Market Transparency in Food Supply Chain: Goals, Means, Limits

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### Abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>DG-AGRI</td>
<td>European Commission's Directorate-General for Agriculture and Rural Development</td>
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<td>EC</td>
<td>European Commission</td>
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<td>EU</td>
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<td>CR4</td>
<td>Concentration ratio</td>
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<td>JRC</td>
<td>Joint Research Centre</td>
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<td>MS</td>
<td>Member State(s)</td>
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<td>MPR</td>
<td>Mandatory Price Reporting</td>
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<td>PDO</td>
<td>Protected designation of origin</td>
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<td>POs</td>
<td>Producer Organisations recognised under the Milk Package Regulation</td>
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<td>USA</td>
<td>United States of America</td>
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<td>USDA</td>
<td>United States Department of Agriculture</td>
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<td>UTPs</td>
<td>Unfair trading practices</td>
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<td>VPR</td>
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Market Transparency in Food Supply Chain: Goals, Means, Limits

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1. INTRODUCTION

Market transparency has long been and remains a major concern when it comes to qualifying the efficiency of markets. In agriculture, the increasingly complex food chains and the related multiplication of intermediate links make this issue highly sensitive, particularly among producers and policy-makers. Recent reports and discussions in the European Union about potential Unfair Trading Practices (e.g., AMTF, 2016; Falkowski et al., 2017; EC, 2018) pointed out the risk that some parties may take unjustified advantages of opacity in these organizational arrangements. Market transparency also raises other important issues, inter alia the capacity of analysis by operators for a better planning of their investment and production decisions, by policy-makers for designing appropriate policy responses, and by researchers for a better understanding of market developments and more appropriate assessment of policy designs.

Responding to these concerns, a workshop was held in Brussels on May 30-31, 2018, with the assignment “to assess the scope and nature of possible EU action aimed at improving the functioning of sectoral food chains through increased market transparency.” The dense presentations and debates of these two days, with participation of a diversified crowd of operators, members of the academia, and policy-makers suggested that beyond some clear benefits to be expected of more transparency the difficulties and costs of extending the scope of information required and possible drawbacks of more transparency should also be taken into consideration. Participants thus raised the challenging question: up to what point should resources be devoted to increase market transparency?

The background that motivated these discussions is twofold. On the one hand there is the coming revision of the European ‘Common Agricultural Policy’. On the other hand, there are problems to which the ongoing policy has been confronted over the recent years, with the development of complex supply chain systems paired with significant price volatility, at least for some agricultural products, as illustrated in many contributions to the workshop. Variations in the price for milk deliveries provide a vivid and politically sensitive example of the amplitude of these variations, with significant divergences about how to interpret … and correct these variations.

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1 This paper is based on the presentations and discussions at this workshop. Names followed by a number in brackets refer to the slides delivered by the contributors and listed at the end of this paper in the order of their presentation. Quotations from these slides are indicated as such. I would like to thank Bruno Buffaria, Pavel Ciaian, Germain Gaudin, Federica di Marcantoni, and two anonymous referees from the DG AGRI for their very useful comments on a first draft of this report. The usual disclaimer fully applies.
Bicknell (10) went even further, showing that the price cycle for Britain dairy milk has evolved towards increased volatility, more exactly larger fluctuations, over the last ten years.

And McCorriston (4) reinforced these examples with the case of cereals and related products.

Of course, price volatility is not a novel concern in the agri-food sector. It has long been observed and discussed (see already Coase and Fowler (1935) on the pig-cycle) and has been at the origin of many different policies, from the creation of marketing boards in the 1930s to the recent reliance on a contractual approach. With the development of supply
chain systems, part of the explanation has turned to the opacity that would result from these organizational arrangements and the room it would open to unfair trading practices (Falkowski et al., 2017).

It is in this context that market transparency is promoted as the appropriate answer to volatility as well as to unfair trading practices. However, ‘market transparency’ can also be a catch-all expression diverting attention from other factors or even creating problems of its own. Introducing preliminary results of an open public consultation and notwithstanding the acknowledged limits of the exercise, Marcelo Lima (0) captured facets of this ambiguity. The consultation confirmed a strong demand for more transparency among actors of the civil society and the agricultural sector. This is a powerful signal, even more so since responses from respondents involved in farming converged with those not involved. At the same time, much less enthusiasm was expressed by retailers and respondents from the agri-food industry. Arguments on both sides were developed during the workshop and deserve consideration.

Ambiguities also showed up through questions about what to expect from transparency, with compatibility, completeness, accuracy and timeliness of information being the most valued items, although not necessarily easy to combine. There was even more dramatic polarization of answers, for example to the question of whether there should be “an EU-level obligation for operators along the supply chain to report on prices.” Although the vast majority of respondents supported this proposition, none of the participating retailers agreed. The same gap was observable in answers to a question regarding more specifically transparency in prices. These discrepancies need careful interpretation, because they show that ‘market transparency’ is not always obvious in both its content and modalities.

Bruno Buffaria and Tassos Haniotis delivered introductory remarks that clearly set the stage for the analysis of these paradoxes and puzzles. They identified four questions that should be considered when promoting ‘market transparency’: (1) **What** is Market Transparency? (2) **Why** to target Market Transparency? (3) **How** to improve Market Transparency? (4) **Which** impact can be expected from Market Transparency? In what follows, I summarize and discuss the contributions and debates that animated the workshop along these very central questions. Section 2 discusses the complex items enclosed in the idea of ‘market transparency’. Section 3 examines different motivations for and potential beneficiaries from more market transparency. Section 4 points out some costs of extending the set of information needed to improve market transparency and considers alternative ways to collect and diffuse such information. Section 5 looks at the possible impact of more transparency and the potential role of new technologies in that respect. Section 6 concludes with a view at some recommendations that can be drawn for policy-makers facing the challenges raised by the target of more transparent markets.
2. WHAT IS MARKET TRANSPARENCY ABOUT?

‘Market transparency’ can be a catch-all expression. It may refer to so many issues that the expression becomes a stereotype, concealing the exact nature of problems at stake. As Hanrahan (11) ironized, citing the otherwise very stimulating *Agricultural Markets Task Force* report (2016), market transparency refers to the “Availability of relevant market information to market participants,” which sounds quite tautological. A short review of the dimensions of ‘market transparency’ pointed out through the presentations and discussions of the workshop already suggests the richness and complexity of the issues debated.

2.1: General idea: the complexity of market arrangements matters

In the public consultation initiated by the DG-AGRI, the following definition was submitted to the potential respondents: “For the purpose of this questionnaire, market transparency refers to the public availability of relevant information (prices in particular, but also weather, production, trade, consumption and utilisation, stocks, costs) for all market participants throughout the food supply chain.” (Lima, 0)

This is quite a broad definition. Actually, in most documents on market transparency as well as in the DG questionnaire and in many presentations to the workshop, the standard economic approach tends to prevail, with ‘transparency’ largely identified to the key role of price as carrier of the strategic information needed by participants to the market.

