk, to a disciplinary system suitable for sanctioning non-compliance with the measures provided under the model, and to the establishment of an appropriate control system concerning its implementation and the maintenance, over time, of the conditions of suitability of the measures adopted.

etta s.p.a., the adoption of the model is subject to a series of preliminary activities, tailored to the specific nature of the sector, such as the examination of the company context, the analysis of the organisation and manufacturing processes, and the identification of areas of activity and company processes at “risk of offences”²⁹.

While management and organisational models appear on paper to be effective, some doubts arise as to their actual implementation. On the one hand, it is still unclear what characteristics they must have to effectively impact their context of reference, given that Legislative Decree No. 231 does not offer many indications as to their suitability criteria (Campanella: 2022, 20 ff.)³⁰. On the other hand, the question arises as to whether the set of protocols contained in organisational and management models can be combined with each other. Indeed, the amount of offences liable to give rise to corporate administrative liability and the potential protocols aimed at ensuring their prevention from the risk of being committed is large, and they often lack coordination.

Without prejudice to the mandatory minimum content of organisational, management and control models laid down in Articles 6 and 7 of Legislative Decree No. 231/2001, to which companies cannot derogate, it would be desirable to set up an organisational model tailored to the peculiar characteristics and needs of the food business. In this regard, currently, in the food sector, it should be noted that only certain offences can entail corporate liability pursuant to Legislative Decree No. 231/2001³¹. These offences are established to protect public economy or trade, while food offences in the strict sense of the term under the

²⁹ See, https://www.fratelliberetta.com/wps/wcm/connect/www.fratelliberetta.com-26416/704badf8-ce5b-4fd9-96c9-363335c23527/Salumificio+Fratelli+Baretta_Modello_Organizzativo_231_Parte_Generale.pdf?MOD=AJPERES&CVID=o6m6BYg&CVID=o6m6BYg.

³⁰ The author believes that this issue would also give rise to several problems in court as, according to a majority opinion, the uncertainty is such as to discourage companies from adopting them.

³¹ The reference is in particular to: trade fraud (Article 515 of the Italian Criminal Code); sale of non-genuine foodstuffs as genuine (Article 516 of the Italian Criminal Code); sale of industrial products with misleading signs (Article 517 of the Italian Criminal Code); counterfeiting of geographical indications or designation of origin of agri-food products (Article 517-querter of the Italian Criminal Code).

food hygiene framework law³² and offences causing a general danger by fraud, damaging public health, under Article 439 ff. of the Italian Criminal Code are still not included (Mongillo: 2017, 300).

For our purposes, the preventive and incentivising role of organisational and management models would be more effective if “the issue of safety at work in relation to the protection of migrant workers” was considered (Peruzzi: 2016, 136 ff.).

Indeed, it is well-known that, in sectors such as the agro-food industry, of which meat represents a significant segment, the percentage of foreign workers is very high. This makes it all the more necessary to adopt organisational measures specifically aimed at the integration of these workers, taking into account aspects such as their origin, language, and socio-cultural features (Di Carluccio 2017).

Following a similarly “protective” rationale, Parliament in 2016 decided to include, among predicate offences entailing corporate administrative liability under Legislative Decree No. 231/2001, also the offence pursuant to Article 603-*bis* of the Italian Criminal Code, i.e. illicit intermediation and labour exploitation. Thus, an offence mainly focused on individuals was transformed into an offence potentially applicable to many diversified activities (Torre: 2020, 73 ff.). Several national and international studies show that illicit intermediation and labour exploitation mainly involves foreign workers who are not only illegally staying in Italy but also appear to be legally staying in Italy (Viscomi: 1992, 117 ff.; Calafà: 2009, 29 ff.; De Mozzi: 2012, 34 ff.; Drahoukoupil 2015).

However, in the absence of specific provisions concerning the development of organisational, management and control models by Law No. 199/2016, it is not clear what content they must have in order to effectively prevent the offence under Article 603-*bis* of the Italian Criminal Code and allow the obtainment, at trial, of an exemption in accordance with Article 6 of Legislative Decree No. 231/2001.

With a view to drafting and updating organisational and management models, the role (broadly understood) of exploitation indices should be emphasised in order to ensure compliance with employment law³³.

³² See Law No. 283 of 30 April 1962, specifically Articles 5, 6 and 12.

³³ The exploitation indices mentioned in the Article 603-*bis* of the Italian Criminal Code are as follows: 1.) repeated salary payments in a manner manifestly inconsistent

While the latter are not clearly defined, with the aim of drafting and updating the model, the index referring to compliance with preventive regulations plays a fundamental role. In this perspective, the prevention of the offence referred to in Article 603-*bis* of the Italian Criminal Code “may represent the real point of contact between organisational and management models pursuant to Article 30 of Legislative Decree No. 81/2008 and the organisational, management and control models pursuant to Article 6 of Legislative Decree No. 231/2001, urging more and more employers adopt integrated models, i.e. to manage risks relating to different areas (corporate, health and work, environment, tax, anti-corruption, etc.) within the framework of the same system of precautionary rules and under the control of a single body (SB)” (Campanella: 2022, 25 ff.).

Otherwise, as has been argued, it would not be possible “to fully appreciate the possible points of contact between the prevention models of the types of predicate offence under consideration” (Peruzzi: 2016, 146 ff.). Following the aforementioned rationale, it is necessary to promote increasingly versatile protocols aimed at verifying and monitoring the company’s compliance with the various worker protection provisions. This is considering the characteristics of the food sector, in general, and the meat sector, in particular. These include the assessment of preventive risks, the issue of cultural and linguistic barriers deriving from the origin of workers, the scrupulous observance of labour regulations, so that any irregularity is a warning sign of potential labour violations.

9. Observations on possible future reforms: from organisational and management models to company qualification systems.

Extending the scope of application of the regulations on corporate criminal liability in the sense described above represents an opportu-

with the national or territorial collective bargaining agreements signed by the most representative labour organizations at the national level, or otherwise disproportionate to the quantity and quality of work performed; 2) the repeated violation of regulations on working hours, rest periods, weekly rest, compulsory leave, vacations; 3) the existence of violations of regulations on safety and health in the workplace; 4) the worker’s subjection to degrading working conditions, surveillance methods, or housing situations.

nity for companies to adopt an organisational model “tailored” to the food business, capable of affecting business decisions, as a guarantee for the entire supply chain. This is all the more true in complex contexts, such as those in which manufacturing steps or segments are frequently outsourced by means of contracts, subcontracts and supplies. The meat sector is an emblematic example in this respect (Dorigatti: 2016, 190 ff.; Dorigatti: 2019, 56 ff.; Dazzi, Campanella 2020; Campanella 2023). In light of the above, companies using outsourcing having an organisational model could be encouraged to update it with a view to preventing the commission of offences, such as those relating to health and safety and illegal brokering, by using a broader meaning of “working environment”, which would also take into account any outsourcing of works and services.

Following the same prevention rationale, the adoption of the model could serve as a preferential selection criterion for companies to be entrusted with works, services or supplies. According to this approach, preferential criteria and requirements could include the voluntary application of codes of conduct and ethics and further corporate social responsibility initiatives promoted by companies.

In contrast, in an *ex post* perspective, the adoption of the organisational and management model by the company using outsourcing could induce the selected companies to undertake to read and abide by its contents and the code of ethics. A special supervisory body would verify the relevant fulfilments and an appropriate disciplinary system would ensure the application of sanctions, if any.

In order for this tool to be effective, auditing clauses would be introduced in trade agreements, in order to verify compliance with the aforementioned regulations, also by means of special inspection visits. Moreover, specific provisions could be included within the same organisational and control models concerning the management of procurement processes for goods and services. They could impose on suppliers and business partners an obligation to comply with the regulations in force concerning the regulation of labour relations, under penalty of termination of the relationship (Pisconti 2021).

That being said, the activation of organisational and management models is based on a voluntary mechanism, devoid of preceptive or binding force and in itself insufficient to guarantee that the system is effective.

Moreover, as argued by legal scholars, the adoption and effective implementation of these models requires an economic investment without, however, any guarantee that they will hold in court (Pezzi 2021; Campanella: 2022, 26 ff.). Suffice it to say that any assessment of suitability and effectiveness, in the absence of specific guiding criteria, is completely left to the court's discretion.

Article 27 of the Italian Consolidated Law on Safety is part of the framework of an integrated prevention system, aimed at encouraging socially responsible behaviour. This provision promotes the development of a qualification system of companies for the verification of technical and professional suitability, aimed at ascertaining that the entity called upon to work in the company is preventively and substantially organised in terms of prevention (Paci: 2010, 376 ff.; Tiraboschi: 2009, 119 ff.)³⁴. A further incentive for its application is provided by the same article, in paragraph 2, where it states that possessing the qualification requirements constitutes a binding element for participation in tenders relating to public contracts and subcontracts and for access to facilitations, financing and contributions from public finance, provided that they are related to the same contracts or subcontracts.

As outlined above, the qualification system operates as a “preventive filter” aimed at identifying and promoting companies operating safely and legally, excluding those adopting illegal practices to reduce labour costs and security expenses. This mechanism helps to create a virtuous circle, in order to promote preventive initiatives in the domain of security.

The 2009 amendment, however, provided that possessing the qualification requirements constitutes a preferential but not a binding element, as the original wording of Article 27 provided for, for the purposes

³⁴ According to the aforementioned article, a specific presidential decree should be issued to identify the sectors and criteria constituting a qualification system for companies and self-employed workers, with reference to the protection of health and safety at work. Such system must be based on specific experience, skills and knowledge, also acquired through targeted training courses, and on the basis of the activities referred to in Article 21, paragraph 2, as well as applying certain contractual and organisational standards in the employment of labour, also in relation to contracts and types of flexible work, certified pursuant to Title VIII, Chapter I, of Legislative Decree No. 276 of 10 September 2003, as subsequently amended.

of access to public tenders, benefits and facilities. With respect to this amendment, it would be desirable to restore and effectively implement the original wording, extending its application within the framework of a timely protection of guaranteed labour rights.

In conclusion, these largely voluntary instruments, due to the combination of reasonable benefits and a system of careful controls, can certainly play a propulsive role.

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SURE TO EAT? FOOD CHAIN AND PENAL SYSTEM

1. Law, food and culture.

These few pages were inspired by a statistical survey carried out in the course of a research project in Urbino¹ (Cangiotti, Viganò 2021: 8 ff.), thanks to which it was possible to highlight the correlation between compliance options in production and consistency with top management values (Palazzi, Sentuti 2021: 118 ff.), as well as the importance of the various stakeholders with respect to the product sharing a value and cultural framework (Agnati, Aguti, Bondi 2021: 29). This may seem of little account, but the history of food teaches us that “discovering hot water” is not always a trivial matter (Levi-Strauss 1964a; Pollan 2013; Montanari 2004, 35 ff.; Bullipedia 2019; Cardenal, Sarabia 2018; Lennox 2020, 25 ff.).

The points made here concerning the food chain are paradigmatic in scope: they may apply to any aspect of life which, according to the legislator, must be managed by criminal law. When considering food, shared culture and values have a significant impact on compliance decision-making systems. This is so evident that any crime prevention approach simply *cannot fail to take it into account*.

The legal system reality, however, only partly reflects this apparently obvious concept. Similarly, the overflowing scientific and popular literature devoted to the relationship between food and culture (Arnott 1975; Montanari 2004; Stano 2015; Crowther 2013; Capatti, Montanari 1999; Sassatelli 2019) is not always aware of the promoting and, to some extent, *proto-juridical* significance of this relationship. Therefore, a brief survey of both issues seems appropriate before drawing some final conclusions on possible future reforms.

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¹ “Sostenibilità e [in]sicurezza alimentare” research project of the Department of Economics, Society, Politics of the University of Urbino Carlo Bo.

1.1 *The convivial side of survival.*

Food means, first and foremost, *survival*. Its roots are archaic, archetypal, primordial: and yet it is something archaic that is still completely essential today, whose development runs perpendicular to the entire history of mankind on Earth. Sociality also responds to a good extent to survival needs. Food and sociality are similar, as they both express the human attitude to do *not only to survive* what actually *needs to be done to survive*.

Conviviality, combining food and sociality, is a foundational relational experience. Nutrition is also a foundational relational experience. Although it does not necessarily have cultural significance, it expresses the values of *care*, on the one hand, and *confidence*, on the other (in legal terms: responsibility and trust). The infant who has this opportunity *sucks values* from his mother's breast.

1.2 *The intergenerational dimension of everyday life.*

The relationship between food and time is quite evocative. In a situation of sufficient satisfaction, bread is *daily*. Nevertheless, all nourishment, even that obtained from impromptu activities, such as hunting or harvesting, comes from a time of growth or maturation, as well as a time of learning about the use of one or another ingredient. If nutrition is the first intergenerational relationship, food culture is *passed down* from one age to the other: it is a *tradition* that is constantly evolving and, for this very reason, it is part of a *community's* identity which is in charge of passing it down².

Intra-community communication of food traditions is able to adaptively survive migratory movements and many other, even radical, changes in living conditions (Dedeire, Tozanli 2007; Poinot 2010; Crenn, Hasoun, Medina 2010, 2021; Mintz 2008). Communicating our own food culture to the *other*, however, is no less interesting: it is no coincidence

² The same applies to language (Martellotti 2012: 27 ff.; Sif Karrebæk, Riley, Cavanaugh 2018) and according to dynamics that are still entirely relevant (Le Breton 2015; Garine 1979; Kristbergsson, Oliveira 2016; Kristbergsson, Ötles 2016; Timothy 2016; Bergeaud 2004; Darmon, Warde 2014).

that it is often the first example of *hospitality*. Through the universal experience of eating, our *identity* is made available to the knowledge and experience of the different. Therefore, it is an ancestral example of *opening to the possible of sharing in otherness*. And it is interwoven with values. Each of these temporal unfolding – the preparation, the passing down, the sharing of food – is woven into everyday life: they *live*, in time, of everyday life.

1.3 *The normative dimension of freedom.*

Over the centuries, law has dealt with almost every aspect of food. Legal provisions were adopted concerning nursery and bailiwick, agriculture and industrial production, taxes on ingredient trade and penalties for those who hunted in the King's reserve. No field of law is more *invasive* than that governing food³.

Before being *subject to norms*, however, eating has always created *norms* (Douglas 1979; Fischler 1979; Suremain, Chaudat 2006). Hospitality *created obligations* and the distribution of prey *created hierarchies*. Most importantly, sharing food resources *created communities* (Veca 2014; Levi-Strauss 1964b; Cutright 2021; Higman 2012; VV.AA. 1980; Clafin, Scholliers 2012; Pilcher 2012; Albala 2013). The history of food tells us of an often *mute* normativity, in which shared and founding compliance *comes before* threatening and applying sanctions: rules in respect of which the person to whom they are addressed is the *first judge*. Indeed, this person is, at the same time, *recipient* and *creator* of such rules.

Even today, centuries after the birth of law as normally understood, there is nothing stronger than the normative force of *behaviour* based on *shared values*: a *non-coercive* objective that law can nevertheless strive to pursue in different ways. The question is whether *any of these options* is even feasible in the branch of the legal system characterised by the highest degree of coercion: that is, where, without prejudice to serious ac-

³ Moreover, beyond any need for *food safety*, the resistance shown by food bans in prisons cannot be denied: see Italian Constitutional Court, 26 September 2018, no. 186 (as already advocated by Mani: 2017; commented by Martufi 2019; Parlato 2019; Aprile 2019; Sturniolo 2019; Bonomi 2018; Bernardi 2018; De Vito 2018a, 2018b; on the different topic of religiously oriented dietary freedom for prisoners, Blando 2021; Iacovino 2021; Maffei 2012; in addition, brief accounts of prison diets in *www.ildue.it* 2005).

tions of positive prevention always prevailing, a decision has been made to *qualify as a crime* some of the undesirable conduct that may occur in the various segments of the food chain⁴. The hope is that the preventive and rehabilitative potential of *culture* and *values* carried by a community's food history, as well as the food biography of each individual, will not lie unused in that case either.

2. Law, food and safety.

The legal characteristics of the food supply chain offer a daunting landscape. Criminal provisions are *scattered* to address many different issues⁵, either in the *solitude* of the *prima ratio*⁶, or in the proliferation of differently labelled punitive provisions⁷. Moreover, if, on the one hand,

⁴ That is to say, within the broad spectrum of alternative legislative options, of which the regulation of the agri-food system seems to be a paradigmatic example (on the well-known decriminalisation and “return” of food offences, Masini, Natalini 2022; Gargani 2022; Natalini 2021; Gambardella 2021; on previous decriminalisation, including Benelli 2000; Flora 2000; Piergallini 2000; Bernardi 2005; Castronuovo 2001).

⁵ See the offences provided for by Article 1 of Law Decree No. 212/01 on the regulation of seed products, later replaced by the detailed list of administrative sanctions under Article 80 of Legislative Decree No. 20/21; as well as the secondary administrative sanctions under Law No. 238/16, Title VII, which replaced Law No. 82/06, Chapter VI ff., on the regulation of the production and marketing of musts, wines and vinegars; as well as the sanctions under Chapter IV of Law No. 281/63, concerning the preparation and trade of animal feed, a chapter that has remained unchanged with respect to its original wording, but which is also characterised by the reference to an increasing and almost unlimited number of provisions. It is also worth recalling the criminal relevance, albeit secondary, envisaged in Article 5 of Legislative Decree No. 73/92 for conduct involving the production and sale of products that, although other than foodstuffs, have a shape, smell, appearance, packaging, labelling or dimensions that make them appear as such, thus determining the risk that they are ingested or sucked with danger to the health of consumers and, in particular, of children.

⁶ This is the case, for example, with offences provided by the Italian Criminal Code even other than those of Title VI and, first and foremost, with manslaughter, which is too often applied *when it is too late*, certainly not for lack of *advance* sanctioning rules, but for lack of any crime prevention policy other than deterrence.

⁷ The complexities and overlaps of Law No. 283/62 on the hygienic regulation of the production and sale of foodstuffs and beverages are exemplary, as are its changes, starting with the early amendment with a tightening of penalties by Law No. 441/63, a few months after its entering into force. Then, proceedings seeking a declaration of unconstitutionality for violation of the right of defence resulted in the following rulings: Italian

it is true that mere “retaliatory” responses are ineffective, on the other hand, their reinforcement is advocated; the introduction of new crimes or, even worse, the extension through interpretation of those already in force is called for, often even beyond the letter of the law (Donini 2016; Gargani 2021, for the extension of the scope of crimes *through interpretation* Guariniello 2015). Nor can the overview be limited to illegal acts traditionally falling under “food law”. A cursory review of the relevant areas may assist in perceiving the *dimension* of the phenomenon.

2.1 *Are you sure about what you eat? Food fear and “protection” actions after the fact.*

The first area in which criminal provisions are found is food safety in the strict sense. The main beneficiary of protection here is the end consumer, but the entire supply chain is involved, from agricultural production to retail and supply. Traditional offences, starting with manslaughter, are intertwined with analytical sector legislation, in which the *preventive* approach is reduced to the dissemination of advance punitive options, often also of criminal relevance, and with the multi-faceted system of public or, more often, private *soft law*. Additionally, this field is an early and emblematic example of the intertwining with supranational legislation (Bernardi 1996, 2015; Corbetta 1999; Borghi 2001; Martuffi 2012; Valentini 2012; Borghi 2012; Castronuovo, Foffani, Doval Pais 2014; Bottari 2015; Tumminello 2016; Stea 2018; Toscano 2020). Each of

Constitutional Court 27 November 1969, no. 149; Italian Constitutional Court 10 November 1971, no. 179, and Italian Constitutional Court 26 September 1990, no. 434, up to the more recent and notorious legislative “efforts” of Legislative Decree No. 27/21 and Legislative Decree No. 150/22, which have then essentially left the discipline, for the umpteenth time, waiting for the announced reform. The example is macroscopic, but not isolated: indeed, suffice it to think of the complex system of criminal and administrative sanctions set out in Chapter II of Legislative Decree No. 4/12, which replaced, certainly not by way of simplification, that set out in Article 24 ff. of the previous Law No. 963/65 on the regulation of sea fishing. Subsequent amendments to the sanctions were made by Law No. 161/14, Law No. 154/16 and Decree Law No. 27/19, as converted by Law No. 44/19. Considering this regulatory framework, the aspects concerning food destination of the catch are combined with the objectives of protecting biological resources. Moreover, the sanctions provided for therein are cumulative with the disciplinary sanctions provided for members of the maritime personnel by Articles 1249 ff. of the Italian Code of Navigation, Book II, Title I.

these sources, beyond the situations of direct application, can be called upon when an adverse event occurs, for the purposes of identifying negligence per se or outlining diversified *standards* of diligence, prudence and expertise relevant to the case in question.

This may also include regulations that do not directly concern health, but are nevertheless aimed at protecting, albeit indirectly, product quality: suffice it to consider the field of trade fraud (Natalini 2018; Madeo 2006; Petrini 1990). Self-regulation is also relevant here, particularly in the application of (per se, purely commercial) trademark protection also to local food products (Cingari 2022; Mazzanti 2018; Masini 2015b; for competition protection, Fiore 2022; Aversano 2021a). The provisions are among the predicate offences entailing corporate administrative liability⁸, in which the economic perspective is even stronger (Mongillo 2023: 15; specifically on the non-profit sector Melchionda 2023: 10; Pezzi 2023: 96 ff.). Moreover, some scholars have put forward – most recently, also in the reform proposals currently under consideration⁹ – the extension of the legislation to food safety offences as well (previously, with different tones, Raimondi 2018; Fondaroli, Poli 2016; Natalini 2017; Santoriello

⁸ Reference is made to the scope of application of Legislative Decree No. 231/01, Article 25bis.1 (offences against industry and trade), among the *many* potentially relevant to the agri-food system (see also § 2.2 below). For a broad survey of the possible specific characteristics of the sector, considering cooperatives as a starting point, Melchionda, Pezzi 2023.

⁹ Corporate liability is involved in two bills, proposed by different parties: Cafiero De Raho et al., 26 January 2023, no. 823 and Cerreto et al., 16 March 2023, no. 1004. The latter, at the time of writing this article, is still being examined by the Second Justice Commission at the Italian Chamber of Deputies, while the former was sent to the assembly for examination. Both proposals extend the regulation of corporate liability to the agri-food sector. However, while the latter is limited to crimes provided under the Italian Criminal Code, the former includes among the predicate offences also the intentional crimes provided for, after a radical rewording, by Article 5 of Law No. 283/62, characterised by a comprehensive reference to almost the entire agri-food regulations. The new version, in fact, contemplates a very broad range of conduct relating to food, water and beverages that are “harmful or unsuitable for human consumption, even if only for particular categories of consumers”, not only because of alteration, poor preservation or the presence of prohibited components or in excess of the limits in force (the latter, moreover, expressly provided also by a ministerial measure), but also for any “failure to comply with the procedures or safety requirements prescribed by laws or regulations”. Both proposals, moreover, include specific requirements for the organisation and management model of food companies, also concerning advertising and traceability: requirements that are, as usual, *necessary*, but *not sufficient* to qualify a model as suitable.

2014; Urbinati 2016; Cupelli 2015, 2016; Birritteri 2022; Masini 2012, 2015a; Rossi 2018; Di Lernia 2015).

Lastly, technological evolution and globalisation pose new questions related to food's culturally sensitive characteristics, even apart from the direct or indirect protection of its objective qualities. It cannot be ruled out that the progressive adoption of new transparency parameters, which entails information obligations, will claim the same sanctions enforcement already provided in other cases¹⁰.

