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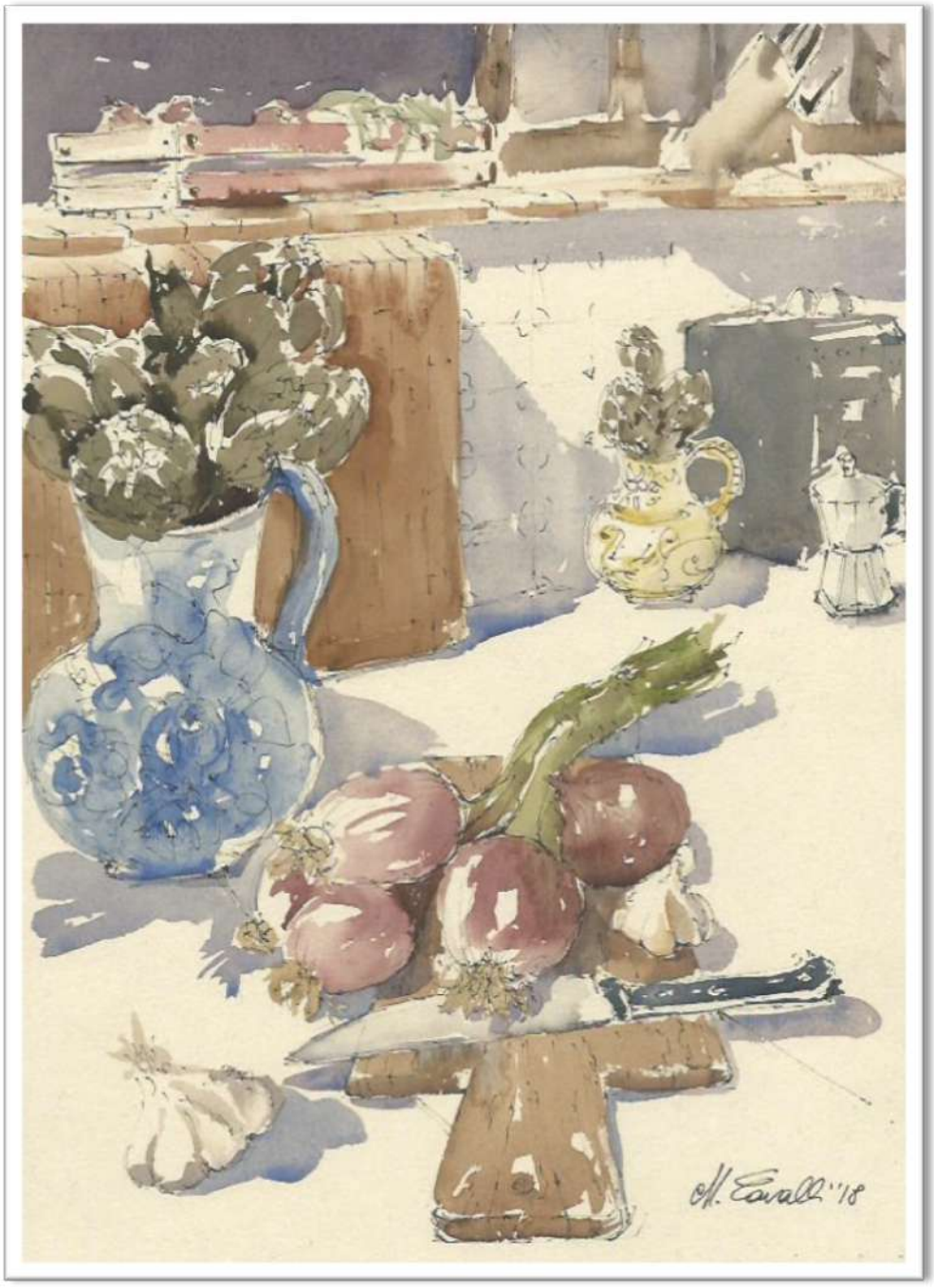
A transition towards sustainable food systems in Europe

Food policy blue print scoping study

Francesca Galli, Elena Favilli, Simona D'Amico, Gianluca Brunori



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This research has been carried out by Francesca Galli, Elena Favilli, Simona D'Amico, Gianluca Brunori, University of Pisa, in collaboration with Laboratorio di Studi Rurali Sismondi.

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1. Introduction

In September 2015, the General Assembly of the United Nations approved the resolution[1]: "Transforming our world: the 2030 Agenda for Sustainable Development". The Agenda sets 17 goals, among which goal 2, "End hunger, achieve food security and improved nutrition and promote sustainable agriculture". One of its targets is: "*by 2030, (to) ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality*".

This resolution is among the many actions launched between 2015 and 2016 that touch upon the issue of food system sustainability. In 2015, the Paris Climate Agreement[2] (COP21) is reached, while the General assembly of the UN adopts the resolution on the UN decade of Action on Nutrition[3] (2016-2025), that identifies as one of its six action areas, 'sustainable and resilient food systems for healthy diets'. At the European level, the debate has flourished. In 2016, the European Political Strategy Centre (EPSC) reflection paper (strategic notes Issue 18/2016) sets out a European vision for sustainability (so-called "Falkenberg paper[4]") including a vision for the future of EU agricultural policy. Hence the EU provides an overview of the current situation of the EU and its Member States on sustainable development in relation to the Sustainable Development Goals (SDGs)[5] and adopts the "Communication on next steps for a sustainable European future[6]" that, in the accompanying Staff Working Document[7], describes the contribution of the various EU policies and legislation to the Sustainable Development Goals (SDGs). In this document, the Commission highlights the role of Common Agricultural Policy, of Common Fisheries Policy, the EU Environment and Climate policy, the EU Food Policy, the Trade and Investment Policy, the EU Research and Innovation Policy.

What policies do we need to build a sustainable food system? Why, despite the intentions, policies show so disappointing outcomes? Despite these commitments, assessments carried out in the last years have highlighted a series of weaknesses of food-related policies in achieving food system sustainability. Inconsistencies (i.e. policies not pursuing given objectives), incoherencies (i.e. conflicting outcomes between policies) and policy gaps (i.e. missing policy instruments) have clearly emerged. In other words, it is more and more evident that the explanation of the distance between intentions and outcomes cannot only be attributed to single policies. It has to be found in the interrelations among policies, in the overall policy infrastructure that shall link together different policies and align their objectives, instruments and implementation measures (Howlett and Rayner, 2007).

A growing number of voices – among which the European Economic and Social Committee[8] (EESC, 2017) - have highlighted the need to change the overarching infrastructure of food-related policies. They claim that the European Union does not have a food policy[9]. For example, the General Food Law addresses food safety issues, but not nutrition. Regulations aimed at reducing the environmental impacts of food production are not built in connection with how food is consumed. There are regulations that encourage production systems to improve product quality, but the link to sustainability is not clear. There are rules that regulate information and communication to consumers, but a reference to sustainability is missing. Common Agricultural Policy grants subsidies to 'green' production processes, but most of them concern

[1] http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
[2] http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf
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primarily production actors. Distribution of financial resources over these instruments is largely disproportionate. Often these payments are not linked to clear outcomes and impacts.

How could a food policy contribute to shaping sustainable food systems in Europe? It is time for policy makers, academics, and civil society to take a step back and reflect upon appropriate policies infrastructures for transition toward food sustainability. This challenge implies a pervasive process that addresses in a consistent and coherent way the multidimensionality of food – environmental, social, economic, health, ethical and resilience implications - and takes into consideration the reciprocal influences between production, distribution and consumption and their links with broader socio-ecological and socio-technical systems. This process should reorganize food-related policy instruments around societal goals and put in place the necessary instruments to enable the social and institutional change, overcoming barriers.

This report proposes a conceptual framework and carries out an assessment of the existing policy infrastructure with the purpose of suggesting points of entry for policy-led transition towards food sustainability in Europe. The system perspective adopted allows us to apply one of the key principles of sustainable development as well as sustainable consumption and implies that policies aiming at sustainability should address consumption issues as well as production patterns. The challenge for a new policy approach is to put in place coordinated policy tools that can affect directly or indirectly this process of alignment, linking together self-responsibility with freedom to act.

Rather than pursuing an ambitious program of redesign of the agricultural policy into a broader food policy, we suggest a 'bottom up' process of construction of a food policy mix around strategic goals aimed at the integration and coherence between policies, together with the reorganization of existing tools and the introduction of new tools to fill existing gaps. The introduction of strategic tools - such as the EU Sustainable Food Assessment and Action Plan, proposed by the EESC (2017) at the EU level, or urban food strategies at the local level - can contribute to develop new representations of the food system, update policy objectives, verify the adequacy of existing policy instruments with respect to new objectives, identify missing policy instruments and mobilize all stakeholders to build a coherent set of policies. This report lays down some criteria on which this process should be activated.

2. Transition policies for sustainable food systems

According to the High-Level Panel of Experts on Food Security and Nutrition (HLPE, 2014), *"A sustainable food system is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised".*

In this definition, sustainability is inherently linked to present and future food security and nutrition. A sustainable food system should provide food availability (through production and trade), access to food (both economic and physical) to all, it should enable an adequate utilization of available food for a healthy life, and should ensure stability of these functions, without compromising the bases for future generations. Achieving food and nutrition security is a central priority for the sustainability of food systems and should never be considered in trade-off to other priorities (HLPE, 2017).

The above definition sets some basic elements for sustainable food systems. However, it leaves space for interpretation. For example, what does 'access to all' mean? All in a given community, or all in the world? What roles do farmers have in the resource base? Which future generations are to be considered and how far should we go in considering their interests in relation to the interests of present generations? Change can be beneficial for some social groups, geographical areas, specific generations and harmful for others. The speed of change may depend on power distribution, on perceived urgency, and political conditions. The radicalness of change may depend on the initial conditions, on the level of societal consensus around goals, on the strength of obstructing power by social groups, on the availability of feasible technical and legal solutions. Policies inspired to sustainability need to conciliate different legitimate interests and set priorities between criteria. Along with changing conditions, priorities between interests and sustainability dimensions may be subject to change.

Answers to these questions pertain to the political domain. A commitment to sustainability implies a 'reflexive' attitude, a disposition to review objectives and strategies in relation to improved knowledge of the system (Voss et al. 2006), taking into account and looking for solutions to trade-offs, contradictions and conflicts of interest, and involving a plurality of stakeholder in the process.

For the mentioned reasons, a policy for sustainable food systems should be framed as a transition policy. A transition policy is more than an ordinary policy intervention, such as the introduction of new instruments or a change in budget allocation among measures. In a transition frame, desired outcomes are constantly updated and clarified along with the unfolding policy processes. A transition policy should also acknowledge the existence of resistances to change and "systemic lock-ins"[10] that constrain the current pathway of evolution of the food system to sustainability.

A meaningful example of lock-in situation is intensive livestock farming and how to manage the transition of EU agriculture and agribusiness towards less livestock and more plant-based production and diets. Food system requires vast disinvestments away from livestock farms, slaughterhouses, meat processing industry, feed companies, etc. (Steinfeld et al. 2006). The debate on how disinvestment and transformation is going to take place is open and, particularly on what is the role of policy herein (see a video interview to Allan Buckwell here: http://www.risefoundation.eu/projects/livestock).

A transition policy should affect system activities, challenge the identities, the practices, the interests and the values of a multiplicity of actors and administrative bodies. It should imply a profound revision of existing regulatory frames and their knowledge base. A strategic policy action needs to be designed to unlock the system. What theory of systemic change guides the transition policy? how do current policies contribute to this theory of change?

2.1 A system perspective to food policies: policy models

Before we proceed, we need to address a key issue. We live in a globalized world, where all is connected. However, local contexts have specificities that cannot be represented in a broader, all-encompassing model. In other words, space and place matter. Thus, the question is: do we speak about "the food system" or about "a plurality of food systems"? This question has evident policy implications. On one side, we could hardly find fully self-sufficient, local food systems, disconnected from outside regions, nor it is sure that they are desirable. On the other side, a food policy for sustainability should recognize the right of local communities to promote system goals and configurations tailored to local specificities. Rather than an either/or dilemma, we think that the local/global tension can be solved through a multilevel approach, that defines compatibility rules among levels, so to recognize both plurality and interdependence and providing room for negotiation.

The questions above mentioned raise a more general issue: policies need to be built on adequate understanding of the system on which they apply, as the models on which understanding is built have political and policy implications. Policies related to food – and knowledge production, use and communication around them - have been so far based on very partial representations, wherein economic variables have an overwhelming weight. The links between agricultural policies and nutrition outcomes have been largely neglected (Hawkes, 2012), and the water-food-energy nexus– a promising concept to concretise food policy efficiently - is not a mature yet (Reinhard et al, 2017), as well as the understanding of indirect impacts of current consumption on distant natural systems (see Meyfroidt et al. 2013 on a review on distant drivers on land use change). The (negative) relation between modern agriculture and biodiversity is now well known, but little is known about the underlying mechanisms (see Henle et al. 2008 for a review).

How to generate appropriate food systems models?

Drawing on a growing literature, we can classify the components of a food system into resources, actors, activities and outcomes. Each of these components depends on the others. External factors, which cannot be influenced or controlled, may change the way internal components interact.

[10] Socio-technical lock ins, in the wording of sociology of innovation, see Smith et al. 2010 and Hinrichs, 2014.

Actors, individuals endowed with freedom to act, makes the difference with mechanical systems: their behaviour can only be influenced, but not determined. The capacity of policies to influence actors' behaviour, and therefore systems' outcomes, is related to the adequateness of system representations on which policies are based. Adequateness implies both closeness to actors' perception of the system and scientific robustness. With a policy based on a system representation different from how they perceive it, actors will be much more reluctant to follow new rules, even if aiming at improving their condition. Without scientific robustness, policies may be ineffective or even harmful.

Building a model for the food system consists first of all of choosing - among a wider set – resources, actors, activities and outcomes to be represented. Different sets and combinations will provide different representations. When a representation is created for policy purposes, the choice of outcomes to be represented sets the criteria for selection of actors and activities. For example, when emphasis is mainly on productivity, environmental or nutrition outcomes could be underestimated. Outcomes not represented become invisible to policies, at least until unintended consequences of system activities raise public attention.

A second aspect of building system representations is boundary setting that is classifying represented elements into internal and external ones. When representing a local food system, producers outside the considered region are not excluded from the representation but may be considered external to it: they cannot be controlled nor influenced. Boundary setting also clarifies the limits of a policy: food security depends on the activities of the food system as long as food availability is concerned. But it also depends on unemployment, incomes, welfare policies, which may be considered external to the food system. When a generalized economic crisis occurs, even a well-functioning and environmentally sustainable food system may not avoid food insecurity.

The representation of a system for policy purposes is thus related to what can (or what it is wanted to) be controlled or influenced by policies, so it is not a surprise that existing system representations, based on the limits of existing administrative boundaries and competences, tend to be partial and inadequate. The first challenge of integrative policy approaches is thus building shared representations - through appropriate appraisal methods - among all those that have an influence on the system's outcomes.

2.2 Food systems' outcomes and strategic goals

The identification of system's outcomes is key to a policy strategy, as selected outcomes define the desired performance of the system. Sustainability characterizes the quality of system outcomes. However, given that sustainability takes multiple dimensions into consideration, as well as future conditions and trade-offs between present and future generations. Sustainability implies a dynamic interaction between the goals a society wants to achieve and the constraints to the achievement of these goals.

Sustainability is by definition a slippery and contested concept, with multiple meanings and realities. An established understanding considers economic, social, and ecological dimensions of sustainability. These three dimensions cover a plethora of deeply interrelated issues that are relevant to assess food systems' performance[11], not without overlaps and trade-offs. Nonetheless, this reference framework needs further articulation to be adapted to food systems' peculiarities.
Firstly, health should be better emphasized. It is normally intended as part of the social dimension of sustainability, but up to now it has been largely neglected when considering food related policies (IPES food, 2017). The UN 'right to food principle' - endorsed by the EU – is defined as the "right to an adequate diet providing all the nutritional elements an individual requires to live a healthy and active life, and the means to access them" (de Schutter, 2011). Despite the principle of 'Health in All Policies' (Art. 168 TFEU), health is not always integrated in policies, and should be more explicitly considered as a dimension of sustainability.

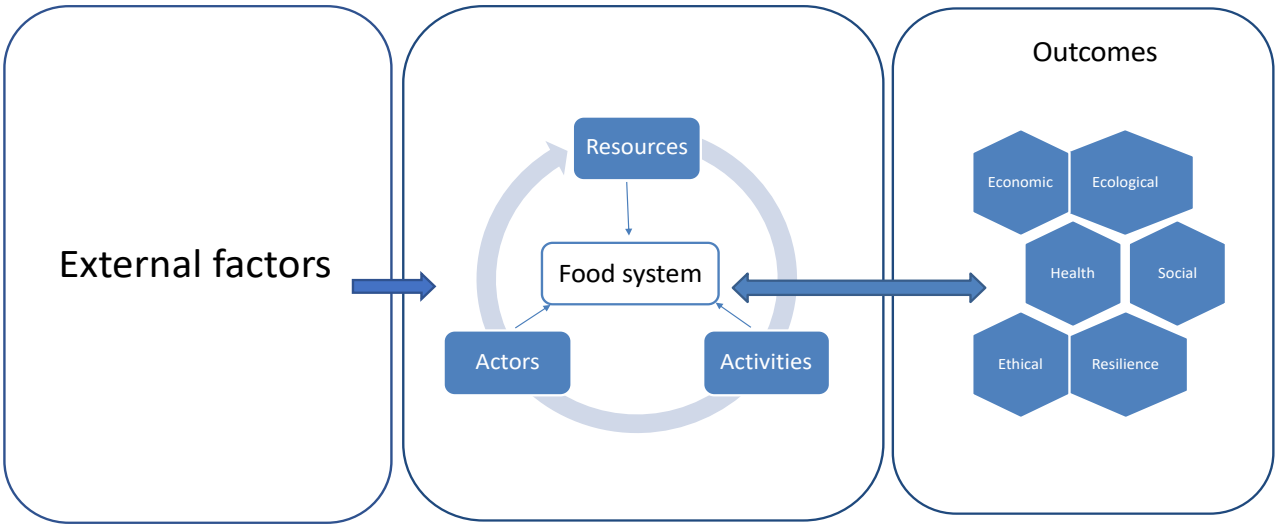
Secondly, as sustainability is a principle for societal change, activities related to food should be assessed and supported by policies in proportion to their capacity to influence societal transformation towards sustainability. For example, it is well known that meat has an important role in food systems, and it can

[11] See Kirwan et al (2017b).

be a key component of healthy diets. However, it is also true that meat has a sensibly higher ecological footprint than plant-based products, and that average diets in many communities are based on meat overconsumption. Strategies to improve environmental sustainability of animal production practices would be welcome, but this could bring an increase of meat demand[12]. On the contrary, strategies to raise awareness of the ecological footprint of meat may address meat consumption. We call 'ethical' the property of the food system related to the capacity to reflect, learn about consequences of food system activities and act accordingly.

Thirdly, systems cannot be sustainable if they are not resilient. Food systems change in relation to external variables. In order to preserve their functions along with change, food systems need to develop resilience properties, that is the capacity to adapt to changing conditions. These properties are both structural and behavioural.

Figure 1 - Food system elements and outcomes



These considerations bring us to propose six criteria for food systems' sustainability assessment: health, ecological, economic, social, ethical, resilience.

Strategic policy goals inspired to the mentioned criteria are translated into the following statements:

- **Health**: system activities should contribute to improving health and wellbeing, taking into account that system activities affect health not only in relation to access, dietary patterns and food quality, but also through occupational hazards and environmental contamination.
- **Ecological**: system activities should contribute to keep society within ecological boundaries and avoid environmental contamination.
- **Economic**: system activities should ensure that food business is economically viable and contributes to healthy economies by creating jobs and sufficient incomes both in rural and urban areas.
- **Social**: system activities should provide access to food that is adequate to satisfy the socio-cultural and nutritional needs of all. They should prevent and combat the creation of inequalities within the food system, ensuring adequate support to small farmers and small companies in the supply network, ensuring adequate labour conditions to workers, deliver assistance to marginalized consumers' groups.
- **Ethical**: system activities should produce ethically acceptable food and promote responsibility among producers and consumers by fostering transparency, encouraging information disclosure and sharing, incentivizing people's participation to business decisions.

[12] In line to the "Jevons' Paradox", the production of meat with lower environmental impacts may bring an increase in the overall meat demand, thanks to lower prices environmental friendly meat prices (Polimeni et al. 2015).

- **Resilience**: system activities should increase or keep food system diversity, allocate resources to crisis management, improve and knowledge about possible futures, improve system's capacity to innovate for anticipating change.

Building a strategy for food policy around these six goals entails not only an assessment of the contribution of policies to each dimension, but also an assessment of direct and indirect links between dimensions, including synergies, trade-offs, conflicts of interest and ethical dilemmas.

3. Building a policy mix for sustainable food systems

A policy strategy that addresses a multiplicity of dimensions and aims at managing a transition needs to integrate a multiplicity of policy instruments interacting with each other. It needs revised priorities for existing policies, new policies addressing policy gaps, and higher-level policy instruments that link a plurality of policies to common objectives. Rather than discussing policies in isolation, the policy mix concept should be adopted. The assessment of policy mixes will look not only at the impact of each policy, but also at its consistency with given overarching goals and at coherence and synergies with other policies.

In this report, the following definitions are used: *consistency* relates to the alignment of all instruments around given policy goals; *coherence* relates to the capacity of each policy instrument to not harm the pursuit of other instruments' goal and incoherence emerges when policies (for example, support to production) show unintended consequences (for example, on resource consumption). Unintended consequences often become visible at a later stage when evidence of undesired outcomes accumulates or when ethical or political sensitiveness changes. In this case, it becomes clear that existing sectorial policies are not able to deal with the emerging problems, fostering the need for policy integration.

3.1 The policy toolbox: an inventory

Policies are implemented through 'policy tools', which can affect the system in a variety of ways: these tools can be classified as direct activity regulation, market based, knowledge-related, governance and strategic tools (Table 1).

Table 1 - Classification of policy tools

POLICY TOOLS	EXAMPLES
Direct activity regulation tools	authorizations, prohibitions, limitations, quotas, antitrust enforcement, merger control
Market-based tools	subsidies, loans, guarantees, insurance schemes, taxes, charges, fees, fines, penalties, liability and compensation schemes, incentives, deposit-refund systems, tradable permit schemes
Knowledge-related tools	information, communication, research, education
Governance tools	shape the distribution of roles and responsibilities among actors,
Strategic tools	establish overarching principles, objectives and identify policy instruments to be mobilized in the pursuit of the objectives.

European law shows an impressive number of policy tools, relevant to food, already in place. Here we list the most relevant ones.

Direct regulation

All European regulations are aligned with the principles set out in the Treaty of Rome, including freedom of movement of goods, services, capital, people. The free movement of goods, together with the competition policy enforced by the Commission - together with the national competition authorities and national courts (by means of antitrust and cartel policy, merger control, state aid control) - both contribute to the realization of the Single Market.

Direct regulation is applied to authorise, prohibit or regulate the use of given production or commercial practices or products. Examples of direct activity regulation in the food system are: pesticides, fertilizers, GMOs, novel foods and packaging. An important component of direct regulation are standards, technical rules applied to agricultural production (for instance the 'greening' tools or the agri-environmental measures of rural development plans) and processing (as in the case of quality schemes or in the case of levels of contaminants in food). The adoption of standards and their communication to users may imply control and/or certification schemes. Standards can be mandatory (in this case all have to adopt them) or voluntary (in which case the adoption is rewarded by benefits such as improved reputation or a specific payment).

Market-based tools

Subsidies

The Common Agricultural Policy provides a wide range of market-based tools. Under the CAP 1st pillar, direct payments provide income integration for farmers, thus supporting their competitiveness, sustainability and environmentally-friendly farming practices. The fruit and milk scheme of the single CMO is a market –based tool, but with health and nutrition education implications for the school children targeted by this policy tool. Under the Rural Development policy, agro-environment-climate payments are given to farmers who pledge to introduce environmentally friendly farming practices above good environmental practices. There is support to investment tools give financial aid to purchase capital goods, equipment or infrastructures. Compensation payments are also granted in case of natural disasters. Promotion campaigns about EU farm products are designed to co-finance campaigns oriented to inform consumers about the various EU quality schemes and labels as well as support the opening of up new market opportunities for EU farmers and the wider food industry.

Trade agreements and barriers

The EU has exclusive power to legislate on trade matters and to conclude international trade agreements, based on World Trade Organisation rules. Its policy covers trade in goods and services but also matters such as commercial aspects of intellectual property rights and foreign direct investment. Agricultural commodities and food products are an important component of European foreign trade, and trade agreements may affect the food system in a substantial way. Trade related policy tools also include several types of restrictions to trade, such as import tariffs, import quota and non-tariff barriers (e.g. safety standards and labelling requirements).

Food assistance

Food assistance refers to financial and in-kind support to most deprived persons. It is often operated through public-private-civic partnerships. European Union provides a food distribution program, and in 2014 has established a Fund for European Aid to the most deprived (FEAD) under the Employment, Social Affairs and Inclusion Directorate of the EU Commission.

Public procurement

EU public procurement rules aim at giving contracting authorities the opportunity to choose the best type of procedure, requirements and criteria allowing them to pursue environmental, social and innovation objectives. Food is strongly relevant to public procurement in relation to schools, hospitals and public employees' canteens.

Food taxation

Food taxation measures have been introduced in several countries to reduce the consumption of unhealthy food. Fats, sugars, salt are the targets of these policies. Denmark, Finland, France, Hungary, and Mexico have such taxes. Taxation is expected to impact on consumption levels in relation to the willingness to pay for a food product.

Commerce licensing

Commerce licensing can shape the food environment by altering the accessibility to given categories of food in a certain geographical area. Municipalities use zoning to exclude or include specific typologies

of food business. In the USA, they are used to exclude fast food or to support the establishment of farmers' markets, or to identify areas where access to fresh food is limited.

Knowledge-related tools

Research and Innovation policy

There is a rich European R&I landscape of funding programmes related to food and nutrition security as well as strategies and initiatives led by different European Commission services that reflect the complexity of food systems and the multiple aspects related to food production, consumption and health[13]. R&I can have a structural effect on the future food systems, including extension services. The 2015 fourth foresight exercise of the EU Member States Standing Committee on Agriculture Research[14], (SCAR) highlights that R&I ought to be built upon a knowledge and innovation system that should be challenge-oriented, transdisciplinary, socially distributed, reflexive, needing new rewarding and assessment systems, and helping to build competencies and capacities.

Information, communication, advertisement

All policy measures aim at providing adequate information to consumers and citizens about food. Appropriate information is the necessary condition for responsible choice. Within this heading we also consider issues related to the regulation of food advertisement, for example advertisement addressed to children or health and nutrition claims, the regulation of which should ensure that claims are based on scientific evidence.

Labelling

Labelling rules regulate the information on food labels to consumers. It establishes information, regulates optional information and sets terminology. Labelling rules can be an important food policy tool since it can display information on the origin of the product, on methods of production and on the nutritional content of food.

Food education

Nutrition education helps to build the capacities for people to: feed themselves and their families well, get the right foods at the right prices, prepare healthy foods and meals which they enjoy, recognize poor food choices and resist them, teach their children and others about healthy eating. Food education policies support strategies to reach a variety of audiences and contexts through various communication channels.