However, the very concept of market encompasses more dimensions. Markets are about transactions and the modalities of organizing them. In that respect, knowing these modalities (e.g., market structures, arrangements like supply chains) as well as the institutional factors influencing these modalities (e.g., agricultural policies) are crucial information. A potential obstacle to transparency is that the full completion of a transaction often requires going through different steps involving different organizational modalities. For example, Brooks (1) remarked that information available on agricultural markets make them relatively transparent because they are highly competitive while food markets are much less transparent because they are markets with high concentration ratio and involve information along intermediate steps of the supply chain that remain into private hands and are hardly accessible.

The case of the Poland market for pig developed by Latkowska (7) illustrates well this point. Reviewing the information collected on that market, she noted that notwithstanding a strong demand for information on price transmission/transformation along the supply chain, this demand is very difficult to satisfy. Looking at the Irish beef market, Hanrahan (11) pushed further the examination of the obstacles to transparency coming out of the existence of different nodes along the supply chain through which a transaction is processed. He pointed out that we need to take into account different and well-identifiable market ‘steps’, from cattle raising to retail and food markets and/or export markets. And he emphasized that quite detailed and frequently updated “information” is available on the physical characteristics and prices of beef at the farm/cattle market(s) level, while there are much less public data available at the retail level, with information basically limited to prices, and with even less data on processing/wholesale supply chain stages. In other terms, there are large discrepancies for “Differing levels of market information available to market participants at different sub-markets”.

The increasing scarcity of data on volume and costs when we move down the intermediate steps of the supply chain is an observation made by numerous participants. It concurs with the *Agricultural Markets Task Force* report (2016), which pinpointed the poor information available at the meat processing/wholesale and retail market levels, an issue also raised by Gardebroek (12) in his overview of data collection in the food sector.

A first message can be drawn from these indications:
**Message # 1:** The quality and density of information available varies quite significantly depending on the stages along the supply chains, and is particularly scarce when it comes to the intermediate nodes (or steps) between the polar stages of farming and end-retailing.

Discussions largely supported the view that more information is needed throughout the different steps along supply chains.

**2.2: What is transparency about?**

Like the notion of ‘market’, the idea of transparency is all but... transparent! Economists and, by contiguity, policy-makers now ritually tend to identify transparency with the availability of information on prices in market transactions. This approach goes back to the famous paper from Hayek (1945) according to which the comparative advantage of market economies lies precisely on the availability of information carried through prices. Prices would reveal the preferences of users, thus sending appropriate signals to suppliers so they can meet the resulting demand. However, there are many problems underlying this apparently simple statement. Beside the question of whether knowing prices is enough (see section 2.3), there are conditions for prices to play their role as vector of transparency: the information they carry must be available, reliable, and... useful

**Availability** of information is a key condition for the efficient running of market economies, and it has been at the centre of attention of analysts as well as policy-makers. Collecting, ordering and diffusing information is central for the price mechanism to fully play its function, providing support to the fluidity of transactions. However, an important issue discussed in the workshop (see 2.3) is: what information must be available? Made available to whom? And what level of details is required?

Of course, availability is not enough. When we talk about availability we implicitly assume that information thus collected is **reliable**. However, fulfilling this condition is not obvious: it has been a major source of complaint from different parties to the increasingly complex (and often opaque) organization of transactions in supply chain systems. A previous workshop organized by DG-AGRI and the JRC (Falkowski et al., 2017) focused on the existence of “unfair trading practices”, a major cause of distorted information. The workshop on ‘Market Transparency’ intended to go further, with the specific task of assessing more general conditions under which transparency on markets in which supply chains play a key role could increase efficiency and fairness to all parties. This aspect introduces another dimension to the issue of transparency: beyond information provided by prices, organizational arrangements structuring the market matter! As pointed out by Fausti (9), concentration at different levels of the supply chain might reduce the information available and challenge its reliability. In his words, “thinning markets reduces the accuracy of price discovery,” a point he illustrated with data from USDA about the rapid and high level of concentration (as measured through CR 4) in steel and heifer slaughtering, boxed beef production, and to a lower extent hogs slaughtering. Concentration, particularly when it happens at the retailing level, also goes hand-in-hand with the development of extended and complex supply chains that might increase the lack of transparency ... or the perception that there is a lack of transparency. The public consultation of the DG-AGRI (Lima, 0) showed how important this perception is, not without factual support. For example, data collection through the so-called Georgia Dock Index in the US poultry industry revealed how concentration might greatly influence not only the modalities through which information is collected (more on this below), but also its reliability (Bates, 2).

The third condition, **usefulness**, has also different dimensions. As already pointed out by Hayek, the capacity of transactors to process and transform available information into knowledge is crucial. Brooks (1) indirectly pinpointed this issue when he noted that: “Transparency reflects the ease with which information is available.” ‘Ease’ can be understood as referring to the capacity for market participants to access and process...
information in order to appropriately decide and monitor transactions. This aspect suggests another dimension of usefulness: timeliness. Indeed, the delivery of reliable information on time is crucial and varies depending on the approach and purpose that information is used for. Several discussants pointed out this issue (see also Arbia et al., 13; and Ciaian, 14). The usefulness condition might be particularly acute in supply chains. Indeed, timeliness also concerns the sensitive issue of the potential asymmetry in access and usage among interdependent parties. As noted by many contributors, a lot of attention has been devoted so far to availability of information on prices. A key challenge might well be the limited and poor usage of information already available.

In the continuation of the discussions and debates on ‘unfair trading practices’ (Falkowski et al., 2017), these remarks suggest:

Message # 2: Transparency is multi-dimensional. It refers to information that combines complex knowledge with potential sources of asymmetry among parties, making even more crucial conditions of availability, reliability, and usefulness (including timeliness) for all parties to transactions.

2.3: What information makes markets ‘transparent’?

Underlying the discussions reported above, there was clearly a central issue that fed heated debates: what information other than prices paid to producers or by consumers is needed to make transactions transparent in complex market structures. Such supplement of information is asked for by transactors as well as policy-makers. The hot question is of course: which extra information should be made available?

As already mentioned, economists have long emphasized and often still stick to the idea that price is all that is needed. Following this logic, the problem with supply chains is the missing information on prices at intermediate steps, so that this is where the effort should go. However, several contributors and discussants pointed out that volatility of prices in the agricultural sector indicates the need for a wider set of information. As rightly emphasized by Bicknell (10), referring to his experience with the dairy milk industry in Great Britain, what matters for partners to face price volatility is the availability and knowledge of costs and their distribution along the supply chain. This request largely remains a good wish. When it comes to agriculture and the agri-food sector, very few countries go beyond collecting information on price at the farm gate or at the end-consumer’s level. In the European Union only France and Spain collect data allowing “comparison of prices and costs at stages of the supply chain” (Brooks (1), his emphasis).