However, for all these approaches, sanctions representation is crucial (Toscano 2022; Castronuovo 2005; Gargani 2022), together with their threat or enforcement, with relatively little investment in primary and positive prevention policies that could prove particularly successful in the food sector. Incidentally, it is precisely the everyday and intimate nature of eating, together with its identity dimension and, to some extent, constituent nature of the identities in dialogue, that makes the existence of a sense of insecurity particularly painful. Indeed, providing a mere threat of sanctions after the fact seems to magnify rather than alleviate such sense of insecurity (for legal observations on the impact of the pandemic on the awareness concerning the relevance of the "food environment" on the perception of security, Aversano 2020). This also applies, unfortunately, to the apparently *anticipatory* approaches related to "organisation and management models".

On the one hand, whenever the adoption of organisation and management models is mandatory, the inspection and control system, often due to a lack of resources, is more often than not limited to actions taken only *downstream* of the events it was intended to prevent. On the other hand, where the model is, at least formally, regarded as optional, its adoption is discouraged by the simple fact that the costs of early implementation are *budgeted* (and *balanced*) against the costs of late adoption. This is especially true when considering that the latter is combined with

¹⁰ Regarding the inclusion, in organisation and management models, of steps aimed at ensuring "compliance with the requirements concerning the disclosure of information on food", the "verification of the contents of advertising communications in order to ensure their consistency with the characteristics of the product" and "traceability", *i.e.*, the "possibility of tracing and following the path of a food product through all stages of production, processing and distribution", see Article 5 of the bills by De Raho *et al.*, 26 January 2023, no. 823 and Cerreto *et al.*, 16 March 2023, no. 1004, respectively.

the continuing uncertainty accompanying the criteria applied by courts in assessing organisational models, in the event that the offence has been committed despite the model *having been already implemented*.

2.2 *Are you sure you want to sit at that table? The mutagenesis of ethical dilemmas into rights and of rights into crimes.*

A second area of potential criminal relevance of the food supply chain concerns the offences that may be carried out to the detriment of persons *other than* those to whom the food is intended (an early example in Guariniello 2012).

These cases range from environmental protection to the health and safety conditions of workers, to their contractual conditions, to the tax and social security compliance of production companies, to their involvement in organised crime. While extensive literature (Giuliani 2015; Curi 2011; Amato 2019; Brambilla 2017; Cadamuro 2016; Mongillo 2017; Mongillo 2019; Morgante 2006; Scarcella 2011; Scevi 2012; Torre 2018; Leogrande 2016; Liberti 2017; De Santis, Corso, Delvecchio 2020; Ferrante 2020; Calafà 2017, 2021; Rausei 2011; Rivellini 2013; Pugnoli 2011; VV.AA. 2019, 2021, 2023), on the one hand, strongly emphasises the frequent criminological continuity of the areas mentioned (Fanizza, Omizzolo 2019; Morgante 2018), on the other hand, considers this topic a fruitful opportunity for reflection, sometimes even with an unprecedented sensitivity, on the centrality of the relational dimension in the most perceived forms of protection of the legal interests to varying degrees involved (Di Martino 2018, 2019a, 2019b; Braschi 2021; Ferla 2021; Fiore 2013; Orlando 2020; Rotolo 2018; Seminara 2021; Salvia 2024; Oliveri 2019). Criminal law, characterised by evident and serious issues (Bin 2020; Di Martino 2015; Ferraresi, Seminara 2022, 2023; Fiore 2017; Gaboardi 2017; Giunta 2020; Lo Monte 2013; Padovani 2016; Piva 2017; Rotolo 2017; Tordini Cagli 2017), often has to chase evolving situations, in which the problems of the more traditional field work (Leogrande 2019; Pinto 2017; de Martino, Lozito, Schiuma 2016; Faleri 2019, 2021; Rigo 2015; Masini 2020) are rapidly being flanked by new ways of exploiting human beings, *depersonalising* relationships in an even more insidious manner (Merlo 2020; Bano 2021; Campanella 2022, 2023; Esposito 2020; Torre 2020; Inversi 2021; VV.AA. 2022).

In these areas, too, corporate administrative liability is often accompanied by the criminal liability of individual offenders¹¹ and, here too, a pressure exists to *expand* criminal law. For the sake of mere example, criminalisation has been invoked to combat climate change (Frisch 2015; Nieto Martín 2019; Satzger 2020, 2021; Satzger, von Maltitz 2021, 2023; Krell 2023; Foffani, Nieto Martín 2022, 2023; Kemp 2013; Epik, Sayatz 2023), to which agriculture and transport are known to provide a very significant contribution (on the relationship between climate change and meat consumption, Mayerfeld 2023). Further areas of increasing attention concern the so-called animal rights (Castignone, Lombardi Vallauri 2012; Castignone 1985; Mannucci, Tallacchini 2001; Rescigno 2005; Valastro 2006; Vadalà 2017; Ruggi, Settanni 2019; Aversano 2021b; Valastro 2022; in the field of criminal law, Casaroli 2009; Bacco 2010; Mazzucato 2012; Mazza 2014; Mantovani 2016; Fasani 2017, 2020a, 2020b; Massaro 2018; Ruga Riva 2021; Tumminello 2022a; for political-philosophical remarks, Cavalieri: 1999; Castignone: 2002; Barreca: 2003; Gazzolo 2012; Lombardi Vallauri 2014; Guazzaloca 2015; Fondrieschi 2020; La Vergata 2001; Castignone 2001), with the consequent dilemmas in the balancing of opposing human sensibilities regarding their condition, to the point of assuming for them an autonomous legal standing which, according to various devices, would allow them to “directly” defend their interests (Martini 2017; Rescigno 2019; Fossà 2020; Martini 2022).

The topics mentioned above, however, seemingly quite distant from each other, are in fact closely related (on the connections between the different protections, Aversano: 2023; for a review of relevant aspects, also comparative, Donini, Castronuovo 2007; on the variety of instruments involved, Donini 2015; on the location of provisions within the legal system, Toscano 2019; Rotolo 2019; Bernardi 2002; Donini 2010, 2016). Firstly, at a phenomenological level, breaches in one area of protection are frequently accompanied by the erosion of safety conditions in another: it is certainly not by chance, for example, that irregular workers,

¹¹ Respectively, Legislative Decree No. 231/01, Article 25^{septies} (manslaughter or serious or very serious injury committed in violation of the rules on health and safety at work), 25^{undecies} (environmental offences) and 25^{duodecies} (employment of illegally staying third-country nationals); but also, by way of example, the relevance of the risk sector of organised crime and money laundering (Gatti 2022; Carrelli Palombi di Montrone 2022).

who work in a state of exploitation, do not even receive adequate training in occupational health and safety, nor are they able to guarantee satisfactory product quality or respect for the environment (Pascucci 2022; Pettinelli 2022).

Furthermore, just as food safety can be pursued through indirect approaches, there is an increasing tendency among consumers to consider individual sensitivities towards the ethical profiles of the supply chain as relevant in their purchasing choices (Bordignon, Ceccarini, Silla 2021; Carolan 2013; Fabiansson, Fabiansson 2016). Thus, while the greater widespread awareness may prove to be increasingly significant in non-punitive approaches to combating undesirable phenomena, the amount of data required to provide correct information to the consumer is growing proportionally¹², with a further risk of regulatory proliferation¹³.

The issue helps to reflect on a further criticality of the current approach: the absolute preponderance of the economic factor, which is the main *lever of deterrence* and which reflects the belief, in itself not unfounded, that the decision-making architectures of potential offenders do *not know* (nor, much less persuasively, *can they know*) motivational drives of a different nature. In other words, according to the widespread misunderstanding of the necessary similarity of the *pharmakon* to the poison, it seems that the contrast to a criminality driven by greed can only be monetary retaliation. This approach disregards the easy *budgeting* of such risks, the patently *criminal fungibility* of the economic subjects involved and, ultimately, the banal, but never taken for granted, circumstance that the best contrast to purely economic logic does not lie in attempting to re(*un*)balance them to one's own advantage (even if it is in the interest of legality), but in *defusing them*. By bringing back to light, with every possible effort, the heritage of memory, identity, values

¹² Concerns, moreover, not new to Western culture either (Pappagallo 2019: 80 ff.; on the current role of market choices, Spaargaren, Oosterveer, Loeber 2012; Gottwald, Werner Ingensiep, Meinhardt 2010; Coff, Barling, Korthals, Nielsen 2008; Thompson 2015; Fischler 1980; Bjørkdahl, Lykke 2023; Terragni Boström, Halkier, Mäkelä 2009; with a more general scope, Olsen 2019; Warde 2017; Cook 2008; Bevir, Trentmann 2007; Trentmann 2006; but already Bourdieu 1979).

¹³ It should be noted, once again, how the reference to the “contents of advertising communications” provided for in Article 5 of the bills Cafiero De Raho et al., 26 January 2023, no. 823 and Cerreto et al., 16 March 2023, no. 1004 goes well beyond the information required *by law*.

and potential for sharing, of which, at least in the area of food, no human being can truly claim to be devoid.

2.3 *Are you sure you have food? The human cost of prevention that thinks too much and too little about the economic aspects of protection options.*

Finally, there is an opposing and paradoxical side of punitive law that needs to be reflected upon in the context of food system regulation. Indeed, the food system, in its attempt to guarantee *safe food*, may not always take into account the impact on the lives of individuals, also in terms of *livelihood guarantees*. Virtually, all criminally relevant situations considered so far concern work contexts, on which sanctions may have a significant impact, even with regard to less serious offences. Those aspects – relating to the management of misdemeanours and to disciplinary offences applicable to employees – are clearly *marginal* compared to the huge amount of suffering that the “hard core” of legal provisions criminalising specific events, by trying *too late* to address another suffering, generates on a daily basis in the lives of so many people, often completely unrelated to the offence¹⁴. However, one must not allow himself to become accustomed to this reality to neglect details, which are also important and in respect of which a concrete improvement does not seem to require epochal changes of approach, let alone technically unattainable regulatory devices. In contrast, the agri-food system could be the ideal field for experimenting and perfecting a more streamlined and effective management of minor breaches.

Indeed, the food supply chain is subject to misdemeanours which can

¹⁴ The “aim to cause affliction that permeates every moment, stage, action and gesture of criminal justice” and extends into the “darkness of pain that criminal justice injects into the lives of thousands of people” (Mazzucato 2011: 434). Article 15 of Legislative Decree No. 231/01 may be considered an example of sensitivity with respect to the “collateral effects” of sanctions. Indeed, this provision allows the judge to order, in lieu of a temporary disqualification sanction that would lead to the interruption of the corporate business, that an administrator be appointed to continue the business. This is possible whenever disqualification could lead to the suspension of a public service or a service of public necessity with serious prejudice to the community or significant repercussions on employment, also in light of the size of the company and the economic situations of the relevant territory.

be classified into three main areas. If the conditions are met, such misdemeanours can be extinguished through compliance with the prescriptions issued by the investigating body. Such areas include: environmental misdemeanours¹⁵, misdemeanours concerning hygiene and safety at work and¹⁶, and lastly, misdemeanours concerning hygiene, production, traceability and sale of food and drink¹⁷.

The procedure must certainly be evaluated positively, due to its responsiveness, immediately aiming at reaffirming the rule through compliance¹⁸. Clearly, however, economic conditions have an appreciable impact on how this provision is concretely applied. Extensions of deadlines for compliance, even where such circumstances are assessed among those *not attributable to the offender* that permit such extensions to be granted, may in any case be burdensome, especially where it is ordered that the business be suspended. Moreover, payment of the administrative penalty, although incentivised by advantageous reductions, is required jointly with compliance to the requirement in order for the misdemeanour to be extinguished. Indeed, case law has denied that a state of impos-

¹⁵ Legislative Decree No. 152/06, Article 318*bis* ff.

¹⁶ Legislative Decree No. 81/08, Article 301 (ff. for further provisions aiming at reducing criminal proceedings), but also Legislative Decree No. 758/94, Article 19 ff.

¹⁷ Law No. 283/62, Article 12*bis* ff., as introduced by Legislative Decree No. 150/22, Article 70, in execution of the delegation under Law No. 134/21, Article 1, para. 1 and para. 23 (a), (b), (c) and (d) (comment of Cogo, Risicato, Palazzo 2023; Amarelli 2023; Bernasconi 2023; Giugni 2023; Pacileo 2023; for observations on the impact of the amendment on the protection of *traceability*, Natalini 2023: 260; on the disruption of the categories of traceability and harmfulness Diamanti 2019).

¹⁸ A restrictive interpretation should be rejected (Paone 2023; Natalini 2023, 260 ff.), all the more so since the criminal offence does not consist in the deterioration, in itself irreversible, of the food, but in an exhaustive list of acts concerning food deteriorated in various ways. Among those, the detention for the purpose of sale, supply or distribution for consumption appears to be a priority. Such detention may obviously constitute a continuing offence and its consequences may be cancelled both if they are identified in the danger to public health and in the damage to the so-called “food order” (this opinion, subject to strong disagreement, is expressed by the case law cited therein; on this subject, Madeo 2007; Paone 2016; Pagliari, Pepe, Zilli 2014; with a more general scope, Tumminello 2022b; Gargani 2021; Pacileo 2022; Tumminello 2013; with regard to the need to maintain general principles in the agri-food sector, Castronuovo 1997; D’Alessandro 2007; De Francesco 2010; Alesci 2022; Mazzanti 2017; Pongiluppi 2010; Donini 2013; as well as previously Pedrazzi 1962; VV.AA. 1971; Germanò, Rook Basile 1999).

sibility of performance is relevant in this area, even if it does not depend on the will of the offender¹⁹.

For food misdemeanours only, in addition to a greater emphasis on possible late compliance²⁰, the reform recognised the relevance of financial distress – however only limited to a situation in which these actually preclude any possibility of compliance – as a condition for access to community service, to be provided in lieu of payment of the penalty²¹. Such innovation is to be welcomed and even extended. However, making it applicable *tout court* would be ideal, regardless of the offender's situation. Otherwise, community service would be perceived as a *second best* or, worse, as a sort of *payment in kind* of the penalty. Indeed, this is a plausible common perception, despite the fact that the criteria for converting the amounts due into days of service²² make it evident, for “insiders”, that this is not the case. Thus, community service may not be perceived as a *more effective form of response to the offence*, insofar as it implies an *active* involvement of the offender and a *community* dimension, immediately and concretely aimed at rehabilitation. These elements, in connec-

¹⁹ In relation to the extinguishment procedure pursuant to Legislative Decree No. 758/94, Article 19 ff., Italian Supreme Court, Criminal Division III, 16 November 2022 (filed on 30 November 2022), no. 45433, as well as Italian Supreme Court, Criminal Division III, 28 September 2011 (filed on 30 November 2011), no. 44399, which reasons on the basis of the general irrelevance of “factual impediments or preclusions not legally established”, as already stated, although on another subject, by Italian Supreme Court, Criminal Division III, 3 June 1981 (filed on 21 October 1981), no. 5515. Regarding the irrelevance of financial distress for the purposes of the existence of a *force majeure* event, also in the case of liquidation of the company, see Italian Supreme Court, Criminal Division III, 5 April 2011 (filed on 17 June 2011), no. 24410, where reference is made to several compliant precedents. Concerning the irrelevance of difficulty caused by the massive default of debtor customers, considered a *foreseeable* event pertaining to ordinary business risk, see Italian Supreme Court, Criminal Division III, 8 April 2014 (filed on 15 May 2014), no. 20266, as well as Italian Supreme Court, Criminal Division III, 19 November 2015 (filed on 5 May, 2016), No. 18680. With regard to the relevance accorded to the different cases in which the offender is in a pathological state of such seriousness as to determine, for the entire duration of the offence, absolute incapacity, “capable of preventing them from even giving instructions to others to comply”, Italian Supreme Court, Criminal Division VII, order 25 November 2016 (filed on 1 March 2017), no. 10083.

²⁰ Law No. 283/62, Article 12*novies*, which grants penalty reductions in cases due and timely fulfilment cannot lead to extinguishment.

²¹ Law No. 283/62, Article 12*quinques*.

²² Law No. 283/62, Article 12*quinques*, para. 6.

tion with a mechanism for adjusting financial penalties to the economic conditions of the convicted person that still requires, as is well known²³, some improvements, shows that the evolution of our sanction system is far from complete. Similarly, the lack of provisions enabling appeals against the prescriptions, the attribution to the public prosecutor, albeit in a somehow dialogic context, of the power to determine the duration and terms of community service²⁴, as well as its power to request changes to the prescriptions imposed by the competent public body²⁵, apparently also making them more burdensome, have many critical aspects.

However, before moving on to more far-reaching considerations regarding possible future reforms, it is necessary to highlight a further consequence of criminal law on the everyday lives of individuals. *I.e.*, the silent and detrimental spreading of obsolete approaches to undesirable behaviours through the seemingly *soft* medium of *delegated prevention*. Indeed, as mentioned²⁶, large portions of the criminal protection granted to the different legal assets within the food supply chain are supplemented by mechanisms of *transfer to private individuals* of the decisions on prevention, both mandatorily and “optionally”. However, the direct or indirect threat of punitive consequences on the obliged party is always present, at least when the adverse event occurs (Bianchi 2019, 2021a; Marra 2019; Muscatiello 2020; specifically on the food sector, Mongillo 2021). Therefore, the truly preventive nature of the two approaches does not seem to be fully realised.

In any case, leaving aside the paradoxical effect of a *fluid* deterrence that the system seems to encourage, it is most worrying that the threat and retaliation mechanism is imposed as crucial. Moreover, it is replicated, on a reduced but still insidious scale, in what should be the serene everyday life of the workplace, through the provision and mandatory application of disciplinary systems.

²³ As regards the reforms enacted to far, the reference is mainly to the amendments made to Articles 133*bis*, 133*ter* and 136 of the Italian Criminal Code by, respectively, Legislative Decree No. 150/22, Article 1 par. 1 (d), (e) and (g) (Dolcini 2023; Goisis 2022; prior to the reform, Goisis 2008; Miedico 2008; Bricola 1961; Dolcini 1972; Musco 1984).

²⁴ Law No. 283/62, Article 12*quinq*ues, para. 5.

²⁵ Law No. 283/62, Article 12*ter*, para. 7.

²⁶ See back, § 2.1.

The pervasive impact of *delegated prevention*, as envisaged, is not always easy to grasp in full. The decision to apply sanctions, up to termination of employment, has traditionally been understood as an *option* for the employer (Mainardi 2012a; Lazzari 2012, 2022; Corrias 2008; Lega 1956). As such, it was never meant to be *imposed* but, rather, *limited* by specific conditions on the requirements, size and cases recognised, at a general level, in the Workers' Statute²⁷. Moreover, such decision is made more difficult by the fact that the relevant claim must be precise, and the deadlines and forfeitures are strict (Albi 2012; Vernia 2012). A system, therefore, overall and clearly designed to *disapplying* sanctions, as it is always admitted. The sole reason for concern is the possible *discriminatory* exercise of the employer's discretion, albeit in favour of the offender (Perrino 2012; on the residual cases of "due" exercise, Ratti 2012: 213 ff.).

Systems based on *delegated prevention* – or *integrated prevention*, but for the most part only in the sense of the link between of *drop-down* deterrence drives – entail that the *waiver of sanctions* by the employer may constitute carelessness and, therefore, (also) criminal liability for *negligence* on the part of the same. Additionally, it may render the organisation model inadequate for the purposes of attributing administrative sanctions to corporate entities as a result of the offence (regarding the mandatory nature of the exercise of disciplinary power, Pascucci 2021: 431 ff.; Lazzari 2022: 8, 2016: 546; for the repercussions in terms of corporate liability, Dovero 2019; Andreani 2012). This also where a disciplinary system exists that is adequate merely in terms of *outline*²⁸, as should be considered any disciplinary code that is at least in accordance with the provisions contained in national collective bargaining agreements, such provisions establishing a *perimeter* and, therefore, not overcomable.

Furthermore, following a substantial twist of the disciplinary system in favour of sanctions, there is an intersection with the practical effects of

²⁷ Insofar as the atypical sanction set forth in Article 7 of the Workers' Statute is joint to the obligation of typifying and providing exhaustively the relevant provisions (Mainardi 2012b; Ferrante 2012; Miani Canevari 1986).

²⁸ Which, itself, is characterised by some critical issues, also in terms of expressly indicating this preventive obligation (Antonetto 2009; Ginevra 2009; Procaccino 2019; Cinelli 2007; in the field of criminal law, Abriani, Giunta 2012).

whistleblowing mechanisms²⁹. Indeed, their concrete success – or better, *vitality* – mostly depends on the willingness of the corporate entity to activate, in response to the reports, a rapid and Gordian system of revolving doors, which often benefits the reporting subject, so to speak by *freeing up space* (Thüsing, Forst 2016; Vandekerkhove 2006). Therefore, this has nothing to do with the principles of rehabilitation on which the criminal systems are based under the Italian Constitution. Such principles should, *a fortiori*, inspire the administrative penalty systems and the private systems of delegated prevention with which this is integrated, to regulate conduct of ordinarily lesser gravity, *upstream* or *downstream* of the commission of a crime.

3. Food humanity, law humanity and the need for more humane crime prevention and response techniques.

Reflecting on the food supply chain results in a vivid portrait of a sub-sector of criminal law that directly *involves people*, their daily existence and relations, as much as the crimes it intends to combat, and that *only with people* can hope to succeed. Even when the interface of the dialogue provided by the legal system is shielded by the micro- or macro-Leviathan of a *corporate entity*. Even when personifying the victim, as in the case of the Planet, seems a totemic fiction resulting from an ambiguous symbolic element rather than an effectively preventive means of protection. Faced with the *huge problems* encountered in the space-time journey of human nutrition, *it is up to mankind* to do something. The limits and potential inherent in *what humans have in common* cannot be marginalised or cancelled: the *Anthropocene of responsibility* has taught us this as well. The question then arises as to what concrete actions this awareness can stimulate, as far as the food supply chain is concerned.

²⁹ This system, introduced by Law No. 190/12 to combat corruption and then included in the broader field of corporate liability with the amendments made to Legislative Decree No. 231/01, Article 6 para. 2*bis*, 2*ter* and 2*quater* by Law No. 179/17, Article 2, para. 1, was then the subject of EU Directive 2019/1937 on the protection of persons who report breaches of Union law and transposed in Italy by Legislative Decree No. 24/23 (on this subject, Della Bella 2020; Mucciarelli 2020; Della Bella, Zorzetto 2021).

3.1 Food supply chain and penal system.

The reform of the penal sanctions system, although (perhaps by definition, as long as they bear this name) unfinished, is moving in the right direction. A greater attention to the offender's financial conditions (which may even include policies to support compliance in terms of technical support, but also of subsidised credit), as well as the openness to sanctions that completely disregard the monetary element. Rather, active participation and personal commitment in the response to the offence should be encouraged, as their results look very promising when applied to the food supply chain. Diversifying the prescriptive components of sanctions³⁰, with due assessment and enhancement of the genuineness of consent and stronger link to the community and value dimension of the reworking of the offence in a rehabilitation perspective³¹, could mark a further step towards less afflictive but more effective responses to the offence.

These are, however, remedies that come into play when the fact has been fully ascertained. Even if, in the limited “two-stage” spaces of the current procedural approach³², they propitiate a better knowledge of the offender and of what, concretely, may have determined his conduct (Eusebi 2023). It is well known to practitioners as well as to scholars that the defensive-oppositional logic of the criminal trial hardly allows for a genuine ascertainment of a *shared truth* (Eusebi 2010: 646 ff., 2014). Therefore, the current legal system³³ does not grant *restorative justice*, *ex se*, to extinguish neither the offence nor the sanction. The sole exception

³⁰ Starting with the main case in which major prescriptive sanctions were introduced (Eusebi 2021; Palavera 2021, 2022a).

³¹ The provision of consent is required, for alternative penalties other than pecuniary, by Article 545*bis* of the Italian Code of Criminal Procedure (on the need for a reorganisation of the criteria for collecting consent, see Palavera 2021: 334 ff.; also, on awareness relating the commitments to made Bianchi 2021b: 38).

