

# Towards sustainability – Questions about the role of labels, scores, and informative apps for signalling the sustainability of food

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**Abstract – This paper discusses some questions related to the different possibilities of signaling food sustainability from a public economics perspective. We first insist on the recent emergence of scores and food apps for conveying information about sustainability. We show that the existence of numerous characteristics defining the sustainability of foods tends to favor a proliferation of labels, scores, and apps. This makes the involvement of public authorities hard, but necessary for conveying credible information and enabling real changes in behaviors. Labels, scores, and informative apps may improve the sustainability of food consumption, but other tools like mandatory standards and/or per-unit taxes/subsidies impacting prices appear essential for changing consumption behaviors towards the sustainability target.**

## INTRODUCTION

The sustainability of food systems appears as a central question regarding our future. The concept includes numerous dimensions related to nutrition, the environment, biodiversity, animal welfare, localness of food production, rural development, farm incomes and consumers wellbeing (Grunert, 2011). Already each of these dimensions summarizes many characteristics complexifying public choices regarding the specific characteristics to favour for improving sustainability. In this context, empowering consumers to make more responsible product choices is key to drive behavioral change, and various consumer information policies, including labels, consumer advisories, and consumer education campaigns, have been proposed. Consumers face numerous labels, scores, and informative apps supposed to help them to make informed decisions. For this paper, we consider the following definitions that will articulate the presentation. First, a label is a logo posted on the food when a set of specifications related to quality is satisfied by farmers or producers and processors. It is a binary signal of a specific quality being fulfilled. Second, a score is a rating of foods summarizing different characteristics, detailed or aggregated with a synthesized grading, and leading to various types of logos, namely “high-in” warning or recommending labels, star ratings, or traffic light labeling. Third, an informative app on smart phones allows the possible appearance of labels, scores, short or detailed information about one or several foods. The consequences of these new tools on consumers’ behaviors and markets adjustments are sometimes unknown and deserve more attention.

## SOME RECENT RESULTS AND PUBLIC DEBATES

Today, many labels are present on markets across the world for signalling various characteristics related to sustainability (Gruère, 2014). There is a context of label proliferation and a multiplication of complex issues such as the deforestation, global warming or the depletion of soil fertility requiring a synthesized information for guiding consumer choice. This explains why synthetic scores and traffic lights blossomed in OECD countries, in particular for nutrition quality. However, while in other consumer good categories, synthetic scores are quite common, alternative labels coexist to highlight various characteristics in the food market.

The debate about the scores gathering several characteristics is particularly sensitive in Europe with the Nutri-Score, which was first developed in France and expanded to other European countries like Germany. Another emblematic project is epitomized by the forthcoming Ecological Score debated in France. A decision about the selected framework will be taken soon by the Ministry of Environment (Ministère de la Transition Ecologique), based on a study conducted by the French Agency for the Environment, ADEME. Under scrutiny are 20 projects of labeling schemes that were submitted by various associations for determining which one would appear as the best system for guiding consumers. At the same time, a retail chain in Germany tested the Eco-Score as a score that aggregates various environmental impact categories into a single score, while the organic food associations favor a score that also indicates subscores on various indicators as pesticide use, biodiversity, and climate.

For consumers searching for information, these new scores can be complemented by informative apps on mobile devices. These apps blossomed everywhere in the world. In a survey conducted in France, 43% of participants declared to have an informative app on their cell phone, and 25% of participants often or always use it for inspecting the quality of products (Marette, 2022). Very few things are known about their impact on food choice and consumption and new studies are necessary to understand the impact of these apps and whether these impacts last.

## OPEN AND OVERLOOKED QUESTIONS

The idea of labels, scores, and apps is to enable consumers to an informed choice. The behavioral implications of information overload through labels, scores, and apps, however, can lead to heuristics-based decision making, in particular if information is

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presented in a form that is hard to integrate. The following lists a few questions that are important in the study for the design of labels, scores, and apps.

*Which characteristics to integrate?*

The optimal number of characteristics to consider in a sustainability label, score, or app is challenging. This question is particularly salient with the issue of deforestation that is acute when tackling environmental problems coming from palm oil in Asia, soybean in South America and cocoa in Africa. Two popular labels employed in many countries, namely the fair trade and the organic labels, do not include criteria concerning deforestation. As a result, either the fair trade and organic label would be able to evolve for integrating "zero deforestation" criteria, or it will be necessary to use an additional label dedicated to this sensitive question. This last option is likely to increase confusion in the signals sent to consumers.

A similar problem arises for the new scores trying to go beyond the nutrition aspect of food. With the possible new ecological score, Marette (2022) suggests a smaller impact compared to the existing nutrition score.

*Controversies in the ranking of characteristics*

Various studies have shown the existence of consumer segments that differ in their evaluation of sustainability aspects in food production (Waldrop and Roosen, 2020). The prioritization between the different characteristics could be controversial and hard to disentangle, depending on the agricultural system that is targeted. For example, the Planet-Score proposal characterizes the consumption of beef from extensive farming practices more favorably than the Eco-Score project does. This also means that the same product coming from different production systems will be labelled differently. These contradictions between characteristics are particularly sensitive with local food that may or may not be sustainable.

*Lack of clarity about trade-offs for combinatory scores*

Given the development of new scores combining more than one characteristic, such as nutritional and ecological aspects, it remains unclear how consumers would trade-off between these characteristics. Consumers often form a halo around positive food attributes with healthy foods being perceived as safe and sustainable, and often, these properties are associated to natural foods.

*The scores: complements or substitutes with classical sustainable labels*

The relationship between scores and existing sustainability labels needs to be clarified. Janßen and Langen (2017) indicate that it is unclear whether different sustainability aspects on labels complement or substitute each other. While a coexistence may allow for individual trade-offs by consumers, it may also lead to more confusion and frustration. An interesting example is the Nutri-Score that qualifies many traditional geographic indications, i. e., cheeses

and meats) as poor in nutritional quality (e. g., high salt content).

*Apps tend to fragment the preferences of consumers*  
Different informative apps based on different criteria will create very heterogeneous consumers, fragmenting the market and complexifying choice. Apps might create many different niche markets which could be a chance for small-scale companies. It can also lead to new market entry barriers.

*The rebound effect*

The existence of sustainability scores and apps may yield a paradoxical result due to a licencing effect in that consumers consume more of a more sustainable product, in the end causing a negative impact.

*Strategic adjustments*

Scores may lead food processors to reformulate the food recipes to assure that their products get a better label color. Threshold effects need to be acknowledged in the design of the scores and apps. In addition, a score on all products would shift the information environment not only for consumers but also for firms, creating a new strategic dimension. For example, a French retailer has recently developed a recommendation algorithm that offers to customers on its webstore alternative products, healthier and more ecological, to those they have already chosen and offer the option to replace their initial choices in their e-basket. Regarding public policies, the ranking of products may help to design policies that improve the sustainability of the food system in an efficient way (Marette et al., 2019).

CONCLUSION

Given the importance of sustainability on the policy agenda, the food label environment is changing. As labels can serve as informative nudges, it is easy to inform or to bias consumers into more sustainable food choices. The integration of different dimensions should be informed by the ecological and economic trade-offs. Also, existing labels will have to adjust their standards to take this new dimension into account.

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