Nudging tools

In this category, we consider a number of tools "*designed to steer individuals in certain directions without limiting their freedom of choice*" (Reisch et al., 2017). These can be information tools that provide consumers with feedbacks, warnings, reminders, generate attraction, or simply modify the physical contexts of choice, (e.g. positioning of products in shops). Nudging tools can be used to orient food environments to policy goals.

Governance tools

Under this heading we classify all forms of public-private-civic interaction that address policy issues related to agriculture and food policies. Governance can be designed to foster vertical and horizontal integration, to involve citizen in decision making and to strengthen joint strategic reflection. EU General Food Law sets governance tools that assign roles and responsibilities to the food business operators. The Rural Development policy identifies managing authorities, planning procedures, and rules for consultation.

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[13] European Research and Innovation for Food and Nutrition Security, FOOD 2030 High-level Conference background document, http://ec.europa.eu/research/bioeconomy/pdf/food2030_conference_background.pdf

[14] See the report: https://ec.europa.eu/research/scar/pdf/ki-01-15-295-enn.pdf#view=fit&pagemode=none

Through Corporate Social Responsibility (CSR), companies integrate social and environmental concerns in their business operations on a voluntary basis. European Legislation set priorities and measures on CSR matters by supporting multi-stakeholder's initiatives, promoting CRS among medium-sized enterprises, spreading good CSR practices, integrating CSR into education, training and research, improving the market rewards for CSR.

Strategic tools

Strategic instruments define principles, goals, and priorities to chart a future direction of action. They are needed to integrate overarching objectives in the implementation of instruments that, if acting independent from each other, may tend to ignore related policies or problems. Strategic tools can also give guidance on how to identify weaknesses and gaps in the existing regulations and provide recommendations for regulatory change. They may include framework conventions, guidelines, strategic action plans, and roadmaps (Rogge, Reichard, 2016).

In the EU legislation, Rural Development Plans give Member States the possibility to coordinate the tools of the Rural Development Policy to region-specific objectives. Support programmes or operational programmes in the Common Market Organization coordinate support instruments to a specific sector.

Strategic tools can be implemented at any governance level to foster integration between related policies. Urban Food Strategies, blossomed in the last years, have opened a new policy field, improving understanding on how food consumption is affected by urban policies, and identifying links across policy fields previously unexplored.

3.2 The effectiveness of the policy mix

In a sustainable food system, resources, actors and activities align dynamically around sustainability principles. This means that when perturbations (for example, new technologies, new consumption patterns, new scarcities) alter or threaten to alter the sustainability performance of the food system, feedback mechanisms are put in place to re-establish the alignment. According to a system approach, consumers and consumption fully contribute to system outcomes. Consumption and consumers are internal, not external to the system, and this implies that policies should affect consumption as well as production.

Policy tools influence the behaviour of food system actors by impacting on supply and demand in multiple ways. **Supply-side** policy instruments act upon producers, processors and distributors by altering the conditions that determine prices and quantities supplied. For example, coupled CAP support mechanisms affect quantities produced of a given product; safety rules affect production processes and production costs.

In a strategy for sustainable food systems, principles such as agroecology, social responsibility, and fair trade could align supply side instruments around sustainability goals. Agroecology would provide criteria for cross-compliance, for environmental payments and for product labelling. Social responsibility would encourage producers in actively identifying sustainability targets and develop accountability instruments. Fair Trade principles would promote diversity and complementarity among systems and preventing power concentration and support the necessary system diversification.

The role of demand-side instruments is largely under-explored within the sustainable food policy transition thinking. **Demand-side** policy instruments affect the conditions of demand. For instance, laws on alcohol consumption restrict access by teenagers; taxes on sugars or on fat are aimed at altering relative prices among food items; nutritional labelling aims at orienting consumers' choice. Strategic tools embodying the principle of sustainable diets (Mason and Lang, 2017) would identify the link between health and environmental outcomes of consumption and would help setting the appropriate policy mix to address it.

Considering supply-side and demand-side instruments as components of policy mixes would enable policy makers to holistic thinking, looking at how demand-side policies would have dynamic effects at supply level, influencing producers' strategies and fostering innovation (Hawkes, 2012).

A strategic management of supply-side and demand-side policy instrument could also address the **food environment**, that can be defined as collective physical, economic, policy and socio-cultural surroundings, opportunities and conditions that influence people's food and beverage choices (Herforth and Ahmed, 2015; Swinburn et al. 2015). The food environment concept tells us that consumers are free to choose, but they are influenced by signals, incentives, constraints and penalties specific of given contexts. A growing literature studies the effects of the food environment on dietary patterns and on malnutrition, showing how individual choice is mediated by structural conditions (Gòmez et al. 2013). The food environment encompasses the available food in each region, distribution infrastructures that regulate access to food, rules that regulate food activities and food affordability, as well as food-related information, social conventions and beliefs. The food environment concept shows the importance of not just looking at the primary producer and at an isolated consumer, but to consider the collective dimension of consumer choices and action, as they become more organised.

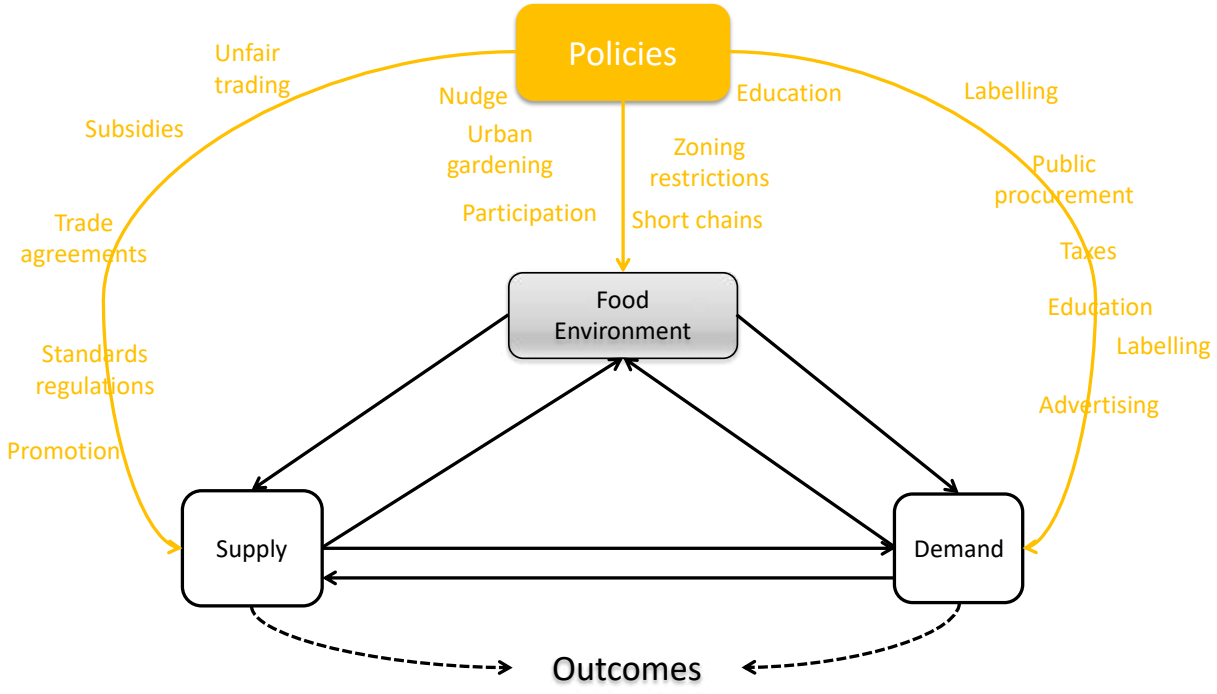
The food environment concept opens a new set of policy instruments and new objectives for policy integration. In this sense, private actors have been forerunners in shaping food environments, for example through food industry product design and marketing strategies, while public policy has not yet adopted the food environment as a focus for policy action.

Figure 1 illustrates the multiple impacts of policies on the food system: these impacts may directly address the supply, the demand and the 'food environment' (HLPE, 2017). Policies influence consumption patterns through supply and demand policies. For example, 'fruit in the school' schemes link demand and supply instruments to increase fruit consumption by the young generations. These schemes contribute to modify the food environment, as they contribute to change the dietary routines, and the impact of these policies may go well beyond the quantities of fruit mobilized in the scheme. Change in relative prices of nutrients (which can be affected by demand-side policies) may alter the proportion of food items in a daily food basket, but a change in dietary habits would happen only when relative prices acquire long-term stability.

When taking systematically the food environment into consideration, a much larger set of policies can be mobilized, such as commerce authorizations, urban garden allotments, mobility, education, disease prevention, public procurement, etc. Food environment policies, in summary, mobilize policy tools with the specific purpose of affecting consumers' habits. Food environment policies act upon the deep structures of consumers' choice by affecting purchasing and consumption routines.

Policies explicitly addressing the food environment can be an important component of policies for a sustainable food system. They also call for a revision of governance arrangements: while demand and supply side policies are normally set at national or European level, policies addressing the food environment need to be tailored to specific local contexts and require new policy networks and new policy fora.

Figure 2 - Policy impacts on supply, demand and food environment



An analysis of the impacts of policy tools on the food system activities and outcomes is necessary to build an appropriate policy mix. Table 2 classifies policy tools according to their most relevant expected impacts on sustainability dimensions (economic, social, ecological, health, ethical, resilience), on system activities (supply and demand) and on food environment. Colours show tools not available at European level (red) or applied in some countries (blue).

Table 2 – A classification of policy tools and their impacts

	Supply	Demand	Food environment
Economic	CAP payments; RD investments; RD agri-env. payments; trade; RD advisory services; food assistance; Sugar/fat/soda/salt taxation	Public procurement; food assistance; Sugar/fat/soda/salt taxation	Zoning (fast food outlets, retailing); Short food supply chains; Sugar/fat/soda/salt taxation
Social	RD advisory services; RD territorial measures	CAP fruit and milk in schools; CAP food assistance; RD support to short supply chains; food assistance	Food education; Advertising restrictions; Public procurement; Dietary guidelines; Labelling; School meals;
Ecological	CAP greening; RD agri-env.; RD advisory services; RD investments; fishery maximum sustainable yields; water, soil, pesticides, fertilizers, packaging regulations; waste management; circular economy; trade	Quality schemes; Full cost pricing; Labelling	Urban agriculture; Waste management; Circular economy; Pesticide regulations; GMOs regulation; Labelling; Food education; communication; nudging tools
Health	Quality schemes; General food law; CAP coupled payments; trade; RD advisory services; RD investments	Health claims; Quality schemes; CAP Fruit and milk in schools; Dietary guidelines; sugar/fat/soda/salt taxation	Commerce zoning and licensing; Urban agriculture; Dietary guidelines; Food education; Labelling; School meals; nudging tools

Ethical	Social responsibility; trade; RD advisory services; RD investments	Social responsibility; Information and communication	Social responsibility; Information and Communication; Governance; Labelling
Resilience	CAP market support tools; RD support to diversification; RD advisory services	Dietary guidelines; Information and communication Foot printing	Short food supply chains Urban agriculture; RD support to short food supply chains; Food assistance

The transition to sustainable food systems requires the alignment and adjustment of the broad set of policy instruments that influence demand, supply and the food environment, and the related skills, roles and responsibilities among the actors in the system. This transition requires time, and considerable effort both top-down (rules, incentives and reorganization of governance) and bottom up, especially from civil society, consumers, local administrations, in order to un-lock food systems towards sustainability.

3.3 Fostering integration, broadening involvement

The establishment of a policy for sustainable food systems requires both horizontal and vertical policy integration (OECD, 2016). Horizontal integration, that is the coordination or even the reorganization of public administration bodies related to food, will need a strong commitment at the highest levels of the interested administrations. Vertical coordination involves local, regional, national administration bodies. The model of the Rural Development Policy, articulated as a multilevel planning instrument, seems a promising model, as it involves many actors at different levels in the definition of regional strategies consistent with overarching societal challenges. However, Rural Development Policies don't involve urban municipalities, which have an important stake on food issues, as they host the majority of consumers, and have the necessary policy tools to shape the food environment. Giving municipalities the power of setting food strategies would give those resources and authority to make a strong step forward in the direction of sustainable food systems (Petrini and de Schutter, 2017). In fact, urban administrations can regulate commerce, built food infrastructures, orient public procurement, support food education, encourage urban agriculture, and organize food assistance to the most deprived. Urban food policies, integrated into broader agriculture and food policies, can become the core of food environment policies and of the new food policy.

An integrated food policy also requires a stronger alignment between public and private actors. Food system actors are already organized into networks regulated by formal or informal coordination mechanisms (i.e. contracts, voluntary standards, private labels). Thanks to long-term collaboration between food chain actors, value chains have become progressively more and more integrated. Since sustainability has become a relevant matter of choice for a growing number of consumers, quality schemes and sustainability standards have blossomed. Alignment between private standards and agri-environmental requirements of the rural development schemes[15] would be beneficial to the system, as they give market outlets to virtuous practices, so to link competitiveness with sustainability (Fresco and Poppe, 2016). However, it should also be considered that value chains are often dominated by big players, in particular international retail chains, and the legitimization that they would gain from collaboration with the public sector in sustainability strategies might contribute to increase the concentration of power in the system. To avoid this risk and at the same time seizing the opportunity offered by the convergence of value chains on public goals, policies should exchange resources and legitimization with a stronger commitment of corporates to social responsibility, information disclosure and to opening corporate deliberation to civil society. Moreover, policy instruments should be put in place to strengthen the plurality of the system, for example by supporting the development of local food supply chains and encouraging research on small size processing technologies. The multilevel dimension of governance should be able to ensure the capacity of regional food systems to adapt to local needs and to fully involve local actors.

[15] As suggested by Fresco and Poppe (2016).

Finally, it is to be considered that, despite the strong synergies that transition to a sustainable food system could generate, the process of change may also make trade-offs, contradictions, uncertainties, conflicts of interest and ethical dilemmas emerge. It is crucial that intervention is subject to public debate. Food systems should provide spaces of deliberation – that is, public spaces where two-ways communication between consumers, producers, administrations and civil society is encouraged - to stimulate all system actors to contribute to a shared vision of sustainability (Kirwan et al., 2017a).

4. An assessment of EU food related policies: inconsistencies, incoherencies, policy gaps

This section reports a synthetic overview of ten selected policies according to the perspective above illustrated. In particular, we have analysed their consistency with sustainability goals we have identified above, the policy tools they activate, their coherence with other policies, their impact on sustainability criteria, the policy gaps they have put into evidence in their implementation.

All the information and assumptions included in the analysis comes from a literature review of studies available for each policy (for details, please refer to the Annex of the report).

4.1 CAP Greening

Main acts. Reg. EU 1307/2013 in conjunction with Reg. EU 639/2014; Reg EU 641/2014

General aim. The mandatory greening component of direct payments should 'address both climatic and environmental policy goals' by 'enhancing environmental performance'. The aim of CAP Greening is to impose a stronger linkage of the decoupled direct payments to 'agricultural practices beneficial to the climate and environment' through three CAP Greening measures: crop diversification, maintenance of permanent grassland and Ecological Focus Area (EFA).

Tools. Greening is a market-based, supply-targeted instrument, as it provides eligible farmers with a direct payment conditioned to greening practices.

Consistency with overarching goals. By having an environmental purpose, the CAP Greening is explicitly consistent with the overarching ecological goal, despite the proportion of Greening payments on the total direct payments being limited. Other goals are not explicitly considered; however, the Greening tool is implicitly consistent with social and resilience goals because it also aims to promote farmers' responsibility towards the protection of the environment and the provisions of public goods. The CAP Greening is aligned to the economic goal of supporting farmers' income, as it conditions eligible farmers to obtaining a share of the direct payment.

Coherence with other policy instruments. Greening is a component of a larger direct payment. It is not clear if the other component of direct payments encourages practices to the detriment of the environment (i.e. as a balancing reaction). Moreover, CAP Greening is complementary with Cross-compliance and Rural Development Agri-environmental measures, because all the three tools are designed to improve the environmental sustainability of agriculture. However, there are overlaps with the rules of CAP Cross-compliance (Good Agricultural and Environmental Conditions) and with the Agri-environmental measures of the rural development policy (see Annex on Greening for details).

Impacts. The general impact of Greening measures is relatively low, especially due to the many exemptions and derogations to the rules arising as a compromise for the political acceptance of the reform and to the large flexibility given to the Member States to implement the reform. However, it should be considered that part of the purpose of greening was to signal to the society, including farmers, that a significant justification of making direct payments is to achieve more sustainable farming systems. The demonstration effect of Greening, as its requirements become more routine, conceivably could engage a more positive attitude of farmers to make the best of these requirements.

Gaps and missing links. The green payments, in its actual formulation, can give a weak contribution to the transition towards sustainable food systems. If the pledge of EU with relation to the Paris agreement on climate change will have to be respected, much more radical measures will have to be put in place. In a recent study of the FiBL for IFOAM EU (http://www.ifoam-eu.org/en/news/2018/04/18/fibl-study-shows-reforming-common-agriculture-policy-cap-can-better-support-farmers) and (http://www.ifoam-

eu.org/sites/default/files/towards_a_new_public_goods_payment_model_for_remunerating_farmers_under_the_CAP_post-2020_report_by_fibl.pdf), the focus is on further developing voluntary robust measures under pillar II of the CAP, while increasingly mainstreaming sustainability measures in pillar I with a new and more ambitious scheme to replace the current greening measures.

4.2 Nitrates Directive

Main act. Council Directive 91/676/EEC

General aim. The Council Directive 91/676/EEC (the Nitrates Directive, ND) aims to reduce water pollution caused by nitrates from agricultural sources and to prevent such pollution through a number of steps to be fulfilled by Member States, such as monitoring of all water body types, designation of Nitrates Vulnerable Zones (NVZ), the establishment of codes of good agricultural practices, the establishment of action plans to prevent water pollution by nitrates. Moreover, the ND includes rules for the use of animal manure and chemical fertilisers. A key measure is that member states should guarantee that annual application of nitrates by animal manure at the farm level does not exceed 170 kg/ha.

Tools. The tools activated by the Nitrates Directive can be classified as supply-side direct activity regulation, as it provides limitations concerning the use of nitrate fertilisers, mandatory action programmes, codes of good agricultural practices which Member States can implement in addition to the action programmes.

Consistency with overarching goals. Given its environmental goal, the Directive is consistent with the ecological overarching goals; it can be considered also consistent with ethical and resilience goals because it promotes farmers' responsibility towards the protection and maintenance of natural resources. On the other side, the effect that Nitrates Directive may have on the reduction on farm incomes make it less consistent with the economic policy goal.

Coherence with other policy instruments. The Directive is coherent with the Water Framework Directive (WFD), the National Emissions Ceiling directive (NEC) and the CAP cross-compliance (it is a Statutory Management Requirement).

Impacts. Being a policy with a clear environmental target, the Directive provides a general positive environmental impact, in term of reduction of nitrates contents in water bodies (ground water, surface water, rivers, and lakes). Nonetheless, there are still regions of major concern for nitrates and a socio - technical lock-in situation verifies, due to the reluctance to impose a policy of reduction of herds at the scale of a whole region. The economic impact is also relevant, as limitations concerning the input of nitrogen to the soil and the obligations on the manure storage have an economic effect on farms, as demonstrated by the decrease in the number of livestock farms within the NVZ.

Gaps and missing links. In relation to environmental goals, missing links are detected with other policies aimed at improving water quality and reducing water pollution from sources, other than agriculture. In relation to the economic goal, agri-environmental measures of the rural development plans have been used to compensate farmers' losses. However, clearer strategies (based on other tools such as support to investments and knowledge-based tools) should be put in place to foster different development models in the area.

4.3 Seed Marketing Directives

Main acts. The Seed Marketing Directives are based on article 37 of the Treaty establishing the European Community (Common Agricultural Policy). There are 12 basic Council Directives: one horizontal Directive on the Common Catalogue of varieties of agricultural plant species; 11 vertical Marketing Directives.

General aim. The Directives regulate the marketing of plant reproductive material of agricultural, vegetable, forest, fruit and ornamental species and vines, ensuring that EU criteria for health and quality are met. Their goal is to guarantee safety to consumers and productivity to producers.

Tools. The tools of this policy are mainly direct regulation. There are supply-based tools such as registration (each variety should be registered); certification (to guarantee the identity, health and quality of seeds and propagating material); marketing (rules on the way seed and propagating material is marketed); equivalence rules (to guarantee that seeds harvested outside the EU may be marketed in the EU).

Consistency with overarching goals. The Directives impact directly on the economic and health goals, as they are defined with the aim of ensuring productivity for producers and food safety for consumers. They are also consistent with the ethical goal, as the registration and certification system have fostered transparency by disclosing information about farming inputs, namely seeds. More information and transparency imply that producers takes responsibilities on the safety of their products.

Coherence with other policy instruments. Within the EU, there are several policy acts that seek to foster the enhancement of biodiversity and of all those food systems that can contribute to this goal. The EU is part of both the Convention for Biological Diversity (CBD) and the Treaty on Plant Genetic Resources for Food and Agriculture (TPGRFA). Moreover, the EU has adopted the Biodiversity Strategy in the frame of EU environmental policies. The seed policies seem to move in another direction with respect to the preservation of biodiversity.

Impacts. With regard to economic impacts**,** productivity has increased but apparently not more or less than in EU crops where VCU is not mandatory (e.g. vegetable seed). The system of registration, certification and marketing of S&PM has positively impacted on the social dimension. It has contributed to food security allowing the establishment of a free marketing of safe and productive S&PM in the EU to which both producers and consumers have access. However, small farmers are in a disadvantaged position compared to professional breeders and big food business. As for health, **t**he safety dimension is enhanced by increased controls even if criteria and controls and, the resulting selection, are not fully effectiveness. As for ethical criteria**, t**he rules on registration and certification systems have fostered transparency. The directives have negative implications regarding the environment. **T**he set of criteria and systems of registration and certification have contributed to reduce the number of varieties cultivated, to the detriment of biodiversity. On the resilience side, the policy has generated a preference for high yield varieties, whose adaptability to changing climate conditions is controversial, and lower crop diversity has contributed to a homogenisation of food systems.

Gaps and missing links. The seed marketing directives are defined in policy domains that seem to move in a different direction than other policy instruments that foster biodiversity. Nonetheless, a dialogue might be started among the responsible policy makers to strengthen the coherence among the acts. The CAP, and consumer's safety and health policies can be a starting point to link the seed marketing directives with stronger biodiversity protection: a diversity of varieties may contribute to valorise dietary and cultural diversity, which may enhance marketing potentials of ancient varieties.

4.4 CAP Common Market Organization

Main acts. Reg. EU n. 1308/2013.

General aim. The main purpose of the new CMO Regulation is to provide a safety net to agricultural markets through the use of market support tools, exceptional measures and aid schemes for certain sectors (in particular fruit, vegetables and wine), as well as to encourage producer cooperation through producer organisations and specific rules on competition, and to lay down marketing standards for certain products.

Tools. The CMO activates several, mainly supply-side tools: market intervention in case of prices below a reference price; exceptional measures against market disturbance; supply control measures (e.g. milk and wine sectors); support to producers and inter-branch organisations. Demand-side tools are also

available such as support to promotion to export in the wine sector and promotion of fruit and milk in schools.

Consistency with overarching goals. The objectives of CMO are mainly related to economic goals, as they provide the infrastructure to guarantee the free circulation of commodities, stabilize the markets and support the coordination of system actors. Much less evident is the consistency with other goals. Health and environmental goals are addressed only by the fruit, vegetables and milk schemes, a tool introduced originally to give a market to surplus food, that in the years has introduced rules imposing health and environmental criteria, seasonality, variety and availability in the choice of products to be supplied to the schools.

Coherence with other policy instruments. There is an explicit link between CMO and EU competition policy and it is related to the system of exemption from competition law (such that farmers are allowed to cooperate to bargain prices) for the market of agricultural products foreseen by the latter. A link is also provided to EU geographical indication schemes. The fruit and vegetable scheme could have a much greater relevance and impact in a different context, for example if coordinated with the food education, public procurement, and information and communication policies.

Impact. The Single CMO Regulation establishes common rules concerning marketing periods, public intervention, private storage, reference prices, intervention prices and disposal of products bought under intervention. It has an economic impact because it comprises a set of measures combined in a single regulation that allows the European Union to manage the market (production and trade) of several agricultural products. Recent available evidence, for Italy and Germany, on the impact of the fruit, vegetables schemes on health indicates that consumption of fruit and vegetables increases, despite their critiques about its implementation.

Gaps and missing links. As the main goal of the CMO is to conciliate support measures with free circulation of markets, all other goals are poorly addressed. An effort is made to improve the coordination among actors in the chain, to move the system toward quality production (through the national support programmes) and to orient food demand (through fruit and milk in the school schemes). However, these attempts are peripheral to the main objective of the regulation, and the question on how to pursue sustainable food systems compatible with free circulation of commodities remains unanswered.

4.5 Food safety and hygiene policy

Main acts. Regulation (EC) No 178/2002, "hygiene package" (Reg. 852, 853/2004). A Fitness Check on the General Food Law is currently ongoing.

General aim. The General Food Law (Reg. n. 178/2002) is the foundation of food safety policy: it sets outs an overarching framework (principles, requirements, and procedures) for food and feed safety from production to distribution. Among the main objectives of EU food law, the main one is "to guarantee a high level of protection of human life and health and the protection of consumers' interests, while at the same time ensuring free movement of food and feed in the internal market". Critical to achieving this objective is "risk analysis", composed of "risk assessment, risk management and risk communication".

The policy introduces different kinds of tools: direct activity regulation, such as traceability of food, feed and animals; standards, such as the HACCP; compulsory withdrawal of food and feed from the market in case of harm to health, obligation to inform the competent authorities and consumers; governance tools, such as the European Food Safety Authority (EFSA) and the Rapid Alert System for Food and Feed (RASFF).

Consistency with overarching goals. The safety policy is central for a sustainable food system and relevant for all the overarching goals, with priority given to health and economic goals. With regard to social goals, the policy is mainly targeted to consumers. Ecological objectives are not the primary core of the policy; however, they are closely linked to food safety for human consumption.

Coherence with other policy instruments. While the protection of the life and health and other interests of consumers is the main objective of food law, EU food legislation does not provide consumers with any specific rights or remedies. Consumers that want to take legal action must rely on general consumer protection law such as product liability legislation. Consumer law has created an instrument meant to support the consumer in tort cases in their dealings with producers of defective products, called product liability law. The rules on product liability have been harmonised in the European Union by Directive 85/374, that lays down the principle of strict liability of the producer, which means that a producer may be held responsible for a damage caused by a defective product s/he has put on the market even in the absence of fault.

Impacts. Overall, the General Food Law has achieved high level of protection of human health and the effective functioning of the internal market, generating a positive social and economic impact. No systemic failures resulting from the provisions of the General Food Law have been identified, despite shortcomings on the enforcement of the rules by the Member States, the application of the principles or lack of full harmonisation. The protection of health and safety, pursued by the General Food Law has indirectly safeguarded the resilience of the European Food system.