³² In this sense, the current version of Article 545*bis*, par. 1, of the Italian Code of Criminal Procedure delineate a “two-stage” system, in relation to the assessment of elements not included in the evidentiary record acquired during the trial, for the purpose of the application of alternative penalties.

³³ That is, despite a reform that had the merit of giving *restorative justice* a general scope (Eusebi 2023a, 2023b; Perini 2023; Mannozi, Risicato, Palazzo 2023; Gialuz 2023; De Francesco 2023; Mannozi 2023).

is within specific projects that include this option (forms of probation such as *messa alla prova* or *affidamento in prova*) and that usually *follow* the trial phase or the conviction³⁴. Thus, the current legal system rarely allows, outside and *before* these stages, for the necessary confidentiality to be overcome. This *sterilises* a large part of the potential for community relevance and public testimony in favour of the provision that the best pages of the restorative experience have known³⁵.

Moreover, it is not easy to imagine another context in which, more than in the food sector, *everyone is interested in understanding*, after the occurrence of a crime, *what really happened*. Indeed, there is no area whose complexity requires the same degree of gnoseological capacity to carry out a shared narrative. This is necessary both to heal and rebuild the relationships of trust that have been broken, and to design truly effective preventive strategies for the future. Again, this is probably the sector in which the value richness and sharing potential of the relevant community fabric are more obvious, *leaving aside* the economic dimensions – even of existential economy – in which it is developed.

3.2 *Food supply chain and corporate liability pursuant to Legislative Decree No. 231/01.*

Active sanctions e restorative justice (Forti, Mazzucato, Visconti, Giavazzi 2018; Sacco 2019; Maspero 2023; for restorative justice in the strict sense, Mongillo 2022) seem to be the path to take without delay even within the system of corporate criminal liability. Whose sanction system,

³⁴ After the amendments introduced by Legislative Decree No. 150/22, Article 43, par. 4, 44 and 58 par. 1, pursuant to Article 129*bis* of the Italian Criminal Code the court can order the defendant and the victim of the offence to a centre set up for this purpose, for the commencement – only in the event of consent – of a restorative justice programme. The court may assess the positive outcome of participating in the programme when determining the sentence pursuant to Article 133 of the Italian Criminal Code and as an attenuating circumstance, pursuant to Article 62, paras. 1 and 6 of the Italian Criminal Code as well as, even if such participation took place after the conviction, for the purposes of granting the prison benefits under Article 15*bis* of Law No. 354/75.

³⁵ Starting from the historical experiences of the so-called *transitional justice* (Fornasari 2023: 150 ff.; on the relational and communitarian dimension of restorative justice within “ordinary” criminal law, Palazzo 2023: 3, 7 ff.; Bartoli 2022: 2 ff.; Romualdi 2023; Parisi 2012: 4 ff.; Ghibaudi 2023: 8 ff.; VV.AA. 2009; on community safety and security implications, Eusebi 2022, 2023c; De Francesco 2021; Polimeni 2023).

leaving aside the appropriate administrative qualification, is subject to the same criticism made against older criminal laws.

In this regard, the interesting case law principle according to which corporate entities could be subject to probation, following an analogical reasoning in favour of the offender³⁶, was recently abandoned – moreover, after probation had already been successfully completed – by the Joint Division of the Italian Supreme Court³⁷. In this case, the Court *unusually* followed a strict interpretation of the principle requiring criminal law only be governed by acts of the legislator. In particular, this interpretation *excludes* the court’s power to create sanctions with an *afflictive* content (albeit *less afflictive* than the extinguished sanction and, in any case, at least in the specific case law, requested by the corporate entities)³⁸.

This is not the place to go into the Italian Supreme Court’s arguments in depth. However, they offer some interesting food for thought. Firstly, the Joint Divisions *restore* to the legislator the exclusive right to design penalty systems. *The legislator would do well* to seize this opportunity and to overcome the unequal treatment determined by conflicting case law principles³⁹. Indeed, such inequality risks to repeat, spreading into areas of inappropriate discretion, if the albeit necessary *dialogue* might

³⁶ Court of Modena, Preliminary Investigation Judge Division, order of 11 December 2019 (with note by Garuti, Trabace 2021); as well as Court of Bari, First Criminal Division, 22 June 2022 (on which Mazzacuva 2022).

³⁷ Italian Supreme Court, Joint Criminal Divisions, 27 October 2022 (filed on 6 April 2023), no. 14840 (commented by La Rosa 2023; Visconti 2023; Mossa Verre 2023; Martin 2022).

³⁸ In both cases, the programme had been drawn up in agreement with the relevant External Criminal Enforcement Office: see Court of Modena, Preliminary Investigation Judge Division, order of 11 December 2019, cit., 1; as well as Court of Bari, First Criminal Division, 22 June 2022, cit., 2.

³⁹ For the contrast created in the case law on the merits, see Court of Bari, First Criminal Division, 22 June 2022, cited with Court of Milan, order of 27 March 2017, and Court of Bologna, order of 10 December 2020, both containing reasons of a completely general scope; as well as the brief Court of Modena, order of 15 December 2020. This order includes the odd argument that the “rehabilitation of the corporate entity would be assessable only with respect to a prior and unsuitable organisational model, in the case in point adopted instead only after the offence was committed (*ibid.*, single page), and Court of Spoleto, order of 21 April 2021, where the latter argument was assessed on a “subsidiary” basis (*ibid.*, 4 ff.).

result into less secure *negotiations* at the mercy of judicial *praxis*, due to the lack of applicable legal provisions (Davì 2023; Merlo 2023).

Secondly, the judgment raises, perhaps unwittingly, deep questions about the purpose of the system of administrative penalties. This is especially the case to the extent that such purpose, more or less explicitly, must *cooperate with those same ends* at which the more strictly criminal tools of protection of the same legal assets are aimed (Paganizza 2021). Indeed, extending the scope of this reflection, without however going too far, could lead us to consider extending the guarantees and principles traditionally characterising criminal law to those legal provisions which, having a similar coercive scope, anticipate or replace it in relation to subjects which it cannot cover directly. Criminal law, first and foremost, must not disregard such guarantees and principles, not even in its most innovative and well-intentioned provisions⁴⁰. Indeed, these operate in concrete and *functional* terms, as they are aimed at ensuring a serene relationship between the legal system and citizens or, more generally, subjects bearing responsibility. At the same time, such guarantees and principles aim at the *preventive and responsive effectiveness* of the legal instruments they apparently curb.

Furthermore, this could be the right opportunity for an overall rethinking of the system of corporate liability. Indeed – before any further and imponderable extension of its scope of application – this system should seriously confront the variety of possible *relevant crimes*⁴¹. This variety is already considerable, in terms of the construction of the offence, the *mens rea* and, not least, the different criminological examples of the phenomena covered by law⁴². Moreover, corporate liability should

⁴⁰ Moreover, probation in itself raised doubts as to its constitutionality, which were (at least in part) resolved by Italian Constitutional Court, 21 February 2018 (filed on 27 April 2018), no. 91 (commented by Bove 2018; Cesari 2018; Conti 2018; Donnarumma 2022; Falato 2019; Forte 2022; Leo 2018; Maffeo 2018a, 2018b; Marandola 2018; Mazza 2019; Migliaccio 2018; Muzzica 2018; Parlato 2019; Sanna 2019; Saporito 2019; Troncone 2020).

⁴¹ That is, the cases of offences committed by a natural person, whether a top manager or not, which trigger administrative sanctions at the expense of the corporate entity to which the person belongs. The “special part” of the system of corporate liability is made up of an exhaustive, but increasingly extensive, list of such offences, contained in Section III of Legislative Decree No. 231/01.

⁴² Legislative Decree No. 231/01, Article 24 ff. (for remarks on the ineffectiveness of

avoid the apparent and unrealistic flattening of the contribution of this system to the levers of prevention and the overall (hopefully *integrated*) dynamics of the response to crime to purely economic dynamics. The aim is, rather than insisting on depletion and expulsion, to encourage individual responsibility and continuity of *commitment*, including through corporate entities and, more generally, work environments as relational spaces for the development of the human person⁴³.

3.3 Food supply chain and disciplinary systems.

In this perspective, a last sphere of potential abandonment of the logic of mere “threat and sanction” should be pointed out. Namely, that of disciplinary systems *at his point coerced* under the requirements of adequacy of organisation and management models. These logics aim at ensuring that corporate entities or, in any case, employers pursue compliance with the rules of conduct prescribed therein, often only vaguely prodromal to avoid offences.

As things stand, the list of sanctions is guaranteed to be a strictly binding catalogue and the collective bargaining system should ensure that it is precise and proportional (Palavera 2022b). Nevertheless, it still does not overcome the paradigm of afflictive and ablative sanctions. In essence, they *replicate criminal sanctions*, albeit on a reduced scale, but still entailing sometimes significant effects on the individual and family situation of the sanctioned person, up to the *capital sanction* (with respect to the employment relationship) of disciplinary dismissal. It is perhaps not by chance that it is called dismissal “*per giusta causa*” (*i.e.*, dismissal “justly” imposed for conduct seriously prejudicial to the interests of the employer), thus also evoking here the entrenched and misleading notion of the *justice of symmetry* or, in other words, *retaliation* (Eusebi 2019).

To the extent that the disciplinary system is in fact required to contribute to crime policy objectives, it would seem possible, *even at that level*, to design sanctions that are more consistent with the principles of rehabilitation and reintegration underlying the most effective preven-

a uniform law enforcement policy that is very much flattened on economic logic, see Palavera 2022b: 20 ff.).

⁴³ See § 2.3 above.

tive approaches. More specifically, small-scale *restorative justice*, training projects or voluntary activities to raise awareness, perhaps in public or third-sector organisations operating in the food supply chain, could be developed as alternatives to disciplinary sanctions not affecting the employment relationship, in agreement with the trade unions. Indeed, the latter could, in the application procedure to the specific case, guarantee the worker's free, express and assisted consent to the option of an active sanction⁴⁴.

As for the cases in which the alleged fact substantially affects the fiduciary relationship, it seems difficult to prevent the employer from dismissing and, for the duration of the investigation, from precautionarily suspend the employee. However, not even in this case should the employer be precluded from proposing, *where he deems? it possible*, as an alternative to sanctions not affecting the employment relationship, prescriptive or restorative options (also in the form of assisted mediation) that allow, in the event of a positive outcome, the continuation of the relationship. These are delicate situations, to be weighed with due caution, but which do not seem to exceed the scope of discretion in the choice between sanctions already granted to the employer, albeit within the limits and under the conditions mentioned above. Furthermore, all sanctions are always subject to prior motivation and without prejudice to all the remedies available to the employee in the event of subsequent litigation.

It is important to prevent the risk that increasingly burdensome prevention obligations on private actors will lead to a mandatory retaliatory reaction within the organisation, even when *all parties are willing to commit to a constructive and different solution*. Indeed, this would convey, also in the context of general legal culture, against all evidence offered by experience, the harmful idea that responding *to evil with evil* is the only *diligent* way to counter it. This assumption is *contrary to the truth*, both for the State and for the private individual and entities from which it requires collaboration.

⁴⁴ Giving back these workers' representatives a role in the protection of broader legal assets, in no way foreign to their historical mission (Carnelutti 1951: 248, 250, 253 ff.; Ichino 1981; Palavera 2023).

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GIORGIO REMOTTI*

SIGNS OF QUALITY AND BLOCKCHAIN TECHNOLOGIES:
NEW TECHNIQUES TO SUPPORT SUSTAINABILITY
AND QUALITY IN THE AGRI-FOOD SECTOR

1. Preliminary considerations: research scope and objectives.

New blockchain technologies are progressively impacting the current production structures of the agri-food sector. This paper analyses how these new technologies impact the distinctive signs and certification systems that are currently regulated in the agricultural sector. This is first to demonstrate the possible supplementary role of these technologies, where the functions to which the distinctive signs, the certifications, and the indications of geographical origin have shown signs of ineffectiveness. Secondly, the aim of this paper is to assess if these technologies can enhance the competitive mechanism by optimising resource allocation in this industry considering the objectives of environmental protection, sustainable production, and animal welfare.

Before continuing, further points should be considered.

Firstly, the semantic focus of ‘blockchain technologies’ is here considered in a broad sense and therefore not limited only to DLT (Distributed Ledger Technology) but also other technological discoveries that usually work together with these databases, including for example Smart Contracts and those technologies that fall under the label of Internet of Things (IoT) (on these new technologies see Fotiou, Siris, Polyzos 2018: 443 ff.; Remotti 2020: 189 ff.; Gallo 2020: 137 ff. And with specific reference to Agri-food supply chain see Zhao, Liu, Lopez, Lu 2019: 83 ff.).

Secondly, this paper focuses on examining how the dynamics of the free market can ensure that more virtuous producers and distributors are rewarded (e.g., those who conduct their economic activity in a manner consistent with the objectives pursued by the legislator, including, for example, the objective of protecting the environment and animal welfare). Indeed, there are many ways in which the European Union achieves the political objectives underpinning food law. For example, through strin-

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gent regulation to which the operators of the supply chain are subjected, also through a long series of subsidies and ‘direct payments’, etc. This paper only focuses on the impact that the new blockchain technologies have on the market and not the direct regulation of agricultural activities in terms of financing to support certain agricultural policies¹.

Given these premises, the essay starts with a brief examination of the functions of the system trademarks and other signs (including indications of origin) which are ancillary to the Agri-food sector’s law objective. Therefore, it will be necessary to determine what could be the auxiliary functions of the new blockchain technologies with respect to these trademarks and other signs.

2. The purposes of the EU legislation on food and the ancillary tools.

The legal objectives protected by food law are many and very diverse. Art. 169.1 of the TFEU provides that:

In order to promote the interests of consumers and to ensure a high level of consumer protection, the Union shall contribute to protecting the health, safety and economic interests of consumers, as well as to promoting their right to information, education and to organize themselves in order to safeguard their interests.

Art. 5, para 1, of EC Reg. 178/2002, headed ‘General objectives’, provides that:

[The] Food law shall pursue one or more of the general objectives of a high level of protection of human life and health and the protection of consumers’ interests, including fair practices in food trade, taking account of, where appropriate, the protection of animal health and welfare, plant health and the environment.

The four orders of interest underlying the correct identification by product consumers (as well as the components, geographical origins,

¹ Direct payments are financial contributions made by the State to farmers to support a certain agricultural production. They are awarded under the Common Agricultural Policy through the “conditionality”. On these instruments see Russo 2012: 1 ff.

production processes, etc.) circulating in the internal market therefore arise².

The first point of interest is that of the protection of health, which is anchored and reinforced by Art. 35 of the EU Charter of Fundamental Rights, and Art. 168 of the TFEU.

The second point of interest is the protection of the free market (and competition), which is recognised and strengthened in law by Articles 101 to 109 of the TFEU and in Protocol n. 27 on the internal market and on competition, where it is specified that undistorted competition is included in the objective concerning the internal market, pursuant to Art. 3, para 3, of the TEU, and Art. 36 of the Charter of Fundamental Rights.

A third point of interest relates to the health and welfare of animals (8), which specifically is referred to in Articles 13 and 36 of the TFEU³.

A fourth point of interest is the protection of the environment, which is expressly recognised in law by Art. 37 of the EU Charter of Fundamental Rights, and in Art. 11 of the TFEU (as well as the entire title XX and therefore articles 191, 192, and 193 of the TFEU).

These interests are pursued at the European Union level using multiple tools. Some of these tend towards a direct regulation of production and distribution activities in the food sector through tools designed for sanctioning⁴. This can be either negative or positive depending on the situation and these tools are aimed at encouraging the best practices, always in compliance with those said interests.

In addition, there are other tools that are designed to regulate the competitive dynamics in the food market. This is to ensure that producers and distributors who conform their business activities to the aforementioned interests can increase their sales prospects, even when this

² For an examination of these objectives at European level see also the Green Paper of the European Community on “The General Principles of Food Law in The European Union” of April 30, 1997, doc. COM (97)176; and the subsequent “White Paper on Food Safety” of January 12, 2000. For a comment see Rusconi 2017: 2 ff.

³ See the Communication on A new Animal Health Strategy for the EU (2007/2260(INI)). See Barzanti 2013: 49 ff. And on the ethical legal issues determined by the exploitation of animals, see the various contributions collected in Castiglione, Lombardi Vallauri 2012.

⁴ On the concept of (positive) sanction see Bobbio 1977: 13 ff.; Id. 1984: 7 ff. On the incentive function of intellectual property rights with reference to distinctive signs such as the collective mark and geographical indications see Sarti 2011: 151 ff.

confirmation brings with it an increase in the costs incurred for the production or distribution of food products.

One of the essential points of EU policy is that of supporting the quality of Agri-food products, according to a strategy aimed at harmonising the national sector regulations so as to always ensure the rational choice of the consumer; this is also taking into account: (i) information asymmetries, (ii) the truthfulness of information about food products, and (iii) correct competition in terms of quality as well as price.

This policy was launched in an organic form at the end of the last century with the Regulations (EEC) 2081/1992/ and 2082/1992 establishing the PDO, PGI, and TSG, alongside the already established line of DOC and DOCG in the wine sector. The introduction of these signs had an immediate repercussion within the WTO, generating a reaction in third countries that contested Community regulations, based on origin, as elements of rigidity and distorting the freedom of the markets. To respond to these criticisms, the EU amended the 1992 Regulations by introducing Regg. (EC) 509/2006/ and 510/2006 and effectively obtaining the recognition of its own discipline of quality products on a global level. It was important for the EU to harmonise the regulation of quality food products that had been developed at different times and in multiple ways in diverse sectors by the Member States. Therefore, little by little, during this time period, the European legislator intervened to this end. The regulatory framework to support the quality of agri-food products is based on: (i) Reg. (EU) 110/2008 on geographical indications of spirit drinks; (ii) Reg. (EU) 607/2009 on protected designations of origin and protected geographical indications, traditional terms, labelling and presentation of certain wine sector products; (iii) Reg. (EU) 1151/2012 on quality schemes for agricultural and food products, supplemented by Regg. (EU) 664/2014 (PDO, PGI, TSG detailed rules) and 665/2014 (mountain product); (iv) Reg. (EU) 251/2014 on geographical indications of wine products.

The main objectives pursued by the European legislator are the following: (i) promoting the diversification of agricultural production and multifunctional agriculture; (ii) supporting disadvantaged and peripheral rural areas, thereby improving farmers' incomes and thus avoiding depopulation; (iii) promoting quality products that are increasingly requested by consumers; (iv) trying to protect those involve against imita-

tion and unfair competition; (v) ensuring conditions that do not distort competition; (vi) providing consumers with clear information about the origin and characteristics of products purchased; (vii) safeguarding a product that is linked to a certain territory/region and the traditions of that places.

As already mentioned, most of the objectives underlying Food Law are typically pursued through the use of distinctive and certification marks by producers and distributors. These signs make it possible to shift the competitive conflict from price to other sides relating to the qualities that are concretely insistent on the products offered. Through the adoption of signs certifying specific attributes, the consumer is allowed to reward producers and distributors whose commercial strategies are increasingly in line with the objectives established by food legislation.

3. Competitive dynamics and functions of disclosing qualities of food products.

The purchase of a food product by consumers has significant repercussions on the evolution of market in terms of the conformation of supply to demand. Competition can be described as «a process of rivalry between firms seeking to win customers» (para 2.2 of the UK Merger Assessment Guidelines, CMA 129, March 2021).

To this end, it is necessary to establish uniform rules (playing field) to prevent the destructive effects of competition, thereby precluding the benefits that this typically provides. At the same time, at the European level, competition is not protected as a value in itself, but only as a legal instrumental good for the achievement of higher purposes (Whish, Bailey 2021: 17 ff.). These purposes can be better specified in a series of benefits for all the players interacting in a given market (“total welfare”), and more particularly to achieve “the maximum well-being of the consumer” (“consumer welfare standard”). That is to say that in an effectively competitive (contestable) market, the agents – on the supply side – will be able to act on both the price and the quality of the products to gain market share.

In the first case, producers and distributors will be able to act on the “Price leverage” (so-called “price or quantity competition”) by offering

the same products or services (or substitute products or services) at a lower price than that charged by other competitors. In other words, in a competitive market, prices tend to decrease to the advantage of users, up to the so-called equilibrium price.

In the second case, producers and distributors – in order to expand their market shares – will be able to attempt competition – not in terms of price but – based on the offer of a product with particular distinctive qualities (so-called qualitative competition). In other words, companies will be induced to improve the quality of the products and services they offer compared to those offered by other companies on the market.

The effects that these two competitive dynamics determine (through “benchmarking”), should therefore ensure: as to demand, the maximum well-being of the consumer given that they will be able to obtain high quality products at a market price; as to supply, the excellent allocation, rewarding producers and distributors capable of offering the best products at lower prices.

The EU legislator is interested the most in presiding over competition on quality. The objectives previously analysed underlying European food law (often) involve higher production costs than other substitute products that these objectives are not able to ensure. Therefore, these objectives can be effectively pursued by exploiting (also) competitive dynamics, but for apparent paradox, only on condition that the market is not completely levelled. Market regulation should benefit market participants who undertake to offer a product in line with these objectives. In other words, it is essential that competition between different producers is not reduced to price competition alone. According to the majority doctrine, the need to introduce regulatory profiles of competitive dynamics and even more those “monopoles” consisting of industrial property rights (such as trademarks, and other distinctive signs) does not represent an idiosyncratic element with respect to the principles of freedom of economic initiative and free market⁵.

⁵ It is noted in literature, that the current justification of intellectual property rights (that of the premium/ incentive to innovation and product differentiation), identifying *ante litteram* a market model characterised by dynamic competition, in which companies are driven on the path of innovation and differentiation. This market model is precisely the same that underlies the correct interpretation of the competition’s rules. See Libertini 2014: 47.

Whenever the strict merchant mechanism leads to distortive effects with respect to the objective of achieving maximum consumer welfare, restrictions on freedom of economic initiative and free market will be allowed peacefully, as they are useful to ensure the achievement of those objectives that we will define “extra-market targets”. Market restrictions will therefore be allowed, which can be achieved, for example, by making the lawfulness of the exercise of a given activity subject to a condition, sometimes by complying with precise requirements (think of food safety legislation)⁶, sometimes implementing specific information needs to ensure rational consumer choice⁷.

The distinctive signs, geographical indications and certifications at-testing – directly or indirectly – certain qualities, are all tools aimed at ensuring the correct deployment of the competitive dynamic and – in a particularly significant way in the Agri-food sector – the valorisations of certain production and commercial techniques instead of others (Sarti 2011:152; and Ubertazzi 2017, 562 ff.).

The four objectives that Art. 5 par. 1 of EC Regulation 178/2002 establishes in the sector in question can precisely be obtained through the valorisations of certain production and commercial techniques in place of others.

However, the effectiveness of these tools depends on the actual correspondence between the sign used in commerce and the information that the sign is called upon to convey. And it is precisely from the point

⁶ Consider, for example, the European regulation “Hygiene Package” (originally composed of Regg. (EC) 852, 853, 854 and 882 of 2004. After the Regulation (EU) 2017/625 (Official Control Regulation) of 14 December 2019, Regulation (EC) 854/2004 has been repealed. The provisions on official controls on products of animal origin are now in: (i) Commission Delegated Regulation (EU) 2019/624 (Official controls of products of animal origin); (ii) Delegated Regulation (EU) Commission Regulation 2022/2292 (Import conditions for public health); (iii) Commission Implementing Regulation (EU) 2019/627 (Practical Agreement on Official Controls of Products of Animal Origin); (iv) Commission Implementing Regulation (EU) 2020/2235 (Import certificates); (v) Commission Implementing Regulation (EU) 2021/405 (lists of third countries authorized to import products of animal origin) in which disciplinary measures on food hygiene are prepared, their marketing and a range of control tools. Failure to comply with the provisions contained therein leads to the exclusion of products from the market.