A good illustration of the benign neglect of non-price information and its consequences was provided and discussed through the example of the pig meat sector, a major market in Poland (Latkowska, 7). Data made available are almost exclusively about prices: purchase prices of pig carcasses according to SEUROP classification; prices of piglets on marketplaces; selling prices of pig carcasses, loins (middle part) bone-in, processed products (cooked ham and a specific popular sausage (toruńska)); and some information about volume (turnover). Interestingly, and this aspect is discussed below (4.2), these data are collected and provided by the entrepreneurs who purchase and slaughter pigs; by entrepreneurs who owned the abattoirs slaughtering pigs; and/or by entrepreneurs producing carcasses, pig meat or processed products. For piglets, prices are collected by advisory services and sent to the Ministry. All in all, this information covers about two-thirds of total pig slaughtering in Poland, and it is posted on a weekly basis on the website of the relevant Ministry. The absence of other information, particularly about costs in the intermediate steps of the supply chain, has been a continuing source of complaints. Similar dissatisfaction was reported by several participants, e.g., regarding beef or dairy milk sectors.

This absence of data on costs along the different stages so that ‘fairness’ of prices at the farm gates or at the end-consumer’s level could be properly assessed is a recurrent
complaint in supply chain systems. Looking at data available from Eurostat, complemented by information collected by DG-AGRI and some stakeholders (mainly on a voluntary basis), Haniotis (3) noticed that information coverage is quite limited, with the possible exception of the “Market Dashboards” for fifteen sectors monitored by DG-AGRI. These deficiencies would be particularly acute when it comes to input statistics (regarding machinery, seeds, etc.) as well as output at the different steps of the supply chains. Limitation on information available and its consequences for operators is confirmed by observations at a more micro level. For example, Hanrahan (11) pointed out that information in the Irish beef market, particularly on physicals, is not only very limited but also not well structured, which challenges its usefulness to decision-makers.

Figure 5, based on a Wageningen ongoing project commissioned by the JCR-EC illustrates the limited type of information collected in EU so far.

**Figure 5: Information collected along different stages of supply chains**

![Figure 5: Information collected along different stages of supply chains](Image)

In that respect, Spain and France are exceptions. It has been argued (e.g. Testut-Neves et al. 6) that the extensive collection of data on costs, following the creation of the French observatory on prices and margins in the food chain (Law from 2011), provides information that can help managing volatility and build consensus among parties in the supply chain system. Looking at the Spanish experience, McCorriston (4) noted that the availability of analysis covering price structures for 26 products at farmer, wholesale and retail levels and of information on the main factors determining prices has “foster[ed] dialogue and collaboration among stakeholders at all stages of the food chain with formal meetings and seminars and conferences.” These statements were confirmed by Bicknell (10) who pointed out that access to data on production cost is essential for developing transparency and mutually beneficial pricing mechanisms. So, more fluidity of markets would go hand-in-hand with improved relationships among parties.

However, extending the set of information collected does not come without drawbacks ... and costs, all of which needs being assessed in relation to the usefulness of information collected (more on this below). In most cases only price levels or indices are reported, without much context or explanation, opening door to misinterpretation (Gardebroek, 12). Collecting data on contexts (e.g., concentration indices, number of stages and actors, etc.) may be crucial for appropriate interpretation and, therefore, for market transparency. Moreover, available data are often collected via existing channels, e.g., statistics office, marketing board, and various agencies, without much coordination and with sources not always clear, so that the relevance of data can easily be challenged. In most cases, this heterogeneity of sources does not come from intended biases, but
corresponds to the different goals that collecting organizations are targeting, the users they intend to satisfy, etc. For example, some organizations may focus on providing timely information on market prices to farmers, other may intend to deliver information to protect consumers against excessively high prices, and still others may primarily deliver information that are relevant for policy-making. This heterogeneity can well amplify the lack of contextualization needed for appropriate interpretation, generating specific obstacles to transparency. Hence

**Message # 3:** There is a need for more structural information, going beyond the almost exclusive data on prices collected at the farm-gate or the end-consumer’s level, particularly when supply chains are the prevailing organizations. However, deciding which information should be selected to reflect this complexity at reasonable costs requires well-defined goals, a clear understanding of the context that give sense to this information, and a view at the modalities through which data are collected ... and used.
3. SHOULD DATA COLLECTION BE EXTENDED? FOR WHOM?

Diversifying available data and taking on board the variety of sources that could provide new data raise important questions regarding the motivation, cost, and ultimate impact of more extensive information on ‘market transparency.’ There has been a propensity since Hayek’s paper (1945) to consider data equivalent to information that would spontaneously generate knowledge among agents. However, as noted by Arbia et al. (13), there are differences between data and information, and between information and quality of information. Policy-makers must be aware of the resulting difficulties and constraints. Collecting data is not synonymous of providing adequate information. Even more importantly, as emphasized by several contributors, information must be delivered in a format that allows users to make it relevant for the purpose at stake.

3.1: Why?

There was a general agreement among participants to the workshop that more information can make the operation of markets more transparent. However, when it comes to prioritizing what information would be most valuable to reach that goal, there is a significant variety of answers, partially shaped by the motivation of the different parties (Lima, 0).

Brooks (1) emphasized upfront the gains that can be expected from more information on prices along the different stages of supply chains. According to his contribution: “1. Improved price discovery can raise efficiency, dampen price volatility and reduce waste; 2. It can redress unequal bargaining power that derives from asymmetric information; 3. It can contribute to the identification of price collusion and other anti-competitive practices.”

Partially in line with these arguments but with a different emphasis, promoters of more extensive and diversified information, going beyond data on prices, developed three series of arguments. (1) Extending the set of information available, particularly in the intermediate stages of supply chains, would allow more fluidity in the operation of markets; (2) it could help reducing asymmetries in bargaining power, thus levelling the playing field among participants to supply chains and, more generally, to markets; (3) It could provide important tools to design more relevant economic policies, going beyond anti-competitive practices. For example, Russo (15) and Chambolle (5) pointed out the gains that could be expected in decision-making and risk management among parties to the market as well as among those designing and monitoring agricultural policies.

However, several contributors also noted potential drawbacks, a challenge to ‘WHY’ more extensive information would be needed. These drawbacks can partially explain why retailers participating to the public consultation (Lima, 0) and to the discussion in the workshop were reluctant to mandatory collection of more information on prices and costs throughout the different stages of supply chains. Four points emerged from different contributions (e.g., Fausti, 9; Bicknell, 10; Gardebroek, 12; Russo, 15) that particularly need careful consideration. First, even if data collection remains focused on prices, such information can be misleading since prices are only a subset of the relevant information on ‘thin’ markets. As already mentioned in section 2, market structure matters when it comes to the reliability, relevance and interpretation of information collected. Second, and partially related to this market structure issue, benefits may be unevenly distributed. For example, Russo noted that ‘Transparency benefits for farmers can be small if buyers have strong bargaining power under perfect information” (Russo, 15). Third, the quality of information collected and made available as well as its diversity matter as much as its extension (Arbia et al., 13). For example, extensive data on prices might be of little help to farmers or even participants to intermediate stages of the supply chain if strategic information about costs is missing (Testut-Neves, 6; Latkowska, 7; Russo, 15) or if information is delivered at such an aggregate level that it makes little sense for operators at the regional or local level (Arbia et al., 13). Fourth, and this issue generated vigorous debates in our workshop, there might be ambiguous effects of more extensive
information on transparency and the building of a more competitive environment, for example if disclosure facilitates explicit or implicit collusion among the best-informed parties, or if making more information available to competitors opens room to more concentration.