As for socio-economic impact, the policy has generated a relatively high level of trust in the system, but it has penalised small food business. Exemptions for the flexible application of requirements in SMEs have been introduced, but implementation is unevenly distributed across Europe.
The debate related to the authorization of new food products or to inputs shows that ethical implications related to the policy-science interface and the assessment of the risks for human health are strong and need to be addressed.

Gaps and missing links. Among the major topics to be discussed within the Fitness Check is the evaluation of the current pre-market authorisation process for certain products, such as pesticides, Genetically Modified Organisms (GMOs) and novel foods (e.g. edible insects). Growing mistrust of citizens towards the EU's science-based systems is emphasized (Commissioner Andriukaitis, 2016). It is recommended the introduction of national plans for food product improvement (reducing levels of salt, saturated fat, trans-fatty acids, added sugar and the energy density of food). New research into the date-marking of food products, such as 'use-by' and 'best- by' marking, has been announced as one priority, relevant for reducing food waste. Another potentiality is to come up with EU guidelines on food donation, to clarify the rules and responsibilities under which unsold food can be given to charitable organisations or food banks.

4.6 Food and Drink Labelling policy

Main acts. Regulation (EU) No 1169/2011.

General aim. The provision of food information pursues the protection of consumers' health and interests by providing a basis to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations. The legislation applies to businesses at all stages of the food chain and to all foods intended for final consumption. Responsibility lies with the manufacturers marketing the food, while if they are based outside the EU, it lies with the importer.

Tools. The policy introduces direct activity regulation tools as mandatory information (food's name, list of ingredients, net quantity, use by date, instructions for use if necessary, operator's name and address and a nutrition declaration). The policy also allows Member States to set rules concerning matters not specifically harmonised by the Regulation itself, as long as they do not restrict the free movement of goods (e.g. country of origin measures can be introduced).

Consistency with overarching goals. The Food Labelling Legislation is central for a sustainable food system and relevant for all the overarching goals, with priority given to health, economic, social, and ecological. It has a potential relevance on ethical and resilience goals.

Coherence with other policy instruments. The link between food labelling and sustainability represents a wide policy area, developed and layered over time. Environmental labelling is not

mentioned in the Food labelling legislation, and a number of voluntary public labelling schemes is available. An example of achieved coherence emerges from the relation between Organic labelling and Ecolabel environmental labelling: in order to avoid consumer confusion, Ecolabel does not apply to food, as the Organic Labelling is already a sign of environmental compliance. Among most controversial debates, the Country of Origin Labelling (COOL) as a restriction of international trade. Private standards are also developed by private companies (i.e., retailers and producers) and NGOs: the FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification) labels, the MSC (Marine Stewardship Council) label, the Fair-Trade label, are notable examples. The different labelling schemes differ regarding the level of ambition, coverage of different phases of the life-cycle and in the process of developing and certifying the criteria.

Impacts. Health. Overall, available assessments of the impact of labelling on healthier purchasing choices do not show conclusive results. Among relevant factors, information complexity and clarity are depending also on consumers' nutritional knowledge, age, social grade and interest in healthy eating. A potential bias in available studies is linked to self-selection, as label users are already likely to be health-oriented. Studies suggest that interpretive labels, (e.g., traffic light labels), may be more effective than nutrition labelling, but also the impact of this tool is controversial.

Social and Economic. The importance of food labelling lies in its effectiveness in supporting consumers to make informed choices, to store and use the food safely and, ultimately, educating consumers about the food they buy. Through the reform, rules were simplified, clarified and streamlined. The extent to which these aims have been effectively achieved by the current legislation is still to be assessed, while there is extensive impact assessment that supported the review of the previous legislation. The costs of labelling legislation, and changes to labelling legislation, fall primarily at company level (generally, on the food manufacturer but increasingly on the retailer).
Ecological and ethical. Studies show that the understanding of the concept of sustainability is limited, with exceptions when labels are self-explanatory (e.g. Carbon Footprint, and Animal Welfare). Consumer understanding and motivation are key to the use of sustainability labels (both environmental and ethical). Sustainability labels currently do not play a major role in consumers' food choices, and future use of these labels will depend on the extent to which consumers' general concern about sustainability can be turned into actual behaviour. Moreover, labels do not provide enough information, and 48% think that labels are not clear.
About half of European consumers think it is not easy to differentiate between environmentally friendly and other products and only about half of them trust producers' claims about environmental performance. This also influences their readiness to make green purchases.

Gaps and missing links. Information is necessary for informed choice, but it doesn't necessarily lead to healthier eating. A strategic coordination of labelling with other knowledge-based policies might impact on the food environment pushing food consumers towards what's best for their nutrition, health and for society as a whole. In particular, the link between sustainable products and sustainable diets should be explored. A further assessment on the impact of different policy tools, considering the interactions among them, and experimentation with innovative and more intuitive ways of conveying nutritional and health information to the consumer are needed. "Nudges" have been shown to complement the effectiveness of some existing policies. An example of effort towards more coordination is the recent EU Single Market for Green Products initiative: it proposes methods to measure environmental performance based on the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF), and a set of principles for communicating the environmental performance, such as transparency, reliability, completeness, comparability and clarity.

4.7 Food Quality Policy

Main acts. Quality Package, 2010, Reg. 1151/2012.

General aim. Among EU's quality schemes are Geographical Indications (GIs) and Organic Products. Geographical Indications are part of the intellectual properties rights of the European Union. Regulation (EU) No 1151/2012, aims at reducing complexity and bringing clarity to the quality schemes, reinforcing

Protected Designations of Origin and Geographical Indications (PDOs and PGIs); overhauling the traditional specialties guaranteed scheme (TSGs), and laying down a new framework for the development of Optional Quality Terms (e.g. Mountain Products).

Tools. Since 1992 the EU has operated three programs of product designations: "Protected Designation of Origin" (PDO), "Protected Geographical Indication" (PGI) and "Traditional Specialty Guaranteed" (TSG). The regulation introduces market-based, voluntary quality schemes. The core of the schemes are 'code of practices', standards that identify the link between quality of the products and the territory of origin. Governance tools define the roles and responsibilities related to setting the standards, registration, certification, promotion.

These tools help to highlight the qualities and traditions associated with registered products and to assure consumers that these are not imitations seeking to benefit from the good name and reputation of the "original" products. As a result, these schemes and their logos should help producers/groups of producers to market their products, while providing them legal protection from misuse or falsification of a product name.

Consistency with overarching goals. The EU quality schemes are consistent with economic and social goals. Ecological, health, ethics are not explicitly addressed: they receive only secondary attention in the development of product specifications. By providing a mechanism to generate diversity in the food system, this is a policy highly relevant to resilience. Fostering transparency and encouraging consumers' awareness on quality of food, entails ethical implications. There is no explicit mention of environmental protection among the specific objectives of the policy.

Coherence with other policy instruments. The PDO or PGI status grants access to support under Rural Development policy, for example better access to promotion funds and investment (e.g. participation to fairs). GI producers are also granted priority access to investment measures. Within the framework of the single CMO, GI status can help to obtain support for promotion and investments, access to support from co-financed EU programmes (i.e. promotion) and better access to support for promotion and/or investments funded by national or regional governments. PDOs and PGIs are relevant within trade negotiations (EU-Canada Trade agreement CETA, EU-USA TTIP, South Korea trade agreements). The link with the other quality scheme of the EU, Organic farming, is weak.

Impacts. As far as economic impact is concerned, evidence indicates that some GI products do achieve price premiums and gross margins over corresponding standard products. However, specifications and controls are burdensome and costly for smaller producers: impact assessments highlight the widespread failure of these schemes to attract participation of small-scale producers. As for social impact, PDOs and PGIs give consumers a wider possibility of choice, and to local food business a greater visibility on the market.

The impacts of traditional PDO and PGI products on health is not explicit, although nutritional values are in some cases part of the valorisation strategy. There is a lack of impact assessments on the environmental dimensions, with few exceptions in relation to biodiversity and rural development.

Gaps and missing links. The current quality policy schemes provide opportunities for GI producers (farmers and processors) through the protection of intellectual property rights. As such they offer a tool for prevention and provides the legal framework for reacting effectively against attempts of imitation, misuse, use of "GI-sounding" terms, etc. Indeed, consumer awareness on the meaning of these instruments should be improved further. As we have said before, the scheme has important potential implications for goals other than economic. However, at the moment there is a lack of an explicit recognition of these implications. The key to link to noneconomic goals is related to the explicit embodiment of environmental, ethical and resilience criteria in the development of the code of practices.

4.8 Public Food Procurement

Main acts. Directive 2014/24/EU; Commission's Communication 400 (2008) "Public procurement for a better environment"

General aim. Public procurement concerns the acquisition by means of a public contract of works, supplies or services. Food public procurement relates to the purchasing of (raw) food and the contracting out of catering services by public bodies. It applies to hospitals, care homes, armed forces, prisons, and canteens in governmental buildings and education settings. The EU public procurement directive lays out detailed rules on EU-wide competitive tendering procedures, falling within European thresholds. These introduce into national law a minimum body of public procurement rules for the award of public contracts that fall within its scope. Contracts are awarded on the basis of most economically advantageous tender that includes a cost element and a wide range of other factors that may influence the value of a tender from the point of view of the contracting authority, including but not limited to environmental aspects. Green Public Procurement (GPP) is defined as "…a process whereby public authority seeks to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured".

Tools. GPP is a voluntary, demand-side tool. Regulation gives general principles on school meals standards, dietary guidelines, dietary reference values, nutrient profiling scheme. Most of the guidelines issued in the EU are targeted at schools but many also exist for hospitals, workplace canteens as well as sport clubs and others. The European code of best practices facilitates access to SMEs public contracts, national and EU legislations. Buying social is a guide on taking account of social considerations in public procurement.

Consistency with overarching goals. Public procurement is relevant for a more sustainable food system as it affects all the sustainability dimensions and can be used to pursue all overarching goals.

Coherence with other policy instruments. The green public procurement criteria have been based on criteria used in the granting of the European Eco-label, in particular, or, in the absence of a European label, national ecolabels. They are the result of cooperation between the Commission and a group of experts made up of representatives from Member States.

Impacts. The principle guiding sustainable public procurement is to activate a demand-side change in the system. By opening a market for sustainable food, public authorities can orient the food system towards sustainability. By choosing to purchase products with lower environmental impacts, public authorities have an instrument to reduce their environmental impact and provide industry with incentives for developing green technologies and products. Nonetheless, uptake of voluntary GPP has been relatively low, according to evidence.

Economic. There is a strong trend towards the aggregation of demand by public purchasers, to obtain economies of scale, including lower prices and transaction costs, and to improving and professionalising procurement management. Cost and budget constraints have also been indicated as relevant in adopting sustainable procurement criteria: case studies show that the cost of implementing more sustainable school meal policies may be limited.

Social. Social impacts are less measurable, but it is often recalled that school food schemes have positive impacts on food education, social exclusion and food and nutrition security as well as might also influence the eating habits of parents (e.g. when children start appreciating fresh fruit and vegetables).

Health. The implementation of a food procurement process that is health sensitive improves the nutritional quality of the food service, is linked with increased markers of healthy eating in children and has a major role in bringing about dietary behavioural change (i.e. increase of fruit and vegetables consumption). Despite the existence of school food standards these remain in practice and in many cases not fully implemented.

Ethics and resilience dimensions are less directly impacted.

Gaps and missing links. Public procurement can stimulate innovation in different ways. The demand created for foods and drinks with healthier profiles may induce the food industry to reformulate products towards lower fat (trans, saturated and total), salt and sugars content as well as increased use of fibre and wholegrain ingredients. Education sector plays a central role in shaping and driving demand towards more sustainable habits and food environment: the introduction of sustainable food

procurement should be backed up by supporting education moments (e.g. food classes). The market volume related to meeting the needs of public catering can drive demand in a manner that niche products become larger markets, thus impacting availability and price, reducing the risk for companies to invest in research and innovation by adding further healthier products to their portfolio and marketing. Once a relevant fraction of the market is affected, the global and more sustainable shifts can take place. Innovation applies equally to the food service. For example, caterers may develop new and improved means of preparing or delivering quality foods based on new and potentially more resource-efficient technologies. However, there is often a missing link with public procurement policies of cities, which can be the forerunners for sustainable public procurement (e.g. see the case of Organic cities network).

4.9 Competition Policy

Main acts. The main competition rules of the European Union are contained in Art. 101, 102, 106, 107 TFEU; Regulation 1/2003 (Modernisation Regulation). A large body of case law of the EU Courts clarifies and supplements the competition rules.

General aim. The competition policy of the European Union has been an element of the constituting treaties of the European Union since the Rome Treaty of 1957. By promoting fair competition, this policy seeks to set the conditions for a market where businesses relations are fair. A reform of the EU competition policy was carried out in the 1990s, which shifted the policy toward a political conservative attitude pursuing a complete neoliberal market integration (i.e. less regulation is better than regulation and market-based solutions are superior to public intervention). In relation to agriculture and food, exceptions to the general rule are formulated through the CMO policy and the Unfair Trading Practices (see coherence section).

Tools. The competition policy provides mainly governance tools aimed at reducing distortions to competition within the internal market through merger control, antitrust enforcement, and state aid control.

Consistency with overarching goals. The competition policy, in its application to the agri-food sector, means to be consistent with social and economic goals. By promoting fair competition, it seeks to determine a market where competition is enhanced and possibilities for equal economic opportunities and viability for all businesses, which is one condition for of healthy economies, are increased. This policy is not explicitly consistent with other goals, such as health and environmental.

Coherence with other policy instruments. As a basic principle, the competition rules apply to the agriculture sector in its entirety. Certain limited exceptions exist for the sector by virtue of Article 42(1) TFEU. These exceptions stipulate that production and trade rules specific to the agricultural sector will apply according to what defined by the Single Common Market Organization (CMO) Regulation and Regulation (EC) No 1184/2006 which applies to products not covered by the Single CMO Regulation. Moreover, contractual imbalances associated with unequal bargaining power are tackled through other policy tools other than competition law instruments, such as, for example, contract law, common agricultural policy, SME policy, or unfair commercial practices laws. Furthermore, the quality policy introduces special rules for the producers of recognised quality products. In some cases, producers have claimed more flexibility than what the competition policy allowed, and they have not succeeded with their requests, hence there is room for a further harmonisation of the competition policy with the mentioned instruments. Another policy area which is constrained by the competition policy is the voluntary Public Procurement policy, in the definition of sustainable criteria for the public purchase of foods and catering.

Impacts. Social and economic. Competition policy is meant to have a positive social impact: fair competition and business relations shall, in turn, enhance the possibilities for equal economic opportunities and viability for all businesses, which is one of the conditions of "healthy" economies.

The review of antitrust and merger cases has demonstrated that the level of enforcement of competition law in the European Union, especially for the food sector, has been dramatically weak, with no case of merger prohibited. The application of the competition rules and of their derogations has not been completely fulfilled, which reduced the social and economic impact of the law. This leads to a growing

power of large agri-food corporations, with direct consequences on economic aspects such as imbalances in bargaining power, asymmetric price transmission, price volatility and the scarce attention given to issues such as the guarantee of minimum working conditions. The derogation tool has not been enforced enough to allow the efficient functioning of associations of farmers in the form of agricultural cooperatives. In particular, this application of the derogation tool has limited the activity of Producer Organisations and of Inter-Branch Organisations. As a consequence, the production side of the agri-food chain, especially of non-processed products, remains atomised and weak.
Resilience. This application of the competition policy may have a negative impact on resilience. While the policy has not avoided concentration in the food system, it has limited the bargaining power of farmers by contrasting supply management strategies.

Gaps and missing links. The agri-food sectors are characterised by high competitive imbalances (e.g. coexistence of multinational companies with oligopolistic or oligopsonistic power and farmers with scarce ability to influence prices, capture marketing gains and be competitive). Possible interventions should enhance countervailing the imbalances among food businesses, and steering attention on the issue of working conditions, reduced diversity and transparency in the food system. Intervention should concern the criteria and the assessment techniques used in the judgment of merger and other activities that might restrict competition: these criteria should include environmental sustainability, decent working conditions, healthy and high-quality food affordable for people, and local development. Interventions might also concern a further harmonisation of the competition policy with other policy instruments that supervise the conduct of food businesses, especially small and quality food business (e.g. CMO, the quality policy and other CAP measures for small and quality farmers).

4.10 Tackling Unfair Trading Practices

Main acts. COM (2014) 472 Tackling unfair trading practices in the business-to-business food supply chain.

General aim. The aim of the Communication is to contribute to eliminating or reducing unfair practices by large retailers and food suppliers against their weaker trading parties. It emphasises the importance of small businesses in the European Union's food supply chain, by suggesting a combination of voluntary initiatives and national enforcement measures to prevent unfair trading practices**.**
Tools. The communication recommends three supply-based tools: support for voluntary supply chain initiatives; use of EU-wide good practice principles; minimum enforcement standards throughout the EU.

Consistency with overarching goals. The policy mostly contributes to the economic and social goals. By improving the fairness of business practices economic opportunities will arise, also for small businesses. However, the contribution to the economic and social goal is limited by a weak enforcement of general fairness principles and by the scarce involvement of small food business in the initiatives and mechanisms set up within the frame of the policy.

Coherence with other policy instruments. There is no EU legislation targeting business-to-business UTPs across the food supply chain. As they have a common aim, the policy can be considered coherent with the current Common Agricultural Policy, especially CMO and measures of the 2nd Pillar, as far as it provides instruments for strengthening the position of small farmers: it includes tools such as promoting organization of, and cooperation between, farmers across the EU, supporting producers' organization and vertical cooperation within the food chain in inter-branch organizations.

Impacts. Economic and social. Counteracting UTPs is mostly done through volunteer actions that seek to contribute to improve the position of small businesses in food chain, aiming to receive fair treatments and, in turn, achieve adequate economic results. All this is meant to have social impacts, first, and economic impacts, later.

Gaps and missing links. This policy can improve the transparency and resilience of the food systems with consequent benefits for consumers. Further benefits to consumers, and citizen in general, might derive if ecological and health issues will be considered among the criteria to detect fair businesses

practices. Some missing links can be highlighted with the EU competition policy: the two policies might learn from each other in the matter of protecting small farmer's position. Another possible link could be with the Directive 2005/29/EC on unfair commercial practices or Directive 93/13/EEC on unfair terms in consumer contracts: this bridge would allow to take into consideration the consumer side that is currently not considered in the business – to – business UTPs policy.

4.11 Considerations from the assessment

Despite the limitations of a comparative reading of the selected policies, it is possible to draft some general observations concerning the potentiality and limits of these instruments in contributing to a sustainable food system, in their current formulation and/or in coordination with other instruments. Some cross-cutting reflections can be made.

Impact assessments considered in the analysis address different sustainability goals but rarely all sustainability goals are analysed.
The figure below presents how the policies selected and assessed fit across the dimensions of sustainability proposed.

Figure 3 – Selected policies across sustainability dimensions

	Economic	Social	Health	Ecological	Resilience	Ethics
Greening, CAP	😕	😕		😕		
Nitrates Directive	😒			😀		
Seed market Directives	🙂	😕	😕	😒	😕	😕
Single Common Market Organization	🙂	🙂	🙂		🙂	
General Food Law	🙂	😀	😀	🙂	🙂	😕
Labelling	😒	😀	😕	😕		😕
Quality (PDOs, PGIs, TSGs)	🙂	😕	😒	😒	😕	
Public Food Procurement	😕	🙂	😕	🙂	😕	
Competition	😕	😕			😕	😕
Unfair trading practices	😕	😕			😕	😕

Economic impacts of the policies selected are very different in nature, due to the intrinsic diversity of the policies. Nonetheless, studies focusing on economic impacts are available for all the selected policies, although with differing relevance according to the objectives and scopes. Concerning the impacts on the social dimension of sustainability, data and information were found, with variations, for almost all the selected policies. Data and information related to the ecological impacts were also found for almost all the selected policies, particularly when environmental protection represents the primary aim. In relation to the health objective, it should be remarked that, despite Art. 168 TFEU (Health in All Policies) – health is not always integrated, as confirmed by the literature review on impacts on health dimension

of the selected policies. Moreover, where health is integrated in the context of food and agricultural legislation, the focus is predominantly on food safety, which is one of the factors that relate to human health.
The ethical dimension – considered as a stand-alone policy objective, related to how food is produced and to the transparency, information disclosure and corporate responsibility – is rarely a primary focus of impact assessments. These issues often emerge as cross cutting concerns across the food system, but the assessment of policy impacts is challenging, not least due to a lack of suitable methodology. Finally, resilience means that system activities should increase or keep food system diversity, allocate resources to crisis management, improve knowledge about possible futures, improve system's capacity to innovate for anticipating change: as for the ethical dimension, few explicit references have been found in literature.

Policies' fail in achieving the main objectives for which they were set.

There are cases in which a policy shows limitations in its ability to achieve some or all the objectives for which it was set. For example, the "Greening" tool, in line with critical positions emerging in the current debate on the reform of the Common Agricultural Policy, is a supply-based tool that has environmental and economic impacts that are negligible, despite the inspiring principles behind its design. One of the most critical issues in the definition of a "green payment" is its similarity to conditionality, which is mandatory, "horizontal" and non-selective, and imposes rules that are applicable in the same way to agricultural land throughout the EU. The policy design could have aimed for a stronger measure, but it was chosen to opt for a broader and inevitably shallower measure, which has less pervasive impacts on a larger number of farmers.

Policies' consistency with all overarching goals is limited.

There are policy instruments that – based on available assessments - succeed, fully or partly, in achieving the objectives for which they were set, but are not consistent with all the sustainability objectives which have become relevant for the sustainability of the food system. For example, because they were not included in the initial policy design or for a limitation in the tools available. The Food Quality Policy provides an example of this: the PDO and PGI certification schemes have managed, at least in some countries and to some extent, to valorise traditional productions, ensuring transparent information to the consumer and a fair return to the producers. However, the environmental concern is not explicitly mentioned in the regulation and therefore it is not clearly stated to what extent environmental objectives should be formulated in the production rules set by the producers. Other examples relate to policies that do have a positive impact on some of the dimensions but determine a negative outcome on others: in the case of the Seed Policy, economic and social objectives are priorities of the directives aimed at establishing a market for seeds that guarantee productivity and safety of food crops. Other dimensions, such as the ecological, ethical and resilience are negatively impacted to the extent that "marketability" of seeds determines a reduction of genetic diversity resulting from the seed marketing rules.

Policies may in principle be consistent with all overarching goals but are limited in terms of implementation.

Even when a policy addresses all the objectives of sustainable food systems, as it happens in the case of Sustainable Public Procurement, where the public food procurer is theoretically in the best position to choose the healthier and more sustainable option for its citizens, several obstacles arise in the definition of what "sustainable" means – for example balancing the competing demands of the food industry and NGOS - and implementation – for example by having civil servants adopt and apply the correct tender procedures – of the best criteria for sustainable procurement.

The policy instruments analysed have not been designed according to a systemic and integrated approach.

All the instruments analysed show potentiality in contributing to a sustainable food system because they impact on different dimensions of sustainability, according to their specific objectives and targets. At the same time, most of them address the topic in isolation or with a low coordination with other instruments oriented to the same policy goal: for example, the greening has for the moment limited capacity to contribute to changes in the food system, but it should also be emphasized that second pillar

voluntary measures are not able counterbalance trends of overcapitalisation and intensification that are linked to the first pillar direct payments. Furthermore, we acknowledge explicit intention for policy coordination between Competition policy and the Common Market Organization regulation, between Nitrates Directive and CAP Cross Compliance: nonetheless complementarities among policy instruments are seen and foreseen but they are not actually enforced. Further: the seed policy has a clear impact on genetic resources that are important for biodiversity. However, synergies of the seed policy with the European Biodiversity Plan and other policies such as some measure of the CAP that are relevant for its implementation are just recommended in the frame of a possible reform of the seed policy, that has not taken place yet.

The contribution to the creation of sustainable food systems may become stronger whereas instruments activate tools directly implementable by sub-systems: for example, some of the instruments we have analysed require tools activation by regional governments (i.e. Nitrates Directive), or even city governments (Public Procurement) and this allows a better targeting of the actions in relations to local specificities. In other cases, the involvement of sub-systems is something to recommend (i.e. Seed Policy), in order to adapt the European rules to local conditions.

5. Conclusions and recommendations

Our analysis of EU policies has shown inconsistencies, incoherencies, policy gaps. It has also shown an imbalance between supply-side tools end demand-side tools. The food environment concept is currently not a clear policy focus. Key actors in the food sector, such as urban municipalities, are not involved in the governance, and the coordination between public efforts and private sustainability strategies is not taken into consideration. Even if at regional and municipal level grassroots movements and other CSOs, together with public authorities, are already generating a growing pressure to establish bottom up food policies, these experiences need a more coherent policy framework at EU level, able to foster and support their coordination.
If, as declared in several contexts, sustainability of food systems is a goal to be addressed, a radical revision of the existing policy infrastructure is needed. We have highlighted that a new policy infrastructure should:

- ✓ adopt a system approach, that acknowledges the links between system activities - including consumption - and their outcomes;
- ✓ acknowledge the multidimensionality of sustainability performance of a food system, and including health, ethics and resilience as explicit goals of food policies;
- ✓ acknowledge the interdependence between outcomes of food systems;
- ✓ acknowledge and promote the plurality of the food systems within a common set of principles;
- ✓ design policy tools upon an assessment of the impacts on a comprehensive model of the food system;
- ✓ promote a multilevel governance that gives power and resources to urban administrations in food policies;
- ✓ involve food value chains into the promotion of sustainable food standards and in the adoption of corporate social responsibility procedures;
- ✓ balance direct regulation, market-based, knowledge-related, governance and strategic tools into an effective policy mix to systemically address all the factors that are blocking the system in its current unsustainable pathway;
- ✓ balance financial resources across different policy domains (e.g. regional policies and agricultural and rural development policies);
- ✓ strengthen the role of demand-side policies and promote food environment policy tools.

A policy mix approach warns us against the risk of trying to catch all the complexity into one comprehensive policy. We have seen that policies need focus and at the same time awareness of direct and indirect impacts on other systems. Agricultural policies do not only impact on food: they are a component of environmental policies, landscape planning, energy policies, and cohesion policies. Likewise, food policies may interact with health policies, social policies, environmental policies, and even with cultural policies.

We believe that, rather than embodying the agricultural policy into a broader food policy, it would be more effective to encourage the food policy construction around strategic goals, fostering integration and coherence between policies, reorganization of existing tools - for example, fruit and milk schemes, public procurement, labelling, food education - and introduction of new tools when necessary. The role of grassroots movements and of municipalities, on this regard, can be crucial, as they can foster a system change from below.

The introduction of strategic tools - like a specific Action Plan and the EU sustainable food scoreboard proposed by the EESC (2017) - would propose new system representations, set updated policy goals, check the existing policy tools against the new goals, identify missing policy tools and mobilize all stakeholders in the construction of a coherent policy mix.

This new policy infrastructure cannot be created without a policy process that promotes integration between actors and administration bodies in building new systems representations. We have pointed out that changing visions, and consequently policy frames, implies a deep understanding of processes of knowledge production, use and communication. Better information can help consumers reflect on the consequences of their choice. Better education can foster awareness of the link between diet and health or between diet and the environment. Adequate metrics can help producers and distributors to assess the sustainability performance of their organizational patterns and of their sourcing strategies. A good use of policy evaluation can make institutions move faster and better in policy implementation. Involvement of civil society organizations can contribute to a more socially robust system representation, to solve ethical dilemmas and to stimulate reflection on future challenges.