⁷ In general, on the role played by rational choice in the free-market economy see Buchanan 1969.

of view of the effectiveness of the functions to which these signs are ancillary that blockchain technologies promise to take on an important role soon. A brief examination of the multiple signs (and specific functions) in use in the Agri-food sector shall now be carried out.

4. The different signs on food products: minimum coordinates on the multiple functions.

Agri-food products typically have multiple distinctive and certification signs. On the same product, the following signs can coexist: (i) an individual trade-mark (and often more than one); (ii) a collective mark; (iii) one or more certification marks; (iv) a geographical indication and origin, such as PDOs, PGIs, TSGs and IFQs (25); (iv) other certifications attesting the qualities of the products or of the production methods (for example the EMAS certification certifying adherence to the principles expressed in Reg. (EU) 1221/2009)⁸, and therefore, compliance with the quality standard and commitment in the matter environmental by the undertaking (26), or on the places where the products are made (for example, the wording “made in”)⁹.

It is worth carrying out a brief survey of the main functions fulfilled by these different signs, indications, and certifications.

These distinctive signs can be distinguished both: under the light of the private rather than public dimension of the different signs, and under the light of the different functions legally protected by both.

The trademark system (including certification and collective ones) remains anchored to a private dimension. As is known, the function of individual trademark is monitoring the commercial strategies to be attributed to the owner of the sign¹⁰, while collective and certification trademarks ensure compliance with certain quality standards.

⁸ On EMAS (Eco-Management and Audit Scheme) see Iraldo, Testa, Daddi 2018: 48 ff.

⁹ The regulation of this “simple” (since it does not specify the origin of a product from a specific geographical area on which specific quality characteristics of the product resulting from human or natural factors depend) geographical indication is dictated by Reg. (EC) 2013/952 (which replaced the previous Reg. (EC) 2008/450). See Rubino 2017.

¹⁰ Apart from the typical function of the individual mark described in the text, in the

The collective mark is a distinctive sign whose function is distinguishing products or services of multiple companies, due to their specific origin, nature, or quality¹¹. This sign therefore guarantees the conformity of the product or service to a specific regulation (“product specification”). Unlike individual trademark, the collective one is a brand used by a plurality of undertaking. The collective mark owner is a person (other than producers) guaranteeing the origin, nature or quality of certain products.

The function of guarantee or certification marks is certifying the existence of certain characteristics of the products; more precisely the conformity of the product or of the process to create the product with a specific regulation (“regulation for use”). Like trademarks, guarantee or certification marks have sectoral validity (they are registered indicating the product categories for which they operate according to the Nice Classification) and generally territorial. The owner of the guarantee or certification mark can be either a natural or legal person, an institution, an authority or a body governed by public law. In any case, any person holding this sign cannot manage a business for the creation or supply of products and services of the certified type. That is the principle of “neutrality” of the certifier with respect to the interests of those who use the sign on the market; this means that the owner of the sign can only certify the products and services that others use in their respective activities and can never certify their own products or services.

The function of indications of origin such as PDOs, PGIs and TSGs is designating an Agri-food product as originating from a specific *milieu* whose production characteristics deriving from human and natural factors are incidental on product quality¹².

field of foodstuffs, the mark has a plurality of functions such as: (i) to indicate the fancy name of the product or a line of products made by a particular company (so-called “special mark”, which is for example “kinder”); (ii) to indicate the components of the product or certain other characteristics (so-called “descriptive mark”, which is for example “estathe”); (iii) evoke the geographical origin of the product (so-called “geographical mark”, which is for example “Amaro Lucano”). See Ghiretti, Milani 2017: 639.

¹¹ A collective mark may consist in signs or indications (for example, a location) used to designate the geographical origin of the goods or services. However, anyone operating in the same *milieu* may still use the geographical indication in trade if this is done in a manner consistent with professional fairness. See Ricolfi 2015: 1762 ff. And about the function of this sign see also CJEU, May 8, 2014, C-35/13.

¹² Specifically, PGIs identify places that have much more nuanced environmental

However, unlike collective brands, these signs boast protection that goes beyond the strict deceptivity for the consumer, extending generically to any promotional technique characteristic of products marked with PDO, PGI and TSG, establishing the law (art. 13.1 letter d) of the Reg. EU 1151/2012) that the protection of these signs extends to any practice that may mislead the consumer as to the true origin of the products (art. 13 of Reg. (UE) 1151/2012; Sarti 2011: 161 ff.).

The EU geographical indication system, by communicating to the consumer the production characteristics linked to the geographical origin of the product, therefore, intends to exploit the merchant-list mechanism: (i) to promote the production system and the economy of specific territories; (ii) to protect the environment, given that the indissoluble link between product and milieu also implies the protection of ecosystems and biodiversity; (iii) to support the social cohesion of the entire community (avoiding, for example, the depopulation of disadvantaged and peripheral rural areas). At the same time, through these certifications, consumers are assured of a higher level of traceability and food safety respect other products on which these signs do not insist.

The authorisation to use a sign capable of a particular suggestive force in the mind of the consumer determines a competitive advantage for the operators who can use that sign, compared to others. An advantage that can be compatible with competition rules only when formal diversity leads to a sort of substantial equality. This means that to prevent these signs from being translated into instruments capable of altering and distorting free competitive play and thus trade between member states, the referents must reflect truthful information.

The additional functions that blockchain technologies promise for the future operate on the level of effectiveness. Given the premise that

characteristics. It is in fact sufficient that the product originating in the region or place (in exceptional cases coinciding with a State) has “a certain quality, reputation or other characteristics” attributable to geographical origin and “whose production and/or processing takes place in the defined geographical area” (see Art. 2.1 lit. b, Reg. (EC) 510/2006). The difference with respect to the PDO emerges first from the possibility that even a product characteristic is related to the territory; while the PDO seems to postulate that all the characteristics (at least essential) are influenced by the environment. See Sarti 2011: 153. On the interferences between these signs and trademarks (individual, collective and of quality) see Sironi 2009: 208 ff.

effectiveness is a requirement for the existence of the law (Kelsen 1960: 219), and considering that the system of distinctive signs and indications of origin is an instrument of effectiveness of the apical rights for the protection of health, environment, animal welfare and so on, it seems logical to infer that where these signs do not convey truthful information the functions underlying these signs would be betrayed.

5. Individual, collective, guarantee and certification marks in the Agri-food sector and the additional functions of blockchain technologies.

With reference to the trademark system, blockchain technologies could in future perform various useful functions to strengthen the effectiveness of the functions to which these signs are ancillary, thus ensuring more meaningful protection of the various distinctive signs.

Blockchain technology allows to record, archive and transfer information with an almost absolute degree of certainty and is therefore insusceptible to alterations, which brings obvious advantages compared to traditional databases. This happens because a unique digital fingerprint is inserted in the blockchain, so that through the insertion of the data related to the distinctive sign in the form of a numerical string (hash value) an unalterable certification is constituted.

This allows rapid tracking of all relevant events affecting the entire life cycle of the sign insistent on the food product, including, for example, those relating to storage, publication, registration, transcriptions, transactions, and above all at the beginning of the actual use of a brand and the intensity of this use.

The application of blockchain technologies to the activities that accompany the birth and life of a brand could guarantee numerous benefits; in particular, it could lead to significant advantages, including above all a clear simplification of the collection of evidence certifying the events relating to each intellectual property title, including the significant evidence of use of the brand, which is indispensable, for example: to deal with any cancellation actions by third parties; to determine the notoriety of the sign; to precisely measure the *quantum damni* following counterfeiting.

Looking at collective brands, blockchain technologies could ensure correct management of the sign both vis-à-vis consumers and in relations between persons authorised to use the sign. More specifically, a structured blockchain – not in permissionless form but – permissioned¹³ can allow operators to detect (through tokens, possibly in synergy with geo-location systems and other solutions offered by the IoT; Schulte, Sigwart, Frauenthaler, Borkowski 2019: 3 ff.) the information relating to compliance with the production regulations for typical products, to enter this information (encrypted) into the blockchain, thus allowing for easy consultation by consumers. This technology based on cryptography, in addition to ensuring transparency and immutability of the data entry and therefore of the related information, can certify the moment (through the “timestamp”) and the place of the entries, making every single operator in the supply chain responsible.

Thus, in the relationships between the various producers authorised to use the collective brand, a more efficient and economical control of compliance with the specifications could be achieved. The impossibility of altering the information relating to the traceability of the supply chain, the origin of the raw materials, the compliance with certain production techniques prevents fraudulent and opportunistic behaviour of certain producers to the detriment of others, and thus indirectly ensures that the objectives of the legislation on food processing entrusted to merchant mechanics examined above cannot be distorted.

Even with regards to guarantee and certification marks, blockchain technology could perform important auxiliary functions. These signs have a rather delicate function in the market dynamics, and the certifying body represents a sort of private authority (Bianca 1977). The principle of neutrality (with which the certifying body must comply) is explained precisely in light of the conflict of interests in which this body would find itself if it could establish the criteria and requirements necessary for obtaining authorisation to use the product in the trade certification,

¹³ A blockchain permissionless is a public blockchain, meaning that all peers (all participants in the blockchain) must verify all transactions. A blockchain permissioned is a closed or private blockchain in which a central authority authorized to validate the insertion of blocks within the chain is retrieved. The latter assumes the features of a normal cloud database. See Cuccuru 2017: 111; Remotti 2020: 189 ff.

and, at the same time, could produce the certified products. This is due to the fact that the selection of the requirements necessary to obtain the certification could be subjected to evaluations unrelated to the quality profiles of the product or production process, and because a similar subjective overlap offers may prevent certain producers from accessing certification, despite complying with the requirements laid down to safeguard the quality assurance underlying the mark; this would constitute an unfair commercial practice. Even more where the assessment of the existence of certain requirements can be complex and require technical checks, as often happens in the Agri-food field.

Through a permissionless blockchain, thanks to the decentralised IT architecture the intervention of a central authority is no longer necessary. Thus, the preparation of a smart contract aimed at regulating the granting of licenses to use the sign for producers who request it is imaginable. The requirements that a specific producer must obtain in order to be able to boast the guarantee and certification sign could be established (and therefore written) on the smart contract, so that it will be the same technological structure that ensures that this subject is authorised to use the sign only when they have met the conditions established for the authorisation to use the certification, and as long as they continue to meet them. Through a kind of disintermediation of the certification activity that would be entrusted to an infrastructure unbearable to any discretionary determination that leads to distortive effects of the merchant mechanics to which the certification is ancillary. The principle of neutrality can be effectively observed through these new technologies.

6. Indications of origin and blockchain technologies.

Possible functions that these new technologies could have with respect to the system of indications of origin shall be now analysed.

As mentioned above, quality agri-food products can only obtain PDO or PGI recognition if the operators involved along the production chain comply with the essential requirements defined in the product specification. New technologies could simplify and make control procedures safer regarding compliance with specifications and thus better integrate the functions for which these marks result.

In addition to smart contracts and IoT technology, the integrated system of blockchain technologies includes and implements further technical discoveries such as “QR Code technology”, and “AMS technology” (Accelerator Mass Spectrometry). These technical discoveries promise to guarantee security and transparency for all players in the Agri-food chain and therefore greater effectiveness of the functions underlying the indications of origin examined above. What has now been stated is particularly valid when looking at traceability of the supply chain (Patelli Mandrioli 2020: 3670 ff.). More precisely, through these inventions all the phases of production and distribution of a given product can be recorded and therefore remain immutably traced.

An example of the above may be IoT sensors thanks to which it is possible to first measure and then certify the agricultural surface that the producer has decided to allocate to the PDO or PGI product, identify the cultivated plant varieties rather than the varieties of animals raised, and the feed administered to them, the density of the production activity and the processes adopted for the processing and treatment of the raw materials. Furthermore, thanks to QR code technology (Iftekhar, Cui, Hassan, Afzal 2020: 1 ff.), it is possible to record and trace all the phases of the manufacturing process (the history of each food product from genesis to production and distribution). Therefore, this technology makes all the information mentioned above regarding the entire supply chain easily understandable for every interested party (other producers, distributors, and consumers), accordingly starting from the geolocation of the cultivated land or livestock (and feed), using technological platforms exploiting application on any smartphone.

An example can help better describing the supplementary functions of these new technologies in relation to indications of origin. Imagine a farmer who is part of the production chain of a fresh meat protected by a PDO. To obtain PDO status, evidence must be provided, for example, of the suitability of feed, the place of grazing and the processing techniques. With the blockchain, the farmer using time stamps and geolocation tools can ascertain the information about the genealogical origin of the cattle, the origin of the herds, the grazing area, the places of slaughter and the techniques used, by entering in the register the identification data of the batch of meat produced (Tripoli, Schmidhuber, 2020: 16). Moreover, these data could be condensed into a label containing a QR Code, so that

this smart label once applied (and correctly matched) on the packaging of the related product discloses to the consumer (reducing or eliminating any information asymmetries) and to the authorities (for any checks that may be appropriate) all information on compliance with the regulations and therefore on the origin and processing of the products. Consequently, if a hypothetical competitor tries to alter the label (for example by reproducing it on its own products) to give the appearance that it has used a batch of grain already traced through the blockchain, the attempt of fraud will be easily detectable by the competent authorities, since the codes used to trace the raw materials of the authentic product will appear immediately as already used (for authentic products) and therefore cannot be used a second time for other products.

It seems clear that the functions described above that these technologies promise to perform, once again, affect the effectiveness of the protections and interests that the indications of origin serve. European Union entrusts merchant mechanics with the task of finding the right balance between different antagonistic interests. Thus, for example, if on the one hand the market will tend to reward the cheapest food product compared to others, on the other hand, thanks to the system of marks (especially quality ones, such as those of guarantee and certification) and (especially) of the indications of origin, will allow the consumer to select those products of higher quality by accepting an economic sacrifice dictated by the higher price that often accompanies this type of production. Thanks to the system of signs of quality and origin, an attempt is made to shift competition from price to quality, thus allowing the market to pursue other objectives as well, such as those mentioned in the various European Regulations that have been gradually enacted over time in terms of protecting the quality of Agri-food products¹⁴. Strengthening the effectiveness of the protections and interests safeguarded by the system of signs of quality and origin prevents distorting effects on competition and ensures rational consumer choice.

Indeed, by disclosing to the consumer the particular efforts and techniques that the producer has decided to take in selecting the products, in processing them according to particular methods that respect the natural

¹⁴ See Regg. (UE) nn. 110/2008, 607/2009, 1151/2012, 664/2014, 665/2014, 251/2014.

organoleptic characteristics and traditional production methodologies, according to the specifications imposed by the various consortia for the protection of PDOs and PGIs, and therefore by assuming the related production costs (usually somewhat higher than the more industrialised ones), a fairer competitive dynamic is ensured, which allows recovery in terms of product quality the competitive advantage that is lost on price.

Furthermore, with the entry into force of the new European Regulation on Indications of Origin¹⁵, the environmental sustainability of production should be indicated in the relevant production specifications. Food production and distribution leads to significant negative economic consequences. An IPPC report shows that the environmental impact of food production is greater than that of industry and transport¹⁶. The main reason for this environmental impact is the production chain of the meat industry which contributes up to 23% of the annual greenhouse gas emissions in our planet. Farmed animal transforms plant resources into animals; however, it does so in an inefficient way, since to increase the weight of a bovine animal by one kg it takes about 11 kg of plants. Therefore, counting the slaughter waste, at least 15 kg of vegetables to get 1 kg of meat are needed. Such a waste of resources causes serious social problems (inequality in the distribution of resources) and a disastrous impact on the environment.

According to several FAO reports¹⁷, sustainable food models cause significantly less severe environmental impact, ensure greater food security, and contribute to a healthy lifestyle for humans, leading to a re-

¹⁵ See Proposal for a Regulation of the European Parliament and of the Council on geographical indications of the European Union for wines, spirit drinks and agricultural products and on quality schemes for agricultural product, available at eur-lex.europa.eu.

¹⁶ See IPCC, *Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (SRCCCL)*, Retrieved August 9, 2019, 10. And see also OECD-FAO, *Agricultural Outlook 2020-2029*, FAO, Paris: OECD Publ., 2020, 162 ff. In literature see Johnson, Ford Runge, Senauer, Foley, Polasky 2014: 12342 ff.

¹⁷ See FAO, *Building a common vision for sustainable food and agriculture. Principles and approaches*, 2014; FAO, *The State of Food and Agriculture: leveraging food systems for inclusive rural transformation*, 2017; FAO, *FAO framework for the Urban Food Agenda. Leveraging sub-national and local government action to ensure sustainable food systems and improved nutrition*, 2019; and FAO, IFAD, UNICEF, WFP e WHO, *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition*, Rome, FAO, 2018.

duction in health-related costs. The concept of sustainable nutrition also includes the ability of producers to be ecologically compatible and to respect biodiversity and ecosystems. The costs of (negative) effects are not passed on to the producers or distributors who generate them but are mostly borne by the community. The reason also lies in the difficulty of arriving at an exact assessment of the damage caused and the costs of reparation necessary as well as the finding of the causal link and therefore the attributability of these diseconomies to a specific producer. The failure of producers to bear the externalities related to food production and distribution determine a change in the proper functioning of the competitive dynamic and its function of optimal allocation of resources. If the price of the product does not reflect social costs, the choice of the consumer will fall on what is offered at the lowest price, although it may conceal a higher social cost (for example because it is made according to methods highly impacting on the environment) compared to a competing product offered at a higher price.

With blockchain technology and by means of IoT, it is no longer impossible to make precise measurements about the environmental impact caused by the agri-food chain. This technology can measure the environmental footprint of a food product (and therefore of individual producers and distributors in the supply chain) throughout its life cycle (from raw material extraction, use, to options for final waste management). So, the utility cryptographic tokens, issued through smart contract on the blockchain can be exploited to recover a proper competitive dynamic and thus encourage sustainable behaviour of manufacturers and distributors. Only under these conditions does competitive dynamics guarantee a correct allocation of resources.

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PART III

RIGHT TO FOOD ACCORDING
TO EVERYONE'S PREFERENCES

Equality and difference.
Meat and social value of food

FOOD AND THE MEAT SUPPLY CHAIN IN ANCIENT ROME

1. The diet of the Romans: from cereals to meat.

Within the framework of the research project “Towards safe food: rights, rules, values in the meat value chain”, the Roman law scholar’s point of view is part of the third theme dedicated to “Right to food for all according to personal preferences. Equalities and differences. Meat and the social value of food”, which aims to explore the concept of food, and meat in particular, as a factor of social integration, while at the same time refuting its function, typical of consumer societies, of a commodity (Fabbri and Barberis, Damiani, this volume).

Insisting on the values intertwined with food, some interesting considerations can be drawn from the experience of ancient Rome, where the importance of the food supply is directly proportional to the role that different types of food played in the diet.

The early *civitas* was – as is well known – a society based almost exclusively on livestock farming, in which livestock had a very high value. The writings of Pliny the Elder, who describes how animals were used as units of value in exchanges in kind, are fascinating: fines were fixed in a certain quantity of sheep and oxen; festivities were called *Bubetios* because of the oxen; even – says Pliny the Elder – King Servius Tullius was the first to mark metal with images representing sheep and cattle.

Plin. nat. hist. 18.11-12: ... multatio quoque non nisi ovium boumque inpendio dicebatur, non omittenda priscarum legum benivolentia: cautum quippe est, ne bovem prius quam ovem nominaret, qui indiceret multam. 12 ludos boum causa celebrantes Bubetios vocabant. Servius rex ovium boumque effigie primum aes signavit ...

Poultry, sheep and goats were the most common animals; cattle and horses, mostly used for field work, were rare; goats and farm animals such as pigeons, lambs, sheep, but also large bulls and large cattle such as

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oxen, cows and bulls, could be eaten in religious rituals as a sign of propitiation of good relations between man and the gods (i.e., Sini 2002: 1 ff.; Agnati 2022: 175 ff.). To celebrate the most important family events, such as births, weddings or funerals, or to celebrate special moments in the social life of the time, eating the meat of sacrificed animals was not prohibited, even in the face of extreme poverty.

On the other hand, meat was by no means the mainstay of the Roman diet from the very beginning; cereals, pulses, vegetables and greens were the most common products. “In a dimension where simplicity of customs and frugality of meals reigned, only ingredients found in the Italic area were served” (Fargnoli 2021: 17).

Pliny the Elder tells us that for more than three hundred years the main source of food for men and animals was spelt, a hardy cereal that could withstand the rigours of winter and was suitable for all types of terrain, and therefore widely used as a basis for food products¹.

It was only later, from the middle of the 3rd century BC, that meat appeared on Roman tables. The historical context is significant: Rome, now the undisputed ruler of the entire Mediterranean after its victory in the Second Punic War, had also intensified trade with overseas territories; the closed economy, geared to self-consumption, which had characterised the archaic phase, gave way to a system based on exchange and profit. This led to the proliferation of new foods and, consequently, to an increase in the sophistication of food preparation, which became more elaborate with the use of spices and flavourings from all over the empire.

Alongside this change in the Roman diet, we must also take into account another tension that permeated Roman society, especially that dominated by the wealthiest, namely the configuration of the banquet as a moment of display of wealth and social prestige: the greater the splendour of the table, the greater was the power of those who organized it in the eyes of the guests. At the same time, animal sacrifices became mere formalities that no longer corresponded to the traditional perception of the link between the human and divine worlds.

One of the most famous examples is the 1st century A.D. dinner of

¹ The processing of spelt yielded a flour that was cooked in water and salt to produce the so-called *puls*. In particular, Cato’s *De agricultura*, chapter LXXXV, illustrates the preparation of *puls*.

Gaius Pompey Trimalchio Maecenatianus, described in a long fragment of Petronius' *Satyricon* (chapters 27-78): the story tells of Trimalchio, a freedman who had become rich through trade, and who, to show off his wealth, organized a lavish banquet consisting – according to the sources – of 77 courses. “Here, food, which is never or hardly ever praised for its taste and authenticity, is openly spectacularised, with the aim of stunning the guests of the enriched freedman. In particular, each course emphasizes the high cost, rarity and *mise en scène* of the meal” (Danese 2020: 167).

Fish, exotic fruits, spices, wine, game and meat of all kinds² became disproportionately abundant on the tables of the wealthy of the capital, so much so that legislation was needed to curb the excessive display of opulence. The *leges sumptuariae*, “laws regulating luxury”, issued between the end of the 3rd century and the middle of the 1st century BC, are well known, and were also called the *leges cibariae* for their particular rigour in regulating extravagance in food³. For this paper, those laws on food intending to limit the excesses associated with the unbridled consumption of meat are of great importance: such as the *Lex Fannia sumptuaria* of 161 B.C., which forbade the bringing of more than one hen (moreover not fattened)⁴, or a stuffed pig to the table⁵; or the *Lex Licinia sumptuaria*, datable between 143 and 103 B.C., which, in addition to setting strict spending limits that differed for holidays, weekdays and weddings, prohibited the consumption of dried meat over three pounds on days other than *Kalendae*, *Nonae* and market days⁶.

² See, for example, Varro *de rust.* III.6.6, which speaks of the custom of serving peacock. But see also Pliny *nat. hist.* 10.14.

³ Important sources are the *Noctes Atticae* of Aulus Gellius and the *Saturnaliorum convivia* of Macrobius Theodosius. For a more in-depth look at laws regulating luxury, see Bottiglieri 2002.