The lessons from these intense discussions can be summarized as:

**Message # 4:** More extensive and varied information can improve transparency and competitiveness, but there is a need to prioritize information to be collected. In doing so, motivation must be carefully examined. Indeed, externalities coming out of extensive disclosure are not well-known. Ideally, it should benefit all parties along the supply chain. However, it might also introduce distortions (e.g., collusion, concentration). What information is useful, why, and to what party (-ies) therefore require careful consideration.

### 3.2: For whom?

Indeed, the intense discussions surrounding these sensitive issues suggested that ‘what’ information and ‘why’ it should be more diversified cannot be dissociated from looking at the other side of the picture: who shall potentially benefit? This question connects to the very important problem of users and usage of information. Too often, statements about the virtues of market transparency ignore this issue. However, as pointed out by Gardebroek (12), stated objectives of collecting data are often not in line with their actual collection, and even more so about their relevance for different categories of users. What do we know about who actually use data on food prices and margins? Do farmers actually consult available data when making their decisions? Does industry use them? Does information serve policy-making and feed research oriented towards safeguarding well-functioning markets?

A brief review of the potential beneficiaries designated in various contributions shows the need to pay more attention to this aspect than usually done.

First, we would expect private agents engaged in transactions to be the main target and beneficiaries of more extensive and reliable information. It should be particularly so in the context of supply chains, since these organizational arrangements make transactions embedded in a sequence of transfer of rights that are very imperfectly captured through the standard market signals (prices), a point made by several contributors (e.g., Brooks (1), McCorriston (4), Chambolle (5); Bicknell (10), Hanrahan (11), Russo (15)). Moreover, understanding and processing information is not evenly distributed among parties and can even lead to increase asymmetry in bargaining power. For example, Hanrahan (11) emphasized how challenging can be the processing of rich data sets for farmers; and Chambolle (5) noted potential biases that may result in the relationship between producers and retailers.

Second, consumers are often assumed to be major beneficiaries of increased market transparency. Presentations and debates at the workshop did not pay much attention to that aspect, likely sharing this assumption. At the end of the day, we did not make clear what type of information is the most relevant and useful for consumers when they have to allocate their resources in sorting their consumption basket. Interesting side remarks pointed out unexpected beneficiaries on the consumers’ side. For example, Sheats (8) noted the usefulness of data available on food price for planners of school lunches! However, a quick review of studies on the welfare effects of transparency for consumers showed that these studies are constrained by drastically restrictive hypotheses and deliver ambiguous results (Russo, 15). Clearly we need more studies on the impact of more extensive information on consumers’ choices.

Third, several contributors and discussants pinpointed that policy-makers might be the most extensive users of data collected on agriculture and agri-food businesses. Indeed, as well indicated by Haniotis (3) in his overview of market transparency issues in the EU,
policy-makers heavily rely on information thus collected when it comes to assessing and reorienting existing policies (e.g., CAP reforms), negotiating trade agreements, managing and allocating risks when facing sectoral crisis, etc. This important role of information for policy-makers was also pointed out in many contributions focusing on specific markets. For example, Latkowska (7) refers explicitly to the usefulness of information collected on the pig meat sector in Poland when it comes to preparing briefings for the government, helping the minister to prepare proposals, etc. But she remains vague, as many other participants did, on the usefulness of these data for other potential users, vaguely identified as ‘markets participants.’

These observations suggest another message:

**Message # 5:** More attention should be paid to the actual users and usage of already available information. When it comes to allocating resources, it might be as important to focus on building the capacity to use available information as extending the existing information set.
4. AT WHAT COST? BY WHOM?

Deciding to allocate more resources to the collection and diffusion of information raises other questions. At what cost can the set of existing information be extended? And who could most efficiently collect and process information? Shall it be through public organizations? Is it the best way to spend public money? Or should collection of information be delegated to private organizations? And how reliable can be this solution? Although useful insights were provided during the workshop, these questions clearly remain to be explored further.

4.1: At what cost?

As Chambolle (5) reminded us, “In decision theory, the expected value of perfect information (EVPI) is the price that one would be willing to pay in order to gain access to perfect information.” But actors do not live in that perfect world. They live in a world of imperfect information in which improving information has a cost that imposes strict limitations. The problem is that little is known about the cost of collecting information, and even less so about the cost of processing this information in a way that would make it easily available and relevant to users. Gardebroek (12) reports a quite unique study, commissioned by the Dutch Ministry of Economic Affairs (Oosterkamp et al., 2013a,b), complemented by an ongoing study at Wageningen University, commissioned by the Joint Research Centre of the EC, that intends to approximate the costs of alternative solutions chosen by EC members to collect information in the agriculture sector. Notwithstanding debates on the precision and relevance of data on which these studies are based, there is a trend that clearly suggests that most countries in the EU have chosen to collect data at low costs. In the two countries in which more extensive data on prices and margins along the supply chains are collected (Spain and France) the preliminary results of the Wageningen study reported by Gardebroek suggest that cost is significantly higher, on average about one million euros or more depending on the extension of the program.

In the knowledge-based world in which we live, there is a push towards making increasingly extended information available in agriculture and the agri-food industry as in all other sectors of human activity. But is it worth the price? Does more extensive information improve market transparency? And does it have a significant impact on efficiency? Answering these questions is not obvious, as illustrated by the debates in the workshop. One interesting argument developed by some participants in favour of more and better information is that this could not only help decision-makers (including policy-makers...and consumers at the end of supply chains), but also play an active role in building a common vocabulary among participants to supply chains. Building consensus about the information needed and the modalities of its collection could support the development of shared view among stakeholders, thus potentially reducing transaction costs. Following the presentations by Testut-Neves (6) and Gardebroek (12), who suggested that these discussions among parties to collect more extensive information could open the way to successful negotiations and consensus, thus lowering transaction costs and making markets more efficient, some discussants pointed out that this could also leave way to collusion! Whether this strategy to decide and collect information is beneficial remains an open question. Hence:

Message # 6: institutional actors face a dilemma between information not detailed enough and/or not updated at adequate speed to be useful to decision-makers, and the increasing costs of extending and processing the data set in a meaningful way. In making decisions about the resource needed to improve market transparency, equilibrium must be found between the marginal value of extra data for users versus the costs to be passed not only to these users but also to consumers and taxpayers.
4.2: By whom?