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Annex

Annex 1: Methodology

Steps of the research

The research on which this report is based upon comprises three main steps:

1. Preliminary mapping of policies relevant for sustainable food systems (desk-study)
2. Selection of policy instruments and tools for in-depth assessment (focus group)
3. In depth analysis of selected policies (desk-study).

1. Preliminary mapping of policies relevant for the European food system

The scope of the study is to analyse the policies that influence the development of a sustainable food system in the European Union. The issue of sustainability in the food system concerns several, if not all, the policy domains on which the European Institutions and the Member States legislate.

Given that the research contract agreed would not allow considering all the relevant policy acts in an exhaustive way, a selection of relevant policy instruments to be mapped was necessary. As a first step, the "Communication on next steps for a sustainable European future[16]", accompanied by a Staff Working Document[17] that describes the contribution of the various EU policies and legislation to the SDGs, were taken as guiding documents. These documents list all the policy acts from the EU that contribute to the achievement of the 2030 Agenda for Sustainable Development and, in turn, to the Sustainable Development Goals (SDGs).

A second stage of selection allowed to identify those, among the acts listed in the Staff Working Document, which are particularly relevant with respect to the issue of food system sustainability. Some studies and position papers arguing for the definition of a food policy for the EU (iPES FOOD, 2016; Fresco and Poppe, 2016; Mittermayer, 2015) have been used as reference for this second stage of selection. The mentioned works identify the following policy domains as being relevant when considering the issue of a policy for a sustainable food system in EU:

1. Agriculture, forestry, fishery;
2. Climate and energy;
3. Development;
4. Economic and social cohesion;
5. Education, training, research;
6. Food safety and public health;
7. Trade, finance, capital;
8. Other.

From the list of acts reported in the Staff Working Document just those falling into the above-listed policy domains have been selected to be included in the map and analysed. The criteria for the analysis of the acts have been derived from some studies that propose concepts and frameworks to understand policies, policies mixes and their coherence (Nilsson et al., 2012; Rogge and Reichardt, 2016). The criteria contribute to the analysis of the policies at four different stages. There are criteria for the stage of policy problem definition; criteria for the policy design; criteria for the policy implementation-governance; finally, there are criteria for the policy evaluation. The table below lists the criteria in relation to the four policy stages (Table 1).

[16] https://ec.europa.eu/europeaid/sites/devco/files/communication-next-steps-sustainable-europe-20161122_en.pdf
[17] https://ec.europa.eu/europeaid/sites/devco/files/swd-key-european-actions-2030-agenda-sdgs-390-20161122_en.pdf

Table A1. Criteria for the analysis of the acts

Policy problem	**Problem definition**
	Object
	Actors
	Instruments
	Outputs
Policy design	Goals
	Targets
	Actions
	Costs & Benefits
	Rights & Duties
	Externalities
Implementation/governance	Administration bodies
	Roles & responsibilities
	Participation
	Connections with policies and policy domains
	Rule of law
	Resources accounting and repartition
	Technical feasibility
	Social acceptability
	Enablers & disablers
Evaluation	Monitoring & evaluation tools and information
	Responsibility mechanism
	Effect on system performance
	Consequences
	Effects on different population groups
	Duration & continuity

A map and a description of 81 policy acts that are relevant when considering the issue of food system sustainability in the EU and that fall in the seven policy domains listed above are included in an excel file (separate annex available upon request to the authors).
Moreover, per each policy act some key words with respect to the socio-economic and environmental components of sustainability are reported. The key words are extracted from the text of the document, or documents, relevant for the act. They are meant to show the specific aspect, or aspects, of sustainability the analysed acts touch upon (Figure 1).

Figure A1. Sustainability key words cloud

2. Development of conceptual framework and selection of policies for in depth analysis

The in-depth study is limited by design to ten policies, given the time and the resources available. Nonetheless, the ten policies had to be selected among the ones that were mapped in the first stage.

The selection of policy instruments to be analysed before the in-depth analysis took place by means of a focus group. The focus group was held on the 27th of April 2017 at the IFOAM EU building in Brussels. It will bring together the consortium of CSOs, promoting the study, and the academic consultant, conducing the study.

There were eight participants and the focus group lasted three hours. Four sequential sections were organized as it follows:

- Introduction (10'): scope and structure of the focus group and introduction of participants
- Section 1 (45'): conceptual framework proposed for the assessment of policies against their implications for the sustainability of the agri-food system;
- Section 2 (60'): discussion and the identification of the most relevant policies to be assessed with respect to the issue of agri-food systems sustainability;
- Section 3 (60'): reflection on the key messages to be derived from the insights of the assessment
- Conclusion (20'): to wrap up what has been discussed and set the next steps for the study.

The focus group aimed at identifying the most relevant policies, among those mapped, in relation to the identified issues. The choice of the instruments of the sample was made with the aim to cover all food system activities that is input production, agricultural production, processing, distribution and consumption.
The ten instruments or tools selected for further assessment are listed in the table below: the most relevant food system activities affected, and the most relevant sustainability objective(s) are also reported.

Table A 2. Criteria for the analysis of the acts

Policy instrument	Food system activity concerned	Type of tools activated	Main objective
Greening payments	Farming	Market-based, supply-targeted instrument, standards for greening practices.	Ecological, Economic
Nitrates Directive	Farming	Supply-side direct activity regulation, limitations concerning the use of nitrates fertilisers, mandatory action programmes, codes of good agricultural practices.	Ecological
Common Market Organization (CMO)	Farming	Mainly supply-side tools: market intervention; exceptional measures against market disturbance; supply control measures (e.g., milk and wine sectors); support to producers and inter-branch organisations. Demand-side tools: promotion to export in the wine sector and promotion of fruit and milk in schools.	Economic
Seed Marketing Directives	Input, Farming	Mainly direct activity regulation. There are supply-based tools such as registration, certification, marketing, equivalence rules	Economic, Ecological
Public Food Procurement	Processing, Consumption	GPP is a voluntary, demand-side tool. Regulation gives general principles on school meals standards, food based dietary guidelines, dietary reference values, and nutrient profiling scheme. European code of best practices facilitating access to SMEs public contracts, national and EU legislations.	Economic, Ecological, Social, Health
General Food Law	Processing, Retailing	Direct activity regulation tools such as traceability of food, feed and animals; standards such as the HACCP; compulsory withdrawal of food and feed from the market in case of harm to health, obligation to inform the competent authorities and consumers; and governance tools as the European Food Safety Authority (EFSA) and the Rapid Alert System for Food and Feed (RASFF).	Health, Economic

Labelling of Food and Drink	Processing, Retailing, Consumption	Direct activity regulation tools as mandatory and voluntary information. Member States can set rules concerning matters not specifically harmonised by the Regulation (e.g. country of origin measures)	Health and nutrition, Social
Unfair Trading Practices	Farming, Processing, Retailing	Mainly supply-based tools: support for voluntary supply chain initiatives; use of EU-wide good practice principles; minimum enforcement standards throughout the EU.	Social, Economic
Food Quality Policy	Farming, Processing	Quality schemes are 'code of practices', standards that identify the link between quality of the products and the territory of origin. Governance tools define the roles and responsibilities related to setting the standards, registration, certification, promotion.	Economic, Social
Competition Policy	Processing, Retailing	Mainly governance tools aimed at reducing distortions to competition within the internal market through merger control, antitrust enforcement, and state aid control.	Economic

3. In depth analysis of ten food related policies

The sample of ten policy instruments was studied in relation to the six dimensions of sustainability, their consistency to the proposed food policy objectives, their coherence and potential synergies with other tools, their impacts based on available assessments and highlighted the gaps and missing links in relation to policy objectives. Impact assessment were retrieved based on literature review of impact studies available for each policy. To this end, it should be noticed that impact assessment studies and/or literature concerning all the sustainability dimensions have not been found for all policies, having each one its own specific objectives. For example, if a policy specifically addresses an environmental problem, impact assessment available will more likely to be focused on the environmental objectives, and less on others.

Specifically, the policy instruments were analysed according to the following headings:

- Main legislative acts relevant to the policy area
- Aims and tools activated
- Consistency with the overarching goals and coherence with other instruments or tools. This section of the analysis deals with the consistency of the selected policy with the overarching goals of a policy mix for sustainable food system (Health, Ecological, Economic, Social, Ethical, Resilience). Consistency considers how existing instruments could in principle contribute to the goals of a policy mix for sustainable food systems.
- Impacts on sustainability dimensions. Table 2 in Annex 1 summarizes the main impacts of the selected policies on the six sustainability objectives: for each policy, an overall indication of the main type of impact, the direction (positive or negative) and the intensity of the impact, where available, has been reported.
- Gaps, potentials and limits in contributing to a policy mix for a sustainable food system. The analysis of the selected policies has shown their possibility to contribute to a policy mix for a sustainable food system. While coherences among policies areas and policy tools are often declared in the descriptions of the act and are explicitly underlined and recommended, gaps or incoherencies are often not explicit: in this chapter, we attempt to identify weaknesses or gaps of the selected policies in pursuing their own goals and gaps or missing links with other policy areas or tool. Moreover, we underline possible areas of alignment among the tools.

Table A3 – Overview of Impacts across selected policies

Policies/Impact	Economic		Social		Ecological		Health		Resilience		Ethics	
	Direction of impact	*Intensity*	*Direction of impact*	*Intensity*	*Direction of impact*	*Intensity*	*Direction of impact*	*Intensity*	*Direction of impact*	*Intensity*	*Direction of impact*	*Intensity*
1. Greening, CAP	Farmers' prices +	Weak	Farmers' awareness +	Weak	Reduced impact of farming +	Weak	-	-	-	-	-	-
2. Nitrates Directive	Farmers' income -	Strong	-	-	Water quality +	Strong	-	-	-	-	-	-
3. Seed market Directives	Farmers 's productivity +	Weak	Availability of biodiverse food -	Moderate	Food Biodiversity Index -	Strong	Availability of biodiverse food -	Moderate	Diversity -	Strong	-	-
4. Single Common Market Organization	Farmers' prices +	Moderate	Support for farming sectors +	Moderate	-	-	School fruit and milk scheme +	Moderate	Risk prevention	Strong	-	-
5. General Food Law	Obligations for all actors (+costs) Extra burden on smaller actors -	Moderate	Food safety + Social concerns +/-	Strong	Environmental risks monitoring + (instrumental to health)	Moderate	Human health +	Strong	-	-	-	-
6. Labelling	Supply chains' income (+ costs) -	Strong	Transparency +	Strong	Sustainability labelling schemes +	Weak	Nutrition labelling +	Moderate	-	-	-	-
7. Quality (PDOs, PGIs, TSGs)	Food producers' income +	Moderate	Transparency +	Moderate	Biodiversity, rural development +	Weak	Biodiversity +	Weak	Conservation of diversity +	Moderate	-	-
8. Public Food Procurement	Catering, food procurers (+ costs) – Concentration and economies of scale	Weak	Awareness of supply chain, education of consumers, food security +	Moderate	Green public procurement	Weak/Moderate	Food education in schools +	Moderate	Education of younger generations +	Moderate	-	-
9. Competition	Fair business relations and equal economic opportunities +	Moderate	Viability of business	Moderate	-	-	-	-	-	-	-	-
10.Unfair trading practices	economic chances, especially for small businesses +	Moderate	increasing fairness	Moderate	-	-	-	-	-	-	-	-

Annex 2: Assessment of policy instruments

1. Common Agricultural Policy

The European Common Agricultural Policy (CAP) aims to respond to the challenges that the agricultural sector is facing, many of which are driven by factors that are external to agriculture. These have been identified as economic (including food security and globalisation, a declining rate of productivity growth, price volatility, pressures on production costs due to high input prices and the deteriorating and weak position of farmers in the food supply chain), environmental (relating to resource efficiency, soil and water quality and threats to habitats and biodiversity) and territorial (where rural areas are faced with demographic, economic and social developments including depopulation and relocation of businesses) (EC 2013). Since the role of the CAP is to provide a policy framework that supports and encourages producers to address these challenges while remaining coherent with other EU policies, this translates into three long-term CAP objectives: viable food production, sustainable management of natural resources and climate action and balanced territorial development. The CAP has three inter-connected routes to help it reach these objectives: income support for farmers (direct payments) and market measures which constitute the so-called first pillar, and rural development, the so-called second pillar. The two pillars are complementary facets of the CAP, activating two essential broad types of intervention. The first pillar activates market-based instruments by supporting farmers on an annual basis in the form of direct payments and market measures, which are subject to compliance with basic rules and environmental objectives (e.g. green payment or greening). The second pillar activates strategic instruments, the National or Regional Rural Development Plans, which are more adapted to the local specificities of each Member State by supporting longer term projects. Below is provided a short description of the CAP first and second pillar. This description is followed by an in-depth analysis of two market-based instruments of the first pillar, greening and the single CMO, in order to provide details on: the impact on the different sustainability dimension, the consistency with the overarching goals of a policy mix for sustainable food system and the potentiality and limits in contributing to this policy mix.

CAP 1st Pillar

Direct payments represent a key element of the policy that provides income support for farmers and promotes competitiveness, sustainability and environmentally-friendly farming practices.

Direct payments are granted to farmers in the form of a basic income support based on the number of hectares farmed. This so-called 'basic payment' is complemented by a series of other support schemes targeting specific objectives or types of farmers:

- a 'green' direct payment for agricultural practices beneficial for the climate and the environment (see greening box)
- a payment to young farmers,
- (where applied) a redistributive payment to provide improved support to small and mid-size farms,
- (where applied) payments for areas with natural constraints, where farming conditions are particularly difficult, such as mountain areas,
- where applied) a small farmers scheme, a simplified scheme for small farmers replacing the other schemes, and
- (where applied) voluntary support coupled to production to help certain sectors undergoing difficulties.

In order to receive the full amount of direct payments for which they are eligible, farmers have to respect all these other rules. Failure to do so results in a cut in the level of support. The size of the cut depends on to what extent the farmer is in breach of the rules.

The other market-oriented instrument provided by the first pillar is the Common Market Organisation (CMO). The CMO is the framework for the market measures provided under the CAP. Following a series of reforms, 21 separate CMOs were codified in 2007 into a single CMO, covering all agricultural products. Reforms to the CAP have also made the policy progressively more market-oriented and scaled down the role of intervention tools, which are now regarded as safety nets to be used only in the event of a crisis.

CAP 2nd Pillar

The EU's Rural Development policy helps the rural areas of the EU to meet the wide range of economic, environmental and social challenges of the 21st century. It complements the system of direct payments to farmers and the measures to manage agricultural markets. Rural Development policy shares a number of objectives with other European Structural and Investment Funds (ESIF). The second pillar provides strategic instruments, the Rural Development Programmes.

Member States and regions draw up their rural development programmes based on the needs of their territories and addressing at least four of the following six common EU priorities:

- fostering knowledge transfer and innovation in agriculture, forestry and rural areas
- enhancing the viability and competitiveness of all types of agriculture, and promoting innovative farm technologies and sustainable forest management
- promoting food chain organisation, animal welfare and risk management in agriculture
- restoring, preserving and enhancing ecosystems related to agriculture and forestry
- promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors
- promoting social inclusion, poverty reduction and economic development in rural areas

The rural development priorities are broken down into "focus areas". For example, the priority on resource efficiency includes focus areas "reducing greenhouse gas and ammonia emissions from agriculture" and "fostering carbon conservation and sequestration in agriculture and forestry". The priority on "Restoring, preserving and enhancing ecosystems related to agriculture and forestry" includes payments for Organic Farming.

Within their RDPs, Member States or regions set quantified targets against these focus areas. They then set out which measures they will use to achieve these targets and how much funding they will allocate to each measure.

From the point of view of the policy design, both pillars of the CAP are aimed at meeting all three CAP objectives more effectively, with targeted instruments of the first pillar complemented by regionally tailor-made and voluntary measures of the second pillar.

1a "Greening"

Acts

Reg. EU 1307/2013 in conjunction with Reg. EU 639/2014; Reg EU 641/2014

Description of the tool

The 2013 CAP reform introduces explicit measures to remunerate the provision of public goods by farmers, the so-called greening payment. The mandatory greening component of direct payments should 'address both climatic and environmental policy goals', 'enhancing environmental performance'.

The aim of CAP greening is to impose a stronger linkage of the decoupled direct payments to 'agricultural practices beneficial to the climate and environment' through three CAP greening measures:

- crop diversification,
- maintenance of permanent grassland and
- Ecological Focus Area (EFA).

Under the crop diversification measure, farms cultivating between 10 and 30 hectares of arable land need to grow at least two different arable crops. Farms with a larger arable area must cultivate at least three arable crops. The main crop should not exceed 75 % of arable land, and the two main crops should not exceed 95 % of the arable area (in case three are required). Under the maintenance of permanent grassland, farms cannot convert grassland or plough environmentally sensitive permanent grassland. This measure requires that the ratio of grassland to total agricultural area does not decrease by more than 5 % compared to the reference ratio in 2015. The EFA requires farms larger than 15 hectares to allocate at least 5% of the farm's eligible area (excluding areas under grassland) to an EFA, with the possibility of increasing this percentage to 7% subject to an evaluation review in 2017. The following area types qualify as an ecological focus area: land left fallow, terraces, landscape features, buffer strips, agro-forestry, strips, and areas with short rotation, afforested areas, catch crops and N-fixing crops.

In spite of the declared intentions, a large part of the EU agricultural area has been excluded from the requirements of ecological payments: permanent crops, organic farming, small farmers, and other cases, which are all considered green by definition.

Resources allocated

The CAP greening takes up 30% of the total direct payment funds and is a mandatory component of direct payments: all farmers that receive direct payment must also comply with the greening measures. Not respecting these requirements may lead to a reduction of up to 1.25 times the Greening payments.

Impact

There is a growing number of studies analysing the impact of CAP greening on the agricultural sector. A recent study by Alliance Environnement and the Thünen Institute (November, 2017) carried out an evaluation of the greening measures under the Direct Payments Regulation, part of Pillar 1 of the Common Agricultural Policy (CAP), for the European Commission (DG AGRI). The study assessed the drivers of Member States' and farmers' implementation choices as well as the effects of the measures on farming practices and production, their effectiveness in relation to environmental and climate objectives, their efficiency, coherence, relevance and EU added value. Other previous studies (e.g. Gocht et al. 2016) had only limited coverage of the greening measures and they usually focus only on specific agricultural sectors and selected Member States (MS)/regions, model a specific greening measure and/or provide selected impacts. Often the studies investigate the reform proposal and not its actual implementation. For example, studies have analysed the impact of CAP greening in selected EU regions, the EU-wide economic effects of selected greening measures and the environmental impacts of CAP greening for selected indicators.

Preliminary results from the studies available and indicators show that the general impact of these measures is relatively low, especially due to the many exceptions and derogations to the rules arising as a compromise for the political acceptance of the reform and to the large flexibility given to the Member States to implement the reform. The study by Alliance Environnement and Thünen Institute (2017) found that overall the greening measures have led to only small changes in management practices, except in a few specific areas. As a result, their environmental and climate impacts have been limited, making a small contribution towards promoting more sustainable farming practices, although this effect is difficult to quantify and very locally specific. They have had a negligible effect on production or economic viability of farms and the additional administrative costs associated with them have been low.

Ecological - Despite the explicit environmental purpose of the tool, the environmental impacts of CAP greening are rather limited. In general, effects at EU level are positive on a per hectare basis, but the increase in Utilized Agricultural Area (UAA) can reverse the sign of total impacts of CAP greening. The crop diversification measure is the one inducing the lowest effects or no impact at all. The grassland measure has positive effects on soil erosion but its effects on other indicators are mixed, as it sometimes implies an increase in animal numbers or is balanced by a decrease in fodder crops. The EFA measure has a positive impact on most indicators; only for soil erosion its effect is heterogeneous.

GHG emissions decrease on average by – 0.2% in the EU-28, but regional changes vary between – 1.7% and + 2.4% relative to the reference level. The total N surplus presents instead a small, non-significant increase of + 0.2%. This increase, however, is due to the increase in UAA, as the per ha surplus decreases by 0.4%. Regional differences on a per hectare basis are between – 3.3 % and + 3.4 %, with the exception of one region with very low levels of N surplus. Ammonia emissions benefit from all three measures, resulting in a 0.3 % decrease, with regional changes between – 2 % and + 1.9 %. Nevertheless, the emissions decrease per ha can reach 4 % in some regions with high cattle density. The EFA measure is the main driver for the changes in ammonia emissions, mainly due to the decrease in emissions on arable land. On the other hand, the grassland measure does not contribute to ammonia reduction.

According to Hart and Radley (2016) the greening measures of the First Pillar "do not appear to be on course to fulfil their potential as an environmental instrument. In most Member States, optimizing the environmental benefits of greening, and of EFA in particular, appears to have been a lower priority than minimizing the impact on farmers and ensuring that measures can be adequately controlled to avoid risks of disallowance" (European Parliament 2017).

Most MSs have not fully used the flexibility offered by the regulations to increase the environmental impact of the reform, merely maximizing the opportunities for farmers to meet their obligations without having to make significant changes, "*for example by permitting crop production in most EFAs, using crops that are not necessarily beneficial to biodiversity, permitting the use of fertilisers and pesticides, and selecting landscape features that are already protected under cross compliance*" (Hart and Radley 2016).
The number of farmers under at least one greening obligation as a share of the farmers applying for direct payments ranges from very close to 100% in Ireland and Sweden to around 10% in Italy, Romania, Portugal, Malta and Cyprus. Part of this result is due not only to the average size of the farms in these MSs, but also to the specific land use, with a large predominant of permanent crops in Italy and Portugal that are "green by definition" and are not subject to the obligation of the crop diversification.
Economic **-** As the environmental impacts, those one on the economic dimension of sustainability of the CAP greening are rather limited, although some farm types or MS may face substantial changes. It is not straightforward to identify which greening measure is the main driver of the land-use impacts, as the impacts are strongly crop and land-type specific. However, it appears that EFA and grassland measures tend to induce slightly higher land-relocation effects relative to the crop diversification measure for several crops and land categories.
CAP greening will lead to a small increase in prices in parallel with a rather moderate decrease in production. There are two main reasons for the decrease in production: (i) greening obligations require farms to take a small amount of land out of production; and (ii) farm productivity slightly reduces due to the land reallocation effects induced by the adoption of the three greening measures.
Farm income slightly increases due to CAP greening because the price effects offset the production decline observed across several sectors. At EU-28 level farm income increases by 0.9%. At MS level the income increase varies between 0.1% and 3.9%. Of the three greening measures, EFA leads to the largest increase in income as it alters production and price levels the most. However, its income effect is still relatively small (less than 1%) in most MS. Crop diversification and grassland measures cause only small income changes.
Social - Part of the purpose of greening was to signal to the public, including farmers, which a significant justification of making direct payments is to achieve more sustainable farming systems. The demonstration effect of greening, as its requirements become more routine, conceivably could engage a more positive attitude of farmers to make the best of these requirements. Ultimately it will be the attitude and decisions of farmers which bring about improved environmental performance on agricultural land.

Consistency with overarching goals

Explicit: ecological; Implicit: economic, ethical and resilience
By having an explicit environmental purpose, the CAP greening is consistent with the overarching ecological goal. Concerning the other goals, they are not explicit in tool design and formulation but, however, can be considered implicitly consistent with ethical and resilience goals because it promotes farmers' responsibility towards the protection and maintenance of natural resources. The CAP greening is also implicitly consistent with the overarching economic goal, because it is proved to provide an increase in farm income, even if small.

Coherence with other policy tools
CAP greening it is complementary with cross-compliance and RD agri-environmental measure, because all these three tools are designed in order to improve sustainability. However, can be highlighted some critical points to this regard.

CAP cross-compliance - The policy framework for standards of Good Agriculture and Environmental Condition (GAEC) was restructured for 2014-2020 to take into account the introduction of the greening measures. The main changes compared with the previous period are that all standards are now compulsory, and the standards have been consolidated into a shorter list. The new cross-compliance framework is unlikely to lead to significant changes overall in the environmental issues being addressed. However, the moving of some of the previous GAEC standard to green measures will have consequences for the number of farms and area of land on which the practices are required. There may be positive and

negatives to this movement of actions between cross compliance and the greening measures. Although GAEC standards apply across the whole farmed landscape, the extent to which they are adhered to in practice can be variable. The shift of some of these standards to greening means that they will apply on a smaller proportion of land (with considerable variations between Member States). However, the fact that the requirements are more explicitly related to a payment, with the more stringent controls that are associated with these, might lead to higher levels of compliance on that smaller area of land and hence greater environmental effect in practice.

RD agri-environmental payments – Even if CAP greening and RD agri-environmental measures are coherent in terms of design and overall objectives, the inclusion of basic environmental management requirements within Pillar 1 has impacted on the budget of the agri-environment-climate measure in particular. Despite the statement in the recitals of the European Agricultural Fund for Rural Development (EAFRD) that Member States should maintain the level of efforts on the agri-environment-climate measures made during the 2007-2013 programming period, a comparison of programmed expenditure (total public) for the AECM for the current programming period with that for the agri-environment and the organic farming measure in 2007-13 shows declines in 14 Member States.

It should also be recalled that greening and RD agri-environmental payments are measures-oriented and not result-oriented. There are experiences with result-oriented measures for biodiversity. See recommendations from the MERIT project (http://orgprints.org/32259/1/merit-policy-handbook-english-download.pdf).

Gaps and missing links

The greening payment, in its actual formulation, can contribute to a low extent to the transition towards a sustainable food system; its impact on environmental and economic dimensions of sustainability is negligible, despite the inspiring principles behind its design.

One of the most critical issues in the definition of an "*ecological payment*" as it has been defined in the recent reform is its similarity to conditionality, since it is mandatory, "*horizontal*" and non-selective, since it imposes rules that are applicable in the same way to agricultural land throughout the EU.

In the same vein, as for conditionality, also for the ecological payment most of the requirements may already be in use, such that in practice the ecological payment is given to many, if not to all. In the end, the principle of remunerating behaviour is only respected in theory, but not in practice, where the status still prevails.

Another issue arising from the greening measures of the CAP is their different economic impact on the EU agricultural systems. This reflects the generally acknowledged drawback of the horizontal standard implementations of the greening measures, which are unable to take into consideration the gradient of vulnerabilities of the different farming systems of the EU. Analysis of the recent literature on the theme of the greening of the CAP shows the complexity of the debate, but also a general dissatisfaction with the EU approach, regarding both the method followed and the merit of the measures. As regards the method, the main issue is the fact that the ecological payment requires rules to be followed that are virtually the same throughout the EU. This component of the overall greening process adds to the other measures in a rather confusing way (conditionality and agri-environmental measures), such that the burden for farmers is definitely disproportionate to the results. The whole package risks being quite ineffective both in economic and environmental terms, given the relatively small number of farms and land hit by the whole greening.

Acknowledging the limits in terms of results of the greening, in the current debate on CAP post 2020, some voices claim for a need for a new public goods payment model.