⁴ Plin. *nat. hist.* 10.139: *Gallinas saginare Deliaci coepere, unde pestis exorta opimas aves et suoapte corpore unctas devorandi. Hoc primum antiquis cenarum interdictis exceptum invenio iam lege Gaii Fanni consulis undecim annis ante tertium Punicum bellum, ne quid volucres poneretur praeter unam gallinam quae non esset altilis, quod deinde caput translatum per omnes leges ambulavit ...*

⁵ Macr. *Sat.* 3.13.13: *... Nam Titius in suasionem legis Fanniae obicit saeculo suo quod porcum Troianum mensis inferant, quem illi ideo sic vocabant, quasi aliis inclusis animalibus gravidum, ut ille Troianus equus gravidus armatis fuit.*

⁶ Macr. *Sat.* 3.17.9: *... ceteris vero diebus, qui excepti non essent, ne amplius daretur apponeretur quam carnis aridae pondo tria ...*

2. The distribution of free meat as an instrument of power.

The role that meat gradually assumed in ancient Rome can also be seen from the fact that meat was among the necessities that first the republic bodies and then the emperors undertook to distribute at reduced prices or even free of charge to the *Roman cives* in times of crisis and famine.

The practice of distributing food, known as the *annona*, was very important to the Romans, who saw it not only as a means of helping the poor, but also as a means of preventing food crises and, in a broader sense, of maintaining public order and social peace by preventing riots (Biccari 2020: 343 ff.). For a long time, the *annona* mainly consisted of agricultural products, especially wheat, but with the expansion of Rome and the changing diet of the Roman people, other foodstuffs were added, such as oil, salt, wine and *caro porcina*, pork meat. This is how meat, which remained an uncommon food in the first centuries of Rome's history, became increasingly popular, both for its nutritional value and, perhaps more importantly, for its political and social uses.

In the largest Roman cities, certain marketplaces were dedicated specifically to trading animals, and therefore meat and certain types of meat. The *forum Boarium* existed since the foundation of the city of Rome; it was located in a very strategic position, close to the Tiber River and the Portus Tiberinus: it was here that cattle, especially oxen, were bought and sold, arriving by the river and immediately put up for sale in the market, making the Forum Boarium one of the most important centre of Roman public life. During the Empire, the *forum Suarium*, located in the northern part of the Campus Martius, was the pork *forum venalium* of ancient Rome, linked to the sale of pork. It was probably managed by a prefect (as a *tribunus fori suarii*) or one of their officials⁷.

Then there were the various distributions to the people, known as *viscerationes*, which were initially very sporadic and were carried out by private individuals at their own expense in order to increase their popularity.

⁷ For a reflection on the role of *tribunus fori suarii* in the control of the meat prices and supervision of the *forum Suarium*, see Sinnigen 1957: 90 ff.; Chastagnol 1960: 254 ff.; Purpura 1985: 107. And with different considerations Mantovani 1988: 213 f.; Silverio 2012: 18 ff.

Livy reports that Marcus Flavius, thanks to the *visceratio* he organized in 328 BC to celebrate his mother's funeral, won great support for his election as tribune of the plebs:

Liv. *ab urb. cond.* 8.22: *Secutus est annus nulla re belli domiue insignis, P. Plautio Procuro P. Cornelio Scapula consulibus, praeterquam quod Fregellas (Segninatorum is ager, deinde Volscorum fuerat) colonia deducta et populo visceratio data a M. Flavio in funere matris. Erant qui per speciem honorandae parentis meritam mercedem populo solutam interpretarentur, quod eum die dicta ab aedilibus crimine stupratae matrisfamiliae absoluisset. data visceratio in praeteritam iudicii gratiam honoris etiam ei causa fuit tribunatuque plebei proximis comitiis absens petentibus praefertur ...*

Afterwards, Caesar (101-44 BC, *Pontifex Maximus* from 63 BC and *dictator* from 49 to 44 BC.) as a skilful military and political strategist, organized a *visceratio* to celebrate one of his triumphs, obviously to increase his popularity with the Roman people: *adiecit epulum ac viscerationem et post Hispaniensem victoriam duo prandia; nam cum prius parce neque pro liberalitate sua praebitum iudicaret, quinto post die aliud largissimum praebuit* (Svet. *Iul.* 38).

According to a report in the *Historia Augusta*, Alexander Severus, Roman emperor from 222 to 235 AD, carried out sporadic *viscerationes*, which not only had the effect of lowering the price of meat but, by prohibiting slaughter for a year or two, had the added benefit of building up a sufficient supply of meat to meet demand:

Hist. Aug. *Alex.* 22: *... cum vilitatem populus Romanus ab eo peteret, interrogavit per curionem quam speciem carum putarent. Illi continuo exclamaverunt carnem bubulam atque porcinam. Tunc ille non quidem vilitatem proposuit sed iussit, ne quis suminatam occideret, ne quis lactantem, ne quis vaccam, ne quis damalionem, tantumque intra biennium vel prope annum porcinae carnis fuit et bubulae, ut, cum fuisset octo minutulis libra, ad duos unumque utriusque carnis libra redigeretur.*

Certainly Aurelian, who ruled from 270 to 275 AD, understood the importance of *viscerationes* more than anyone else, introducing a system of free and regular distribution of pork during the winter months (Chastagnol 1960: 58 f.; Jones 1964: 702 ff.; Neri 1985: 251 ff.; and more recently Soraci 2006: 390-397; Vera 2010: 218 f.): *nam idem Aurelianus et porcinam carnem populo Romano ditribuit, quae hodieque dividitur* (Hist.

Aug. Aurelian. 35.2); *Statuerat eu vinum gratuitum populo Romano dare, ut, quem ad modum oleum et panis et porcina gratuita praebentur, sic etiam vinum daretur, quod perpetuum hac dispositione conceperat* (Hist. Aug. Aurelian. 48.21); *simulque usus porcinae carnis quo plebi Romanae affatim cederet, prudenter munificeque prospectavit* (Aur. Vitt. Caes. 35.7.); *porcinae carnis usum populo instituit* (Ps. Aur. Vitt. epit. 35.6).

A look at the imperial constitutions of the 4th and 5th centuries A.D. provides some important information about the amount of meat distributed to the population, which is also useful information for calculating the number of inhabitants of Rome at the time (Mazzarino 1951: 220 ff.; Carcopino 1967: 27 ff.; Lo Cascio 1997: 63 ff.; 1999; 2013).

In particular, from a constitution of Honorius dated 29 July 419 and addressed to the Prefect of the Praetorium Palladius, we learn that the beneficiaries of the distributions received five pounds of meat per month for five months, apparently the winter months, and that the daily rations distributed amounted to 4,000:

CTh. 14.4.10. Imp. Honorius et Theodosius AA. Palladio praefecto praetorio: ... 3. *Per quinque autem menses quinque in obsoniis libras carnis possessor accipiat, ne per minutias exigui ponderis amplius fraus occulta decerpit. Possessores quoque, qui pro larido millenos denarios in vicenis libris solebant conferre, suariis in pretio exsolvant...* 5. *Quattuor milia sane obsoniorum, amputatis superfluis ac domus nostrae perceptionibus, diurna sublimitas tua decernat, quibus copii populus animetur.* Dat. IIII kal. Aug. Ravennae Monaxio et Plinta cons.

This would amount to around 120,000 beneficiaries in one month, a particularly high number, suggesting that the meat import and distribution system was well organized and widespread.

On the other hand, the demand for meat to be distributed to the people also entailed interventions in the meat supply mechanism, which arrived in Rome as a tax contribution guaranteed by the *corpus* of *suar-ii*, the guild of pork butchers (Vera 2000: 330 ff.)⁸. During the reign of Diocletian (284-305 A.D.) there is some documented evidence of the

⁸ Gallia Transalpina and Gallia Cisalpina are among the regions that supplied the Roman pork market during the Republic period. In the latter region in particular, there is evidence of an enormous pork production: according to the historian Strabo, *Geografia* 4.4.3; 5.1.12, around 14 A.D. in Cisalpina large numbers of pigs were bred, large

tax (*canon suarius*) that the *municipia* of southern Italy had to pay in pigs to supply the market in Rome and distribute to the population; but already during the reign of Costantine the Great (306-363 A.D.), due to the economic crisis, the possibility of paying the tax in cash had been introduced and the *suarii* would then use the sums collected to buy the pigs at the prevailing market price.

A constitution of Valentinian I dated to 367⁹ and a novella of Valentinian III from 452¹⁰ allow us to reflect on the system of collecting the *canon suarius*, which must have amounted to almost 8,000,000 pounds of meat in 367 and 3,600,000 in 452, for about 317,000 beneficiaries in the first case and 140,000 in the second.

Thus, if the constitution of Valentinian I seems to confirm a valuation of the inhabitants of Rome equal to the population at the beginning of the Late Imperial Age, the following decades saw a drastic reduction, probably after the sack of Alaric in 410: a clear indication of this is the fact that the total output of the *suarii* had halved in 452, as shown in Novella 36 of Valentinian III.

In late antiquity, the distribution of meat became more and more restricted until it disappeared completely in the 6th century, with the crisis of the Roman Empire and the barbarian invasions.

enough to feed “almost the whole of Rome”, i.e. about a million inhabitants. From the 2nd century AD, Sardinia, Samnium, Campania and Lucania followed.

⁹ CTh. 14.4.4 pr.-1. Imppp. Valentinianus et Valens AA. ad Praetextatum praefectum urbi: *Per singulas et semis decimas, quibus suariorum dispendia sarciuntur, damnum, quod inter susceptionem et erogationem necessario evenit, vini, hoc est septem et decem milium amphorarum perceptione relevetur. 1. Cui rei illud provisionis accedat, ut lucanus possessor et brittius, quos longae subvectionis damna quatiebant, possit, si velit, speciem moderata, hoc est septuagenarum librarum compensatione dissolvere, quod ibi debet inferre, ubi vina fuerat traditurus.* (367 oct. [?] 8).

¹⁰ Nov. Val. XXXVI. Imppp. Valentinianus et Marcianus AA. Firmino praefecto praetorio et patricio: ... *de vicinis provinciis, id est de Lucania sex milia quadringentorum, Samnio quinque milia quadringentorum, Campania mille nongentorum quinquaginta solidorum debita emolumenta oporteat decerni. 2. De boariorum etiam vel pecuariorum praestatione nongentos quinquaginta solidos exactos sibi noverint profuturos. Centum milia aequi ponderis porcinae de interpretiis iuxta priora constituta praebeant, ducena quadrage-na pondo ad solidos secundum promissionem suam inlaturi, quoniam certa emolumenta amota solita dubitatione percipiunt, ita ut centum quinquaginta diebus obsoniorum praebitionem sine ulla causatione singulis annis a se noverint procurandam, quae quantitas in tricibus sexies centenis viginti novem milibus libris cum duarum decimarum ratione colligitur ...* Dat. III. kal. Iul. Romae, Herculano vc. Cons.

However, the importance of meat (but also of other foods such as cereals and wine) in Roman society always remained very high, as an instrument of power in the hands of those who wished to gain popular favour and maximum political success through subsidised distributions.

3. The role of meat in the Diocletian edict on maximum prices.

According to sources, pork consumption was certainly higher than that of other meats such as cow and sheep meat, poultry and game, which were also a regular part of the Roman diet.

In many of Plautus' comedies we find pork dishes, and we can see that all parts of the pig were used: the head, the ears, but also the ribs, the fillet, the breast, the tripe and the liver, as well as the udders and, notably, the vulva of the sow (Andrè 1961: 140 ff.). Varro, in *De re rustica* 2.4.10, stated that "nature has given us pigs to feast on", so much so, the Latin writer continued, that "in the houses of every landowner there could be no lack of sausages or quarters from the pigs reared on his land". Apicius himself, in his *De re coquinaria*, illustrates a large number of recipes for the preparation of pork and shows how pork gradually became the basis of Roman cuisine: we can read in it the recipe for the *porcellus assus tractomelitus*, roasted with pasta and apples, *porcellum oenococtum* processed with wine, and then boiled pig, salted pig, pig with garden vegetables, etc.

Ovid, in his *Fasti* 6.169 ff., tells us that the first meat eaten by the Romans was pork; Pliny the Elder, in his *Naturalis historia* 8.209, does not hesitate to define it as the tastiest of all meats, pointing out that "no animal has so many uses in the kitchen, its meat has fifty flavours", which differ according to how the pigs themselves are reared and fed. Even Petronius, in his accounts of dinner parties at Trimalchio's house, says that the Romans were crazy about *porcus troianus*, a pork dish seasoned with vegetables, sauces and melted cheese.

However, Diocletian's Edict "*De pretiis rerum venalium*" is undoubtedly the most important legal document for understanding the role of pork in the Roman economy.

This is, as is well known, a price ceiling for the main consumer goods, which dates back to the end of 301 AD, when the Emperor Diocletian set

a maximum price for goods, services and labour that could not be exceeded in any way (Grelle 2005: 403 ff.; more recently Bramante 2019).

“It is therefore ordered”, reads the *inscriptio*, “that the prices indicated in the following brief tariff be observed throughout the world of our dominion, so that everyone understands that it is prohibited to exceed them, without, in those places where there is abundance, this preventing the enjoyment of the benefits of low prices, since this is precisely the main objective of this edict, once greed has been completely suppressed” (Fargnoli 2021: 27).

The list of individual goods and services follows, starting with foodstuffs. And after cereals, pulses, seeds, wines and oils, the price cap provides for the category of meat (*item carnis*), taking into account as many as fifty varieties and setting a ceiling in *denarii* for each:

Edictum Diocletiani 3.4.IV (Fargnoli 2021: 60-61; Fargnoli 2016: 33 f., nt. 26)

Item carnis

1 <i>carnis porcinae</i>	<i>Ital. po. unum</i>	ж <i>duodecim</i>
2 <i>carnis bubulae</i>	<i>Ital. po. unum</i>	ж <i>duodecim</i>
3 <i>carnis caprinae sive verbecinae</i>	<i>Ital. po. unum</i>	ж <i>o<c>to</i>
4 <i>vulvae</i>	<i>Ital. po. unum</i>	ж <i>viginti quattuor</i>
5 <i>suminis</i>	<i>Ital. po. unum</i>	ж <i>viginti</i>
6 <i>ficati optimi</i>	<i>Ital. po. unum</i>	ж <i>sedecim</i>
7 <i>lardi optimi</i>	<i>Ital. po. unum</i>	ж <i>sedecim</i>
8 <i>per<n>ae optimae sive petasonis sive Menapicae vel Cerritanae</i>	<i>Ital. po. unum</i>	ж <i>viginti</i>
9 <i>per<n>ae optimae petasonis Marsicae</i>	<i>Ital. po. unum</i>	ж <i>viginti</i>
10 <i>adipis recentis</i>	<i>Ital. po. unum</i>	ж <i>duodecim</i>
11 <i>axungiae</i>	<i>Ital. po. unum</i>	ж <i>duodecim</i>
12 <i>ungellas quattuor et aqualiculum distribitur</i>	<i>pretio, quo caro</i>	
13 <i>isicium porcinum</i>	<i>unciae unius</i>	ж <i>duobus</i>
14 <i>isicia bubula</i>	<i>Ital. po. unum</i>	ж <i>decem</i>
15 <i>Lucanicarum</i>	<i>Ital. po. unum</i>	ж <i>sedecim</i>
16 <i>Lucanicarum bubularum</i>	<i>Ital. po. n<um></i>	ж <i>decem</i>
17 <i>fasianus pastus</i>		ж <i>ducentis quinquaginta</i>
18 <i>fasianus agrestis</i>		ж <i>centum viginti quinque</i>
19 <i>fasiana pasta</i>		ж <i>ducentis</i>
20 <i>fasiana non pasta</i>		ж <i>centum</i>
21 <i>anser pastus</i>		ж <i>ducentis</i>
22 <i>anser non pastus</i>		ж <i>centum</i>
23 <i>pullor<um par unum></i>		ж <i>sexaginta</i>

24 <i>perdix</i> <unus>		ж <i>triginta</i>
25 <i>turtur</i> <singularis>		ж <i>sedecim</i> >
26 <i>turtur</i> <agrestis un>us		ж <i>duodecim</i>
27 <i>turdoru</i> < <i>m decuria</i> >		ж <i>sexaginta</i>
28 <i>palumbo</i> <rum par>		ж <i>viginti</i>
29 <i>columbin</i> <orum par>		ж <i>viginti quattuor</i>
30 <i>attagen</i> <a>		ж <i>viginti</i>
31 <i>anatu</i> < <i>m par</i> >		ж <i>quadraginta</i>
32 <i>lepus</i>		ж <i>centum quinquaginta</i>
33 <i>cunic</i> <ulus>		ж <i>quadraginta</i>
34 < <i>am</i> > <i>pe</i> < <i>liones singulares</i>	<i>n. decem</i> >	ж <i>quadraginta</i>
35 < <i>ampeliones agrestes</i>	<i>n. decem</i> >	ж <i>viginti</i>
36 < <i>ficedulae</i>	<i>n. decem</i> >	ж <i>quadraginta</i>
37 < <i>passeres</i>	<i>n. decem</i> >	ж <i>sedecim</i>
38 < <i>glires</i>	<i>n. dece</i> > <i>m</i>	ж <i>quadraginta</i>
39 < <i>pa</i> > <i>bus ma</i> < <i>s</i> >	ж <i>trecentis</i>	
40 < <i>pabus</i> > <i>femina</i>	ж <i>ducentis</i>	
41 <i>coturnices</i>	<i>n. <decem</i> >	ж <i>viginti</i>
42 <i>sturni</i>	<i>n. decem</i> >	ж <i>viginti</i>
43 <i>aprunae</i>	<i>Ital. po. <I></i>	ж <i>sedecim</i>
44 <i>cerbinae</i>	<i>Ital. po. I</i>	ж <i>duodecim</i>
45 <i>dorci sive caprae vel dammae</i>	<i>Ital. po. I</i>	ж <i>duodecim</i>
46 <i>porcelli lanctantis</i>	<i>in po. I</i>	ж <i>sedecim</i>
47 <i>agnus</i>	<i>in po. I</i>	ж <i>duodecim</i>
48 <i>haedus</i>	<i>in po. I</i>	ж <i>duodecim</i>
49 <i>sevi</i>	<i>Ital. po. I</i>	ж <i>sex</i>
50 <i>butyri</i>	<i>Ital. po. I</i>	ж <i>sedecim</i>

Pork tops the list at 12 denarii per pound, compared with 8 denarii for goat and mutton (*carnis caprinae sive verbecinae*). The price set for the sow's vulva (*vulva*) is, remarkably, 24 denarii, more expensive than the udders (*sumina*), also considered a delicacy, sold for 20 denarii. Sausages were also very common, with different prices depending on whether they were made from pork (*isicina porcina*), sold for 2 denari, or beef (*isicina bubula*), much more expensive at 10 denari. Then there was the suckling pig (*porcellus lanctans*), which commanded a higher price than the adult pig, apparently because it was considered more delicious due to its tenderness. The list includes pig fat and lard, widely used by the Romans as a condiment, sold at 12 and 16 denarii per pound respectively.

Pheasants (*fasianus*), geese (*anser*), partridges (*perdix*), doves (*turtur*), pigeons (*columbae*), thrushes (*turdi*), goldfinches (*ampeliones*), wood-

cocks (*ficedulae*), sparrows (*passeres*), quails (*coturnices*) and starlings (*sturni*) were also highly valued.

But the edict's price list also documents special attention to the origin of the animal, when it mentions sausages from Lucania (*isicina Lucanicarum*) and ham from Menapia or Cerritania (*petaso Menapicae vel Cerritanae*) or Marsica (*petaso Marsicae*).

The insistence on distinguishing between the farmed animal (and therefore its meat) and the wild one, with the former being valued higher because it was fatter, is also something to be considered: thus the pheasant was valued at 200 denarii if farmed (*fasianus pastus*) and 125 if wild (*fasianus agrestis*), or the goose was priced at 200 denarii if farmed (*anser pastus*) and 100 denarii if not farmed (*anser non pastus*).

As we have seen, the Edict *de pretiis rerum venalium*, through this precise system of measurement and control of weights and measures, combined with the presence of authorities responsible for supervising and punishing the correctness of transactions, undoubtedly contributed to the spread of the market in Rome, a market that managed to go beyond the confines of small villages and became international (Lo Cascio 2005: 69 ff.). But at the same time, attributing value to the setting of a maximum price for goods, it has been able to promote universal access to food and an adequate supply.

4. The *corpus* of *suarii* and the problem of access to food.

As a final note, we can look at the meat supply chain in ancient Rome.

Roman society did not have a real meat supply chain, understood as the set of processes that begins with the rearing of animals, continues with the slaughter and processing of meat, and ends with its distribution and consumption: all processes that today are well monitored by specific bodies in charge of controls. However, the special attention given by the Roman legislator to artisan and merchants, including the *corpus* of *suarii*, may assume a peculiar significance in this respect.

As mentioned above, the problem of supplying the city became more complex at the end of the 3rd century AD, with the crisis of the Empire (among all, Virlouvet 2020: 103 ff.). In the new administrative structure of the Empire, with the creation of a court bureaucracy whose functions

were closely linked to the people surrounding the Emperor, both in the West and in the East, as well as in the main provinces, the *tribunus forii suarii* occupied a special position. The *tribunus forii suarii* is subordinate to the *praefectus urbi*, at the head of the eighth *administratio*, after the *praefectus annonae*, the *praefectus vigilum*, the *comes formarum*, the *comes riparum et alvei Tiberis et cloacarum*, the *comes portus*, the *magister census* and the *rationalis vinorum*. Specifically, the *tribunus forii suarii* was in charge of overseeing the distribution of pork and supervising the pig market.

At this point, belonging to a *corpus*, based on the same trade, which was also directly or indirectly of public importance, could be a way of defending common interests vis-à-vis the central power and also of gaining recognition: all the more so for the *suarii*, given their strategic role in supplying the Roman market and contributing to the free distribution of meat to the population. At the same time, the creation of a *corpus* made it possible for the State to have an accurate representation of the members of the “guild” and thus an indication of the persons and activities over which it could exercise powers of control and possibly impose taxes¹¹.

The headings *De suariis, pecuariis et susceptoribus vini ceterisque corporatis* of the Theodosian Code (CTh. 14.4) and *De suariis et susceptoribus vini et ceteris corporatis* of the Justinian Code (C. 11.17) attest, among other things, that the *corpus of suarii* itself had its own rules: these are twelve texts in the Code of Theodosius II and two in that of Justinian (considering also the text of CTh. 14.4.6 incorporated in the Justinian Code, C. 11.17.1).

In short, we are presented with a picture in which the issues with the *suarii* category become the direct concern of the emperors, whose power consists of control aimed at ensuring the welfare of the state and the fairest access to food. And the *corpus of suarii*, in a supply chain logic, had the duty of taking care of the supply stages, necessary for the smooth running of the meat market.

¹¹ On the phenomenon of association in the Roman world, and in particular in late antiquity, see, among other recent studies, Carrié 2002: 309 ff.; Galeotti 2023: 1 ss.; Buongiorno 2023: 69 ss. For a first reflection on the use of *matricula* Biccari 2019: 323 ff.

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ALBERTO FABBRI*

TECHNOLOGICAL INNOVATION OF CULTURED RED MEAT
AND THE ROLE OF RELIGIONS, BETWEEN MARKET
AND FOOD SOVEREIGNTY

1. Introduction.

The paper aims to analyse the social value of food, from the point of view of the significance of religion, attempting to complete a research that also includes historical (dealt with by Professor Biccari) and sociological (dealt with by Professor Barberis) perspectives. The title of our group, “Right to food for all according to personal preferences”, is aimed at bringing together the different disciplines with which we intend to approach this work, with a focus on the theoretical/speculative effects.

This research seeks to understand the relevance of the new frontier of cultured meat, particularly red meat¹, to religions, especially those with precise dietary prescriptions / rules for the preparation and processing of meat.