One aspect of the cost issue concerns the modalities, and more specifically the organization(s) in charge of collecting data and eventually processing them. In the European Union, the creation of the Common Agricultural Policy has been accompanied by the development of data collected by public authorities, mainly national governments or agencies of the European Commission (Haniotis, 3). In the US, there has been the long-term role of the Department of Agriculture, and the exceptional set of data (with details county by county) accumulated through the Census initiated in 1790 and later complemented by the distinct US Census of Agriculture which is held every 5 years.

However, in both cases (EU and the USA), the picture is actually more complex, with a significant share of data collected through a variety of actors: agricultural organizations, private firms, etc. A quick inventory by Gardebroek (12) of the different organizations and channels through which information is collected in the European Union illustrates the diversity of actors involved and the variety of solutions across member states.

### Table 1: The diversity of sources of information in the EU

<table>
<thead>
<tr>
<th>Public actors</th>
<th>Associations &amp; lobby groups</th>
<th>Industry &amp; private firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics office</td>
<td>Farmer associations</td>
<td>Magazines &amp; websites</td>
</tr>
<tr>
<td>Ministries</td>
<td>Trader unions</td>
<td>Market intelligence companies</td>
</tr>
<tr>
<td>Price &amp; margin observatories</td>
<td>Supply chain associations</td>
<td>Auctions and commodity exchanges</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National level</th>
<th>EU Food price monitoring tool</th>
<th>Farmer associations</th>
<th>Magazines &amp; websites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EU market observatories</td>
<td>Trader unions (IGC)</td>
<td>Market intelligence companies</td>
</tr>
<tr>
<td></td>
<td>Eurostat</td>
<td>Supply chain associations</td>
<td>Commodity exchanges</td>
</tr>
<tr>
<td></td>
<td>FAO, OECD, World Bank</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Gardebroek (12)

The different organizations involved sometimes work according to national guidelines or to meet national goals. However, many operate primarily to satisfy the needs of the specific actors financing their activities. Part of this diversity can be explained by the variety in the food industry structure across countries, for example the specific proportion of specialized vs. part-time farmers, the importance of PDO production, the respective role of export vs. domestic markets, the significance of certain products, the degree of concentration in processing and retail, etc. Nevertheless, this diversity often makes the comparison of data difficult, due to differences in goals, terminology and methodology.

A comparison between France and Spain on the one hand, Germany on the other hand illustrates some of these difficulties. France (Testut-Neves, 6) and Spain (McCorriston, 4) have initiated observatories collecting extensive information on food price and margin. This is done through separate and relatively autonomous public entities collecting, analysing and delivering data and providing additional information on supply chains through specific studies. An important aspect of the whole process is the involvement of
various stakeholders at the different stages of the elaboration and implementation of programs to collect information, thus contributing to the reliability of data and playing an active role in building consensus on what is the situation for specific sectors at specific points in time. The result is the availability of quite detailed information, including about supply chains, although with significant delays. By contrast, in Germany sources of information, whether public or private, rather provide aggregated data (Gardebroek, 12). On the public side, a Federal Institute collects information mainly on global prices and volumes, and the statistical office delivers monthly industry and consumer prices for agriculture as for all other activities. On the semi-public and private side, specialized entities collect more specific information. A major contributor in that respect is AMI, which stands for Agrarmarkt Informations, a party with a private status that has as its main shareholders agricultural publishing companies and major associations of agriculture - e.g. Farmers Union, Union of Agricultural Marketing Cooperatives. AMI collects and analyses important quantitative market data such as weighted prices, cultivated areas, production and stocks. Other organizations also contribute to data collection (e.g., FiBL, which collects information on organic agriculture in five countries including Germany).

These examples and the synthetic table (Table 1) provided by Gardebroek (12) illustrate the complex combination of public, private, and hybrid modalities in collecting information. These variations partially correspond to the diversity of purposes and priorities of the ‘donneurs d’ordre’ (e.g., is the priority the timely delivery of information to farmers? the protection of consumers? Instrumenting policy-makers?). A less noble motivation might also be budget constraints. As noted by Baffes (2), “Declining budgets have “starved” Agencies (e.g., International Organizations, relevant Ministries, as well as statistical agencies, both national and international) that could enhance quantity and improve quality of information.”

The example of the US is particularly interesting in that respect since it presents a long-term mix of public and private reporting, with the active collection of data by public entities (mainly through the Census and the Department of Agriculture) as well as private ones.

Regarding the role of public entities, Fausti (9) reviewed the significant evolution of the US system over time. According to his presentation, empirical studies suggest that the initial Voluntary Price Reporting (VPR) may have been biased, minimizing volatility of prices and hampering transparency, while the more recent Mandatory Price Reporting (MPR), implemented after 1999, improved price transparency and price discovery. This suggests a superior efficiency of mandatory systems, although empirical evidence also suggests that market structures matter when it comes to the reliability of reporting in both cases. For example, it was mentioned that packers’ ability to exert oligopsonies’ power has increased under MPR, leading to potentially less transparency. This observation also concur with the issue already raised above: in certain conditions, can transparency have a negative impact, favouring a more concentrated and less competitive market structure?

Sheats (8) confirmed this concern. According to his analysis, part of the problem in the initial VPR is that it was based on cash or negotiated transactions, with price determined through buyer-seller interactions, mostly in public auction venues. Over time, these negotiations moved from the public arena to private agreements between buyer and seller conducted at the point of production – direct marketing. This evolution, also observable in other contexts, made it increasingly difficult to conduct price discovery. In the late 1990s, at the time of the so-called “hogs’ crisis”, about 70 percent of hogs were procured through alternative marketing arrangements at prices not available to the voluntary USDA market reporting program. A similar situation existed in other livestock and meat markets. The 1999 legislation adopted by the US Congress intended to change this situation and to increase livestock market transparency, making price reporting mandatory for livestock transactions (later extended to other segments of the meat market (e.g., lamb). However, the new reporting system depends largely on packers,
importers, and companies slaughtering a significant number of animals. The increasing consolidation and vertical integration among these actors and the accompanying confidentiality requirements is hampering the ability and willingness of these companies to publish data.

A similar conclusion was reached by Baffes (2) in his short review of the role of Price Reporting Agencies. These agencies have mostly developed in the energy and metals sectors and not that much in agriculture if one excludes the role of USDA which is not really a PRA. Baffes discussed the problem of index accuracy in PRA, which mainly “originate from the information PRAs receive from the commodity trading companies.” As a result, the reliability of information collected through PRA depends on market structures: in cases of small numbers (concentration), there are high risks of biases, as so well illustrated by the Georgia Dock Index for chicken, which is reported to have biased, even trafficked data for years.

**Message # 7:** There is not one single way to collect information. However, transparency requires that the methodology used by different organizations to collect and process information be available to the public (actors, researchers, policy-makers), with participation of stakeholders as a way to reach that goal and limit the potentially negative impact on competition. When it comes to collection of information through private entities, market concentration is a major concern.
5. WHAT IMPACT?