In a recent study of the FiBL for IFOAM EU (http://www.ifoam-eu.org/en/news/2018/04/18/fibl-study-shows-reforming-common-agriculture-policy-cap-can-better-support-farmers) and (http://www.ifoameu.org/sites/default/files/towards_a_new_public_goods_payment_model_for_remunerating_farmers_under_the_cap_post-2020_report_by_fibl.pdf), the focus is on further developing voluntary robust measures under pillar II of the CAP, while increasingly mainstreaming sustainability measures in pillar I with a new and more ambitious scheme to replace the current greening measures

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1b Common Market Organisation

Act

Reg. EU n. 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation market in agricultural products. In force since 1st February 2014.

Description of the policy

In the early days of the common agricultural policy (CAP), so-called Common Market Organisations (CMOs) were created. These were designed to manage the production and trade of most of the EU's agricultural sector. Their purpose was to ensure steady incomes for farmers and a continued supply for European consumers. Until 2007, when a single CMO was created, there were 21 CMOs, each with their own rules. Article 40 of the Treaty on the Functioning of the European Union underpins the establishment of CMOs.

In 2013, the CAP was further reformed. The main purpose of the new CMO Regulation is to provide a safety net to agricultural markets through the use of market support tools, exceptional measures and aid schemes for certain sectors (in particular fruit and vegetables and wine), as well as to encourage producer cooperation through producer organisations and specific rules on competition, and to lay down marketing standards for certain products.

The most recent CAP reform provides the Commission with exceptional measures to address severe market disruption (by means of, for instance, market support measures in the event of animal disease outbreaks or a loss of consumer confidence owing to public, animal or plant health risks).

Tools activated

The instrument activated several tools; primarily they are soft tools, voluntary schemes Member States have the possibility to implement, with the exception of the supply control measures, which are mandatory for the Member States.

Market intervention, laying down rules regarding: i) public intervention, where products are purchased and stored by EU Governments or their agencies until their disposal and ii) aid granted for the storage of products by private sector organisations. It revises the existing systems of public intervention and aid for

private storage making them responsive and efficient. This is, for example, by means of technical adjustments for beef and dairy products and certain cheeses with protected geographical indications.
Exceptional measures, against market disturbance caused by significant price fluctuations or where there are threats thereof. It may also take action to deal with the market impact of measures taken to combat the spread of animal diseases or serious market disturbances caused by a loss of consumers' confidence as a result of public, animal or plant health and disease risk.
Supply control measures, specific for milk and wine sector. These tools are mandatory for Member States. The system of milk quotas expired on 31 March 2015 and sugar quotas will end in 2017, allowing EU producers to be more competitive both domestically and globally. Concerning the wine sector, the current system of wine planting rights expired at the end of 2015. A system to authorise new plantings will apply from 2016 until 203, which provides for an increase in planted area up to 1% per year. It set up rules for the designation of geographical designations.
Other measures. Promotion of fruit, vegetables and milk consumption in schools.
Producers and inter-branch organisations are encouraged, and this should strengthen producers' power in the food chain. Farmers can jointly negotiate contracts for the supply of olive, beef, cereals and certain crops through producer's organisations, subject to certain conditions and guarantees. In some cases, producer organisations recognised by the Commission can take temporary market-stabilisation measures.
Trade with non-EU countries. The import and export of certain products may require the presentation of a licence.

- *Import duties* in the Common Customs Tariff apply to agricultural products, although specific rules are laid down for certain products (e.g. hemp, hops, wine and sugar for refining). Moreover, the European Commission may fix ***import tariff quotas***, i.e. specific limits on the volume of goods which may be imported with a reduced customs duty.
- *Export refunds* to non-EU countries may also be introduced. These are limited to certain products and to exceptional market conditions.

Resources allocated
The CMO is funded by the European Agricultural Guarantee Fund (EAGF). In 2015, market intervention measures totalled around EUR 2.7 billion, i.e. 6% of total EAGF expenditure. Unlike direct aid and rural development, market measures are not allocated any advance funding under national budgets. In the period from 2014-2020, the funding available for EU market policies (including the crisis reserve) should account for approximately 4% (EUR 17.5 billion) of the total CAP budget.
The total EU budget for fruit and milk scheme is €250 million per school year, with €150 million for fruit and vegetables, and €100 million for milk. The allocation of the budget to the member states is based on the number of school children and, for milk, on the take-up of previous schemes.

Impact
The single CMO has a direct impact on the economic and health dimension of sustainability, by activating tools addressing both the supply and demand – side.

Economic - The explicit aim of this instrument is to structure and safeguard the stability of market prices in the sector, to facilitate the marketing of products and to establish the rules for trade with third countries, and thus, providing stability for the European producers and processors. Market interventions and supply control measures act with the specific aim to support the market of some products, improving the competitiveness of farms in the European and global market and thus contributing in a direct way to farms' viability[18].

[18] Some studies on the economic impact are available here:
https://www.cambridge.org/core/journals/public-health-nutrition/article/div-classtitlethe-european-school-fruit-scheme-impact-on-childrens-fruit-and-vegetable-consumption-in-north-rhine-westphalia-germanydiv/D817BE494DF43C413116E6285414ABA7
http://www.tandfonline.com/doi/abs/10.1080/09637486.2017.1303826

Health - The fruit, vegetables and milk scheme is a tool which supports the distribution of fruit, vegetables and milk in schools across the EU, as part of a wider programme of education about European agriculture and the benefits of healthy eating.
By providing the possibility to implement the tool related to the introduction of fruit and milk in schools, the instruments may have a direct impact on health dimension, because it contributes to educate children towards a sustainable diet including healthy food such as vegetables, fruit and milk.
Resilience - Within the operational programs, the measure on producers 'organisations foresees specific action on risk prevention, thus having an impact on resilience. Producers' organisation may take out loans on commercial terms for financing crisis prevention and management measures. In that case, the repayment of the capital and interest on those loans may form part of the operational programme and may also be eligible for Union financial assistance.

Consistency with overarching goals

The instrument CMO, considering also the impact it has on some sustainability dimension, can be considered consistent with the overarching goals economic, health and, indirectly, ecological.
Concerning the economic goal, CMO is consistent because it provides action programmes to support the market of specific agricultural products with specific funds dedicated. The purpose of market management is to stabilise markets (in terms of quantity offered and purchased and the price at which transactions take place) and thus to ensure, on the one hand, that farmers do not suffer from excessively low prices and, on the other, that consumers have a secure supply of food at reasonable prices.
The support to the introduction of fruit, vegetables and milk schemes for children in schools defines the consistency with the health goal.
The instrument is also consistent with the ecological goal. Concerning the fruit, vegetables and milk schemes the rules to be followed by Member States state that the choice of products to be distributed in each EU country must be based on health and environmental criteria, seasonality, variety and availability, with priority given to European products. National authorities are also free to encourage local or regional purchasing, organic products, short supply chains, environmental benefits and agricultural quality schemes as part of their overall programme

Coherence with other policy instruments

Competition policy[19]. Regulation 1308/2013 addresses the relationship between the EU's agricultural and competition policies (which had never been explicitly altered since the establishment of the common agricultural policy in 1962). This topic was one of the main points of discussion during the legislative procedure leading up to the new Single CMO Regulation. There is an explicit link between CMO and EU competition policy and it is related to the system of derogation for the market of agricultural products foreseen by the latter. The general derogation to EU competition policy rules continues to apply to the commercial activities of farmers. Procedurally, Regulation 1308/2013 brings the agricultural exemption more closely in line with EU competition law by introducing a self-assessment system, which puts a greater responsibility on farmers, their associations and company's active in the agri-food sector to assess where the agricultural exemption ends and where anticompetitive practices begin. Nevertheless, the practical consequences of this general derogation (as specified in the cited Article) are not clear. As long as this ambiguity is not addressed and clarified, the legal certainty for operators relying on Article 209 CMO is reduced and other, sector-specific derogations in the CMO, may become more relevant.
Quality policy - By setting up rules for geographical indications, the CMO regulation can be considered coherent with the overall EU quality policy, which deal with the regulation on PDO and GPI. According to the CMO regulation, the supply of PDO/PGI cheeses may be regulated by producer organisations and certain PDO/PGI cheeses are eligible for private storage aid (see also quality policy form in this annex).

[19] The legislative discussions on the relationship between the CAP and competition law initially alarmed competition enforcement authorities: see Resolution of the Heads of the European Competition Authorities on the Reform of the Common Agricultural Policy, adopted in the framework of the European Competition Network, in which NCAs expressed their support for the Commission's original proposal and warned against a large-scale exclusion of the application of competition rules in the agricultural sector.

Gaps and missing links

The changes introduced by the new reform are largely in line with the thrust of previous developments of the CAP: they aim to address the perceived imbalance of commercial relationships within the food supply chain, which is becoming more acute as the European agricultural sector becomes more market oriented. The reform again emphasises the need for concentration at the level of producers and therefore extends the use of producer organisations and inter-branch organisations throughout the agricultural sector. Over the attempt to contribute to more equal relationships along the food supply chain, a better coordination of the CMO with other policy domain is necessary, in order to contribute to an enabling food environment.
An example can be the establishment of a stronger coordination between the fruit, vegetables and milk scheme and the EU education policy. The educational dimension of the scheme can be reinforced to ensure that the key goals - teaching children on the benefits of healthy eating and helping reconnect them to agriculture – are met; moreover, other related issues such as local food chains, organic farming, sustainable production, food waste, etc. can also be covered through the educational programmes: improving such connection may better target the CMO instrument to contribute to an enabling food environment.

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2. Nitrates Directive

Act
Council Directive 91/676/EEC

Description of the instrument

The Council Directive 91/676/EEC (the Nitrates Directive) aims to reduce water pollution caused by nitrates from agricultural sources and to prevent such pollution through a number of steps to be fulfilled by Member States:

- ✓ water monitoring of all water body types (with regard to nitrate concentration and trophic status);
- ✓ identification of waters that are polluted or at risk of pollution, on the basis of criteria defined in Annex I to the Directive;
- ✓ designation of Nitrate Vulnerable Zones, which are areas that drain into identified waters and contribute to pollution;
- ✓ the establishment of codes of good agricultural practices, implemented on a voluntary basis throughout the Member State territory;
- ✓ the establishment of action programmes, which include a set of measures to prevent and reduce water pollution by nitrates and are implemented on an obligatory basis within designated nitrates vulnerable zones or throughout the entire territory;
- ✓ the review and possible revision at least every 4 years of the designation of nitrate vulnerable zones and of action programmes; and
- ✓ the submission to the Commission every four years of a progress report on the implementation of the Directive.

The ND includes rules for the use of animal manure and chemical fertilisers. A key measure is that member states should guarantee that annual application of N by animal manure at the farm level does not exceed 170 kg/ha. A higher rate may be allowed when it can be demonstrated that the objectives of the Directive will still be realised.

Tools activated

The tools activated by the Nitrates Directive can be classified as direct activity regulation, because they contain limitations concerning the use of N-fertilisers, some of them are mandatory and other voluntary. The action programmes are the mandatory tools activated by the Nitrates Directive. European countries and regions disposed these action programmes, which include a set of measures to prevent and reduce water pollution by nitrates and are implemented on an obligatory basis within designated Nitrates Vulnerable Zones, where the nitrate concentration in surface and/or groundwater exceeded the target of 50 mg/l for use as a drinking water resource, or where fresh and marine waters were eutrophic or at risk of becoming eutrophic.
The codes of good agricultural practices are voluntary tools which Member States can implement in addition to the action programmes.
Moreover, the Nitrate Directive is one of the Statutory Management Requirements included in the cross-compliance rules of the CAP.

Resources allocated

There is not a specific budget allocated at EU level for the implementation of the Nitrates Directive, as it is a compulsory requirement for all farms located in the NVZs and it is an obligation according to the SMR of the 1st CAP pillar.

Impact

Environment (water (ground, surface and marine) pollution, soil pollution) - It is a Directive with clear environmental targets. According to the EU report on the implementation of the Directive, the pressure

from agriculture has decreased, although not uniformly, in the period 2008–2011 compared to 2004–2007 regarding the numbers of cattle, pigs and sheep and remained stable regarding poultry. At the same time, the consumption of chemical fertilizers has decreased, continuing its long-term trend. Monitoring of water quality has improved, with an increase in the total number of monitoring stations for groundwater and surface water. Of all reported groundwater stations, 14.4% exceeded 50 and 5.9% were between 40 and 50 mg nitrate per litre, indicating a slight improvement compared to the previous reporting period, but at the same time a need for further action to reduce and prevent pollution.
Fresh surface water quality has improved regarding nitrate concentrations. The percentage of stations exceeding 25 or 50 mg has decreased compared to the previous reporting period. However, no conclusions can be drawn regarding the evolution of trophic status, due to two important factors: (i) different assessment methods used by Member States and (ii) lack of data, especially for saline water bodies. However, transitional, coastal and marine waters in many parts of Europe remain eutrophic (Baltic Sea and its coastline, Black Sea, parts of the North Sea and of the Mediterranean coastline). Although this is also depending on other pressures (e.g. human pressures especially in touristic coastline areas) additional action is needed in terms of extending NVZ designation and reinforcing action programmes.
Economic - The limitations concerning the input of nitrogen to the soil and the obligations on the manure storage had an economic effect on farms, especially on livestock farms. As the report on nitrate directive implementation reports, the number of livestock farms progressively decreased, even differently across Europe; this decrease in livestock farms determined decrease at farm income level and changes on agricultural productivity at national/regional level. Moreover, it has to be mentioned a socio - technical lock-in, including the reluctance to impose a policy of reduction of herds at the scale of a whole region.
The limitation concerning the input of N to the soil may also reduce the productivity of some crops and then have an effect on farmers' income as well.

Consistency with overarching goals

Explicit: Environment – Implicit: social, resilience
By having an explicit environmental purpose, the Nitrates Directive is consistent with the overarching ecological goal. Concerning the other goals, they are not explicit in tool design and formulation but, however, can be considered implicitly consistent with ethical and resilience goals because it promotes farmers' responsibility towards the protection and maintenance of natural resources. By addressing the long-term preservation of a public resource such as surface and groundwater from agricultural pollution sources, the Nitrates Directives can be considered also consistent with social and resilience policy goal.
On the other side, the effect Nitrates Directive may have on the reduction on farm income make it less consistent with the economic policy goal.

Coherence with other policy instruments

Water framework directive (WFD) - The introduction of the WFD in 2000 also created synergies and trade-offs. A major goal of the WFD is restoration of a good ecological status in all waters, which includes the goal of the ND to protect water against eutrophication. There are, however, two possible conflicts between the WFD and the ND, i.e. (i) for achieving a good ecological status a lower N concentration of 0.9–5.0 mg/l is needed than the target that is used in the ND (11.3 mg/l) and (ii) the ND does not address other sources of nutrients such as waste water treatment plants. For these reasons, the European Commission increasingly suggests a stronger linkage between implementation of the ND and WFD, for example by using water pricing for agriculture as an element of greening the Common Agricultural Policy.
The latest assessments of the Water Framework Directive (WFD) implementation, as well as studies carried out in the framework of international conventions, show that diffuse sources of pollution pose most obstacles in achieving good status in EU waters. For this reason, the recent *Blueprint to Safeguard Europe's Water Resources* identifies the Nitrates Directive as one of the key measures to achieve WFD objectives.

The national emissions ceiling directive (NEC) – The environmental goal of the NEC Directive is to protect the environment and human health against pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia). The coherence with these instruments is relevant, as large livestock operations must comply with the Industrial Emissions Directive, which requires these operations to apply best available techniques to control emissions.
Anyway, the Nitrates Directive has been shown to contribute to reducing ammonia and nitrous oxide emissions, due to the overall impact on better manure management and optimal fertilizer use limited to crop needs. Extending Nitrate Vulnerable Zones and/or applying the same rules outside designated nitrate vulnerable zones will further decrease these emissions to air.
Goals, objectives, targets and measures of the ND, NECD-NH3and WFD are clearly linked. The instrumental policy approach is, however, different.

Gaps and missing links

According to its actual formulation and implementation, the Nitrates Directive is proved to have an important role on the preservation of natural resources, specifically surface and groundwater, which are public goods to be maintained in order to guarantee food system sustainability.
The Nitrates Directive can effectively contribute to an enabling food environment only if coordinated with other instruments: as known, the ND takes into consideration only the pollution coming from agricultural sources and a coordination with other policies aimed at improving water quality would be desirable.

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3. Seed Marketing Directives

Act

The Seed Marketing Directives are based on article 37 of the Treaty Establishing the European Community. The article is about the institution of a Common Agricultural Policy. There are 12 basic Council Directives

- One horizontal Directive on the Common Catalogue of varieties of agricultural plant species
  - Directive 2002/53/EC - common catalogue of agricultural plant species;
- 11 vertical Marketing Directives
  - Five seed Directives (fodder plant seed, cereal seed, beet seed, seed of oil and fibre plants and vegetable seed),
    - Directive 66/401/EEC - marketing of fodder plant seed;
    - Directive 66/402/EEC - marketing of cereal seed;
    - Directive 2002/54/EC - marketing of beet seed;
    - Directive 2002/55/EC - marketing of vegetable seed;
    - Directive 2002/57/EC - marketing of seed of oil and fibre plants.
  - Three plant propagating material Directives (vine propagating material, seed potatoes, and vegetable reproductive material other than seed)
    - Directive 2002/56/EC - marketing of seed potatoes;
    - Directive 2008/72/EC - marketing of material for the propagation of the vine;
    - Directive 92/33/EEC - marketing of vegetable material, other than seed.
  - Three Directives that cover both seed and propagating material (fruit plant propagating material, ornamental plants and forest reproductive material)
    - Directive 1998/56/EC - marketing of propagating material of ornamental plants;
    - Directive 2008/90/EC - marketing of fruit propagating material and fruit plants for fruit production;
    - Directive 1999/105/EC - marketing of forest reproductive material.
- Three directives that derogates to the general system
  - Directive 2010/60/EU. Derogations for marketing fodder plant seed mixtures for use in preservation of the environment.
  - Directive 2009/145/EC (Following and integrating Directive 2008/62/EC). Derogations for accepting vegetable landraces and varieties traditionally grown in certain regions, threatened by genetic erosion and varieties with no intrinsic value for commercial production but developed growing under particular conditions; marketing of their seed.
  - Directive 2008/62/EC. Derogations for agricultural landraces and varieties naturally adapted to local conditions, threatened by genetic erosion; marketing their seed and seed potatoes.

Description of the policy instrument

Plants reproductive material (PRM) is a fundamental input for the productivity, the diversity, and the health and quality of agriculture, horticulture and food and feed production and our environment. The EU regulates the marketing of plant reproductive material of agricultural, vegetable, forest, fruit and ornamental species and vines, ensuring that EU criteria for health and quality are met.
Defining directions for the marketing of plants and reproductive material is the object of the seed marketing directives. Their goal is to guaranty safety to consumers and productivity to producers.

Resources allocated

None of the directives have budgetary implications.

Tools activated

Each directive sets specific rules. However, there are some supply-based tools that are common to all directives – even if some exceptions are allowed in the derogation directives - and that are the core of the seed legislation:
- Registration. Each variety should be registered – in national or in EU Common Catalogues - with one name and has to show the following before registration: Distinctiveness, Uniformity, Stability, (DUS), Value for Cultivation and Use, (VCU).

- Certification. It is meant to guarantee the identity, health and quality of seeds and propagating material before marketing. Basically, the existence of the conditions for registration will be checked out and certified. At its simplest, the system certifies that a sack, bag or box of seed contains what it is written on the label, and meets certain minimum quality criteria.
- Marketing. They are rules disciplining the way seed and propagating material is marketed. They are marketed in different market categories, homogeneous lots, following specific requirements for packaging, selling, labelling, and documentation. The definition of marketing and selling is variable depending on the genetic material.
- Equivalence. Seeds harvested outside the EU may be marketed in the EU if they offer the same guarantees as officially certified EU seed.

Impact

The tools (i.e. the DUS and VCU criteria used for registration and certification) activated by the seed marketing directives impact on all sustainability objectives including ethical, economic, health, ecological, social, resilience. The dimensions are listed from those that are more directly impacted to those that are impacted more indirectly. The impacts are discussed below.

Ethical, Economic and Health impacts: tools to guaranty transparency, productivity and safety

The Community tools for the registration, certification and marketing of S&PM aim at ensuring productivity for producers and safety for consumers. They have contributed to this by setting criteria, DUS and VCU, according to which just those seeds that have valuable agronomic features and guaranty plant safety can be registered and commercialised. This system has allowed the establishment of a free marketing of safe and productive S&PM in the EU, making them available for producers and consumers. Moreover, the certification system is useful as it establishes confidence in the transparency seed and food supply chain. However, some lacks emerge because the tools are not always correctly implemented and enforced or relevant.

Economic - Productivity has increased, but apparently not more or less than in EU crops where VCU is not mandatory (e.g. vegetable seed). In countries where VCU doesn't exist, productivity has increased as well (FCEC et al, 2008).

Health **-** The safety dimension is enhanced by increased controls (Pimbert, 2011) even if criteria and controls and, the resulting selection, are not at the top of their effectiveness (FCEC et al, 2008). The Community S&PM legislation mentions the need to examine the resistance of varieties to plant pathogen diseases. Such examination is carried out from an agronomical point of view in VCU networks and not with the objective of avoiding the appearance of mycotoxins in the foodstuffs processed from those grains. The examination of any new variety of vegetable plant doesn't look at its capacity of absorbing nitrates from soil leading to possible human health & environmental impacts (FCEC et al, 2008).

Ethical - Continuing on the used criteria, not all quality criteria relevant for farming, (e.g. market value and yield stability besides productivity and quality) are covered by the Community provisions; the EU legislation is not uniformly applied in the different countries, the implementation is costly and complicated since the legislation is fragmented; some VCU obligations are lightly defined or absent at the Community level. The VCU tests are done in the country where the variety is registered. Then it can be sold in other countries, but nothing guaranties that the agronomic features tested in the country of registration will be also holding in the country where it is sold. So, the VUS is never definitively established. The management of the national official VCU networks can be a matter of competition between some breeding companies, especially when trials are being executed by the breeders. The existing system can provide an obstacle for innovation because additional variety character analyses incur extra costs (FCEC et al, 2008).

Similar issues concern the DUS systems. Differences exist in the completeness of the reference collections used by the MS to assess Distinctness. Moreover, there cases of non-distinct varieties registered under different names in two different MS at the same time. A DUS test is generally done over two years, this can be insufficient to check real stability moreover it is difficult to control if the sample for the test comes from different generations. Costs of DUS tests can be prohibitive for traditional varieties, peasant varieties or varieties part of the collective heritage or scarcely disseminated (FCEC et al, 2008).

Ecological, social and resilience impact: Reduced biodiversity and food diversity, reduced resources variety for the present and future functioning of the food systems, disadvantaged conditions for small farmers.

Ecological - Biodiversity is negatively implicated since the criteria of DUS and VUC exclude several varieties that are important for biodiversity from being used in farming and food. The genetic material that is relevant for the maintenance of agrobiodiversity (e.g. landraces, old varieties) is genetically heterogeneous. It means that it cannot satisfy the DUS requirements that are necessary for the registration, certification and market of seeds. This, in turn limits the maintenance and further development of crop genetic diversity (FCEC et al, 2008).

The derogations for the marketing of certain types of varieties and seed mixtures for conservation purpose provided broader space for the maintenance of crop genetic diversity. However, these derogations cover only some of the crop genetic diversity excluded from marketing by the main legislation (the following are still not represented: those produced by participatory plant breeding and not fulfilling DUS criteria, old varieties that are no longer listed in the national and common catalogues, varieties without a specific are of origin and varieties adapted to different areas than their region of origin). In addition, restrictions limit where and to what extent such varieties and seed mixtures can be marketed. Furthermore, minimum standards regarding distinctness, uniformity and stability are required to be respected and varieties and population that are too heterogeneous to be registered may still not be marketed (FCEC et al, 2008).

Social - Reduced biodiversity is index of reduced food diversity. Hence, another negative impact of the tools defined by the seed marketing directives concerns the reduced possibility for the European food market to fulfil all the different expectations in terms of food (Pimbert, 2011).

VCU is being perceived as a useful tool for traditional agriculture. However, when considering alternative agriculture, such as organic, VCU is being seen as an obstacle to release cultivar of interests for this specific market. Several stakeholders complain on the fact that conventional VCU trials are not able to select niche varieties like organic farming where low-input varieties are being preferred. In their opinion, the characteristics examined and the conditions for examination do not fit with the specificities of those varieties. For example, it is currently difficult to go through the conventional VCU networks to test an organic variety under low-input conditions (FCEC et al, 2008).

Moreover, small businesses have less access to the registration and certification system because too complex and expensive. Mandatory certification is a procedure too heavy and costly for most SME with niche markets and therefore prevents their marketing and free trade (FCEC et al, 2008). In general, breeders' rights are highly protected in the systems defined by the legislative framework. Farmers' rights are less. Especially those of small farmers. Seed laws are a barrier to the realisation of farmers' rights as traditional varieties do not meet the registration and certification requirements and cannot be used and circulated with commercial purposes, the current EU legislation regulating the sale of seeds acts as a barrier to on-farm conservation and participatory research (Pimbert, 2011).

Fundamental rights and principles of freedom to pursue an economic activity, proportionality, equal treatment or non-discrimination and the free movement of goods, freedom to conduct a business, protection of old seed and plants, are limited in their fulfilment because of the limits posed to the circulation of seeds that do not respect certain criteria (e.g. conservation varieties, amateur varieties, and landrace developed on the basis of composite-cross-populations, family populations and multi-lines varieties; gradual improvements in the agronomical description of a registered variety) even when the criteria are not essential for farmers (Advocate General Kakott, 2012; FCEC et al, 2008).

Resilience - All in all, the set criteria and systems of registration and certification have reduced the variety in the food system: variety of resources available, with a preference for those that are less adaptable to changing climate conditions; variety of production, marketing and production systems possible. In turn, the possibilities for the European food system to function in the present and future, under changing environmental conditions, are reduced (Pimbert, 2011; FCEC et al, 2008).

Consistency with overarching goals

Ensuring productivity, safety and transparency in the food system versus protecting biodiversity, food diversity and food system diversity and equality

The seed market directives are defined with the aim of ensuring productivity for producers (**Economic goal**) and food safety for consumers (**Health goal**). The system of registration and certification that uses the DUS and VUC has contributed to this by establishing criteria to decide which seeds can be registered, commercialised and put into production. These criteria guaranty that the seeds are productive and that the resulting plants, fruits and food are healthy and do not harm human health. The DUS and VUC criterial together with the registration and certification system have fostered transparency by disclosing information about farming inputs and, in turn, promoted that producers took on responsibilities (**Ethical goal**).

However, all this shows some limits and has come at some costs. The limits concern the fact that the system of registration and certification is not well enforced, so there are still some gaps in guarantying productivity and safety as well as in ensuring equal access to the commercialised resources. The costs are the following: reduced biodiversity protection (**Environmental goal**); inequalities within the food systems with small farmers being in a disadvantaged position compared to professional breeders and big food business (**Social goal**); reduced resources and system variety available to guaranty the current and future functioning of the food systems (**Resilience goal**).

Box 1: Example of the limits and costs of the seeds marketing directive

Case

The case study of Kokopelli/Graines-Baumaux shows how the enforcement of the seed policy might have environmental and socio-economic impacts.