The novelty of the product and the lack of defined and shared national or supranational protocols for the processing of the material cast doubts that must be resolved, including on the procedures to be adopted at the various stages of in vitro meat, with an increasingly advanced technological factor.

At this early stage, when questions of the ethical and economic aspects of investment come into play, following the sector’s growth in relation to the potential impact of the religious aspect in the development and market establishment of cultured meat as a religiously sanctioned product becomes interesting. The feedback will help to understand the value that religion, also through the exercise of food sovereignty by

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¹ The term “cultured meat” (also called in vitro meat, lab-grown meat, artificial meat, cellular meat or cell-based meat) refers to all those biotechnological approaches that result in a product generated from stem cells taken from animals (not just cattle, but also sheep, horses, poultry and even fish).

states, takes on as staple in the social fabric, as a paradigm and a factor of social integration.

2. Advancing innovation.

Memphis Meats, Super Meat, Future Meat Technologies, are just some of the most well-known international start-ups characterising the meat market in the last decade, due to their specialisation in research, experimentation and development, aimed at the production and future commercialisation of cultured meat². Their success and expansion on the market is linked to two phenomena: the first is related to the particular prominence and publicity, including in the media, that the in-vitro meat sector has received since the 2000s, when this new innovative technology began to attract significant funding, interest and investment, including from multinational meat companies such as Tyson Foods, Cargill and Jbs. The growing confidence in these new perspectives³ has also been fuelled, and we are now at the second phenomenon, by the specific circumstances that characterise the ongoing environmental and moral crisis of intensive livestock farming, the pollution it causes, the use of land and food resources such as grain and water, and the welfare of animals at different stages of their lives, including the massive use of antibiotics.

The hypothesis of producing certain foods in vitro became reality following the refinement of tissue culture techniques, the discovery of mouse stem cells in 1981 and the planning of research to this end.

The development and affirmation of this new food sector has gained particular economic and social momentum in the wake of the wide-ranging debate on the livestock industry. As it became increasingly invasive

² With the unveiling of a fully lab-produced hamburger to the public in 2016, the combination of artificial meat and red meat became immediately apparent. The artificial process to which some animal stem cells are subjected is not limited to cattle, but can also involve white meat, sheep meat and even eggs.

³ Among the extensive bibliography on the issue Lo Sapio 2019; Fischer, Gang, Rosaneli 2021; Cartín-Rojas, Ortiz 2018: 135-144; Chriki, Hocquette 2020; Tuomisto 2019. However, some studies suggest that in the long term, synthetic meat is not a sustainable alternative in terms of greenhouse gas emissions, also in relation to the biotechnology used for production, Lynch, Pierrehumbert 2019.

(Djekic 2015: 61-64), it must be harmonised with environmental sustainability as the backbone of the new economy.

The picture is further complicated by the growing demand for meat, which is linked to “population growth, income growth and changes in consumer behaviour” (Pratesi, Alessi 2021: 41).

The figures in the FAO document suggest that demand for meat will double by 2050⁴ (Gerber, Steinfeld, Henderson et al. 2013) (FAO 2018) and the 2011 report (FAO 2011), alerts on the capacity of conventional meat production to have peaked.

The sector, even in its experimental or small-scale production phase, has the merit of being a viable alternative, offering theoretically valid answers to the major challenges facing meat production, linked to the increase in demand for meat in the coming years, the ever-increasing importance of animal welfare and, finally, the environmental impact linked to the production of goods.

3. European and international investment in synthetic meat.

The European Union has not yet authorised the marketing of in vitro meat⁵ on its territory. The sector is not regulated at all. However, the lack

⁴ The European Commission has published the new edition of its European Union Agricultural Outlook covering the period 2021-31 and states that “world meat consumption is expected to continue growing by 1.4% per year, thanks to increasing population and higher income in developing countries. An additional 3.4 million t of meat imports globally will be needed to close the gap between domestic consumption and production in many countries”, https://agriculture.ec.europa.eu/system/files/2023-01/agricultural-outlook-2021-report_en_0.pdf. In the updated document covering the decade 2022-2032, it is stated that “by 2032, global meat consumption is expected to continue growing (+43 million t in 10 years), due to population growth and higher incomes, mainly in developing countries”; “After a dip in consumption due to COVID-19 restrictions and the exceptional exports to China, EU meat consumption is set to further decline from a relatively low average compared to previous years (67.5 kg per capita in 2020-2022) to 66 kg by 2032 (-2.2 %)”. *EU Agricultural outlook, for markets, income and environment 2022-2032*, in https://agriculture.ec.europa.eu/system/files/2023-04/agricultural-outlook-2022-report_en_0.pdf.

⁵ In March 2022, the Dutch parliament took a decisive step towards the introduction of cultured meat on the European market by voting by a large majority to allow tastings of the different types of meat already developed by domestic companies.

of regulation is linked to the absence of a scientific basis for the impact of this product on the environment, also in relation to food safety, including religious and ethical aspects⁶.

Despite the attention paid by European institutions to the environmental impact of cultured meat on sustainability, there has been no lack of research initiatives to technologically evaluate the processes and methodologies used at the various stages of the supply chain⁷. The two-year CCMeat Project, which ended in September 2022 with EU funding of two and a half million euros⁸, and the Meat4All Project, which ended in January 2023 with EU funding of almost two million euros⁹, were activated in this regard.

If we look at the rest of the world, only America¹⁰ and Singapore¹¹ currently allow in-vitro meat to be marketed. Other countries are still in the process of reviewing it, such as the United Kingdom, where the

⁶ The indications are contained in the project *Cultured meat and cultured seafood – state of play and future prospects in the EU*, HORIZON-CL6-2023-FARM2FORK-01-13, Recent call, expired April 2023, <https://ec.europa.eu>. For the sake of completeness, it should be noted that the European Parliament's Committee on Agriculture and Rural Development, in its opinion of 20 September 2023 on the need to promote more protein crops in Europe, rejected the part of the resolution on protein crops referring to "innovative cell-based products", i.e. laboratory proteins closely related to cultured meat.

⁷ In this context, there are grey areas, such as the Commission's decision to grant 2 million euros from the React-EU fund (Recovery Assistance for Cohesion of the Territories of Europe) to two Dutch companies, Nutreco and Mosa Meat, which are involved in the laboratory production of meat from in vitro cells (De Meo, Vuolo, Caroppo 2021).

⁸ The EU-funded CCMeat project "will introduce a series of innovative, inexpensive and endotoxin-free growth factors designed specifically for the cell-culture meat industry. Through its innovative technology, CCMeat aims to help CCM producers bring their alternative meat products to the market and contribute to reducing the negative consequences of conventional meat production", *Barley Biofarmed Growth Factors to Make Cell Cultured Meat an Affordable Reality*, <https://cordis.europa.eu/project/id/101010029>.

⁹ The project Meat4All, *Industrialisation and commercialisation of a competitive, sustainable and consumer oriented alternative animal protein source* aims to promote processes to improve the European meat industry by optimising competitiveness and developing the high potential of the cultured meat market, <https://cordis.europa.eu/project/id/958660/it>.

¹⁰ Since November 2022, the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA) have authorised the marketing of cultured chicken meat only.

¹¹ <https://www.sfa.gov.sg/food-information/risk-at-a-glance/safety-of-alternative-protein>.

FSA (Food Standards Agency) has started to create a database¹² to store already approved cell tissues, which can also be used for in-vitro cultivation. In Israel, the Israel Innovation Authority, in collaboration with the Good Food Institute, has “provided USD 18 million in government grants to the world’s largest consortium of private companies and research institutes for cultured meat”¹³. The scenario that lies ahead is one of advances and setbacks as we wait for the in-vitro meat product to receive a sustainability guarantee shared by the various national and international institutions.

4. Open scenarios.

Experimenting with a new stem cell culture as a process that seeks to provide solutions to the limitations of the current livestock sector opens up a number of new dynamics, not least on the ethical front (Owen Schaefer, Savulescu 2014: 188-202).

The issues that arise may be primarily related to the procedures adopted and used at the various stages. Firstly, there is the issue of how the bovine stem cells themselves are to be obtained, whether they are to be obtained exclusively from a living animal or whether the operation could also be authorised on a recently slaughtered animal; closely linked to this aspect is the qualification that the person taking the stem cells should possibly have.

The nature of the culture broth in which the cells are placed for the growth phase is particularly controversial. In fact, the main growth medium used, at least at this early stage, also contains hormones, as does fetal bovine serum. The use of products of animal origin, together with nutrients and growth factors, has also stimulated industrial processes aimed at using substitute conditions from plant sources, but experiments have not yet reached industrialised and accepted standards (Messmer, Klevernic, Furquim et al. 2022: 74-85), so the problem remains with the “purity” of the final product.

Cultured meat also accentuates aspects of the relationship between

¹² <https://www.multus.bio>.

¹³ www.ansa.it.

man and nature, promoting a reduction, if not an inversion, of man over nature, moving from a natural process to a technocentric one, using technology to produce rather than to refine a technique. Leaving aside the aspects that could encourage covert cannibalism, there is also the question of the impact that cultured red meat could have on the health of consumers in the long term, by legitimising a practice that could prove harmful.

5. Religious precepts as a tool of economic conditioning.

We have just shown how the process of producing meat *in vitro* raises a series of ethical doubts and questions that require answers. Said answers are necessary to promote a product that is marketed according to clear and verifiable methods and procedures, with consumer safety linked to product certification and traceability of the food chain.

The open questions do not only concern the economic and environmental expectations that formed the basis for the start of this new experiment. The strong interaction between the need to provide concrete or potential solutions to the precarious agri-food situation in terms of land use and sustainability, and the strong economic interests linked to the opening up of new markets, creates a state of strong pressure and expectations. As with any innovative process in a supply chain, the starting point, the knowledge of the current situation, also in perspective, based on what is known, is the only certain information. In the case of new production, also as a solution to the economic and environmental problems caused by current production, the different approach adopted will have a positive impact on the problems highlighted by the current system, but the lack of experience and the rapid, ever-changing technological development do not allow us to make any definite long-term predictions. The risk is that the planned development and benefits generated by the new production will need to be revised downwards.

The issue also affects the procedures to be adopted, particularly in the transition from local production to scaling up the process¹⁴.

¹⁴ The issue arises when it is necessary to move the entire production process from a local and limited dimension, in terms of product use, production and machinery used, to one on a large scale. The risk, which is evident in the initial start-up phase, is not being

On both fronts, that of environmental sustainability, regulated procedures and, I would add, economic costs, religions can play a fundamental role as determining factors in the creation of those food rules and practices which establish food codes of conduct, as an expression of a territorial or community culture (Filoramo 2014: 18; Boggero, Luther 2018; Chizzoniti 2015; Fuccillo, Sorvillo, Decimo 2016: 27; Quatrano 2015:103-108; Pacillo 2014: 3-16). The presence of certain food elements and the legitimacy (or lack of it) of the procedures adopted for their realisation are entirely influenced by the value choices acquired in the social context, choices which presuppose the decisions made by consumers, even qualified according to religion, capable of conditioning the market.

Religious dietary rules, an expression of full self-determination linked to professed beliefs, can have relevance in legal systems and global processes, and be absorbed and regulated by the laws of different countries (Chizzoniti 2010: 20; *Daimon* 2014; Pavanello 2006; Venzano 2009).

These rules are not limited to consumption¹⁵, but also cover the ritual use of food, preparation, production and storage, as well as matters relating to distribution and marketing.

Our analysis, which does not aim to grasp the particular aspects that the various elements mentioned have for the different religions, is rather intended to grasp the incidence and impact that these rules can have in the initial production of red meat in vitro. This in order to ascertain whether religious values can become a tool of economic conditioning for the sector, for aspects that affect the food dimension, also (possibly) in connection with environmental sustainability.

Religions entail a direct relationship between divinity and food (Marchisio 2004; Salani 2007; Fabbri 2022: 75; Fuccillo 2016; Iacovino 2021: 267), understood as a gift to which human activity contributes, going so far as to recognise food itself as a divine will, an expression of generosity, and to link food itself to the community environment, in a relationship

able to guarantee the same product quality with the same techniques, which do not allow to maintain the same standards achieved in the first phase of the new production in this new step, except at high cost in terms of economic and environmental sustainability.

¹⁵ Consumption refers not only to the rules that impose the use of certain foods, such as bread and wine for Christians, but also to the whole dimension of objective prohibitions, such as fish without scales for Muslims, and temporary prohibitions linked to a variable time period.

between Creator, creature and creation. We will return to this relational aspect later, but we can already see how actions aimed at the consumption of land or the uncontrolled exploitation of a limited resource are seen as serious violations of the divine will, in which man presumes to be the master of creation and not merely its custodian.

As far as consumption is concerned, the rules adopted by the religions with regard to red meat vary, due to the obvious diversity that characterises the same religions on the basis of divine precepts. In a first classification, we can include the various groups of Christianity, for which there are no bible-based food rules indicating forbidden and permitted foods or beverages, but there is a dietary freedom (De Gregorio 2010: 50)¹⁶ that emphasises the responsibility of the believer to use what Mother Earth offers. However, meat is only relevant to the aspects of fasting and abstinence, as a food to be renounced for a better connection with the deity and obedience to their precepts.

A second category may include the other two monotheistic religions, Judaism and Islam.

For Jews, food represents an “instrument of religious elevation” (Daz-zetti 2010: 87; Montanari 2015), in the act of fostering a correspondence of one’s existence to religious precepts. Food assumes the contours of a sacred rite and, as such, is governed by a precise and rigorous set of rules, largely derived from biblical sources, which must characterise the life and practice of the believer.

The term *kashér*¹⁷ means “legal” or “permitted” and covers a range of foods and beverages that are permitted for consumption because they meet dietary rules. Dietary rules relate to the suitability of food for consumption and the way in which it is prepared, which we will discuss later.

Permitted foods include animals with a “bipartite hoof”, which includes all quadrupeds of the family Bovidae and their subgroups, such as cattle. It is forbidden to eat horses and pigs, to mix meat with milk and its derivatives¹⁸, although separate consumption is permitted, and

¹⁶ A note must be made with respect to Adventists, whereby the believer in adhering to health principles must turn to a vegetarian diet. Meat consumption is not prohibited, but still not recommended, Rimoldi 2015: 187.

¹⁷ Kosher according to Ashkenazi pronunciation.

¹⁸ Rennet, which is essential for the production of cheese, can also be a problem. The substance obtained from the stomachs of some animals is not forbidden per se, but it

there is a ban on certain parts of the animal to be slaughtered, such as blood, the sciatic nerve¹⁹ and fat concentrated in the abdomen, flanks and around the kidneys.

The possibility of eating meat, subject to the rules of slaughter, should not be understood as an acquired right, but as the expression of a divine privilege granted to humanity in a process of evolution from an initial phase where only vegetables were consumed²⁰.

Islam, the second monotheistic religion, has a complex set of dietary rules, with a clear distinction between permissible (halal) and forbidden (haram) food. Red meat, only beef and lamb²¹, must meet precise requirements relating to the method of slaughter and the exclusion of contamination with impure food in order to be considered permissible food from terrestrial animals.

The ethical and religious nature of these rules means that human actions in accordance with them are considered compliant with the Shariah, and therefore permissible, along with those human actions that it is proper to engage in, as opposed to those that are not because they disregard religious precepts (Ascanio 2010: 86).

In a second block, we can include Hinduism and Buddhism²², which are united by an ideal of religious life based on a vegetarian or vegan diet. The sacred sphere is enriched by the dimension of food as a tool for spiritual growth, with strong symbolic connotations. In a relationship with food based on sobriety and balance, particularly in Buddhism, meat, with the exception of pork, is not explicitly prescribed but is not the subject of a specific prohibition.

Another area of research into the position of religions on this issue is

becomes forbidden if it comes from animals that may be impure. Therefore, the rules require the substance to be of kosher origin, stored in a protected environment and the curdling process to be verified.

¹⁹ The sciatic nerve is present in the hindquarters of the animal. The parts could only be used after the total removal of the prohibited part, but it is a complex operation that results in this part of the animal not being used.

²⁰ Cfr. Genesis, I, 29.

²¹ The ban on pork also includes all pork derivatives, both liquid and solid.

²² Despite the different forms of Buddhism that exist, in which there is no monolithic and unifying position, we see a common proximity on the food front, in a shared religiosity linked to food as a tool for spiritual growth.

the dimension related to food production, linked to the aspects of food preparation and preservation.

The rules adopted for the preparation of the product mainly concern the methods to be used for ritual slaughter, which are the only ones permitted to guarantee the product's conformity with religious precepts.

On this point, Islam and Judaism have developed very precise protocols to regulate every aspect of the various steps. We can only hint at the way in which the animal is killed, with a very sharp knife, by a certified operator, on the trachea, oesophagus and the major blood vessels of the animal's body, an operation designed to allow the blood, which would otherwise contaminate the meat, to drain away quickly.

Regarding food distribution and preservation, the focus is on the need for the religious community to be able to buy and sell certified meat, guaranteeing that the religious precepts are complied with throughout the food chain, with attention to quality, the supply chain and the finished product. In fact, the high risk of contamination due to non-compliance, even in steps that indirectly affect the processed food, requires constant verification of the conformity of the various steps and their recording. For this reason, the various religious authorities have set up control centres that issue a compliance certificate after initial and subsequent verification of compliance with the prescribed indications.

The certainty of compliance consists of two phases. The first phase is characterised by the relationship between the producing company and the religious faith, which certifies that the food produced meets all the conditions laid down by the religious rules for the production of this type of food. A second phase involves the possibility of placing that food on the market with a certification mark (Lojacono 1999: 18), e.g. Halal²³ or Kosher²⁴, as a product that fully complies with the relevant national rules and as such is suitable for sale.

Undoubtedly, the environment, as the space in which man develops

²³ WHAD - World Halal Development, is a certification centre that has two branches, in Malaysia (WHAD-HALAL KL) and Indonesia (WHAD-HALAL JKT), a desk office in Dubai (GCC office), one in Pakistan and one in Turkey. WHAD is active in 22 countries, including Italy, (<http://www.whad-it.com>). At the European level, the European Association of Halal Certifiers (AHC-EUROPE), representing the certification associations of several European countries, was established in March 2010, *webislam.com*.

²⁴ We can cite the EK (European Kosher) a kosher certification agency operating on

their personality and from which they draw all forms of sustenance, is of fundamental importance to the meat industry in this phase of the sector's industrial revolution.

The motivation behind the huge investment in artificial meat is the desire to promote a product that is seen as sustainable, whose production not only helps to reduce the problems associated with intensive livestock farming, but also aims to promote an ethically acceptable production process²⁵.

And it is on the environmental front that religions can first intervene (Piccinni 2013). They can call out irrational land use and misuse of limited resources. Religions create meaning and can help motivate people to choose to be just (Thomas 2011; Tatay 2019: 763), by providing not only “articulate language and powerful images to express the sense of sorrow and suffering in the face of environmental disaster, but also targeted prayers and shared rituals that, while not solving the problem, help to create a feeling and attitude that encourages environmentally friendly practices among believers” (Filoramo 2021: 362).

Certainly, “the religious factor plays a decisive role in identifying common ethical-religious values for safeguarding Creation. Religions can even be an effective vehicle for spreading common values that can lead to the goal of the realisation of a common ethical consciousness” (Tavani 2021: 15), on the conscientious use of animal resources as well as on the use and treatment of resources, including renewables, also with a focus on human health.

On this basis, it is now necessary to understand how religious dietary rules may influence the development and marketing of cultured red meat. This analysis will identify which factor is the most important influence on the impact of food rules on the marketing of this new product.

a European level, not forgetting the presence of several bodies active in individual countries offering a certification service, www.ekosber.eu.

²⁵ The factors that influence the consumer's choice of a product are mainly related to taste, and therefore flavour, price and finally convenience, understood as availability. The healthiness of the product and the ethics of the production process are only considered afterwards. See Foot hub p. 88. The industries that have invested huge amounts of capital in the development and marketing of in vitro meat, also backed by heavy financial investment, tend to privilege the practical dimension of the actions taken, in response to the cruel practices towards the animals used in the industry, using an ethically and environmentally sustainable process.

One aspect could be the willingness of the various legal systems involved in the development project, whether national or supranational, to integrate in them the needs expressed by the religious community, on the basis of a recognised exercise of the right to religious freedom in the food sector. Those needs and the guarantees promoted for the implementation of religious food rules would be transferred to the protocols to be adopted throughout the supply chain, as a model of integration. On the other hand, the matter would be linked to the strictly economic aspects of the saleability of the product, and therefore of the investment in it, the corrections and conditions of conformity to religious rules that the research into artificial meat is subject to, in order to activate a wider circle of buyers.

The first aspect, that of national or supranational intervention that incorporates religious dietary rules into its own legal system, is a possibility in those legal systems that take the principles and precepts of religion as their source. Otherwise, the interaction can only take place in individual nations²⁶ that base their model of coexistence on religious pluralism and multiculturalism based on positive secularism. In the first example, religious belief, taken as an ideological basis, will condition social and economic life, so that, even on the food front, only those products that comply with these rules will be marketed in the country. In the second case, the guarantees that the State will adopt to allow the full exercise of collective religious freedom must be fully manifested by those concerned and find adequate regulation in a national law, as well as in the various public spaces involved, such as canteens, prisons, hospitals or barracks.

The second aspect, which establishes a link between investment and respect for religious dietary rules, corresponds perfectly to a market logic in which it is the market itself that determines the product and the characteristics it must have in order to be adequately accepted. It is then interesting to highlight some figures in order to better understand the target customers for in-vitro meat, if it is produced in a way that complies with religious parameters.

²⁶ An example supporting this approach is Regulation (EC) No 1099/2009 on the protection to be afforded to animals at the time of killing, which focuses on animal welfare, and not on compliance with food rules, https://eur-lex.europa.eu/eli/reg_imp/2018/723/oj/ita.

It is estimated that Muslims, who along with Jews are the consumers most affected by the problem of compliance with religious precepts, currently number around 1.8 million, 24% of the world's population²⁷. Studies on religions show a high growth potential for this Muslim population, which may rise to 31% in the short space of forty years²⁸, almost matching Christians.

The Jewish community, on the other hand, with a mere 15 million or so members, is nevertheless able to attract sympathisers with its dietary rules, which are linked to the idea of clean and safe food.

In terms of kosher-labelled products, a survey of the American market estimated that around 41% of food is certified kosher, compared to an American population of Jewish origin of around 2%.

The kosher food market will grow by 3.7% between 2019 and 2026, with sales reaching \$25.6 billion by 2026, compared to \$19.1 billion in 2018²⁹. Lower figures compared to halal cuisine, whose product offerings will increase by 19% from 2018 to 2020, where the global halal food and beverage market is expected to grow from \$2.09 trillion in 2021 to \$3.27 trillion in 2028.

The data on the strong increase in the purchase of religiously certified products must also be read in relation to the strong religious connotation (Sherwood 2018) that the population has, a connotation that characterises around 84% of the population³⁰.

In fact, an overtly religious nature of society highlights the positions taken by religious authorities on environmental issues, the sustainability of the production of goods and services, and the safeguarding of ethical values that new technologies seem to undermine. The growing sensitivity of the public to these issues calls for constant reassessment on the part of producers, who want to promote a line of production that is also politically correct in terms of the climate and fully sustainable in terms of its moral and environmental implications.

Similar procedures are activated on the front of flexitarians, a term meaning “a vegetarian who occasionally indulges in the consumption of

²⁷ www.pewresearch.org/religion.

²⁸ www.statista.com; www.fortunebusinessinsights.com.

²⁹ www.alliedmarketresearch.com.

³⁰ www.pewresearch.org/religion. Hindus represent 15.1% and Buddhists 6.9%.

meat” (Luneau 2021: 73) and which are estimated to be growing steadily, particularly among young consumers. Unlike vegetarians, this category is willing to eat meat, but is particularly sensitive to the environmental, health³¹ and ethical issues associated with intensive livestock farming and its impact on climate change (such as methane emissions, deforestation to create pasture, intensive use of antibiotics, animal welfare and transport to slaughter).