The main argument for improving information relies on the expectation of positive externalities from more transparency. To support this argument, there is the need to assess the impact more transparency (or the lack of transparency) can have on markets, their efficiency, and in last resort on the well-being of participants to the supply chains, from farmers to end-consumers. The general wisdom is that expected benefits are “--For private agents: to improve efficiency and equity; --For public policy: to guide policies that can foster a competitive, innovative, sustainable and resilient food system” (Brooks, 1). However, we have already mentioned participants who pointed out the possibility of negative externalities from more transparency (e.g., facilitating collusion, favouring concentration). Several empirical studies reported in the workshop (McCorriston, 4; Russo, 15) also suggested that the impact of more transparency on market structure and/or on price paid by consumers is not always what was expected. The only convincing answer to these doubts would be to better understand the conditions under which drawbacks develop and to better assess the positive as well as negative effects of more transparency at the empirical level. Studies are still very short in that respect (Russo, 15). However, interesting elements were pinpointed by several participants.

5.1: Direct Impact

In her contribution, Chambolle (5) focused the attention on the impact of more transparency on prices in the relationships between producers and retailers. In doing so, she pointed out upfront that the bright side is not without dark effects. On the bright side, we expect improved information and better disclosure to increase market efficiency by reducing uncertainty in the decision-making process and reducing asymmetry among parties to a transaction. However, transparency can also carry inefficiencies: it may well restrict the exercise of competition (static effect) and increase the risk of collusion (dynamic effect). Using as “natural experiment” a French Law (LME) adopted in 2008, which restored the negotiability of tariffs and authorized price discrimination under conditions of disclosure, Chambolle and her co-authors (M.L. Allain and S. Turolla) assessed empirically the effects of this institutional change on prices for National Brands and Private Labels for 173 categories of products. The main observable effect has been a small decrease in price for 82 % of all 173 products over a two years period after the adoption of the law, and a small decrease in price (2.33 %) for National Brands in comparison to Private Labels, with no clear conclusion on the profit-sharing effect and on the possible correlation between price decrease and changes in the market structure. However, a significant concentration can be observed at the buying level, with the creation of large buying groups ending up in a very high concentration ratio (CR4) of 92.5 %. She concluded, referring to a recent study by the French Competition Authority (“Avis no. 18-A-04 du 3 mai 2018 relatif au secteur agricole”) that “Detailed information about transactions and prices at the individual level might have anti-competitive effects”. This is particularly the case in situations in which information on individual transactions is made public; less so when price information is aggregated and/or disseminated, although with delays that can be significant.

A more qualitative synthesis provided by McCorriston (4) about the possible impact of disclosure –mainly on prices - similarly pointed out ambiguous effects, leading to the conclusion that “the provision of public information does not necessarily increase welfare”. Among other factors, and referring to Morris and Shin (2002) he noted that when private agents already have relatively precise aggregated information, public information can be harmful insofar as private agents can over-react to the public signal. He also emphasized ambiguous effects at the micro level. Referring to several empirical studies (the case of gasoline, with diverging results of price disclosure depending on the institutional environment; the case of livestock meat in the US, where disclosure weakened competition and translated into substantial price increase), he noted that disclosure may lower search costs (static effect) but may also facilitate
coordination across firms, actually feeding collusion and pushing prices upward (dynamic effect). However, McCorriston also referred to another and more extensive study (Ater and Rigbi, 2017) that concludes otherwise. Following a change in regulation that made price disclosure in the Israeli supermarket industry compulsory, these authors examined the impact on all products sold in supermarkets, thus going beyond the impact of disclosure on prices of a single sector, as in the cases mentioned above. The main insight of this study is that both prices and price dispersion fell following price disclosure.

Figure 6: Potential impact of price disclosure

Source: Ater & Rigbi (2017), quoted in McCorriston (4)

McCorriston (4) also summarized some lessons from studies on the impact of price disclosure on farmers and farmers’ market. The key idea behind the endorsement of many mandatory information reporting programs is that they would help small farmers to better compete in an increasingly concentrated sector. However, this impact is limited: while information at farm gates and at end-consumers’ level is generally available in developed countries, what is going on in intermediate segments along the supply chain, from producers to groceries, remains much more ‘obscure’. Referring to data collected by the OECD, he emphasized that getting information on price transmission along the supply chain –mainly at the stages involving food processors and retailers- in order to better deal with Unfair Trading Practices is considered a top priority in all countries surveyed, a demand confirmed by the public consultation opened by the DG-AGRI in previson of our workshop (Lima, 0).

The negative impact of lack of transparency along the supply chain has also been pointed out by other contributors and many discussants. For example, Hanrahan (11) reported the ongoing tensions between Irish farmers, meat companies, and retailers about the deficit of information on margins along the supply chain. The ‘volume’ of information available declines quite significantly when going down the supply chain, with very little data available at meat processing/wholesale and retail market levels. In his discussion of this issue, often at the core of controversies regarding the sources of unfair trading practices, he raised a crucial question: could the absence/low level of trust along the Irish beef supply chain be improved with more information on margins in the meat processing industry and more information on farmer/processor shares of the beef export?

This question relates to a more general issue: what is the possible impact of more transparency on the behaviour of agents? Bicknell (10) argued that disclosure in the UK of wholesale prices and average farm gate prices showed they evolve closely to each other, with a delay of adjustment of about 3 months at the farm gate. As a result, it made it difficult for farmers to claim they have been squeezed, thus making smoother their relationship to other parties in the supply chain. Differently but in a similar vein, Testut-Neves (6) and several participants pointed out that the collection of more extensive information and the involvement of stakeholders in that process can facilitate
the development of common knowledge that ease negotiations among parties, thus lowering transaction costs in the long run.

Another issue that remained open throughout the workshop is the potential impact of more information and more extensive disclosure on consumers’ behavior. Surprisingly, this aspect was not much discussed, maybe because there was an underlying assumption that consumers would automatically benefit from more extensive and better diffused information. However, beside the possibility of biases or distortions that disclosure could introduce on market structures, with potentially negative effects on prices paid, there is also the need to take into account the limited capacity of consumers to efficiently process denser information. Bounded rationality is key issue here, although this was not discussed in our workshop.

Message # 8: More transparency implemented through extensive information and disclosure does not in itself automatically overcome effects coming from other market imperfections (e.g., market power). It does not automatically generate win-win outcomes. Under certain conditions, transparency and extensive disclosure might even produce negative effects. Extending standards of transparency and disclosure of information is beneficial but must be tempered by taking into account its effect on market structures and on agents’ behaviour.

5.2: What impact can have new technologies?

One question that emerged from our workshop was whether the development of new technologies and related means of communication could impact conditions of transparency, and ultimately the very organization of markets. This impact could come from more information available at a lower cost and/or from new means to compete. It is already obvious that internet has considerably increased the volume of information available as well as access to that information, with a strong impact on the behaviour of agents at all stages of the supply chains. Two contributions looked at more recent changes that could amplify this impact.