Kokopelli is an association that provides online sales of varieties of vegetable seeds that we can define as local, ancient, and amateur or heritage. Baumaux is a seed company whose catalogue includes some of the varieties sold by Kokopelli: they have about 233 varieties in common. The difference is that Baumaux is recorded in the French register of amateur varieties and follows the rules, while Kokopelli is not. A part of the diversity in Kokopelli's catalogue was also found in Baumaux's. In 2008, the court of Nancy sentenced Kokopelli for unfair competition against the seed company: they sell the same things but the seed company, in order to comply with European legislation, has a number of charges and higher costs.

The association appealed to the Nancy Court of Appeal, which sought council from the European Court of Justice on the matter. Two points were raised by Kokopelli in the appeal: whether the regulations on the marketing of seeds of vegetable species (Directive 2002/55) and the conservation varieties (Directive 2009/149) of vegetable species encroach on the freedom of trade and whether the same guidelines are inconsistent with the conservation of agricultural diversity and, in particular, with the obligations contained in the FAO Treaty on Plant Genetic Resources for Food and Agriculture.

Before the Court of Justice, the Attorney General handed down its ruling on January 19, 2012, in favour of Kokopelli, stating that the seed legislation is not proportionate to its purpose, violates freedom of trade and reduces agricultural biodiversity. This ruling was overturned by the Court of Justice. In fact, instead of following the Attorney General in its decisions, as is usually the case, the Court recognized the validity of the legislation on seeds and believes that it favours rather than undermines the freedom to pursue an economic activity, ensuring all businesses a common ground on which to compete and at the same time fulfilling the overall objective of increasing agricultural productivity. The Court also stated that the current legislation is sufficient as protection for crop biodiversity, by virtue of the existence of the specific catalogue of conservation varieties. It is important to note that the Court only expressed itself in regard to the marketing of varieties (in particular vegetables, not ruling on the agricultural species), therefore not making exchange within the informal seed systems. Kokopelli has been convicted of unfair competition and not convicted for 'exchanging' seeds (Bocci, 2014).

Coherence with other policy instruments

Within the EU there are several policy acts that seek to foster the enhancement of biodiversity and of all those food systems that can contribute to this goal. The EU (European Union) is part of both the Convention for Biological Diversity (CBD) and the Treaty on Plant Genetic Resources for Food and Agriculture (TPGRFA). The CBD aims at promoting biodiversity by balancing the combined action of private firms, markets, institutions and civil society (www.cbd.int/). The TPGRFA is meant to set special rules for the use of plants genetic resources compared to what established in the CBD for other genetic resources.

The EU has adopted the Biodiversity Strategy that belongs to the frame of the EU environmental policies and it reflects the commitment of the EU within the CBD. The aim of the strategy is to halt the loss of biodiversity and ecosystem services in the EU and, in turn, contribute to stop the global biodiversity loss. To this end, it sets out six targets and 20 actions instrumental to reach them. Not least, it suggests actions to conserver Europe agricultural genetic diversity to be taken within the frame of the CAP (Common Agricultural Policy). These include measures that encompass environmental requirements integrated into market policy and targeted environmental measures that form part of the Rural Development Programmes (MIPAAF, 2013).
The seed marketing directives are defined in other policy domains compared to the just mentioned policy acts and seem to move in a different direction than fostering biodiversity and the food systems that might contribute to this. Nonetheless, a dialogue might be started among the responsible policy makers to strengthen the coherence among the acts. Productivity and consumer's safety issues are of interest for policy acts as the CAP too. They can be a starting point to bridge the seed marketing directives with policy acts for biodiversity protection.

Gaps and missing links

Productivity and consumer protection has been successfully promoted by the EU seeds marketing directives. The directives have influenced the way the seeds production and marketing is organised and, in turn, have impacted on the kind of food available to consumers. Productivity has reached satisfactory levels as well as consumers protection. However, there are some aspects that have not been taken into consideration. Hence, the EU seed marketing directives must remain focussed on productivity and consumers safety while also giving attention to: fair access to resources and deriveded products and information, diversity of resources and derived products and systems, complete enforcement of the set rules (FCEC et al., 2008).
To increase the SPM available and a fair access to it by the different operators, interventions are required on the DUS and VUC systems. A revised legislation should reflect a combination of scenarios, combining obligatory variety registration and certification of lots of listed species with more responsibilities for operators, the introduction of cost recovery and a lighter system for conservation varieties (FCEC et al, 2008). Species of minor economic importance or for which certification adds no additional value to the seed lots (e.g. amateur, ornamental, niche varieties for extreme conditions and natural farming practices) should be removed from the Directives. Indeed, the current legislation imposes a disproportionately high burden for those minor species relative to the Community benefit. Moreover, uniformity can become an optional criterion and a traceability system can be developed with indication of the origin of the marketed variety, of the varieties used for its breeding as well as the specific breeding methods used (FCEC et al, 2008).
A more extreme solution might be to make varieties registration, performance testing and seed certification voluntary (Tripp, 1997). In the United States, there is no variety registration system and no national review system, so no statutory performance testing to approve varieties before they can be sold. Breeders at universities mainly, carry out the testing of variety performance. The assessment protocols integrate a range of the standard parameters that exist in the VCU tests but there is no performance threshold. This system allows a greater flexibility in the release of varieties for specific purposes and niche markets. A flexible variety registration scheme has been proposed in Canada. In this system wider derogation from DUS criteria would be allowed leaving to each country the possibility of adapting European rules to their geographic, social and economic conditions. Such a system could enhance the diversity of the entire seed system. It can be considered as a liberalised and flexible system with no obligatory variety registration and certification of lots (SWD, 2013; FCEC et al., 2008).
Other criteria such as nutraceutical, environmental, socio-cultural, and economic shall be considered along to technical and market ones in doing the DUS and VCU so to ensure food safety, biodiversity and cultural diversity fulfilment. Several stakeholders have indicated the need to include standard on GMO adventitious presence, quality requirements for seed-borne diseases. Among the technical criteria, also those traits that are not regularly observed in VCU, but are of key importance for organic farmers (e.g. weed competitiveness and resistance to seed borne diseases) shall be considered. Besides considering

different criteria, also consider new technologies that can take all these criteria into account (FCEC et al., 2008).
However, the enforcement of control and certification systems shall be maintained and adapted to increase: fair access to information, knowledge and education, resources also to SME; fair relations in the food system, not least between farmers and breeders; legitimacy, accountability and civic responsibility of actors in charge of enforcing the system. A DUS and VCU system can be established which involve both private and public actors at different level of the supply chain, with different interests and expertise to take into account different criteria and exigencies. This systems might allow organising the official VCU testing at Community level, based on areas of adaptation (European networks according to agro climatic areas for national and regional decisions) and farming techniques (e.g. organic). Introduce flexibility in the VCU system (e.g. periodically review the VCO criterial for relevance, set up specific networks for specific varieties, consider private data, cut down system for niche varieties making trialling effort and costs proportionate to the market). Optional registration and certification and clear labelling of uncertified seed lots and unregistered varieties would be sufficient to in other to achieve transparency in the market, high productivity and marketing of high quality seed and propagating material without losing diversity and without too complex procedures (FCEC et al, 2008).
Finally, few other interventions can be done to enhance fairness in the access to resources and information as well as in the relations among the actors in the food system, DUS and VUC system accountability, varieties diversification. Fostering the use of both in-situ and ex-situ conservation and participatory breeding by setting structures for stakeholder's involvement is one possible intervention. Another complementary possibility is to foster research and development on plant genetic material and shed light on non-standard varieties (FCEC et al, 2008; SWD, 2013).

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4. European Food and Drink Labelling Policy for Nutrition and Health

Acts

Food information to consumers

- General. Regulation (EU) No 1169/2011 on the provision of food information to consumers and implementing rules. It combines and repeals two Directives: 2000/13/EC - Labelling, presentation and advertising of foodstuffs and 90/496/EEC - Nutrition labelling for foodstuffs.
- Allergens. Commission Notice of 13.7.2017 relating to the provision of information on substances or products causing allergies or intolerances as listed in Annex II of Regulation (EU) No 1169/2011 on the provision of food information to consumers.
- Guidance on Quantitative ingredient declaration (QUID).
- Guidance on Nutrition labelling.
- Country of Origin Labelling. Commission Implementing Regulation (EU) No 1337/2013 of 13 December 2013 laying down rules as regards the indication of the country of origin or place of provenance for fresh, chilled and frozen meat of swine, sheep, goats and poultry.
- Trans fatty acids. On 3 December 2015, the Commission adopted a report to the European Parliament and the Council regarding trans-fats in foods and in the overall diet of the Union population.

Health claims

- Regulation (EC) No 1924/2006. The Regulation started to apply on 1 July 2007. The rules of the Regulation apply to nutrition claims (e.g., low fat, high fibre) and to health claims (such as "Vitamin D is needed for the normal growth and development of bone in children").

Alcohol labelling.

- On 13 March 2017, the Commission adopted a report to the European Parliament and the Council regarding the mandatory labelling of the list of ingredients and the nutrition declaration of alcoholic beverages.

Water

- Directive 2009/54/EC regulates the marketing and exploitation of natural mineral waters.
- Commission Directive 2003/40/EC establishes the list, concentration limits and labelling requirements for the natural mineral waters and the conditions for using ozone-enriched air for the treatment of natural mineral waters and spring waters.
- Commission Regulation (EU) No 115/2010 lays down the conditions for use of activated alumina for the removal of fluoride from natural mineral waters and spring waters.

Gluten

- Commission Implementing Regulation (EU) No 828/2014 of 30 July 2014 on the requirements for the provision of information to consumers on the absence or reduced presence of gluten in food.
- Food supplements *(i.e., concentrated sources of nutrients or other substances with a nutritional or physiological effect in the form of pills, tables, liquids, etc.)*
- Directive 2002/46/EC aims to protect consumers against potential health risks from those products and to ensure that they are not provided with misleading information.

Fortification

- Regulation (EC) No 1925/2006 harmonises the provisions regarding the addition of vitamins and minerals and of certain other substances to foods. Amended by Regulation (EC) No 108/2008.

Food for specific groups

- The Regulation (EU) No 609/2013 of the European Parliament and the Council on food intended for infants and young children, food for special medical purposes, and total diet replacement for weight control ('Food for Specific Groups'), applicable from 20 July 2016.

Environmental and Organic labelling

- Regulation (EC) no 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel. Currently, there's no product group for food or feed products. Following the publishing of a feasibility study to evaluate the possibility of including food and feed products in

the EU Ecolabel scheme in the future, the EU Ecolabel Board concluded in March 2012 that it would be valuable to extend the EU Ecolabel to food and feed products. Currently though, the board agreed it was not feasible from a methodological and technical point of view. The board also concluded that synergies with other existing labels (e.g. EU Organic logo) should also be analysed further. (see feasibility study here: http://ec.europa.eu/environment/ecolabel/documents/Ecolabel_for_food_final_report.pdf

- In 2007 the European Council of Agricultural Ministers agreed on the Council Regulation No. 834/2007 setting out the principles, aims and overarching rules of organic production and defining how organic products were to be labelled.

Animal welfare labelling

- Currently, there is only one EU-wide system of compulsory labelling on animal welfare for table eggs. The system for eggs is based on the EU legislation for laying hens defining different production methods (cages, free range, barn, etc.). Such classification of production methods does not exist for other types of animal production in the EU.

Description of the instrument

The new labelling legislation was under review for four years, proposed by the European Commission on January 30, 2008, and adopted by the European Parliament and Council on October 25, 2011. According to Regulation (EU) No 1169/2011, the provision of food information pursues the *"protection of consumers' health and interests by providing a basis for final consumers to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations".* The legislation applies to businesses at all stages of the food chain and to all foods intended for final consumption. That includes food delivered by, or supplied to, mass caterers. Responsibility for providing the necessary information, and ensuring it is accurate, lies with the manufacturers marketing the food under their name, while if they are based outside the EU, it lies with the importer. A basic set of information is mandatory: the food's name, list of ingredients, net quantity, use by date, instructions for use if necessary, operator's name and address and a nutrition declaration. Food information should not mislead the public, particularly by suggesting it possesses special characteristics or effects it does not have. It should be accurate, clear and easy for the consumer to understand. There are other sets of information which are voluntary, but nonetheless should not mislead the consumer in any way.

The main innovative elements of the new food labelling rules are:

- The mandatory nutrition information on prepacked foods. The intention is to enable consumers to make healthier dietary choices: the energy value and the amounts of fat, saturates, carbohydrates, protein, sugars and salt (which together form the "mandatory nutrition declaration") must be indicated in the same field of vision per 100g or per 100ml and may, additionally, also be expressed per portion.
- Another important element is the introduction of a minimum font size of 1.2 mm (for the x-height) for all mandatory information which is aimed to improve legibility of food labels.
- A third important element is the extension of compulsory country of origin labelling to fresh meat of swine, sheep and goats, and poultry (in addition to beef, for which a separate piece of legislation was introduced during the BSE crisis, and to fruits and vegetables, honey, olive oils, and cases where the failure to do so misleads the consumer).
- Further improvements of the EU food labelling rules concern allergens (which in the future must be highlighted in the list of ingredients), vegetable oils (whose specific vegetable origin must be indicated) and imitation foods (which consumers will be able to recognise more easily).

Resources allocated

There are no financial resources allocated to this policy instrument. It is a prescriptive instrument.

Tools activated

With reference to the instrument Regulation (EU) No 1169/2011 on the provision of food information to consumers, we can identify two types of tools:

- mandatory information: (a) the name of the food; (b) the list of ingredients; (c) any ingredient or processing aid listed in Annex II or derived from a substance or product listed in Annex II causing allergies or intolerances used in the manufacture or preparation of a food and still present in the finished product, even if in an altered form; (d) the quantity of certain ingredients or categories of ingredients; (e) the net quantity of the food; (f) the date of minimum durability or the 'use by' date; (g) any special storage conditions and/or conditions of use; (h) the name or business name and address of the food business operator referred to in Article 8(1); (i) the country of origin or place of provenance where provided for in Article 26; (j) instructions for use where it would be difficult to make appropriate use of the food in the absence of such instructions; (k) with respect to beverages containing more than 1,2 % by volume of alcohol, the actual alcoholic strength by volume; (l) a nutrition declaration.
- voluntary information provision to consumers, as long as it doesn't mislead the consumer, as referred to in Article 7; (b) it is not ambiguous or confusing for the consumer; and it shall, where appropriate, be based on the relevant scientific data. The Commission shall adopt implementing acts on the application of the requirements to the following voluntary food information: (a) information on the possible and unintentional presence in food of substances or products causing allergies or intolerances; (b) information related to suitability of a food for vegetarians or vegans; and (c) the indication of reference intakes for specific population groups in addition to the reference intakes set out in Annex XIII.
- national measures. Member States may not adopt nor maintain national measures unless authorised by Union law. Those national measures shall not give rise to obstacles to free movement of goods, including discrimination as regards foods from other Member States. Member States may adopt national measures concerning matters not specifically harmonised by this Regulation provided that they do not prohibit, impede or restrict the free movement of goods that are in conformity with this Regulation. Member States may adopt measures requiring additional mandatory particulars for specific types or categories of foods, justified on grounds of at least one of the following: (a) the protection of public health; (b) the protection of consumers; (c) the prevention of fraud; (d) the protection of industrial and commercial property rights, indications of provenance, registered designations of origin and the prevention of unfair competition.

  The Regulation includes a provision that allows Member States to adopt national Country of Origin measures and sets out the criteria to introduce them.

Environmental labelling is not mentioned in the Food labelling legislation of the European Union, although the legislator states that *"The provision of food information shall pursue a high level of protection of consumers' health and interests by providing a basis for final consumers to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations"* (General Objectives, point 1).

A number of voluntary public labelling schemes is available: examples of some frequently used labels are the EU Ecolabel (Regulation (EC) No. 66/2010), EU organic label (Regulation (EC) No. 834/2007), etc.

Private standards. Companies (i.e., retailers and producers) and Non-Governmental Organizations (NGOs) also develop their own labelling schemes. The FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification) labels, the MSC (Marine Stewardship Council) label, the Fair-Trade label, are notable examples. The different labelling schemes differ regarding the level of ambition, coverage of different phases of the life-cycle and in the process of developing and certifying the criteria. There is also a difference between the labelling intended to provide information to the final consumers (business-to-consumer - B2C communication) and other "labels" intended to provide information related to the environmental performances of components along the supply chain (business-to-business - B2B communication).

Impact

Social - The importance of food labelling lies in its effectiveness as an information tool, and more specifically in supporting consumers to make informed choices, to store and use the food safely and, ultimately, educating consumers about the food they buy.
Overall, available assessments of the impact of labelling on food intake do not show conclusive results in terms of healthier purchasing choices. A review by Cowburn and Stockley (2007) had suggested that consumers who look at nutrition labels can understand some of the terms used but are confused by other types of information. Most appear able to retrieve simple information and make simple calculations and comparisons between products using numerical information, but their ability to interpret the nutrition label accurately reduces as the complexity increases. Factors that impact on consumers' awareness, understanding and ability to make correct health inferences have been identified in consumers' nutritional knowledge, age, social grade and interest in healthy eating (EUFIC, 2009). Further qualitative consumer research in four European countries also found that consumers reacted positively to simple front-of-pack label calorie flags (van Kleef et al, 2008).
Insights from the Eatwell Project ('Policies to promote healthy eating in Europe: a structured review of policies and their effectiveness') indicates that the literature tends to focus on consumer exposure to nutrition labelling, which is not a measure of impact on people's diet (Capacci et al. 2012). Furthermore, studies that relate label use to healthier diets carry potential bias as label users are already likely to be health-oriented (Drichoutis et al. 2006). A recent review study by Cecchini and Warin (2015) on the effectiveness of food labelling in increasing the selection of healthier products and in reducing calorie intake, suggests that nutrition labelling may be an effective approach, nonetheless other types of tools, such as **interpretive labels**, (e.g., traffic light labels), may be more effective.
Economic - The economic impact of labelling legislations lies in the contrast between the value and extensiveness of prescriptions (i.e., benefit for the consumer and for the internal market) versus the financial and administrative burdens deriving from those prescriptions.
Through the replacement of the previous Directives by one concise Regulation, the reform has aimed to streamline and simplify the food labelling scene without undermining the level of consumer protection pursued by the European Community. Moreover, it pursued better clarity, rationality and consistency of enforcement.
The extent to which these aims have been effectively achieved by the current legislation is still to be assessed, while there is extensive impact assessment that supported the review of the previous legislation (European Commission, 2008). The costs of labelling legislation, and changes to labelling legislation, fall primarily at company level: generally, on the food manufacturer (for branded products), but increasingly on the retailer as well with the increase of 'own brand' products in many EU markets. A label change can be triggered by various reasons: the most common ones are changes in regulation, marketing reasons, product reformulation and recipe changes and adding additional information to the label. It should be recalled that while the changes in food labelling legislation may mean some additional costs associated with including the information required, companies producing prepacked foods will always have costs of labelling that are not due to legislative requirements. (p 37, EU Commission, 2008).
Food labelling is cost-effective, with the assumption that the intervention is mandatory with clear information about nutrient content and serving size (OECD report, Cecchini et al.2010).
Ethical and Ecological **-** A study by Grunert et al. (2014) investigates the relationship between consumer motivation, understanding and use of sustainability labels on food products (both environmental and ethical labels), which are increasingly appearing on food products. Understanding of the concept of sustainability was limited, but understanding of four selected labels (Fair Trade, Rainforest Alliance, Carbon Footprint, and Animal Welfare) was better, as some of them seem to be self-explanatory. The results indicated a low level of use, no matter whether use was measured as self-reported use of different types of information available on food labels or as use inferred from the results of a choice-based conjoint analysis. Use is related to both motivation and understanding, and both motivation, understanding and use are affected by demographic characteristics and human values. The results imply that sustainability labels currently do not play a major role in consumers' food choices, and future use of these labels will depend on the extent to which consumers' general concern about sustainability can be turned into actual behaviour.Moreover, labels do not provide enough information, and 48% think that labels are not clear.

About half of European consumers think it is not easy to differentiate between environmentally friendly and other products and only about half of them trust producers' claims about environmental performance. This also influences their readiness to make green purchases.

Coherence with other policy instruments

Food labelling and sustainability represent a wide and growing policy area, which has developed and layered over time, partly managing to achieve streamlining and policy coherence.
An example of such achieved coherence emerges from the relation between Organic labelling and Ecolabel environmental labelling: in order to avoid consumer confusion, Ecolabel does not apply to food, as the Organic Labelling is already a sign of environmental compliance.
Among most controversial debates, whether the Country of Origin Labelling (COOL) represents a restriction on international trade plays a primary role. In a report from USDA (2017), it is claimed that the reform of the labelling legislation provides a way for individual Member States to enact mandatory national measures. Although the revision process of the regulation managed to reach an agreement to develop COOL on a horizontal basis and eventually extend it to more food products and ingredients, Member States could not agree on harmonized criteria. For that reason, the regulation includes a provision that allows Member States to adopt national COOL measures.

Gaps and missing links

Information is necessary for informed choice, but it doesn't necessarily lead to healthier eating. A mix of different policy measures, implemented contemporarily may impact on the food environment pushing food consumers towards what's best for their nutrition, health and for society as a whole. Two things are needed: i) further assessments on the impact of different policy measures, considering the interactions among them, and ii) experimentation with innovative and more intuitive ways of conveying nutritional, health and environmental information to the consumer. "Nudges" have been shown to complement the effectiveness of some existing policies (Sustein, 2008).
An example of effort towards more coordination is the recent EU Single Market for Green Products initiative, Footprint (OEF): it proposes methods to measure environmental performance based on the Product Environmental Footprint (PEF) and the Organisation Environmental, and a set of principles for communicating the environmental performance, such as transparency, reliability, completeness, comparability and clarity.

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5. European Food Quality Policy

Act
Quality Package, 2010

Description of the instrument

The EU's main quality schemes are those for Geographical Indications (GIs) and Organic Products (see Council Regulation (EC) No. 834/2007 on the principles, aims and overarching rules of organic production and defining labelling rules). Geographical Indications are part of the intellectual properties rights of the European Union.
The "Quality Package" launched in 2010 is the outcome of the most recent reform of the EU Quality Policy and includes:

- Regulation (EU) No 1151/2012, which entered into force in 2013. It aims at reducing complexity and bringing clarity to the quality schemes, reinforcing protected designations of origin and geographical indications (PDOs and PGIs); overhauling the traditional specialties guaranteed scheme (TSGs), and laying down a new framework for the development of Optional Quality Terms (e.g. Mountain Products)[20];
- General marketing standard for all agricultural products and the adoption of place-of-farming (see "Labelling Policy") and other sectoral rules for marketing products; EU marketing standards (Council Regulation (EC) No 1234/2007) lay down product definitions and categories, minimum characteristics and labelling requirements to be respected on the EU single market.
- Best practice guidelines on voluntary certification schemes and on the labelling of products using Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) ingredients.

Resources allocated

None of the European Union schemes have budgetary implications, with exceptions of resources foreseen to support in taking a more active role to protect the names of the quality schemes and the Union symbols in third countries.

Tools activated

Among the tools activated, there are the European Quality logos, which can be considered primarily as a demand-based tool, although the policy implementation requires a strong involvement of the supply. Since 1992 the EU has operated three programs of product designations in order to promote and protect the names of quality agricultural products and foodstuffs: "Protected Designation of Origin" (PDO), "Protected Geographical Indication" (PGI) and "Traditional Specialty Guaranteed" (TSG). These tools help highlight the qualities and traditions associated with registered products and to assure consumers that these are not imitations seeking to benefit from the good name and reputation of the "original" products. As a result, these schemes and their logos should help producers/groups of producers to market their products, while providing them legal protection from misuse or falsification of a product name.
By the end of 2016, 1377 GIs were established, of which 619 PDOs, 704 PGIs, 54 TSG. 5 countries account for 72% of all GIs (Italy and Spain at the top of the ranking).

Impact

Economic - Higher price/gross margin of GI products in comparison with their corresponding standard product.

[20]From Premise 44, L 343/5/2012 *"A second tier of quality systems, based on quality terms which add value, which can be communicated on the internal market and which are to be applied voluntarily".* Example: "Mountain Products". This term shall only be used to describe products intended for human consumption when: a) both the raw materials and the feedstuffs for farm animals come essentially from mountain areas; (b) in the case of processed products, the processing also takes place in mountain areas.

A study on added value of PDO/PGI products compared to suitable comparable[21] products (ARETE, 2013), shows that in most cases observed GI products do achieve a price premium over the corresponding standard products (caveat: limited number of observations, extreme variability in the extent of the price premium in relation to product classes). As for agricultural raw materials, price premiums for raw materials for GI production are very limited or absent in the majority of cases. As far as producers of final products are concerned, in most cases the gross margin for final GI products is higher than that for standard products, while for farmers supplying agricultural raw materials, the situation is not conclusive (ARETE, 2013)[22]. Producers may adopt the quality schemes for different reasons, and also in absence of the benefits on prices and margins. They want a GI status for accessing specific market outlets, disposing of a "promotional tool" for standard production. It happens that, whereas production mostly takes place according to GI specifications, only a limited share of it is actually marketed under the GI name with the GI logo (ARETE, 2013).

Ethical - Fostering transparency and consumers' awareness on quality of food.

PDOs, PGIs, TSGs entail adherence to strict product specifications and effective controls on production that are necessary to underpin the credibility of the schemes and provide consumers with an effective guarantee of compliance. Without that guarantee, the consumer cannot be expected to pay a fair price for the quality products offered. The 2014 Eurobarometer survey confirms the results of the 2012 previous Eurobarometer survey and says that only a minority of EU citizens recognize logos of EU food quality assurance schemes. Moreover, specific awareness varies between Member States (highest 30 per cent of respondents in Italy, while lowest 2 per cent of respondents in the Netherlands recognize the PDO label). Academics have been challenged to assess consumer reaction to EU quality labels since their introduction, see Grunert and Aachmann (2015) for a review.

Social - Benefits from quality schemes for "smaller" farmers.

PDOs, PGIs, STGs specifications and controls can be burdensome for smaller producers: impact assessments related to EU quality schemes highlighted the widespread failure of these schemes to attract participation of small-scale producers. Small-scale producers perceive the system as burdensome and expensive. Consequently, the potential of quality schemes and quality products is not fully implemented across the European Union (EU, 2013). Moreover, smaller farmers are usually involved in short chain marketing channels (Kneafsey et al. 2013). A paper by Garavaglia and Mariani (2017) shows that willingness to pay for PDO cured ham in Italy varies based on place of residence: consumers who live in the same area where certified ham is produced (and sold) are willing to pay a lower premium price than consumers living farther away are willing to pay. The message is that the closer consumers live to the area of production of the certified product, the less they refer to extrinsic certification cues.

Consistency with overarching goals

In terms of consistency with all the overarching objectives, the EU quality schemes contribute to achieving economic, ethical, social objectives, with limitations and depending on the context. However some of the overarching objectives are not explicitly considered, namely ecological, health and resilience:

- *Environmental, health and resilience receive only secondary attention in the development of product specifications.*

There is no explicit mention of environmental protection among the specific objectives of the policy. The investigation of the environmental effects of GI protection is still in its infancy. Available evidence shows that land use is potentially affected by PDO and PGI for the following reasons: better environmental stewardship required to preserve the biophysical attributes of the terroir, while some specifications relate to land management practices (e.g., forage production through cattle feeding requirements). The need to maintain *terroir* attributes to qualify for GIs over the long term requires the adoption of

[21] The corresponding standard products were identified as non-GI products from the same class which were the most direct competitor with the GI concerned and preferably produced in the same region.