6. First analyses.

The strong tensions that characterise this phase of launching large-scale production of in-vitro meat, particularly the red meat we are interested in, are an expression of a social and cultural evolution. The criticism of current production, the demand for the sustainability of food and the affirmation of the need to take into account religious food rules become indispensable elements to work on in order to guarantee a marketable product that is accepted by consumers.

In this process, we can see how religion has taken on the role of a cultural accelerator, capable of triggering reactions and discussions that can guide strategic food choices.

However, this has not happened in society in widespread terms, as a component integrated in the social context, and as such also present in the food circuit. The first data that emerges is purely numerical, in a projection based only on potential buyers and consumers who want a product with certain characteristics, closely linked to religious principles.

In this production circle, the social acceptance of the religious food rule is not considered as a parameter, but only the numerical sales projections are evaluated.

³¹ Let us not forget that the International Agency for Research on Cancer (IARC), a body of the World Health Organisation, has declared that processed meat (such as sausages, frankfurters, bacon, cured, smoked or canned meat) is carcinogenic to humans. In the 2015 study published in *Lancet Oncology*, processed meat was listed as a specific carcinogen (Group 1, which also includes asbestos, ethyl alcohol and smoking, ultraviolet radiation, and papillomavirus) and red meat (from beef or pork, excluding poultry and fish) was listed as a probable human carcinogen (Group 2A), Bouvard, Loomis, Guyton, Grosse et al. 2015: 1599.

It has become clear to the attentive observer of international politics that food sovereignty has become the last bastion, the last instrument with which a state can defend its own food-cultural identity. It is precisely the use of this policy instrument, if not properly shared and appropriately used, that can trigger isolating actions that not only fail to promote participation in supranational strategies, but also risk undermining the possibility for religions to contribute to the evolution of food supported by technology.

Take the case of Italy, where the government has presented a bill to ban the production and marketing of synthetic food and feed³², in an attempt to safeguard a cultural food matrix. Such an approach could at the same time isolate the national food industry's participation in the huge research funds, as well as siding against the European single market, in which individual countries cannot impose barriers³³. Similarly, there is a risk that the imposed policy choice does not correspond to current religious-social needs (Bottiglieri 2015: 33).

The process activated by the production of *in vitro* meat will require a precise definition of the end product, whether it can be called artificial meat³⁴ or whether the production or preparation dimension will prevail in the nomenclature. In fact, even on the basis of the various additions that the food industry will have to make to solve the current problems

³² On 19 July 2023, the Senate of the Republic approved, the bill (DDL 651) presented by the Government entitled "Provisions on the prohibition of the production and marketing of food and feed consisting of, isolated or produced from cell cultures or tissues derived from vertebrate animals and on the prohibition of the use of the term meat for processed products containing plant-based proteins". The bill was approved by the House of Representatives on 16 November.

³³ The memorandum of the Ministry of Agriculture, Food Sovereignty and Forestry of 9 October 2023, sent to the Ministry of Enterprises and Made in Italy, requested the withdrawal of the request for notification (to the European Commission) "in order carry out an in depth study of the issues covered by the draft bill, in the light of the ongoing parliamentary debate and the changes that the legislative text may undergo". The action is understood as a clear desire to avoid promoting a law conflicting with European legislation, which has shown itself to be open to scientific innovation, although it has not yet received any requests to authorise cultured meat for European markets, see *www.ilfo-glio.it*, 14-15 October 2023.

³⁴ For the European Union, meat is defined as "skeletal muscles of mammalian and bird species recognised as fit for human consumption with naturally included or adherent tissue", see FIC Regulation No. 1169/2011 (point 17 Annex VII Part B).

of appearance, smell, taste and texture, the product could be labelled as “meat preparations” or “meat products”³⁵.

Apart from the problems of labelling, which are linked to the definition of the name of the product to be marketed, there could be a certain religious relevance to the possibility of including in-vitro meat among the meats mentioned in sacred texts or, in any case, considered permissible in the diet (Kadim, Mahgoub, Baqir, Faye, Purchas 2015: 222-233; Giuffrida 2018: 389-451; Reiley 2023; Baker 2023). Identifying the product on the basis of its origin, those bovine stem cells, its structure and its components, rather than on the basis of the model of the production process used, inevitably opens up an internal debate within the religious communities themselves in order to be able to identify and catalogue in vitro meat and thus comply with the precepts. In fact, speaking of equivalence between traditional meat and in vitro meat does not mean that the two are identical, just as perfect equivalence runs the risk of eliminating or severely limiting the specificities that characterise and identify each individual product.

The strong and rapid affirmation of biotechnology, also applied to the food sector, has undoubtedly required society to recalibrate not only the rules of coexistence and social parameters. It has also highlighted how religious precepts have shifted from being tools of social conditioning to being perceived as tools of economic conditioning, of exclusively quantitative value, disregarding social integrations based on food multiculturalism.

³⁵ Annex I of Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004, referred to by Regulation (EU) No 1169/2011 European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers. For the European Union, in vitro meat is among “food consisting of, isolated from or produced from cell culture or tissue culture derived from animals, plants, micro-organisms, fungi or algae” (Art. 3 paragraph 2, section vi of the Regulation), classified as “novel foods” as “food that was not consumed significantly within the EU prior to 15 May 1997”, as stated in *Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending Regulation (EU) No 1169/2011 of the European Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001*, at https://www.salute.gov.it/portale/temi/p2_6.jsp?lingua=italiano&id=989&area=Alimenti%20particolari%20e%20integratori&menu=nuovi.

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BASICS OF A SOCIOLOGY OF FOOD. MEAT AND PROTEIN ALTERNATIVES IN CONTEMPORARY SOCIETIES

1. Introduction.

This paper presents considerations from a social science perspective, specifically within the framework of sociology of food and nutrition. After a brief introduction to some of the basic concepts of the discipline, which are useful in identifying its approach and how it may be helpful to understand food supply chains (§ 2), the article examines the significance that meat – and red meat in particular – has assumed in contemporary societies of the Global North. In particular, this paper will delve on the affirmation of meat in food choices and prestige, in the nutritional and symbolic hierarchy of the 20th century, and then highlight factors questioning the “privilege” that have recently emerged in the meat consumption (§ 3), with specific reference to the characteristics of new food alternatives and the conditions for their success (§ 4).

After discussing the social legitimacy and public acceptance of meat and its alternatives, the chapter concludes with some points for discussion arising from an exploratory survey on the diffusion and propensity to consume novel foods given the public and political debate that has been sparked in Italy and Europe in recent months (§ 5).

2. Aspects of sociology of food and nutrition.

“We are what we eat” is a well-known saying, rooted in the early considerations – and scientific considerations (Stafford 2010; Scrinis 2013) – about taste and nutrition in contemporary societies. It is generally attributed to Feuerbach (1990), although it certainly has an earlier history, at least since the foundation of contemporary gastronomy with Brillat-Savarin (1825).

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This saying can be expanded and made clearer: “we are what we eat, but also how, when, where and why we eat” (Goodman 2011: 250). It is precisely these additional dimensions that the social sciences focus on when dealing with food. Indeed, food is a key element of our social organisation, and it is not limited to its biological function – on the contrary, certain foods with high symbolic value may even be unhealthy, but are consumed anyway (think of *fugu* in Japan, see Murcott, 2019). This does not mean that food consumption lacks rationality, but that the motivation for food choices does not necessarily lie in a biological purpose. Nutritional satisfaction is in fact a complex social activity rather than a response to a physical need, leading to the transformation of hunger from appetite to taste – from a physiological to a social phenomenon.

The multiplicity of food choices in human societies – the symbolic, religious, and prestige significance of food and certain types of food; the wide variation in taste and disgust and social and legal legitimacy of consumption – illustrates the role of socio-cultural factors in determining food choices over and above any biological function. Cultural and religious dietary restrictions concerning certain types of food, even if they are biologically edible, show how food taste and disgust within human groups cannot be explained without analysing the social value of food.

Anthropology has played an essential role in highlighting the social significance of food, pointing to its role in the formation of individual and collective identity through the process of incorporation: food crosses the barrier constituted by the body, from outside to inside, becoming physically and symbolically part of it. In particular, structural anthropology (with authors such as Lévi-Strauss 1964 and Douglas 1972) and functionalist sociology (with the early studies of Spencer 1989 and Durkheim 1912 on religious practices and food) have sought to identify underlying recurrent forms that characterise our relationship with food and regulate its deeper meanings.

In particular, Levi-Strauss (1964) became a fundamental building block in the socio-anthropological analysis of food, highlighting how cooking is characterised as a symbolic language that reflects the deep structure of a society. In particular, the basic culinary practices of all human groups would reveal some fundamental dichotomies. He thus defines *gustemes*, i.e. units of taste organised in oppositions and correla-

tions useful for analysing the constituent semantic elements of cooking: the raw, the cooked, the rotten (Gazzotti 2018).

Beardsworth and Keil (1997), for instance, identify five categories of food which, although varying in content, are present in all human populations:

- Superfoods, the main staples of the society in question;
- Prestige foods, whose consumption is limited to special occasions or to high-status groups;
- Body-image foods, which are seen as directly promoting health and bodily well-being;
- Magic foods, which are believed to have desirable properties which can be acquired by those who eat them;
- Physiologic group foods, which are seen as suitable for specific categories of individuals.

Mary Douglas (1972) took a further step: by examining the categories of meals consumed in everyday life, she marked a turning point in the use of structuralist conceptual tools, no longer limited to the explanation of food taboos and religious practices. In fact, she analyses everyday eating rituals in terms of social categories that reveal the cultural content of a society (Oncini 2016; Gazzotti 2018).

It is a topic that has also been addressed – less systematically, but more precociously – in studies that straddle philosophy and sociology, by authors such as Engels and Halbwachs, who have focused in particular on class differences in modern societies (Oncini 2016; Gazzotti 2018). Engels (1845) noted how the diet of the working class in Manchester, who were economically disadvantaged, was unhealthy, whereas the wealthy classes had the economic and cultural means to identify healthier foods. Halbwachs (1912) is the first author to carry out empirical research into the sociology of consumption, in which food (and its relationship to social hierarchy) plays a central role. It is a *topos* in the emerging literary and scientific analysis of poverty (Morlicchio 2020).

Sociological studies that highlight the differentiations within societies show how the structural-functionalist approach does not particularly focus on variations and changes, which, on the other hand, are considered fundamental in other approaches in the social sciences. Historical-etiological approaches, for example, focus on the link between past and present and the role of major changes – e.g., the global impact of indus-

trialisation processes of food production, distribution and consumption (Goody 1998), while constructivist approaches emphasise how social signification has its own autonomy, certainly not immune to power mechanisms that reverberate in social practices and narratives, in ascribing value and substance to biological elements. The relationship between the body and food – with definitions of what is “thin” and “fat” and the attribution of labels of (un)healthiness to these conditions – is an example of how social norms affect bodies (McIntosh 1996).

Of course, this does not mean that the choice of food is completely arbitrary: here we have to go back to the saying “we are what we eat”. As the points about class and power mentioned earlier show, food is in fact linked to other key differentiations within and between human societies; food draws boundaries, and identifies group identities. Several classical sociologists – from Simmel (1910) to Elias (1939) – suggest that food transformations are an important entry point (and outcome) of the processes of individualisation and distinction in modern societies.

We must therefore bear in mind that food preferences – and the symbolic forms associated with them – are dynamic, both within and between generations. That is, they change over the human life cycle in parallel with physical needs and cultural expectations, through processes mediated by various social agents (agencies of socialisation such as the family and school; institutions; the media...) that guide individuals’ food choices by defining culturally appropriate and legitimised diets: what to eat, in what combinations, at what times and with whom (Beardsworth, Keil 1997). But they also evolve in the longer term, along with changes in collective identities, social conflict between groups, and the availability and choice of certain foods.

The evolution of social norms related to food, such as the use of cutlery or food presentation, is the consequence of social processes centred on new humanity and individuals: the desire to eliminate animal aspects, to build elegance and refinement – in a word, distinction – are clear representations of the rise of an individualised bourgeois society.

As sociologists such as Elias himself (1939) and more extensively Bourdieu (1979; 1997; 2015) have pointed out,¹ taste is an element of

¹ For a reflection on the use of Bourdieu in the sociology of food, see also de Morais Sato et al. 2016.

social prestige that differentiates groups and social classes. Choices are linked to the construction of opportunities, accessibility, historical and aetiological factors that distinguish generations and traditions – taken for granted but continuously produced and reproduced.

In contemporary societies, the parallel processes of bourgeois social distinction, individualisation, scientific analysis and medicalisation of food have led to a progressive differentiation between good and healthy, between pleasure and health in eating, between cooking as a sensory experience and diet as a medical prescription (Gazzotti 2018). On the one hand, there is the explosion of gastronomy as art; on the other, there is the medicalisation of healthy food – a contrast that is also incisively marked in our media system, where cooking programmes glorifying the artistic figure of the chef proliferate, as do nutrition experts – sometimes even cloaked in a “magical” dimension as bearers of panaceas (Lewis 2008; Hollows 2022).

For the contemporary consumer, the sum of these messages can be quite schizophrenic. Multiple discourses on food safety, healthy eating, culinary traditions and pleasure at the table fragment and multiply dietary regimes, in which each individual picks bits in a personalised bricolage (Rousseau 2012; Gazzotti 2018). By assimilating the various symbolic registers into products, the market attempts to control this rhetoric. Products known in French literature as *alicaments* and in English literature as functional foods are thus proliferating. That is, foods – usually industrially produced – that not only focus on taste, but also boast about their health properties (Aiello 2011; Carof, Nouguez 2021). Within less restrictive dietary regimes – secularisation and individualisation have indeed made dietary rules and prescriptions less compelling – we can see that adherence to certain approaches to food emerges through “embellishing” choices with ethical and moralising messages, aimed at influencing consumer choices by building credibility through the use of scientific and/or gastronomic discourses (Gazzotti 2018); marketing strategies that use affective discourses to legitimise products and consumption that are subject to critical scrutiny, such as fast food chains (Otto et al. 2021), are a case in point; as much as the sellers of (very expensive) miraculous items who elaborate a sectarian neo-language with a scientism connotation to build tribal trust in their products (Sikka 2017).

3. The symbolic meaning of (red) meat.

In the framework outlined above, meat plays a prominent role. In fact, in many societies, meat – especially red meat – dominates the hierarchies of social desirability of food. It is certainly central to the cuisine and the symbolic functions associated with food in societies of the Global North, but it is also increasingly successful in many countries of the Global South.

In fact, major international agencies predict that meat consumption will increase in the near future. This is due to a number of reasons (FAO 2017). First, global population growth is putting pressure on the global food system: population growth, particularly in Asia and Africa, is also associated with increasing urbanisation (van Dijk et al. 2021). Urbanisation affects food consumption patterns: urban dwellers tend to have higher incomes; the population is more stratified, more diverse – including an emerging middle class. These aspects tend to increase the demand for more expensive and processed foods, including those of animal origin; rising prices in turn increase the risk of urban poverty (Headey, Hirvonen 2022). As a result, diets are becoming less balanced in terms of nutrient intake and social, economic and environmental sustainability.

The global success of meat, in spite of the critical issues it raises, is a combination of several components, both economic and socio-cultural. In fact, it is a relatively expensive food, especially compared to other sources of protein. It is also difficult to manage and procure. Indeed, both farming and hunting required, and still require, time, space and skills that have been loaded with symbolic meanings shaped over time.

Explanations given by scholars to explain why red meat is successful vary and do not necessarily converge. On the one hand, there are approaches that focus on the functional dimension of meat consumption (essentially, its nutritional value); on the other hand, there are approaches that focus on the symbolic dimension.

On the first front, paleoanthropology has often seen *Homo's* meat diet as a key evolutionary step that allowed the development of a high energy-demanding brain and, especially with hunting, contributed greatly to social development with the emergence of forms of cooperation and hierarchy in primitive communities. However, more recent analyses, which also note the great variability in the consumption of foods of ani-

mal origin between similar human groups in different contexts, question the decisive contribution of meat to human evolution (Barr et al. 2022). Being omnivorous (and the need to explore the world that this entails, oscillating between neophilia and neophobia) may therefore have been an important driver of cerebral and sociocultural development (Armelagos 2014).

The focus on the role of meat in evolution may tell us more about our society than it does about our ancestors. Indeed, in contemporary societies – with the reflexive rationalisation and medicalisation of food that has led to the development of nutrition as a science – red meat has often been placed at the top of the food hierarchy. In the literature that followed the discovery of calories and protein in the 18th and 19th centuries, meat was often given the nutritional edge. It is still an important topic in public discourse today, despite the fact that some diets are no longer considered to be particularly balanced and functional.

However, as mentioned at the beginning, a sociological and anthropological approach to food, nutrition and food science cannot be satisfied with a functionalist explanation. Indeed, in our societies – and the scientific sub-system is not excluded – symbolic meanings are of fundamental importance over and above actual functionality.

In many traditional societies, meat consumption is also linked to the symbolic assumption of animal vitality: the prestige and rituals around meat, its sharing and abstinence are linked to this symbolic logic. Proximity or distance to the vitality of nature, for example, is at the basis of the distinction between raw and cooked consumption, with the elaborate preparation of dishes as a form of distinction and distancing from animality.

Here, too, there are various aetiological explanations for consumption or abstinence choices. For example, some literature attempts to link the abstention from pig consumption in Islam and Judaism to hygienic concerns or to specific environmental factors that discouraged pig farming, such as desertification in the Middle East (Harris 1987). However, these are mostly ex-post rationalisations, which are difficult to verify.

Of course, within the logic of the contemporary market, the disappearance of certain types of meat may have a rational productive reason: with the industrialisation of the food chain, we may see a reduction in biodiversity as animals with better yields (e.g. larger size) are selected.

But then it is also necessary to consider the associated factors that affect the assumed rationality of certain outcomes, starting with consumer preferences.

It is therefore necessary to add, at the very least, explanatory factors of a socio-cultural and symbolic nature. Again with reference to pork prohibition in Islam and Judaism, Simoons (1961) hypothesises that rejection may be linked to the clash between agrarian and pastoral societies – bringing into play an example of symbolic social and class distinction. On a different note, Mary Douglas (1966) reflects on the role of rules and violations, pointing out how the animals affected by prohibitions are alien to the taxonomies developed in certain societies. Symbolic disorder is therefore a potential threat to order in a society. The overall result, however, is that – whatever their aetiology – rules and prohibitions govern social relations and thus take on a fully symbolic value. And they particularly concern meat and animals, because they are more explicitly linked to vital principles (Fiddes 1991).

This symbolic value has certainly not disappeared today. Suffice to see how key social differentiation factors (gender, class, race, age...) are relevant to meat cultures. In general terms, certain types of food are associated with belonging to a specific social class in a particular historical, spatial and social context. Foods can also have gender connotations, depending on whether they symbolise characteristics that are culturally considered typical of a female or a male. Similarly, there are foods that are extensively labelled with age symbols, i.e. considered suitable for adults, young people or the elderly (Montanari 2006).

The quantity, quality and types of meat consumption are based on social differentiations according to gender, social class, cultural references (e.g. religion) and life stages. In societies of the Global North, for instance, the abundant consumption and consumption of raw meat; the “bloody” handling of meat – from domestic barbecues to slaughter – are social acts more likely to be considered masculine. The consumption of parts that are considered less noble, disgusting, cheap or prepared in a special way is often stigmatised in media representations that inferiorise minority groups (Williams-Forsen 2022).

These elements of differentiation of attitudes and behaviour between groups and social categories should therefore lead to the consideration that the cultural consensus on a type of food, in its various ritual, sym-

bolic, economic and nutritional aspects, cannot be deemed undisputed. This is true even for a food such as meat, which is generally high on the list of preferences of important segments of the population. Despite the undeniable success of this source of protein in contemporary societies, there has certainly been no shortage of minority voices (with varying degrees of relevance) questioning its value, both in the past and today.

Indeed, the meaning of meat consumption – and red meat in particular – remains rather ambiguous from a socio-anthropological point of view. The appreciation of taste (e.g. in reference to the consumption of raw meat), the perception of healthiness (in both emic and etic approaches to nutrition),² the ethical dilemmas associated with its consumption (e.g. animal slaughter) and, more recently, the general question of the environmental and social sustainability of large-scale production, are all issues on which different visions coexist in our societies, even with elements of (sometimes intense) conflict.

The very definition of meat – which animals and which parts, in which preparations, are edible – is a first element of conflict. Spatio-temporal and social group differences highlight the extent to which the cultural dimension permeates the choice to eat meat, beyond its nutritional functionality.

The use of offal (the so-called “nose-to-tail cooking”), for example, was marginalised during the twentieth century, considered as the outcome of a lack of choice and poverty that permeated pre-economic boom societies; however, there was a recent resurgence, although not in daily use, which at least gave offal a historical legitimisation in the form of nostalgic evocation of traditional cuisine (Di Renzo 2021).

Animals considered edible and acceptable to eat have also changed greatly over time: a giraffe leg with signs of butchery was found in the excavations of Pompeii; meats considered acceptable in some societies, generations and groups – such as horses, rabbits, lambs – are looked upon with horror by various people and are the subject of specific campaigns against their slaughter and consumption today.

A second element of conflict concerns the social legitimacy of meat consumption itself: meat culture, which in the Global North has been an

² In anthropology, starting with Pike (1967), “emic” means the internal viewpoint of a society (discourses, representations, beliefs and values of the members of the society); “etic” means the external reflexive representation, based on scientific observation.

important element of the contemporary food culture, has always been accompanied by various forms and patterns of abstinence, which today seem to be emerging to some extent.

There are undoubtedly pragmatic, instrumental and rational factors that have contributed to making eating (red) meat less legitimate: cost, for example, is a major issue in contexts where there has been a decline in purchasing power, so cheaper proteins are necessarily the choice; moreover, the new medical interpretations of meat have also generally favoured more moderate consumption.

Once again, we cannot avoid considering the symbolic and cultural factors that guide the actions of society. First and foremost, regardless of how many people abstain from eating meat, the fact that in today's democratic societies there is a certain visibility – and even legitimacy – for minority positions is significant. It is part of an increasingly disintermediated world, thanks to information and communication technologies allowing greater possibilities of obtaining a platform for speaking to the public. It has certainly made the choices of minority consumers more visible and vocal, even if this does not necessarily translate into a more mature public debate.

In this context, the choice to abstain from meat finds discursive legitimisation in different interpretations of our society. An important key, for example, is the changing perception of the need for symbolic human control over nature. This is a cultural representation that was very important in modernisation (placing man at the centre of the universe, “the measure of all things”), but it has been questioned in recent times due to the problematisation of the invasive nature of human action on the environment. Anti-speciesism, ecological agendas, the moral ambivalence of domination over nature (and, to some extent, the right to kill that man asserts over other living beings) are discourses that legitimise cultures of reduction or abstinence from meat in our societies.

This also underlies the changes in vegetarian practices. In past societies, this option came in two main forms: an ideological-spiritual one, which operated mechanisms of social distinction through “ascetic” lifestyle choices, more the prerogative of the upper classes; and a substantive one, more the prerogative of the lower classes, which provided for abstinence as a result of socio-economic conditions that did not allow access to food considered “refined”.

Contemporary vegetarianism, on the other hand, while maintaining the aforementioned substantive dimension, often has a more marked political-ideological connotation. Life politics (Giddens 1991), which emancipates individuals from traditional bonds and hierarchies and is oriented towards goals of self-realisation and emancipation, is realised in food choices.