Arbia et al. (13) suggested that using new technologies may have a major effect on the volume and, above all, on the quality of information collected and its availability to final users. The central point they made is that enhancing the quality of information might have a much bigger impact than simply extending the set of information available and that new technologies allow major push in this direction. They illustrate through the example of spatial data. Indeed, data aggregated at the national level often misrepresent the actual information, often regional or even local, that matters most to users. Using data about food prices exchanged among citizens (farmers, food traders, consumers) through their mobile telephones, they initiated an experiment in ‘crowdsourcing,’ drawing a detailed spatial map of maize price traded in several locations of Nigeria. Although aware of the possible biases coming out of the self-selection process involved in the way data were collected, on a voluntary basis, these contributors argue that this ‘spatial’ methodology allows the production of timely and reliable price data. Statistical inference would be facilitated as well as overall quality assessment, improving the global quality of data and, above all, making them much more relevant to users.

Beside quality and availability, two problems repeatedly raised by contributors and participants to the workshop are (1) the lack of information along the supply chain; and (2) the speed at which information is available. In an exploratory paper, Ciaian (14) examined the possibilities opened by the introduction of blockchains to face these problems. Experiments are already on their way in agriculture and the agri-business (e.g., a ‘fairchain’ coffee brand, the development of ‘olivacoins’ for olive oil, the tracking of the provenance of turkey products, the experimental collaboration between IBM and Walmart to trace the origin of pork from China and mangos from Mexico, etc.). Advantages of blockchains come from their capacity to register all transactions and to store their entire history, allowing full and near real time access to transactions and
tracking information beyond prices at all stages in the supply chain, and at low costs thanks to the elimination of intermediaries. So, is the future of market transparency embedded in blockchains? Ciaian pointed out the many challenges this solution still faces, among them: a) the digital signature that must be associated to all physical characteristics of products to be traded; b) The slowness of blockchains in processing transactions (for the time being they can process 10 transactions per second; Visa, for example, can process between 5,000 and 8,000 transactions per second); c) The need for technological developments that would allow connecting different blockchains; d) the required network effect (collaboration of all parties) on which blockchains depend; e) The risk of collusion, which cannot be underestimated; f) and above all the key issue of Cybersecurity. Besides these relatively technical challenges, there is also the more general societal impact, going far beyond agriculture, that blockchains may represent for millions of intermediaries, for existing regulation, and for the tight institutional harmonization it would require across countries.

Message # 9: Although they still remain at the experiment stage, prospects opened by the use of new technologies and transformation of their usage suggest potential for collecting and diffusing huge quantity of information previously not available or hardly accessible. The question of their impact on the organization of the sector and the behaviour of agents involved remains a major issue to be explored.

5.3: How to diffuse information? How to use it?

However, this potential abundance of data may as well amplify existing problems about their usage. On the one hand, proliferation is not synonymous of reliability! Data need to be checked, transformed into manageable information, and processed appropriately in order to become knowledge. On the other hand, even if these steps are properly satisfied, the question remains of what users do with this information. Usage is a very central issue with respect to transparency, and would likely have deserved more extensive consideration in the workshop. Nevertheless, important insights were provided by several participants.

As pointed out by Sheats (8), “One of the greatest challenges created by Livestock Mandatory Reporting is the overwhelming amount of market data it provides – far more than most non-market analysts can absorb or understand.” The example of the ‘livestock dashboards’ developed by USDA and that partially rely on new technologies of communication Illustrates the problem. Dashboards were introduced to make data more accessible, more rapidly, and more easily to parties to transactions. However, Sheats rightly emphasized that most producers lack the knowledge necessary to process this complex information and the basic understanding of the usage of meat prices to price live animals.

Processing data to make them useful is already very time-consuming, which might be dissuasive to users. In principle, websites allowing price comparison should help lowering search costs, thus favouring lower prices (McCorriston, 4). And they do so for many products and services, as we all know as consumers. However, all of us have also experienced the difficulty and time spent in identifying relevant sites and interpreting correctly the data they provide. As pointed out by Stigler long before the internet revolution (Stigler, 1961), most of the time search costs prevent reaching the optimal solution! Moreover, because information that needs being collected and processed along supply chains is complex, timing of delivery is a major issue. As noted by Gardebroek (12), referring to Oosterkamp et al. (2013) and their estimation of the French and Spanish observatories, the time needed to report prices and margins along supply chains challenges their usefulness for decision-makers. Indeed, notwithstanding the legitimate debate about methodology in use, a major difficulty might well be the delays in making relevant data available. And one could add another difficulty, imposed by the limited human capacity to use available information, whatever its richness, to make decisions (the problem of bounded rationality, raised by Herbert Simon decades ago –see Simon,
1957, 1979). New technologies may help solving the first problem, speeding up the collection and processing of data; there is no indication that they could solve the second problem!

In a sense, these difficulties can be related to the issue of costs, discussed in section 4.1. Baffes (2) suggested that when decisions must be made about extending the information set and investing in its disclosure, it might be relevant to look at their “rate of return.” Taking a controversial position, he argued that the rate of return of increased accuracy tends to be relatively low compared to the rate of return from the diffusion of basic information in high profile news outlets.

**Message # 10:** When considering extension and increased reliability of information as means to improve transparency, the limited capacity of users to process that information must be kept in mind. In that respect, the rate of return of resources spent on diffusing available information and informing/training users to take advantage of it might be higher than continuously extending the data set.
6. CONCLUSION

'Market transparency' is a challenging issue. It is so with respect to its content, the modalities of its implementation, and its impact. As noted by McCorriston (4): "Both theory and emerging evidence suggests this issue is not clear-cut: It is a challenge to standard assumptions about the benefits that transparency would bring...there are potential downsides associated with greater transparency, even if there are gains, they should/could be quantified." The workshop helped identifying aspects in which improved transparency provide strong support to market efficiency, but also pinpointed important loopholes and potential drawbacks.

6.1: Black holes in transparency

Several contributors and discussants rightly emphasized the significant knowledge that public institutions and private organizations of the EU have accumulated about structures of agri-food markets and prices, especially at the farm and consumers’ levels.

However, even sticking to the standard view of price as the key variable to inform market transparency and rational choices, substantial black holes remain regarding knowledge of price formation and transmission, particularly along the intermediate stages of supply chains. McCorriston (4) summarized this issue in the following figure:

**Figure 7: Problems of price transparency along supply chains**

There was a general agreement in the workshop as well as in the public consultation opened by DG-AGRI (Lima, 0) that further exploration of these black holes and improved information about prices in intermediate stages of supply chains are needed to increase transparency. However, this view had its challengers. Sceptics pointed out the cost of extending the existing data set and processing the information thus acquired, with a possible low ‘rate of return’. Also, numerous participants took note of the possibility of a negative impact of extensive disclosure on competitiveness. In their view, and they referred to empirical studies supporting their concern, there are conditions under which ‘transparency’ of transactions may generate effects opposite to the expected ones, e.g., favouring collusion and concentration.