[22] Among the factors that explain the higher gross margin in GI productions: intrinsic product differentiation; effective marketing strategies and tools, including the use of short market chains; achievement of greater production volumes and/or stronger orientation towards exports; strong supply-chain organization (vertical and horizontal integration/co-ordination within the supply chain; dynamic organizations of GI producers); attention to GI production from policy makers and competent institutions; adequate levels of awareness of, trust in and willingness to pay for GI products among consumers.

sustainable land use practices, as indicated by a study on conservation of extensive land use practices in marginal mountain areas (Lamarque et Lambin, 2015). Belletti et al. (2015) investigate the environmental care exercised by protected GIs in the EU olive-oil sector according to product specifications. A relevant number of product specification include some rules with a potential environmental impact, and environmental sensitivity improves over time, as the PDOs-PGIs more recently registered become 'greener'. In relation to biodiversity Thévenod-Mottet (2010) notes that in some cases, protected GIs hinder genetic erosion when they are based on local plant varieties or animal breeds which would otherwise be replaced with more productive and improved ones, but at the same time success on the market could incite mono-cultural production over more diverse agro-ecologies or might place too much pressure upon limited resources.

Coherence with other policy instruments

PDOs and PGIs and Labelling - Quality schemes are among various types of tools available within the EU policies for food. The following figure distinguishes between certification schemes and labelling and both can be used to show either that a product has met baseline standards or to indicate value-adding qualities beyond baseline standards.
The PDO or PGI status is found to grant better support under Rural Development - Another implication of PDO, PGI schemes concerns the better access to *promotion funds and investment.* For example, participation to fairs can be funded through measures 132 "Supporting farmers who participate in food quality schemes" and 133 "Supporting producer groups for information and promotion activities for products under food quality schemes". GI producers are also granted priority access to investment aids via measures 121 "Modernisation of agricultural holdings" and 123 "Adding value to agricultural and forestry products". Within the framework of the single CMO[23], GI status can help to obtain support for promotion and investments, access to support from co-financed EU programmes (as far as promotion is concerned), and better access to support for promotion and/or investments funded by national or regional governments.
PDOs and PGIs and trade negotiations - GI protection is relevant in relation to trade negotiations, such as EU-Canada Trade agreement CETA, EU-USA TTIP, South Korea trade agreements etc.. Although these product names are protected on the EU market, the EU also wants to have protection for these GIs on international markets. The US is the largest market for the EU's GI products, however concentrated on a few products, such as Grana Padano and Parmigiano Reggiano from Italy. See Chever et a. 2012 and Alan Matthews blog for a clear overview http://capreform.eu/geographical-indications-gis-in-the-us-eu-ttip-negotiations/).

Gaps and missing links

The current quality policy schemes provide opportunities for GI producers (farmers and processors) through the protection of intellectual property rights, as the main reason behind the creation of a GI. This protection provides the legal framework for reacting effectively against attempts of imitation, misuse, use of "GI-sounding" terms, etc. and acts as a tool to prevent these issues. As a consequence, GIs allow for improved visibility to the consumer, often deriving from better access from participation in fairs and access to new markets. Indeed, consumer awareness on the meaning of these instruments should be improved. The explicit recognition of the environmental implications of PDOs and PGIs schemes, constitutes a potential opportunity for policy to foster the transition towards more sustainable food systems.

[23] The policies of the Milk Package (Reg.261/2012) and of the new single CMO (Reg. 1308/2013) strongly rely on indirect tools to strengthen the contractual power of milk producers in the supply chain with the aim of increasing market transparency, promoting the use of contracts between producers and buyers, contributing to more fluid connections along the production chain. Those measures give the Member States the power to make written contracts between farmers and dairy processors mandatory. They allow farmers to negotiate contracts collectively, through producer organizations.

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6. Public Food Procurement

Act.
Directive 2014/24/EU

Description of the instrument

Public procurement concerns the acquisition by means of a public contract of works, supplies or services by one or more contracting authorities from economic operators chosen by those contracting authorities, whether or not the works, supplies or services are intended for a public purpose. The EU public procurement directive 2014/24/EU (public works, supply and service contracts) lays out detailed rules on EU-wide competitive tendering procedures, falling within European thresholds. All contracts must comply with the fundamental rules and principles stemming from the Treaty of Lisbon, namely free movement of goods (Article 34 TFEU), freedom of establishment (Article 49 TFEU), the freedom to provide services (Article 56 TFEU), non-discrimination and equal treatment, transparency, proportionality and mutual recognition.
The EU public procurement directives aim to introduce into national law a minimum body of public procurement rules for the award of public contracts that fall within its scope. Requirements and criteria must be verifiable and should be formulated as Selection criteria[24], Technical specifications[25], Award criteria or Contract performance clauses[26]. In particular at the award stage, the contracting authority evaluates the quality of the tenders and compares costs. Contracts are awarded on the basis of most economically advantageous tender (MEAT). MEAT includes a cost element and a wide range of other factors that may influence the value of a tender from the point of view of the contracting authority, including but not limited to environmental aspects (Buying Green 2016).
Food public procurement relates to both the purchasing of (raw) food and the contracting out of catering services fully or in parts by public bodies. It applies to different settings and venues such as hospitals, care homes, armed forces, prisons, and canteens in governmental buildings and of course education settings including universities and public schools.

Resources allocated

The Public Procurement Directive fixes a set of procedures to be adopted for contract awarding by public authorities, therefore it is not assigned any budget as a policy.

Tools activated

A number of demand based and supply based tools can be activated for making food public procurement more sustainable:

- *Green Public Procurement* (GPP) is defined in the Commission's Communication 400 (2008) "Public procurement for a better environment" as *"…a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured"*[27]. The EU Green Public Procurement criteria currently in force are those of 2008. A

[24]Selection criteria refer to the tenderer, *i.e.*, the company tendering for the contract, and not to the product being procured. It may relate to suitability to pursue the professional activity, economic and financial standing and technical and professional ability.
[25] Technical specifications constitute minimum compliance requirements that must be met by all tenders. It must be linked to the contract's subject matter (the 'subject matter' of a contract is about what good, service or work is intended to be procured). Offers not complying with the technical specifications must be rejected. Technical specifications are not scored for award purposes; they are strictly pass/fail requirements.
[26] Contract performance clauses are used to specify how a contract must be carried out. Compliance with contract performance clauses should be monitored during the execution of the contract, therefore after it has been awarded. It may be linked to penalties or bonuses under the contract in order to ensure compliance.
[27] The Commission recommends setting common green public procurement criteria, encouraging publication of information on life cycle costing of products; increasing certainty about legal possibilities to include environmental criteria in tender

revision is on-going (scheduled for completion by the end of 2017) which takes into account the new Public Procurement Directive 2014/24/EU and may result in substantial changes to the final criteria. GPP is a voluntary instrument, meaning that Member States and public authorities can determine the extent to which they implement it.

- School food standards, food based dietary guidelines, dietary reference values, and nutrient profiling scheme. Most of the guidelines issued in the EU are targeted at schools but many also exist for hospitals, workplace canteens as well as sport clubs and others.
- European code of best practices facilitating access to SMEs public contracts, national and EU legislations.
- *Buying social* is a guide on taking account of social considerations in public procurement. The tool is developed to help public authorities to buy goods and services in a socially responsible way in line with EU rules. It also highlights the contribution public procurement can make to stimulate greater social inclusion.

Impact

Economic - Lack of awareness, political will and lack of expertise to use sustainable public procurement criteria.

Directive 2014/24/EU notes a "*strong trend emerging across Union public procurement markets towards the aggregation of demand by public purchasers, with a view to obtaining economies of scale, including lower prices and transaction costs, and to improving and professionalising procurement management*". This trend appears to take place in the food sector as well. A recent survey among Member States shows that over half of the EU countries have issued guidance on how to apply the national legislation within the context of procuring foods in public settings (DG Santé, 2016). Difficulties in public procurement relate mostly to formulating the food and service requirements so that they are easy to understand and to follow up, yet specific enough to balance sometimes competing demands (e.g., ensure a nutritionally balanced food offer with a low environmental impact in a socially conscious way, see Smith et al. 2016).

The evaluation of the bids and the monitoring of contract performance can be problematic where insufficient or inappropriate resources (including time) are available. Several other obstacles to implementing improved food procurement have been found, for example the take-up of GPP criteria. Stated issues include lack of political support, legal expertise among procurers, co-operation between authorities; and practical tools. Other challenges such as pressure from bigger companies and frequent rotation of those taking decisions have been outlined[28]. Cost and budget constraints have also been brought up as relevant in adopting and implementing the concept of sustainable procurement of foods in different settings. The fear that introducing more specifications would increase costs is an important point, although some experience shows that the cost of implementing more sustainable school meal policies may be limited (e.g. Malmö in Sweden, 2016) Monitoring and evaluation of the food and services offered is another crucial issue: staff needs to be trained to be able to verify compliance and react in such circumstances, and contract performance conditions need to be well throughout in advance to prevent such instances. Having back-up stocks, staff training should be encouraged. Research (OECD, 2012) suggests that not only there is a lack of professionalization in procurement (with it being regarded as an administrative rather than strategic objective), but also that risks and opportunity costs are rarely assessed when using it as a policy lever to support socio-economic and environmental objectives.

Ecological - Low uptake of GPP criteria across Europe.

Public authorities' expenditures in the purchase of goods and services (excluding utilities and defence) constitute approximately 14% of the overall Gross Domestic Product (GDP) in Europe, accounting for roughly 1.8 trillion euro annually (Buying green, 2016).

The Commission's Communication establishing GPP emphasizes the capability that public procurement has to shape production and consumption trends, increase demand for "greener" products and services and provide incentives for companies to develop environmental friendly technologies. Therefore, by

documents; establishing political support for the promotion and implementation of green public procurement through a political target linked to indicators and future monitoring.

[28] The Foodlinks project looked at the promotion and implementation of sustainable food procurement (REF).

choosing to purchase products with lower environmental impacts, public authorities can make an important contribution to reduce the direct environmental impact resulting from their activities. Moreover, by promoting and using GPP, public authorities can provide industry with incentives for developing green technologies and products. This effect can be particularly significant for goods, services that account for a high share of public purchasing combined with the substantial improvement potential for environmental performance: Food and Catering services[29] as one such product group.

In 2011, the Commission directed a study (Renda et al. 2012) with the aim of measuring if its targets had been reached, i.e. that 50% of all public tendering procedures in the EU should be green by 2010. This was the first survey covering all 27 Member States and indicated that on the last contract signed in the period of 2009-2010, only 26% of the contracts were green, therefore well below the target[30]. The study also shows that GPP uptake varies significantly within the EU and that green criteria are used in a greater quantity for certain sectors compared to others (e.g. the transport sector meets the 50% target set at the EU level, while the furniture, textiles, food and catering services, and construction sector lag behind). Perera (2012) notes that proliferation of standards, claims and labels in the green product marketplace has exacerbated confusion amongst procurement officers.

Social - Social impacts are less measurable. School food schemes have positive impacts on social exclusion and food and nutrition security.

In a review of GPP/ SPP in nine EU member states plus Norway, Evans et al. (2010) found that all case study countries cite the use of environmental life cycle assessment (LCA) (where available) as part of their public procurement strategies but social criteria were not that well established. One explanation for why there has been less integration and implementation of social and economic impacts in public procurement tenders and contracts is that the development of methods and techniques to measure environmental impacts is more advanced and they are quantifiable.

The public procurement of foods has other social benefits. While less relevant for the majority of European children – although it should be noted that in 2015, around 119 million people, or 23.7% of the population, in the EU were at risk of poverty or social exclusion – this process can also have a positive impact on food security. Food insecurity and undernourishment are associated with lower learning and feeding programmes in deprived areas benefit school performance. For example, disadvantaged students that were fed at school attended school more frequently and had positive educational and cognitive outcomes (DG Sante, 2016, pp.33).

Health - Improving nutritional quality of meals improves health.

The implementation of a food procurement process that is health sensitive improves the nutritional quality of the food service, is linked with increased markers of healthy eating in children and has a major role in bringing about dietary behavioural change. In both England and Scotland, the implementation of healthier school food increased the provision of fruit and vegetables and reduced the purchasing of processed foods, eventually resulting in higher fruit and vegetable consumption and reducing the intakes of critical nutrients (saturated fat, sugars, salt) and overall energy (as reviewed by Niebylski et al. 2015). Various studies in US schools noted similar improvements in food and nutrient intakes upon improvement of food provision in school canteens and cafeterias. Despite the existence of school food standards these remain in practice and in many cases not fully implemented.

Consistency with overarching goals

Public procurement is an integral part of a more sustainable food systems as it affects all sustainability dimensions and can be used to pursue all overarching objectives.

Coherence with other policy instruments

[29] The Commission has identified ten priority sectors for GPP: construction; food and catering services; transport; energy; office machinery and computers; clothing and other textiles; paper and printing services; furniture; cleaning products and services; equipment used in the health sector.

[30] Nonetheless 55% of the last contracts signed contained at least one core GPP criteria. Moreover, 38% of the total value procured included some form of GPP criteria.

The green public procurement criteria have been based on criteria used in the granting of the European Eco-label, in particular, or, in the absence of a European label, national ecolabels and are the result of cooperation between the Commission and a group of experts made up of representatives from Member States (see http://ec.europa.eu/environment/gpp/eu_related_en.htm

Gaps and missing links

Public procurement can stimulate innovation in different ways. In the case of foods for health, the demand created for foods and drinks with healthier profiles has helped drive the food industry to reformulate products towards lower fat (trans, saturated and total), salt and sugars content as well as increased use of fibre and wholegrain ingredients. Education sector plays a central role in shaping and driving demand towards more sustainable habits and food environment.
The market volume related to meeting the needs of public catering can drive demand in a manner that niche products become mass market, thus impacting availability and price, reducing the risk for companies to invest in research and innovation by adding further healthier products to their portfolio and marketing. Once a relevant fraction of the market is affected, then global and more sustainable shifts can take place (such as consumers' acceptance of and preference for whole grains and less sweet or salty products). Food companies may also be pushed into nutrition and health activities specifically related to food product improvement on the grounds that such actions reflect a high level of corporate social responsibility. Innovation applies equally to the food service. For example, caterers may develop new and improved means of preparing or delivering quality foods based on new and potentially more resource-efficient technologies.
A growing body of literature on cities as environmental leaders is emerging alongside research that identifies local governments as key players for 'greening' public procurement. From a political point of view, the use of GPP raises the awareness of citizens and demonstrates commitments towards sustainability (Smith et al. 2016). However, there is often a missing link with public procurment policies of cities, which can be the forrunners for sustainable public procurement (e.g. see the case of Organic cities network, https://www.bioecoactual.com/en/2018/02/19/organic-in-every-table/).

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7. European Competition Policy: derogations, decisions and market monitoring actions for the food sector

Act

The main competition rules of the European Union are typically divided into three pillars, all addressed to undertakings:
- Article 101 TFEU lays down the cartel prohibition, which prohibits agreements, decisions and concerted practices which are restrictive to competition;
- Article 102 TFEU prohibits abusive behavior of dominant firms;
- The EC Merger Regulation declares incompatible with the common market concentrations which lead to a dominant position that significantly impedes competition.

Other competition rules are addressed primarily to Member States:
- Article 106(1) TFEU prohibits the enactment of anti-competitive measures by Member States in case of public undertakings and undertakings holding special or exclusive rights;
- Article 107 TFEU declares incompatible with the internal market state aids with an anti-competitive effect; the useful effect (or effect utile) doctrine requires Member States not to require or favor practices contrary to Article 101 or 102 TFEU.

There are also many directives, regulations, guidelines, decisions, recommendations and communications issued by the Commission or the Council which complement and clarify the competition rules:
- Regulation 1/2003 'Regulation on the Implementation of the Rules of Competition in Articles 81 and 82 of the Treaty' (Modernisation Regulation)
- 'Commission notice on immunity from fines and reduction of fines in cartel cases'.

Furthermore, there is a large body of case law of the EU Courts (the European Court of Justice and the General Court) which clarifies and supplements the competition rules.

Description of the instrument

The competition policy of the European Union has been an element of the constituting treaties of the European Union since the Rome Treaty of 1957. Article 3(3) TEU provides: "The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment (...)". Article 3(1) TFEU provides: "The Union shall have exclusive competence in the following areas: (a) customs union (b) the establishing of the competition rules necessary for the functioning of the internal market (...)".

Competition policy ought to be able to monitor and to contrast power excesses in the markets, not least food markets. The competition policy works to reduce distortions to competition within the internal market through merger control, antitrust enforcement, and state aid control.

The goals of competition policy are susceptible to the political thinking of the time and can therefore change over the years. They can be summarised as it follows:
- Protection of consumers, competitors and redistribution of wealth
- Consumer welfare
- Internal market integration

Resources allocated

The Competition policy does not have budgetary implications, with exceptions of resources used by the institutions to guarantee its enforcement.

Tools activated

The enforcement of the EU Competition Policy in the food sector takes place through three main **supply-based tools**:

• Derogations to the general legislation. In principle, agricultural operators are subject to the standard EU rules on competition policy which are set out in Articles 101 to 106 of the Treaty on the Functioning of the European Union. However, there are three exceptions to this standard application of competition law. These apply to agreements, decisions and practices which might restrict competition but (i) which formed part of a national market organisation; (ii) which were necessary for the attainment of CAP objectives or (iii) which were concluded by farmers, farmers' associations, or associations of such associations belonging to a single member state and which covered the production or sale of agricultural products or the use of joint facilities for the storage, treatment or processing of agricultural products, and under which there was no obligation to charge identical prices (ECN, 2012; Matthews, 2014). The Commission was given the sole power (subject to review by the Court of Justice) to determine whether a particular agreement, decision or practice fell within the scope of these exemptions on its own initiative, or at the request of a member state competition authority or at the request of an interested undertaking which was required to notify the Commission before implementing any potentially restrictive agreement.

• Decisions adopted by the Commission with respect to actual cases. They include all the cases in which the intervention of the Commission to judge a situation – both with respect to derogations and to general business behaviors - is required.

• Market monitoring actions. They include sector inquires, market studies, reports or survey which competition authorities often use to improve their knowledge of sectors and to ensure that markets remain competitive. The issues and main aspects on which the National Competition Authorities (NCAs) have concentrated their efforts present significant similarities. For instance, many NCAs have focused to a large extent on the analysis of price formation and price transmission along the different levels of the supply chain (ECN, 2012; Sodano and Vernau, 2014)

Impact

The competition policy is meant to have social impacts, first, and economic impacts, second. By promoting fair completion, it seeks to determine a market where businesses relations are fair. This situation shall, in turn, enhance the possibilities for equal economic opportunities and viability for all businesses, which is one condition of healthy economies. Below it is discussed how the tools to enforce the competition rules in the food markets have been put into use and to which extent they have contributed to generate the foreseen impacts in this specific sector.

As far as the derogations are concerned, there have been limited cases and the system of notification has been rarely used (ECN, 2012; Matthews, 2014). The application of derogations has been significantly curtailed by the restrictive interpretation given by the Commission and the European Court of Justice. Moreover, some National Competition Authorities (NCAs) have also cautioned against the risks resulting from the introduction of exceptions to competition rules as an apparent solution to tackling the structural problems of the European agro-food sector (ECN, 2012; Sodano and Verneau, 2014).

As a result, the first part of the derogations, concerning national market organization, has only been found to apply once. Moreover, this derogation has become obsolete following the progressive introduction of Common Market Organisations (CMOs) at EU level for agricultural products. Also, the second part of the derogation has almost never been used because it requires that all the objectives of the CAP must be fulfilled before it can apply and in practice it has been difficult to show that an agreement meets such a requirement. Finally, with respect to the third part of the derogation, agreements which include non-farmers/farmers' associations, such as processors, or agreements which cover prices cannot benefit from this derogation. Hence, the vast majority of agreements and decisions of farmers and their associations, which cover prices, have not fulfilled the conditions to apply for such derogation (ECN, 2012; Sodano and Verneau, 2014).

The derogation tool has not been enforced enough to allow the efficient functioning of associations of farmers in the form of agricultural cooperatives. In particular, this application of the derogation tool has limited the activity of Producer Organisations and of Inter-Branch Organisations. As a consequence, the production side of the agri-food chain, especially of non-processed products, remains atomised and weak (COM, 2009; ECN, 2012; Sodano and Verneau, 2014).

When looking at the application of the decisions tool, some figures for the period 1990 – 2010 tell the following:
Antitrust - 11 decisions out of 158 were relevant to agrofood sectors; 6 of these are related to proceedings applied under Article 81 paragraph 1 of the EC Treaty and 4 decisions refer to Article 82 on the abuse of dominant positions. Almost two thirds of the cases concerning the food and manufacturing industry are related to beverage industry, beer especially (Sodano and Verneau, 2014).
Cartel – competition authorities have focused on horizontal agreements among competitors, which account for about half of all cases investigated (49%). They have looked at forms of price fixing, market and customer sharing and exchanges of confidential information. They have imposed sanctions in respect of more than 50 cartels (ECN, 2012).
Merger - 299 cases have been examined, representing about 6.5% of total examined cases. The number of served cases has progressively grown over the 2 decades. Comparing the first 3 years (1990–1992) with the last 3 (2008–2010) the per year average of the examined cases increases from 5 to 20. In particular, in 2008 there are 30 notifications of merger proposals. Almost 62%, involve the food processing industry, followed by the beverage industry, accounting for 17%. Overall, the food downstream sectors, distribution (wholesale, retail) and restaurants (food and activities beverage service) occur in 37% of cases, whereas the primary sector (agriculture) occurs in less than 10% of the total sectors. During the 2 decades under consideration, the distribution sector share of the merger cases has grown continuously. From 2001–2010, the data show that overall, the decisions that fall within Article.6 (Regulation EC No 139 2004 of January 20, 2004) are 18. In 12 of the cases, the commission declared the merger compatible with the common market (in accordance with paragraph 1, letter b). Two cases of withdrawal were detected; both occurred during Phase 1 of the investigation process (Sodano and Verneau, 2014).
A reform of the EU competition policy has been carried out in the 1990s, which shifted the policy toward a political conservative attitude pursuing a complete neoliberal market integration (less regulation is better than regulation and market-based solutions are superior to public intervention). The general effect of this shift has been a significant drop in antitrust enforcement and merger control activity. The review of antitrust and merger cases has demonstrated that indeed, also for the food sector, the level of enforcement of competition law in the European Union has been dramatically weak, with no case of merger prohibited (Sodano and Verneau, 2014).

Consistency with overarching goals

The Competition Policy, and its application in the food sector, has focused on, primarily, social and, secondarily, economic goals. The EC antitrust law is not concerned with particular outcomes of contractual negotiations between parties unless such terms would have negative effects on the competitive process, fair businesses relation, equal economic opportunities and, ultimately, consumer welfare. Moreover, the application of the competition rules and of their exemptions has not been completely fulfilled, which reduced the contribution of the competition policy to social and economic goals too. So, the result is the overwhelming power of large agri-food corporations, with direct consequences on economic aspects such as imbalances in bargaining power, asymmetric price transmission, price volatility and the scarce attention given to issues such as the guarantee of decent working conditions (COM, 2009; ECN, 2012; Sodano and Verneau, 2014).
Besides the reduced contribution to claimed social and economic sustainability goals, this application of the competition policy has a moot contribution to resilience goal. Along with the large agri-food businesses continuing to retain their power, the heterogeneity of the agrifood markets, especially the small scale and local ones, have not be expressed at full. Ultimately, in the agrifood industry roughly the same competition rules are applied as in other sectors, notwithstanding the food sector's peculiarities (ECN, 2012; Sodano and Verneau, 2014).
Furthermore, other sustainability goals, such as health, ecological and ethics have been overlooked. The economisation of the competition matter, the focus on the result of economic activities into low prices to consumers and the presumption of associated efficiency obscure the negative effects of mergers and buyer power on an array of conditions that should instead qualify a well-functioning food sector. They include environmental sustainability, healthy and high-quality food affordable also to low-income people,

local rural development, and so on (Sodano and Verneau, 2014).
If the focus of the enforcement mechanisms is on economic issues, economic analysis will guide their application. As long as mainstream economic analysis produces contradictory and short-sighted results on some hot issues, such as buyer power and vertical restraints or the effects of horizontal mergers on bargaining power in vertical relationships, this more economic approach may weaken more than improve the effectiveness of competition policy on tackling environmental externalities of food businesses, public health related issues, food businesses transparency and other issues that are relevant for health, ecology and ethic sustainability goals (Wigger, 2006).

Coherence with other policy instruments

As a basic principle, the competition rules apply to the agriculture sector in its entirety. Certain limited exceptions exist for the sector by virtue of Article 42(1) TFEU. These exceptions stipulate that production and trade rules specific to the agricultural sector will apply according to what defined in the Single Common Market Organisation (CMO) Regulation[31] and Regulation (EC) No 1184/2006[32] which applies to products not covered by the Single CMO Regulation. Hence, the application of the Competition policy to food sector shall always be coherent with the mentioned policy instruments. Regulation on Common Market Organisation showed to not work effectively in strengthening the power of the production side, especially the producers of fresh products. However, the recent reform is moving in this direction and the competition policy's application to the food sector shall be coherent with this move (Matthews, 2014). Moreover, contractual imbalances associated with unequal bargaining power are tackled through policy tools other than competition law instruments, such as, for example, contract law, common agricultural policy, SME policy, or unfair commercial practices laws. Furthermore, the quality policy introduces special rules for the producers of recognised quality products (PDOs, PGIs), especially concerning what they are allowed to do in terms of cooperation and competition among them. There have been several cases in which these producers have claimed more flexibility than what the competition policy allowed and they have not succeeded with their requests (Buccirossi et al, 2002; Lucatelli, 2000) (see boxes below). Hence, there is room for a further harmonisation of the competition policy with the mentioned instruments.

Cases
On the one side, there is the issue that the agrifood sectors is still characterised by high competitive imbalances (e.g. coexistence of multinational companies with oligopolistic or oligopsonistic power and farmers with scarce ability to influence prices and capture marketing gains as well as not competitive downstream markets). On the other side, there are emerging non-strictly economic issues (e.g. food safety, environmental preservation, social fairness) that are not considered in the Competition Policies, which focusses on the economic aspects only (e.g. price-fixing and competitiveness, abusive conducts on the market - exploitation and exclusion - dominant positions on the market, and consumers' protection from all mentioned).
Commission's decisions have influenced the mentioned results by determining the extent of the Competition Policy enforcement. The enforcement of the policy is discussed through some cases that are described in the boxes.

[31] Council Regulation (EC) No 1234/2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation), OJ L 299/1, 16.11.2007.
[32] Council Regulation (EC) 1184/2006 applying certain rules of competition to the production of, and trade in, agricultural products, OJ L 214/7, 4.8.2006.