This process also means that many decisions to abstain from or limit meat consumption may not have a collective, mobilisation dimension and thus may not lead to particularly active opinion movements on the issue, which are instead the prerogative of smaller groups with more polarised views (van der Maas et al. 2020). More easily, there are influencing factors in the logic of public opinion, which concerns the selection and presentation of content that guides individual and collective choices (Sievert et al. 2022).

Food choice thus becomes an element of the individualisation process through which people reflect on and take responsibility for their place in the world, based on the information and knowledge they filter through their communication bubbles. This process is not just a matter of vegetarianism, but to some extent all food choices are subject to justification processes within this frame. Factors such as secularisation, conservationist ideologies about nature, civilisation processes involving the concealment of biological functions (of death and killing in particular), and more recently scepticism towards the industrialist rationality of the 19th and 20th centuries are factors that may favour a greater questioning of established food regimes. Meat consumption included. Perhaps they do not favour fully vegetarian and vegan choices: to date, these choices concern a minority of people in the Global North, whereas outside the Global North a preponderant proportion of vegetarians are vegetarians out of necessity and would stop being so under the right socio-economic conditions (Lehay et al. 2010).

This last point shows that, despite the controversies, meat culture retains an important symbolic referent role in contemporary societies: even alternative diets and visions constantly refer to it. According to Beardsworth and Keil (1997), part of the vegetarian choice is presented as a sense of rejection of meat rather than an enthusiasm for plant-based foods. This is precisely the direction of the market logic that leads to the production of “mimetic” foods: consider those alternative protein

foods whose marketing strategies explicitly reference meaty shapes and flavours (Marshall et al. 2022; Fuentes, Fuentes 2023).

4. Alternatives to meat.

The pluralisation of consumer choice and the consequent opening up of new niches in the market; the concern for the social, economic and environmental sustainability of existing agrifood supply chains have brought the development of different protein sources, whether deriving from scientific and technological progress or from the importation of eating habits from other geographical contexts, to the attention of legislators, major market players and consumers.

In the European Union, so-called novel foods were specifically regulated through Regulation (EC) 258/97, which defined them as food that was not consumed significantly within the EU prior to 15 May 1997 and made their marketing subject to specific authorisation (Corvo and Fontefrancesco 2021).

The European Food Information Council has identified five novel foods that are alternative protein sources: cultured meat; plant-based proteins and plant-based substitutes of meat and dairy; options derived from the fermentation of microorganisms (such as mycoprotein); edible insects; algae and microalgae (Eufic 2023a). Since we will be dealing with them later in this paper, we will briefly introduce them here.

4.1 Plant-based proteins and plant-based substitutes of meat and dairy.

Plant-based substitutes of meat and dairy are products that use vegetables, pulses, cereals, nuts and seeds – very often trying to reproduce the organoleptic and usage characteristics of meat or dairy products (Abrell 2023). Various meat substitutes using only plant-based ingredients, such as burgers made from legumes and gluten-based sausages, have been on the market for several decades.

These products have been created with the aim of offering traditional foods to a segment of the population that, for ethical or health reasons, excludes foods of animal origin from their diet. In this way, meat substitutes make it possible to maintain a sense of cultural belonging

through the consumption of dishes that are similar to the traditional ones. Moreover, they are often ready-to-eat foods, designed to optimise ease of consumption, and thus adapted to the needs of today's consumers, who spend less and less time preparing meals (Fuentes, Fuentes 2023).

In recent years, in response to a significant increase in demand, the food industry has tried to create replicas that are increasingly similar to animal products: these newer meat substitutes have found an important and relatively profitable niche in the food market, targeting niches of omnivorous consumers rather than vegans and vegetarians (Lang 2020). Consequently, the market has focused heavily on organoleptic aspects, whereas health and environmental sustainability are highly variable and depend on a wide range of factors – ingredients used, processing techniques and distribution.

4.2 *Algae and microalgae.*

Macroalgae and microalgae can be alternative sources of protein. While macroalgae are present in the diet of many cultures (and were much more so than today also in Europe, see Buckley et al. 2023), the focus on microalgae for human and animal nutrition has grown more recently and they are now used in various industries besides agrifood, such as cosmetics and biofuel production. The most well-known include spirulina and chlorella, which are widely used in food supplements. However, their use in food is still uncommon in Europe, although foods enriched with microalgae (such as bread, snacks, creams) are being developed (Eufic 2022). In fact, there was an early period of media, scientific and technological hype around this source of protein in the late 1940s and early 1950s, but the enthusiasm of the promoters was not matched by adequate production and commercial success: a useful reminder of the naive optimism that is sometimes expressed with regard to the spread of certain novel foods (Belasco 1997).

4.3 *Mycoprotein.*

Biomass fermentation can produce large quantities of protein-rich microorganisms that can be used as food or as ingredients in other foods.

Mycoprotein uses this process to cultivate filamentous fungi, which can be used to make meat-substitute protein foods (Nadathur et al. 2017).

Precision fermentation uses genetically modified micro-organisms in controlled environments: the “code” written into them introduces animal protein gene sequences into organisms such as yeast. The resulting proteins can be mixed with other ingredients to create protein products. Some companies use this production technology to (re)produce different types of proteins (egg, milk and meat). However, large-scale production is at an early stage.

4.4 *Cultured meat.*

Lab-grown meat is produced from cultures of animal cells extracted from the stem cells of a living animal without endangering its life (Corvo and Fontefrancesco 2021).

Although the production of cultured meat may reduce the number of animals reared and slaughtered, it is certainly not an animal-free process: the stem cells used are derived from live animals, and many culture media contain foetal bovine serum. To date, commercialisation is limited to very few options in the United States, the Netherlands and Singapore, and microbiological, chemical and economic evaluation is still at an early stage (Eufic 2023b).

4.5 *Edible insects.*

The use of certain types of insects as food is a very common practice in different parts of the world (Halloran et al. 2018). Even though they have a long tradition in many countries, some insects are considered novel foods in Europe and therefore require official approval before they can be marketed. Currently, there are four species approved for sale in Europe: house crickets, migratory locusts, mealworms and yellow mealworms. Some of these are already at the production stage to make protein snacks, flours and other products available in European supermarkets or e-commerce (Boukid et al. 2023).

The resulting products can be used to enrich food and feed, as they generally have a very high protein content. Moreover, these are production systems whose environmental sustainability so far seems quite clear:

breeding requires less food, water and soil than other animals (Corvo, Fontefrancesco 2021). However, there are allergy risks and – of all the options presented here – it seems to be the least socially legitimate and furthest from consumer taste (Dagevos 2021).

5. Perspectives for research on alternative protein sources.

In the previous sections we have mentioned a few aspects that are worthy of being revisited from an empirical research perspective on food choices in the future of human societies. In particular, we refer to (a) the polarisation of debate, mobilisation and public opinion regarding the social acceptability of new consumption models; (b) the importance of meat as a symbolic signifier in public discourse, even for those who abstain from meat.

First of all, in the logic of polarisation, it is reasonable to expect defensive reactions from consumers who feel blamed. They will plausibly devise justifications, perhaps referring to traditions (and in fact inventing them, as in our societies massive consumption of meat and/or certain types of meat, as mentioned in this paper, is relatively recent) or the disqualification of alternatives, overturning arguments about the sustainability, healthiness and ethical desirability of new foods. This is a very important element of technical-scientific communication in modern societies, where the risk of a boomerang effect is well known and established in the literature (Sol Hart, Nisbet 2012).

In fact, we already see much of this rhetoric in action in the public communication criticising novel foods. They are legitimised in the game of opposition and in view of the actual complexity of the phenomena, where the calculability of the risks and benefits of each choice can be very complex and involves different and contrasting dimensions of the “common good” (Sexton et al. 2019).

In addition, and thinking about the public good that should result from future production and consumption choices, this tells us that the polarisation of the debate is plausibly not good for the debate itself, making it very ideological and not very evidence-based, but also not very willing to listen to the reasons of others (Bene, Lundy 2023). From the perspective of promoting transformative eating behaviours, it also means

that promoting aggressively can create a damaging rejection of potential innovations. Increasing polarisation also means that a large proportion of the undecided are being pushed to one side or the other – and probably more easily towards conservative options that are less likely to challenge established lifestyles.

Secondly, it is interesting to understand how novel foods, which are explicitly presented as a future alternative to the consumption of farmed meat, are known, perceived and ultimately legitimised by the public. Again, there is a dialectical element: alternative protein sources challenge and interact with the established meat based diet (Dueñas-Ocampo et al. 2023). This moves political and economic interests (i.e., the fear of some traditional producers of being superseded by the new productions) and consolidated cultural horizons in terms of individual and social identity, which also passes through the affirmation of taste and foods charged with symbolic meanings.

In fact, in recent months we have witnessed a natural experiment in which, as a result of political decisions on the issue (Dameno 2023), public opinion has focused in particular on two of these alternatives: cultured meat and edible insects. Other alternatives (such as plant-based proteins, in various preparations) are instead now widely distributed and found in the homes of many Italians; additional ones, although probably with less massive distribution channels, have a legitimacy niche, especially in diets that are explicitly health-oriented, as in the case of mycoproteins and microalgae supplements.

This is why, at the end of this paper, we propose a small survey aimed precisely at reflecting attitudes towards these five novel foods from a comparative perspective, also with a view to future research developments on the issue. In fact, the research question that guided the structuring of the survey aimed to capture the aspects of legitimacy and social acceptance of alternative protein sources (a topic on which there is an extensive international literature, see Onwezen, Dagevos 2024) in Italy, starting from knowledge and consumption experience, and in relation to consumers' opinions and attitudes on sustainability.

5.1. *A survey on novel foods.*

The survey was conducted online between October and November 2023. The objective of reaching a diverse – though necessarily unrepre-

sentative – audience was achieved with sponsored posts on Facebook, targeting Italian adults.

During the survey period, 176 valid responses were collected. As already mentioned, the sample is not representative and shows several imbalances: about 70% of the respondents are female, almost two thirds are graduates. Other socio-demographic elements are a fairly good reflection of the characteristics of the reference population, particularly the average age (47 years among the respondents to the survey against 46.5 indicated by the ISTAT (Italian National Statistics Institute) Annual Report 2023) and the family composition (1.9 members, with 32.4% single persons – against 2.3 members and 33.3% single persons according to the ISTAT Statistical Yearbook 2020 data). However, the characteristics of the sample – in terms of the number of main socio-demographic aggregates – are sufficient to reveal differences between different groups with regard to the research questions.

5.2. Survey results.

Knowledge of novel foods and alternatives to the most common animal-based proteins is an important step towards future changes in eating habits. Social legitimacy and consumer choice are affected by ignorance of the existence of new opportunities.

It is not surprising that an important differentiating factor in our sample is age, with older people being less aware of protein alternatives. Looking at the widest demographic groups, even just the products most easily found in Italian supermarkets – such as plant-based alternatives

Tab. 1. Knowledge and consumption of novel foods by age group (%)

	Knows		Tasted	
	< 30	> 60	< 30	> 60
Plant-based proteins	92.5	79.5	58.5	33.3
Microalgae	51.4	69.2	15.6	15.4
Fermented (mycoprotein)	56.6	53.9	5.7	7.7
Edible insects	83.0	66.7	9.4	0.0
Cultured meats	81.1	61.5	7.5	0.0

to meat and dairy products – are known to more than 90% of the under-30s, and around 60% have tried them. On the other hand, 80% of the over 60s are familiar with these foods, but only a third have tasted them (Table 1).

The differences are minimal and insignificant only for the lesser-known foods (microalgae and mycoprotein), although it should be noted that the recent debate on edible insects and cultured meat has led to a certain increase in knowledge of these protein sources, particularly among younger people, although this does not yet appear to have had any impact on consumption.³

The other socio-demographic factor influencing knowledge (but not consumption, except for plant-based proteins) of new protein sources is education level (Table 2).

Tab. 2. Knowledge and consumption of novel foods by education level (%)

	Knows		Tasted	
	High school degree	University degree	High school degree	University degree
Plant-based proteins	86.2	88.9	46.2	62.0
Microalgae	67.7	76.8	16.9	19.4
Fermented (mycoprotein)	53.8	51.8	4.6	3.7
Edible insects	69.2	82.5	4.6	5.6
Cultured meats	61.5	80.6	4.6	3.7

More partial evidence concerns diets: those who followed a diet, especially one that did not focus on calorie intake, were slightly more likely to consume plant-based proteins, microalgae and mycoproteins.

In general, greater attention to food issues is a good indicator of sensitivity to information, but also of willingness to try new foods. Our questionnaire included a battery that asked respondents to indicate, on

³ In this kind of opinion surveys, it is entirely plausible that memories and opinions are distorted by behaviour deemed socially desirable. The following analyses are therefore based on this data, even though it is probably not very realistic. We do not see it as a fact, but as a positive attitude towards the issue.

a scale of 1 to 7, the extent to which they engaged in certain behaviours that reflect attention to food choices. The battery included items ranging from personally buying and cooking food, to paying attention to ingredients, and the environmental and economic impact of purchased food. The creation of a cumulative index of conscious attention to food choices shows that the average score on this index correlates positively with knowledge and, above all, consumption of novel foods (Table 3).

Unsurprisingly, knowledge is also associated with a higher propensity for consumption. In fact, our questionnaire included another battery – on a scale of 1 to 7 – about the propensity to consume the five novel foods we were comparing in the future. The propensity to consume score is strongly correlated with knowledge and having already tasted and consumed (Table 4).

Tab. 3. Mean index score of conscious attention to food choices for knowledge and consumption of novel foods (range: 1-7)

Novel foods	Among those who do not know	Among those who have tasted	Diff.
Plant-based proteins	4.29	4.63	0.34
Microalgae	4.09	4.91	0.82
Fermented (mycoprotein)	4.11	5.29	1.18
Edible insects	4.31	4.78	0.47
Cultured meats	4.33	4.00	- 0.33

Tab. 4. Average propensity score for future consumption by knowledge and consumption of novel foods (range: 1-7)

Novel foods	Among those who do not know...	Among those who know but have not tasted...	Among those who tasted...
Plant-based proteins	2.05	3.40	5.60
Microalgae	2.50	3.54	4.80
Fermented (mycoprotein)	2.65	3.75	5.00
Edible insects	1.77	2.36	4.22
Cultured meats	2.00	3.32	5.00

It is interesting to look at the comparative picture. It gives us some details about the different protein sources. Firstly, the willingness to consider future consumption increases significantly once the barrier of the first taste has been overcome. This also applies to edible insects, where cultural barriers may be stronger. While it is true that the willingness to taste score is the lowest of the five novel foods considered, the gap is the widest. That is: the cultural barrier is stronger, but tasting breaks it down very significantly.

Another very interesting element – which we do not report in full in table form for reasons of space – is the fact that having tasted one of the five novel foods increases the willingness to consume all the others. This could mean that those with a neophilic attitude maintain it for different types of food (although again with a less pronounced propensity for insects, see Table 5) – with the sole exception of those who have tried microalgae (less inclined to consume new animal proteins). In particular, the willingness for consumption of edible insects and cultivated meat goes rather hand in hand. In this case, it is possible that the political and media debate that took place in recent months around these two foods had a polarising effect; such effect – in line with the literature on polarisation mentioned above – may have widened the gap between neophiliacs and neophobes.

Tab. 5. Average propensity score for future consumption of edible insects by knowledge and consumption of novel foods (range: 1-7)

Novel foods	Among those who do not know...	Among those who know but have not tasted...	Among those who tasted...
Plant-based proteins	1.57	2.18	2.57
Microalgae	2.30	2.42	2.06
Fermented (mycoprotein)	2.21	2.39	2.86
Edible insects	1.77	2.36	4.22
Cultured meats	1.96	2.37	4.00

We must also look at the flipside of the coin. Those with less knowledge and less inclination to consume novel foods tend to be radically

opposed to them. It is interesting to note, however, that those opposed to novel foods do not come from the food traditionalist camp. In our questionnaire, a battery (again on a scale of 1 to 7) asked the sample about their priorities for the future direction of their consumption, with eleven items designed to analyse the focus on challenges related to economic, social and environmental sustainability in food choices.

Those who know and/or consume novel foods are on average more aware of at least some environmental and health issues, but do not necessarily disregard the importance of defending local food traditions – quite the opposite. A certain correlation between knowledge and consumption and a lower tendency towards tradition is only found among consumers of plant-based proteins.

Therefore, it can be assumed that the majority of novel foods are perceived as complementary to, rather than substitutes for, more traditional consumption, the defence of which (e.g. in reference to promoting local products) is certainly not at odds with the logic of sustainability. We also see this element by cross-referencing knowledge of novel foods with an additional battery of factors that influence food choices. In particular, we can compare the answers to two items: “When choosing the foods in my meals, I only choose foods that are part of the Mediterranean diet” – as a proxy for traditionalism – and “When choosing the foods in my meals, I am guided by curiosity to try new flavours” – as a proxy for neophilia (see Table 6). The Mediterranean diet is appreciated across the board, with no significant differences between those who do not know, those who know and those who have tried novel foods. However, the three groups are more clearly distinguished by their different propensity to try new tastes. These will therefore complement, not replace, the established ones.

Similar results are also found when comparing the consumption preferences of those who do not know, know and have tasted novel foods, with the latter generally more attentive overall to various product characteristics, including the fact that it is locally produced.

To conclude, in terms of knowledge and willingness to taste, it seems that the main difference is not between traditionalists and neophiliacs, but between those who are particularly attentive to their food choices, keep themselves informed and are critical in their consumption – and therefore able to consider the conscious use of alternative products – and

Tab. 6. Average priority score in food choices for knowledge and consumption of novel foods (range: 1-7)

Novel foods	Among those who do not know...		Among those who know but have not tasted...		Among those who tasted...	
	Traditionalism score	Neophilia score	Traditionalism score	Neophilia score	Traditionalism score	Neophilia score
Plant-based proteins	3.33	2.71	3.51	3.27	3.43	4.18
Microalgae	3.57	3.26	3.21	3.67	3.97	4.47
Fermented (mycoprotein)	3.44	3.38	3.37	3.99	4.43	4.29
Edible insects	3.36	3.00	3.47	3.92	3.44	3.89
Cultured meats	3.54	3.22	3.42	3.87	3.29	4.14

those who, on the contrary, are generally less informed and less attentive (and also more reluctant to experiment with new foods). In short, neophobia and traditionalism are not necessarily linked. Moreover, if novel foods are interpreted as products of capitalist markets, an anti-capitalist and libertarian neophobia is not inconceivable.

Looking at the propensity for future consumption of all five novel foods surveyed in order to identify specific differences in insect consumption, six key aspects emerge (Table 7).

Young people are generally more likely to consume, but for microalgae and fermented products there are no significant age differences in potential consumers. This could be interpreted as a sign that communication about superfoods as dietary supplements is succeeding in reaching different socio-demographic groups, in particular through the role of experts, who influence the choices of potential consumers of plant-based proteins, microalgae and fermented products more than those who make other food choices. In particular, current and future microalgae consumers have a slightly different socio-demographic and opinion profile than other (more mature and traditionalist) consumers.

Willingness to consume in the future (especially edible insects and

cultured meat) is higher among those who prepare meals less frequently. This is generally related to the age of the respondents, as younger people often live in a family environment where they are not primarily responsible for shopping and preparing food. One element to consider is whether this might also be an indication that the consumption of novel foods would be more readily welcomed if they were prepared by others, thus breaking down cultural and competence barriers to lesser known raw materials (which in some cases are also possibly more disgusting to handle).

Potential consumers of novel foods are generally more aware of the implications of their food choices, with particular reference to issues of economic, environmental and social sustainability, both in their current food choices and in their future goals. The propensity to consume novel foods is higher among those who are more concerned about waste, environmental impact, sustainability, ethical dimension and industrial processing. For potential consumers of plant-based proteins, microalgae and mycoproteins, these aspects are much more pronounced. This is less the case for potential consumers of cultured meat and edible insects, which certainly share the goal of mitigating the effects of climate change, but do not significantly correlate with issues shared by potential consumers of other novel foods (e.g. concerns about water and land use, providing food for all). We can hypothesise that the polarised communication of recent months has influenced opinions on the consumption of cultured meat and edible insects: it has also tended to highlight doubts about their sustainability, which have not been raised with respect to the other three types of novel foods studied here.

The propensity to consume new novel foods remains linked to established diets. In particular, vegetarians and vegans – and those who make reducing meat consumption a goal in their food choices – are less likely to consume edible insects and cultured meats. For some people who abstain from eating meat, the way in which cultured meat is produced is not a sufficient reason to change their view of this type of food. However, the correlation is not particularly strong, suggesting that a proportion of vegetarians (especially those with more limited exclusions) do not have strong preclusions.

However, many potential consumers of novel foods are concerned with issues such as packaging, speed of preparation and shelf life: the

Tab. 7. Correlation (Spearman's *Rho*) between propensity to consume new proteins and some key variables

Variable	Propensity for future consumption of...					
	All novel foods	Plant-based proteins	Microalgae	Fermented (Mycoprotein)	Edible insects	Cultured meats
Year of birth	.201**	.188**	0.40	.143	.208**	.240**
% of habitually prepared meals	-.200**	-.109	-.042	-.179*	-.232**	-.259**
Vegetarian or vegan	-0.85	-0.72	.066	-.014	-.148	-.160*
Awareness of the climate and environmental impact of the food I buy	.212**	.233**	.339**	.224**	.018	-.005
Attention to waste minimisation	.181*	.228**	.190*	.151*	.034	.064
Organic	.139	.170*	.270**	.139	-.018	-.072
Ethical	.208**	.277**	.273**	.200**	.019	-0.04
Sustainable	.299**	.293**	.323**	.335**	.107	.081
Packaging	.306**	.327**	.276**	.278**	.138	.184*
Not processed	.205**	.281**	.299**	.149*	.017	.007
Long shelf life	.171*	.237**	.075	.136	-.044	.155*
I am guided by curiosity to try new flavours	.345**	.351**	.300**	.286**	.239**	.206**
Making food production sustainable	.266**	.351**	.284**	.204**	.036	.050
Having enough protein for a rapidly growing world population	.232**	.279**	.178*	.173*	.070	.141

Consuming less meat and meat products	.261**	.343**	.302**	.230**	-.013	.066
Mitigating the effects of climate change	.354**	.368**	.313**	.297**	.172*	.174*
Creating low-cost local proteins	.403**	.428**	.316**	.362**	.088	.306**

**The correlation is significant at the 0.01 level (two-tailed).

*Correlation is significant at the 0.05 level (two-tailed).

focus on food experimentation therefore does not detract from key elements of the food production, marketing and distribution chain.

Willingness to consume a new food is also strongly correlated with consumption of other novel foods, as well as, not surprisingly, with the curiosity to try new flavours. Those who are willing to experiment and innovate do not generally have preclusions – with the partial exception of current and potential microalgae consumers. This is an interesting finding because it means that a strategy of social legitimisation of today's less accepted novel foods could also be conveyed through wider communication and experimentation with several foods.

6. Conclusions.

To conclude, and without seeking to generalise too much as this is an exploratory work, a comprehensive analysis of the evidence gathered here suggests that the results are fairly consistent with what has already emerged in the international literature on the subject. Plant-based proteins now have a certain legitimacy among a solid niche of consumers. Small but cross-sectional groups of consumers are using and legitimising microalgae and mycoproteins as a supplement. Edible insects and cultured meats are the least legitimised novel foods and the ones to which there is the most resistance; at the moment they mainly attract novelty seekers who are only partially connected to ethical and sustainable forms of consumption.

Beyond the specifics of the research, this chapter has sought to demonstrate that an exclusively biological, technical or market-based approach to food does not allow for a full understanding of the societal

impact of any introduction, regulation and innovation in the food sector. In light of the highly symbolic and cultural value of food, a sociological-anthropological awareness, in its various facets, makes it possible to understand the socio-cultural impact, social acceptability and reactions that people may have to technical and organisational decisions on food supply chains.

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