(1) A challenging lesson from the workshop is therefore that if there is a need for increased price transparency, particularly at the intermediate levels of the supply chain, its impact on competitiveness and efficiency needs to be cautiously assessed.
6.2: Challenges related to non-price dimension: market structure

There was also a general agreement, in line with the analysis submitted by the Agricultural Markets Task Force in its report (2016) that transparency cannot be limited to price disclosure at the farm gate or the end-consumer level, or even to information about characteristics of products. Most participants emphasized that transparency requires combining knowledge on the structuration of supply chains as well as on price formation and transmission along these chains, taking into account the important variety of situations in different sectors and countries.

Haniotis (3) emphasized upfront that beyond the already extensive information available there are possible developments that could benefit transparency. **Upstream,** decision-makers would be better-off with a better knowledge of cost changes that can impact competitiveness and productivity; of long-term changes in trend; and of technological shifts. **Downstream,** all parties to the supply chain, including consumers, could benefit from a better break-down of value added at different stages of transformation; from more detailed data on price transmission, available with shorter delays; and from information going beyond standard products to better capture quality differentiation.

One lesson from other contributions in the same direction is that there is the need to know how markets are actually organized and monitored. Brooks (1) noted the gap between agricultural markets, for which extensive data are now publicly available, and food markets that remain rather opaque. Referring to the case of dairy milk in the UK, Bicknell (10) pointed out that the control over more than 50% of the milk available in Britain by two dairy buyers does not facilitate transparency, or the perception of market transparency! Similarly, Hanranah (11) noted that cattle farming, the leading agricultural activity in Ireland is dominated by four privately owned multi-plant firms. And Chambolle indicated the high concentration of retailing in France, with a CR4 of 92.5 %. As wrapped up by Bicknell (10), high concentration raises “Problems with the balance of bargaining power (Examples of unfair or unclear contract terms) [that] generate a lack of trust and transparency that discourages good relationships across the supply chain.” And Brooks (1) supported this view, noting that if the collection and diffusion of information on prices on both sides of transactions is relatively extensive in all OECD countries, the development of oligopolistic markets is an important challenge to transparency, making the effects of price disclosure more ambiguous, a point also made by Sheats (8) and Fausti (9) for the US.

(2) Another lesson from the workshop is therefore that transparency requires better knowledge of market structures in order to create a levelled field among parties to transactions. However, the variety and complexity of supply chain systems may require differentiated policies regarding the collection of more extensive information.

More or less explicitly, there was the idea that a better knowledge of market structure according to different sectors may command different strategies in the collection of information, with special attention paid to critical sectors (e.g., meat, dairy products). However, is such information-oriented strategy conceivable without introducing discrimination among parties to transactions?

6.3: Final remarks

There is already significant information on agriculture and agri-business available among the member states of EU. The development of Big Data may just add much more information ... and more complexity in processing that information. There are at least two problems involved that were discussed in the workshop: (1) How to overcome the disparity of these sources of information and make it accessible to users? (2) How to make this huge quantity of information formatted in a way that is useful for parties involved in specific transactions?
The first question very much relates to the supply side of market transparency. It has occupied a central place in the presentations and discussions of the workshop. Several contributions focused the attention on what information is already available or should be produced, at what costs, with what impact. In that context, there were quite intense debates about the costs of collecting more information (Brooks, 1; Gardebroek, 12) and even more controversial views about the impact of extensive disclosure. Chambolle (5) contrasted the ‘bright side’ and the ‘dark side’ of extensive disclosure of already existing information, while Brooks (1) and McCorriston (4) pointed out less obvious effects of extensive information that make them difficult to capture, e.g., facilitating imitation thus reducing differentiation and possibly innovation. In all cases, the underlying problem could be related to an observation made by Kenneth Arrow quite a while ago (Arrow, 1974): there is a trade-off between the benefits of collecting and diffusing more information, and the risk of negative impact on competition since once information is diffused it becomes available to competitors, thus potentially reducing competition. This effect may partially explain the reluctance to mandatory delivery of information expressed by some parties in the public consultation of the DG-AGRI (Lima, 0) as well as by some participants to the workshop, particularly retailers.

The second question relates to the demand side. What would be the usage of more information? To what purpose? Although pinpointed in some contributions, these questions may not have been addressed with the attention they deserve. As rightly noticed by Brooks (1), “Data can be misused and misinterpreted – but that is no reason not to collect data.” However, the problem may go much deeper and concern the usefulness of information already available and, more importantly, the capacity of users to fruitfully use that information. As suggested by some participants, although not that many, a key issue might be the capacity of users to process available information in a way that would allow them to make better decisions and to be in a better position in negotiating transactions.

(3) One more lesson could then be to have more resources for training parties to better understand and make more intense and better usage of information available, rather than focusing on the extension of the set of information.

The example developed by Arbia et al. (13) regarding the use of new technologies to collect and provide rapidly information that might actually be useful to all users, including consumers, suggests a path to be explored in that perspective. Another way to look at the same issue could be by revisiting the way information is collected.

(4) Associating participants to the supply chain, from farmers all the way down to consumers, to the definition and implementation of the type of information to be collected, processed, and diffused might be an efficient way to improve usefulness of information, to build trust among participants to supply chains, and to increase confidence in market mechanisms among consumers, thus lowering transaction costs.

However, as it is almost always the case with societal issues, there are drawbacks to such strategy, e.g., the risk of facilitating collusion. Once more, assessing costs and benefits goes beyond a purely economic approach.
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(0) Marcelo Lima: “Open public consultation-Market transparency key results.”
(1) Jonathan Brooks: “How market transparency can contribute to a productive, sustainable and resilient food system.”
(2) John Baffes: “World Bank experience with commodity price transparency.”
(3) Tassos Haniotis: “Market transparency in the EU. The facts and the challenges.”
(4) Steve McCorriston: “How price transparency affects markets for farmers.”
(5) Claire Chambolle: “Transparency in the relationship between producers and retailers.”
(6) Mylene Testut-Neves: “The French Observatory of prices and margins in the food chains. Results, Methods”.
(7) Joanna Latkowska: “Practical aspects of price transparency system.”
(8) Michael E. Sheats: “The role of Market information in analysis and decision-making.”
(9) Scott W. Fausti: “Effects of more transparency in the US Fed cattle market.”
(10) Phil Bicknell: “Transparency and volatility in dairy prices.”
(12) Cornelis Gardebroek: “Standards and costs of increasing transparency.”
(14) Pavel Caian: “Blockchain technology and market transparency.”
(15) Carlo Russo: “Considerations on market transparency. A literature review on pros and cons of market transparency.”

2 Slides provided, in the order of their presentation.
OTHER REFERENCES


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