1. The definition of geographical markets, limited to national or sub-national level, is too narrow compared to the dimension of the agrifood sector. This has brought to agree with excessive degrees of concentration.
Case: M. 1990, Unilever/Bestfoods (2000) (Article 6.2)
Product Markets: Several Food Products
Geographical Dimension: National (several member states)
Cumulated market share: From 35-45% to 90-100%
Competitive assessment: Single dominance
Barriers to entry: Not mentioned
Decision: Authorised with divestment of brands
The case Unilever/Bestfoods is one of the many cases in which the Commission defined more than one hundred markets. In those cases, mergers are thought to be irrelevant with respect to competition because the markets where the firms operate are considered to be significantly different for the way they are defined. When the defined markets are narrow compared to the global dimension of the merging firms, it might seem that there is not overlap between the activities of the merging firms.

2. Use of the divestitures that solve one asymmetry while generating another. Collusion might be facilitated by the selling, from the side of the firms involved in the merger, of well-known brands and production capacities to a third party.
Case: M. 190, Nestlé/Perrier (1992) (Article 8.2)
Product Markets: Source-bottled water
Geographical Dimension: National - France
Cumulated market share: 60%
Competitive assessment: Collective Dominance
Barriers to entry: Logistic Mature Market Advertising
Decision: Authorised with sale of some brands and production capacity
Case: M. 1806, AstraZeneca/Novartis (2000) (New firm Syngenta (Article 8.2)
Product Markets: Several pesticides
Geographical Dimension: National – several member states
Cumulated market share: n.a.
Competitive assessment: Single Dominance, Portfolio effect
Barriers to entry: Regulation patents
Decision: Authorised with sales of brands and termination of agreements
Nestlé/Perrier case is one of those cases concerned firms' behaviour that facilitate tacit coordination. The behaviour has been authorised under the condition that the Nestlé would sell various brands and some water capacity to a third party. A similar dynamic happened in the case AstraZeneca/Novartis merger. The Commission imposed the divestment of many brands as a condition for authorising the merger. In this case, the merger showed a portfolio effect, according to which a firm has a portfolio of leading brands in several product markets and the market power deriving from this portfolio I stronger than the sum of the market power stemming from each single brand.

Gaps and missing links

Interventions can be planned to reform the application in the agrofood sector. These interventions might act on enhancing the current impacts of the policy by countervailing the remaining imbalances among food businesses, the consequent uniqual economic opportunities, the limited attention to the issue of working conditions, the reduced diversity and transparency in the food system. Other interventions might concern environmental and health implications of food business. In turn, this reform would guarantee consumers not just on the affordability of the food products that they buy, as it is now, since other aspects rather than just the economic ones would be considered when judging the conduct of food businesses.

On the one hand intervention should concern the criteria and the assessment techniques used in the judgment of merger and other activities that might restrict competition. Insert more criteria than low prices and efficiency when judging mergers and other activities. These criteria should include other conditions that are relevant to qualify a well-functioning food sector: environmental sustainability, decent working conditions, healthy and high-quality food affordable for people, and local development. Develop analyses that are precise and reliable, besides being inclusive in the criteria of analysis (Sonnino and Verneau, 2014).

On the other hand, interventions might concern a further harmonisation of the competition policy with other policy instruments that supervise the conduct of food businesses, especially small and quality food business. They include the CMO, the quality policy and other CAP measures for small and quality farmers (Matthews, 2014).

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3. Strict interpretation of the regulation with the consequence that exemptions for farmer's agreements are rarely granted. Farmers are forced to act individually and are squeezed between the concentrations in the upstream and downstream markets. Moreover, the possibility to fulfil non-economic goals (e.g. those set by CAP: product safety, traceability, environmental preservation) is reduced.

Case: Competition Council Decision No. 92-D-30, 28 April 1992
Product Markets: Cantal cheese
Geographical Dimension: National – Cantal Area in France
Cumulated market share: n.a.
Competitive assessment: Risk of monopolistic cartel and of obstacle to market entry.
Barriers to entry: Not mentioned
Decision: Plan to place limits on total supply not authorised. This measure, designed to hold down overall supply on the market, limited competition among Cantal cheese producers. It further allocated output among producers. It was not shown that these restrictions were necessary to improve product quality.

Case: Competition Council Decision No. 3999, 19 June 1996
Product Markets: Parma and San Daniele ham
Geographical Dimension: National – Modena province in Italy
Cumulated market share: n.a.
Competitive assessment: Risk of monopolistic cartel and of obstacle to market entry.
Barriers to entry: Not mentioned
Decision: The introduction of an output plan and arrangements for allocating production among members were found to be understandings that restricted competition (contrary to Article 2/1 of Italian Law 287/90 on competition and market supervision). The consortia obtained a two-year extension in order to secure improvements in quality control.

The decisions about the Cantal cheese and the Parma and San Daniele ham are two examples of how competition policy and food quality policy interfere with each other. the authorities found that groups had taken measures to control total supply. In most cases the total annual supply programme was accompanied by a detailed breakdown of output, through quotas allocated to producers. To ensure that producers kept to their quotas, penalty arrangements were in place. Direct price control measures were occasionally found, either in setting price ceilings for purchasing raw materials and or in imposing minimum resale prices on distributors. Such behaviour may be an attempt to exert monopsony or monopoly power. Moreover, the competition authorities observed obstacles to the access of new operators.

8. European policy on tackling unfair trading practices in the business – to – business food supply chain

Act.
COM(2014) 472 COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Tackling unfair trading practices in the business-to-business food supply chain

Description of the instrument

Some 47 million people, many in small businesses, work in the food supply chain, which represents a market of €1.05 trillion. Unfair training practices in the food supply chain are common and particularly harmful for small businesses (European Parliament, 2016).
The communication emphasises the importance of small businesses in the European Union's food supply chain. It does not propose legislation to ensure a level playing field between smaller suppliers and retailers on the one hand and large multinational manufacturers and supermarkets on the other; instead, it suggests a combination of voluntary initiatives and national enforcement measures to prevent unfair trading practices. The goal of the Communication is to contribute to eliminating or reducing unfair practices applied by large retailers and food suppliers against their weaker trading parties (European Commission, 2014).

Resources allocated

There are not budgetary implications for this policy except for paying back the effort of EU institutions responsible for checking and stimulating the implementation of the European promoted principles at a national level (European Commision, 2014).

Tools activated

The communication suggests three supply-based tools. They are presented below.

1. Support for the voluntary supply chain initiative. Launched in September 2013, it promotes voluntary codes of conduct to ensure fair and sustainable commercial relationships.
2. Use of EU-wide good practice principles. A set of principles of good practice has been agreed by all stakeholders in the EU food supply chain. These principles could be the basis for a common understanding of what constitutes fair and sustainable business practices.
3. Ensure effective national enforcement. Minimum enforcement standards throughout the EU would be a credible deterrent against applying unfair practices and help to address the 'fear factor' of the weaker party in a trading relationship.

(European Commission, 2014)

Impact

Economic and Social impact. Increasing fairness and economic opportunities especially for small businesses in the food chain.
Facing UTPs is mostly done through volunteer actions that seek to contribute to improve the position of small businesses in food chain in order to receive fair treatments and, in turn, achieve adequate economic results. All this is meant to have social impacts, first, and economic impacts, later.
On one hand, the Communication encouraged operators in the European food supply chain to participate in voluntary schemes aimed at promoting best practices and reducing UTPs, and emphasised the importance of effective and independent enforcement at national level.
Most Member States have addressed UTPs using a variety of approaches, most of them regulatory, and some based on self-regulatory initiatives among market participants. 15 out of the 20 Member States that already have legislation have introduced it in the last 5 years. Some Member States are still considering

to introduce it. So, the existing legislation are too young and it is not possible to assess them. There are some gaps though that can be identified already:
- Not all legislations cover all the steps of the supply chain. This is important in order to ensure that all smaller market operators have adequate protection from UTPs, as many small market operators do not deal directly with retailers.
- Not all legislation cover cases of UTPs involving operators from non-EU countries.
- The understanding of what can be considered as UTPs is not completely uniform in the different countries and this makes it difficult to apply the legislation transnationally.
- Some member states have adopted a flexible approach, where the assessment of UTPs is conducted case-by-case to understand if there is a significant economic imbalance between two operators. This approach is very time consuming and hard to apply while guarantying to capture a huge variety of UTPs. Other member states have defined detailed practices that can be persecuted because intrinsically unfair. The enforcement of this approach does not require huge resources however it makes it more difficult to take into account the economic and contractual context in each single case with concerns of proportionality. So far, the actual number of investigations into alleged unfair trading practices differs significantly across Member States. Around a third of Member States with public enforcement had no cases in the last few years; another third just investigated a few cases; and the remaining third dealt with dozens or even more.
(European Commission, 2016)
The Supply Chain Initiative (SCI) is the other volunteer tool that the Communication supported to tackle UTPs. It was developed within the framework of the Commission's High Level Forum for a Better Functioning Food Supply Chain. The aim of the initiative is to increase fairness in commercial relations along the food supply chain.
- The SCI is managed by a Governance Group representing retailers and suppliers in the food supply chain. Farmers' representatives decided not to join the SCI since in their view it does not ensure sufficient confidentiality for complaining parties and does not provide for independent investigations and sanctions. SMEs are also underrepresented.
- A general low awareness and trust of the SCI is witnessed among the operators of the food chain.
- Moreover, the SCI does not provide for any other type of sanction but the exclusion from the SCI. Some external stakeholders expressed doubts, in particular regarding the governance structure of the SCI. The fact that the members of the Governance Group represent stakeholder groups may be seen as restricting their impartiality. The SCI's internal monitoring system is based mainly on annual member surveys. This approach does not provide for spot checks or allow the actual implementation of member companies' commitments to the process to be monitored in a systematic way. Furthermore, information on bilateral disputes and how they were resolved under the SCI is based on survey responses and may therefore be incomplete. Some of the dispute resolution options promoted by the SCI have not yet been used in practice. Use of the available dispute resolution options has only been limited in the first two years of the SCI.
(European Commission, 2016)

Consistency with overarching goals

The policy mostly contributes to the economic and social dimensions of sustainability and on the production and market components of the food system. The idea behind it is that by improving the fairness of business practices economic opportunities will arise, even small businesses. However, the contribution to the economic and social goal is limited by a weak enforcement of general fairness principles.
Although the situation varies across countries, the viability, profitability, competitiveness, and fairness of food businesses is reduced by persisting UTPs that reduce the fairness of relations in the food system and accountability and responsibility of food chain actors. Farmers, hence the production component of the food system, are the most negatively impacted actors. They remain the most vulnerable link in the food supply chain despite multiple efforts to change this, and that this fact is especially obvious in times of crisis in the agricultural markets.

Other sustainability goals, such as health, ecological, ethics and resilience, are not explicitly considered. The ethical and resilience dimensions of sustainability might result from a full enforcement of the tools to tackle UTPs. Encouraging food business to disclose their practices and undertake fair ones would contribute to promoting responsibility among food chain actors and fostering transparency in the food chain. On the other hand, resilience might benefit from the fact that many different food actors, including small ones, would gain a viable condition in the food chain thanks to fairer treatments. Diversity of actors means also diversity of food systems and complementary resources to face changes.
As far as the consistency with health and ecological goals is concerned, contributing to them would imply to define the criteria for the identification of UTPs in a way that heath and ecological aspects are taken into consideration.

Coherence with other policy instruments

There is no EU legislation targeting business-to-business UTPs across the food supply chain. A possible way out from the volunteer system might be to bridge, or inspire, the current UTPs policy with the EU competition law. It addresses abuses of a dominant position and anti-competitive practices, but most reported UTPs do not fall under competition law because most actors are in a strong, but not dominant position. The two policies might learn from each other in the matter of protecting small farmer's position by increasing legal clarity for a better use of the agriculture-specific derogations from competition law by producers' organization, including cooperatives, while respecting existing cooperative structures[33].
A further support for small food businesses might come from the current Common Agricultural Policy as far as it provides some instruments for strengthening the position of small farmers. It includes tools such as promoting organization of, and cooperation between, farmers across the EU, supporting producers' organization and vertical cooperation within the food chain in inter-branch organizations.
Another possible bridge is with the Directive 2005/29/EC on unfair commercial practices or Directive 93/13/EEC on unfair terms in consumer contracts. Some Member States have already extended the application of the EU consumer protection legislation to business-to-business situations. This bridge would allow to take into consideration the consumer side that is currently not considered in the business – to – business UTPs policy (AIM et al, 2013).
In order to consider the health and ecological dimensions of sustainability, which are currently overlooked, bridge might be created with environmental and food quality policies to get inspiration for the kind of standards that need to be followed by fair businesses practices.

Gaps and missing links

The Communication on UTPs has open the way for fairer and more viable food chains, also for small food business, through some volunteer instruments aiming at tackling UTPs. This in turn might have positive implications on the transparency and resilience of the food systems with consequent benefits for consumers. They might have access to more, clearer and more trustable information as well as to more food provision options. Further benefits to consumers, and citizen in general, might derive if ecological and health issues will be considered among the criteria to detect fair businesses practices. However, there still some aspects to be dealt with to enhance the contribution to enabling food environments deriving from the UTPs policy. They have to mostly do with improving the application of the existing tools.
The Commission shall take steps to ensure effective enforcement mechanisms for what are now volunteer tools. One possible intervention can be on the suit mechanisms that are now limited in their use because protection, especially of small businesses, is not guaranteed when suing powerful actors. The development and coordination of a network of mutually recognised national authorities at EU level would help as well as voluntary actions, at the level of the Member States, ensuring that complaints can be lodged anonymously and establishing dissuasive penalties (Council of the European Union, 2016).
Some other actions have been already taken by the Commission aimed at improving the farmers' position in the food supply chain, in particular the establishment of the High Level Forum for a Better Functioning Food Supply Chain, the Agricultural Markets Task Force. Some monitoring platforms have been

[33] See the box on Competition Policy for further explanation.

established such as the Milk Market Observatory and Meat Market Observatory, and the European Food Prices Monitoring Tool. However, extending such monitoring to all levels of the chain, and not only at farm gate, on a selected number of products, commodities and inputs would bring a clear added value in helping farmers to adapt properly to market signals, while respecting the principles of confidentiality, fair competition and keeping administrative costs to the minimum (European Commission, 2016).
Still on the condition of small food businesses, SCI shall be open to farmers by defining more inclusive principles and making it more effective in sanctioning and protecting from retaliation. Also awareness and trust should be raised on the initiative. Trust might be increased, not least, by changing the structure of the governance group and the monitoring system (Council of the European Union, 2016; European Parliament, 2016).
At the level of the Member States it is needed to define legislation that cover the full chain. Moreover, it shall include non-European supply chain operators. Furthermore, member States should exchange information and best practices concerning their national legislation and experience of enforcement in a coordinated and systematic way. Member States should ensure their laws can be enforced while being comprehensive of all the possible UTPs (European Commission, 2016).

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European Commission COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

9. General Food Law

Acts

- Regulation (EC) No 178/2002.
- White Paper on Food Safety

After the creation of the General Food Law, whole packages of new legislation followed:

- The need for the harmonisation of food hygiene requirements led to the adoption of the "hygiene package" and the HACCP system (Reg. 852/2004), as well as of specific hygiene rules applicable to products of animal origin (Reg. 853/2004).
- Regulations 1829/2003 and 1830/2003: GMO package
- Regulation 882/2004 Official controls
- Regulation 1935/2004 Food contact materials
- Allergen labelling requirements included in Directive 2000/13.
- Regulation 1924/2006 Nutrition and health claims
- White Paper A Strategy for Europe on Nutrition, Overweight and Obesity related health issues
- Regulations 1331–1334/2008: Food Improvement Agents Package (FIAP); additives, flavourings and enzymes
- Regulation 1169/2011 Food information to consumers

Description of the instruments

The BSE crisis and other food scares in the 1990s brought to light serious shortcomings in the body of European food law existing at that time. This led to a fundamental reform: in January 2000, the European Commission announced its vision for the future development of European food law in a "White Paper on Food Safety". It emphasised the Commission's intent to change its focus in the area of food law from the development of a common market (i.e. mutual recognition principle established after the "Cassis de Dijon" case) to assuring high levels of food safety. With the White Paper, the Commission aimed to restore and maintain consumer confidence by encouraging a review of food legislation in order to make it more coherent, comprehensive and up-to-date, and to strengthen enforcement.

Regulation (EC) N° 178/2002, so-called General Food Law Regulation, was adopted in 2002. The General Food Law Regulation is the foundation of food and feed law: it sets outs an overarching framework for the development of food and feed legislation both at Union and national levels. It lays down general principles, requirements and procedures that underpin decision making in matters of food and feed safety, covering all stages of food and feed production and distribution (Van der Meulen, 2013). It entered fully into force in 2005 but existing national and Union food principles and procedures had to be adapted at the latest by January 2007 to comply with the general principles (Articles 5 to 10) of the Regulation.

The main objective of the General Food Law is to secure a high level of protection of public health and consumer interests with regard to food products. Following the 'farm- to-fork' approach, the whole food chain must be included in food safety policy. Food business operators bear the main responsibility for ensuring that only safe food is placed on the market. The Member States are responsible for checking that food business operators fulfil the requirements of food law, through their system of official controls. The following figure summarizes the structure of the General Food Law.

Articles 43 (common agricultural policy and common fisheries policy), 114 (approximation of laws of the Member States), 168 (public health protection) and 169 (consumer protection) of the Treaty on the Functioning of the European Union constitute the legal basis for EU general food law. In addition, Articles 191 (environmental protection and precautionary principle) and 207 (common commercial policy based on uniform principles) are relevant primary law provisions related to food law.

As part of its Better Regulation agenda, the European Commission is currently finalising the fitness check for the General Food Law. The review will assess the key components of the founding act for current EU food chain legislation, including its principles, the rules of crisis management and the rules governing the set-up and functioning of the European Food Safety Authority (EFSA). The publication of a Commission staff working document on the results of the fitness check is expected in the course of 2017. In addition to the fitness check of the General Food Law Regulation, other evaluations and initiatives are ongoing in the food safety area, as outlined in an In-Depth Study by European Parliamentary Research Service (see

http://www.europarl.europa.eu/RegData/etudes/IDAN/2017/595906/EPRS_IDA(2017)595906_EN.pdf).

Tools activated

- Traceability of food, feed and intended animals.
- Withdraw food and feed from the market or recall the products already supplied, in case they are considered harmful to health.
- Obligation to inform the competent authorities and consumers.
- European Food Safety Authority (EFSA): independent agency, whose tasks include providing scientific advice, assessing risks and identifying emerging risks, as well as collecting data on, for example, food consumption patterns, contaminants and residues in food.
- Rapid Alert System for Food and Feed (RASFF): procedures and tools for crisis management.

Resources allocated

In the last 10 years, the EU has spent € 3.3 billion on its food safety policy, including € 2.2 billion on specific programmes. EFSA became operational in 2003. It grew rapidly (budget increased from €10.3 Million in 2003 to a stable budget of around €79 Million and its staff increased from 72 in 2003 to 445 in 2014 (74% being allocated to operational activities and 26% to support activities). The significant size of EFSA's budget and staff was conceived to cope with the reform of the EU food safety system (White Paper) to take place but it also created a perception that EFSA was "big enough" to manage any new tasks however complex and time-consuming.

Impact

Until today, a comprehensive assessment of the General Food Law has not taken place. The Fitness Check on the General Food Law Regulation will take into account previous evaluations already performed in the area of food and feed and the results of two external studies that have been commissioned to support the Fitness check. Here we report the preliminary findings publicly available:

External study on the general part of General Food Law Regulation (Articles 1-21). Findings of the external study on the general part of the GFL Regulation (Articles 1-21). See here for an overview:
https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_expg_20150916_pres-01.pdf

External study on the RASFF and the management of emergencies/crises (Articles 50 to 57). See here for an overview:
https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_expg_20150916_pres-02.pdf and
https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_expg_20150916_pres-03.pdf .

In relation to EFSA Fitness Check results, see here for an overview:
https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_expg_20150916_pres-04.pdf

According to the preliminary findings available from AGRA CEAS, in charge of developing the Fitness check of the General Food Law, and reported during the Expert Group on General Food Law in Sept. 2015 (https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_expg_20150916_sum.pdf),
"t*he GFL Regulation as such has achieved its core objectives, i.e. high level of protection of human health and the effective functioning of the internal market. The achievement of the core objectives has contributed to the competitiveness of the food/feed sector. In addition, GFL ensures the competitiveness of the food/feed sector as it provides principles and flexibility rather than prescriptive provisions, which can be tailored to fit the operational context of individual businesses. As such, no systemic failures resulting from the provisions of the General Food Law Regulation have been identified.*

The shortcomings unearthed do not relate directly with the provisions of the Regulation. They mostly concern the enforcement/application of the rules by the Member States as well as the application of the main principles of GFL in certain secondary legislation (e.g. risk analysis/diversity of authorisation procedures, application of legitimate factors, deadlines foreseen etc.) and/or lack of full harmonisation in some of those areas, e.g. food contact materials, food supplements, etc."

Economic - Cost and benefits: burden for smaller farms and processors, particularly related to HACCP (Taylor, 2001).
EU legislation (The Hygiene Package) includes provisions for the flexible application of requirements in Small and Medium Enterprises, as key players in the food sector, especially in rural areas. These flexibility measures can only be applied when the objectives of the legislation are fully met and therefore food safety is not compromised. The application of these measures can have an immediate and positive effect on the competitiveness and employment potential of SMEs.
The Food and Veterinary Office carried out a series of visits to evaluate the implementation of flexibility rules in small establishments and an overview report was published in 2010. The report concludes that there was an uneven implementation of flexibility across the different Member States (MS). Some MS had been very proactive in this area while others had not provided the framework for SMEs to avail of flexibility possibilities (source: http://ec.europa.eu/food/audits-analysis/overview_reports/details.cfm?rep_id=15).
Health - Health objective is central to the General Food Law. Among the main objectives of EU food law, there is "to guarantee a high level of protection of human life and health and the protection of consumers' interests, while at the same time ensuring free movement of food and feed in the internal market". Critical to achieving this objective is "risk analysis", composed of "risk assessment, risk management and risk communication".
Risks derived from exposure to hazards and risks derived from chemical contaminants and undesirable substances in food
A clear priority has been attributed in the European Union to the control of risks possibly associated with chemical contaminants in food and undesirable substances in feed. There is a "continuous call for data" procedure system in place at EFSA to make possible the exposure assessment of specific contaminants and undesirable substances. Risk assessment of contaminants in food and undesirable substances in feed is carried currently in the European Union by the CONTAM Panel of EFSA according to defined methodologies and in collaboration with international organizations and with Member States, according to yearly planning.
Social - Social concerns and risk assessment.
Current food safety regulation includes that of ''risk assessment" among its core principles. In many instances, however, individuals, social groups, and different cultures will also link wider concerns, expectations and benefits to a given food safety issue, especially if the risks associated with food safety issues are persistent, uncertain and undetectable and/or if the product, process or practice under consideration is linked to a wider "value based" debate. For example, the introduction of a controversial new food technology (Dreyer et al. 2009). The work by Dreyer and colleagues (2009) advocates a food safety governance approach that utilises a ''social impact assessment" framework to scientifically explore social concerns and perceptions. They highlight the role that concern assessment, defined as a structured and systematic inclusion of (also wider) social concerns into risk governance, could play in food safety governance.
Ecological - Ecological objectives are not the primary core of the General Food Law; however they are closely linked to food safety for human consumption, in several points of the law.
Firstly, they are explicitly mentioned in art. 191 (environmental protection and precautionary principle) of the TFEU.
Secondly, Reg. 178/2002 states that, "In case of an emergency, when a food or feed presents a serious risk to human health, animal health or the environment, the Commission can – on its own initiative or at the request of a Member State – put in place protective measures. These can include suspension of the placing on the market of products, suspension of imports of a product, laying down special conditions for the food or feed in question, or any other appropriate interim measures. The Commission must consult PAFF before taking such measures (Article 53 of the regulation).

Thirdly, EFSA's core tasks are to provide EU risk managers with independent, up-to-date scientific advice on questions related to food and feed safety, animal health and welfare, plant health, nutrition, and environmental issues related to these. For example, the "Risks derived from chemical contaminants and undesirable substances in the environment (air, water)".
Ethical - Current debate on glyphosate and reliability of the science-policy interface
Communication difficulties arise when recognized scientific expert organizations assess the potential health effects of a substance that is of particular interest to the public and announce completely different conclusions. This occurred recently with glyphosate, the most widely used herbicide in the world. The International Agency for Research on Cancer (IARC), an arm of the World Health Organization, prepared a monograph on glyphosate and glyphosate-based formulations, which concluded that glyphosate was a Group 2A substance, and thus, is probably carcinogenic to humans. The IARC assessment (announced in 2015) triggered a thorough re-evaluation of glyphosate by the European Union's EFSA which in contrast, concluded that glyphosate is unlikely to be carcinogenic in humans and, thus, did not require a cancer classification. This controversy has spilled over into the regulatory and scientific literature and has resulted in several communications between representatives supporting IARC and EFSA defending their respective conclusions (DeSesso et al. 2017).

Consistency with overarching policy goals

The General Food Law is central to all overarching goals considered, with priority given to the health, economic dimensions, and less directly to the social environmental dimensions.

Coherence with other policy instruments

While the protection of the life and health and other interests of consumers is the main objective of food law, EU food legislation does not provide consumers with any specific rights or remedies. Consumers that want to take legal action must rely on general consumer protection law such as product liability legislation. Consumer law has created an instrument meant to support the consumer in tort cases in their dealings with producers of defective products, called product liability law. The rules on product liability have been harmonised in the European Union by Directive 85/374, which lays down the principle of strict liability of the producer, which means that a producer may be held responsible for a damage caused by a defective product s/he has put on the market even in the absence of fault. (Van der Meulen, 2013).

Gaps and missing links

One of the major topics to be discussed in the context of the fitness check of the General Food Law Regulation is the evaluation of the current pre-market authorisation process for certain products, such as pesticides, genetically modified organisms (GMOs) and novel foods.
One issue linked to the previous one is the growing mistrust of citizens towards the EU's science-based systems, such as the pre-market authorisation system used for approval of certain products
(see speech by Commissioner Andriukaitis here: https://ec.europa.eu/commission/commissioners/2014-2019/andriukaitis/announcements/eu-food-law-conference-future-eu-food-law-brussels-15-november-2016_en
Novel foodstuffs represent a challenge for food law as they need proper safety assessments before obtaining market permission. The case of edible insects and European law is a good representation of this issue because a selection of food grade insect species may be available on the European market in the coming years. However, European legislation does not explicitly address edible insects. Consequently, this has left a grey area, allowing different interpretations of the legislation among Member States (Belluco et l. 2917).
Introduction of national plans for food product improvement. The Council of the European Union, at its June meeting in 2016, adopted conclusions on food product improvement, recalling the importance of reducing levels of salt, saturated fat, trans-fatty acids, added sugar and the energy density of food, given the role these play in the development of non-communicable diseases, weight problems and obesity.

New research into the date-marking of food products, such as 'use-by' and 'best- by' marking, has been announced as one priority, relevant for reducing food waste.
Another aim is to come up with EU guidelines on food donation, to clarify the rules and responsibilities under which unsold food can be given to charitable organisations or food banks.
EFSA and the European Chemicals Agency (ECHA) recently announced that they are developing scientific guidance to enable identification of endocrine disruptors.
Discussion is also continuing on a Commission Regulation on reducing the presence of acrylamide in food, expected to be published soon.

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